Financing social protection

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Security Association

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QUANTITATIVE METHODS IN SOCIAL PROTECTION SERIES

A series on financial, actuarial and statistical aspects of social security prepared jointly by the International Social Security Association and the Social Security Department of the International Labour Office

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FOREWORD

Social protection systems are pivotal elements in national governance. They embody the social values of any society. Social protection systems have three main objectives: to guarantee access to essential goods and services for all members of a society, to promote active socio-economic security, and to advance individual and social potential for poverty reduction and societal development.[1] Social protection is an investment in the social and economic development of societies and individuals. It thus not only helps people to cope with risks and reduces inequalities, but also enables them to develop full potential for personal growth and meaningful contributions to their societies throughout their life.

At the same time, social protection systems are huge redistributive mechanisms in most economies, often exceeding 30 per cent of gross domestic product (GDP). Transfers of this magnitude require sound governance and management, in particular financial governance and economic management. Indeed, the potential contribution of social protection to individual and societal development cannot be realized if the resources that a society entrusts to its social protection system are not managed with utmost care and responsibility. Too many social protection schemes – albeit well designed – have failed because their governance and management failed.

Recognizing this fact, five years ago the Social Protection Sector of the International Labour Office (ILO) and the International Social Security Association (ISSA) embarked jointly on a pioneering endeavour: they set out to bring together and publish for the first time in the form of a comprehensive series of technical textbooks – the Quantitative Methods in Social Protection Series – the skills and techniques that are crucial for the sound financial management and governance of social protection systems and individual schemes (ranging from short-term benefit schemes to health care and pensions, as well as social assistance, anti-poverty benefits, universal benefits and community-based schemes).

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[1] Bonilla Garcia and Gruat (2003).

Foreword

This volume is the fifth in the series. The four already published are:

- *Actuarial mathematics of social security pensions* (1999)
- *Modelling in health care finance: A compendium of quantitative techniques for health care financing* (1999)
- *Social budgeting* (2000)
- *Actuarial practice in social security* (2002)

A sixth volume, dealing with social security statistics, is in preparation.

The present volume occupies a central place in the series. It is an overarching compendium that incorporates salient elements of the other volumes and deals with economic, fiscal, financing, financial market and financial governance aspects of alternative policy choices for the financing of social protection. Each society develops its own overall concept of social protection, determined by its value system and its economic and fiscal capacities. This book shows how resources can be found and managed to finance transfers that can help to alleviate income insecurity and poverty in the context of a national concept of social protection. It assists the reader to analyse the economic, fiscal and financial consequences of alternative social protection financing systems. Unlike the other volumes, which were written chiefly for quantitative specialists (actuaries, financial analysts and quantitative economists), this book is also meant for a wider audience of social protection policy analysts and planners. The ILO and ISSA are convinced that a basic understanding of sound financial governance and planning must be part of the professional education of all social protection planners.

Financing social protection is thus a compromise between a textbook for analysts and a compendium of concepts for policy planners and decision-makers. It abstains from giving policy advice and passing judgement on alternative financing options; rather, it sets out the technical characteristics of alternative financing systems and their potential fiscal and economic effects. It also spells out financial governance prerequisites for effective and efficient benefit delivery. As a textbook, it offers the reader active involvement in the form of practical assignments that review and consolidate the essential concepts discussed.

ILO and ISSA believe that books like this one always remain works in progress. We therefore encourage readers to contribute to the development of knowledge in the field of social protection financing by providing us with comments and suggestions for further work. We can thus develop together our knowledge base in social protection financing.

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ACKNOWLEDGEMENTS

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Michael Cichon holds a Masters degree in Pure and Applied Mathematics (Technical University, Aachen, Germany), a Masters degree in Public Administration (Harvard University) and a Ph.D. in Economics with a specialization in health economics (University of Göttingen, Germany). He is a member of the German Actuarial Association (DAV), and worked in the Planning Department of the German Ministry of Labour and Social Affairs in Bonn as an actuary for eight years before joining the Social Security Department of the ILO in 1986 as senior actuary and health economist. Between 1992 and 1995 he served as social security specialist on the ILO advisory team for Central and Eastern Europe in Budapest and provided social protection policy advice to governments and social partners in Central and Eastern Europe. Since 1995 he has been Chief of the Financial, Actuarial and Statistical Services Branch of the ILO's Social Protection Sector and is in charge of the Quantitative Textbook Project. He writes on financial and economic issues related to social security, with occasional excursions into governance and, increasingly, the global financing of social protection. He has undertaken and supervised technical cooperation assignments in social protection in over 30 ILO member countries worldwide.

Wolfgang Scholz holds a Masters degree in Economics (University of Bonn, Germany). From 1978 to 1994 he held different posts in the Planning Department of the German Ministry of Labour and Social Affairs, Bonn; ultimately he was head of the Ministry's Social Budget Division. In 1984 he initiated the development of a macro-econometric projection and simulation model, mapping the German social protection system, and was later responsible for the model's routine application in policy advice. In 1985 he worked for the German Permanent Representation to the European Commission, Brussels, and in 1986 joined the Department of Health and Social Security, London, for six months. After 1986 he supervised the Ministry's feasibility study on a satellite system to the national accounts of the German health sector. During German reunification, 1989 to 1992, he was involved especially in shaping national

wage and employment policies aimed at achieving an economically and legally coherent merger of the two different German social protection systems. Since 1994 he has been seconded to the ILO, Geneva, in order to support its Social Security Department. In this capacity he has contributed to short- and long-term financial evaluations of the social protection systems of several ILO member States, notably Bulgaria (1996–98), Cyprus (1999), Latvia (1995), Panama (1997–98), Thailand (1998) and Turkey (1995–96). In 1991 he was appointed lecturer on social policy at the Social Academy of the City of Dortmund (Germany), a post he held until 1995. He has published articles on interdependencies between social protection systems, public finance, labour markets and macroeconomic developments.

Arthur van de Meerendonk holds Masters degrees in Economics and in Philosophy, both from Tilburg University (Netherlands). From 1990 to 1995 he worked in the Planning Department of the Dutch Ministry of Health, where he participated in the first round of major national health insurance reforms. In 1995 he moved to the Ministry of Social Affairs and Employment, serving initially at the Economic Policy Directorate and currently at the Directorate for General Labour Market Policy. He coordinated a comparative welfare state review project, and was the Minister's representative on one of two high-level committees that formulated proposals to reduce the influx of claimants in the Dutch disability insurance scheme. At present he is coordinating the establishment of a private market for reintegration services in the Netherlands. For the ILO, he has contributed to social budget modelling projects in China and Egypt, and conducted a project on housing schemes in Sri Lanka. He has published articles on the welfare state and economic performance, tax and benefit systems, pension schemes, and issues on governance and the market mechanism in social security.

Krzysztof Hagemejer holds a Masters degree in Econometrics and a Ph.D. in Economics, both from Warsaw University, Poland. Before joining the Social Security Department of the ILO in 1993 as a policy analyst, he worked as assistant professor at the Department of Economics of Warsaw University and adviser to the Polish Minister of Labour and Social Affairs. During the period 1993–95 he was involved in social protection economic and financial modelling exercises in Bulgaria, Slovakia, Thailand and Turkey. Between 1995 and 1998 he served as social security specialist in the ILO advisory team for Central and Eastern Europe in Budapest, with responsibility for social security projects in the region, including social budget modelling projects in Lithuania, Poland, Slovakia and Ukraine. Since late 1998 he has served as senior social security statistician in the Financial, Actuarial and Statistical Services Branch of the ILO's Social Security Department, with responsibilities covering the ILO International Inquiry into the Cost of Social Security, social protection

accounting and budgeting. He writes on various economic issues in social security, particularly on problems related to the transition countries of Central and Eastern Europe.

Fabio Bertranou holds a Masters degree in Economics (Georgetown University) and a Ph.D. in Economics (University of Pittsburgh). His fields of specialization are social security, pensions, health economics and public finance. Since 2001 he has served as senior social security specialist at the ILO office in Santiago (Chile), conducting technical cooperation projects in Argentina, Brazil, Chile, Paraguay and Uruguay. Before joining the ILO, he was assistant professor at the Department of Economics of the Universidad Nacional de Cuyo (Argentina) and professor of comparative social policy at the Public Policy Masters programme offered by the Universidad Nacional de San Martín (Buenos Aires) and Georgetown University. He has also worked as consultant for the World Bank, the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) and other public and non-governmental institutions. He has published articles and books on social security, pensions and health care reforms in Latin America.

Pierre Plamondon is a Fellow of the Canadian Institute of Actuaries (FCIA) and of the Society of Actuaries (FSA). After acquiring experience in an insurance company and an actuarial consultancy group in Quebec, he joined the Quebec Pension Commission in 1985, where he was Chief of the Valuation Department between 1990 and 1998. In that capacity he had responsibility for the actuarial valuation of the Quebec Pension Plan, the publication of official statistics for the scheme and the technical support for the development of supplemental (occupational) pension plans in Quebec. In 1998 he joined the Financial, Actuarial and Statistical Services Branch of the ILO's Social Security Department as actuarial coordinator. He has carried out various actuarial assignments for the ILO in Barbados, Bulgaria, Burkina Faso, Côte d'Ivoire, Cyprus, Guyana, and Trinidad and Tobago. He has also coordinated a study on the investment of social security reserves and initiated the development of a model for the projection of national populations in the context of HIV/AIDS.

LIST OF ABBREVIATIONS AND ACRONYMS

AETRs	Average Effective Tax Rates
AFP	Administradoras de Fondos de Pensiones (Private pension fund management company, Chile)
AIDS	Acquired Immune Deficiency Syndrome
AIMR	Association for Investment Management and Research
BI	Basic Income
BIEN	Basic Income European Network
CI	Citizen's income
CIS	Commonwealth of Independent States
CPI	Consumer Price Index
CSG	Contribution sociale généralisée (General social contribution, France)
CSS	Caja de Seguro Social (Social security fund, Panama)
CU	Currency Unit
DALE	Disability-adjusted life expectancy
DB	Defined-benefit scheme
DC	Defined-contribution scheme
DDM	Dividend Discount Model
DSS	Department of Social Security (United Kingdom)
DWP	Department for Work and Pensions (United Kingdom)
EBRD	European Bank for Reconstruction and Development

List of abbreviations and acronyms

ECU	European Currency Unit
EITC	Earned Income Tax Credit (United States)
EMS	European Monetary System
EMU	European Monetary Union
ESSPROS	European System of Integrated Social Protection Statistics
ESTEEM	ILO Employment and Social Transition Expenditure Model
EU	European Union
EUROSTAT	Statistical Office of the European Communities
GAD	Government Actuary's Department (United Kingdom)
GAP	General average premium
GDP	Gross domestic product
HIV	Human Immunodeficiency Virus
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
ILO	International Labour Office/Organization
ILO FACTS	International Financial and Actuarial Service of the ILO
IMA	Individual Medical Account (China)
IMF	International Monetary Fund
IPO	Initial public offering
ISIC	International Standard Industry Classification of All Economic Activities
ISSA	International Social Security Association
IVM	Invalidez, vejez y muerte ("Disability, old age and death" pensions programme, Panama)
LIS	Luxembourg Income Study
METR	Median Effective Tax Rate
MHO	Mutual Health Organization

MRS	Mandatory Retirement Savings
NAO	National Audit Office (United Kingdom)
NDC	Notional defined-contribution scheme
NEI	Netherlands Economic Institute
NHAs	National Health Accounts
NHIS	National Health Insurance System
NHS	National Health Service (United Kingdom)
NIB	National Insurance Board (Bahamas)
NRI	Net retained income
NSPS	National Social Protection System
NYSE	New York Stock Exchange
OASDI	Old Age, Survivors, and Disability Insurance (United States)
OECD	Organisation for Economic Co-operation and Development
OTC	Over the counter
PAYG	Pay-as-you-go
PPP	Purchasing Power Parity
PRSP	Poverty Reduction Strategy Papers
ROE	Return on equity
SAIL	Social assistance intervention line
SAS	Social Accounting System
SCP	Sociaal en Cultureel Planbureau (Social and Cultural Planning Office of the Netherlands)
SEM	Social expenditure maturation
SER	Social expenditure ratio
SHI	Social Health Insurance (Ghana)
SNA	System of National Accounts
SPER	Social Protection Expenditure and Performance Review
SPIs	Scheme-based performance indicators

List of abbreviations and acronyms

SRI	Socially responsible investment
SSA	Social Security Administration (United States)
SSAC	Social Security Advisory Committee (United Kingdom)
SSNIT	Social Security and National Insurance Trust
SZW	Ministerie van Sociale Zaken en Werkgelenheid (Ministry of Social Affairs and Employment, The Netherlands)
UI	Unemployment insurance
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VAC	Value added contribution
VAT	Value added tax
WHO	World Health Organization

INTRODUCTION

Before turning to the substantive debate on the financing of social protection, we should say a few words about the purpose of the latest addition to the Quantitative Methods series. In short, this book seeks to help social protection planners, managers and analysts to design and operate social protection financing systems that are effective and equitable as well as being fiscally, financially and economically efficient. Effective financing systems ensure that benefit promises are reasonable and can be kept. Aiming for equity means that the burden of financing social protection is shared fairly among population groups and generations. Aiming for financial, fiscal and economic efficiency means making sure that no societal resources are wasted – and thus no welfare losses incurred – when financing systems are designed or operated. But before exploring those targets in more detail, we have to find our way through the maze of definitions connected with the notions of social protection and social security.

Definitional context and limitations

For the purpose of this book, a pragmatic stance was adopted regarding the definition of social protection. When dealing with social protection financing, it suffices to define social protection as all income transfers (or benefits) in kind and in cash that a society affords to its individual members in order to:

- avoid or alleviate poverty; or
- assist them in coping with a series of life contingencies or risks which, if they occurred, might otherwise lead to a loss of income. Loss of income can be the result of losing one's job, losing one's earnings capacity through invalidity or old age, or even having to obtain expensive medical care in the event of illness or impairment; or
- reduce or correct inequalities created through the primary (pre-transfer) income distribution.

One of our reviewers rightly observed that this is a somewhat narrow, even minimalist, definition. Admittedly, it delineates rather narrow boundaries, but this is a technical textbook on the financing techniques for certain transfers and the avoidance of negative economic and fiscal consequences, not a policy book that defends and defines the extent, role and *raison d'être* of social protection in

decent societies. The latter aim would be far beyond the scope of this volume, which is one in a series of technical textbooks on social protection. A wealth of conceptual work is being conducted on the proper role of social protection in societies. Bonilla Garcia and Gruat (2003) of the ILO stress the role of social protection benefits as investments in the development of societies. They see social protection as having three key objectives: guaranteeing access to essential goods and services, promoting active socio-economic security, and furthering individual and social potentials for poverty reduction and sustainable development. Our book confines itself to addressing some of the planning or managerial challenges that are posed by that or other similar definitions: the effective and efficient delivery of transfers that a society has agreed to afford to its members.

In the narrow definition used here, social protection is not concerned with the avoidance or reduction of risks, either; instead, it focuses on helping societies to organize the financing of the mechanisms that help people to mitigate or cope with risks. In the classical sequence of risk management, namely risk identification, risk prevention or risk reduction, risk mitigation and risk coping, we are dealing only with the last two aspects. In a recent conceptual development, the World Bank (2001a) placed all social protection measures in the wider context of "social risk management", which includes mechanisms at the individual, community or national level that avoid, reduce and mitigate the risk of falling into poverty or suffering a substantial loss of income. Box I.1 attempts to dispel the definitional uncertainty that surrounds these terms.

It is obvious that the World Bank focus on risk management aims to minimize the income equalization effect of social transfers, while the ILO stresses transfers as an investment in development (inter alia through the fostering of social peace) and hence goes beyond the relatively narrow focus of minimizing the risk of falling into poverty or losing substantial parts of one's income.

We focus on social protection in the form of transfers in cash and in kind assuming that the individual, the community or the country in question have done all they could outside social protection mechanisms to avoid and reduce risks – as every prudent individual, family, community or society should. We also assume that the transfers that we are dealing with are in keeping with roles that the life cycle model or any other model of social protection has assigned to them in a given society. The techniques developed here for an effective and efficient management of social transfers are essential tools of good governance under any model of social protection adopted by a society.

In any society, social transfers account for a substantial part of national income. Depending on their stage of economic development, societies redistribute between 5 per cent (in developing countries) and 35 per cent (in OECD countries) of their gross domestic product (GDP) through the formal social protection system. According to ILO estimates, this amounts to some US$5,000 billion

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Box I.1 Contingencies, risks and risk management: An introduction to the terminology

Contingencies are events that might or might not occur (having an accident or winning the lottery, for example). *Risks* are contingencies that are perceived as having a negative effect on individuals, groups or societies or even more complex entities, such as the environment. If the probability of a certain risk occurring is known or can be calculated, then an important necessary condition for it being considered an *insurable risk* is fulfilled. In certain cases, however, even if the probability of occurrence is known the potential damage may be so big that the risk may not be insurable (for example, an environmental disaster triggered by a defective nuclear reactor). For an insurable risk it is possible to calculate a premium that a policy holder has to pay to an insurer, allowing the latter to pay out a certain amount of money, without going bankrupt, should the risk accrue to the insured person.

You are *exposed* to a risk if a certain event can occur and affect you with a certain degree of probability, for instance living in an environment where a certain illness can be contracted. If you move to a country where that particular illness does not exist, you are no longer exposed. You are *vulnerable* to a certain risk if you have no means of coping with the consequences of that risk once it has occurred (for example, not being able to afford medical care that can help you to become healthy again). Social protection in the narrow technical sense used here does not help you to avoid risks (except for what can be done through accident or illness prevention) but it makes you less vulnerable to the financial consequences should these risks materialize. It thus provides some social security.

Not all risks are unforeseeable and beyond our control. For example, the probability of contracting a certain illness can be reduced by health-conscious behaviour, the unemployment risk by moving to a region where your skills are in greater demand, and your family's exposure by sending them out of a country that is beset by political unrest or poor health conditions. This is *risk reduction, avoidance* or *prevention*. If you are paying insurance contributions that entitle you to a cash benefit should a certain contingency occur, that would help to *mitigate* that risk. If your society provides you with social assistance (i.e. targeted and means-tested) benefits should you really fall into poverty, they would help you *cope* with the risk. The whole portfolio of strategies and arrangements ranging from risk reduction, avoidance or prevention to risk mitigation and risk coping, and consisting of informal arrangements of the individual or the family, market-based arrangements and public provisions, is called *social risk management* (see World Bank, 2001a).

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annually. However, societies also transfer income through informal arrangements within and between households (transfers between individuals, within families and in communities, and so on). Taken together, formal and informal transfers may represent as much as 40 per cent of GDP worldwide: in other words, some

US$12,000 billion out of the world's total GDP of about US$30,000 billion. That means that for every dollar that is earned in an economy, those who earned the income in the first place have to transfer 40 cents' worth of consumption to inactive or low-income members of the society. The overall level of social transfers in a society tells very little about the actual level of social protection. Total amounts of transfers or social expenditure consist of transfers that reach beneficiaries in an efficient way and effectively achieve their purpose as well as a certain amount of waste.

The present work does not deal in detail with the way in which societies determine or should determine the level of social protection. The scope and level of social protection that a society wants to afford to its members are determined to a large extent by its values, traditions and – according to Bonilla Garcia and Gruat (2003) – development strategy, and much less by its economic capacity (this will be discussed in Chapter 1). We are not taking moral or ethical stances here, although we all have our opinions and articulate them in policy debates. In the context of this book, benefit levels are of concern to us only if they create inefficiencies or fall below the benchmarks intended by a society. This means that we would not argue about whether a pension should amount to 50 or 60 per cent of the reference wage as long as the pension as such does not provide too many people at too early an age with an undesirable exit from the labour force, and the associated expenditure does not crowd out the financing of other benefits such as access to essential health care.

Our main concern is to help to make sure that benefit levels – once determined by societal values – can be financed by sharing, or redistributing, income. If that cannot be done in the long run, then the particular system is doomed to fail. In relative terms, the willingness to share income does not necessarily depend on the level of income, but it depends to a critical extent on whether the system is perceived to be efficient or not. Whatever its level of wealth, a society can basically afford very high relative levels of social expenditure as long as its members are willing to finance such levels of transfers through taxes or contributions. On the other hand, very few people are willing to accept waste in public redistribution systems.

Objective

The objective of this volume is to provide readers with a methodological toolbox that will:

- assist them in the policy process that determines the desirable levels and scope of social protection in a given country; and
- enable them to design and maintain a financing structure of national social protection systems that ensure an effective and efficient use of available resources at the community, national and international level while supporting long-term economic development.

In practical terms, the book sets out to help financial analysts to answer a range of questions usually put to them by policy makers. Here is a list of typical questions, together with the indication of the chapters where tentative answers can be found:

What level of expenditure do we have to expect as a society in the short, medium and long term if we introduce a certain benefit (or a set of benefits) of a certain level? (see Chapter 2)

What would be the likely effect of the system (or a new scheme or benefit) on economic performance and on the government budget? (see Chapters 3 and 4)

How do we finance a certain overall level of social protection – in other words, how do we make sure that resources are available when benefits fall due or when a certain new benefit is introduced? Do we finance transfers through taxes? contributions? private payments? Who should be paying for what in the social protection system? (see Chapter 5)

How can we safeguard the value of the money that we have to keep in reserves to finance future liabilities? (see Chapter 6)

How do we organize the financial management and governance so as to make optimum and responsible use of scarce resources? (see Chapter 7)

Our aim is therefore to enable readers to make decisive contributions to the good governance[1] of national social protection systems.

Method

This volume offers a wide range of choices for financing a certain social transfer, and some criteria for selecting the right option in specific national circumstances. It does not advocate one-size-fits-all answers and tries to discuss financing options in the most neutral way. To the best of our knowledge, it is the first work on the subject that seeks to provide a comprehensive overview of the many options in financing and financial governance through a detailed analysis of their advantages and disadvantages.

The predominantly theoretical discourse is complemented by an Exercise Annex containing a number of case tasks and corresponding model solutions, all referring to a fictitious country, Demoland. The compendium enables the reader to rehearse the important concepts discussed in the book by applying them to a concrete country task using practical, analytical and quantitative skills.

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[1] For the definition of the term "governance" as used in this book, please refer to the Glossary of terms.

Audience and level of technicality

This book is intended primarily for financial or policy analysts and planners who work (or aspire to work) in the fascinating and challenging field of social protection. Financial analysts will find in it an overview of the skills they need. If they need to advance from relatively general financial analysis into the more technical field of modelling and thus require more technical detail, they should turn to the other textbooks in the Quantitative Methods series. As for policy analysts or planners who are not necessarily financing specialists, it should help them to grasp the complexity of the design and implementation of sound financing systems and sound financial governance regimes.

Since it is less technical than the other volumes in the series, this book should also be of interest to social policy makers who need to be fully aware of the range of existing financing instruments and their possible effects on the economy and the budget. It does not contain all the mathematical details needed to calculate a specific tax rate or contribution rate – that is the topic of other volumes in the series. However, it explains the financial implications of different financing systems and offers simple rules of thumb that will allow planners and analysts to check at least whether the calculations made by actuaries and other technical specialists are in the right order of magnitude. The readers of this book – economists, accountants, actuaries, statisticians or public policy specialists by training – would typically be working in ministries of economics, planning, finance, labour, social affairs and health or in social security institutions, or training future social protection staff.

Written by practitioners for practitioners, this volume reflects more than one hundred years of our combined hands-on experience in all parts of the world. In some instances, the sceptical attitude of practitioners towards economic and public finance theory and towards standard policy recipes may become evident. However, compliance with academic theory was assured by the technical editing of Professor de Neubourg who made certain that we did not get carried away by overly pragmatic shortcuts.

The place of this volume in the Quantitative Methods in Social Protection Series

The titles that make up the series thus far are:

Actuarial mathematics of social security pensions (1999)
Modelling in health care finance: A compendium of quantitative techniques for health care financing (1999)
Social budgeting (2000)
Actuarial practice in social security (2002)

The sixth – and most likely final – volume in the series, *Statistics and accounting in social protection*, is in preparation.

Figure I.1 Hierarchy of volumes in the Quantitative Methods in Social Protection Series
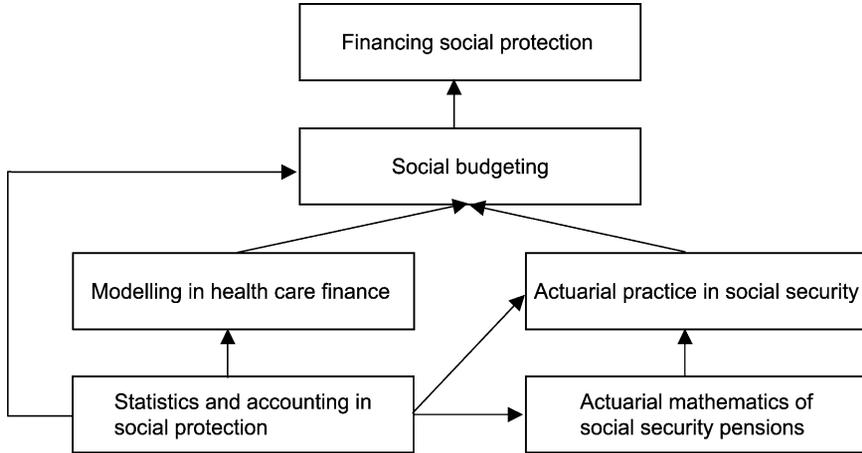
The present book is the "umbrella" or overview volume. Each book in the series is self-contained, as all the volumes address distinct issues and can all be understood without the reader having to go through them all to find solutions to particular problems in the field of quantitative analysis of social protection. Figure 1.1 lays out the "hierarchy" of the various titles, showing the linkages between this and other volumes in the series. This latest volume provides links to the other titles in the series and to other standard literature on specific subjects. At the end of each chapter, readers who require more technical details on specific questions are guided to other books in the series and/or other relevant literature.

Outline

Chapter 1 looks at the definition of social protection from the specific point of view of financial analysts, the nature and objectives of social transfers, and their effects on income distribution and poverty. Chapter 2 examines the size of social protection systems in terms of overall national expenditure and identifies the determinants of social expenditure. Each financial or social policy analyst should be aware of the potential ultimate size of the social protection system introduced in a country. The potential effects of the system as a whole and its implicit and explicit incentives for the economy are analysed in Chapter 3. This again is an important aspect in the decision-making process regarding the size and institutional fine print of a new system or one that needs to be reformed. The effect of a set of existing or new transfers on the government's budget and

Figure I.2 Reader's guide through the book

Introduction	← *presents the purpose and content of the book*
Chapter 1: Basic concepts: Social protection and social transfers	← *explores the basic nature of social protection schemes*
Chapter 2: The size of the welfare state: Trends, patterns and determinants of social expenditure	← *establishes the financial size of the social sector and analyses what drives social expenditure*

analyses potential effects of the social protection system on the national economy → **Chapter 3: Social protection and the economy**

Chapter 4: The public finance nexus and resource mobilization strategies ← *analyses potential direct and indirect effects of social protection financing on public finance strategies and ways of defining resource mobilization strategies for the social sector*

Chapter 5: Financing techniques ← *book's technical core: describes the full range of financing techniques of social protection at the disposal of designers and financial managers*

explains how reserves accumulated through a chosen financing method should be invested profitably → **Chapter 6: Investing social protection reserves**

Chapter 7: Financial governance ← *explains how to ensure best use of scarce resources*

Conclusion ← *places social protection financing into the wider context of political decision-making*

Issue Briefs 1, 2, 3, 4

↑ *explores specific topics of interest*

Exercise Annex ← *helps the reader to review and consolidate acquired knowledge*

resource mobilization strategies within the framework of the country's overall fiscal and financial policies are discussed in Chapter 4.

Indeed, understanding the potential size of the social protection sector (that is, the volume of its expenditure and its possible economic and fiscal effects) is necessary before the reader can fully appreciate the range of available financing techniques set out in Chapter 5, the methodological core of the book. Chapter 5 presents the various tools that should be used to ensure that the money is

available when obligations fall due. Chapter 6, devoted to the investment of social protection funds, recognizes that the level of funding is rising in many national social protection schemes and that making rational and optimal investments of their reserves is an issue of growing importance in the day-to-day financial management of national systems or their component schemes. Chapter 7 passes from questions of design and choice to those of sound management and governance by describing the statistical and legal means available to ensure effective and efficient use of societal resources for social protection. A brief conclusion puts these newly mastered techniques into the context of political decision-making.

Issue Brief 1, set in an African context, addresses one of the specific major questions currently facing many social protection financing specialists, namely the quantification and financial management of the potential effects of the AIDS pandemic. Issue Brief 2, set in a European context, looks into the relationship between migration and pre-funding of social transfers as a response to social protection financing problems in an ageing society. Issue Brief 3 provides a "survival kit" of basic formulae that should help all those who have to make rough, "back-of-the-envelope" calculations in social protection budgeting. Issue Brief 4 summarizes basic definitions and terminology of financial markets for social protection analysts who do not routinely deal with financial markets issues.

The book concludes with the Exercise Annex: a set of eight case tasks dealing with concepts and issues discussed in Chapters 2 to 7, accompanied by model solutions. The main aim is to enable the reader to apply theoretical knowledge to the realm of practical policy questions.

A caveat

The limitations of this book are obviously and inevitably set by the limits of the knowledge of its authors. We have tried to put on paper what we know and to describe the tools that we use in our work. However, social protection financing is a new academic field and, like any true academic field, provides plenty of scope for further study and improvement. While we think that we know a fair amount about the financial effects of specific financing instruments, we do not know enough, for instance, about the interaction between the economy and social protection, or about benchmarking the performance of schemes and systems through indicators. We have mentioned these open questions throughout the book. There remains work to be done, and that is the way it should be. Otherwise life would be boring. We are open to comments and suggestions and are ready to engage in discussion. We can all be reached by email (actnet@ilo.org) or contacted through the ILO.

The authors
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BASIC CONCEPTS: SOCIAL PROTECTION AND SOCIAL TRANSFERS

1

Before tackling the main subject of this book, we need to define a number of concepts that will be useful as a background for the discussion of social protection financing: social protection, social transfers, social budgeting, income inequality and transfer efficiency.

This chapter defines the term "social protection" in (arguably narrow) economic and financial terms. Social protection is a set of measures that a society employs to give its members some form of income security; these measures necessarily have a profound impact on income distribution in the country. As mentioned in the Introduction, the scope of this book is generally limited to measures that can be characterized as formal transfers of income in cash (such as cash transfers in the form of pensions or child benefits) or in kind (such as the provision of medical care). Formal transfers thus exclude social protection measures that are not related to income transfers in cash or in kind, for example employment guarantees provided in the former planned-economy countries, or individual or intra-family risk-management strategies such as savings, home ownership, multiple employment, or informal transfers between individuals in families.

While the rest of this book will focus on formal social protection transfers, this chapter will look at income transfers in the wider context of all transfers – both formal and informal – occurring in a society. It will also seek to determine whether there is a "normal" transfer level in any given society. This will provide a new and different framework for the debate on the affordability of comprehensive social protection "from cradle to grave". Roughly, the reasoning is as follows: If a society redistributes much more income through informal transfers than is registered by official statistics, formalizing such transfers through the introduction of new benefits or expanding existing benefit systems might not actually cause any increase in the overall level of transfers in the society. All that would happen is that previously informal intra-family transfers would be turned into formal transfers in which the burden of benefit financing and delivery would rest on more shoulders.

1.1 SOCIAL PROTECTION THROUGH SOCIAL TRANSFERS

As mentioned, social protection – as understood here – in any given society is essentially a transfer system that reallocates income both within households and among different households. Let us explore that narrow, "financial" definition in some more detail.

Income transfers (also called "benefits" in the standard social protection jargon) can consist of transfers in cash or in kind. Both types of transfers can be triggered by the need to help people to cope with a certain risk (e.g. loss of income due to sickness or the insolvency of the family business in the informal sector) or simply by the objective to equalize consumption within a group or a society. Cash transfers are a straightforward concept – somebody transfers an amount of money to somebody else. In-kind transfers are also income transfers. If you benefit from free health care (i.e. health care that is universally available, tax financed and free at the point of delivery to everybody living in a country, regardless of their ability to pay or their previous tax or contribution payments) then your consumption of health care is an income transfer that equals the monetary cost of the care you consume. One essential element in the social transfer definition of social protection is the actual flow of income between groups or individuals. This flow might be the result of the fact that the receiving individual enjoyed insurance cover or that the State or the community decided that a certain degree of income equalization was necessary. Box 1.1 explains in more detail why we also consider insurance benefits as income transfers.

However, income transfers are a means rather than an end in themselves. Their purpose – which is the other essential element in the definition of social protection as social transfers – is to:

- guarantee a minimum level of consumption for people living in poverty or on the threshold of it, or
- replace wholly or in part income lost as a result of a certain contingency, or
- achieve a higher level of income equality.

Effective social protection of individuals does not stem from transfers of money but rather from the transfer of entitlements to a certain level of consumption. It does not really matter to a pensioner how much money in nominal terms is transferred to his or her bank account every month. What matters is what he or she (or their grandchildren) can actually buy with that money. It is important to bear in mind that consumption in this context includes the "consumption" of such essentials as health care services, basic or higher levels of education, and shelter (housing).

Thinking of social protection benefits as entitlements to a certain level of consumption will also help us answer an important question that has often been

Box 1.1   Insurance benefits as income transfers

Suppose a disability insurance scheme covers the entire workforce. In each year each covered individual k faces a disability risk described by the probability pi of "entrance into invalidity", as the actuaries say. The financial risk for the scheme for that individual in a specific year t is the product of the probability and the amount of benefits bi to which that individual is entitled during the year (i.e. between the time of occurrence of invalidity and the end of the period). The total risk that the scheme faces for new cases EN in year t is:

$$EN_t = \sum\nolimits_{ki} pi_{k,t} * bi_{k,t} \qquad (1.1.1)$$

Together with the expenditure for cases incurred in previous years and for which benefits still have to be paid EO, the total (benefit) expenditure TE expected for that year amounts to:

$$TE_t = EO_t + EN_t \qquad (1.1.2)$$

TE is the total expected expenditure for year t (we are leaving aside administrative costs for the moment). In a classical PAYG social insurance scheme this expenditure has to be covered by contributions (ignoring other income of a social insurance scheme, for the sake of the argument) and is calculated as follows:

$$TE_t = p_t * ab_t = TCI_t = \pi_t * TIW_t = con_t * ac_t \qquad (1.1.3)$$

where:

TCI = total contribution income
p = average number of beneficiaries in t
ab = average benefit in t
π = contribution rate in year t
TIW = total insurable wage of all contributors to the scheme
con = average number of contributors in t
ac = average contribution

TE thus also equals π-th share of the total income TIW of active contributors. It is the amount of income that is transferred by an average of con contributors to an average of p beneficiaries in year t. We hence consider insurance benefits as income transfers. The difference between insurance benefits and universal unconditional transfers (benefits) or targeted means-tested transfers is simply the legal nature of entitlements (i.e. being entitled to benefits as a contributor, a resident, or a resident fulfilling a certain targeting condition, for example poverty). In this book we are interested in the techniques and methods employed to ensure that TE is met by equal amounts of resources.

raised in the context of the current debate on funding versus non-funding of pension schemes. That question is: If we oblige people to save for their pensions, can we really consider this to be a transfer between individuals, or is this social protection scheme merely a transfer of income between different life-stages of one individual? It clearly is an individual transfer of money between different phases of a person's life. The money I put in my account is there when I retire – or at least some of it is, depending on how well my account manager performed during my active life. However, I cannot really influence the level of consumption that my money will buy. If the active producers of the current GDP do not want to give me as big a share of consumption as I expected, they will probably increase the prices of the goods and services that I need most (for example, health and nursing care for the elderly, or home grocery delivery), or they will find a way to tax my income to prevent my retirement income from fuelling inflation. Ultimately they have to agree to share the consumption financed by the current GDP in a certain way.

It should be borne in mind that whatever benefits a social protection scheme may promise, in the short run it cannot have any impact on the size of the consumption cake that has to be shared among actives and inactives – it can only try to adjust the relative size of the slices. In the long run, however, it may indirectly help to increase the size of the cake (by maintaining an ageing workforce in good health, for example). The overall size of future cakes will also be influenced by many other factors, such as demographic developments, the quality of the workforce, changes in world markets, the volume of domestic investments, the quality of the educational system, and so on.

An important conclusion to be drawn from this analysis is that no social protection scheme, no matter what it promises or how it is financed, can ensure a certain absolute level of consumption in the immediate or long-term future. All it can do is attempt to issue entitlements to a certain relative share of total present or future consumption in a given society. The longer the time horizon for the promises made, the greater the uncertainty about absolute levels of consumption.

In any case, social protection schemes have a profound effect on income distribution in any country. The size and nature of any adjustments to the national pre-transfer distribution of income are basically a matter of ethics. Every society determines what level of social benefits a person should enjoy in the event of a certain contingency.

Social transfers thus transform ethical norms into cash or in-kind income flows, which in turn are translated into consumption levels. In principle, a society can choose whether to redistribute income formally or informally in order to satisfy these ethical norms. Figure 1.1 shows the principal mechanics of that redistributive process. Societal values and norms dictate that people in need should receive a certain level of assistance. Societal preferences, experience and administrative capabilities then determine whether these

Figure 1.1 Social protection transforms ethical norms into transfers
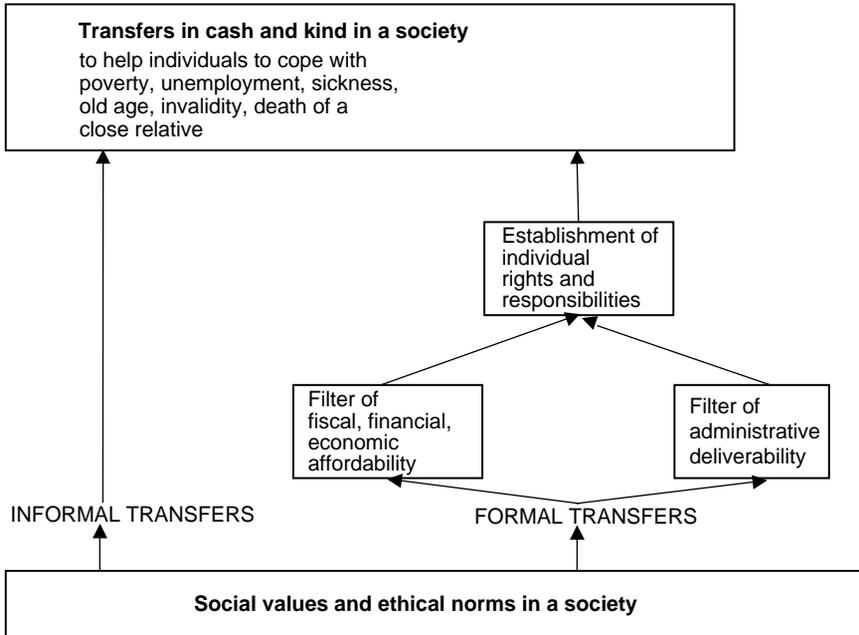
Source: ILO.

transfers should be organized formally through established laws or whether they should be left to private initiative.

If it has been decided to formalize a certain kind of transfer, then the scheme has to go through a filter of economic, fiscal and financial affordability as well as a filter of administrative deliverability. A basic social protection system offering very modest benefits may be fiscally affordable in a low-income country, but that country might not have the administrative machinery needed for a complex means-testing procedure. On the other hand, a country may have a sophisticated administrative machinery at its disposal but might not be able to shoulder the additional financial burden of a new benefit system. This may be the case in some transition countries.

Social transfers have various effects on the population. To name only a few, they help to restore or maintain good health or to make ill health more bearable; they support families financially, alleviate parents' worries about their children's future and ease the burden of providing care for the elderly; they also help to maintain a certain level of workforce productivity, thereby providing crucial support for social peace and cohesion. All of this is ultimately achieved through cash and in-kind income transfers equivalent to a certain amount of

consumption that the active population gives up for the benefit of the inactives or the poor.

Statistical measurements like those applied in Chapter 2 generally capture only formal social transfers. However, a low level of such transfers does not necessarily indicate that a society does not care about the less fortunate; it may simply be transferring resources informally. Since virtually no society will let its inactive dependent population starve to death (except in a situation of very extreme poverty), there have always been and there always will be income transfers in one form of another between the active and the inactive or dependent groups of a society. In the informal sector most of them will be transfers in kind (such as providing food and shelter for children, the elderly, the disabled or unemployed members of the family, clan or village). In the formal sector, society has largely – although not fully – commissioned formal social protection systems to make these transfers. This is the case in most OECD and Central and Eastern European countries. However, in all societies formal social protection transfers are still complemented by informal intra-family, intra-clan or intra-community transfers, even if in many OECD countries these informal transfers are mere remnants of old traditions.

All transfer systems, whether formal or informal, have four components:

- financiers;
- rules governing entitlements;
- an organization operating redistributive flows and/or providers of goods and services; and
- recipients.

The fundamental difference between formal and informal transfers is that in formal schemes all of the above elements are or should be defined by law or contractual arrangements, whereas in informal transfers at least one or two – if not all – of them are defined on an ad hoc basis according to traditional or general legal obligations within family units.

In any case, in economic terms formal and informal transfer systems substitute for each other. Where one does not exist or function, the other will develop. Whether the introduction of public transfers (which make up the bulk of formal transfers) replaces private (informal) transfers on a one-to-one basis is not clear. Lampman and Smeeding (1983, pp. 45–66) have established that the ratio of private to public transfers in the total transfers received by households virtually reversed itself in the United States between the mid-1930s (when the social security system was introduced) and 1980 (see figure 1.2). However, they also observe that the absolute level of private interfamily transfers has remained almost constant. This means that while the public system has taken a growing share of the responsibility for national social protection, it may also have increased the overall level of protection (or transfers) in absolute terms rather than simply replaced informal transfers.

Figure 1.2 Shift from interfamily to government transfers, United States, 1935–80
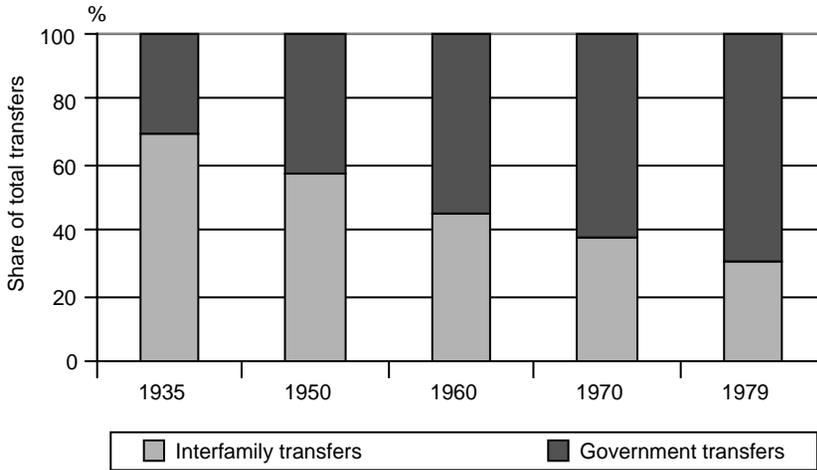
Source: Lampman and Smeeding (1983).

1.2   INFORMAL TRANSFER SYSTEMS

Informal intra-family and intra-community transfers can be broken down into a variety of different types, which essentially can be grouped under three major headings: child transfers, active-age transfers and old-age transfers. In nuclear and extended families they often consist simply in income- or consumption sharing between the breadwinner(s) and dependent family members, as well as the provision of nursing care in cases of sickness and long-term physical disability. Solidarity in life crises generally extends also to close-knit communities or clans. However, benefits under these informal arrangements are ad hoc and highly uncertain. The burden of support is placed on families, and its reliability depends on the affluence of the family or the community and the stability of their economic situation. These families or communities are subject to such joint risks as bad harvests resulting from adverse weather conditions or political unrest. Often benefits are also conditional upon compliance with societal behavioural norms, which may be antithetical to personal interests or even dignity.

Benefit levels are also extremely unequal. Generous families may give more than others, rich communities may give more than others – or vice versa. The higher the dependency ratio in a family or community, the smaller the potential benefit is likely to be. There is a long history of literature on patterns of income transfer and consumption sharing within households. One of the key output variables used to measure the equity of intra-household consumption sharing is

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the level and quality of food consumption. In some developing countries the distribution of food consumption reportedly remains extremely unequal. One study on Pakistan concludes: "It is possible to be malnourished in a food-secure household as a result of disease, inadequate care, or inequitable allocation of food" (Nazli and Hamid, 1999, p. 21). Among the malnourished, "girls suffered more than the boys" (ibid., p. 11). The degree of female control of household income is apparently highly correlated with the distributional equity of intra-family consumption. The degree of control appears in turn to be correlated with the educational level of women.[1] The picture is less clear when it comes to the financing of access to essential health services. Other sources show no gender bias when it comes to utilization of essential health services. While Nazli and Hamid (1999) find a bias against girls in Pakistan, Sauerborn et al. (1996) find no such bias in Burkina Faso, although they do cite a strong bias in health care consumption towards persons of active age.

The actual patterns of income- and consumption-sharing within households are obviously a major factor in the effectiveness of informal social transfers. They may acquire additional importance in the grey area between formal and informal transfers. Basic universal pensions – for example, in Brazil, Namibia and South Africa – have an important welfare effect on whole households, even if they are paid at a rate of less than US$1 a day. The elderly pension recipients are apparently acting as informal agents of social assistance in their households. The payment of a basic pension to the elderly in a household is correlated with gains in the children's height and weight and increased school enrolment (see Barrientos and Lloyd-Sherlock, 2002). Even if the so-called "trickle-down" effect may be less than perfectly equitable, such combinations of formal and informal social protection measures might be one valid and realistic way of effectively extending social protection coverage in developing countries. However, further research is needed on the distributive effects of such combinations, as well as on the long-term financial sustainability of such transfer systems.

Evidence also exists on the size and nature of inter-household informal transfers. There is substantial literature on the motives, extent and determinants of private transfers in different countries between households. There are findings that private transfers in so-called developed and developing countries are not purely altruistic in nature but are to a substantial extent motivated by an exchange of transfers for explicit or implicit services or other goods (see, for example, Cox and Jakubson, 1995, and Cox et al., 1996). Economic conditionality in informal transfers obviously reduces their anti-poverty effectiveness.

In many developing countries formal social transfers do not reach even 20 per cent of the total population. Informal transfers based on family and community solidarity and values will therefore have an important role to play in many societies for some time to come. Unfortunately, as a result of rural-urban migration and new external risks (like the AIDS pandemic) many families or

small communities are no longer in a position to offer basic social protection to all their members. Larger solidarity pools will have to take over gradually. As mentioned above, a combination of formal and informal social protection mechanisms may be the most promising solution, but sound financial management of formal transfer schemes remains crucial to their success.

1.3   FORMAL TRANSFER SYSTEMS

The classic formal transfer system provides for the three basic types of transfers through the benefit arrangements outlined in table 1.1.

All of these formal transfers serve the same purpose as informal transfers in the informal sector or the remnants of informal transfers in the formal sector. They are all intended to enable the inactive group to consume goods and services either according to need or at a level previously financed by income from employment or self-employment. Since formal social transfer systems operated by means of national social protection systems are the core of this book, they need to be defined here in full detail – tedious though this may be for the reader.

1.3.1   Defining formal social protection, its functions, institutions and sources of finance[2]

For the purposes of this book, the material scope of the term "social protection" must be defined. In the literature and public debate on social issues, this term is increasingly taking the place of the expression "social security", which, widely used for decades, is often understood as the set of transfers that originate from formal sector employment. Although "social protection" is considered to be a wider concept, it is not yet universally accepted, so a definition is in order here.

Table 1.1   Transfers in formal social protection

Group receiving transfers from active employed persons		
Children	Active age	Old
Family benefits (child allowances)	Social assistance	Old-age pensions
Health care benefits	Short-term cash benefits	Survivors' pensions
Social assistance	Health care benefits	Social assistance
Housing benefits	Housing assistance	Housing assistance
Education benefits	Unemployment benefits	Health benefits
Long-term care	Disability pensions	Long-term care
	Rehabilitation benefits	
	Survivors' benefits	
	Long-term care	

Financing social protection

Essentially, a national social protection system (NSPS) can be described as a system of social transfer schemes that intervene through legally determined functions in cases where a defined set of needs is present. This book takes definitions and classifications developed within the European System of Integrated Social Protection Statistics (ESSPROS) as a starting point, making the ESSPROS definition more universal by adding several categories of needs and functions that are appropriate for developing countries. A more detailed discussion of the definition and the scope of the term "social protection" can be found in Annex 1-A1 at the end of this chapter.

In most countries social protection systems are composed of four elements:[3]

- social security schemes: employment-related benefit schemes, such as employment-related pensions, short-term cash benefits, employment injury and unemployment benefits, and perhaps some form of health care benefits;
- universal social benefit schemes: benefit schemes for all citizens, including tax-financed family benefits and health care benefits;
- social assistance schemes: poverty alleviation systems for citizens and residents in special need;
- supplementary benefit schemes: as stipulated in collective or community-based agreements or individual contracts mandated by law, usually operated by co-operative or private sector entities.

A social protection scheme is a distinct body of rules, supported by one or more institutional units, governing the provision and financing of social protection transfers. The institutions usually involved are:

- social insurance schemes;
- central, state or local governments;
- autonomous and self-administered pension funds;
- insurance companies;
- mutual-benefit (insurance) societies;
- public and private employers;
- private welfare and assistance institutions.

Each of these institutions may administer one or more schemes. The entire set of such social protection schemes operating in a given country is called here the *National Social Protection System* (NSPS). This definition is nearly but not fully synonymous with the term "welfare state" used in Anglo-Saxon economic literature. The definition of the "welfare state" has remained somewhat loose. Nick Barr (1993, pp. 6–7) writes: "the concept of the welfare state... defies precise definition, and no attempt is made to offer one... even Richard Titmuss (1958) ducked it." Pragmatically, we will be using the terms "national social protection system" and "welfare state" interchangeably, although we prefer

Table 1.2   Needs covered by and functions of an NSPS

Type of need: Individual facing...	NSPS functions designed to cope with the type of need
Sickness	Income-replacement transfers in cash in connection with physical or mental illness, excluding disability in case of inability to work
Ill health or need to mitigate the effects of ill health	Provision of health care goods and services needed to maintain, restore or improve health of the people protected irrespective of the origin of the disorder (= indirect income transfer)
Disability	Income-replacement transfers in cash and in kind (except health care) in connection with the inability of physically or mentally disabled people to engage in economic and social activities
Old age	Income-replacement transfers in cash and in kind (except health care) in connection with old age
Survivorship/loss of breadwinner	Income-replacement transfers in cash and in kind (except health care) in connection with the death of a family member
Family care/upbringing of children	Transfers in cash or in kind (except health care) in connection with the costs of pregnancy, childbirth and adoption, bringing up children and caring for other family members
Unemployment	Income-replacement transfers in cash or in kind (except health care) associated with unemployment
Inadequate housing	Financial transfers or in-kind transfers to meet/alleviate the cost of housing
Poverty and social exclusion, inadequate nutritional status	Income transfers in cash or in kind aimed at ensuring a minimum level of consumption (except health care), specifically intended to alleviate poverty and social exclusion that are not covered by one of the other functions. Direct/indirect transfers in cash and in kind to maintain an appropriate level of nutrition
Inadequate access to (basic) education	Free access to public education and cash/in-kind transfers to facilitate school attendance (stipends, free textbooks, etc.); the level of education to which access is guaranteed may depend on the country's level of economic development

the former. It should be noted in this context that in the definition of formal social protection we also include certain transfers operated by the private sector, but only those that are mandated by law. Private arrangements between individuals and institutional private agents that are not imposed by public authorities, as well as entirely private arrangements between individuals are not considered formal and therefore fall outside the scope of this book.[4]

The core functions of an NSPS – in addition to a general income equalization function – and the needs that they address are detailed in table 1.2. In the language of risk management many of these needs may be defined as "risks" (though not all – like the need to provide care to children, for example).

1.3.2   Financial architecture of national social protection systems

The main focus of this book is to describe tools for the design and proper management of the financial architecture of national social protection systems. To use the language of network theory, the financial architecture traces the money entering an NSPS from its origins (sources) to its uses (sinks). One of the most powerful tools used to describe this architecture is a *flow of funds* graph. It helps to clarify, inter alia, the issue of who is financing a given scheme and the sources of financing for the social protection system as a whole.

In the classic definition of national accounting, the following sources of money can be identified:

Social protection financing resources, by origin:

I. All residential units

Public sector
   General government
      Central government
      State and local governments
      Social security funds
   Corporations (financial and non-financial)
   Non-profit institutions serving households
Private sector
   Corporations (financial and non-financial)
   Non-profit institutions serving households
   Households

II. Rest of the world (foreign aid, etc.)

The above is a first-level analysis. A second-level analysis, however, immediately reveals the fact that government itself does not (or does only to a limited extent) generate income for social transfer systems; rather, it redistributes it. It receives tax payments from corporations (enterprises), households and the rest of the world (through import duties), and uses a part of its total revenue to finance a social transfer system. A flow-of-funds graph can take that second level of analysis into account.

Figure 1.3 shows the principal aggregate flow of money in a formal NSPS consisting of several distinct transfer schemes. Benefits are financed by taxes or contributions paid to the institutions of social transfer by a subset of all private households (the financing households), as well as public and private enterprises or employers. These social transfer institutions organize the collection of resources (taxes and contributions) and distribute them according to certain laws to another subset of private households (receiving households).

It is important to note that the subsets of financing and receiving households are not disjunct – that is, the majority of households are both financing and

Figure 1.3 Basic flow of funds in an NSPS
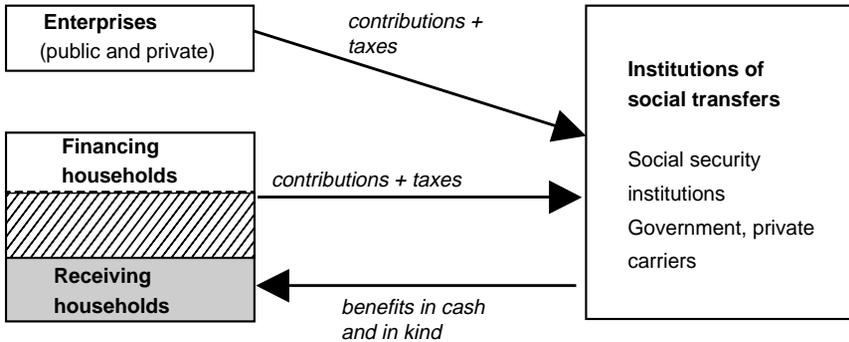
Source: ILO.

receiving transfers. In an inter-temporal sense most of them are both financing and receiving households (they finance in some periods and receive in others), but some may be financing and receiving benefits simultaneously: this might be the case, for example, in a health insurance scheme to which a sick wage earner continues to pay contributions while at the same time receiving treatment from his physician and receiving drugs without charge from the local pharmacy. The same applies to most tax-financed systems where households pay taxes and receive benefits simultaneously (for example in the case of tax-financed universal pension systems).

Figure 1.4 provides a disaggregated overview of the flow of funds in the NSPS of Germany in 1998.[5] The figures next to the arrows or boxes denote the amounts of money leaving or entering institutions, households or enterprises. It may be noted that the amount of money leaving households and enterprises is not equal to the amount of money received by households. This is where a fundamental law of network theory is violated: the total amount of money entering the net is not equal to the total amount of money leaving the net. The reason is that the institutions collecting contributions and delivering benefits are using up some of the resources to administer the transfers. However, they are also generating income other than contributions or taxes by investing, selling services to third parties, and so on. The difference between the sum of the flows leaving a box and the flows entering the box is the net administrative cost of the institution in question (that is, gross administrative expenditure minus income other than contributions and taxes generated by the institution; see in particular the outflow of the unknown values for the private insurance schemes, i.e. x2-a2).

A third-level analysis would show that some expenditure flows and administrative costs also generate income for enterprises and other suppliers of services (hospitals, doctors in private practice, pharmacies, nursing homes, pharmaceutical companies, etc.) that sell goods and services to the institution, as well as the institutional staff, who "sell" their labour to the institution.

Figure 1.4 Financial architecture of an NSPS (Germany, 1998)[1]
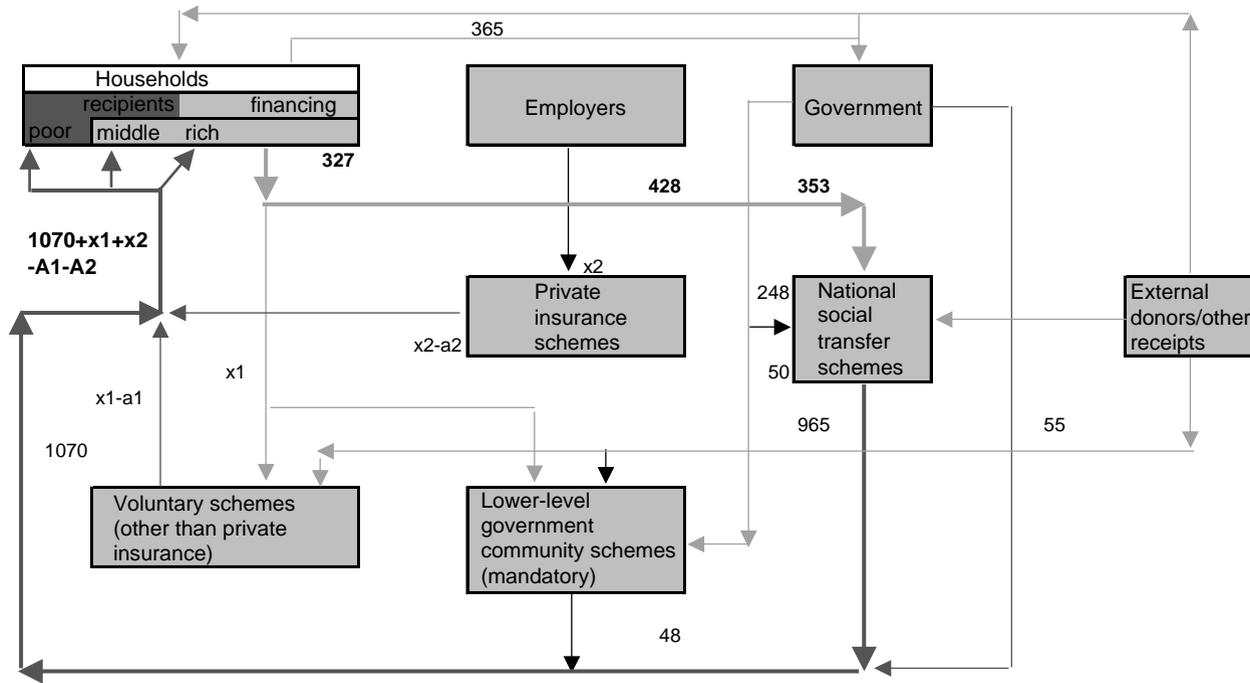
[1]The benefit and administrative expenditure of the private sector institutions could not be established exactly and are thus noted here as variables X and A

Source: ILO, based on EUROSTAT data.

We will not be paying too much attention to these third-level effects but they should be borne in mind when the political and economic aspects of an NSPS are being analysed.

A still more detailed overview of the financial architecture of an NSPS is provided in the form of two matrices that show the system's expenditure and income patterns. The first is a functional/institutional expenditure matrix, which basically traces which institution contributes what amount or share of total social expenditure to the different protective functions of the system. It is obvious that one function can be assumed by more than one institution and, conversely, one institution can serve more than one function. Parallel to the expenditure/institution matrix is a financing matrix which provides information on the sources of funds for the different functions. From a technical point of view, establishing these matrices is not always easy, since not all receipts and institutional expenditure items can be clearly assigned to specific functions, and receipts of the same type and from the same source may finance a number of social protection schemes associated with different functions.

In order to establish the two matrices, the accounts of different institutions must be analysed in detail. These analyses can also be interpreted as summaries of a social accounting system (SAS) that are compatible with the United Nations System of National Accounts (SNA). Both the expenditure and financing matrices encapsulate the results of what is often decades of financing and distribution policy decisions by governments and other decision-makers in the social protection system. The analysis in the following chapters is essentially designed to help the reader establish and "manage" these two matrices as a whole, as well as the individual columns, rows and cells. One element of management consists in projecting expenditure and income for some time into the future and/or simulating the effect of alternative policy measures. This is done through social budgeting, which is the key financial-management technique for the sector as a whole. Another volume in this technical series describes the methodology in full detail (see Scholz et al., 2000). Box 1.2 (p. 28) summarizes the structure of institutional accounts in social protection systems and their relation to national accounting and social budgeting.

Tables 1.3 and 1.4 (pp. 26–27) provide an overview of the structure of total expenditure and financing in an NSPS (or formal social transfer system) in a transition country (in this case, Lithuania in 1998). To simplify matters, the matrices deal only with the expenditure and revenues administered by public institutions.

1.4 INCOME EFFECTS OF NATIONAL SOCIAL TRANSFER SYSTEMS

Much of the impact that national social transfer systems have on individuals and societies – for example, the beneficial influence on social peace and

Table 1.3 Functional/institutional matrix of expenditure of the NSPS in Lithuania, 1998 (as % of total social protection expenditure)

	Social insurance institution	Health insurance institution	Central government	Local government	Employers	Total
Functions						
Health care	–	26.9	0.5	–	–	27.4
Sickness	3.2	–	–	–	3.2	6.5
Disability	7.6	–	2.0	0.1	–	9.7
Survivors	2.2	–	0.0	0.4	–	2.6
Old age	34.3	–	4.3	1.1	–	39.6
Family and children	2.4	–	1.6	3.4	–	7.4
Unemployment	3.0	–	–	–	–	3.0
Housing		–	–	1.2	–	1.2
Social assistance and other	0.5	–	0.4	1.7	–	2.6
Total	53.2	26.9	8.9	7.8	3.2	100.0

Source: ILO estimates based on *Social protection in Lithuania 1998, Statistical abstract* (Statistics Lithuania, Vilnius 2000).

cohesion and on personal and societal development – is not directly measurable. However, since all transfers redistribute income, the actual effect of transfers on income distribution should be measurable. Section 1.4.1 describes classic instruments used to measure poverty and inequality, and suggests two basic indicators for measuring the efficiency of social transfer systems – indicators that financial analysts could use to assess the redistributive efficiency of either individual transfers or the entire NSPS. The theoretical tools for measuring system efficiency routinely on a macro basis are not yet well developed. Generally the social, financial and fiscal efficiency of individual transfers is tested in specific studies, monitored pilot programmes or micro-simulation analyses.[6] Section 1.4.2 nonetheless sums up the most important factual evidence available on the redistributive effects of social transfers.

1.4.1 Measures of inequality, poverty and transfer efficiency

1.4.1.1 Measuring income inequality

The most frequently used graphical representation of income inequality is the Lorenz curve. The Lorenz curve plots the cumulative income of all people in a country or society (or a subgroup thereof) from the poorest upwards. Lorenz curves can be used to plot different types of income or even transfer payments. Here we assume that the curve plots the disposable, after-tax (direct tax, that is)

Table 1.4 Financing matrix for the NSPS in Lithuania, 1998 (as % of total social protection expenditure)

	Social insurance contributions of employers	Contributions of employees, self-employed and other	Other social insurance revenues (e.g. investment income)	Central government	Local government	Corporations and non-profit institutions	Total
Functions							
Health care	14.8	5.3	0.2	7.1	–	–	27.4
Sickness	0.1	3.1	–	–	–	3.2	6.5
Disability	7.1	0.2	0.3	2.0	0.1	–	9.7
Survivors	2.1	0.1	–	–	0.4	–	2.6
Old age	32.0	1.1	1.2	4.3	1.1	–	39.6
Family and children	2.2	0.1	0.1	1.6	3.4	–	7.4
Unemployment	2.8	0.1	0.1	–	–	–	3.0
Housing	–	–	–	–	1.2	–	1.2
Social assistance and other	0.5	–	–	0.4	1.7	–	2.6
Total	61.6	10.0	1.9	15.4	7.9	3.2	100.0

Source: ILO estimates based on *Social protection in Lithuania 1998, Statistical abstract* (Statistics Lithuania, Vilnius 2000).

Box 1.2   From institutional accounts to a social accounting system and social budgeting

Tables 1.3 and 1.4 were constructed from the accounts of social protection institutions. This is a relatively easy exercise for all functions where benefits are provided by classic, autonomous social insurance institutions. Such an institution generally has its own income, and accounts for all its expenditure against that income. As an institution it also maintains its own accounts of assets and liabilities. In other institutions such accounts are fictitious compilations of expenditures and revenues. That becomes necessary when an institution providing a certain kind of benefit does not keep its own accounts because it is embedded in a larger structure. This is often the case, for example, for social assistance schemes in which the provision of social assistance is just one function of a government agency that may also perform a number of other functions, such as supporting cultural events or national sports societies, or providing labour-market services.

The expenditure of an institution maintaining its own books, organized by main categories, would normally be structured as follows:

Expenditure of a social protection scheme, by type:

Benefit expenditure

- Cash benefits
- Benefits in kind

Transfers to other schemes

Other expenditure

- Contribution refunds
- Loan repayments
- Other

Administrative expenditure

- Salaries and social security contributions for staff
- Purchase and maintenance of property and equipment
- Other

National social protection systems have different sources of income. The major ones are taxes and contributions, but other sources include interest income or certain types of charges (for example, penalties for contributions paid in arrears). Typically, the income side of the current account of a social protection institution contains the following items:

Box 1.2 (cont'd)

Receipts of a social protection scheme, by type:

Social security contributions

- Employers' social security contributions

    Actual contributions
    Imputed contributions[1]

- Social contributions by protected persons

    Employees
    Self-employed
    Pensioners and others

- Rerouted social contributions

General government financing

- Earmarked taxes
- General revenue

Transfers from other schemes

Other receipts

- Property income
- Other

These institutional accounts can be used as a basis for establishing national social accounts in the form of functional expenditure and income tables as shown above, or social accounting systems (SAS), which can be regarded as satellites in the system of national accounts.

It should be noted that if the accounts of all national social protection institutions in a country are aggregated into national social income and expenditure matrices, the position "transfers from or to other schemes" disappears. Moreover, a complete overview of the size and financial operations of an NSPS can be obtained only if a national SAS is established. The social accounts compile all social protection income and expenditure. They provide the basis for comprehensive budgeting or expenditure and financial planning in the NSPS, and are therefore crucial elements in national social protection resource management.

The key instruments for social protection resource management are social budgets. Social budgets are projection and simulation tools that are constructed from national social accounts essentially by linking expenditure and income items to demographic and economic developments. Social budgeting thus permits macro-financial planning in the social sector. The whole process of establishing social accounts and building social budgets is pivotal in national social governance.

> **Box 1.2** (cont'd)
>
> The techniques and *raison d'être* of social budgeting are explained in full detail in Scholz et al. (2000).
>
> *Note*
>
> [1] Imputed contributions are fictitious contributions that are "deemed" to finance a certain benefit. If the provision of sickness cash benefits for the first few days or weeks of illness is an employer liability, then in national accounts or fictitious institutional accounts these expenditures must be offset by fictitious contributions of equal amounts. Failing to do this would lead to unaccounted-for balances in the aggregate national social protection accounting.

income of individuals. If the total number of the population and the total income of the population are both normalized to 1, then the curve is a concave curve that increases in a two-dimensional graph from point (0/0) to (1/1). In a country with perfect income equality the curve would take the special linear case of $f(x) = x$. Figure 1.5 shows two unequal income distributions and compares them to the case of perfect income equality.

It is obvious that the lower concave curve describes a greater extent of inequality. The degree of inequality is commonly measured by the *Gini coefficient*, which represents the area between the concave curves and the straight line expressed as a percentage of the triangle under the straight line. It is obvious that the Gini coefficient takes values between 0 and 1, and that the smaller the Gini coefficient the more equal is the income distribution.[7]

If we assume that the cumulative income function $w(x)$ is a continuous function, then the coefficient can be mathematically represented in the following way:

$$Gini = \left(1/2 - \int_0^1 w(x)dx \right) \Big/ (1/2) \qquad (1.1)$$

However, in real life income functions are discrete functions allocating a cumulative income value $w(k)$ to each individual k. The above continuous case can thus be turned into a formula in which the integral sign is replaced by a sum sign. Assuming that all inhabitants of a country could be enumerated, the coefficient could be calculated as follows:

$$Gini = \left(\sum_{k=1}^{n} e(k) - w(k) \right) \Big/ \sum_{k=1}^{n} e(k) = \sum_{k=1}^{n} (k * \bar{w} - w(k)) \Big/ \left(\sum_{k=1}^{n} k * \bar{w} \right) \quad (1.2)$$

Figure 1.5 Three typical Lorenz curves
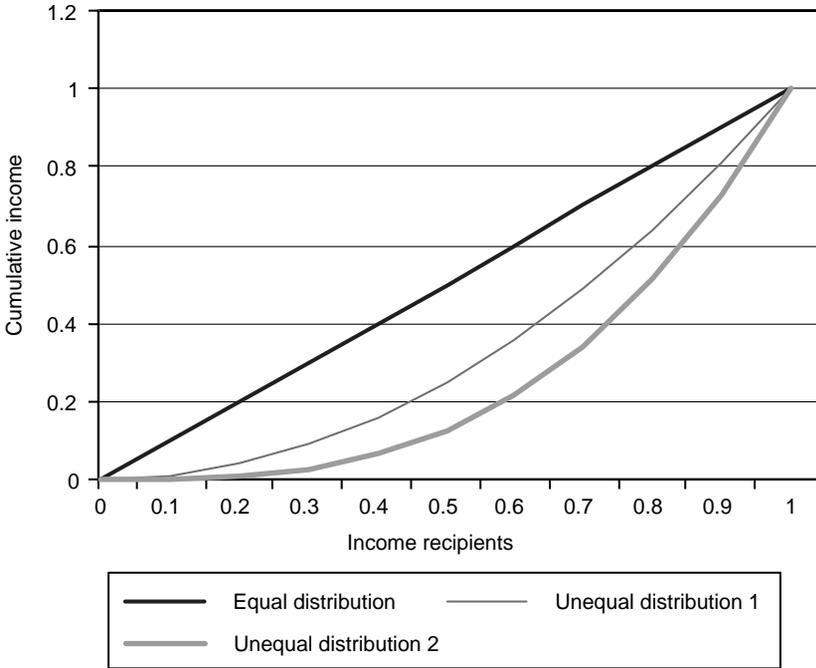
Source: ILO.

where $\bar{w}$ *is* the average income of all individuals $k = 1, \ldots, n$ with income $w(k)$, and $e(k)$ represents the cumulative income of the k poorest income earners in the equal distribution case. This is equal to:

$$Gini = 1 - 2 \sum_{k=1}^{n} w(k) / \bar{w} * n * (n + 1) \qquad (1.3)$$

In reality it would hardly ever be possible to enumerate all individuals, so the Gini coefficient is usually calculated on the basis of sample data. Another common simplification is to divide all individuals into 10 groups of equal size with increasing average income and then calculate the Gini coefficient on the basis of the average income of these groups. Again, if incomes and total population are normalized to 1, this formula is:

$$Gini = \sum_{k=1}^{10} 0.1 * (\bar{e}_k - w_k) \Big/ \sum_{k=1}^{10} 0.1 * \bar{e}_k \qquad (1.4)$$

31

where $\bar{e}_k$ is the average value of the cumulative equal distribution function for class k, and wk is the average value of the cumulative income function $w(k)$ for class k.

It is obvious that as the number of classes increases from 10 towards n, the results for formula 1.4 would approximate the results obtained from using formula 1.2. Likewise, as n moves toward infinity the results of formula 1.2 would approximate those of formula 1.1. For practical purposes, using formula 1.4 is usually sufficient. In the above example, income distributions 1 and 2 were given by the distribution functions $f(x) = x^2$ and $g(x) = x^3$ respectively. The Gini coefficients for the two distribution functions would be, respectively, 1/3 and 1/2. Using formula 1.4 results in values of 0.3300 and 0.4950, respectively.

Other frequently used measures of income inequality are based on the concept of the statistical variance of incomes around the mean. The resulting values often have little explanatory power for the general reader. Accordingly, an indicator which tries to capture the notion of the variance is often used, namely the P10/P1 ratio, defined as

$$P10/P1 ratio = w_{10}/w_1 \qquad (1.5)$$

that is, the ratio of the average income in the highest income class to the average income in the lowest income class. Another similar measure that is often used is the $P9/P1$ ratio, using the highest incomes in the respective classes.

1.4.1.2 Measuring poverty

For a long time, poverty was viewed in economics as a mono-dimensional income phenomenon. Now it is increasingly seen as a multi-dimensional phenomenon, including such dimensions as cash income, health, education and asset protection, among others. A family with a per capita income just above the official poverty level and without access to free health care is at permanent risk of slipping into poverty. If one person falls ill, the resulting financial needs will overburden the family income even though, under normal circumstances, in terms of income neither the family nor the ill person would actually qualify as poor. However, the most frequently used poverty measures are still measures of income. Two of them are of particular importance: the *poverty headcount index* and the *poverty gap*.

Any indicator for income poverty requires a comparative benchmark – that is, a poverty line. The poverty line is the per capita income level (generally for an adult) that constitutes the border between those who are poor and those who are not considered poor. When it comes to defining that line, there are two schools of thought: those who believe that poverty is absolute and those who believe that poverty is a relative phenomenon.[8] The proponents of the absolute-poverty

approach see the poverty line as a priced basket of essential food items, often augmented by other factors to take into account essential non-food needs such as clothing and shelter. The other school of thought defines the poverty line as a fixed proportion of a general income indicator – for example, per capita income or the average wage.

The poverty headcount index is simply the proportion of persons in the total population whose income is below the poverty line. When this index is calculated, children, adolescents and the elderly are given less than full weight (that is, adults are taken as the standard, whereas a child or an elderly person may be counted as only 0.75 of an adult). It is obvious that the relative concept has its advantages in times of rising general incomes. Since the poverty line shifts in tandem with the chosen anchor-index (such as wages per capita), if the country in question provides any anti-poverty benefits then benefit levels will automatically increase if the anchor index increases. However, in times of economic downturn – as experienced by many Central and Eastern European countries after the political turnarounds of the early 1990s – the relative concept may lead to an underestimation of poverty. If prices increase or remain constant while the nominal income anchor index simultaneously drops or stagnates, then more and more people will fall below the absolute poverty line – provided that income distribution as a whole moves downwards. In this case a relative poverty measure might not change at all.

The headcount index does not give any indication as to how "deep" poverty might be in a given society. This aspect can be measured by the average distance between individual income and the poverty line, which is generally called the "poverty gap". However, this index does not measure the number of the poor. The *aggregate poverty gap* combines the concept of numbers of poor people with the concept of the depth of poverty. It is the sum total of all differences between the poverty line (whether it is defined in relative or absolute terms) and the per capita income of people whose income falls below the poverty line. Figure 1.6 shows the poverty gap in the case of the second unequal income distribution used above. The poverty gap is the area between the straight line to the left of the graph and the original average income function (for the ten income categories). It is assumed here that the poverty line is equal to 37 per cent of the average income. The aggregate poverty gap can be expressed as an absolute amount in national currency units or, alternatively, as a fraction of the overall GDP. The second option is generally preferable, since it permits an assessment of the extent of poverty in a country in relation to the overall size of the economy. This relative indicator also allows international comparisons. The poverty gap is thus defined as:

$$pg = \sum_{\substack{k=1 \\ iw(k) \leqslant pl}}^{m} (pl - iw(k))/GDP \tag{1.6}$$

Figure 1.6 The poverty gap[1]
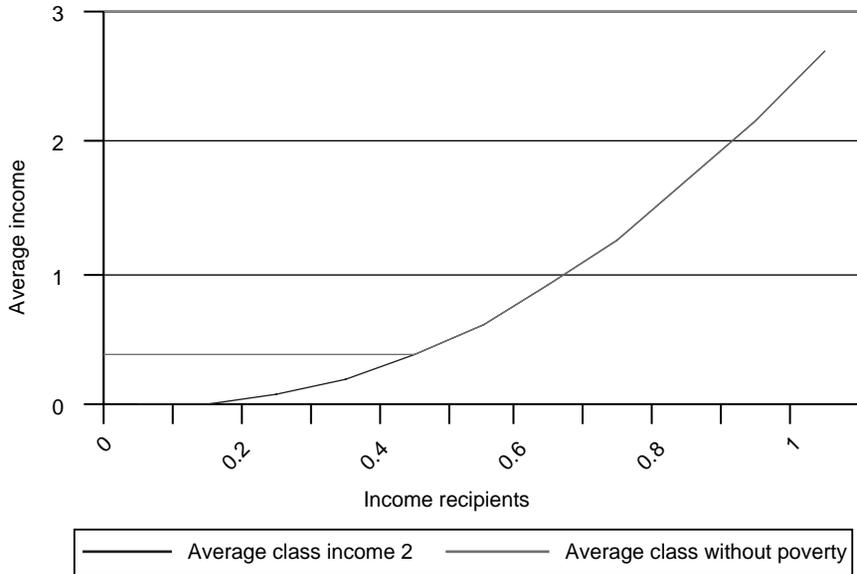
¹Assuming a poverty line of 37 per cent of average income.

Source: ILO.

where *pl* is the poverty line, *pg* stands for the poverty gap and *iw(k)* represents the individual wage, which is congruent with the cumulative distribution function *w(k)*.

Again, there are more sophisticated poverty indexes, like Sen's,[9] which combines individual poverty gaps, the headcount index and income inequality as measured by the Gini coefficient.

1.4.1.3 Measuring transfer efficiency

The above example is also interesting from the perspective of social protection financing. If the incomes of all impoverished individuals were to be brought up to the poverty line by means of a social assistance benefit, the government would require an additional number of transfers in the order of 12 per cent of total income. We are assuming here that income distribution would not be otherwise affected (i.e. that the transfers would be net additional income added to the country's total income). This may not be realistic if the group of income earners were equal to all income earners in the society. The redistribution of income to the poor would then normally have to be financed by additional taxation of the non-poor. This, in turn, would change the latter's disposable income and hence the distribution of income in the country. To simplify matters,

we will assume that the additional resources required for social assistance transfers would be financed through a reduction of non-transfer government expenditure – in other words, from sources "outside" the total amount of disposable income available to the population. Under these assumptions, the impact on the Gini coefficient would be substantial: the figure would drop from about 0.5 to 0.4.

If, alternatively, the government were to introduce a general income supplement of 12 per cent for everyone, then the necessary overall expenditure would obviously be roughly the same as in the social assistance model, but the Gini coefficient would not change (that is, the inequality would remain at a somewhat higher income level) and the poverty gap would still be as high as 8.4 per cent of total income. The two measures, while costing the same, do not seem to be equally efficient at closing the poverty gap. This small example shows that the Gini coefficient and the poverty gap may be used to judge the redistributive efficiency of an anti-poverty benefit.

Figure 1.7 shows the impact on income inequality of the social assistance benefit that brings everybody up to the poverty line (as shown in figure 1.6), using Lorenz curves to reflect income distribution before and after the social assistance transfer. Total income after the social assistance transfer has again been normalized to 1. The normalized Lorenz curve of a general income supplement would be equal to the original, more unequal, Lorenz curve. This does not necessarily mean that total disposable income in the country remains constant after the new transfer has been introduced. The normalized Lorenz curve merely measures relative inequality, which may occur at a level of average income.

On the basis of these assumptions, two indices of the efficiency of the two alternative redistributive measures (namely, the social assistance scheme versus the general income supplement scheme) can be developed here. The first is the "poverty target efficiency rate", which indicates what percentage of the total income transferred actually helps to close the poverty gap. The second is the "inequality target efficiency rate", that is, the degree to which a redistributive measure reduces the inequality gap (the gap between the straight equality line in figure 1.7 and the "inequality lines"). The reduction of inequality by means of the above-simulated social assistance scheme is shown in figure 1.7.

The area between the upper inequality curve (which describes the income distribution after social assistance transfers and normalization to 1) and the lower inequality curve (which describes the original unequal income distribution) is the absolute inequality reduction. The ratio between the amount of income represented by that area and the total income transferred by means of the redistributive measure is called here the "inequality target efficiency rate".

It should be noted in this context that social assistance schemes should normally have a high level of poverty target efficiency and a substantial impact on income inequality. After all, they are designed to combat poverty and income inequality. Other social transfer schemes, such as pension schemes, can

Figure 1.7 Reducing the inequality gap by closing the poverty gap
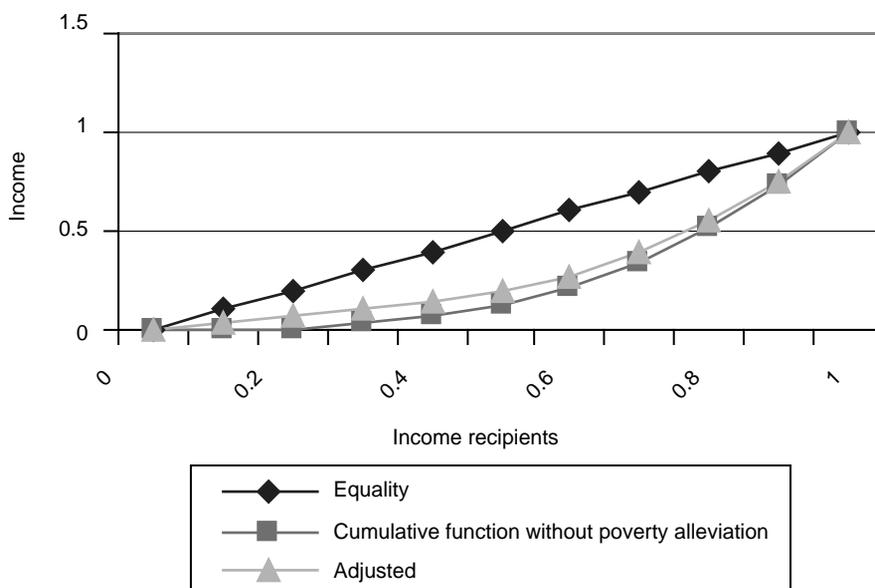
Source: ILO.

be expected to have much lower poverty reduction and redistributive efficiency ratios. Naturally they redistribute a substantial part of their transfers among higher income groups, since they are designed to replace income for all groups rather then aiming to close poverty gaps or reduce income inequality. Their effectiveness and efficiency may be measured by a variety of other indicators, which are described in Chapter 7.

Poverty target efficiency is defined as:

$$PTE = GDP(pg_1 - pg_2)/TTE \qquad (1.7)$$

where pg_1 stands for the aggregate poverty gap before or in the absence of the social transfer scheme to be analysed, and pg_2 and *TTE* represent the total transfer (expenditure) volume of the scheme. Both poverty gaps have to be calculated on the basis of a poverty line that remains the same before and after the new transfers – hence, on the basis of an absolute poverty concept.

Inequality target efficiency is defined as:

$$ITE = (Gini_2 - Gini_1) * TI_1/TTE \qquad (1.8)$$

where *TI* stands for total income in the group or society before any transfers have been made.

Table 1.5 Measuring the efficiency of two alternative transfers

Measure	PTE (Poverty target efficiency)	ITE (Inequality target efficiency)
Social assistance scheme that pays income supplements to all persons whose income is below the poverty line	1.00	0.80
General income supplement of 12% of income for all	0.7	0.0
Source: ILO calculations.		

The indicator values for the above two alternative redistributive measures would be as shown in table 1.5.

1.4.2 Factual evidence on the redistributive effects of social transfers

Figure 1.8 shows the net effect of public transfers and taxes on poverty rates (i.e. the poverty headcount index, which is perhaps the most significant indicator of income inequality) in OECD countries – that is, countries with fairly extensive social transfer systems and well-developed tax systems. The effects are nothing less than dramatic. The reduction of pre-tax and pre-transfer poverty rates ranges from between some 30 percentage points in Sweden to about 10 percentage points in the United States. In this context it is worth mentioning that the tax system itself can be used to make certain transfers. Tax breaks for low-income or large families or tax subsidies for contributions to social or private insurance schemes, for example, can all be considered as formal – albeit implicit – transfers. Many of these tax-based benefits are instruments of income equalization and thus explain a part of the redistribution described in figure 1.8.

However, the above effects must be interpreted with some caution. Generally, pre-transfer income distribution and poverty rates are calculated simply by deducting the sum of the transfers from observed household incomes. This provides only an approximation of the effects of transfers on income distribution. What we do not know is the extent to which informal transfers could be expected to replace formal ones if the latter were indeed abolished. In short, when analysing post-transfer poverty rates and income distribution, the counterfactual pre-transfer income distribution is only a theoretical construct. It is difficult to believe, for example, that in the absence of a formal basic anti-poverty benefit, a society, families, neighbours or communities would simply let the poor die. However, it should be clear that these informal transfers would not be able to achieve the same equality of treatment and benefit security as formal systems. Without entering into an ideological debate, it appears clear

Figure 1.8 Pre-tax and pre-transfer versus post-tax and post-transfer poverty rates, selected OECD countries, mid-1990s (total populations)

| ☐ Pre-tax and pre-transfer poverty rates | ■ Post-tax and post-transfer poverty rates |
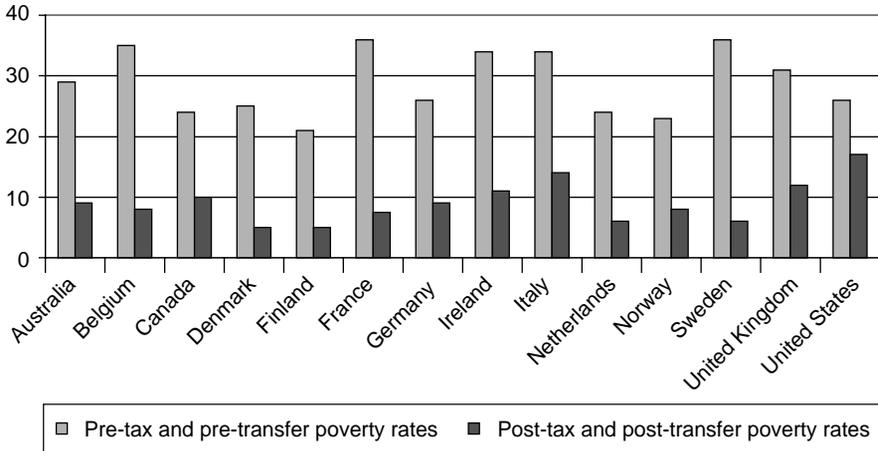
Source: ILO.

that all transfers involve some efficiency loss as a result of moral hazard and replacement effects caused by people receiving transfers even though they might have access to alternative income from work or informal transfers. There is no perfectly efficient transfer system. There are always hidden transaction costs, even if our theoretical efficiency measures indicate a high level of efficiency. This is the price to pay for living in a society that enjoys a high degree of income security.

In general, the effect of social transfers on overall inequality is much less pronounced. As can be seen from the example in section 1.4.1.1, social transfer systems may be "churning" substantial amounts of resources without impacting significantly on the level of inequality – as measured, for example, by the Gini coefficient. They may even completely abolish absolute poverty by simply shifting all incomes upward by an absolute amount, without affecting the level of inequality. Theoretically, this could be achieved, for example, by simply granting all members of a society a universal minimum income equivalent to the level of the absolute poverty line. Everyone's income would increase by the same amount, but the income disparities between individuals would remain constant – provided that this universal payment could be financed without regressing disposable incomes (for example, by using external sources of finance). It is therefore not surprising that the impact of transfers on inequality is less spectacular than their impact on poverty.

Table 1.6 shows the effect of transfers and taxes in selected OECD countries. Data for other countries are scarce or non-existent. It should also be noted that almost all industrialized countries experienced some increase in

Table 1.6 Effect of earnings, capital income, transfers and taxes on Gini coefficients, selected OECD countries, mid-1990s

Country	Original pre-tax and transfer Gini coefficient of earnings	Effect of income from capital and self-employment	Transfers	Taxes	Final post-capital, tax and transfer Gini coefficient
Australia, 1995	36.5	11.0	−3.0	−15.5	28.9
Canada, 1995	29.7	15.4	−1.3	−15.1	28.7
Denmark, 1994	26.6	9.9	−3.0	−13.0	20.5
France, 1994	25.3	9.2	−0.9	−5.9	27.7
Germany, 1994	33.3	8.6	0.0	−13.8	28.1
Italy, 1993	12.6	34.4	1.2	−14.0	34.2
Sweden, 1995	35.0	5.8	0.4	−16.4	24.7
United Kingdom, 1995	28.4	15.6	−2.5	−11.2	30.4
United States, 1995	38.5	10.6	−0.5	−15.2	33.3

Source: Förster and Pellizzari, 2000, pp. 87 ff.

wage inequality during the 1980s. Inequality increased most in the United Kingdom and the United States, and least in the Nordic countries (Gottschalk and Smeeding, 1997, p. 661). This may indicate that many societies' attitudes towards income equality are changing.

However, a relatively minor effect on inequality does not necessarily mean that formal and informal transfers are not achieving their objectives. In most countries, taxes are clearly designed to reduce inequality. Not all transfers have the same objective. The impetus for social transfers is not exclusively need, perceived need or inequality.

Social protection transfers also redistribute income in cash and in kind (such as health services) to people who are not poor and who could afford to live without a public pension, or who could afford – up to a certain limit – to pay out of pocket for their health services. The fact that the measurable income equalization effect of social transfers is smaller than what might be expected in view of the overall levels of expenditure – can in part be explained by a more extensive use of some social protection benefits (such as "free" health care or education) by higher income groups. This does not necessarily mean that such transfers are inefficient or ineffective.

They are ineffective only if they fall short of achieving their objective. And they are inefficient only when they are achieving that objective with an excessive use of resources. Many transfers are designed to transfer or replace income regardless of need but based on a set of explicit (in formal systems) or implicit (in informal systems) entitlements. A rich person may receive a basic universal pension simply because he or she has paid contributions or taxes for a specific, stipulated period. The pension is what is due to him or her in exchange

for the payment of contributions or taxes on the basis of an explicitly written contractual arrangement between the payer and his or her social protection institution. In an informal context, a daughter's dowry, for example, may not be strictly necessary, since the groom may be wealthy enough to provide a decent standard of living for the new couple; yet there are implicit rules or contracts in society that dictate such transfers.

It might seem reasonable, then, to abolish benefits for people who have no real need for them. Surely it would be more efficient economically to focus the whole transfer system on transfers paid out of general taxation to people in need. Why not simply adopt a no-fault attitude to poverty and give people what they actually need without operating huge redistributive insurance mechanisms that do not seem to make much difference in the distribution of income?

Most transfers are constructed the way they are for good reason – namely, public acceptance of transfers that go beyond strict effectiveness or efficiency criteria in risk management. As mentioned, one function of social transfer systems is to prevent poverty. The public perception is that this can and, to some extent, should be done by forcing individuals to earn entitlements to certain transfers in cases of defined contingencies. Regardless of whether the individual is in strict material need or not, these benefits will be paid whenever the contingency arises. No charity aspect is involved, no stigma, simply individual rights and entitlements. Having a right, an entitlement, is a value in itself. People are more likely to contribute to an insurance contract that provides them with self-earned income security. They are more likely to accept implicit benefit reductions as a consequence of redistributive transfers from the rich to the poor, often built into such transfer systems (for example, through the payment of income-dependent contributions in health insurance schemes, while benefits are essentially needs-based) than financing the payment of an exclusively pro-poor benefit out of general taxes. The sum total of taxes plus contributions collected in a society that establishes inalienable rights-based benefit entitlements may be higher than in a society that relies exclusively on needs-based and means-tested benefits (see discussion in Chapter 4).

However, transfers operated by state or parastatal entitlement-based insurance systems may also be inefficient. Unnecessary benefits may be provided, triggered merely by the availability of resources (for example, high-cost "luxury" accommodation in hospitals). If not strictly designed or administered, transfers may also foster excessive dependency by encouraging individuals to live on benefits even though they could be economically productive (as in the case of overly generous student grants or entitlement to premature retirement).

To sum up, all that this means is that actual social expenditure as reflected by national statistics or surveys does not indicate whether transfers are effective and efficient. A high level of social transfers overall could conceivably be combined with extreme inequality within a society. The question here is whether a certain normal level of transfer efficiency in a society can be estimated as a benchmark for broad efficiency checks of national social transfer

systems. Such an estimation should include formal (private and public) and informal transfers, in order to permit a true comparison between countries with dominantly formal transfer systems and countries with dominantly informal systems. A normal level of efficiency would be defined as a level where all members of society would be guaranteed a certain level of consumption deemed adequate according to national societal values. Section 1.5 sets out to establish a first estimate of total normal transfer levels in societies. This is new methodological territory.

1.5 ESTIMATING OVERALL NORMAL TRANSFER LEVELS

If it is accepted that the ultimate purpose of social transfers is to achieve an adequate level of consumption across all groups of society, then it should be possible to determine a normal level of transfers by assuming normal consumption levels for the different active and inactive groups. On the basis of such consumption levels, we can establish a normal level of total (informal and formal) social transfers that a society must accept if it wants to provide a certain agreed-upon level of consumption to the inactive sector of the population.

Thus, the necessary overall volume of income transfers is determined by:

- the demographic situation and employment in a country (which together determine the level of overall dependency in society); and
- society's ethical norms concerning the "adequate" level of consumption for inactive members of that society.

Once a country has accepted an ethical norm, what remains is the selection of the portfolio of formal and informal redistributive mechanisms by which the necessary transfers will be achieved.

The exercise set out in box 1.3 shows the results of estimating the normal levels of transfers in different regions.[10] The estimates refer to the period from 1990 to 2050. As a basis for this (admittedly highly abstract) exercise, a simple static model which assumes that employed active persons earn all the income in a society (wages plus profits) was developed. The central outputs of the model are the ratios of the three basic types of transfers (transfers to children, to the elderly and to inactive persons of active age) to total earned annual income in the country and the sum of those transfers, which represents the total of social transfers. This total is called the *total normal transfer ratio*. The exercise finds that, should the model calculations hold true, the total transfer ratios that most regions (with the exception of Africa and Asia) might have to expect within the next 50 years are in the order of 40–50 per cent of GDP – not dramatically different from present levels in most cases. This level of transfers could be lowered substantially by measures that would contribute to the reduction of dependency, such as greater labour force participation of women or higher retirement ages.

Box 1.3 Calculating and projecting total social transfer ratios

For all the regions the per capita income earned by the employed population is set to 100 currency units in the starting year of the exercise (1990). It is then assumed that the active employed population would share this income with children, inactive persons in the active age group, and persons past active age. The initial assumption is that the ratio of a child's level of consumption to that of an active employed person is 0.25 to 1, that of an inactive person to that of an active person is 0.75 to 1, and that of a person past active age to that of an active employed person is, again, 0.75 to 1. This is, of course, a discretionary assumption. Other assumptions could be tested as well.

The following other (conservative) assumptions are made:

(1) Future activity rates are kept constant for each age group in the base scenario, but alternative scenarios were also tested, involving a gradual increase of the retirement age and a gradual increase of female labour force participation in the labour market:

- increase of the retirement age by five years between 2000 and 2050 (at a rate of one year every ten years);
- female participation rates equal to at least 80 per cent of male participation rates in 2050, for each age group.

(2) In industrialized countries (OECD and Central and Eastern Europe), reduced rates of growth for total employment are assumed for future years compared to those observed between 1950 and 1995. For the other regions, where benefits paid to the unemployed are limited, it is assumed that all active persons pursue some form of gainful employment (in either the formal or the informal sector). The effective rates of total employment growth are shown in box table 1.3.1.

(3) The household income share of GDP remains constant throughout the projection period and incomes increase in line with real GDP growth.

Box table 1.3.1 Assumed rates of employment growth for model calculations

Regional basis of classification	Annual rates of employment growth (%)	
	1950–95	1995–2050
OECD – Europe	0.4	−0.4
OECD – Others	1.5	0.3
Central and Eastern Europe	0.4	−0.3
Central Asia	2.3	1.0
Asia	2.0	0.9
Arab States	3.0	2.6
Africa	2.4	2.4
Latin America and the Caribbean	2.7	1.0
Average for all regions	1.8	1.0
Source: ILO.		

Box 1.3 (cont'd)

Since the consumption differentials between the payers and recipients of transfers are kept constant throughout the projection period, the estimates of the normal rates of transfer largely reflect changes in the demographic environment. As long as the differential between GDP growth and productivity does not change and the assumption of a constant profit and wage share of GDP is maintained, variations of the real rate of growth do not affect the relative transfer ratios. The projections are thus relatively robust with respect to the economic assumptions. Box table 1.3.2 shows the result of the exercise.

Box table 1.3.2   Estimated percentage of total income transferred to inactives (model calculations)

	Tranfers to retirees only			Transfers to all inactives		
i) Constant replacement rates, retirement age and labour force participation rates						
Regions	**1950**	**1995**	**2050**	**1950**	**1995**	**2050**
OECD – Europe	20.7	26.7	40.6	45.2	42.3	49.3
OECD – Others	15.4	19.8	32.3	41.3	36.3	42.9
Central and Eastern Europe	13.3	22.7	34.7	35.1	39.6	43.4
Central Asia	15.5	12.9	25.0	39.5	34.1	36.9
Asia	9.0	10.1	24.6	34.5	31.8	37.8
Arab States	13.3	9.5	20.0	51.3	47.2	44.3
Africa	7.6	8.1	13.0	37.8	39.5	31.1
Latin America + Caribbean	11.8	12.1	28.4	47.9	39.9	44.1
All regions	11.7	13.0	23.9	37.4	34.4	38.0
ii) Increasing labour force participation rates for women						
Regions	**1950**	**1995**	**2050**	**1950**	**1995**	**2050**
OECD – Europe	20.7	26.7	37.6	45.2	42.3	45.0
OECD – Others	15.4	19.8	30.1	41.3	36.3	39.3
Central and Eastern Europe	13.3	22.7	33.5	35.1	39.6	41.8
Central Asia	15.5	12.9	23.1	39.5	34.1	33.5
Asia	9.0	10.1	20.9	34.5	31.8	30.7
Arab States	13.3	9.5	13.2	51.3	47.2	26.7
Africa	7.6	8.1	11.0	37.8	39.5	24.8
Latin America + Caribbean	11.8	12.1	22.3	47.9	39.9	32.8
All regions	11.7	13.0	20.4	37.4	34.4	31.0
iii) Gradual increase of retirement age						
Regions	**1950**	**1995**	**2050**	**1950**	**1995**	**2050**
OECD – Europe	20.7	26.7	32.6	45.2	42.3	43.0
OECD – Others	15.4	19.8	29.9	41.3	36.3	40.5
Central and Eastern Europe	13.3	22.7	31.3	35.1	39.6	40.4
Central Asia	15.5	12.9	22.1	39.5	34.1	34.0
Asia	9.0	10.1	22.3	34.5	31.8	35.7
Arab States	13.3	9.5	18.4	51.3	47.2	43.2
Africa	7.6	8.1	12.0	37.8	39.5	30.0

Box 1.3 (cont'd)

Box table 1.3.2 (cont'd)

	Tranfers to retirees only			Transfers to all inactives		
Latin America + Caribbean	11.8	12.1	26.2	47.9	39.9	42.3
All regions	11.7	13.0	21.9	37.4	34.4	36.1
iv) Reduced benefits (from 75% in 2000 to 60% in 2050)						
Regions	**1950**	**1995**	**2050**	**1950**	**1995**	**2050**
OECD – Europe	20.7	26.7	35.3	45.2	42.3	45.5
OECD – Others	15.4	19.8	27.7	41.3	36.3	39.6
Central and Eastern Europe	13.3	22.7	29.8	35.1	39.6	39.8
Central Asia	15.5	12.9	21.0	39.5	34.1	34.2
Asia	9.0	10.1	20.7	34.5	31.8	35.2
Arab States	13.3	9.5	16.7	51.3	47.2	42.7
Africa	7.6	8.1	10.7	37.8	39.5	29.6
Latin America + Caribbean	11.8	12.1	24.1	47.9	39.9	41.5
All regions	11.7	13.0	20.1	37.4	34.4	35.5
v) All of the above (ii, iii, iv)						
Regions	**1950**	**1995**	**2050**	**1950**	**1995**	**2050**
OECD – Europe	20.7	26.7	26.2	45.2	42.3	36.8
OECD — Others	15.4	19.8	25.2	41.3	36.3	37.6
Central and Eastern Europe	13.3	22.7	25.8	35.1	39.6	35.3
Central Asia	15.5	12.9	17.2	39.5	34.1	28.3
Asia	9.0	10.1	15.9	34.5	31.8	26.2
Arab States	13.3	9.5	10.0	51.3	47.2	23.8
Africa	7.6	8.1	8.4	37.8	39.5	22.5
Latin America + Caribbean	11.8	12.1	17.2	47.9	39.9	28.4
All regions	11.7	13.0	15.7	37.4	34.4	27.0

Source: ILO.

The overall "normal" level of transfers defined as a share of GDP will probably increase slightly across all regions over the next five to six decades. Transfer increases in OECD and Central and Eastern European economies (due to rapidly ageing populations) contrast with decreasing total transfers in developing countries (due to dropping fertility rates). In regions with rising "normal" levels of transfers, the magnitude of the increase can be corrected by appropriate governance measures. This increase will be particularly significant in Asia and Latin America, which are undergoing rapid demographic transformation. By the middle of this century, if conditions remain the same, the ratio of transfers to retirees in these regions will be comparable to the current European ratio. In no region (except maybe Africa) will the total normal transfer ratio change dramatically during the next five and a half decades. This is rather surprising, given the prevailing opinion that social protection expenditure is growing unrestrainedly everywhere. In line with the ageing process taking place in all societies, the total transfer ratio will cover a marked structural shift away from child transfers and active-age transfers to old-age transfers.

Figure 1.9 Estimated total transfers and their composition (as % of GDP), selected regions, early 1990s
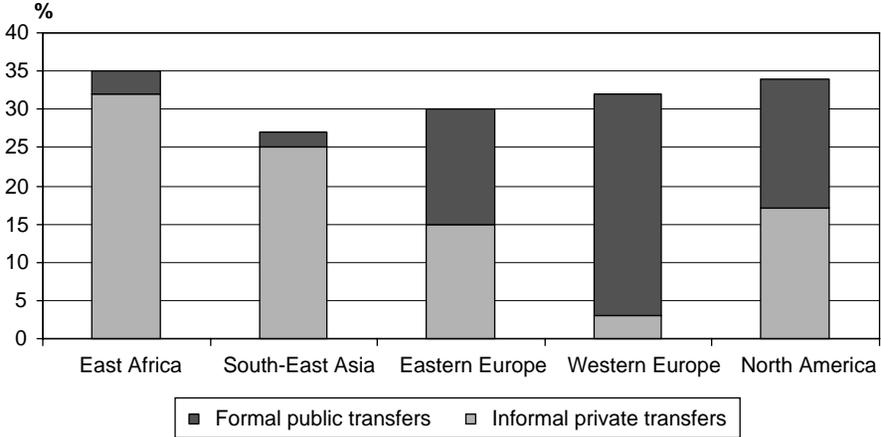
In a similar exercise, the ILO report to the International Labour Conference[11] compared the estimated overall level of transfers in the regions around the world with the statistically observed formal social transfer ratios (see figure 1.9). Although the methodology is not fully compatible with the exercise described above, this alternative approach confirms our basic finding concerning the present size of overall normal levels of national transfers.

Under the umbrella of "normal" income redistribution achieved by the totality of all formal and informal redistributive measures, the proportion of formal transfers (implemented through formal social protection systems) increases with the level of economic development. This increasing share reflects the changes in family and social structures that normally accompany economic developments that lead to increasing reliance on formal social transfers. It also reflects increasing population coverage and the increasing sophistication of benefit entitlement schemes. Yet even in OECD countries, the formal social protection expenditure projected on the basis of the same assumptions is smaller than the estimated total normal transfer ratio.

The increase in formal social transfers in developing countries is, to a large extent, a consequence of a maturation process. Our model simulations show that the overall level of formal social expenditure will also increase in virtually all regions with mature systems, albeit more slowly than in developing

countries. However, these increases, observed over the span of five and a half decades, are less then dramatic, and can be corrected by policy measures. Even without correction the overall level of formal transfers is and will most likely stay well within the necessary total levels as assessed on the global normal basis.[12]

Assuming a steady path of economic development one can infer that – with a time lag of several decades – developing countries will achieve a similar ratio between formal social protection transfers and the overall level of transfers. For the time being, the vast majority of all social transfers in these societies are still made through informal arrangements.

Although the above methodology may provide a reasonable approximation of normal transfer levels, it cannot serve as a basis for assessing the effectiveness and efficiency of formal national social transfer systems. Such assessments require a much more detailed performance analysis (see Chapter 7). Nevertheless, it can be stated that the mature formal sector schemes in OECD and Central and Eastern European countries do not, on average, seem to generate excessive overall expenditure levels. This does not automatically exclude the possibility that some NSPSs may be too generous in their benefit provisions or are wasteful owing to excessive administrative costs, for instance. In these cases public acceptance of expenditure levels might deteriorate in future.

1.6   ESTIMATING MINIMUM LEVELS OF FORMAL SOCIAL PROTECTION

The exercise described in box 1.4 takes the normative assessment of minimum levels of social protection transfers one step further. Cichon and Hagemejer (1996) have tried to estimate the minimum level of social transfers necessary for a typical country in transition. It was assumed at the time (in the mid-1990s, i.e. early on in the transition process) that the country would provide a realistic level of benefits under current circumstances (i.e. replacement rates of 50 per cent of average wages by cash benefits) and that the poverty level (in the base scenario) would be 30 per cent. This poverty level was not an unrealistic assumption for most Eastern European countries at the time. The estimated minimum transfers required to keep people above the UNICEF-defined poverty lines would be around 24 per cent of GDP. That this estimate is "not far from the truth" was demonstrated by a recent social budget exercise in Ukraine. The joint national and international task force established a current level of social expenditure of some 20 per cent of GDP, but the present social protection system cannot close the existing poverty gap completely.

Box 1.4   Quantifying a minimum level of social protection expenditure in a transition country[1]

For the calculation of minimum levels of social protection, a few basic structural and standard assumptions are needed. All of them are country-specific. For the sake of argument and for demonstration purposes, here we have used figures that may be considered typical for Central and Eastern European countries:

Structural assumptions (base scenario):

(1) Demographic composition[2]
population under 20:	29 per cent
population between 20 and 64:	58 per cent
population 65 and over:	13 per cent

(2) The system dependency rate can be kept at the 50-per cent level (which implies that current actual retirement ages must be increased).

(3) Employment rate: 80 per cent of working-age population

(4) Registered unemployment: 15 per cent

(5) Poverty rate[3] in total population: 30 per cent
    poverty gap: 30 per cent of the poverty line

(6) Wage share of GDP: 40 per cent[4]

(7) Employment in health services: 5 per cent of total employment

(8) Share of staff costs in health services: 50 per cent[5]

(9) Sickness and maternity result in an average absence rate of 7 per cent (6 per cent for sickness and 1 per cent for maternity).

(10) The overall administrative cost of all benefits, including maintaining the accounts of social care institutions, is included in average benefit calculations.

Normative assumptions (base scenario):

(11) The beneficiary rate in the unemployment benefit system is 70 per cent.

(12) An average benefit replacement rate of 50 per cent of the average wage, with a minimum equal to the poverty line (45 per cent of the 1993 average wage)[6] for all cash benefits, is acceptable to the population.

(13) Limiting family benefits to an average recurrent benefit of one-third of the poverty line is acceptable.

On these theoretical assumptions, the "rule of thumb expenditure level" for a country with the demographic, economic and social protection

Box 1.4 (cont'd)

structure described above – that is, the minimum cost of social protection – would be 25.4 per cent of GDP. It should be stressed that these assumptions would require all cash-benefit recipients to settle for an income equal to or only slightly higher than the poverty line. The long-term political acceptability of these assumptions is highly questionable.

The overall expenditure level is, of course, highly sensitive to various parameters. This sensitivity was tested using a simple deterministic model.[7] The base scenario established by the above assumptions was modified as follows:

Variant I – Older population: 22 per cent of the population under 20, 58 per cent between 20 and 64, 20 per cent 65 and over,[8] all other assumptions as in the base scenario.
Variant II – High unemployment: employment rate of 65 per cent and unemployment rate of 25 per cent, all other assumptions as in the base scenario.
Variant III – Low share of wages in GDP: wage share of GDP reduced to 35 per cent, all other assumptions as in the base scenario.
Variant IV – Poverty line replacement rates: average replacement rates reduced to the poverty line, all other assumptions as in the base scenario.
Variant V – High poverty: poverty rate increased to 50 per cent of the population, all other assumptions as in the base scenario.

The base scenario and the above modifications yield the crude estimates of overall hypothetical social protection expenditure shown in box table 1.4.1.

Box table 1.4.1   Cost of national social protection (as % of GDP): Model calculations

	Base scenario	Variant I Older population	Variant II High unemployment	Variant III Low share of wages in GDP	Variant IV Poverty line replacement rates	Variant V High poverty
Pension scheme	10.0	15.7	10.0	8.8	9.0	10.0
Short-term benefits	1.4	1.4	1.4	1.2	1.3	1.4
Unemployment benefits	2.8	2.8	5.8	2.4	2.5	2.8
Family benefits	3.8	2.9	4.6	3.3	3.8	3.8
Health care	4.0	4.5	5.4	3.5	4.0	4.0
Social assistance	3.5	3.6	5.0	3.1	3.5	5.8
Total	25.4	30.8	32.2	22.2	24.0	27.7

Source: ILO-CEET.

As can be seen in the table, overall social protection expenditure levels are very sensitive to ageing, poverty levels and wage shares of GDP. The ageing assumptions adopted in variant I are extreme, positing that the

Box 1.4 (cont'd)

population sector of pensionable age increases by more than 50 per cent in comparison to the base scenario. Such a major shift in any population would normally take many decades. In addition, the model assumes that there is no long-term feedback between ageing and population employment levels, which is a very conservative view. It can be assumed that part of the demographic burden will in future be eased by increased labour force participation.

Notes

[1] The case in this box was taken from Cichon and Hagemejer (1996).

[2] Approximate Bulgarian structure for 1991.

[3] Poverty rates and poverty gaps are median assumptions based on UNICEF data; see UNICEF (1994), p. 2.

[4] Data on wage shares of GDP are scarce. United Nations data give 1991 figures of 58 per cent for Hungary and 43 per cent for Bulgaria, including the employers' share of social security contributions. In Poland, the 1991/1992 share of wages and other labour costs was 48–50 per cent. Discounting social security contributions would produce a gross wage share of between 30 and 40 per cent of GDP. The assumed 40 per cent might thus already be normative. For purposes of comparison, the respective values for Belgium and Germany in 1991 were 54 per cent and 55 per cent.

[5] Bulgarian data (ILO/EU Commission, 1994).

[6] UNICEF uses 35 per cent of the 1989 real wage as its lowest national poverty line, which implies that the equivalent line for 1993 is much higher, since real wages have deteriorated dramatically since 1989 (for example, by 54 per cent in Ukraine, about 40 per cent in Albania and about 20 per cent in the Czech Republic). In order to update the poverty line, the Czech decline in real wages (the lowest in the region) was used here. The poverty line and poverty rates used here are therefore extremely conservative.

[7] As far as basic actuarial cost estimates are concerned, this model is a simplified version of the ILO social budget model ESTEEM (Employment and Social Transition Expenditure Model), suppressing the macroeconomic modules of ESTEEM, as well as most of the macroeconomic and internal social protection feedbacks (see ILO/EU Commission, 1994). This model serves here merely as a means of demonstration; it cannot by any means substitute for a full quantitative analysis of national social protection systems, using the bigger model.

[8] The ageing of the population leads to an increase in the per capita cost of health care. Based on a crude age-specific cost profile observed in Western Europe in the early 1980s (see ILO, 1989, pp. 129–130), it is estimated here that the assumed shift in the age structure leads to an average per capita increase of 12.5 per cent in health care expenditure compared to the base scenario.

1.7 NORMAL TRANSFER LEVELS AND THE AFFORDABILITY DEBATE

Many formal NSPSs around the world – notably in OECD countries – are currently being challenged on the grounds that they are too extensive and/or too expensive to be economically affordable. The arguments are often simplistic; using international comparisons to allege high levels of national social expenditure may suffice in a political debate.

Without entering into the economic aspects of affordability at this point, our previous observations concerning normal transfer ratios indicate that such simplistic challenges may be more political than factual. The demographic situation and economic activity rates in the OECD and Central and Eastern Europe necessitate a higher level of total transfers than those that are and will probably continue to be provided through formal social protection systems under status quo conditions. Any decent society has to redistribute a certain "normative" share of the total income earned by its active and employed members to its inactive members, in order to keep them out of poverty or destitution, or to provide them with an explicitly or implicitly agreed-upon standard of living. In virtually all societies the level of transfers will primarily reflect societal values.

As long as normal transfer levels are higher than the observed formal levels, transfers may be inefficient, but there is a priori no reason to believe that, overall, formal transfer levels are not affordable. Again, this does not automatically mean that the general level of *formal* transfers is accepted, or that the level of formal transfers in any of the chief categories of social expenditure is accepted. A society might prefer to channel a major part of these social transfers through informal arrangements. Giving in to political pressure to reduce formal systems will probably increase informal transfers to some extent. The net effect on total transfers may even be neutral. However, the effect of shifting transfers from formal to informal transfers will very likely increase the disparity of benefit levels between different groups in society. Accepting a higher benefit disparity is also clearly a matter of societal values.

The key to answering the question as to whether formal social transfer systems are affordable or not does not lie in an abstract analysis of overall expenditure (however tempting that may be), but rather in an analysis of transfer efficiency – that is, whether they achieve the objectives dictated by societal values with the fewest possible resources. If resources are wasted, there are social or economic opportunity costs. The unavailability of those resources for other purposes may have a negative impact on the GDP and hence on the public welfare.

The effectiveness of transfer systems is relatively easy to establish. Either they close the poverty gap or they do not; either they provide all elderly people with pensions or they do not. Efficiency, however, is harder to define, except in the case of anti-poverty benefits. Sometimes high transaction costs, normally interpreted as an indication of waste, might still be considered efficient if they

"buy" societal acceptance of necessary transfers. As long as we do not know exactly how to define waste, we are not in a position to answer the affordability questions as clearly as we would like to.

1.8 SUMMARY

The most important fact to bear in mind is that social protection takes place in all societies. Economically, social protection systems are essentially transfer systems, transferring income or improved consumption. Formal social transfer systems or national social protection systems ("welfare states", in a somewhat looser definition) are only one part of a society's overall social transfer system which comprises formal and informal transfers. There is clear evidence that formal social protection systems are an effective means of modifying pre-transfer income distribution. In some countries formal transfer systems have quite a spectacular impact on national poverty rates, even if the counterfactual distribution (that is, what income distribution would have been without formal transfers) is unknown. The impact on income inequality is less pronounced.

On the whole, in almost every society overall social transfers appear to extend beyond the formal transfer system. There is room – in fact, a need – for social transfers in any society, and that room is apparently not completely filled by formal schemes.

Against this background, the debate on the economically affordable level of social expenditure seems somewhat academic. The real question behind the debate on economic affordability has little to do with the level of expenditure, since a certain normal level of "expenditure" – or, better, transfers – will be incurred in any case (determined only by the ethical standards of a society). As long as that level is accepted, the global allocation of resources to social transfers will not be questioned. However, this does not necessarily mean that the actual pattern of transfers – that is, the portfolio of transfer mechanisms chosen by the country in question – will not provoke negative reactions that may impair economic performance. Neither does it mean that current levels of social expenditure are efficient. The core of the affordability debate is thus the political acceptability and financial, economic and fiscal efficiency of the existing pattern of financing transfers in general.

Maintaining the economic affordability and political acceptability of national social protection systems translates in practice into:

(a) the policy problem of achieving consensus on a specific mix of formal and informal mechanisms for financing an implicitly or explicitly agreed-upon level of benefits;

(b) the governance problem of ensuring social effectiveness, and financial and fiscal efficiency.

Societies can afford to share as long as they agree to share and as long as they believe that the way they have chosen to share is effective and efficient. Ensuring effectiveness and efficiency is the challenge we will take on in the following chapters.

Further reading

To find out more about standard social accounting conventions, see:

- Scholz et al. (2000), Part II

For more information on poverty and inequality, turn to:

- Barr (1993), Chapter 5
- Atkinson (1995d), Chapters 3 and 10.

Notes

[1] Evidence for this is provided, for example, by Simister and Piesse (2002) for South Africa, and Koolwal and Ray (2002) for Nepal.

[2] This section draws heavily on the concepts and definitions used by Hagemejer (2000).

[3] See Cichon and Samuel (1995), pp. 1–2.

[4] Under certain conditions they can be regarded as substitutes for government-induced arrangements.

[5] The system and the figure include voluntary private arrangements which are used in some German definitions but, as pointed out earlier, fall outside the general scope of this book.

[6] Micro-simulation models are models that operate on a disaggregated household basis. They are generally used to assess the effects of certain transfer schemes on the income of different types of households. If well designed they may be almost perfect substitutes for costly pilot studies. The basic "modelling philosophy" of micro-simulation models is explained briefly in Scholz et al. (2000), pp. 79 ff.

[7] There are various other inequality indexes (e.g. Atkinson's). See Barr (1993), p. 158.

[8] See, inter alia, the discussion in Barr (1993), pp. 139 ff. The United States official poverty measure is discussed in Citro and Michael (1995), pp. 24 ff.

[9] As described, for example, in Förster and Pellizzari (2000), pp. 66 ff.

[10] The first exercise of this nature was developed by Gillion (1996). The calculations used here were undertaken by Denis Latulippe of ILO FACTS in 1997.

[11] See ILO (2001a), Chapter 5: "The Financing of Social Security". This estimate of the total normal social transfer ratio assumes that the economically active population (including the unemployed) earns all the income in a country (i.e. profits and wages) and is willing to share this income with children, inactive persons in the active-age group, and persons past the active age. It is assumed here that the relation of an economically inactive person's consumption to that of an active person is 0.666 to 1. This is, of course, a discretionary assumption. It assumes implicitly that a shift of dependents between old and young age groups will not necessarily change the overall degree of sharing. Added to cash transfers are crude estimates for the regional cost of health care, which are largely transfers in kind between groups as well as within groups. The transfer costs of unemployment benefits have been left out, since the data situation would lead to compatible figures between the developed and developing world. Formal transfers

amounting to about 2 per cent of GNP could be added to the transfer ratios in Europe, North America and Oceania. In this case we would have to add informal transfers to the countries of the developing world, where the concept of unemployment is less clearly defined.

[12] However, caution is advised when interpreting a high share of formality at an overall "normal" transfer level as a desirable sign of development. A much more detailed analysis is necessary before that conclusion can be drawn. In a recent social budget exercise the ILO estimated a present overall formal social transfer level of 10 per cent for Turkey. The difference between this and the characteristics of the mature schemes in OECD and Central and Eastern European countries can be explained to a large extent by the different demographic structure and the fact that the Turkish system is far from mature. The pension scheme, for example, has reached population coverage of only about 40 per cent of the employed labour force. A calculation of the "normal" level of expenditure that could be estimated on the basis of the standard assumptions above shows that Turkey, like any developing country, still has a long way to go in formalizing its social transfers. This could be interpreted as an indicator of low social development, which in this case would be misleading. A closer analysis of the case also indicates the difficulty of making any global assessment of the adequacy of present social expenditure. Turkey still "pensions people off" much too early, and the present demographic ratio (i.e. the ratio of pensioners to contributors) is well above the ratio that would be demographically justifiable. The present overall level of formal social transfers – even at the observed comparatively low level – is thus too high rather than too low.

ANNEX 1-A1   DEFINING THE TERM "SOCIAL PROTECTION"

This annex explains and discusses the definition of formal social protection used in this book. The starting point is the definition adopted by the Statistical Office of the European Union (ESSPROS), which is itself rooted in the definition used in ILO Social Security (Minimum Standards) Convention, 1952 (No. 102), but extends it by including the risk of "social exclusion". As defined by ESSPROS, social protection "encompasses all interventions from public or private bodies intended to relieve households and individuals of the burden of a defined set of risks and needs, ... provided that there is neither a simultaneous reciprocal nor an individual agreement involved" (EUROSTAT 1996, p. 12).

The term "intervention" covers the financing of benefits and related administration costs, as well as the actual provision of benefits. The main forms of benefits are cash payments to protected persons, reimbursement of expenditure made by protected persons, and the direct provision of goods and services to those persons. This category should also include tax rebates or subsidies offered to individuals (reductions in taxes or social contributions paid by individuals or households). In specific cases, such as measures of labour market policies, we might also include indirect benefits in the form of preferential tax rates, tax rebates or subsidies that, although directed primarily at the production side of the economy, indirectly protect households (for example, wage subsidies paid to employers to encourage the recruitment of long-term unemployed). However, these measures should be clearly separated from the core social protection benefits provided directly to individuals and households.[1]

The following is the minimum list, used in ESSPROS and in this book, of needs and functions covered by social protection systems:

(1) sickness (income maintenance and support in cash in connection with physical or mental illness, excluding disability);

(2) health (health care needed to maintain, restore or improve health, irrespective of the origin of the disorder);

(3) disability (income maintenance and support in cash or kind – except health care – in connection with the inability of physically or mentally disabled people to engage in economic and social activities);

(4) old age (income maintenance and support in cash or kind – except health care – in connection with old age);

(5) survivorship (income maintenance and support in cash or kind – except health care – in connection with the death of a family member),

(6) family/children (support in cash or kind – except health care – in connection with the costs of pregnancy, childbirth and adoption, bringing up children or caring for other family members);

(7) unemployment (income maintenance and support in cash or kind – except health care – in connection with unemployment);

(8) housing (help towards the cost of housing);

(9) social exclusion not elsewhere classified (benefits in cash or kind – except health care – specifically intended to alleviate poverty and social exclusion where not covered by one of the other functions).

This list of functions was established on the basis of European experience. For a wider application, particularly in developing countries, the list should be extended. Benefits related to basic education and basic food and nutrition programmes should be included. Education benefits would cover free access to public education, fee waivers, free textbooks, and so on. Food and nutrition benefits would include food aid, food stamps and food subsidies.

With regard to various interventions and institutional arrangements directed at the economically active in agriculture and at the rural population, it is sometimes difficult to separate their social protection functions from their economic policy functions of subsidizing/protecting agricultural production. This is the case with many social security schemes for farmers, on the one hand, and agricultural input subsidies or crop insurance arrangements, on the other. Although input subsidies and crop insurance may play a role in supporting the incomes of rural households, they should not be classified as social protection schemes.

Another suggested extension of the core ESSPROS methodology concerns the unemployment function and treatment of labour market policies. ESSPROS is limited in this respect to benefits provided directly to beneficiaries (individuals and households) and excludes "indirect benefits", such as wage subsidies paid to employers, or reductions in employers' social security contributions/ taxes as an incentive to recruit the unemployed. At the same time EUROSTAT (1999) is developing a separate statistical module database on labour market policies. It covers a much wider range of measures than the core ESSPROS module, including not only direct transfers to beneficiaries but also transfers to employers (in the form of wage subsidies and reductions in taxes or social security contributions). We suggest embracing this wider treatment of the unemployment function, while making a distinction between direct and indirect interventions.

Table 1-A1.1 presents a proposed classification of social protection functions, which we intend to follow throughout this book. It is the same classification as the one used in the ILO's Social Protection Expenditure and Performance Reviews (SPERs) (see Chapter 7). Lower-level classifications should focus, especially in the case of services, on categorizing basic services along the lines of the UNICEF/UNDP 1998 study of public spending on basic social services. Within the health care function in particular it should be possible to distinguish basic health services (these would include prevention, reproductive health care and basic curative care).

Table 1-A1.1 Classification of social protection functions

	Main functions	Possible lower-level classifications
I.	Health care	Prevention
		Primary health care
		Other health care
II.	Sickness	Paid sick leave
		Other cash benefits
III.	Disability	
	Disability cash benefits	Disability pensions
		Other cash benefits (including tax benefits)
	Disability benefits in kind	Residential care, day care and rehabilitation, home-help services and others
IV.	Survivorship	
	Survivors' cash benefits	Survivors' pension (widows, widowers, orphans)
		Other cash benefits (death grant, other)
	Survivors' benefits in kind	Funeral expenses, etc.
V.	Employment injury	
	Employment-injury cash benefits	Temporary cash benefit to the insured
		Disability pensions to the insured
		Other cash benefits to the insured
		Survivors' pensions
		Other cash benefits to survivors
	Employment injury benefits in kind	Health care
		Other benefits in kind
VI.	Old age	
	Old-age cash benefits	Old-age pensions
		Other cash benefits
	Old-age benefits in kind	Accommodation, care, etc.
VII.	Family and children	
	Family and child cash benefits	Maternity benefit
		Birth grant
		Parental-leave benefit
		Family or child allowance
		Other cash benefits (including tax benefits)
	Family benefits in kind	Day care, accommodation, home help, other
VIII.	Unemployment and labour market policies	
	Unemployment cash benefits	Unemployment benefit (unemployment insurance, unemployment assistance)
		Severance pay (redundancy compensation)
		Early retirement for labour market reasons

Table 1-A1.1 (cont'd)

	Main functions	Possible lower-level classifications
	Labour market programmes	Labour market training
		Placement services/job-search assistance
		Job rotation and job sharing
		Labour cost subsidies and reduction of taxes/social contributions
		Sheltered work (rehabilitation schemes)
		Job creation in the public or non-profit sector
		Start-up incentives
IX.	Housing	Cash benefits
		Rent/energy subsidies
X.	Social assistance and other	Low income (cash, services)
		Indigenous persons (cash, services)
		Immigrants/refugees (cash, services)
		Miscellaneous (cash, services)
XI.	Basic education (primary)	Cash benefits (including tax benefits) and benefits in kind
XII.	Food and nutrition	Food aid, food stamps, food subsidies

The lower levels of benefit classification should be adjusted to the particular situation of the country. It is important to distinguish between cash benefits and benefits in kind. Within the category of cash benefits we can distinguish between periodic payments, lump-sum payments and reductions in taxes or social security contributions (tax benefits). Benefits in kind include reimbursements and direct provision of goods and services. Another important distinction to be made is between conditional and unconditional benefits, which can be further categorized as means-tested or non-means-tested.

In the definition used here, providers of social protection must be public or private institutions ("public or private bodies"). Institutions of social protection are considered here as all institutions that administer a certain type of benefit or a variety of benefits. Clearly social insurance schemes are such institutions. Governments, too, can act as social protection institutions. The ministry of finance collects general revenues. If a portion of these revenues (which does not need to be earmarked) is used to finance social protection benefits such as a national social assistance scheme or a national housing subsidy scheme, then the ministries of welfare and of housing which may be administering the schemes would be regarded as institutions of social protection. The crucial defining element is whether the institution provides or delivers benefits.

Note

[1] The condition excluding simultaneous reciprocal agreements does not preclude the possibility that social protection benefits might be conditional on some action to be undertaken by the beneficiary (such as taking part in a vocational training programme) provided that this action does not have the character of salaried work or sale of services. Within this category, social protection provided directly by employers to their employees is limited to:

− the continued payment of normal or reduced salaries during periods of absence from work as a result of sickness, accident, maternity, etc.;

− the payment of statutory special allowances for dependent children and other family members;

− health care not related to the nature of the work.

The exclusion of individual arrangements does not entirely rule out taking individual insurance policies into account. When an employer provides social protection to employees in the form of insurance, sometimes policies are taken out in the names of the individual participants. On the other hand, not all collective contracts are necessarily taken into account. An insurance policy should be included in the scope of social protection if it is based on solidarity, whether or not it is taken out at the initiative of the person insured. The insurance policy is based on the principle of social solidarity if, as a matter of policy, the contributions charged are not proportional to the individual exposure to risk of the people protected. Examples include schemes established specifically for persons belonging to the same profession or trade, insurance offered by mutual benefit societies, micro-insurance schemes and government-based voluntary schemes open to certain categories of households (owners of small businesses, farmers, etc).

THE SIZE OF THE WELFARE STATE: TRENDS, PATTERNS AND DETERMINANTS OF SOCIAL EXPENDITURE

2

Before discussing in the next chapters the full range of mechanisms that countries can use to finance a certain level of formal social expenditure through social transfers or to assess the impact of the social protection system on the economy or the public budget, we need to consider the size and measurement of social expenditure as well as its structure, developmental patterns and determinants.

It is obvious that social expenditure changes along with the state of economic development – generally it increases. These increases are driven by three sets of factors:

(i)   the demographic situation and development of a society;

(ii) the system of governance – that is, the set of entitlements to social benefits that reflects societal values and is codified in national laws or collective agreements, and the chosen patterns of supervision, management and administration; and

(iii) the economic environment.

In the following sections we will describe past trends and offer some projections of national social protection expenditure, analyse certain developmental growth patterns of social expenditure derived from observations and projections, and discuss the impact of the above determinants on the total volume of social transfers.

Sound financial governance of a social protection system requires meticulous projections of social expenditure in order to establish the future financial volumes that have to be met by different financing instruments. The methodology for these expenditure projections is explained in full detail in three other volumes of the Quantitative Methods series[1] and will therefore not

be discussed here at length. The present chapter thus focuses on providing the readers with a broad understanding of the general pattern of expenditure developments and its determinants. However, for the benefit of those readers who will not have the opportunity to explore the methods for the projection of expenditure in various social protection benefits schemes, a methodology for a simple benchmark projection technique is explained in the form of exemplary projections.

2.1 SOCIAL EXPENDITURE RATIO: A BASIC MEASURE AND ITS LIMITATIONS

Before setting out to analyse worldwide trends and expectations we need to define the key indicator commonly used to measure social expenditure, namely the social expenditure ratio (SER). This ratio is the total amount of all expenditure on social transfers [Te*(t)*] in a year *t* related to the gross domestic product (GDP *(t)*) of the country in the same year *t*:

$$\mathbf{SER}(t) = \mathbf{TE}(t)/\mathbf{GDP}(t) \qquad (2.1)$$

The SER is a relative concept. Absolute amounts of expenditure have little explanatory power, as they are directly dependent on variables such as the size of the country's population or the level of income. They also neglect the aspect of purchasing power parities which needs to be taken into account in international comparisons. A few million US dollars can signify high overall social spending in countries of the Caribbean but would mean very little for the United States or even for its individual states. Ultimately, one would not expect a small country like Estonia, for example, to spend on social causes as much as its more populous neighbour, Poland. Most social transfers are directly or indirectly related to national income or GDP levels. Pensions, for example, are normally related to the recipients' former income or to the national average wage. Their amount will hardly be set by law without regard to the national income level. There are only a few countries that have no provisions in place to link pensions in some way to the current level of income of the working population. Even the amount that a country spends on medical care, usually the second-largest expenditure item in national social budgets, will be related in some way to the general income level since provider incomes will have some connection with the overall average per capita income. In fact, the major share of health expenditure in most countries consists of staff cost (wages, social security contributions and other non-wage benefits). Relating social expenditure to the country's GDP thus provides for a measure of international comparability. This relative concept allows international comparisons, has an intuitive appeal and is moreover easy to calculate. In fact, the SER is currently both the most widely used and the most aggregated performance indicator found in international comparisons.[2]

However, there are some critical aspects that this indicator does not reveal. Measuring and projecting social expenditure alone is not an end in itself. It only makes sense if expenditure analysis is also used to ascertain whether the monies invested into the social sector are well (that is, effectively and efficiently) spent. This means that the SER should be accompanied by a thorough expenditure analysis using a whole set of further indicators of effectiveness and efficiency. High expenditure does not automatically indicate effective or efficient spending. Consider, for example, the case of medical equipment or pharmaceuticals that are covered by patent law and must be bought at high prices in international currency. They cause high expenditure but may produce very little health gains compared to risk prevention strategies like a basic hygiene or HIV/AIDS awareness campaign. The expenditure for such campaigns may not even show up in national social protection accounts as they may be financed by educational facilities or employers. Moreover, the SER does not contain any information about the comprehensiveness and depth of the national social protection system (NSPS), nor does it provide any indication with regard to the distribution of benefits. Furthermore, it gives no indication as to whether monies entrusted to the social transfer system are spent effectively with respect to the alleviation of poverty and social insecurity.

The determination and use of a disaggregated set of performance indicators for national social transfer systems are thus one of the most important tasks of social governance (see also Chapter 7) as they permit to identify any shortcomings in the efficiency and effectiveness of social spending. Indeed, inefficiency may have very high cost: it may trigger adverse reactions such as tax avoidance on the taxpayers' side and, simultaneously, an abuse of benefits. Apart from the loss of resources spent inefficiently, the social protection system in question is putting its credibility on the line. Detecting and abolishing inefficiencies inherent in existing social transfer systems can lead to a mobilization of resources in the same way as the introduction of a new social tax or contribution.

Chapter 7 provides a whole set of further performance indicators. However, when it comes to assessing the adequacy and performance of national social protection systems, the SER remains – for want of a better indicator – the first port of call.

2.2 EXPENDITURE TRENDS AND PATTERNS

Based on observed past expenditure developments in the different regions, this section describes typical developmental and structural patterns of social expenditure in formal NSPSs. While expenditure levels clearly vary between countries, the similarity of the developments over time in terms of relative expenditure increases, and the composition of the expenditure is largely due to the systems' maturation processes.

Table 2.1 Social security expenditure by region and major function (as % of GDP), mid-1990s

Region	Total social security expenditure	of which: Pensions	of which: Health care
All countries	14.5	6.6	4.9
Africa	4.3	1.4	1.7
Asia	6.4	3.0	2.7
Europe	24.8	12.1	6.3
Latin America and the Caribbean	8.8	2.1	2.8
North America	16.6	7.1	7.5
Oceania	16.1	4.9	5.6

Source: ILO, *The Cost of Social Security*.

2.2.1 Observed regional expenditure trends

Worldwide social expenditure has grown considerably over the past few decades. Table 2.1 describes the average level of public social expenditure in the world's six regions in the early and mid-1990s. Data were taken from the ILO's International Inquiry into the Cost of Social Security, which contains information furnished by national authorities largely including the classical nine contingencies that are listed by ILO Social Security (Minimum Standards) Convention, 1952 (No. 102).[3] Regional averages do not refer to all countries but rather to those for which data were available. It should also be noted that definitions of the types of expenditure that are subsumed under the heading "social" may not be identical everywhere, and at some point in time they may have been changed in individual countries.[4] Consequently, the data collected may not be fully comparable internationally and may not necessarily be consistent nationally. Such deficiencies are encountered by almost every international database.

The historical trends that led to the situations depicted in table 2.1 are summarized in the following sections. For more details on developments in individual countries in the period 1975–96, see the Statistical Annex to this chapter.

2.2.1.1 Industrialized countries

In OECD countries the share of GDP used to finance social expenditure nearly doubled between 1960 and 1990, reaching 18.3 per cent. For most European countries the figure is between 20 and 30 per cent (OECD, 1996a). North America and Oceania followed a similar trend, although to a lesser degree. A substantial proportion of the increase took place during the first 15 years of the period in question. The level of individual benefits and services improved sharply, and

Figure 2.1 Social protection expenditure in Europe (as % of GDP), mid-1990s
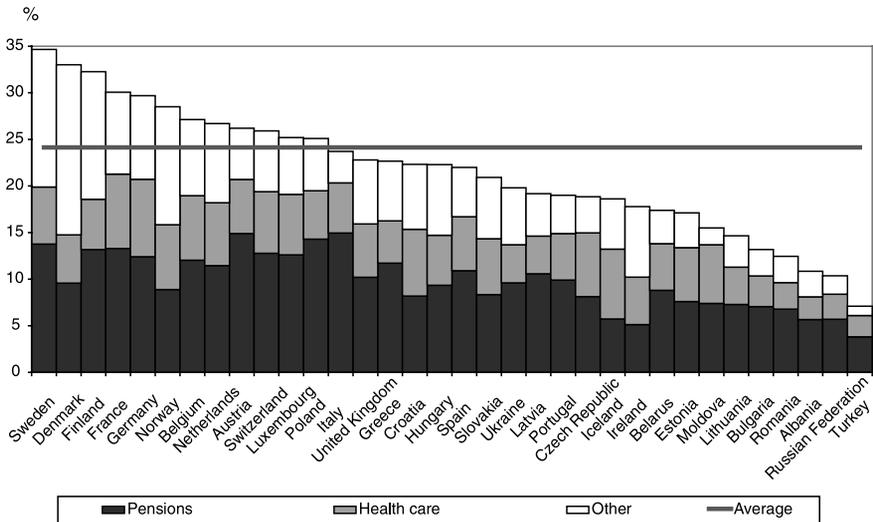
Source: EUROSTAT/OECD.

coverage of the social programmes was expanded to meet the needs of a greater share of the growing population. This rapid expansion of the welfare state was made possible by sustained economic growth and high levels of employment.

Europe as a whole has a substantially higher SER than North America and Oceania. The overall average is in the order of 25 per cent of GDP, with the ageing and richer countries of western and northern Europe generally above the 25 per cent line and those of southern and eastern Europe below it. Figure 2.1 presents the composition of social expenditure in Europe in the mid-1990s. Figures 2.2 and 2.3 relate the social protection expenditure ratio to per capita GDP levels, respectively government spending per capita. The correlation between GDP per capita and the SER is not as strong as one would expect; this aspect will be addressed later on. The correlation between the SER and government expenditure is higher, which most likely simply reflects the high share of public expenditure in total social expenditure.

A comparison of Central and Eastern European countries and European Union (EU) Member States in the years before 1990 shows that their expenditure on explicit social security systems represented a lower share of GDP than for the OECD, at rates between 10 and 20 per cent of GDP. However, these figures are not fully comparable, as they did not take into account the high level of implicit social expenditure in socialist countries. Expenditure on social employment and subsidies to state enterprises were instrumental to the goal of full employment. Moreover, consumer subsidies

Figure 2.2 Social protection expenditure ratio to GDP and GDP per capita in Europe
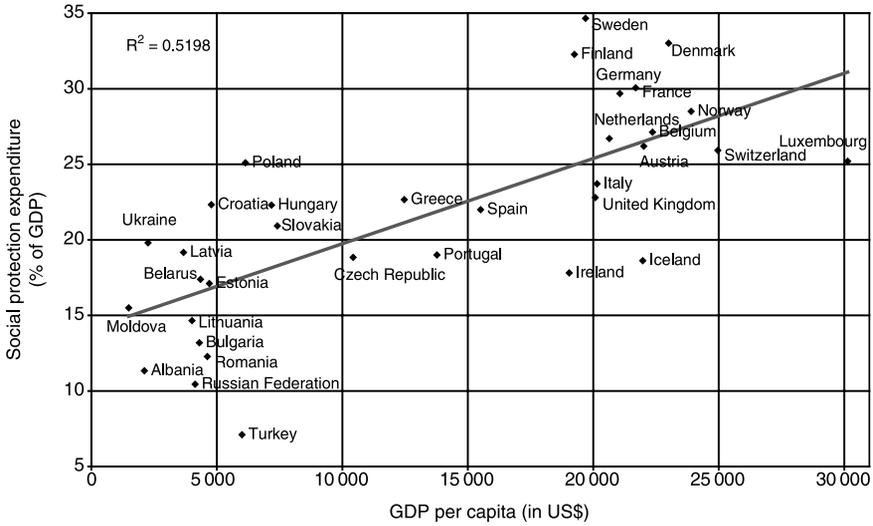
Source: Eurostat/OECD.

Figure 2.3 Social protection expenditure ratio to government expenditure per capita
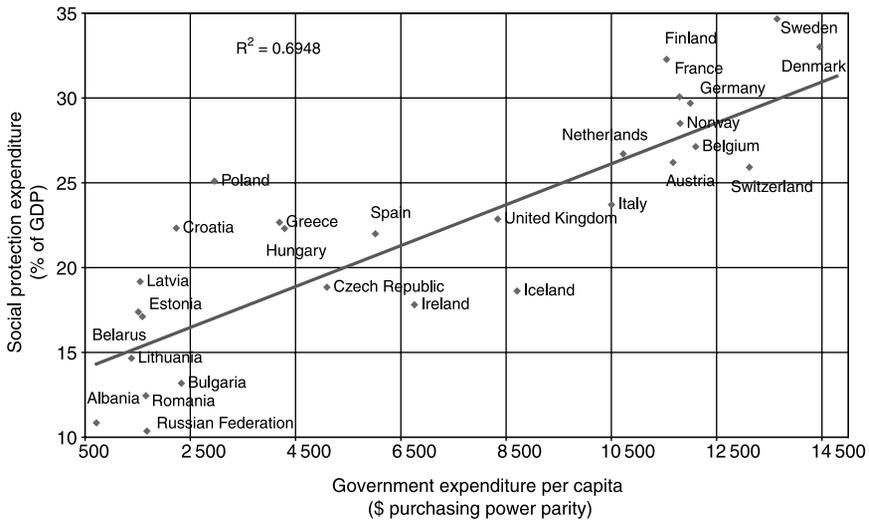
Source: OECD, National Statistics.

played an important role as a tool of redistributive policy. This implicit social expenditure can be estimated to possibly add up to approximately 10 per cent of GDP (Cichon and Hagemejer, 1996). Within the recorded social expenditure pensions were the major item, accounting for some 50 per cent. Unemployment insurance was inexistent and only limited resources were devoted to formal social assistance schemes. Since 1989 explicit social expenditure has increased as a percentage of GDP but decreased in real terms for Central and Eastern European countries as most of them have suffered a substantial reduction of their GDP. The structure of expenditure has shifted due to the recording and increase in unemployment, but only marginal shares of expenditure are still being devoted to social assistance and unemployment benefits. Pensions remain the major expenditure item.

2.2.1.2 Developing countries

The situation in developing countries is characterized by the existence of diverse types of social protection systems as well as by widely varying levels of population coverage and the risks and contingencies covered. Within the group of developing countries, public spending on social protection and the stage of economic development differ quite considerably from one region to another.

Africa

With the accession to independence of many countries in Africa, some form of limited social security systems providing protection was introduced for privileged groups of workers in the formal sector, namely civil servants and military personnel. Countries formerly under French or Belgian rule established social insurance systems providing coverage for long-term contingencies of old age, invalidity and survivorship for workers in the formal sector, while former British colonies adopted the Provident Fund system (that is, compulsory savings schemes providing one-time lump-sum benefits). Initially, however, the main item of social expenditure for the newly independent African states was family allocations (supplements for dependent children paid to active workers). In Niger, for example, in 1975 these family allocations represented 51 per cent of benefit expenditure, compared to 25 per cent for pensions. In the 1970s and 1980s the share of family allocations went down while that of pension payments increased. In Benin, for example, the share of benefit expenditure devoted to family benefits fell from 72 per cent in 1975 to 19 per cent in 1992. By contrast, the portion devoted to pensions rose from 20 per cent in 1975 to 77 per cent in 1992. Protection against the risk of unemployment is virtually inexistent in Africa,[5] as is social assistance.

In most African countries the share of GDP used to finance social expenditure was under 1 per cent in 1975. Since the SER is a measure

incorporating GDP value, growing social expenditure may go along with a stable or falling SER index, as two examples illustrate. Between 1975 and 1990, the national income of Togo in constant 1990 prices declined by 5.6 per cent as a result of economic downturns but social expenditure rose by 49 per cent, hence the share of social expenditure in GDP increased. In the case of Benin, between 1975 and 1990 the national income rose by 84.87 per cent and social expenditure per capita by 72.43 per cent in constant 1990 prices. The share of GDP used to finance social expenditure thus decreased.

However, these low figures for social expenditure – 1 per cent of GDP on average – do not reflect the true picture since account must also be taken of certain items of expenditure on health care (such as out-of-pocket expenses) which are not included in the figures for overall measured social expenditure. Most African countries have a state-financed universal health care system; in 1985, it took up on average some 1.4 per cent of GDP in North African countries and 1.2 per cent of GDP in sub-Saharan Africa (ILO, 1993).

Arab States

Social security provisions in most Arab States cover long-term contingencies and employment injury. Social insurance programmes for sickness and maternity exist only in Iraq and Lebanon. The main item of social expenditure has been pensions, accounting for over 80 per cent of benefit expenditure of national social insurance schemes. The majority of social insurance systems covering long-term contingencies of old age, invalidity and survivorship in the region were established in the mid-1970s.[6] The schemes' coverage is limited to workers employed in the formal sector (except in Bahrain and Lebanon), and in many cases only to nationals. This is why in Kuwait, for instance, a country whose population is made up to a large extent of foreign workers, the national social security institution covers only about 20 per cent of the economically active population.

Since most schemes are in their early stages of development, expenditure on social protection has been rising. The share of GDP used for financing social expenditure in Bahrain, for instance, has grown from under 0.5 per cent in 1975 to 1.6 per cent in 1990. In Kuwait the share has grown from 0.6 per cent in 1980 to 3.7 per cent in 1990 as expenditure per capita (in constant 1990 prices) has more than tripled during this period. For Saudi Arabia, however, the share has remained relatively constant (below 0.2 per cent of GDP) even though social expenditure per capita (in constant 1990 prices) increased by 70 per cent between 1990 and 1992. The same phenomenon can be observed in Bahrain, where real GDP has grown by a little over 5 per cent and social expenditure by over 400 per cent between 1980 and 1990. Yet these substantial rises have little impact on the SER as these middle-income countries have low population coverage, so that the level of social expenditure with respect to GDP has remained very low.

Asia

The Asian continent is characterized by a wide variety of systems providing social security benefits, types of contingencies covered and coverage rates. Some of the countries in the region, namely former British colonies, have set up Provident Funds, whereas the newly independent States of the former USSR have maintained the social security programmes of their past and cover most social security contingencies. For the rest of Asia and the Pacific, the main contingencies covered are those of the long-term old-age, invalidity and survivors' branch and the employment injury branch. Unemployment benefit programmes are almost inexistent – the only countries to have instituted them are Hong Kong (China) and the Islamic Republic of Iran. Some form of short-term sickness and maternity programmes exist in the majority of Asian countries. In some countries, like for example Bangladesh, coverage by social security provisions is limited to public employees. Most countries in the region are characterized by low rates of coverage: 8 per cent of the labour force in India, 10 per cent in Thailand and 18 per cent in China (1992 figures) (see Bailey, 1997a). Universal coverage by the national social insurance pension scheme for long-term old-age, invalidity and survivors' benefits is offered only in Hong Kong (China).

In 1989 social expenditure represented on average approximately 0.9 per cent of GDP in ten Asian countries,[7] but by 1992 the average for the same group of countries had increased to 1.6 per cent (picking a period of time with a particularly high growth). Social expenditure as a percentage of GDP on average has remained very low throughout the region. In India the share of GDP deployed to finance social expenditure has fallen from a level of 1.5 per cent in 1975 to 0.9 per cent of GDP in 1992. In this case the figures hide the fact that real social expenditure grew by 2.6 per cent per annum, which was outpaced by real GDP growth at 7.1 per cent per annum. However, an example of rising relative social expenditure to GDP is Singapore, where in 1975 social expenditure represented 1.9 per cent of GDP, going up to 8.9 per cent of GDP in 1990, with an increase of approximately 25 per cent per annum.

The Singaporean experience can be extended to the group of middle- and high-income countries, namely Hong Kong (China), Malaysia, Singapore, the Republic of Korea and Thailand (Japan is treated in the section on OECD countries), which saw the share of GDP devoted to financing social security grow in real terms as they registered sustained economic growth. In addition, in some of these countries coverage was expanded, as in the Republic of Korea, for instance, where the social protection scheme was broadened to include farmers and fishermen as well.

In the region's low-income countries social expenditure as a percentage of GDP does not seem to have increased in the same way (for example in India). However, on the whole there is a clear upward trend of social expenditure in the whole region, even if that trend has stalled somewhat because of

the 1997 financial crisis. It can be assumed that the growth trend has resumed by now. In particular, China's ongoing social security reform process will lead to a rise in formal social expenditure. However, this may not signify an actual increase in expenditure as some of it is simply a transfer to public institutions of enterprise-based provisions that may not have been properly accounted for.

Latin America

The types of social security schemes in place in countries of Latin America vary widely. Basically, all the countries have some form of long-term old-age, invalidity and survivors' pension programme and an employment injury programme, and most have also a short-term sickness and maternity programme with in-kind medical care. Unemployment and family programmes are less frequently found.

Most countries in the region have developed social security systems based on the European model of social insurance, and set them up in the first half of the twentieth century. The schemes were defined-benefit systems managed by a central administration. In 1981 Chile implemented a reorganized defined-contribution pension system with a decentralized management of the contribution collection and fund investments, activities hitherto carried out by public institutions. A number of other countries, namely Argentina, Bolivia, Colombia, El Salvador, Mexico, Peru and Uruguay, have followed Chile's example or are in the process of designing similar models either as the main or a secondary tier in their national pension systems.

The rates of social protection coverage within the region are also widely divergent: under 15 per cent of the economically active population are covered by social security schemes in El Salvador, Honduras and Paraguay, under 30 per cent in Bolivia, Colombia, Ecuador, Guatemala and Peru, and over 60 per cent in Chile and Uruguay.

In 1990 the average share of GDP used to finance social expenditure in Latin America showed a wide range, with Cuba spending 15.2 per cent and Venezuela, at the other extreme, with measured spending of less than 1 per cent of GDP. This clearly shows the variation in spending patterns within the region. Pensions have, on average, represented the major item of total social expenditure, and have become even more prominent over time. In Colombia, for example, this proportion was 6.07 per cent in 1975 and 55.2 per cent in 1992, while Uruguay went from 43.31 per cent in 1975 to 79.04 per cent in 1992. In Cuba, during the same period 46 per cent of total social expenditure went on pensions and 37 per cent on health care.

The proportion of elderly people on the continent is increasing: in 1990, 4.6 per cent of the population in Latin America and the Caribbean as a whole were over 65 years of age, but in some countries the rate of the elderly in relation to the potentially economically active population comes close to that found in

OCED and Central and Eastern European countries. Yet the level of expenditure on pensions and social expenditure at large is considerably lower.

2.2.2   Developmental patterns

Tentative conclusions about expenditure patterns can be drawn from the above regional developments. If undisturbed by shocks of an economic, demographic, social or political nature, the expenditure of NSPSs in most countries grows over decades as national per capita GDP level increases. Typical expenditure developments over five decades in the relatively stable social, political and economic environment in some European countries are mapped out in figure 2.4. With some abstraction national social expenditure seems to follow a logistical maturation curve (see logistical formula developed in box 2.1) rather than a straight line with a linear relationship between social expenditure and GDP levels. As a matter of fact, in a mature or near-mature state social expenditure as measured by the SER seems to level off despite further economic growth, possibly indicating society-specific maximum acceptable levels of formal transfers.

Social protection schemes mature when stable or almost stable relationships emerge with regard to the proportion of persons covered out of the total active population and the proportion of persons receiving benefits out of the total inactive population. That state is called *demographic maturity*. A pension

Figure 2.4 Total social expenditure developments (as % of GDP), selected European countries
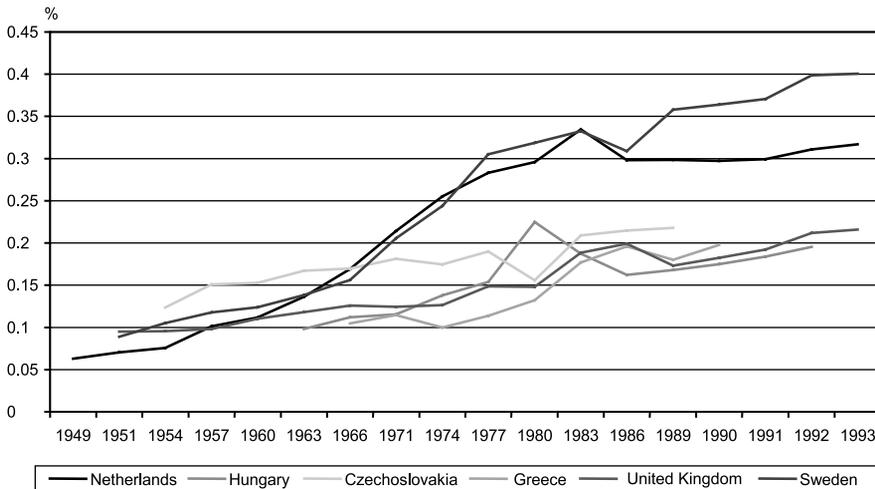
Source: ILO, *The Cost of Social Security*.

scheme, for example, can be considered demographically mature when no further increasing trends are noted:

– either in the proportion of people registered in the scheme (including invalidity pensioners of active age) to the total population in the active age groups;

– or in the proportion of old-age pension recipients to the age group older than normal retirement age (or latest retirement age).

The second state (i.e. the stability of the pensioner to population ratio) generally follows the first (i.e. the stability of the registered members to population ratio) with a time lag of several decades. Only when both rates have assumed relative stability can the scheme be considered to be in a demographically mature state or, better still, a "quasi mature" state. The term "quasi mature" indicates that the scheme will not likely acquire further members or pensioners because of coverage expansion but may still face structural expenditure increases due to the overall ageing of the population. The other elements of the maturation process are a relative stability of the relationship between the average amount of benefits and the average income subject to contributions. This state is attained when all pensioners have had a full career in the scheme and the average contribution periods (that determine benefit levels) will no longer increase. Called *benefit maturity*, this state may be achieved earlier than demographic maturity. The concept is revisited in Chapter 5.

The logistical maturation is to a large extent a consequence of demographic maturation which in turn is determined largely by expanding coverage: more and more people are covered and increasing numbers of them grow into eligibility for benefits. These benefits rise systemically as the entitlements usually increase with the average number of years of service or residence of beneficiaries. At some point, when all or almost all of those in need receive benefits, societies seem to decide to stop further growth of entitlements, and that is when typically the SER curve flattens out (for a more detailed analysis of expenditure determinants, see section 2.4). In the case of Europe – with its mature systems – these levels seem to oscillate around 25 per cent of GDP.

Box 2.1 provides a rule of thumb for the projection of the developmental pattern of social expenditure based on logistical maturation function. That function might be useful for summary projections of national social expenditure. Such a curve should be shown to all decision-makers engaged in introducing the formal transfer system.

2.2.3 Structural patterns

At the end of a – typically long – maturation period, an NSPS usually adopts a certain structural composition that remains fairly constant. That composition can be modified by political decisions but generally only to some extent as it

Box 2.1   Typical maturation pattern in social protection expenditure

Box figure 2.1.1 describes two typical logistical *social expenditure maturation* (SEM) curves. They could apply to a country where the overall formal social protection expenditure starts with a level of social expenditure of 5 per cent of GDP, for example for health care, and where other schemes such as cash benefits, and notably pensions, come on stream during a maturation process of between 75 and 85 years approximately and the overall final expenditure level is in the order of 30 per cent in the assumed mature state. The two schemes differ only in the speed of the maturation process. Both these elements are largely determined by governance factors that define how rapidly full or near-full population coverage is achieved and how fast benefit entitlements reach their ultimate level. Pension systems generally mature very slowly, over seven decades or so, provided no initial entitlement credits are given to early generations of the insured. In this case the maturation phase is only over when people making up the first generation that entered the scheme at the earliest possible age (say, 18) and spent a whole career in the scheme (say, 47 years) have died in their eighties. Contrary to this slow maturation process, a pension scheme could "age" very quickly if it affords pensions to all people over a certain age from day one irrespective of whether they contributed or not.

A word of caution regarding the "mature state" or "stationary state" of a social protection system: schemes may fully mature when no structural determinant of the system changes in relative terms – in other words, the relative age composition of the population stays constant, the benefits entitlements do not change and the economy is on a steady growth path without altering the relative shares of income and wages in GDP. In short, this state is fiction and simply never occurs. National transfer systems are at best in an "almost" mature state. Nonetheless, the concept of maturing or almost maturing is useful for indicating that social transfer systems become more costly over time but also that they do not naturally grow out of bounds.

The formula for that curve has the following general form:

$$SER_t = SERf/(1 + b*p^t) \qquad\qquad (2.1.1)$$

where:

  SERf is the final envisaged SER in the mature state
  b   is the coefficient which adjusts the formula to the initially planned expenditure level *SER o* through the relationship *SER o = SERf*/(1+*b*)
  p   is a velocity coefficient that steers the speed of maturation

The above formula could be used as regression curves in *curvilinear* regressions mapping the expenditure developments in NSPSs and would most likely obtain a much better fit than classical

Box 2.1 (cont'd)

linear regressions using a straight line. (The concept of curvilinear versus linear regressions is explained for example in Lapin (1975), pp. 335–340.)

Box figure 2.1.1   Typical SEM curves at different levels of coefficient p
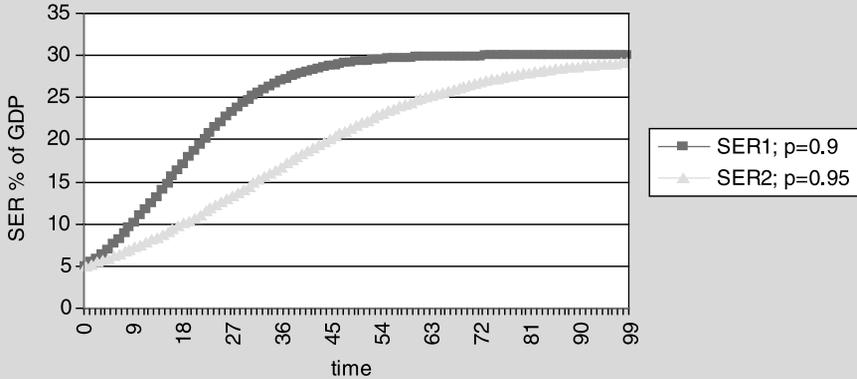
Source: ILO.

implicitly reflects societal redistributive decisions and priorities which normally do not change rapidly.

Typical patterns can best be described by the EU schemes that have been in existence for a long time and can largely be assumed to be at least in a "quasi" state of maturity. Figure 2.5 details the composition of social expenditure by main category of transfers in the 15 EU countries in the year 2000. Figure 2.6 (p. 74) displays a similar breakdown for six specific countries. It shows the variety of national structures behind the EU aggregates. In any case pensions and health care together normally make up more than two-thirds of total social expenditure. Pensions (old-age, invalidity and survivors' benefits) generally account for over 50 per cent of all expenditure. This is one reason why financing tools and strategies for health care and pensions are dealt with extensively in the following chapters.

2.3   FUTURE PROSPECTS

Expected future trends of social expenditure can at best be described by model projections. This section will present the results of projections of

Figure 2.5 Social benefits by function, EU Member States, 2000

Housing
47 145 million ECU/euros
(2.1%)

Unemployment
141 804 million ECU/euros
(6.3%)

Family/children
183 713 million ECU/euros
(8.2%)

Survivors
109 509 million ECU/euros
(4.9%)

Sickness/health care
612 229 million ECU/euros
(27.3%)

Social exclusion n.e.c.
35 078 million ECU/euros
(1.6%)

Disability
180 935 million ECU/euros
 (8.1%)

Old age
928 817 millon ECU/euros
(41.5%)
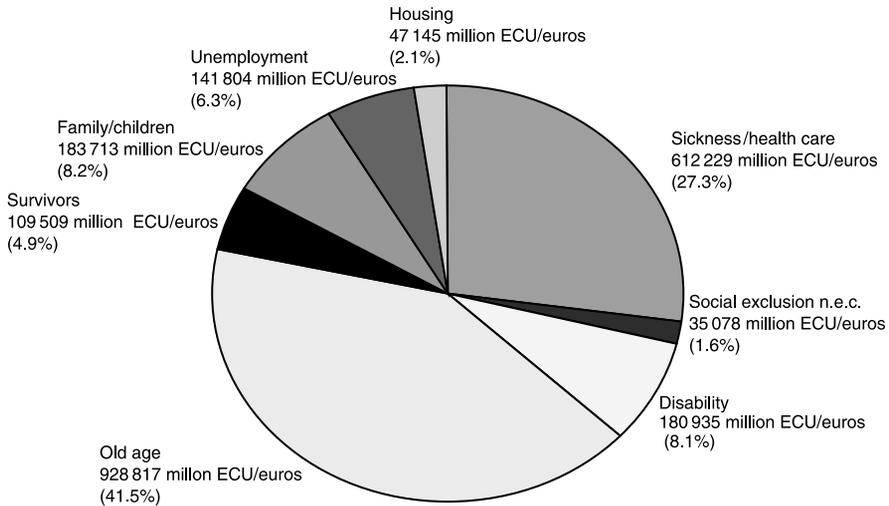
Source: EUROSTAT (2003).

social expenditure following a brief discussion on methodology and assumptions. Ideally, projections of social protection expenditure are undertaken by using a fully-fledged social budget model as described for example in Scholz et al. (2000) or actuarial valuations of individual schemes as described in full detail by Plamondon et al. (2002). Social budget models normally contain explicit population, economic and labour market modules as well as explicit modules for all major social transfer systems such as pensions, health care, short-term cash benefits (payable in cases of maternity, sickness, death, unemployment, or purposes of social assistance, and so on). Alternatively the expenditure of individual schemes can be projected by actuarial models based on the same demographic and economic scenarios for all schemes in the NSPS. The results of projections in the individual components of national social protection schemes are then aggregated into an overall national social expenditure and financing account and links are created to the government budget. Establishing a single national social budget normally requires many months of intensive research and modelling by a whole team of experts.

The following pages describe the results of an abbreviated projection method developed in the mid-1990s by Denis Latulippe at ILO FACTS. Unfortunately, comprehensive social protection expenditure projections on a regional basis can only be undertaken for OECD countries and for those of Central and Eastern Europe. The statistical basis available for other groups of

Figure 2.6 Structure of social expenditure in selected European countries, 2000

Social protection benefits, Denmark

Social protection benefits, France

Social protection benefits, Germany

Social protection benefits, Ireland

Social protection benefits, Netherlands

Social protection benefits, Sweden

Social protection benefits, Switzerland

Social protection benefits, United Kingdom
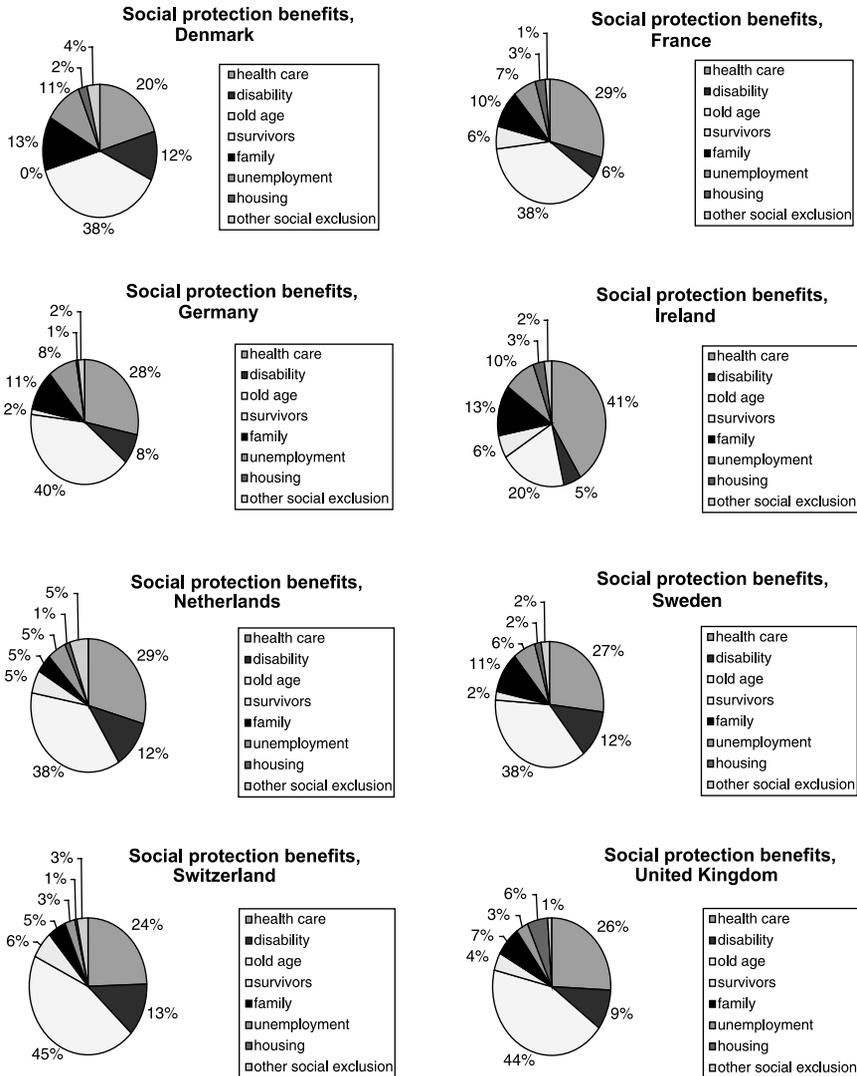
Source: EUROSTAT (2003).

countries does not allow for similar projections. However, the findings for a limited number of industrialized countries will indicate what overall level of expenditure may be attained by comprehensive NSPSs once national economies are fully developed and their populations are ageing.

2.3.1 Methodology and assumptions

In the case of mature social protection schemes operating in mature economies, status quo projections can simply extend present beneficiary rates and present benefit replacement rates into the future, possibly with some justified assumptions on the impact of future policies. This means that the projections basically reflect a constant set of legal provisions and constant administrative and governance behaviour in a changing but predictable demographic and economic environment. This is a relatively simple and reliable exercise which can at least demonstrate to policy makers in the form of status quo projections what would happen if there are no structural changes in the system. This strand of projections does not apply to young immature schemes operating normally in a developing economy context. The modelling of likely future development of overall social expenditure in this type of system thus cannot be done on a *ceteris paribus* basis; in fact, it necessitates much greater attention in the elaboration of single modules and the stage and velocity of the respective maturation processes than is viable in this context.

For the study on OECD and Central and Eastern European countries, an abbreviated projection model on the basis of the social budgeting concept was designed to project national social expenditure until 2050.[8] Its basic philosophy is that of a deterministic socio-economic model driven by considerations of external growth and demography. The basic technique of simple "driver-driven" benchmark expenditure projections is explained in Issue Brief 3. This technique is often the only option available to a quantitative analyst to respond quickly to demands from policy makers for budget estimates of future expenditure development. In the simple model used here total employment is linked to growth assumptions through assumed productivity levels. Employment is thus "driven" by the assumed rates of economic growth and the assumed rates of productivity. Labour supply is derived from observed labour force participation rates and demographic change. Benefit levels reflect current legislation.

Three scenarios of economic growth are considered (base, low and high), based on two assumptions of future total employment (increase of 1 per cent annually and constant total employment) and two assumptions of labour productivity increase (1 per cent and 2 per cent annually). The demographic and economic assumptions used are summarized in table 2.2.

The long-term economic assumptions have not been further discriminated for single countries. It is presumed that the countries of Central and Eastern Europe will eventually grow at the same rate as OECD countries, but the transition period of the former will be marked by a period of economic decline and stagnation (up to 2010) followed by a period of high economic growth (2010–20). The high growth rates are assumed to secure a catch-up process that should make up at least in part on past GDP losses.

A number of assumptions on the future development of social protection expenditure also have to be specified, anticipating demographic, price and

Table 2.2 Summary of demographic and economic assumptions for model projections

Demographic assumptions

Fertility	From current levels (below replacement rates in all regions except North America) increasing to 2.10 (1.95 in southern Europe, 2.02 in Western Europe and 2.06 in Japan) by 2050
Mortality	From current levels up to values of life expectancy at birth of around 79 years for males (74 in Eastern Europe and 81 in Japan) and 85 years for females (81 in Eastern Europe and 87 in Japan)

Economic assumptions

OECD countries and Central and Eastern Europe after 2020

Annual rates	Base scenario (%)	Low-growth scenario (%)	High-growth scenario (%)
Economic growth (1)	2	1	3
Total employment (2)	1	0	1
Labour productivity (2)	1	1	2
Labour supply	Based on activity rates in 1990 adjusted for:		

- women's participation rates: from current levels up to 90% of males in 2050;
- entry age on the labour market between 1990 and 2050: 50% of the 1950–90 increase, subject to a maximum of 22 years on average;
- high unemployment: reduction of the labour supply when unemployment exceeds 15%; maximum unemployment rate of 20%;
- two scenarios for retirement age: constant retirement age and constant inactivity ratio at the 1990 level.

Central and Eastern Europe: 1995–2020

Annual rates	Base scenario	Low-growth scenario	High-growth scenario
Economic growth (%)	−2 (1995–2000)	−2 (1995–2000)	−2 (1995–2000)
	0 (2000–2010)	0 (2000–2010)	2 (2000–2010)
	4 (2010–2020)	1 (2010–2020)	4 (2010–2020)
Total employment (%)	−1 (1995–2000)	−1 (1995–2000)	−1 (1995–2000)
	0 (2000–2010)	0 (2000–2010)	1 (2000–2010)
	2 (2010–2020)	0 (2010–2020)	2 (2010–2020)
Labour productivity (%)	−1 (1995–2000)	−1 (1995–2000)	−1 (1995–2000)
	0 (2000–2010)	0 (2000–2010)	1 (2000–2010)
	2 (2010–2020)	1 (2010–2020)	2 (2010–2020)

(1) Subject to a minimum unemployment rate of 2%. (2) Between 1990 and 2010 based on national experience.

Source: Latulippe (1997).

employment prospects, especially for pensions, health care and unemployment. For pensions all assumptions are endogenous, including eligibility for benefits and the average replacement ratio, both based on the employment record. In the case of health care, assumptions have to be specified with regard to the

progression of unit costs and the pattern of expenditure by age. Finally, an assumption on the proportion of unemployed people drawing benefits will be specified on the basis of expectations for the labour market and demographic projections.

Even when adjusted for population ageing, between 1960 and 1980 health expenditure in OECD countries rose faster than GDP per employed person (i.e. labour productivity), while between 1980 and 1990 both health expenditure and GDP per employed person grew at the same rate. The development of health expenditure depends both on the progression of unit costs and on utilization of services. As health care is a labour-intensive sector, wages represent a substantial proportion of its total expenditure. To project unit costs into the future, it is assumed that its labour costs will increase at the same rate as in other sectors. In OECD countries, health investments (in infrastructure, technology and research) are presumed to equal 25 per cent of total expenditure and to be increasing at 1 percentage point faster than the rate of growth of labour productivity. Since real GDP growth in the model equals the product of the growth of employment and productivity growth, and the wage share of GDP is assumed constant, unit cost of providing health care will increase at the growth rate of GDP per employed person plus 0.25 per cent.[9] The respective rate of increase calculated by the model for the sample countries is slightly higher than the rate observed in the 1980s, but that decade was one of substantial cuts following a period of rapid expansion. As the 1980s saw lower long-term average spending on health, it will be more difficult to achieve the same level of savings in the future. Unit health costs are presumed to increase faster in Central and Eastern Europe because of greater investment needs and in order to improve the level of services provided. For these reasons an additional increase of 0.5 per cent of GDP was allowed. For Central and Eastern European countries the unit cost of providing health care is modelled as increasing at the growth rate of GDP per employed person plus 0.75 per cent. On the whole, these assumptions on the development of unit costs can be considered prudent.

To project health care utilization, it is assumed that there will be no extension of coverage, but health care expenditure will increase because of the greater number of older people. It is clearly established that a substantial proportion of health expenditure is concentrated in the last months of life. However, the age pattern cannot be assumed constant. In 2050 people of a given age will be healthier than people of the same age are now. This holds true in particular for the elderly. In future the healthier generations will acquire more statistical weight. It follows that the increase in the number of years spent in old age should result in a less-than-proportional rise in health care costs per capita than at present.

For the projection of expenditure on unemployment, the proportion of unemployed people who are eligible for benefits is assumed constant in OECD countries. In Central and Eastern Europe it is assumed to be increasing and that it will reach a level similar to that of OECD countries as of 2010.

The other types of social benefits were presumed indexed to average earnings and adjusted to take into account expected changes in entitlement patterns. In the projection the total of social assistance benefits is related to the level of unemployment, with an elasticity of 50 per cent, in other words, stepping the expenditure index up by half a percentage point if the relevant unemployment index rises by one percentage point.

2.3.2 Projection results

The results of the projections for all three scenarios are detailed in tables 2.3 and 2.4.

In OECD countries, social expenditure expressed as a percentage of GDP increases under all three scenarios between 1990 and 2050. From a level of 18.3 per cent in 1990 it reaches 25.5 per cent in 2050 under the base scenario, 23.7 per cent under the high-growth scenario and 30.4 per cent under the low-growth scenario. In real terms, between 1990 and 2050 social expenditure increases by an average of 1.9 per cent per year, the amount being composed of a 1.3 per cent GDP growth and an additional 0.6 per cent on average of excess growth of social expenditure related to the GDP of the respective year. The main items, pensions and health care, represent 89 per cent of total social expenditure in 2050, compared to 77 per cent in 1990.

On a regional basis, the most significant increase within OECD countries will be registered in Japan: from 12.4 per cent in 1990 to 27.0 per cent in 2050. Japan will face a significant and rapid ageing of its population over the next decades. In 2050, Japanese median age will be 47.4 years as opposed to 45.9 in Western Europe, 41.1 in Australia and New Zealand, and 40.4 in North America (UN, 1995). In 2050, social expenditure in Japan will still be lower than in Western Europe (33.4 per cent of GDP) but significantly higher than in North America (17.9 per cent) and Oceania (18.4 per cent). The slow development of social expenditure in North America, Australia and New Zealand is highly dependent on the assumed development of the labour market. Under the low-growth scenario, characterized by constant labour demand, social expenditure reaches a significantly higher level: 25.8 per cent in North America and 31.1 per cent in Australia and New Zealand.

Based on the assumption of labour productivity development (base scenario), average earnings in OECD countries are presumed to rise by approximately 1 per cent per year between 1990 and 2050 (1.2 per cent between 1990 and 2010). By comparison, average earnings increased by 2.3 per cent in the 1970s and 1.7 per cent in the 1980s. Despite this low rate of growth of labour productivity and the significant rise in social expenditure, the higher level of social transfers takes out only 20 per cent of the future earnings increase. The figure goes up to 30 per cent under the low-growth scenario and down to 10 per cent under the high-growth scenario.

Table 2.3 Estimated trends of social expenditure for OECD countries (as % of GDP), 1980–2050

	1980	1990	2010	2030	2050
Base scenario: 2% annual growth					
Total	16.3	18.3	19.3	23.2	25.5
Pensions	7.8	8.5	10.0	13.7	15.2
Health	4.8	5.6	5.6	6.5	7.4
Unemployment	1.0	1.3	1.1	0.5	0.4
Others	2.8	2.8	2.5	2.5	2.5
Japan	11.1	12.4	17.7	22.0	27.0
Northern America	12.5	14.4	13.9	17.5	17.9
Oceania	12.6	15.6	17.4	17.7	18.4
Northern Europe	20.3	22.4	23.0	25.1	25.1
Southern Europe	16.8	21.1	22.2	25.1	31.4
Western Europe	24.2	24.7	25.9	30.8	33.4
High-growth scenario: 3% annual growth					
Total	16.3	18.3	18.3	21.7	23.7
Pensions	7.8	8.5	9.3	12.3	13.4
Health	4.8	5.6	5.6	6.5	7.3
Unemployment	1.0	1.3	1.0	0.5	0.4
Others	2.8	2.8	2.5	2.5	2.5
Japan	11.1	12.4	16.9	20.6	25.2
Northern America	12.5	14.4	13.3	16.4	16.7
Oceania	12.6	15.6	14.4	15.7	16.2
Northern Europe	20.3	22.4	21.3	23.1	22.5
Southern Europe	16.8	21.1	20.2	21.9	26.8
Western Europe	24.2	24.7	25.0	29.9	32.3
Low-growth scenario: 1% annual growth					
Total	16.3	18.3	23.1	27.8	30.4
Pensions	7.8	8.5	11.1	15.1	16.6
Health	4.8	5.6	6.1	7.3	8.2
Unemployment	1.0	1.3	2.7	2.2	2.1
Others	2.8	2.8	3.2	3.3	3.4
Japan	11.1	12.4	20.7	22.0	26.9
Northern America	12.5	14.4	17.5	24.2	25.8
Oceania	12.6	15.6	22.1	29.0	31.1
Northern Europe	20.3	22.4	26.6	30.2	30.7
Southern Europe	16.8	21.1	24.9	28.0	31.9
Western Europe	24.2	24.7	30.2	33.6	35.3

Source: Latulippe, 1997.

Table 2.4 Estimated trends of social expenditure for Central and Eastern
Europe (as % of GDP), 1993–2050

	1993–95	2010	2030	2050
Base scenario				
Total	20.0	20.9	21.0	25.6
Pensions	9.9	10.8	10.9	13.6
Health	4.4	4.9	5.9	7.5
Unemployment	0.8	1.2	0.3	0.3
Others	5.0	4.1	3.9	4.1
Bulgaria (1993)	17.7	18.8	16.4	21.4
Latvia (1994)	22.9	22.5	24.3	28.4
Poland (1995)	26.7	32.3	25.4	30.1
Slovakia (1995)	21.3	24.3	27.8	33.8
Ukraine (1993)	18.9	21.4	18.6	22.2
Russian Federation (1994)	12.5	14.9	14.0	17.6
High-growth scenario				
Total	20.0	26.1	21.5	24.1
Pensions	9.9	12.0	10.5	12.0
Health	4.4	5.5	6.0	7.5
Unemployment	0.8	2.5	0.9	0.4
Others	5.0	4.1	3.9	4.1
Bulgaria (1993)	17.7	21.6	15.6	19.9
Latvia (1994)	22.9	26.7	23.2	26.7
Poland (1995)	26.7	35.1	32.2	28.5
Slovakia (1995)	21.3	25.7	26.7	31.8
Ukraine (1993)	18.9	30.1	17.9	21.0
Russian Federation (1994)	12.5	17.5	13.4	16.5
Low-growth scenario				
Total	20.0	24.4	24.5	28.2
Pensions	9.9	11.7	12.5	14.7
Health	4.4	5.3	6.3	8.0
Unemployment	0.8	2.1	1.2	0.9
Others	5.0	4.1	3.9	4.1
Bulgaria (1993)	17.7	20.5	18.1	21.3
Latvia (1994)	22.9	24.3	24.7	28.4
Poland (1995)	26.7	34.1	39.6	45.7
Slovakia (1995)	21.3	25.1	28.3	33.8
Ukraine (1993)	18.9	25.7	20.7	22.2
Russian Federation (1994)	12.5	16.5	15.7	17.6

Source: Latulippe, 1997.

The projection of expenditure for Central and Eastern Europe, based on the situation prevailing in six countries – Bulgaria, Latvia, Poland, Russian Federation, Slovakia and Ukraine – between 1993 and 1995 (Cichon and Hagemejer, 1996), indicates that under status quo conditions in the near future the evolution of social expenditure will be primarily dependent on changes in social legislation and economic performance. The degree of uncertainty is very high with regard to the level and disparity of future economic development in the respective countries. Demographic factors will have a more limited impact until 2010.

On the basis of the assumptions specified above, between 1995 and 2010 expenditure is set to rise from the original level of 20 per cent to 20.9 per cent. During the initial period the absence of economic growth and the assumed increase in the proportion of unemployed people who draw unemployment or social assistance benefits creates an upward pressure on social expenditure. Beyond 2010, unemployment and social assistance benefits decline because of assumed economic growth and the rise in employment. Nevertheless, social expenditure increases between 2030 and 2050 because of rising expenditure on pensions and health.

By 2050, 25.6 per cent of GDP could be devoted to social expenditure under the base scenario, 24.1 per cent under the high-growth scenario and 28.2 per cent under the low-growth scenario. This is the same level as in OECD countries. In Central and Eastern Europe the retirement age is lower but the ageing process will be, on average, less pronounced than in OECD countries. Moreover, the higher the rates of economic growth aimed at catching up on current and recent GDP losses, the smaller the future rate of growth of social expenditure will appear as a percentage of GDP.

The results of the above exercise appear to suggest that, provided they are not substantially downsized, the present formal social transfer systems in industrialized countries are likely to reach the proportion of between 25 and 35 per cent of GDP: in other words, these economies and societies are heading towards a situation where between 25 and 35 per cent of the value of all goods and services they produce will be redistributed through the social transfer system. That is equivalent to around half the total private consumption. Even if the systems come to be downsized in the coming years, they will remain huge redistributive machines.

The conclusions generated for the selected industrialized countries cannot be generally used as a guide for developing countries that are far behind in terms of GDP. Their expected catch-up phase is too long to allow any meaningful predictions. For example, if a typical African country with a per capita level of GDP of US$500 in 1994 were to grow at a real rate of 5 per cent per annum, it would be about 56 years before it reached the present per capita level of GDP in Greece (US$7,700), which is one of the lowest in the OECD. Even with a growth rate of 10 per cent, that country would still need 29 years to catch up.[10] Whether one can assume that at the end of such a

long period a country's social protection system would be similar to that of a typical OECD country is totally unclear. There are far too many uncertainties: societal values might not follow OECD patterns, economies might remain much more informal, and the HIV/AIDS pandemic might change the demographic structure dramatically, to name but a few. We may not be able to predict future social protection expenditure with certainty, but we know which factors will actually drive expenditure developments. That is the topic of the next section.

2.4 FACTOR ANALYSIS OF THE DETERMINANTS OF NATIONAL SOCIAL EXPENDITURE

As outlined in the introduction to this chapter, national social expenditure is driven by three major determinants: demographic developments, governance factors and economic developments. The brief factor analysis that follows is limited to exploring the main impact of these three categories of determinants, though providing at the same time some explanation for past expenditure developments as well as some indications of future trends. The direction of the impact of the different determinants is shown in figure 2.7. Total expenditure in any scheme is generally the product of the number of beneficiaries and the amount of benefits. Total social expenditure is an absolute expenditure figure. Its explanatory power is relatively limited if it is not put into relation with the total size of the economy (i.e. the country's GDP), by calculating the SER. Gross domestic product can be calculated as the product of the number of workers in the economy and the average gross output per worker. The number of workers in turn is influenced by the economic environment, the demographic environment and governance. The impact of social protection on the output per worker is analysed in Chapter 3.

The demographic environment in which a social protection system operates affects mainly the number of beneficiaries (such as the number of old-age pensioners, disabled or sick persons) and the potential number of workers. The economic environment, for its part, has a direct influence on the number of beneficiaries such as the unemployed, the amount of benefits (depending on whether the benefits paid are determined by wage increases or inflation) and the size of output per worker. Governance also has an impact on all factors by stipulating eligibility conditions (for example, retirement age) and benefit provisions. The various technical aspects involved will be explored in greater detail in Chapter 5. The next few sections of this chapter will simply look at the general nature of these various effects and their interrelationships.

As the following sections will show, the three main determinants of social expenditure interact and are closely interrelated.

Figure 2.7 Determinants of total social expenditure
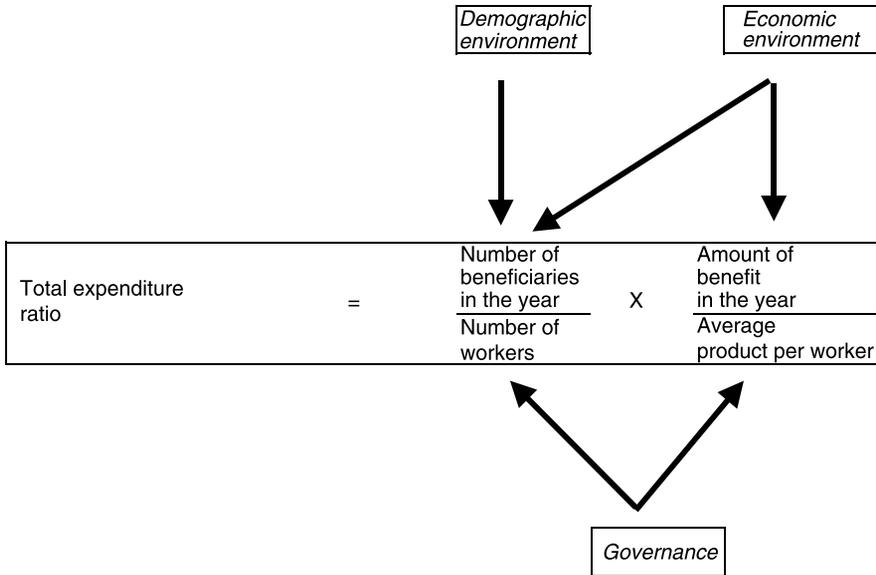
Source: ILO.

2.4.1   Impact of the demographic environment

The demographic environment of a social protection system, which includes the morbidity structure of the population with which the health system has to cope, is one determinant (but not the only one, as we will see) of the *system dependency ratio* – that is to say, it has a large influence on the ratio of the number of beneficiaries (i.e. transfer recipients) in the system to the number of people financing these transfers or earning the national income out of which the transfers have to be financed. Biological factors (ageing as expressed in dropping fertility and mortality rates, morbidity and mortality) determine to a large extent the potential number of beneficiaries and financiers of the NSPS; in other words, they explain the *pure demographic dependency* ratio. Demographic factors do not explain the full size of system dependency: the economy co-determines the number of unemployed while national law, which is a governance factor, co-determines inter alia the number of retired people and those receiving education. This last number is influenced for example through legal provisions governing the minimum number of years of compulsory schooling or of studies required for the first university degree. Some factors might be considered as behavioural, such as the actual age of entry into retirement if people are given a choice on when to retire from the labour

market. However, we consider that affording that choice is an element of governance.

Box 2.2 describes the change in system dependency versus the change in pure demographic dependency in pension schemes in a number of major OECD countries between the mid-1980s and the mid-1990s.

The other determinants – economic development and governance factors – being equal, ageing is the most important purely demographic factor of

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**Box 2.2   Demographic dependency versus system dependency
              in OECD pension schemes**

The system dependency ratio 65+ measures the number of pensioners (those receiving a benefit from a public scheme) in the numerator, and the number of employed in the denominator; both are calculated in full-time equivalents. Box figure 2.2.1 shows the development in the system dependency ratio between 1985 and 1996 in ten OECD old-age pension schemes.

Box figure 2.2.1   System dependency ratios, selected countries, 1985–96 (benefit dependency ratios 65 and over: light bar 1996; dark bar 1985)
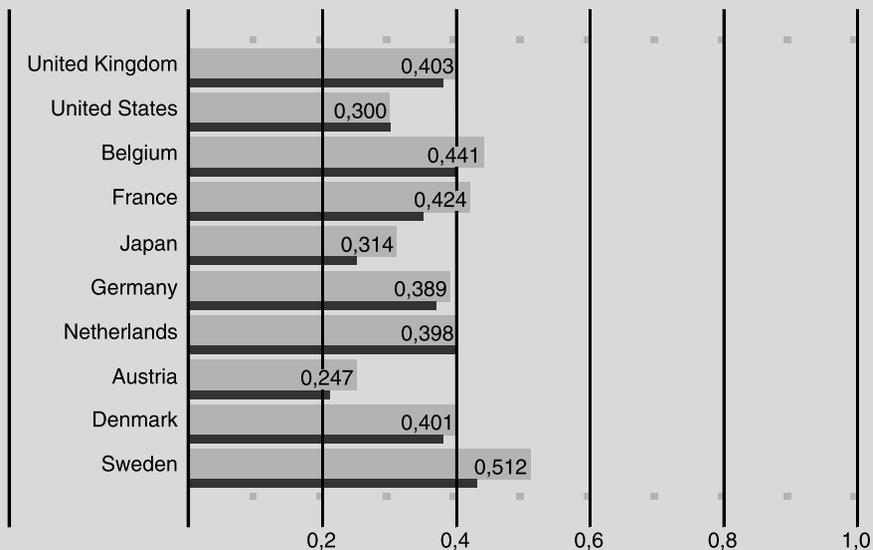
Source: Arents et al. (2000).

Box 2.2 (cont'd)

Box figure 2.2.2   **Changes in benefit dependency ratios** (light bar), **and old-age dependency ratios** (dark bar), **selected countries, 1985–96** (average annual growth rates in percentages)

Country	Value
United Kingdom	0,63
United States	0,06
Belgium	0,87
France	2,22
Japan	4,10
Germany	0,41
Netherlands	0,07
Austria	1,49
Denmark	0,51
Sweden	1,71

Horizontal axis: 0,2 0,4 0,6 0,8 1,0 1,2 1,4
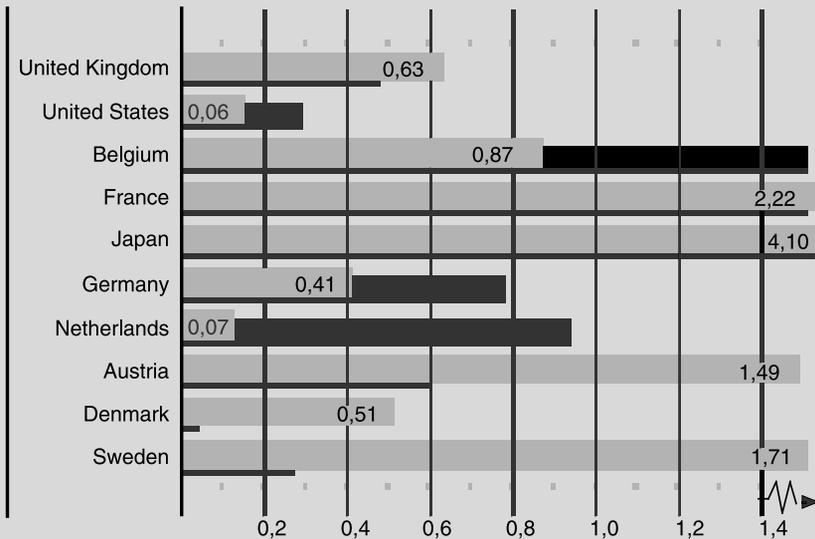
Sources: Benefit dependency ratios: Arents et al. (2000); old-age dependency ratios: EUROSTAT.

When the number of pensioners increases but all the other factors remain unchanged, pension expenditure will be driven up. However, the contribution rate will increase only when the number of pension benefit recipients rises faster than the number of the employed. The system dependency ratio takes into account the increase in the employment-to-population ratio and hence reveals the change in the tax base.

Most of the countries listed in box figure 2.2.1 have system dependency ratios in the same range, around 0.4. Austria (0.25) and the United States (0.30) have lower ratios, while Sweden has a system dependency ratio of over 0.5. In the early 1990s Sweden saw a sharp increase (7 percentage points), due primarily to a drop in employment during the years in question. There were marked rises also in France (9 percentage points) and Japan (7 percentage points as of 1990), whereas in most other countries the increase in the system dependency ratio stayed below 3 percentage points. In the United States and the Netherlands there was no significant rise in the system dependency ratio at all during this period.

Box figure 2.2.2 shows the rise in the old-age dependency ratio versus the rise in the system dependency ratio, both in the period 1985–96. It can

Box 2.2 (cont'd)

be seen that in some countries system dependency ratios increased faster than demographic dependency ratios, but not in others. In Germany, for example, the system dependency ratio rose by 0.4 per cent on average and the demographic (old-age) ratio by 0.8 per cent. In the Netherlands the system dependency ratio increased by less than 0.1 per cent on average and the demographic ratio by nearly 1 per cent. In the United States the demographic ratio rose by 0.3 per cent on average, while the benefit ratio increased by no more than 0.1 per cent, the same as in the Netherlands. Employment growth was strong in both countries during this period. This was also true of the employment rate of the 55–64 age group.

influence on pension schemes, which are, in turn, the biggest expenditure items in NSPSs. That impact is especially strong in mature systems in societies with a high proportion of the elderly.

Tables 2.5 and 2.6 as well as figure 2.8, reproducing United Nations projections as quoted in a recent ILO publication on ageing (ILO, 2002a), demonstrate the relative order of magnitude and velocity of ageing in the different regions of the world between 1950 and 2050. Table 2.5 shows that the share of GDP to be transferred to the elderly between 1950 (when the first pension schemes in Europe finally acquired their present shape) and 2050 through pension schemes under *ceteris paribus* conditions could almost triple within that period and at least double between 2000 and 2050. Biological ageing obviously poses a challenge for pension schemes and hence for the financing of social protection in general. Table 2.6 reveals another fact that may come as a surprise: while developed regions are substantially "older" than less developed ones, the pace of ageing is actually much faster in the developing world. So, if the less developed countries had pension systems with universal coverage (which they do not, with a few exceptions like Botswana, Brazil, Namibia and South Africa), in relative terms they would face an even more serious ageing problem between 2000 and 2050 than the schemes in more developed parts of the world.

Figure 2.9, on the other hand, reveals that while pension schemes may face increased dependency, for overall social protection systems the challenge appears to be much smaller. The figure adds up old-age dependency ratio (population over 65 divided by population between 15 and 64 years of age) and youth dependency ratio (population between 0 and 14 divided by population between 15 and 64 years of age). Worldwide the combined demographic dependency ratio remains fairly constant over the coming five decades, but the curve may be misleading to some extent as per capita transfers to the young may amount to less than the per capita transfers to the elderly. However, this

Table 2.5 Rate of demographic ageing, population aged over 60 and over 80 (as % of total population), 1950–2050[1]

		1950	1960	1970	1980	1990	2000	2010	2020	2030	2040	2050
World	60+	8.2	8.2	8.4	8.6	9.2	10.0	11.1	13.5	16.5	18.8	21.1
Males	60+	7.3	7.3	7.4	7.5	8.1	8.9	10.0	12.3	15.1	17.2	19.4
Females	60+	9.0	9.0	9.5	9.7	10.4	11.1	12.3	14.8	17.9	20.4	22.7
	80+	0.5	0.6	0.7	0.8	1.0	1.1	1.5	1.8	2.3	3.1	4.1
More developed regions	60+	11.7	2.6	14.5	15.5	17.7	19.4	21.9	26.1	29.8	32.0	33.5
	80+	1.0	1.3	1.6	2.0	2.7	3.1	4.2	5.0	6.4	8.3	9.6
Less developed regions	60+	6.4	6.2	6.1	6.4	6.9	7.7	8.8	11.1	14.2	16.7	19.3
	80+	0.3	0.3	0.4	0.4	0.5	0.7	0.9	1.2	1.5	2.3	3.3
Less developed regions	60+	5.9	5.7	5.8	5.9	6.2	6.8	7.7	9.5	11.8	14.2	16.9
without China	80+	0.3	0.3	0.4	0.4	0.5	0.6	0.8	1.0	1.3	1.8	2.5

[1]United Nations projections – medium variant.

Source: United Nations (2001b).

Table 2.6 Velocity of ageing[1]

		1950–2000 (%)	2000–50 (%)
World	60+	23	111
	80+	109	256
More developed	60+	66	72
	80+	196	208
Less developed	60+	19	150
	80+	115	393

[1]Increase in population share of people aged 60+ and 80+.

Source: United Nations (2001b) and ILO calculations.

could create at least some scope for the reallocation of resources from youth to older people and thus help to ease the demographic pressure on the NSPS. This in itself is a formidable challenge for governance. What it may mean in practical terms is finding a way to channel the money saved by closing kindergartens, schools and possibly universities to the old-age transfer system.

Figure 2.8 Velocity of demographic ageing, population aged 60 and over (% of total population)[1]
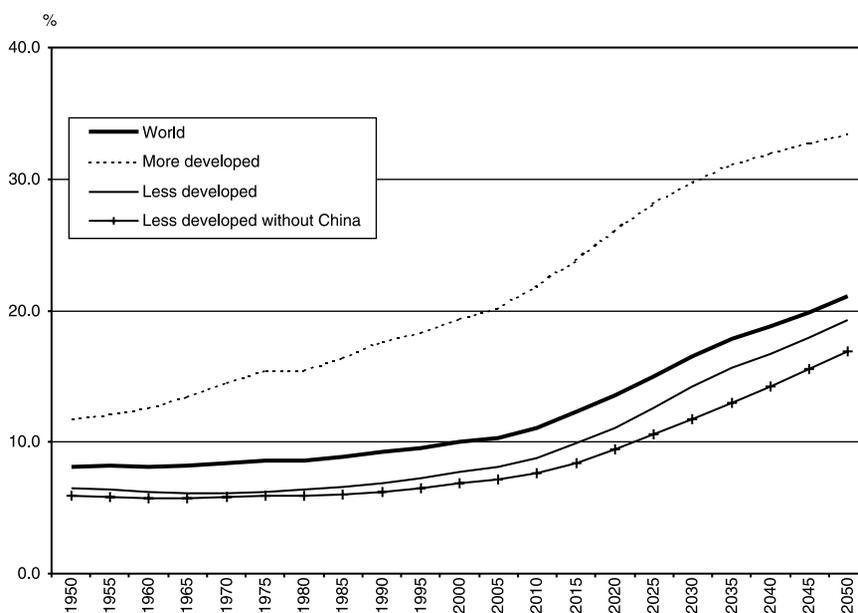
[1]United Nations projections – medium variant.
Source: United Nations (2001b).

Figure 2.9 Youth, old-age and total dependency ratios, 1950–2050
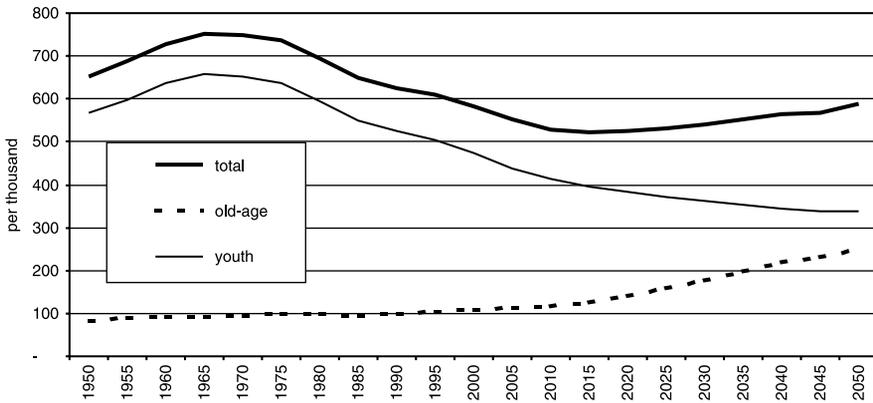
Source: United Nations (2001b).

Another factor that rapidly modifies the demographic environment in which NSPSs operate, in particular in developing countries, is the HIV/AIDS pandemic. In some regions in Africa the infection rate is estimated to have reached almost 40 per cent. This very likely means that within the next five to ten years at the latest, out of every 100 people alive today 40 will have died, unless there is spectacular medical progress and – maybe even more importantly for Africa – if the cost of drug treatments does not go down. A crisis of this magnitude must have a dramatic effect on the cost of any national social protection scheme. Issue Brief 1 explores the subject by way of a modelling exercise. The results can only be of a tentative nature as too little is still known about the likely future progress of the pandemic. However, our results give rise to concern. Social expenditure might almost double in a typical African country context and will require substantial additional government resources. It is probably fair to say that HIV/AIDS will most likely wipe out all the financial and fiscal room for the improvement of social protection that growth in Africa could have produced under normal conditions. It will simply stop the clock or even put it back. In addition to medical and public health research, a lot more needs to be done to develop financial and fiscal coping strategies in AIDS-stricken countries.

2.4.2 Impact of governance

Governance encompasses a number of elements, ranging from the original design of the different social security schemes to the implementation of and subsequent amendments to that design by benefit delivery systems and

contribution- and tax-collection systems, as well as elements of social and economic policy that lie outside direct social protection governance. The design of the schemes determines the amount of benefits that a defined group of beneficiaries receive under a defined set of conditions. The quality of the system's management and administration determines whether beneficiaries actually receive all or only part of the benefits to which they are entitled under national law and whether the actual delivery causes large administrative overheads or not. Direct social protection governance determines among other things when people can retire and receive pensions or other transfers allowing them to withdraw from the labour market; it thus impacts on the system dependency rates. However, governance elements outside direct social protection governance determine when people are joining the labour market and hence also have an impact on system dependency rates. Policies affecting benefit levels are then often used to correct adverse developments of dependency rates.

Governance has an impact on virtually all aspects of a social protection system. With respect to the determination of expenditure levels the impact on system dependency is probably decisive. The relative importance of governance is demonstrated here by the impact of governance factors on the system dependency ratio in OECD pension schemes. While demographic ageing determines the potential number of beneficiaries and contributors, governance determines their actual number. The effective numbers also depend on behavioural and legal rules such as the retirement age and the age of entry into the labour market. In OECD countries, on average 70 per cent of the increase in the old-age dependency ratio of the pension system between 1950 and 1990 is due to changes in the entry and retirement ages, and only 30 per cent is attributable to the (biological) change of the population structure.

Between 1950 and 1990 the effective retirement age declined substantially in OECD and Central and Eastern European countries, going down by five years on average: from 66.0 in 1950 to 61.0 in 1990. The effective retirement age is obtained here from observed gradual reductions of activity ratios with age. A retiree is then defined as a person who has withdrawn from the labour market and is no longer economically active. Retirement is not necessarily linked to the entitlement to an old-age pension, but defines the act of dropping out of the labour market, although the cessation of economic activity normally gives rise to the payment of an old-age pension or other long-term or bridging benefits[11] (Latulippe, 1996).

Table 2.7 shows the downward trend of the effective retirement age throughout the period in all regions except Japan, where it rose slightly between 1950 and 1970 and declined over the following 20 years. There are important variations in average retirement age between single regions and sexes. In 1990, however, the averaged values for the two groups of countries selected stood at the same level, although retirement age was 59.2 years in Central and Eastern Europe and 59.3 in the seven selected countries of Western Europe.

Table 2.7 Effective retirement age worldwide, 1950–90

	1950	1970	1990
Japan	66.2	66.7	65.5
Northern America	65.9	64.8	62.6
Oceania	65.3	63.2	60.0
Northern Europe	67.2	64.5	61.9
Southern Europe	69.0	63.6	60.1
Western Europe	65.7	63.3	59.3
Central and Eastern Europe	65.0	62.2	59.2
Average			
w/o Central and Eastern Europe	66.5	64.5	61.8
All countries	66.0	63.8	61.0

Source: Latulippe (1996).

By comparison, in Japan it was 65.5 and in North America 62.6 years. The average retirement age for all countries was three years higher for males than for females. In 1950, the effective retirement age was higher than the institutionally set normal retirement age in a majority of countries. The latter remained relatively stable between 1950 and 1990 while the effective retirement age, as noted earlier, underwent marked downward changes and found itself lower than the normal retirement age. The transition from work to retirement is managed not only via the conservative drawing of pensions, but also via "covert" complementary measures such as early retirement, unemployment or disability benefits, or simply by relying more on private income.

Current generations of retirees enjoy longer retirement than their predecessors because of both a lower retirement age and a longer life expectancy.[12] The duration of retirement increased from 12.5 years on average in 1950 to 18.9 years in 1990. The disaggregation by sex shows that women enjoy longer retirement than men as they retire earlier and have a longer life expectancy. In 1990, the gender difference in the duration of retirement was 5.8 years on average: 22.6 years for women as against 16.8 years for men.[13]

At the other end of the working life, the average entry age on the labour market rose from 16.3 years in 1950 to 19.7 in 1990. By then, it was slightly above 20 years in Japan and Western Europe. No significant difference was noticed for the aggregated average values between Central and Eastern Europe and the other regions. Combined with a six-year reduction in the retirement age, this 3.4-year rise in the entry age implies that between 1950 and 1990 the average period of economic activity declined by almost ten years. Consequently, during the same period the inactivity ratio (duration of retirement/number of activity years) nearly doubled, going from 25 per cent in 1950 to 46 per cent in 1990. In Japan it was significantly lower (39 per cent

Table 2.8 Inactivity ratio worldwide, 1950–90

	1950 (%)	1970 (%)	1990 (%)
Japan	24	28	39
Northern America	27	31	42
Oceania	27	33	49
Northern Europe	24	32	43
Southern Europe	19	32	49
Western Europe	26	34	53
Central and Eastern Europe	27	37	48
Average			
w/o Central and Eastern Europe	25	31	45
All countries	25	33	46

Source: Latulippe (1996).

in 1990), but in Western Europe it reached 53 per cent. Details are shown in table 2.8.[14]

The inactivity ratio is set to continue to rise in the coming decades unless the retirement trend is turned around towards later pension entry by decisive acts of governance. Adjusting the retirement age in order to secure a constant inactivity ratio until 2050 at the 1990 level implies pushing back the retirement age by approximately 3.5 years over the 60-year projection period. The gain in life expectancy would then be allocated – by good governance – partly to working years and partly to retirement.

The change in the inactivity ratio directly influences the overall system dependency ratio of the old-age benefit system, which in turn is one of the major determinants of the financial status of such a system. The system dependency ratio increased from 12 per cent in 1950 to 30 per cent in 1990 on average, for all regions. As mentioned earlier, the major part of the increase is due to the evolution of the inactivity ratio, while less weight is attributable to population structure. Assuming a constant retirement age at the 1990 level, the dependency ratio will double between 1990 and 2050, when it is set to reach 64 per cent. If on the other hand the retirement age is increased so as to maintain a constant inactivity ratio, the ultimate value of the dependency ratio in 2050 will be 50 per cent.

Cichon (1996) has analysed the potential future development of demographic and system dependency ratios on the social expenditure of a typical European country. The findings are summarized in box 2.3. The study addressed the question of whether there was an ageing crisis in social protection for a typical representative of Europe, the region most affected by ageing. The answer is that ageing clearly poses a problem but that there is no ageing crisis if employment and social policies (i.e. measures of good governance) manage to lift the activity and employment rates of the population in active age groups.

Box 2.3   Is there an ageing crisis in Europe?

In order to avoid distorting the analysis and the debate through the use of specific, atypical national social protection provisions, a hypothetical country, here called Euroland, has been devised as a "laboratory"' for this exercise. In 1995, the starting point of this analysis, Euroland has the demographic structure of the Netherlands. The population is then projected for 120 years (from 1995 to 2115), based on mortality and fertility developments assumed again for the Netherlands by the United Nations,[1] as well as the general pattern of the United Nations standard life tables. To simplify the projections, it has been assumed that Euroland's active population retires at age 60, which is a fair approximation of the low actual average retirement age in Western Europe.[2]

Demographic dependency

Box figure 2.3.1 demonstrates the development of the classical demographic old-age dependency ratio – that is, the ratio of the number of persons aged 60 and over to the number of people aged between 20 and 59. The curve is familiar and dramatic, indicating more than a doubling of the ratio within the next 35 to 40 years. Curves of this category often provide the justification for predicting a doubling of the PAYG contribution rates in national pension systems within the next four decades. Here, the second line on the graph already indicates a solution to the demographic problem: pushing back the effective retirement age from 60 to about 67, phased in gradually – after a due period of notice – over 21 years from 2010. The effect is substantial. Age 67 has been chosen to define a probable upper limit for average national retirement ages in the future.

System dependency

The financial status of an old-age pension system is not determined by the pure demographic dependency ratio, however, but by the ratio of the number of pensioners to the number of people actually contributing. In a first approximation, in this example the system dependency ratio was estimated by dividing the total population over 60 by the number of economically active persons in the 20–59 age group. Curve n° 1 in box figure 2.3.2 maps this ratio, showing the familiar dramatic pattern as in the pure demographic scenario presented in box figure 2.3.1. Curve n° 2 again shows the fall in system dependency ratios due to the increase in retirement age.

However, the most interesting effect is demonstrated by curve n° 3 which assumes that the labour force participation rates of women can be brought up to those of men, except for the child-rearing age groups of 25 to 39. This again lowers system dependency ratios.[3] In fact, if female participation rates could be increased and the retirement age pushed back to 67 or even 65 gradually during the next three decades, then the system dependency ratios throughout the coming decades might almost remain

Box 2.3 (cont'd)

Box figure 2.3.1   Long-term development of demographic dependency ratios, Euroland, 1995–2115
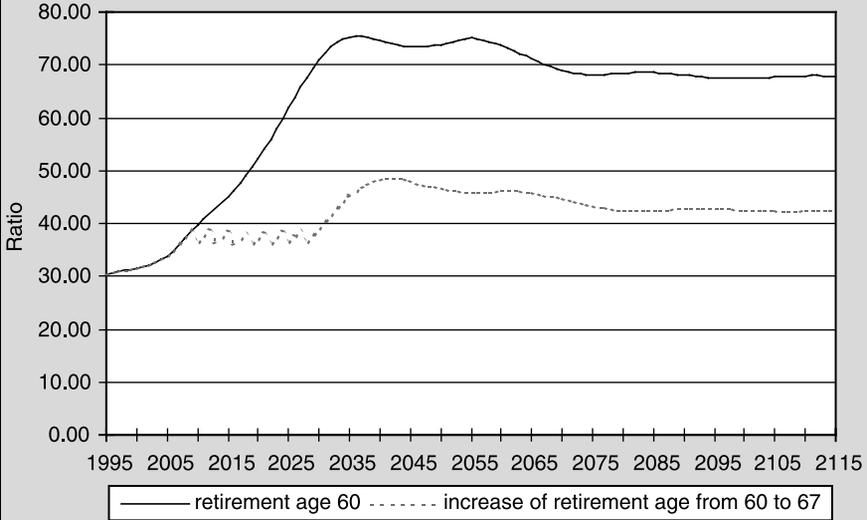
Source: ILO.

constant. The ageing problem in Euroland, however dramatic it appeared at the outset, would thus disappear as a consequence of the higher retirement age and greater labour force participation.

Increasing the retirement age by seven years over the next three decades might appear too drastic, but it does not seem unreasonable to expect generations that have decided to have so few children that replacement is not ensured to compensate for the drop in labour supply by working longer. These generations are actually required to stay "young" and be ready to have a longer working life.

The employment connection

The above results could even be improved if today's level of unemployment were eliminated (at the time of the simulations it stood at about 10 per cent of the labour force) and the unemployed added to the group of contributors. This reveals the fundamental uncertainty of the above exercise.

The key question is: Can the labour market absorb the additional supply of labour that results from the upward shift in retirement age,

Box 2.3 (cont'd)

Box figure 2.3.2   Long-term development of old-age system dependency ratios, Euroland, 1995–2115

retirement age 60 (normal activity rates)

—×— increase of retirement age from 60 to 67 (normal activity rates)

- - - - retirement age 60 (higher activity rates)

—△— increase of retirement age from 60 to 67 (higher activity rates)
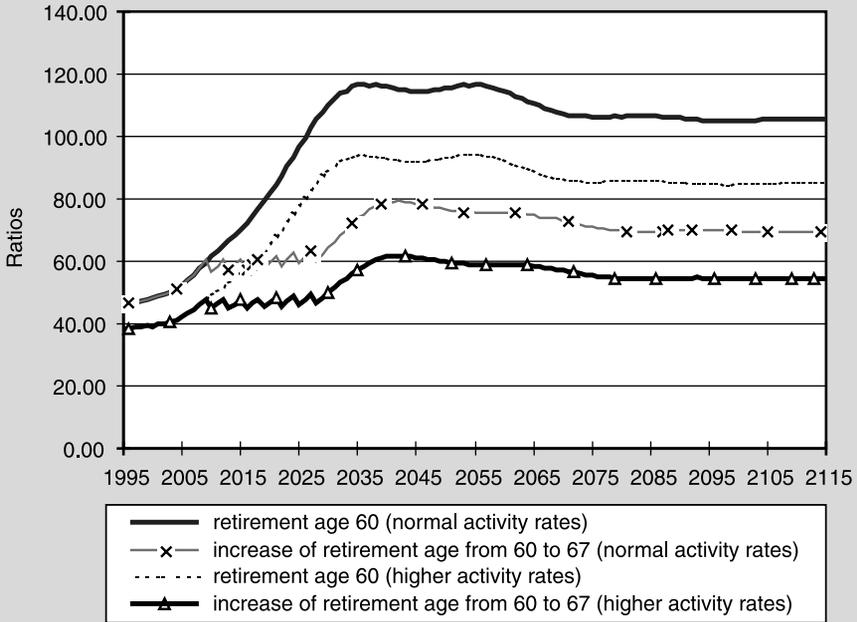
Source: ILO.

and the potential growth of labour force participation rates? The alleged ageing problem hence translates into an employment problem – and this should be borne in mind when discussing the issue.

Notes

[1] See United Nations (1993).

[2] The relatively low effective retirement age is a consequence of early retirement provisions as well as pre-retirement arrangements or the use of the invalidity outlet to leave the labour market. In total these effects lead to a *de facto* retirement age which is substantially lower than the legal retirement age.

[3] For the purpose of this analysis it has been assumed that all persons above age 60 receive a pension from the pension system. The increase in labour force participation, that is, the implicit increase in the future number of contributors thus does not affect here the number of future beneficiaries.

The figures in box 2.3 show that the importance of governance is often underestimated. Further evidence of this can be found in other sources. An OECD study conducted in the mid-1980s estimated that about 60 per cent of the rise in overall social expenditure in the seven major OECD countries between 1960 and 1981 could be attributed to the increase in real benefits levels, which are a governance factor (OECD, 1985). ILO technical assistance teams estimated that in Central and Eastern Europe the non-collection of contributions amounted to between 20 and 30 per cent of total contribution income (ILO, 1995; ILO/EU Commission, 1994). This means that the PAYG contribution rates could be reduced by the same proportion if system governance were able to ensure full collection of contributions. This could solve a major part of the financial problems of pension systems in countries of Central and Eastern Europe.

In OECD and Central and Eastern European countries, net increases of real benefit levels through the introduction of new benefits or new entitlements can hardly be expected under present circumstances. Nevertheless, changes to benefit provisions could have an impact on the development of social expenditure or its allocation to different beneficiaries. For example, the method of benefit adjustments makes an enormous difference for the long-term average replacement rates of benefits. Discretionary or partial adjustment of benefits was used as a way of limiting the increase of social expenditure in Central and Eastern Europe during the 1990s. In developing countries the adjustment – or rather non-adjustment – of pensions in payment has often been used to compensate for the cost of steeply rising number of beneficiaries, thus avoiding hikes in contribution rates which would be a necessary systemic consequence of the maturation process in the face of political pressures.[15] Interestingly enough this might have fended off short-term political pressures, but the resulting low and deteriorating benefit levels have eroded public confidence in the schemes.

2.4.3   Impact of the economic environment

As already mentioned, the economic environment in which NSPSs operate also has a major impact on social expenditure. It can aggravate negative demographic effects when, for example, deteriorating demographic dependency ratios are compounded by high unemployment leading to even higher system dependency ratios. High dependency ratios will translate immediately into high social expenditure unless benefits are reduced. Inflation rates, on the other hand, might increase nominal social expenditure but may have no impact on the SER if there are parallel developments in the Consumer Price Index (CPI), which often determines annual increases of benefit levels, and the GDP deflator, which describes the aggregated inflation of all goods and services produced in a country.

On the other hand, positive developments in the economic environment – leading to higher employment, for example – can cancel out a major part of the

negative costly effects of ageing. In a context of increasingly healthy older workers, higher labour demand would make it possible to raise the retirement age and even in a rapidly ageing Europe the system dependency ratios of the pension systems, the main cost components in national social protection schemes, could be kept at levels which would be only marginally higher than the present rates (Cichon, 1996).

ILO projections (Latulippe, 1996) for OECD countries, undertaken in the mid-1990s, showed that while there are substantial differences between individual countries, in virtually all of them unemployment is likely to reach an assumed minimum level of 2 per cent around 2030 if an average growth in labour demand of 1 per cent is assumed. If employment were to increase in the future at the same rate as during the 1980s, there would be a labour shortage by 2030. An increase in the retirement age of more than 3.5 years would then be necessary to fill all jobs.

There is a widespread perception, however, that economic development also influences the level of formal social expenditure in a more subtle way. Referring to an often-observed correlation between per capita levels of GDP and social spending, it is often inferred that there is a high elasticity of social expenditure to per capita levels of GDP. This means that as countries get richer they tend to spend more on social protection, simply because they can afford higher levels of redistribution. Box 2.4 analyses that relationship in more detail. The analysis seems to defeat the simple GDP elasticity of social spending theory. Formal social expenditure may rather be causally linked to the national capacity of governance than to levels of GDP. However, the per capita level of GDP may well in many cases[16] be a proxy for national governance capacity. Different countries with a similar per capita level of GDP show a wide range of levels of social expenditure (as measured by the SER), which means that they have decided to establish more or less extensive formal transfer systems. This, is turn, signifies that the level of social transfers is at least to some extent a matter of political decision-making and the capacity to successfully implement such decisions and not a quasi-automatic consequence of the level of economic development. This is also in keeping with the observations made in Chapter 1 that the extent to which social transfers are formalized and hence show up in public expenditure statistics reflects the level of governance capacity.

Box 2.4   GDP and social expenditure: Does one have to be rich to share?

Here we look at the question of whether there is a stringent correlation between the level of GDP and social spending. Although methodologically simple, the exercise shows interesting results.

Box figure 2.4.1 depicts the relationship between income levels per capita of selected countries within the different regions and their spending

Box 2.4 (cont'd)

Box figure 2.4.1   Relation between social expenditure as % of GDP and GDP per capita, selected countries, 1992

$$y = 2.641e^{6E-05x}$$
$$R^2 = 0.1478$$
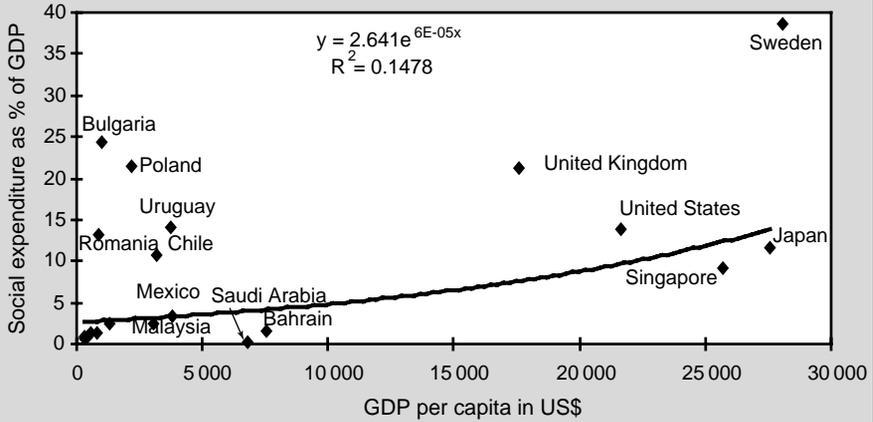
Source: ILO and the United Nations.

on social protection as a percentage of GDP. It indicates that the mathematical correlation between GDP per capita and GDP share of social expenditure is actually relatively weak (even in case of a non-linear, that is, exponential regression line). However, it also reveals a more complex picture: OECD countries clearly have a higher level of redistribution through the social protection system than lower-income countries, and are placed above the regression line. The higher- and lower-income countries actually form two clusters around the regression line, but neither cluster is very dense. This means that the variance of the level of social spending between countries of similar GDP per capita is substantial. These observations lead to one conclusion: the level of social expenditure (as measured in share of GDP) does not – or at least not exclusively – depend on the level of GDP. Thus there are poorer societies who decide to devote the same share of their GDP to social expenditure as better-off societies. In other words, one does not have to be rich to share income through social protection.

Taking extreme examples, Bulgaria – a low per capita income country – had a social expenditure share of GDP in 1992 which was (in relative terms) double the Japanese level. By contrast, certain countries with upper middle per capita income levels, such as Saudi Arabia and Bahrain, allocate a very low share of GDP to financing social expenditure. This can be explained in part by the low coverage levels of mandatory social insurance schemes in these countries.

2.4.4 Weighting the factors

The exact relative importance of the three categories of determinants of the level of social expenditure depends of course on the specific national situation and the state of maturity of the country's social protection system. On the basis of the case of OECD countries – taken here as examples of mature social protection schemes – it can be clearly stated that during the past few decades politically motivated amendments to governance factors were made, notably those which permitted generously early withdrawal from and late entry into the labour force. At that time they had an even greater influence on national social expenditure than the ageing of the population. Whereas positive economic developments might help to compensate some of the effects of ageing, negative ones tend to aggravate adverse developments in NSPSs' financial equilibrium. The effects of changing macro-demographic and macroeconomic conditions might be smaller in developing countries – that is, in maturing schemes which have not yet attained full population coverage. The demographics of their systems and the economic development of the sectors they cover might be insulated to some extent against changes in the macro-environment. On the other hand – and many pension schemes are witness to this – they might be more vulnerable to bad governance since their regulatory framework might not be sturdy enough to withstand undue political interference like excessive government borrowing or diversion of reserves.

Overall, governance appears to be the most important determinant of social expenditure. This, in a way, is good news. It means that the systems are not helpless in the face of negative economic and demographic developments. If governance can increase expenditure it can also – at least in theory – consolidate and focus schemes in a socially responsible way in times of crisis. Financial analysts have to understand the impact of economic and demographic factors in order to make a useful contribution to the design of governance measures aimed at countering any adverse developments in these two sets of determinants.

2.5 SUMMARY

National social expenditure generally follows a quasi (meaning "not always perfect") logistical maturation pattern. It may take a new social protection system about seven decades to reach the stationary state or the mature state. This is largely a consequence of the generally slow maturation process of national pension schemes. Social expenditure increases are thus to a considerable extent normal and natural phenomena.

Our projections show that, driven by demographic developments, expenditure levels for formal NSPSs will grow during the next five to six decades throughout the world. The size, pace and nature of this increase are sensitive to the assumed pattern of future economic development as well as the initial stage of economic development. The projections also show that the rise

in social expenditure is either normal, due to the expected and intended maturation processes (in case of maturing schemes), or modest (in the case of mature systems). In developing countries it may take anywhere between three to six decades before national social protection schemes reach social expenditure levels comparable to the lower-range levels currently found within the OECD. In OECD and Central and Eastern European countries the future increase in social expenditure will not fully absorb the expected real rate of growth of the active population's disposable income. Even in view of rapid ageing – in some regions – and the obligation of the active population to finance accordingly higher social expenditure, there would still be net gains in the standard of living for the active population.

Our factor analyses show that governance parameters have a strong influence on social expenditure. This is encouraging as it shows that projected negative future expenditure developments can be corrected by sensitive governance. Simulations show that the application of administratively relatively simple reform strategies like modifications of pension indexations and increasing the retirement age (which might prove hard to push through politically) would probably keep the overall social expenditure levels in mature social protection systems roughly at about today's average – that is, at or below 25 per cent of GDP. This requires implementing policies to guarantee cost containment measures and to introduce reallocations of resources between different categories of social expenditure early on, and will notably entail resource shifts from other categories of benefits to the pension category. This is by no means a minor issue as at the national level it will involve such difficult processes as for example the closure of kindergartens, schools and universities to channel the resources thus freed to the maintenance of the elderly. Many of the reforms will also need decades to become fully effective.

Therefore, if it is assumed that the present empirical level of overall social expenditure is more or less acceptable, then there is little reason to believe that expected future expenditure developments will almost automatically become unmanageable, though considerable political skill will be required to maintain the political acceptance of necessary structural shifts within the overall umbrella of formal social expenditure.

A checklist of questions for financial and social policy analysts

If a country's overall social expenditure level is analysed and compared with that in other countries, the financial analyst should answer the following questions:

1. On the basis of the national definition of social protection: Can a time series of the country's SER be established? Are there breaks in the series when new benefits are introduced or others terminated? Are there sudden shifts in the GDP denominator that explain shifts in the SER curve?

2. Are there shifts in the composition of total social expenditure? How can they be explained? (For example, by ageing?) Are all the subsystems of the country's national social expenditure mature? Do the subsystems and the system as a whole cover the entire population?

3. Is the social protection system mature enough to justify the projection of future expenditure by a simple "driver"-based projection model?

4. When comparing the SER with countries having a similar level of GDP, how can differences and similarities be explained? Are the definitions of social protection in the comparator countries similar/compatible with the country being analysed?

5. Can one identify the relative impact of demographic, economic and governance factors on the developments of the SER over the last decades?

6. Which governance measures could be used to stabilize or reduce social expenditure during the coming decades?

Further reading

To find out more about the size and structure of national social protection systems and about basic projection methodologies, you may wish to refer to Issue Brief 3 as well as to the following titles:

- EUROSTAT (2000)
- Scholz et al. (2000, Chapter 1).

Notes

[1] See Cichon et al. (1999); Scholz et al. (2000); Plamondon et al. (2002).

[2] Another important aggregate indicator, which should be taken into account for measuring public expenditure, is the ratio of public social protection expenditure to the total public expenditure. Countries may differ significantly with respect to the size of the public sector (measured as total revenue or expenditure as proportion of GDP). Countries with a relatively low SER may still have a high ratio of social protection expenditure to overall public expenditure. Also, when comparing the size of social transfers internationally one should bear in mind existing differences in taxation levels, particularly differences in tax rates applied to social benefits; see the analysis of net social expenditure in Adema (2001).

[3] See ILO: *The Cost of Social Security: Basic and comparative tables*, various editions. The latest data are available on the ILO website (www.ilo.org).

[4] Data on social security expenditure can be retrieved from the System of National Accounts (SNA), which may subsume certain expenditure items under different headings. The SNAs and the OECD, EUROSTAT and ILO guidelines for collection of social security expenditure differ, for example, with respect to the inclusion of charitable social expenditure, provident pension funds, the attribution of costs for work-related injuries and care for the disabled.

[5] The exceptions are Algeria (1994), Egypt (1959), Libya (1973), South Africa (1937), Tunisia (1982); also Nigeria and Tanzania, which provide for a payment of severance indemnity.

[6] With the exception of Lebanon (1963), Saudi Arabia (1962), Syria (1959).

[7] Bangladesh, Fiji, India, Islamic Republic of Iran, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, Thailand.

[8] The model is a simplification of the social budget model implemented by the ILO in several countries since the early 1990s.

[9] Linking the rate of growth of health expenditure to GDP makes it possible to take implicitly into account the fact that health expenditure is partly supply-driven – that is, based on our capacity to pay. In fact, unit health care costs will increase at about the same rate as total GDP, considering the increase in the size of the employed population under the base scenario.

[10] The GDP data were obtained from the World Bank (1996). In the 5-per cent growth scenario the catch-up phase would be extended by about 15 years if Greece were to continue to grow at a real rate of 1 per cent.

[11] A minimum retirement age of 45 has been assumed not to consider people who withdraw early from the labour market and get entitled to limited benefits. It used to be an important phenomenon for women.

[12] The duration of retirement is calculated on the basis of the average retirement age and life expectancy at time of retirement.

[13] The retirees' expected age of death was 77.9 years in the countries of Central and Eastern Europe in 1990. It was about 80 years of age in all other regions except Japan, where it reached 83.3 years because of high retirement age and high life expectancy.

[14] The inactivity ratio is very sensitive to changes in retirement age as both the numerator (duration of retirement) and the denominator (number of years of activity) are dependent on retirement age. A change in life expectancy or entry age will also have an impact but the inactivity ratio, unlike the dependency ratio, does not depend on the number of people in the different age groups.

[15] Trinidad and Tobago is a case in point.

[16] But not always, as the example of some Central and Eastern European countries in the 1990s has shown.

STATISTICAL ANNEX 2-A1

Table 2-A1.1 Total social expenditure by major function (as % of GDP), mid-1970s to mid-1990s

Country	Year	Total social expenditure[1]	Pensions	Health care	Other social security functions	Special schemes for government employees and war victims
Africa						
Benin	1975	1.18	0.19	0.00	0.78	0.00
	1980	1.58	0.23	0.00	0.45	0.77
	1985	0.75	0.33	0.00	0.22	0.00
	1990	0.84	0.43	0.00	0.13	0.00
	1992	1.00	0.17	0.00	0.76	0.00
Niger	1975	0.41	0.02	0.00	0.33	0.00
	1980	0.30	0.01	0.00	0.24	0.00
	1985	1.63	0.06	0.01	0.21	0.38
	1992	0.66	0.10	0.07	0.22	0.00
Tanzania	1980	0.20	0.13	0.00	0.00	0.00
	1985	0.24	0.16	0.00	0.00	0.00
	1989	1.74	0.09	0.00	0.01	0.06
Togo	1975	0.81	0.11	0.00	0.41	0.00
	1980	0.98	0.18	0.00	0.59	0.00
	1985	1.21	0.37	0.00	0.54	0.00
	1990	1.28	0.53	0.00	0.57	0.00
	1992	1.40	0.49	0.00	0.59	0.00
Arab States						
Bahrain	1975	0.39	0.08	0.00	0.02	0.21
	1980	0.31	0.05	0.00	0.02	0.15
	1985	0.43	0.27	0.00	0.05	0.00
	1990	1.60	0.43	0.01	0.11	0.00
	1992	1.60	0.43	0.01	0.11	0.00
Kuwait	1980	0.55	0.37	0.00	0.14	0.00
	1985	2.55	1.32	0.00	0.00	0.00
	1990	3.66	3.55	0.00	0.00	0.00
Saudi Arabia	1987	0.15	0.13	0.00	0.03	0.00
	1990	0.15	0.12	0.00	0.02	0.00
	1992	0.20	0.18	0.00	0.02	0.00
Asia						
India	1975	1.46	0.36	0.04	0.05	0.96
	1980	1.59	0.35	0.06	0.11	1.03
	1985	1.54	0.33	0.04	0.07	1.04
	1992	0.85	0.29	0.03	0.03	0.48

Table 2-A1.1 (cont'd)

Country	Year	Total social expenditure[1]	Pensions	Health care	Other social security functions	Special schemes for government employees and war victims
Malaysia	1975	1.63	0.55	0.00	0.05	0.79
	1980	0.96	0.45	0.00	0.04	0.33
	1985	1.96	0.79	0.00	0.07	1.00
	1990	2.67	1.52	0.00	0.06	1.00
	1992	2.40	1.27	0.00	0.00	1.03
Philippines	1978	0.81	0.17	0.00	0.12	0.39
	1980	0.71	0.18	0.00	0.10	0.30
	1985	0.65	0.18	0.05	0.04	0.29
	1990	0.97	0.41	0.00	0.14	0.32
	1992	1.44	0.59	0.09	0.08	0.47
Singapore	1975	1.67	1.61	0.00	0.05	0.21
	1980	3.67	2.51	0.00	0.07	0.21
	1985	13.01	8.53	0.00	0.20	0.38
	1990	8.01	5.49	0.31	0.04	0.00
	1991	9.26	6.46	0.30	0.07	0.00
Latin America						
Colombia	1975	2.21	0.13	0.51	0.29	1.03
	1980	2.80	0.29	0.52	0.48	0.88
	1985	2.00	0.47	0.00	0.10	0.47
	1990	2.57	0.68	0.80	0.10	0.70
	1992	2.49	1.38	0.98	0.13	0.00
Chile	1975	11.22	2.01	1.08	2.83	4.37
	1980	11.43	2.52	1.00	2.22	4.68
	1985	13.46	8.42	1.51	1.97	0.00
	1990	10.73	6.01	1.58	1.55	0.00
	1992	10.64	5.57	1.69	1.45	0.00
Mexico	1974	2.72	0.31	1.08	0.25	0.61
	1980	2.61	0.27	0.88	0.25	0.50
	1985	2.51	0.38	0.71	0.23	0.63
	1990	2.61	0.55	0.84	0.39	0.44
	1992	3.27	0.74	1.05	0.49	0.48
Uruguay	1975	10.01	4.34	0.13	1.43	1.92
	1980	8.64	6.32	0.38	1.21	0.00
	1985	9.83	7.34	0.71	0.96	0.00
	1990	6.13	4.61	0.52	0.60	0.00
	1992	14.11	11.15	1.21	1.05	0.00
Central and Eastern Europe						
Bulgaria	1975	12.87	5.79	0.00	2.95	0.08
	1980	9.72	6.19	2.28	3.36	0.07
	1985	9.88	6.80	0.00	3.09	0.00

Table 2-A1.1 (cont'd)

Country	Year	Total social expenditure[1]	Pensions	Health care	Other social security functions	Special schemes for government employees and war victims
	1990	16.07	8.66	3.69	3.66	0.00
	1992	24.36	10.09	7.45	6.75	0.00
Poland	1985	14.42	6.78	3.83	3.23	0.47
	1991	21.53	11.89	4.55	3.65	1.02
	1992	21.35	13.11	3.20	5.45	1.29
Romania	1975	6.27	0.00	0.00	6.26	0.00
	1980	8.39	0.00	2.30	6.09	0.00
	1987	9.63	3.76	2.07	3.54	0.07
	1990	9.73	5.75	0.48	2.63	0.71
	1992	13.18	5.52	0.53	5.20	1.64
Ukraine	1975	13.97	7.51	0.00	2.16	0.00
	1980	15.52	8.81	4.28	2.18	0.00
	1985	16.66	10.16	4.16	2.33	0.00
	1989	18.69	11.12	4.99	2.60	0.00
OECD						
Japan	1975	8.67	1.33	2.77	1.94	1.58
	1980	11.21	2.55	3.35	2.08	2.06
	1985	11.60	3.34	3.66	1.77	2.16
	1990	11.42	3.72	3.66	1.43	1.97
	1992	11.65	3.81	3.70	1.43	1.94
Sweden	1975	24.88	6.92	1.31	8.85	1.24
	1980	31.67	9.58	7.34	11.41	1.90
	1985	30.57	12.25	7.66	9.41	0.00
	1991	37.06	14.46	7.48	12.98	0.00
	1992	39.86	18.67	7.33	11.86	0.01
United Kingdom	1975	17.13	5.48	0.00	4.33	1.48
	1980	18.03	5.52	4.81	5.24	1.19
	1985	20.05	5.73	4.51	7.04	1.22
	1990	17.42	5.07	4.71	4.96	1.66
	1992	21.19	5.80	5.52	6.61	2.16
United States	1975	11.65	4.15	0.89	4.13	1.99
	1980	12.27	3.75	1.98	3.99	2.07
	1985	12.58	4.31	1.75	3.77	2.19
	1992	13.89	4.81	2.03	4.35	2.19

[1]Includes administrative costs.

Source: ILO, *The Cost of Social Security*.

SOCIAL PROTECTION AND THE ECONOMY

3

As we saw in Chapter 2, social protection systems are major redistributors of GDP. As such, they are also major economic players in all countries. No social protection planner or manager should design or manage a national social protection system (NSPS) or parts thereof without being aware of the potential interrelationships between social protection and the economy. This chapter discusses the nature and dimensions of their interaction. However, the indications given here cannot be as numerically precise as financial analysts might wish since the magnitude and impact of those interrelationships depend on the nature of the economy, country-specific behaviour and the characteristics of the welfare state itself. Still, the discussion should provide enough insights to enable social protection planners, analysts and modellers to design financing scenarios that reflect alternative country-specific hypotheses regarding the quantitative nature of the interaction between the economy and the welfare state. Such economic scenarios constitute, together with demographic scenarios, the basis for any testing of social protection financing arrangements through economic and actuarial modelling.

Figure 3.1 maps out the nature of the interrelationships between social protection on the one hand and the economy and its major variables (the labour market, inflation, wages, productivity, savings and investments, and overall growth) on the other. It is obvious that almost all major variables have a direct impact on the performance of social protection – in terms of effectiveness and efficiency – as well as on the structure and levels of social expenditure. (These direct determinants of social expenditure were explored in Chapter 2.) Unemployment, for instance, impacts on expenditure levels, employment on revenue levels, and wages on benefit and income levels. The only exception may be overall growth and levels of GDP. As a rule they influence directly the fiscal room for manoeuvre for social transfers and hence the potential generosity of the system, but not necessarily its *de facto* generosity. As we saw in box 2.4, the relationship between GDP and social expenditure levels is not straightforward.

Figure 3.1 Principal interrelationships between the economy and NSPSs
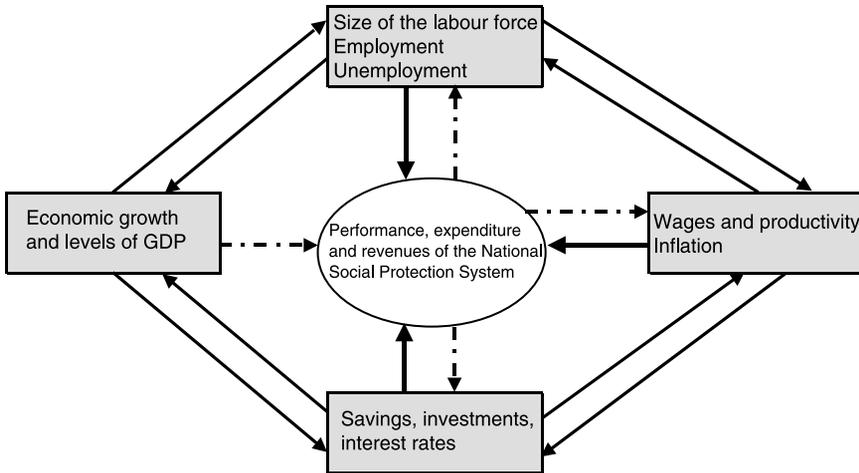
The impact of GDP levels on the performance and expenditure of the social protection system is also largely dependent on national policy preferences.

The relationships between social protection and the economy and its main variables are generally more indirect. They are not directly measurable since they are determined to a large extent by behavioural factors that are themselves influenced by the provisions governing national transfers. For example, unemployment and early retirement may well be influenced by the transfer systems that thus impact on overall economic performance. On the other hand, effective health services might have a direct impact on productivity. Even if such influences are less exactly measurable their impact may be substantial, and no design of a national financing system would be complete without trying to assess it. These from a modeller's point of view less direct relationships – in other words the feedbacks from the social protection system to the national economy – are the main focus of this chapter.

Social protection can be seen as an instrument that polishes the rough edges of the economic machine. From this perspective, public social protection merely fills the gap where society has produced no spontaneous informal initiatives – that is, where "enlightened self-interest" falls short of providing some individuals or households with the basic means of subsistence. Such a view, however, would underestimate government's more comprehensive ambitions to steer the economy.[1] Governments can actually deliberately use some of the feedbacks from the social protection system to influence macroeconomic behaviour.

Around the mid-twentieth century, governments started to realize that social protection could and indeed *should* be one of the tools used by economic policy

Figure 3.2   Prosperity and social protection
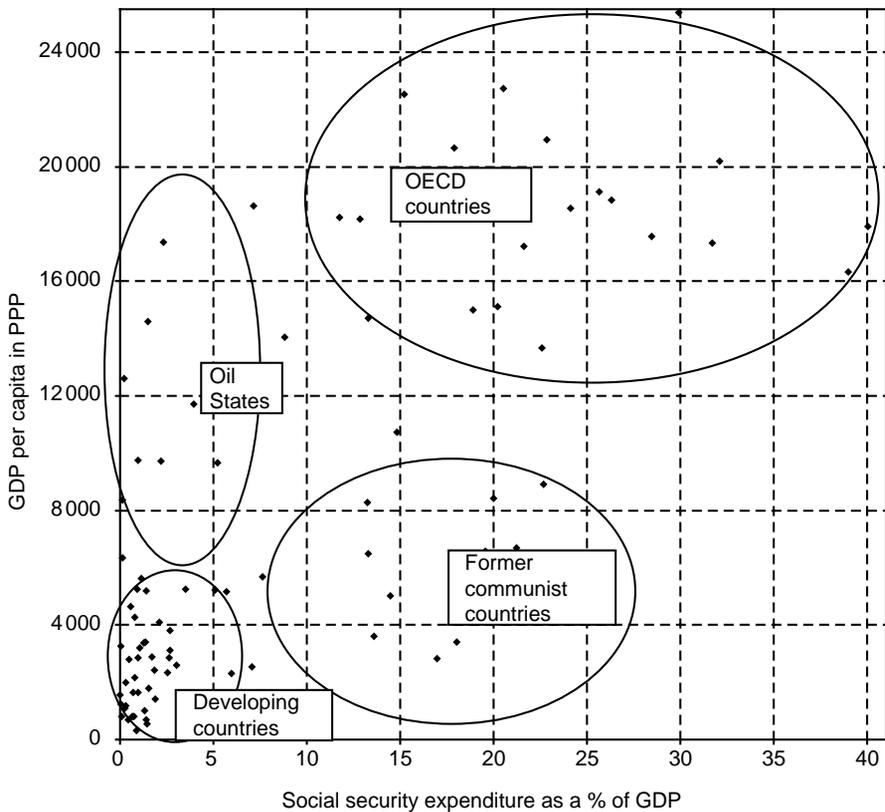
to increase production and national income. J.M. Keynes provided the argument: increased government spending pays off. Expenditure is also income, and the government can use tax revenues to provide commodities and services that would not be generated by market forces alone. Eichengreen (1994) has described how institutional arrangements (including the expansion of the welfare state) in the decades after the Second World War solved a number of inconsistencies in concerted action, both between countries and between capital and labour within countries, and established commitment and trust, thereby contributing to rapid post-war recovery in a number of European countries.

   As we have mentioned, advanced economies tend to have more comprehensive social protection systems (see figure 3.2). The bigger the welfare state, the bigger the influence of intended or unintended feedbacks from the social protection system on the economy.

This chapter does not provide an extensive survey of the relevant literature. Our aim is to give an overview of the economic arguments concerning the impact of the welfare state and its various arrangements and mechanisms on economic performance. Section 3.1 provides a brief introduction to some of the classifications drawn from the economic literature on the welfare state. The subsequent sections examine three dimensions of the welfare state debate: section 3.2 analyses the theoretical debate on the economic effects of the welfare state, section 3.3 looks at evidence concerning these effects, and section 3.4 discusses whether the efficiency of transfer delivery and possible negative economic effects of the welfare state can be altered through alternative governance procedures (notably by changing the public-private mix in transfer delivery). Section 3.5 addresses the ultimate question as to whether welfare states will remain affordable. Section 3.6 draws conclusions which – although not as clear-cut as might be hoped – will provide some guidance on ways in which social protection planners and analysts should take potential economic effects into account when designing new social transfer systems or schemes or reforming existing ones.

While the principal conclusions drawn here are relevant for the world as a whole, most of the concrete examples come from developed economies simply because they still offer better data and information and a better theory base. As a result, the chapter may appear Euro- or OECD-centred. However, the main economic arguments presented here should be applicable to most market economies.

3.1 ECONOMIC TAXONOMIES OF NATIONAL SOCIAL PROTECTION SYSTEMS

An NSPS or welfare state is more than a set of social protection schemes, the sum of its constituent parts. In fact, the welfare state is a concept of *coordination*: a means for the government to participate in the economy and direct its outcomes. In the course of the twentieth century, different countries have developed different kinds of welfare states.

The classic distinction between the residual, industrial-achievement and institutional welfare states was made by R.M. Titmuss (1958). In line with this, Esping-Andersen (1990) has classified welfare-state regimes into three categories:

- the *liberal* regime;
- the *conservative* or *corporatist* regime; and
- the *social democratic* regime.

Esping-Andersen argues that it is not the level of public social expenditure that is the significant indicator of the comprehensiveness of the welfare state,

but its structure and institutions (in other words, the design of the programmes, their interaction with the market, and alternative private arrangements). The liberal welfare states tend to offer flat benefits and limited benefit duration, and targeting (means testing, asset testing) is common. The other two welfare regimes generally grant earnings-related benefits (albeit with a ceiling). The liberal and social-democratic (Nordic) welfare states provide universal coverage, whereas in the corporatist countries coverage extends primarily to those who are or have been employed. Liberal and Nordic models tend to be tax financed, whereas in the corporatist model social insurance contributions are common. While the corporatist model relies on the solidarity of employed workers as a group, the Nordic and liberal welfare states "buy" the commitment of middle-income groups by other means (e.g. tax breaks for additional social protection measures for wealthier citizens who can afford to pay for such protection). Corporatist welfare states tend to offer less generous provisions to those without employment records.

Van Waarden (1997) has developed another classification, using the coordination mechanism (or governance) as a central criterion. He has distinguished three categories of coordination in advanced economies. The first is the liberal market economy. The coordination of economic transactions and the allocation of productive resources are established first and foremost through the market, and the government merely provides the institutional framework for the market mechanism to operate with as few constraints as possible. Australia, Canada, the United Kingdom and the United States are all liberal market economies. In the second category the emphasis is on central planning by the government bureaucracy. France stands out as an example of this "etatist" tradition. In the third category, the so-called concerted or neo-corporatist economies, an important role is played by an elaborate, institutionalized network of intermediary organizations that take part in economic governance. One of their key features is that they have developed from simple narrow-interest organizations into entities pursuing much wider policy agendas. Van Waarden (1997, p. 72) describes this as follows: "…comprehensive associations can less easily seek rents for special interests at the costs of others. As such organizations have to aggregate a greater variety of interests, their policies tend to become more moderate and to gravitate to the centre of the political spectrum, just as usually is the case for political parties as they grow bigger." Austria, Germany, the Netherlands and the Scandinavian countries, among others, all fall into the category of concerted economies.

In the view of Esping-Andersen and van Waarden, then, the welfare state is a set of institutions – including the tax structure, social insurance and assistance schemes, public provisions, labour market regulations and the industrial relations infrastructure – that together enable governments (and the intermediary organizations, in concerted economies) to influence the pace and direction of economic development and the distribution of income and wealth. This definition of the welfare state clearly extends beyond the

definition of an NSPS, which we have described as a social transfer system. For the purposes of this chapter, however, we will adopt this wider definition, since the size and structure of social transfers in the different types of welfare states have a direct complementary relationship with the non-transfer elements of the welfare state as defined by Esping-Andersen and van Waarden, and since economic effects are triggered by non-transfer and transfer elements together. The economic effects of certain types of un-employment benefits, for example, cannot be properly analysed in isolation from the corresponding labour market regulations and wage-setting mech-anisms in a country.

Governments run the risk of overshooting their ambitions when using the instruments of the welfare state to influence the economy. In a planned economy the outcome may be low motivation on the part of individual economic subjects to offer labour or capital since the reward may fall short of what they perceive as worthwhile. Government spending and activities may "crowd out" private investments and initiatives. To paraphrase Okun (1975), in the pursuit of equity, efficiency may suffer.

3.2   EXPLORING THE THEORY: DO EXTENSIVE WELFARE STATES AFFECT ECONOMIC PERFORMANCE?

During the 1980s and 1990s the welfare state came under heavy political fire. The political and economic debate in most industrialized countries focused on the issue of the oversized welfare state – that is, the welfare state as a burden on the economy, hampering economic growth. Opponents of generous social provisions came out with clear-cut neoclassical economic arguments, initially putting politicians and social scientists that were generally in favour of the welfare state on the defensive (see, for example, Korpi, 1985). Policies were designed to cut down social expenditure, but their impact on economic performance remains doubtful in many countries. Box 3.1 describes some politico-economic aspects of welfare-state retrenchments.

Increasingly, however, economists (starting with Anthony Atkinson and Nicholas Barr) began to counter the classical economic reasoning by pointing out that the design of a social insurance scheme can make a difference, and that such schemes can provide efficient solutions where markets – if left alone – would fail. The following two sections offer views of the theoretical economic advantages and disadvantages of the welfare state, both with respect to its macroeconomic effects and its impact on the behaviour of microeconomic subjects. Section 3.2.1 analyses potential negative effects of extensive welfare states on economic performance. Some of the arguments relate to the perceived negative effects of the mere existence of social transfers, while others take issue only with an alleged excessive size of such transfers. The potential positive effects of the welfare state are presented in section 3.2.2. The arguments put

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Box 3.1   The political economy of welfare state reforms

The downsizing of the welfare state as a political programme generally meets with resistance and reduces a politician's chances of winning the next elections. A good example is provided by the strategy pursued by conservative governments in the United States and the United Kingdom during the 1980s (Pierson, 1994). Pierson distinguishes concrete measures ("programmatic retrenchment") from modifications in the institutional parameters ("systemic retrenchment"). Both strategies were applied in both countries. Ultimately, the United Kingdom government abolished the universal second-tier pension scheme (established just a few years earlier, in 1975) but other programmes were largely unaffected. Upon taking office the government had initially advocated a reform of the British National Health Service that aimed to substitute private health insurance for public provision. The plans were soon rejected, in 1982, when it turned out that private insurance was not a means by which to contain costs. As Pierson (1994, p. 133) remarks: "However unattractive to conservative ideology, the concentration of control over health care provision had proven to be a powerful cost-containment technique". The problem with cuts in income-protection schemes was that both countries historically relied (and still do) on targeted welfare programmes that provide benefit levels close to the basic means of subsistence. These programmes could not be attacked because they were at the core of "residualist" conservative political welfare state policies. The US administration, however, did succeed in one important, indirect way: it reformed taxes, in two steps – in 1981 and 1986. This effectively restricted the scope for financing redistribution through welfare-state programmes, showing that the financing system, for example through "defunding", can be used to influence benefit levels of the welfare state.

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forward by no means defend excessive welfare states; rather, they state the positive effects of well-designed and reasonably sized transfers.

On the whole, nobody is totally against social transfers and nobody defends over-dimensioned, ill-targeted and badly designed transfers. It is thus important for the reader to distinguish in any debate the principal disadvantages of social transfers from the disadvantages of badly implemented transfers. In the final analysis, it appears that intelligent design of the welfare state matters more than its size.

3.2.1   Do extensive welfare states have a negative impact on economic performance?

The main arguments of those who believe that an extensive welfare state is detrimental to economic growth and is hence an obstacle to welfare itself run as follows:

Large welfare states create excessive administrative costs

This may sound like a side issue, but it is actually crucial. If we accept the view outlined in Chapter 1 that every society must be expected to maintain a certain overall level of formal and informal transfers, then the cost of delivering these transfers becomes a critical issue. Administrative costs are always a potential source of productive and allocative inefficiencies. If the administration of a benefit costs more than is necessary, society faces excessive opportunity cost – in other words, other things could be financed with the money wasted on unnecessary administration. However, in the management of formal transfers some administrative costs are unavoidable; they are an inevitable part of the delivery of benefits. Private formal delivery – for example, through private delivery units (such as private sector providers in health care) or through private or non-government delivery financing schemes – also entails administrative costs. There is no reason to believe that the administrative costs for private schemes are lower than for public schemes. In fact, the evidence in industrialized countries points to the contrary. Given the economies of scale involved in any administration, the administrative costs for generally smaller private schemes are inevitably higher than for public ones. The administrative cost ratio of the private Chilean pension scheme is a multiple of that of the public systems in, for example, Austria and Canada.[2] Similarly, many private United States health insurance schemes have much higher administrative costs than social insurance schemes in Europe.

For mature social protection systems the problem is not so much the administrative costs themselves but the widespread perception that public administrations have no inherent drive to reduce operating costs whereas private providers are more efficient. In developing countries, meanwhile, many social insurance schemes face excessive administrative costs.[3] If developing countries do not formalize their informal transfer systems those costs could be greatly reduced, though not completely avoided. However, this would be achieved at the cost of greater unreliability and inequality that are characteristic of informal transfers.

Large welfare states give rise to compliance costs and moral hazard

Compliance costs are resources used in the process of collecting tax revenues, monitoring and policing, and enforcing rules. Many perceive them as inherent in the public sector (to prevent free-riding), and therefore expect them to be higher in comprehensive welfare states than in residual welfare states. However, monitoring and policing are common in private arrangements (such as insurance contracts) as well. The avoidance of compliance costs often simply results in lower coverage, which is in turn synonymous with moral hazard or adverse selection problems and may ultimately generate higher direct government expenditure in social assistance for uninsured people in need. If people who are "good risks" fail to comply (self-employed people with relatively high incomes,

for example), this could simply raise the per capita share of taxes or contributions for those who cannot avoid paying. These are often formal sector employees whose labour costs increase unnecessarily as a result.

Moral hazard *per se* is not an argument against the welfare state (Teulings et al., 1997). It occurs in private insurance as well as in public schemes. The source of moral hazard is asymmetrical information – that is, the case where the agent/insured knows more than the principal/insurer. There are means of dealing with moral hazard (for example, experience rating, exclusions, co-payments), but they tend to be applied less commonly in public schemes than under private insurance policies. Aarts and de Jong (1997) have cited this as evidence for their argument that, since moral hazard is more likely to arise in disability insurance schemes than in (individual) old-age pension schemes, there is more scope for private disability insurance and less for private old-age pension insurance. The administrative costs for the latter are so much higher than for public (or private occupational) schemes that it is less efficient to operate private individual old-age pension insurance schemes.

Lindbeck (1995, 1997b) has argued that the long-term effect of large welfare states is towards moral hazard. At the core of his "hazardous dynamics" argument is the adjustment of behaviour patterns over a longer time span. The behavioural response to new social transfers tends to be lagged due to collective arrangements (hampering a rapid individual response), information and adjustment costs, and moral rules that restrict the influence of economic incentives on behaviour (idem, 1995, p. 10). It takes a "critical mass" of people following new rules or taking advantage of new possibilities before an individual is likely to go along with them. Since the disincentive effects of welfare-state schemes appear with a considerable time lag, politicians tend not to anticipate them, and hence, according to Lindbeck, welfare-state policies tend to "overshoot" their objectives.[4]

Large welfare states affect the supply of productive resources

Microeconomic studies show that taxes and benefit systems in general – and therefore taxes and contributions collected to finance the welfare state in particular – affect the supply of labour. Taxation reduces the income of individuals and households. This is the *income effect*. A second effect stems from the fact that not all activities are taxed at the same rate. Having less disposable income, economic subjects will respond by gravitating towards lightly taxed activities, such as consuming leisure and producing in the informal sector. This is the *substitution effect*. There are different dimensions of labour supply (effort, hours of work, participation). And increased leisure may take various forms, such as putting in less effort on the job, working fewer hours, retiring earlier, and so on. The income and substitution effects of an income tax operate in different directions and the net outcome is theoretically undetermined. In contrast, the income and substitution effects of a received benefit

operate in the same direction – that is, the benefit leads to a reduction in labour supply (Moffit, 1992). The availability of benefits (replacement income) weakens the incentive to look for a job, supposedly reducing aggregate labour supply and hence employment (assuming that demand for labour is adequate).

Several economic theories, however, have cast doubt on the argument that the simple existence of a benefit reduces employment levels. *Job search* theory, for instance, points at two opposite effects: (i) the reservation wage[5] declines as benefit expiry approaches, and so the probability of leaving the benefit-payment rolls increases over the duration of insured unemployment; and (ii) an increase in the benefit level elicits a greater labour supply from currently non-eligible workers who wish to "buy" that protection. In general, then, the effect of higher benefits on the duration of unemployment is ambiguous (Holmlund, 1997). The first proposition has been the subject of extensive empirical studies (Layard et al., 1991). The end-of-benefit-duration effect is supported by evidence.[6]

Social security is also said to affect savings and consequently investments. In the pensions literature in particular this is an often-reiterated argument with respect to public pays-as-you-go (PAYG) pension schemes. In a traditional *life cycle* model, in which people base their decisions about saving on their anticipated lifetime wealth and the rate of return on savings, a PAYG pension system crowds out private savings (Aaron, 1982).[7] However, there are some caveats. Low-income households generally save little; the introduction of a public PAYG pension system would therefore not depress their savings since they would not have saved anyway. Kohl and O'Brien (1998, p. 35) find in a survey of the empirical literature that public PAYG pension systems exert a minor downward effect on private household savings (the marginal effect is found to be -0.05). After reviewing the statistical evidence, Gillion et al. (2000, p. 361) conclude: "Despite numerous attempts to measure the effects statistically, no consistent evidence has emerged, linking the creation of pay-as-you-go pension schemes with reductions in personal savings rates. This suggests that, if these schemes have a negative effect on personal saving, it probably has been a modest one."

The negative effect of private pension schemes (contractual savings schemes) on private household saving is far more substantial (0.75–0.8). Kohl and O'Brien (1998, pp. 36–40) have found, from empirical studies focusing on Canada, Denmark, the United Kingdom and the United States, that additional private savings resulting from these schemes are offset by additional tax expenditures. The net effect on the savings-to-GNP ratio in this case would be nil. Adema (1999, p. 2) has calculated that tax expenditures for private pensions in an extreme case such as the United Kingdom can amount to 2.4 per cent of GDP.

Large welfare states generate "deadweight losses"

The "excess burden" or "deadweight loss" is the difference between the total direct and indirect cost of a tax levied on the taxpayer (this is called

Figure 3.3 Deadweight loss of taxation
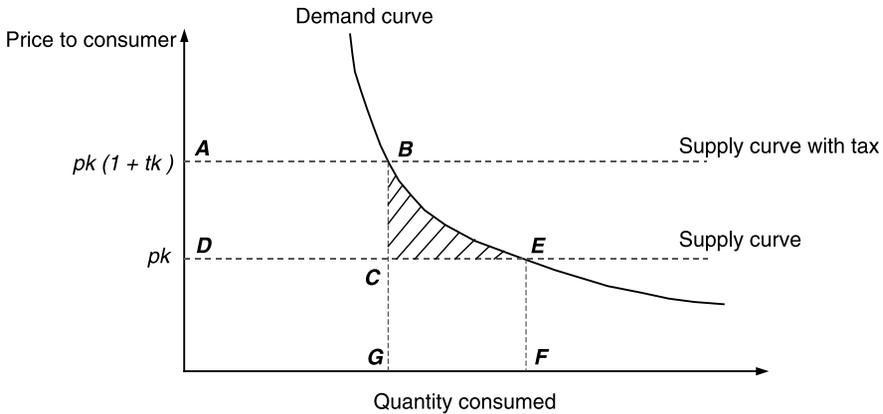
Source: ILO, adapted from Atkinson and Stiglitz (1980).

the "consumer surplus") and a fictive lump-sum tax yielding the same revenue. Excess burdens are due to substitution effects. That is, individuals alter their behaviour because of the tax (e.g. by working fewer hours because of a decline in the relative price of leisure; as a consequence, overall GDP would drop).

Figure 3.3 helps to clarify this point.[8] Let us assume that the supply of good k is perfectly elastic at price p_k, so that the equilibrium in the absence of taxation is at point E. The effect of a tax at rate t_k is to raise the consumer price from p_k to $p_k(1+t_k)$. The after-tax equilibrium is at point B. In this partial equilibrium framework the distortion caused by the tax could be measured by the loss of consumer surplus over and above the revenue raised, the "excess burden". The area *ABECD* can be taken as a measure of the loss of consumer surplus, the excess burden is represented by the shaded area *BCE*.

Feldstein (1997) has calculated a marginal excess burden per dollar of tax revenue as \$1.65 (hence the total cost to the average taxpayer in terms of reduced disposable income could be \$2.65). However, Slemrod (1998) estimates the marginal excess burden to be more in the order of \$0.20–\$0.25, arguing that much of the response to a tax increase is the result of retiming rather than of decreased work effort.

Large welfare states create rigidities

Rigidities may arise from: (i) labour market regulation, (ii) social security systems, or (iii) the wage formation process (OECD, 1994, Chapter 5). Closely related to the last item is a fourth factor, minimum wage levels. Some of these aspects belong to the non-transfer components of the wider concept of the

welfare state. As they often complement or substitute transfers (for example, protective legislation reducing employers' freedom to lay off workers is a partial substitute for unemployment benefits[9]), we will analyse them here together with the effects of income transfers.

Employment protection regulation reduces short-term unemployment since it creates obstacles to laying off redundant workers. But since firms will accordingly be more cautious about hiring labour in times of economic upturn, employment protection legislation tends to reduce the outflow from un-employment into work and has an upward effect on long-term unemployment (Nickell, 1997; OECD, 1999a).

Generous *unemployment benefit levels* affect the labour market in two ways: (i) laid-off workers are less inclined to look for new jobs; and (ii) there is an upward pressure on wages as workers are less concerned about losing their jobs. Ljungqvist and Sargent (1998) argue that welfare states are vulnerable in times of increased economic upheaval. Large numbers of unemployed workers, entitled to generous compensation benefits, find their skills depreciating considerably while economic turbulence makes the acquisition of new skills very uncertain. "The fact that welfare benefits are based on past earnings causes these workers with depreciated skills literally to 'bail out' from the active labour force by choosing low search intensities and high reservation wages" (idem, 1998, p. 547). The second effect (upward pressure on wages) is a macroeconomic one. The demand for labour will be reduced when taxes and benefits drive up wages.

Wage formation is another factor. Labour cost can only go up as a result of higher taxes or contribution payments if wage levels are rigid and tax and contribution increases cannot be absorbed by the reduction of workers' disposable income. Some analysis of the wage-setting processes is therefore in order.

In the first half of the 1990s a number of economists perceived the level of unemployment as an effect of the "insider-outsider theory" which claims that labour turnover costs give the employed (the insiders) market power, allowing them to prevent (real) wages from falling despite increasingly high numbers of unemployed (the outsiders). This effect is perceived to be aggravated when trade unions are powerful.[10] Calmfors and Driffill (1988) have argued that the impact of growing centralization in union-level bargaining on wages depends on two forces working in opposite directions: bargaining power and the effect of wages on prices. More centralized unions gain greater bargaining power and will thus be able to command higher wages. When the scope of bargaining extends beyond the industry level, however, the effect of nominal wages on the aggregate price level will become more significant. The real wage gains of a given nominal wage increase are hence limited. Others have used a similar line of reasoning (Summers et al., 1993; Alesina and Perotti, 1997): The degree of centralization in the labour market wage-setting process has an effect on competitiveness (measured as unit wage costs). Transfers are financed out of taxes and these affect union wage costs in countries where unions are involved

in wage bargaining at intermediate levels. However, when they operate on a national scale, "the unions are able to internalize the positive link between higher taxation and social security and welfare benefits..." (Alesina and Perotti, 1997, p. 922).

Calmfors has entered several caveats with respect to this argument. Account must be taken of historical traditions and structural characteristics: "different wage-setting institutions may contribute to good macroeconomic performance in different places" (1993, p. 182). Next, the openness of economies to foreign competitors will force wage restraint in bargaining at the industry level and at the company level alike. Moreover, Calmfors argues, cooperative and coordinated wage-setting can take different forms. It may or may not entail multi-level bargaining. Last but not least, pattern bargaining (in which certain industries act as wage leaders) can be regarded as a method of informal cooperation (ibid., p. 171).

Minimum wage legislation truncates the earnings distribution at a certain level and, according to standard neoclassic economic theory, this will lead to loss of employment at the low-skilled end of the labour market. Manning (1995) has found that there are circumstances under which minimum-wage increases can lead to net job gains, rather than losses. Furthermore, the argument that high and persistent unemployment can be attributed to effective floors in the earnings distribution is not consistent with empirical data (OECD, 1998a). Examining differences in education and skill levels in Germany, the United Kingdom and the United States, Nickell and Bell (1996) find that the relatively high level of skills attained by middle-ranking operatives in Germany enables them to sustain a high level of productivity. This enables the German workforce to keep track of increasing skill requirements due to technological change, and consequently the relatively high German minimum-wage level is less harmful than a similar level would be in other countries.

Large welfare states slow down productivity growth

Large welfare states redistribute resources towards activities that exhibit an inherently slow productivity growth rate. This is a function of the "Baumol mechanism". Service activities like education, the performing arts and health care do not allow for constant and cumulative increases in productivity through capital accumulation, innovation, or economies of large-scale operation (Baumol, 1967, p. 420). This drives up the relative costs of these activities, and, when demand is price-inelastic, the share of these services in total GDP increases and the GDP growth rate slows down. However, there is no clear-cut empirical evidence of this mechanism. The expansion of the health care and education sectors during the 1960s and 1970s has been largely the result of political processes. The quality of education and health care has improved enormously during the past decades. Teachers apply individually targeted

learning methods, and medical technology has increased the efficacy of medical treatment. Finally, the endogenous growth literature of the late 1980s (notably Romer, 1986, 1990; and Lucas, 1988) has opened avenues for exploring education's contribution to productivity and economic growth (this issue is reviewed in section 3.2.2).

3.2.2 Do extensive welfare states have a positive impact on economic performance?

Welfare-state arrangements (in particular social transfers) alleviate poverty

Apart from a small number of "natural rights" political theorists, the consensus view appears to be that the welfare state performs a basic poverty-alleviation task. The debate is then not so much on whether the government has a responsibility to do this, but rather on the extent of the safety net.

Large welfare states are more efficient in the provision of insurance

Owing to the effects of adverse selection and moral hazard on insured persons, the insurer does not obtain all the information he or she requires to calculate an actuarially adequate premium. Adverse selection (in which the opting-out of the lowest risks pushes up the average insurance premium, thus increasing the incentive for the next lowest risks to opt out, and so on[11]) leads to reduced efficiency from the perspective of the individual (or group of individuals sharing a common risk profile) on the one hand, and the society or community as a whole on the other. Moral hazard occurs in both the public and the private domains.

Barr (1989, 1992) has argued that private insurance markets cannot adequately solve the adverse selection problem. Apart from information deficiencies (and the more conventional market failures), for some events probability may be unpredictable (future inflation in pension schemes), interdependent (unemployment in the business cycle), or close to unity (the case of the chronically ill). Purely private insurance in these cases is unfeasible. These issues call for "*social insurance*: pooling arrangements that are not actuarially sound, and hence require support from compulsory taxation" (idem, 1992, p. 754). Barr further points out, "if preferences are sufficiently similar, the welfare loss from compulsion may be minimal" (ibid., p. 752). A comparison of aggregate shares of net social expenditure – both public and private – suggests that this is indeed the case, as we will see in section 3.4.2. This means that a reduction in *public* social expenditure – which has been proposed as a part of welfare state reforms throughout the industrial world – will not reduce *total* social expenditure to the same extent; substitution effects may be expected.

Large welfare states enable economic subjects to take risks

Gruber (1997) has argued that *ex ante* sharing of the risks of labour income losses, regardless of whether they are due to fluctuations in real wages or unemployment, reduces *ex post* income inequality. Insurance against the loss of income induces risk taking (Sinn, 1995). From this perspective, there may be no trade-off between equity and efficiency at all.[12] Equity, according to Sinn, may in fact be an aspect of efficiency, although income redistribution programmes have to be well designed in order not to overshoot the optimal level of risk taking, known as moral hazard. If the government offers public insurance, the need for self-insurance is reduced. This, as Sinn argues, makes it socially optimal to tolerate more risk and inequality in exchange for a higher level of average income. "Under the protection of the welfare state more can be dared" (ibid., p. 12). In any case, modern social transfer systems may exploit that relationship to support entrepreneurial behaviour, even if they do not do so at present.

Large welfare states permit access to schooling facilities, thereby enhancing human capital

The argument here is that capital market imperfections deny the less privileged members of society access to private education, thereby creating a sub-optimal skill level in the economy. The costs of education divide the population into two classes which differ not only in their current job status and income, but also in their ability to accumulate human capital (Brandolini and Rossi, 1996). This in turn leads to an under-utilisation of the economy's productive potential and a lower GDP growth rate. These capital market imperfections do not have to be explicit credit constraints, the mechanism may well be more subtle than that (Aghion and Bolton, 1992; Galor and Zeira, 1993). Still, the outcome is more or less the same in that the poor cannot or do not borrow to finance their education.

Large welfare states facilitate economic restructuring

Rodrik (1998) has found a strong correlation between openness (trade turnover) and the share of government expenditure in GDP. The explanation, he has argued, lies in the government's role in "insulating" employment and aggregate demand in economies that, because of their integration in regional or global markets, have developed highly specialized production patterns and are consequently vulnerable to external shocks. Moreover, the causality runs from international exposure (external risk) to government spending. Openness in the early 1960s turned out to be a significant predictor of the expansion of government consumption in the subsequent three decades (ibid., p. 1004). Government spending on social protection is the crucial variable in the more advanced economies, which have well-established administrative institutions. Developing countries, Rodrik argues, tend to rely on a broader set of instruments, including

public employment, to achieve risk reduction (ibid., p. 1012). This set of instruments turns up in the statistics under the heading "government consumption".

Large welfare states build trust and prevent social unrest

Several economists have drawn attention to the balance of power in politics and the impact of redistributive pressures which are assumed to discourage investment and economic growth (Alesina and Rodrik, 1994; Persson and Tabellini, 1994). The idea is that by lowering the income of the median (middle-class) voter relative to the national average, increased (pre-tax) inequality unleashes pressure for redistribution. This social unrest discourages investment. Knack and Keefer (1997), for instance, have found a very strong empirical link between trust and investment in the period 1960–92. Bénabou (1996) argues that what matters is not income inequality *per se*, but inequality in the relative distribution of earnings and political power: "what matters for growth is not just the degree to which the political system departs from democracy... but also whose political rights or influence is being curtailed". Borjas (1995) points out the close link between social (and racial) segregation and intergenerational immobility in residual welfare states, and a number of studies have found a relationship with crime (e.g. Freeman, 1996).

3.2.3   Preliminary theoretical conclusion

Once all the arguments are on the table, the outcome of the theoretical debate on the potential positive versus negative economic effects of the welfare state appears to be a draw, at least in our view, though others may draw different conclusions.

For the policy analyst and the decision-maker an inconclusive debate is of limited help. Some more pragmatic support is needed for national decision-making processes on the extent and structure of the welfare state. The next section will accordingly take us a little deeper into the empirical evidence and the mechanisms that link the welfare state to economic performance. The crucial link between social protection provisions and economic performance is the labour market, other links being the tax system and workforce participation. We will first look at the indications of the impact of these mechanisms, and then at an input-output analysis of the performance of the welfare state to see how different outcomes correlate with the prevalence of a certain type of welfare state.

3.3   LOOKING AT THE EVIDENCE: THE MECHANISMS OF INTERACTION BETWEEN THE WELFARE STATE AND ECONOMIC PERFORMANCE[13]

To what extent is economic performance determined by welfare state institutions? Are liberal market economies with residual welfare states more

competitive than countries with extensive welfare states? In this section we will analyse some performance statistics, collected primarily from a limited set of five advanced industrial countries. This limitation is inevitable since evidence elsewhere is scarce. The United Kingdom and the United States are examples of liberal market economies with residual welfare states, whereas Germany, the Netherlands and Sweden will feature throughout most of the discussion as examples of economies with extensive welfare states. Occasionally we will refer to a wider set of countries, including Australia, Canada, Denmark, Finland and France. We will conclude that these economies respond *differently* to changes in the economic environment: although the two groups (liberal market economies and extensive welfare states) use different channels to adjust, the actual degree or intensity of adjustment is similar. There are also huge within-group differences between the more comprehensive welfare states, as box 3.2 makes clear.

Box 3.2   The welfare state in Germany, the Netherlands and Sweden: Different track records[1]

Germany and the Netherlands are both neo-corporatist or concerted economies. They form the core of what has been named "the Rhineland model" (Albert, 1993). The German social insurance model, born in the late nineteenth century, was explicitly designed to dedicate the labour movement and the manufacturers to the interests of the nation-state. In the Netherlands the establishment of a comprehensive framework of public social insurance and assistance schemes took over half a century longer; as a result, the country's extensive welfare state emerged rather belatedly, towards the end of the 1960s. The comprehensive welfare state in Sweden was established over several decades of social-democratic governance. Lindbeck (1997a) describes how the expansion of Sweden's welfare state was not planned according to some grand design, but was the result of numerous separate decisions reflecting a common perception. Sometime during the 1970s "ambitions switched from equity to equality" (ibid., p. 1282). The Dutch and Swedish welfare states expanded rapidly in the decade and a half after 1967.

Germany, the Netherlands and Sweden all experienced the same decline in international competitiveness from the 1970s onwards. However, the Netherlands felt its full impact a decade earlier than Sweden. Like the Swedish government in the 1980s, in the 1970s the Dutch government tried to "spend" the economy out of the crisis that followed the oil crisis. The figures in box tables 3.2.1 and 3.2.2 provide an overview of the different track records.

Economic growth records were rather similar before 1983, but since then disparities have appeared. The high employment growth in the Netherlands is reflected in the lower unemployment figure. In 1982, the governments in both Germany and the Netherlands set out to cut public expenditure and reduce the budget deficit.

Box 3.2 (cont'd)

Box table 3.2.1 Selected economic-growth and labour market performance statistics

	GDP average annual growth rates (%)			Employment average annual growth rates (%)			Unemployment rates (%)		
	1973–83	1983–93	1993–2000	1983–91	1991–95	1995–2000	1983	1990	2000
Germany	1.6	2.8	1.3	1.3	−0.7	0.6	6.9	4.8	7.9
Netherlands	1.7	2.7	2.4	1.9	1.1	2.8	9.7	6.2	2.7
Sweden	1.5	1.4	2.2	0.5	−2.4	0.8	3.7	1.7	5.9

Source: OECD (2001a).

Box table 3.2.2 Selected statistics on public finances (as % of GDP), 1984–2000

	General government financial balances deficit (−), surplus (+)			General government total outlays			General government gross financial liabilities		
	1984	1992	2000	1984	1992	2000	1984	1992	2000
Germany	−1.9	−2.5	1.5	46.1	45.0	42.9	40.6	41.8	59.7
Netherlands	−6.2	−4.4	2.2	53.8	50.0	41.5	64.2	76.4	56.3
Sweden	−3.0	−7.8	4.1	59.1	64.3	52.7	65.1	69.0	62.3

Source: OECD (2001a).

Wage moderation, sustained throughout the 1980s, improved the rate of return on investment and contributed to an economic recovery in the second half of the decade. The Netherlands faced an economic downturn in the early 1990s, whereas Germany (West Germany) managed to avoid the recession that hit other European countries, thanks to a prolonged reunification boom. The upturn did not last, however. German GDP growth has decelerated from over 5 per cent in 1990–91 to an average of less than 1.5 per cent since. Reunification has resulted in a deteriorating labour market performance and placed a burden on the existing West German social protection infrastructure since it gave rise to a large number of public transfers eastward. Reunification was conceived and executed as a giant exercise in *Institutionentransfer*: a wholesale transplantation of the entire array of West German institutions to the former East Germany (Streeck, 1995). The collapse of the markets for East German products caused massive job losses in the new Länder, from 9.8 million in 1990 to 6.2 million jobs in 1993. Wage moderation in the 1993–94 wage rounds was not sustained in 1995, contributing to a new downturn. After substantial growth in 1990 and 1991, employment declined by an average of more than 1 per cent for some time.

Box 3.2 (cont'd)

Box figure 3.2.1   Benefit recipients (%), Netherlands and Sweden, 1989–95

71	71	70	60

Benefit dependency increases

12	23	14	26
16	6	16	13

NL	S	N L	S
1989-1991		1993-1995	
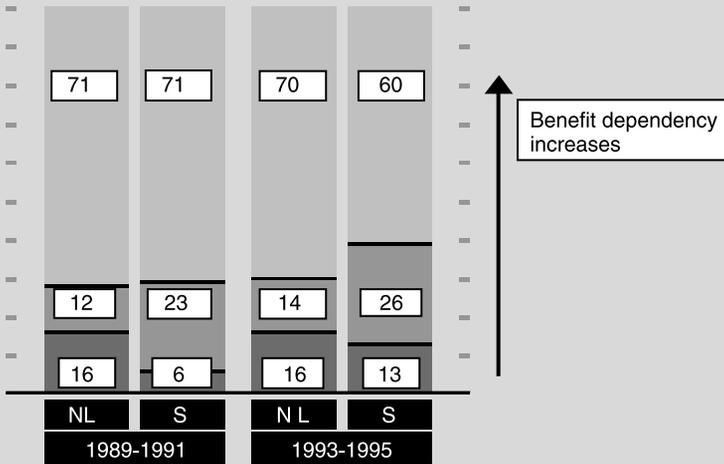
NL: Netherlands, S: Sweden

☐ no benefit
☐ benefit comprises less than 50 per cent of income
☐ benefit comprises between 51 and 100 per cent of income

Source: Calculated from OECD data.

The government that took office in the Netherlands in 1994 and was re-elected in 1998 set a ceiling in real terms on public spending and deliberately used a very modest GDP growth forecast for estimating revenues from taxes and social security contributions. Both steps were intended to make *fiscal policy* less dependent on the business cycle. Moreover, the government undertook several measures to reform social security, both in terms of programmes and the administration (seeking in both cases to improve incentives).

In Sweden the response to deteriorating international competitiveness had been several rounds of devaluations of the Swedish krona, not wage moderation. This fuelled inflation and resulted once again in higher wage demands, since the trade unions were accustomed to setting their targets in real terms. Full employment had been one of the cornerstones of the Swedish approach, and this translated into a large public sector that acted as a "last resort" in the government's range of active labour market policies (Lindbeck, 1997a). In the first half of the 1990s Sweden faced a severe macro-economic crisis. This time the government did not respond with accommodating fiscal measures. Box figure 3.2.1 shows that the number of social protection beneficiaries in Sweden rose rapidly in that short time span.

Box 3.2 (cont'd)

In the second half of the 1990s, the Netherlands and Sweden recovered from their earlier crises. In both cases restrictive fiscal policies contributed a great deal. The Swedish government, however, reduced the budget deficit by tax increases more than by cuts in social expenditure. In the Netherlands, in contrast, the government used tax relief to support wage moderation. The labour market was liberalized, while at the same time steps were taken to improve the position of the many fixed-term contract workers. Several measures improved low-skilled workers' prospects of finding jobs (in both the public and private sectors). And incentives in social insurance schemes were redesigned, without substantially affecting the entitlements of beneficiaries.

And Germany? The institutional structure of its economy in the post-war decades was geared toward supporting a strong manufacturing sector that sought a high added value. Internationalization from the 1970s onwards has challenged this position. The enduring crisis since reunification is attributable to both internal and external causes. Pointing at internationalization, as some commentators do, reflects a wide concern that there is no longer room for a social market model of the German type, one that shields itself from distorting outside mechanisms. This view holds that adapting the institutional framework sets in motion a "spiral of institutional erosion and structural down-grading" (Streeck, 1995), and that ultimately the German model will inevitably give way to a liberal market model. Internationalization, however, is not a sufficient explanation for the erosion of the German corporatist framework. At least not from the Dutch point of view. In fact, in the 1970s corporatism in the Netherlands was paralysed as a result of endemic causes; the situation changed when the international economic environment shifted and put strain on the model. The case of the Netherlands teaches us that corporatism can be altered and that welfare-state institutions can be reformed in order to contribute to the economy's adjustment potential.

Note

[1] The cases and their interpretation are also discussed by de Neubourg (1998).

Some may wonder why we are focusing on such a limited set of countries. The answer is simple. One of our objectives in this section is to show that there are more than two or three kinds of welfare states. As Popper (1963) argued, when your aim is to refute the claim that all swans are white, you do not have to wait until you have seen them all. The moment you spot one swan that is not white you have proved your point. If we can demonstrate with five countries that there are at least five distinct models, then we might as well confine ourselves to those five.

Table 3.1 Unemployment and long-term unemployment, selected countries, 1990–2000

	Standardized unemployment rates (%)				Incidence of long-term unemployment (%)			
	1990	1994	1998	2000	1990	1995	1998	2000
Germany	4.8	8.4	9.3	8.1	46.8	45.9	52.6	51.5
Netherlands	6.2	7.1	4.1	2.8	49.3	51.6	47.9	32.7
Sweden	1.7	9.4	8.3	5.9	12.1	31.4	33.5	26.4
United Kingdom	7.1	9.6	6.3	5.5	34.4	49.6	32.7	28.8
United States	5.6	6.1	4.5	4.0	5.5	11.0	8.0	6.0

Source: OECD (2001b).

3.3.1   The welfare state and labour market outcomes

Until just a few years ago the persistently high unemployment rates in continental Europe were commonly regarded as sufficient evidence that extensive welfare state arrangements led to losses in economic performance. Since the mid-1990s, however, this one-dimensional view no longer matches the facts. Some welfare states have managed to reduce their structural unemployment, whereas others appear to have been muddling through. The comparison between Germany and the Netherlands in table 3.1 is telling.

The OECD has ascribed the persistence of unemployment in several continental European countries to their extensive welfare state institutions (OECD, 1994, Chapter 5). This is not borne out by facts: several continental European countries have reformed their welfare state institutions during the 1980s. The OECD acknowledges that changes in institutions from the 1980s onwards have not aggravated alleged rigidities; nevertheless, the rise in the structural unemployment rate may have been related to changes in institutional arrangements in the 1970s. The OECD thus suggests that there is a time lag between cause and effect.

The internationalization of trade (to avoid the more fashionable word "globalization", which wrongly implies that trade is truly global, which it is not), structural economic change (the emerging services sector) and technological change are generally assumed to determine the widening of wage differentials in several countries, such as the United Kingdom and the United States (Atkinson et al., 1995, p. 83). Some attribute it to internationalization, while others emphasize structural and technological change. In any case, these factors are difficult to disentangle (see section 3.5.2). However, widening wage differentials can be observed in some countries, notably the United Kingdom and the United States, whereas no widening of the wage spread can be seen in other countries, for example Germany and Sweden.

We will first look at the trends in earnings dispersion in the five countries. As displayed in table 3.2, in Germany and Sweden the D9/D5 ratio[14] (the spread

Table 3.2 Trends in earnings dispersion, selected countries, 1985–95

	D9/D5		D5/D1	
	1985	1995	1985	1995
Germany[1]	1.65	1.61	1.59	1.44
Netherlands[2]	1.62	1.66	1.55	1.56
Sweden[1]	1.59	1.59	1.30	1.30
United Kingdom	1.77	1.87	1.73	1.81
United States[3]	1.84	2.04	2.03	2.13

[1]Last year is 1993.
[2]Last year is 1994.
[3]Data refer to male earners.
Source: OECD (1996c), pp. 61–62.

in high earnings) has been stable since 1985; the D5/D1 ratio (the spread in low earnings) even declined between 1985 and 1995. For the Netherlands the table shows a slight rise in both ratios. In the United States the widening in the earnings distribution was accompanied by a fall in the real wages of low-paid workers (namely, the bottom decile). In the United Kingdom, on the other hand, the real wages of the bottom decile have risen despite a more uneven earnings distribution (OECD, 1996c, p. 67).

In a larger sample of countries, Gottschalk and Smeeding (1997) summarize the trends in earnings inequality as follows:

- Almost all industrial economies experienced some increase in wage inequality among prime-aged males during the 1980s; Germany is among the exceptions.

- Earnings inequality increased most in the United Kingdom and the United States, and least in the Nordic countries.

- Rising demand for more skilled workers, in combination with differences between countries in the growth of the supply of skilled workers, explains a large part of the cross-country trends in the returns to education and experience.

- Institutional constraints on wages also play an important part.

To elaborate on the last point, the incidence of low-paid employment is inversely related to the occurrence of collective wage-setting practices and the extent of social security arrangements (OECD, 1996c, pp. 71–76). The existence of a central and/or sectoral structure for consultation and negotiation in industrial relations and other institutions, such as legal minimum wages and relatively generous welfare benefits, appears to set a binding wage floor and prevent widening of the earnings distribution (ibid., p. 60).

Once we have established a link between the welfare state and earnings distribution, the question that remains is: *To what extent do welfare state*

Table 3.3 Unemployment by educational attainment for persons aged 25–64, selected countries, 1990s

	Total (%)			Men			Women		
	I	II	III	I	II	III	I	II	III
Germany	15.8	8.8	4.9	17.7	8.4	4.4	14.1	9.4	5.8
Netherlands	4.9	2.4	1.7	3.6	1.4	1.4	6.7	3.6	2.1
Sweden	9.0	6.5	3.9	8.5	6.7	4.7	9.7	6.3	3.1
United Kingdom	10.0	4.7	2.7	12.7	5.3	3.0	7.3	4.1	2.4
United States	7.7	3.7	2.1	7.0	3.9	2.1	8.8	3.6	2.1

Note: I is less than upper secondary education, II is upper secondary education, and III is tertiary education.
Source: OECD (2001b).

institutions inhibit the performance of the labour market? Table 3.3 shows that in the Netherlands and Sweden unemployment is not more concentrated among low-skilled workers than in the United Kingdom and the United States. The OECD had already affirmed that "there is little solid evidence to suggest that countries where low-paid work is less prevalent have achieved this at the cost of higher unemployment rates and lower employment rates for the more vulnerable groups in the labour market..." (1996c, p. 76).

An earlier observation (table 3.1) is that although long-term unemployment is high in Germany, it is high in the United Kingdom as well. All this would suggest "that factors other than relative wages, such as the overall level of aggregate demand or the amount of training received, may be more important for determining labour market outcomes of [vulnerable] groups" (ibid, p. 94). Indeed, in educational attainment Germany, the Netherlands and Sweden perform rather well in comparison to the United Kingdom, and have established sophisticated vocational training systems that do not exist (or exist to a far lesser extent) in either the United Kingdom or the United States. Nonetheless, this does not rule out the possibility that a widening of the wage spread may well be effective, particularly in Germany, as a policy measure to lower the share of unemployed in the low-skilled segment. Franzmeyer et al. (1996, p. 24) mention this: "As the growing dispersion of wages does not result in a decline of overall unemployment in the United Kingdom and United States, because the overall quality of their labour supply is too low, the strategy of fighting unemployment among low-skilled workers by reducing their [labour costs] might, in fact, work in countries with well-functioning systems of vocational and company training". This provides some support for policies (as implemented in the Netherlands in the late 1990s) that aim to lower non-wage labour costs and are targeted at the low-skilled end of the labour market.

For an adequate assessment of the performance of the labour market, we must also consider whether a prevailing level of earnings inequality is efficient from a microeconomic point of view. We should look at whether the individuals

Table 3.4 Earnings mobility, selected countries, 1986–91

Panel A: Five-year earnings mobility for full-time wage and salary workers

	Correlation of 1986 and 1991 earnings[1]	Stayed in the same quintile	Stayed in the same earnings band[2]
Germany	0.793	53.0	55.3
Sweden	0.711	52.7	61.6
United Kingdom	0.705	48.1	48.2
United States	0.680	48.8	47.8

Panel B: Five-year earnings mobility for low-paid workers who were employed full time in both 1986 and 1991

1991 earnings status of 1986 low-paid workers			
	in bottom quintile	Moved to 2nd–5th quintile	below 0.65 median	moved above 0.65 median
---	---	---	---	---
Germany	45.1	54.9	26.0	74.0
Sweden	49.1	50.9	–	–
United Kingdom	41.1	58.9	39.0	61.0
United States	52.2	47.8	55.8	44.2

[1]Pearson correlation coefficient.
[2]The five earnings bands relative to the median are: less than 0.65; 0.65–0.95; 0.95–1.25; 1.25–1.55; and greater than 1.55.
Source: OECD (1996c), pp. 81, 95.

in the bottom earnings deciles are mostly new entrants who will subsequently advance into higher deciles or are part of a static pool caught in low-paid, poor-quality jobs, cycling in and out of unemployment (OECD, 1996c).

Table 3.4 provides some data on *earnings mobility* in Germany, Sweden, the United Kingdom and the United States. All four countries have a correlation coefficient (measuring the persistence in individual earnings over a five-year period) that ranges between 0.68 (United States) and 0.79 (Germany). This means, for example, that roughly two-thirds of inequality observed in the United States in a single year is persistent. The table also shows the transition probabilities for moving upward (column 2). These probabilities indicate the likelihood that a worker who was in the bottom quintile in 1986, for instance, was still in the bottom quintile five years later. To control for the effect of some countries' wider earnings dispersion (United Kingdom, United States) on the width of the quintiles (thus influencing the transition probabilities of moving up one quintile or more), the table also gives transition probabilities in "equal width earnings bands" (column 3).[15] In the United States, 49 per cent remained in the same quintile; in Germany the figure was 53 per cent. Measured in earnings bands, the difference is slightly more pronounced but is still small. The biggest difference between the two countries is the percentage of workers who moved up two earnings bands: 17 per cent in the United States and 7 per cent in Germany (not shown in the table). The OECD (1996c, p. 84, chart 3.6A) finds some evidence of a positive relationship between point-in-time earnings inequality and

mobility across median-proportion earnings bands. Individual earnings in fact tend to be more volatile in the United States than in, for example, Germany.

The key issue, however, is whether this is also the case for low-paid workers. Is there evidence of a trade-off between point-in-time inequality and life-time inequality? Panel B in table 3.4 provides some insights. The probability of remaining in the bottom quintile is greater for American than for German workers. Moreover, the probability of moving up in terms of median-proportion earnings bands is much higher in Germany than in the United States: only 26 per cent of German workers who were below 0.65 of median earnings in 1986 were still in this range in 1991, whereas in the United States the figure was 56 per cent. More generally, the OECD concludes that low-paid workers have greater difficulty in moving up in labour markets in which cross-sectional inequality is higher.

With respect to both earnings differentials and earnings mobility for low-paid workers, the liberalized labour markets of the United Kingdom and the United States do not perform any better than the labour markets in Germany, the Netherlands and Sweden. The volatility of individual earnings is higher in the English-speaking countries, as is overall earnings mobility. However, the key issue in assessing microeconomic efficiency is the extent to which low-paid workers benefit from it, and this appears to be less the case for United Kingdom and United States labour markets than for those in Germany and Sweden.

Sections 3.3.2 and 3.3.3 address some of the institutional fine print for the different types of welfare states, namely the incentive structure that seems to influence largely the labour market behaviour of people in active age groups.

3.3.2 Institutional fine print: Tax/benefit systems and low-paid labour

For people with low educational attainment or little or no work experience, starting wages are likely to be low. Employed people face work-related expenses, such as transportation costs and work-related clothing, and will find that their welfare benefits are reduced with the income they earn. Means testing for benefits, income taxes and payroll taxes can work together to make paid employment uneconomical for many of those on long-term unemployment benefits. The gap between net earnings from employment and net social security benefits can become very small. This problem will be most acute for families with children, since they have the highest benefit entitlements. The lower the expected wage that can be earned on the labour market, the more likely individual breadwinners are to find themselves in the so-called "unemployment trap".

Because households without the potential to obtain well-paid jobs are the most vulnerable to the unemployment trap, we will concentrate on households in the lower segments of the earnings distribution. We use the *first-decile*

**Box 3.3   Turning conventional wisdom upside down: Another view of
the interactive mechanics of the welfare state**

There are other views concerning the mechanism by which the social
protection system interacts with the economy. Cichon (1997b) and Sala-i-
Martin (1994) argue that the extensive continental European welfare
states may also be explained by the requirements established by an
economic policy that is (or was, at any rate) fundamentally different from
the American model. The argument builds on the observation that the
growth rate of American productivity per hour worked is lower than that
of most European countries (American productivity per worker is higher
owing to the higher number of hours worked per year). Since the oil crisis
of the early 1970s the European socio-economic model has been
characterized by four essential elements: *high productivity growth,
relatively high wages, high and persistent unemployment,* and *relatively
high levels of social transfers.*[1]

   Cichon and Sala-i-Martin offer the following interpretation. The
European model has relied on buying excess and unproductive labour
out of the labour market by means of high social transfers, a proceeding
that has facilitated the achievement or maintenance of high productivity
levels.[2] High productivity underpins the maintenance of high wage levels,
and this in turn – not least because of international competition – triggers
further productivity drives. High productivity levels per hour worked
indicate a highly efficient employed labour force and permit a relatively
low average number of hours worked. Lower employment levels in
terms of total number of hours worked can be interpreted as a sign of
success. But the number of hours worked is not equally distributed, and
the increasing concentration of work among workers with higher
productivity leads to the exclusion of large numbers of workers from the
labour market.

   The "American model", on the other hand, has relied on *low(er)
productivity growth, low(er) wages, low unemployment* and *low transfers*.
Again there is little doubt that low levels and scarcity of income transfers
increase the level of employment. Benefit amounts below poverty levels
will force people into some form of employment, in particular into low-
productivity jobs. This additional employment inevitably has an effect
on GDP. Most of these jobs can be assumed to be service sector jobs
and enter into GDP with the equivalent of their low gross wage.[3]
This, as Cichon argues, explains to some extent the difference between
the United States and the European Union in wage shares of GDP. It also
explains the relatively low growth of American productivity.

   In Europe some 26 per cent of GDP is redistributed through social
protection transfers financed by taxation and social security contribu-
tions. The United States economy redistributes less through taxes and
social security contributions, but the socio-economic system makes up
part of the difference by an indirect redistribution caused by low
productivity which leads to employment higher than is theoretically
necessary.

Box 3.3 (cont'd)

This means, according to Cichon, that about 40 per cent of the total social redistribution system in the United States consists of the redistribution of income through jobs, while the high-income European economies rely almost exclusively on the direct redistribution of income. Despite virtually equal or even higher levels of overall redistribution, the United States system remains less successful in eradicating poverty – but in the United States the pre-transfer poor tend to work, whereas in Europe they tend to be unemployed.

In the present debate on the affordability of the welfare state, the United States socio-economic model seems to be regarded as economically and financially sustainable – however loosely this term is defined. The overall levels of redistribution in the European Union and the United States, respectively, seem to be in the same order of magnitude; non-employer households receive slightly less disposable income in Europe, but they also have to work considerably less. Poverty in the United States remains higher than in Europe. On balance, it seems that Europeans would not be markedly better off in strict income terms if they moved to an American-style redistribution system. Accordingly, judged by our strict definition of economic affordability, the present welfare states in the European Union appear (on average) to be as economically affordable as the United States system. If the American socio-economic model and the social protection system it comprises are economically affordable, then the same applies to the European model.

Notes

[1] Through publicly financed social protection benefits.

[2] This interpretation in effect reverses the classical argument that high unemployment benefits (and other social protection benefits like early-retirement pensions) induce increased permanent or temporary withdrawals from the labour market. It argues that benefits have to be high to permit the buying out of excess labour from the labour market. Both directions of this "chicken and egg" problem are compatible with the (albeit shaky) econometric evidence which correlates the duration of benefits utilization with the level of benefits (as cited, for example, in Gillion (1996). Econometric equations mathematically only determine the degree of simultaneity of two or more phenomena; they can never establish a causal link. It is economic theory that establishes the link and interprets statistical evidence as support for theory.

[3] That is, their wages enter into both sides of the GDP accounts: compensation of employees on the cost side and private final-consumption expenditure on the expenditure side (cf. United Nations, 1968).

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earnings level (D1) as a proxy of low income. Because individuals' labour-supply decisions are not independent of the household situation, we have taken the household rather than the individual as the unit of analysis. Households are defined here as two married adults and two children,[16] and we do not take account of any incentives other than financial ones.

Figure 3.4 Net social assistance and net average earnings relative to net low wage, selected countries, 1995

Panel A: Single (D1 = 100) D1=Net low wage

Social assistance as a percentage of low pay Average wage as a percentage of low pay

Net social assistance (left bar)			Net average earnings (right bar)

	Social assistance	Country	Average wage
	49	Australia	139
	48	Canada	196
	77	Ireland	176
	52	New Zealand	180
	65	United Kingdom	174
	15	United States	209
	100	Austria	185
	66	Belgium	169
	57	Germany	148
	57	France	129
	77	Netherlands	151
		Denmark	148 156
	62	Finland	135
	62	Sweden	132

20 40 60 80 100   100 120 140 160 180 200
(as a percentage of D1 earnings)

(light shaded) Social assistance relative to D1   Average production per worker (APW) relative to D1 (dark shaded)

Panel B: Couple with two children (D1 = 100)

Social assistance as a percentage of low pay Average wage as a percentage of low pay

	Social assistance	Country	Average wage
	78	Australia	119
	62	Canada	131
	87	Ireland	120
	84	New Zealand	147
	81	United Kingdom	128
	63	United States	131
	84	Austria	174
	89	Belgium	166
	90	Germany	135
	68	France	113
	94	Netherlands	137
	105	Denmark	108
	100	Finland	112
	100	Sweden	109

20 40 60 80 100   100 120 140 160 180 200
(as a percentage of D1 earnings)

(light shaded) Social assistance relative to D1   Average production per worker (APW) relative to D1 (dark shaded)

Source: Doudeijns et al., 2000 (orig. OECD Tax/Benefit Database).

The question addressed here is the following: *How does the receipt of income-tested benefits affect a household's work incentives?* The issue is that of working while on benefits. If a person's earned income is clawed back through income-dependent family benefit entitlements, work may not be financially rewarding. Ultimately, income-tested benefits create an unemployment trap for low-income families.

The problem is illustrated in figure 3.4. Each country's left bar shows the net income that would result from receiving social assistance benefits relative to first-decile net income, and the right bar the after-tax income of average wage earnings, for both single earners and two-parent families with two children. For example, a family living on social assistance in Canada would

have just over 60 per cent of the net income of a similar family with earnings at the D1 level.[17] A Canadian family with earnings at the average wage level would have some 130 per cent of the net D1-level earnings of a similar family.

Longer bars indicate a wider after-tax distribution than shorter bars. The after-tax distribution for single earners in the English-speaking countries is much wider than in continental Europe. However, this pattern is much less pronounced in the after-tax earnings distribution for families. The after-tax average wage earnings for a couple with two children in the United States are only 31 per cent higher than the after-tax earnings at the D1 level, while the figure is 37 per cent for a couple with two children in the Netherlands.

For most continental European countries (and Ireland and the United Kingdom as well), the lightly shaded bars in the left-hand panel indicate high social assistance payment levels. Most of the English-speaking countries have benefits that are specifically targeted at people in low-paid jobs. Supplementing work income with supplementary benefits increases the gap between benefit income and in-work income, thus improving work incentives.

The Earned Income Tax Credit (EITC) in the United States is a case in point. For a couple with two children, social assistance is 63 per cent of earnings at the D1 earnings level (after tax and including the EITC). Without the EITC, the level of social assistance would be 97 per cent of the after-tax earnings at the D1 level. The difference widens because EITC benefits are also paid to the working poor. At the same time, the EITC increases the level of net D1 earnings relative to net average wage earnings. Similar effects are found in other countries with employment-conditional benefits. Thus, employment-conditional benefits increase the financial incentives to start a low-paying job, but reduce the financial incentives to move up the earnings ladder.

Figure 3.5 looks at the issue of incentives to start a low-paying job from another angle. It illustrates what happens to household income when the non-active partner accepts work and receives a wage at the D1 earnings level. The figure is divided into two panels, each illustrating financial work incentives for the non-active household-member. The bars indicate the *net retained income* (NRI). The NRI is defined as the percentage of (additional) gross earnings that is not forfeited to income tests, tax liabilities or payroll taxes. A high NRI thus indicates a high reward for work, while a low NRI indicates strong financial disincentives to work.[18]

Panel A shows the income gain for a couple with two children where Partner 1 has been unemployed for a long time (and the household accordingly receives assistance benefits), and Partner 2 begins to work, earning at the D1 level. The income test for the assistance benefits creates severe disincentives to work. In Sweden, for example, the income test for social assistance (SA) applies to 100 per cent of earned income without exceptions. Consequently, social assistance is reduced by 100 per cent of additional earned income. In the Netherlands, too, social assistance entitlements are reduced by 100 per cent of additional earned income. Because D1 income is higher than the social

Figure 3.5 Net retained income for a couple with two children, selected countries, 1995

(Panel A) Partner 1 is long-term unemployed (household receives SA)

(Panel B) Partner 1 is employed and earns a full-time D1 wage

Percentage of earnings that can be retained when Partner 2 starts to work (earning a full time D1 wage)
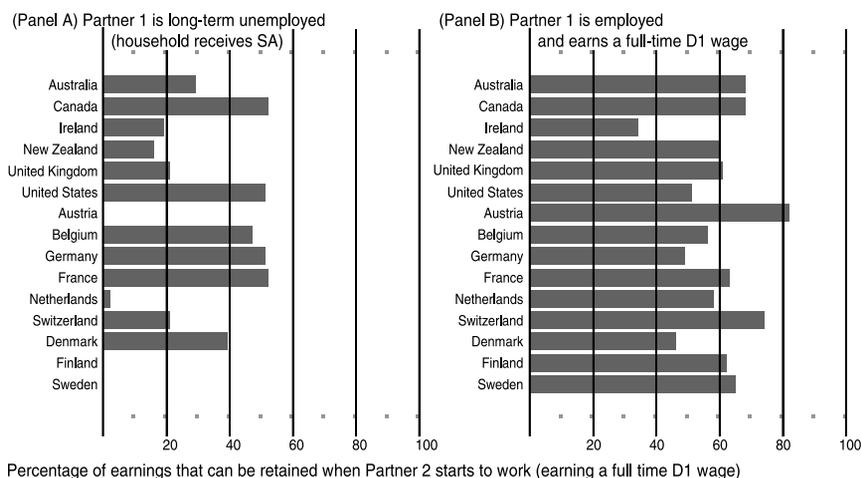
Source: OECD Database on Benefit Systems and Work Incentives.

assistance level for the family type assumed here, the NRI is positive. In a number of countries there are no financial incentives to work unless the total earned income exceeds the assistance benefit amounts (in the Netherlands, for example, this means that working part time will not be financially rewarding). In Germany, the claw-back rate is less than 100 per cent, and therefore some 50 per cent of gross D1 earnings can be retained.

In the United States, the EITC partly offsets the income test for food stamps and family benefits, and gives one or both partners in a long-term unemployed couple a strong incentive to work. In the United Kingdom, Family Credit (replaced in 1999 by the Working Families' Tax Credit) offsets the drop in net income caused by the withdrawal of Income Support when the combined work effort of the household is more than two days per week. A supplement provides an extra boost if either partner works 30 hours or more. If individual benefits are paid, as is generally the case in Australia, each household member's incentive to work is determined by his or her own individual entitlements. Disincentive effects do not spill over from the beneficiary to the other household members, contrary to cases where income-testing procedures are based on household income.

Panel B shows the income gain for a previously one-earner couple where Partner 1 is employed full time with earnings at the D1 level and Partner 2 starts to work full time at the D1 earnings level. In this situation, the low income level – since the household's earned income is at the D1 level – may mean that the family receives income-tested benefits. The reduction of benefit

entitlements associated with earned income is deleterious to work incentives. This is particularly true in the English-speaking countries. In the United States, for example, a family with earnings at the D1 level is entitled to the EITC. The income test for this benefit results in relatively low NRIs (although still comparable with those in the continental European countries) if the non-active partner starts working.

Box 3.4 describes empirical evidence of the impact of the EITC in the United States on household labour supply (both participation and number of hours worked).

Box 3.4 Effect of the EITC on labour participation in the United States

The Earned Income Tax Credit (EITC) lowers the average tax rate on low earnings. For families with children, the EITC is phased in from zero earnings to $9,930, where for each dollar of earned income an additional 40 cents is credited. In the range between $9,931 and $12,260, the credit is $3,756. From $12,261 up to $30,095 the phase-out range applies — that is, for each dollar earned, 21.06 cents of the tax-credit is clawed back. Box figure 3.4.1 illustrates this.

For those who were outside the labour force when the EITC was introduced or expanded, a positive participation effect could be expected. For those who were already working, two effects could be expected. The income effect (due to the reduced average tax rate) would cause a reduction in the number of hours worked. The substitution effect depended on whether the individual's earnings were in the phase-in range, the flat range, or the phase-out range of the EITC, or simply not

Box figure 3.4.1 Earned Income Tax Credit (EITC)
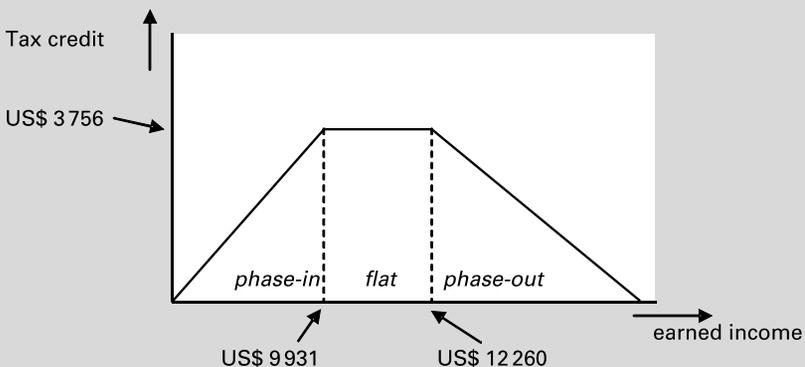
Source: ILO.

Box 3.4 (cont'd)

Box table 3.4.1   Effects of the EITC on participation and number of hours worked

	Overall[1]	Inactive	Working			
			phase-in	*flat*	*phase-out*	*outside EITC*
Singles[2]						
Participation						
Hours					–	–
Single parents						
Participation	++	++				
Hours	+		+	+/–	–	–
"Breadwinners"						
Participation	+	+				
Hours	nil		nil	nil	nil	nil
Spouses						
Participation	+	+				
Hours	–		+	–	–	–

[1] The composition is taken into account: many single mothers, for example, are unemployed or work in small part-time jobs; hence, the + in the "phase-in range" weighs more heavily in the result.
[2] Singles are eligible for a much smaller tax credit; empirical data for this group are not available.

within the range of the EITC at all. In the phase-in range, for example, the marginal tax rate is reduced, which creates an incentive to work more hours (since the net wage rate per hour is higher); whereas in the phase-out range, the opposite is true.

Moreover, the income of other household members is relevant in addition to the earnings of the individual worker. The table shows the effects according to the empirical literature. The observed effects on labour supply (participation and hours worked) differ for various groups, depending on income and wage elasticities.

The overall effect estimates the total labour-supply effect for a particular group (such as single parents), taking into account the numbers of individuals from this group in the different earnings ranges. When a large proportion of single parents have small part-time jobs and are likely to be in the phase-in range of the EITC, the "plus" in that range has a large impact on the total effect. In the case of single parents, the total effect is an increase in the number of hours worked.

A well-known dilemma of social policy is the fact that attempts to overcome the unemployment trap inevitably lead to a poverty trap. In-work benefits are needed to create sufficient incentives to accept even a low-paying job. However, as long as the family is receiving means-tested in-work benefits, every earnings increase beyond certain thresholds results in a reduction of the in-work benefit, thereby limiting the increase in net family income.

Figure 3.6 Trade-off between the incentive to accept a low-paid job and the incentive to move from part-time to full-time work, selected countries, 1997
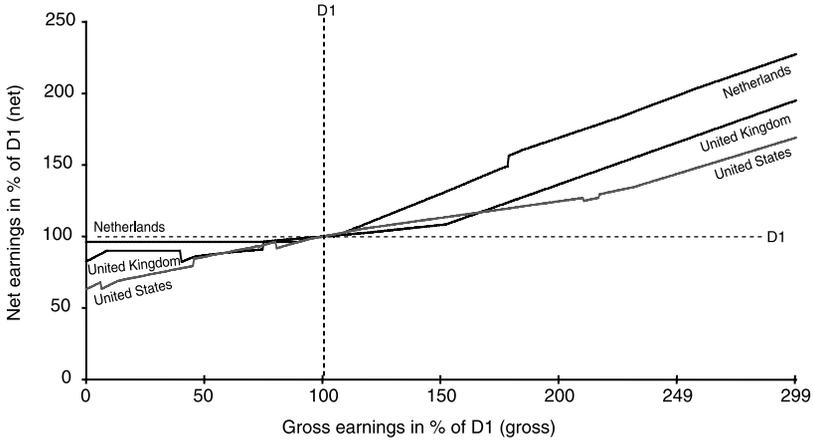
Source: OECD Tax/Benefit Database.

Figure 3.6 plots net income as a function of gross earnings for the Netherlands, the United Kingdom and the United States. The figure applies to a married couple with two children receiving long-term benefits. Net income is expressed as a percentage of the net income at the first-decile earnings level. Gross earnings are rescaled for all three countries as a percentage of the gross first-decile earnings level. At earnings level 0, at the far left of the X-axis, the couple receives long-term social assistance benefits. The graphs for each country indicate the net income the couple would have if it earned a certain percentage of the gross first-decile earnings level. Thus, the figure illustrates how quickly net income increases with a rise in *gross* earnings for long-term beneficiaries in the countries considered.

Long-term beneficiaries in the United States have a much lower net income than those in the Netherlands and the United Kingdom. The Dutch social security scheme provides relatively generous unemployment benefits. The flat line for the country indicates that long-term beneficiaries who start to work will not be able to increase their net household income until their earnings begin to exceed the first-decile level. The untapered means test for social assistance eliminates any incentive to work for earnings that, after tax, are hardly more than the social assistance payment rates. The graph also shows that long-term beneficiaries in the United States see their net income increase from the first few hours they start to work. The graph shows a much steeper line for the Netherlands – 100–200 per cent of gross D1 earnings – than for the United Kingdom and the United States. Means-tested benefits are no longer paid

(although housing benefits may, under certain circumstances, still be paid at these earnings levels), and this means that NRI rates are high. For the United States, the figure shows only slight net income improvement going up the gross income ladder. This reflects the EITC phase-out range.

The figure reveals some of the important trade-offs inherent in making choices between financial work incentives and avoiding poverty. The Dutch case shows that high social assistance benefits require a beneficiary to find a full-time job if he or she is to enjoy financial gains from working. After taking up such a job, any additional work effort will generate reasonable increases in net income. The United States case shows that taking up work – if only for a few hours a week – will result in a substantial income gain. The drawback is limited incentive to move up the income ladder because of the high marginal effective tax rates.

3.3.3   Institutional fine print: Retirement schemes and other exits from the labour force

In this section we will examine the 55–65 age group. The labour market participation of older males in particular has fallen sharply during the past two decades, albeit more in continental Europe than in the Scandinavian and English-speaking countries. Pension schemes (early-retirement schemes) and disability and unemployment insurance schemes are considered to be an important cause of this drop (Gruber and Wise, 1997; Blöndal and Scarpetta, 1998). Blöndal and Scarpetta (1998) find that institutional factors have exerted a major influence in this respect – apart from such other causes as labour market slack and the influx of large numbers of young jobseekers.

Gruber and Wise (1997) mention two elements that particularly influence the (early) retirement decision: the earliest age at which retirement is possible, and the *accrual rate*. The accrual rate adds value to the pension a person earns during his or her career. When the accrued pension (in terms of the *replacement rate*) no longer increases after a certain age, and when the worker, on top of that, is eligible for some benefit that replaces earnings (be it from a pension scheme or some other social security arrangement), then the *net* accrual rate is negative. The accumulated pension wealth (the annual benefit amount times the number of years longevity) diminishes *de facto* each year that the individual continues working and receives no benefit. In most countries the accrual rate for older workers tends to be negative, so the incentive to retire earlier than the official retirement age is high. The implicit tax rate levied on work after age 55 has increased over the past decades owing to the expansion of pension systems. Moreover, since 1972 the introduction of early-retirement schemes and the greater take-up of unemployment benefits and disability schemes as alternative exit routes have increased the incentives to retire early.

In the Netherlands, early-retirement schemes for workers (VUT) have played an important part in this respect; disability insurance and unemployment insurance have also been used widely (Kapteyn and de Vos, 1997; Lindeboom, 1998). In the unemployment scheme, workers older than $57\frac{1}{2}$ are no longer required to apply for work. Germany allows workers who have worked for at least 35 years to retire at age 63 (women can retire at 60), and disabled men are eligible for pensions at age 60.

In the United States the option to retire at age 62 has existed since 1961. However, contrary to practice in many continental European countries, in the American scheme the benefit is calculated on an actuarial basis. Moreover, replacement rates are rather modest, and the pension benefit is calculated from the "best" 35 years of earnings – that is, the years with the highest earnings, which tend to be the years at the end of one's career. Continuing to work enables people to substitute years in which a high wage is earned for early years employed at a low wage.

Empirical studies illustrate that "*hazard rates*" are high exactly at those ages when workers are eligible for (retirement) benefit schemes (Gruber and Wise, 1997). In the Netherlands, the first exit peak comes at the age when unemployment insurance stops requiring an active job search (ages 57–58). A subsequent peak occurs at age 60, when workers become eligible for early retirement. Kapteyn and de Vos (1997) have calculated an implicit tax rate for the Netherlands of 141 per cent at the early retirement (VUT) age. The final peak in the Netherlands is at the normal pensionable age (65 years). In Germany a fairly similar pattern exists (there the peaks occur at age 60, 63 and 65).[19]

In Sweden and in the United States the age-related employment profile diminishes much more gradually despite the fact that occupational schemes are common (such as the 401[k] plans, in which employees have the option of receiving a lump sum at age $59\frac{1}{2}$). In addition, in more than three-quarters of the defined-benefit occupational schemes in the United States eligibility starts at age 55, whereas other schemes set the eligibility age at 62. Gruber and Wise (1997) explain this gradual exit pattern for the United States by pointing to the actuarial calculation of pension benefits (the implicit tax on continuing to work is substantially less because the benefit replacement rate increases by 8.3 per cent for each additional year worked between age 62 and 65), and to the option for many Americans to continue working on a part-time basis, facilitated by a tapered *earnings test*.[20] The most important factor, however, may be the collective health insurance for elderly people in the United States: Medicare. Medicare insurance starts at age 65. Accordingly, there is an incentive to keep working (at least part time) until age 65, since in that case the collective employer's insurance coverage still applies.[21]

Blöndal and Scarpetta (1998) signal an additional link between patterns of early retirement and industrial relations. The continental European countries have collective bargaining at the sector level, and it is in these

countries that the employment rate among older workers has diminished the most (ibid., pp. 38–39). Other studies demonstrate that employers and employees (in the Netherlands, for example) have made intensive use of the existing schemes as exit routes for older workers (Aarts and de Jong, 1992; Hartog, 1999).

Blöndal and Scarpetta conclude that modifications in the institutional parameters will cause the labour supply of the elderly to increase significantly. In particular, the accrual rate and the cross-relationship with other social security schemes are important elements.

3.3.4   Total social expenditure revisited: Input or outcome measure

As we saw in Chapter 2, social expenditure of different countries is often compared on the basis of the gross public social expenditure ratio (SER). The gap between the Nordic countries at one end and countries like Australia, Canada and the United States at the other will, under these circumstances, appear large. However, as we pointed out, gross public expenditure is far from being a perfect measure of the real level of social security or social protection. Table 3.5 indicates some reasons for this.

First, there are differences in the countries' tax treatment of income transfers. The Nordic countries and the Netherlands "claw back" a considerable part of gross spending through taxation. In these countries, the social redistribution of resources is lower than suggested by gross spending indicators. Adema (2001) calculates that in Denmark and the Netherlands around 25 per cent of the gross public social cash benefits is clawed back by the exchequer, and in Sweden the figure is a little over 22 per cent. In comparison, in Australia, United Kingdom and United States it is less than 5 per cent.

Table 3.5   Gross and net public social expenditure (as % of GDP), selected countries, 1997

	Australia	Canada	Denmark	Germany	Finland	Netherlands	Sweden	United Kingdom	United States
Gross public social expenditure (1)	18.7	20.7	35.9	29.2	33.3	27.1	35.7	23.8	15.8
Taxes and social contributions (2)	0.8	2.0	9.2	2.0	8.5	6.8	7.2	2.2	−0.6
Net public expenditure (3 = 1−2)	17.9	18.7	26.7	27.2	24.8	20.3	28.5	21.6	16.4

Source: Adema (2001).

Figure 3.7 Total net social expenditure (as % of GDP), selected countries, 1997
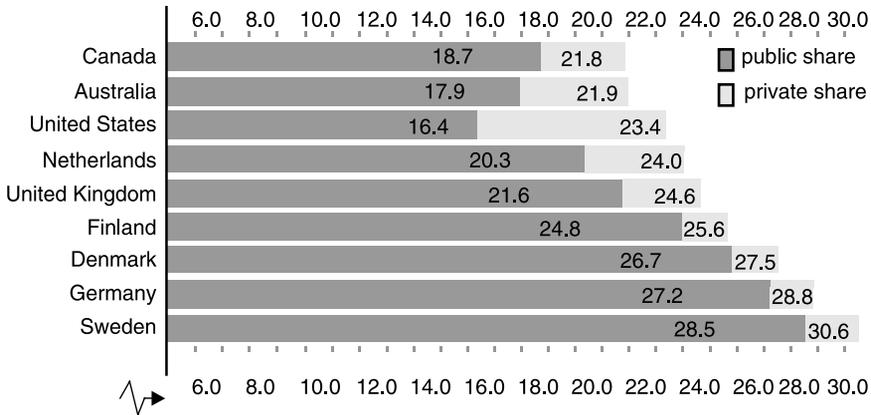
In some countries an indirect form of tax-financed benefits is provided: tax breaks for social reasons. The United States EITC is an example of a tax break provided to low-earning households.[22] Tax breaks for social reasons may also be offered to employers – for instance, when they hire low-skilled workers – and to private funds, an example being the favourable tax treatment enjoyed by the capital income of private pension funds.

Second, as seen in Chapter 1, social transfers are not limited to the public domain. Figure 3.7 maps out public and formal private institutional transfers (i.e. transfers through private sector institutions but not informal transfers). Formal private transfers play a major role (one that is increasing in several countries) in providing close substitutes for public social protection expenditure. To assess the real amount of resources used in social transfers, both net public and net private social provisions should be taken into account.

The difference between the countries in terms of net total social spending is far less pronounced than the gross public figures suggest. These figures support the theory that, to a certain extent, formal private and formal public expenditure are substitutes for each other.

Finally, there is a difference also in the way that social security is provided. From Adema's work (1999, 2001) we know, for example, that the difference between the Nordic countries and liberal market economies such as the United Kingdom lies not in the amount spent on cash benefits but in the expenditure on services, such as training and job-mediation services and public child care. Some of these services might have a much bigger effect on labour force participation rates and therefore have a greater potential for growth than others.

In sum, it appears that it is not the volume of expenditure but rather the way in which money is allocated between different benefits and the design of those

benefits that determine the welfare state's effect on the economy and the well-being of the population. Generally, the fact that a great deal is spent on social protection is no guarantee of success as measured by key performance indicators. Expenditure amounts are primarily input indicators and have very little predictive power as to the social or economic effects of the welfare state.

3.3.5 Welfare outcomes of different types of welfare states

In the preceding sections we saw that, depending on the type and philosophy of the welfare state, there are many ways of delivering its main outcome (namely, effective social protection). In this section we will address the issue of whether the outcomes of these different processes are comparable or not. In other words, we will assess the efficacy of the welfare state using two indicators: the extent to which income redistribution schemes help to reduce poverty and inequality in general (thus returning to the main performance indicators developed in Chapter 1), and the adequacy of the welfare state's main benefit (i.e. pension provision for the elderly).

3.3.5.1 Income transfers and the dynamics of poverty

In section 3.3.1 we noted that earnings inequality rose throughout the 1980s and early 1990s in several countries, while remaining fairly stable in a few others. Turning from earnings inequality to *household income* inequality, two factors are relevant: the first is the employment effect on the distribution of earnings; the second is the effect of *income redistribution* programmes.

Since the net labour participation rate is relatively low in the Netherlands, for example, the difference between the United States and the Netherlands in the distribution of household income from employment will reflect both a wage effect and an employment effect. To assess the impact of labour market reforms on labour income inequality – and to ensure that income redistributive policies meet certain targets – the relative importance of the two effects should be examined. Taking the employment record of the United States as an example, the OECD has concluded that the employment effect may be considerable.

The distribution of earnings in working-age households is less equal in the Netherlands than in the United States (OECD 1996d, pp. 40–41). We are not here to judge whether an earnings distribution is equitable. However, preceding sections suggest that the United States earnings distribution is not efficient from the point of view of low-paid workers. The share of low-skilled unemployed is large, and there appears to be substantial shuttling in and out of low labour income. Most episodes of poverty are found to be short and associated with passing setbacks for individuals whose income is adequate over the longer term. However, certain groups are at great risk for more prolonged poverty (OECD, 2001b; SCP, 2000). The risk is particularly high for households in which the

Table 3.6 Poverty rates, socio-economic status and household situation, selected countries, 1990s

	Australia (1989)	United Kingdom (1995)	United States (1994)	Germany (1994)	Netherlands (1996)	Denmark (1992)	Sweden (1992)
Average for all groups	20	27	24	12	8	7	13
Socio-economic status							
Employed	5	7	15	7	4	4	8
Inactive non-retired	69	78	72	33	31	18	19
Retired	41	33	28	8	3	5	21
Household situation							
single, age < 30	14	22	28	28	13	29	33
single, 30 < age < 64	27	28	23	15	5	5	5
single parent, age < 64	44	68	50	47	41	12	10

Source: SCP (2000), calculated from LIS data.

head is female, young, a single parent, or a secondary-school dropout, as well as households with no adult employed. Children are also more likely to be living in poverty (OECD, 2001b; ILO, 2000a).

The OECD (2001b) finds that transitions in and out of poverty tend to coincide with job-related changes more than with changes in the household structure. Table 3.6 gives some figures on relative poverty risks for several economic groups and household categories.

The differences in the inactive groups show clearly that the welfare states in continental Europe are much more successful in containing poverty among the inactive groups than the English-speaking residual welfare-state models. The difference in poverty rates for the employed is less pronounced, although the United States is distinctive for a poverty rate among employed persons that is higher than the overall national rates in the classic European welfare states.

The second factor affecting the difference between earnings inequality and household income inequality is the *welfare-state income redistribution programmes*. In European Union countries, poverty transitions are related to changes in public income transfers; this is not the case in the United States. More extensive welfare states direct a higher share of social spending to low-income households. This reduces point-in-time poverty rates, but, perhaps even more important, it also contributes to reduce the persistence of poverty (OECD, 2001b). The OECD finds that, in general, countries with higher point-in-time poverty rates are also characterized by greater poverty persistence. It concludes therefore that a longer-run view tends to accentuate, rather than diminish, cross-sectional differences in poverty between countries. Table 3.7 illustrates this.

Table 3.8 provides some figures on the contribution of social security to the decline in poverty (poverty being defined as a household income below

Table 3.7 Short-term and long-term poverty (%), selected countries, mid-1990s

	Denmark	Germany	Netherlands	United Kingdom	United States
Annual poverty rate	4.7	12.1	7.8	12.1	16.0
Poor at least once	9.1	19.2	12.9	19.5	23.5
Always poor	0.8	4.3	1.6	2.4	9.5
Permanent income poverty	1.8	8.1	4.5	6.5	14.5

Source: OECD (2001b), calculated from household panel data.

Table 3.8 Income redistribution, selected countries, 1990s

	Australia (1989)	United Kingdom (1995)	United States (1994)	Germany (1994)	Netherlands (1996)	Denmark (1992)	Sweden (1992)
Gini coefficient							
market income	0.490	0.595	0.528	0.550	0.484	0.546	0.550
disposable income	0.347	0.379	0.382	0.319	0.295	0.328	0.320
Inequality reduction (%)	29	36	28	42	39	40	42

Source: SCP (2000), calculated from LIS data.

50 per cent of median income). The number of pre-transfer poor households is least reduced in the United States, followed by Australia. The classic European welfare states, namely Denmark, Germany, the Netherlands and Sweden, are much more successful. United Kingdom's performance is somewhere in the middle, although its Gini coefficient of disposable income is worse than that of any other country in the table. Both market income and disposable income are most equal in the Netherlands.

3.3.5.2 Adequacy of pensions

The second important indicator for measuring the efficiency of the welfare state is the adequacy of income after retirement. To assess this we need to look further than merely the coverage of public pension schemes. As we saw earlier, countries may substantially facilitate private pension plans, and the elderly draw on other sources of income besides public pensions. In this respect the image of a *three-legged stool* has been used, with the public pension and the supplementary private pension serving as two legs, and income from savings as the third leg.[23] Occasionally a "fourth leg" is posited – labour income.

Occupational pensions do not represent a major component of the total income of the current generation in retirement in the English-speaking countries. In these countries income derived from assets (financial assets and

Figure 3.8 Composition of gross income of couples in retirement and the income tiers, selected countries, mid-1990s

Q1 = bottom 20 per cent, Q3 = middle 20 per cent, Q5 = top 20 per cent
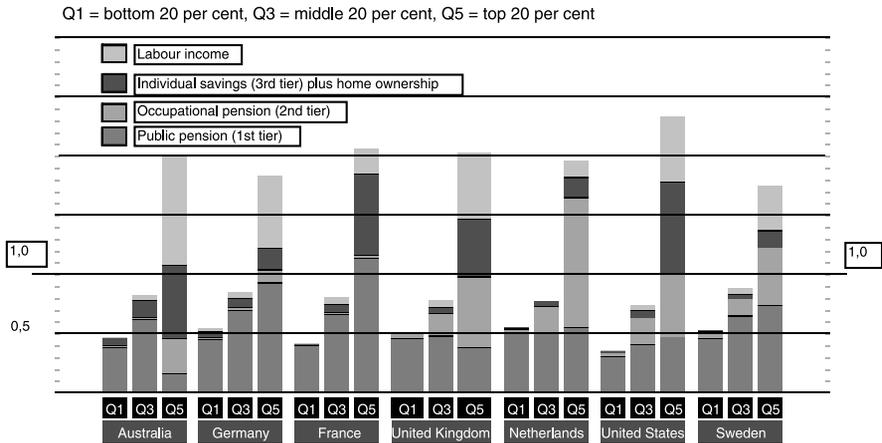
Notes: The household head is about 67; the average income of the cohort aged 67 is 1,0; the columns represent the average income of each quintile; figures 1993–95 for most countries and 1990 for the Netherlands.

Source: Calculated from OECD (1999b) data.

home ownership) constitutes a significant component, as demonstrated by figure 3.8. The figure shows the composition of income (before taxation) of couples in which the household head is aged about 67. For each of the countries, the bottom, middle, and top quintiles are indicated. The four income components (starting from the bottom) are: public pension, supplementary occupational pension, individual savings (for example, annuities and imputed housing rent income), and labour income.

The institutional characteristics of the pension systems are reflected in figure 3.8. France, Germany and Sweden have substantial public programmes providing earnings-related pension benefits. The size of the bottom part of the bar (the public component) increases with the height of the total bar. The Australian means and asset tests, in contrast, translate into a relatively minor public component in the top quintile. And in the Netherlands, the basic pension (AOW) constitutes a uniform "floor" in total retirement income. In France and the Netherlands, and to a lesser extent in Sweden, the United Kingdom and the United States, the occupational pension represents a significant tier, albeit far less so for the bottom income groups. The English-speaking countries have a comparatively large third tier. This *individual assets* tier is primarily concentrated at the top of the income distribution.

In countries with a less comprehensive public tier the elderly tend to compensate with alternative sources of income. At the same time, however, it is evident that this tactic is much more difficult for the lower-income groups.

Figure 3.9   Income distribution of older couples, selected countries, mid-1990s

Disposable income Q1/Q3 left bar (light shaded); Q5/Q3 right bar (dark shaded)

			Left bar (Q1/Q3)	Right bar (Q5/Q3)
United States			0,48	3,17
United Kingdom			0,63	2,66
France			0,53	2,43
Australia			0,59	2,02
Netherlands			0,73	2,07
Germany			0,62	2,01
Sweden			0,64	1,77

Left axis: 0,4 0,6 0,8
Right axis: 1,6 1,8 2,0 2,2 2,4 2,6 2,8 3,0 3,2
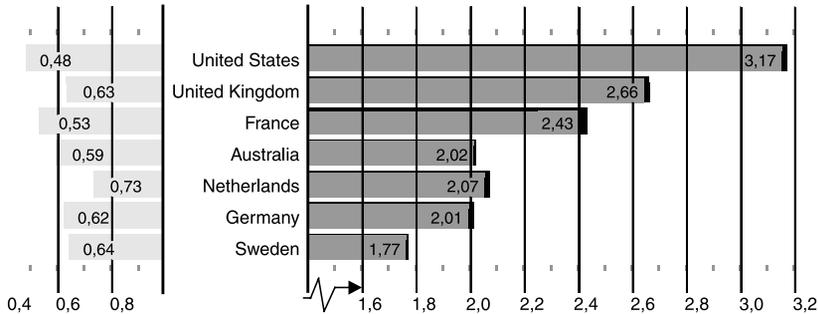
Notes: The household head is about 67; figures 1993–95 for most countries, and 1990 for the Netherlands.

Source: OECD (1999b).

This explains why elderly income distribution is more widely spread in English-speaking countries than in Germany and Sweden, for example – the countries in which the share of public transfers in total retirement income is highest. Figure 3.9 demonstrates this.

In Australia and the Netherlands, too, the income spread is relatively modest. In these two countries this is a function in particular of the public pension tier. In Australia the public pension is means-tested (an asset test is applied as well), and in the Netherlands the public tier gives a flat-rate pension benefit. Moreover, in both countries the income derived from asset ownership is less concentrated at the top than, for instance, in the United Kingdom and the United States. The World Bank (1994, Chapter 4) has argued that public pension systems tend to be regressive in their redistribution effect. This, however, is not what is indicated by the OECD data in figures 3.8 and 3.9. Private pensions are concentrated in the top income groups, and it appears likely that private pension coverage offsets the *inequality reducing* impact of public pensions.

What the graphs show is that the public pension schemes apparently all achieve a basic floor of income security for all ages, albeit at substantially different levels. On the whole, the increasingly fashionable argument that public pension systems and their impact on poverty and income replacement cannot be examined in isolation is factually questionable. The argument goes as follows: What counts in the end is overall retirement income. Retirement income is composed of various different sources of income. Accordingly, we must take other common income-generating mechanisms for the elderly into account when assessing the adequacy of public pension provisions. Figure 3.8 shows that in all types of welfare states any sizeable complement to public pension income from other sources is largely a privilege of the rich – at least thus far.

3.3.6   Putting theory and evidence together: The puzzle remains

We may conclude from the above that the different social protection systems are more or less doing their job in terms of social protection outcomes. But they do it with different levels of resources. The more money spent, the better the outcomes. Yet that does not mean that all monies are spent efficiently. We saw in Chapter 2 that a wide range of expenditure levels can coincide with the same level of GDP. We also saw that the interaction of some of the non-transfer elements of the classic welfare states with the transfer provisions has an impact on welfare outcomes. And we saw that the concrete incentive mechanisms have a major impact on microeconomic behaviour and thus probably macroeconomic growth.

We have seen thus far that some of the theoretical economic arguments are not supported by evidence. Conversely, some of the evidence and the workings of the obvious linking mechanisms are not well explained by the prevailing theories. Atkinson, for example, claims that much of the aggregate empirical literature on the issue of welfare-state arrangements and economic growth is merely "measurement without theory", and challenges economists to set out their theoretical framework more explicitly.[24]

The core problems are the following:

(i) Causality may run counter to conventional economic wisdom

In the interaction between the economy and the welfare state, notably with regard to aspects determined by the size of the welfare state, cause and effect are difficult to disentangle. As we saw in Chapter 2, causality may well run from economic performance towards the level of welfare spending. In the 1960s one of the widely accepted explanations for bigger welfare states was prosperity. More prosperous countries could afford to spend more on social protection. The income elasticity of the demand for social expenditure was conceived to be greater than 1. However, another explanation for this direction of causality could be that sluggish growth leads to higher unemployment and hence to more income transfers.

(ii) The set of measures used to map evidence has clear limitations

We have seen that the SER has limitations as a means of describing the actual level of social protection. The amount of welfare expenditure depends both on the average replacement rate and on the total benefit dependency ratio; two countries may have a similar share of social expenditure in GDP – one of them having a relatively older population and the other more generous social protection schemes.

The SER also has limited explanatory power when used as an independent variable or dependent variable in econometric analyses. Rather than interpreting a low GDP level combined with high social expenditure as evidence of

causality between high social spending and poor economic performance, we could conclude that an increase in welfare expenditure might be merely a temporary phenomenon lasting until GDP has reached its new equilibrium level. High social spending seen as a variable dependent on low economic performance could also be interpreted as simply a transitory phenomenon.

Moreover, in many cases the SER does not even measure social expenditure correctly. Taxes and tax breaks for social purposes, for example, are crucial in this respect as well. Most studies do not take into account the fact that countries differ in their taxation of transfer income. The factor of tax income forgone as a result of socially motivated tax breaks is often neglected.

(iii) Indirect economic costs are often ignored

It is important, Atkinson argues, to treat the direct financial impact of the interrelationship between the size of the welfare state and the economy separately from the economic effects. Social transfer schemes may have relatively few budgetary effects but their economic effects, when measured in differential growth rates, may be substantial. Similarly, opportunity costs in budgetary terms are often neglected – that is, analysts rarely ask themselves what alternative use could be made of the resources that are channelled into the social transfer system.

(iv) The fine print in the design of transfers and their incentive effects does matter

Straightforward neoclassical models trying to trace the economic impact of the welfare state often do not distinguish between the actual types of transfers. Apart from employment and unemployment, several other labour market states can be distinguished. People who are not employed or enrolled in an unemployment benefit scheme may be attending school full time or be engaged in some kind of training programme; they may be enrolled in a sickness, disability or early-retirement scheme; or they may be out of the labour force without receiving financial compensation at all (Atkinson and Micklewright, 1991).

Standard economic models tend to assume a rather narrow (one-dimensional) kind of transfer scheme. However, social assistance does not apply the same set of conditions that unemployment insurance (UI) does. And there are differences in social security coverage between regular employment and marginal or "atypical" employment. These institutional differences affect behaviour. UI can in fact provide an incentive to take a job, since this would allow the applicant to meet the eligibility requirements (ibid.). Caps in entitlement duration may lead to increases in hazard rates (Katz and Meyer, 1990; Layard et al., 1991). UI can ease the adaptation of labour demand to seasonal fluctuations by a layoff-recall practice such as that used in the

United States (Feldstein, 1976). Means testing, applied in social assistance, may lead to significant unemployment traps due to the high marginal effective tax rates, not least affecting the partner of the household head (Doudeijns et al., 2000). More generally, advocates of residual social protection programmes tend to overlook the fact that social insurance schemes link entitlements to contribution records.

Returning to taxation, assessment of the tax base on an individual basis gives rise to different incentive effects from taxation of joint household income (Lindbeck, 1997, p. 1300). Another example pertaining to tax design has been forwarded by Pissarides (1998), who finds the following. First, the impact of a tax cut on labour supply depends on the structure of the wage tax; raising the floor below which income is exempt from taxation and the marginal tax rate at the same time, thus continuing to generate the same amount of revenue, can lead to a reduction in unemployment, depending on the model used. Second, the effect of a tax cut on unemployment is far less when benefit levels are adjusted according to net wage increases instead of price increases.

It is probably fair to conclude that economic theory and evidence alone do not give us a clear-cut answer as to the net effect of the different kinds of welfare states on economic performance and hence on the welfare of the population. That may seem discouraging. However, what we have learnt confirms earlier findings that social protection measures can indeed achieve positive social outcomes and do not strangle economic development. That is encouraging. We now move on to other important aspects of the welfare state debate.

3.4 ECONOMIC INSTRUMENTS IN THE GOVERNANCE OF SOCIAL TRANSFERS

In the first chapters of this book we learned that countries can afford quite sizeable welfare states and thereby achieve positive social outcomes. Even then it is not always certain that a particular mix of social and economic policies will ensure the best possible outcomes in matters of social protection. However, what society cannot afford under any circumstances is waste, and waste is often associated with the delivery of social protection through public schemes. The question is whether schemes and systems can be designed in such a way that waste is minimized by using the right economic incentives for institutions and individuals in the public and possibly private transfer delivery systems.

Governments do not have to administer the schemes themselves. They can commission the actual delivery out to other public or private entities, as in France and the Netherlands, for example, where employers and workers take responsibility for the provision of occupational pensions. Another option is for the government to set a number of basic conditions (pertaining to eligibility, contribution rates, and so on) and use market mechanisms to deliver services within that regulatory framework.

The literature on the market mechanisms as a means of providing social protection mirrors the welfare state debate. In the 1960s and 1970s, the decades of welfare state expansion, the issue of market failure was central in the academic discussion. With the emergence of supply-side economics at the end of the 1970s, the concept of government failure became an issue. Public administrations appeared at times to be pursuing objectives that did not necessarily coincide with the public interest. This fully matched the view that the welfare state was in need of downsizing. Towards the end of the 1980s, and even more so during the 1990s, the main issue became how the market mechanism could be used to improve the provision of goods and services in contexts where public objectives were still relevant. It was realized that market and government failures appeared to stem from the same set of deficiencies, in particular incomplete information.

This section sets out to explore economic mechanisms for efficient governance in the public sector. Section 3.4.1 provides the background in economic theory that can be used to develop a logical framework for the efficient delivery of social transfers, while section 3.4.2 discusses a range of alternatives for the provision of social transfers, from direct government provision to regulated markets for public goods and services.

The following pages thus present an economic framework for the design of an efficient governance system through the setting of the right incentives for the various actors in transfer delivery. Whether transfers are then actually delivered in an effective and efficient way has to be ascertained and constantly monitored by performance indicators (this is discussed in Chapter 7).

3.4.1 Theoretical background

Two theoretical strands are particularly relevant to the issue of governance in the public sector: *information economics* and *new institutional economics*. Both have received recognition rather late in the history of economics: R.H. Coase in 1991 and D.C. North and R.W. Fogel in 1993 won the Nobel Prize in Economic Sciences for their path-breaking contributions to the theory of institutions, and G.A. Akerlof, A.M. Spence and J.E. Stiglitz received the Prize in 2001 for their analyses of markets with asymmetric information.

3.4.1.1 Information economics

Information economics revisits Keynes's argument that the conditions under which markets operate in an efficient manner are extremely restrictive. The traditional neoclassical model neglected information imperfections. In the real world, however, such imperfections are widespread. Information imperfections are said to exist when one person (or one side of a market transaction) knows more than the other. Workers know more about their abilities and effort than the firm's owner or manager, the person purchasing insurance knows more about

his or her health and behaviour than the insurance firm. These information asymmetries hence concern both hidden characteristics (adverse selection) and hidden actions (moral hazard).

Adverse selection is the *ex ante* problem of the principal being unaware of the characteristics of the agent. The solution for the principal (a health insurance firm, for example) lies in screening applicants or offering them a menu of policies to choose from; the agents also can *signal* their excess information, for example by purchasing policies with a large deductible (i.e. by assuming a large risk) to indicate to the insurer that they have no health problems. When quality is not observable and the seller cannot convince his customer that he is offering a high-quality product, inferior-quality products and services will drive higher-quality ones out of the market. Akerlof's (1970) example of the used car market, where lay persons find it difficult to judge the quality of the cars on offer, is a good illustration of this situation. A solution here would be to license car sellers or establish a quality certificate.

Moral hazard is the *ex post* problem of the agent, once insured, possibly behaving in a way that affects his or her risk. Had the insurance firm known this beforehand it would have charged a higher premium. The solution in the case of the insurer can be co-payment, or monitoring the agent's behaviour.

This is where the principal-agent ("p-a") framework enters the picture. The p-a theory deals with situations of asymmetrical information – that is, situations where one of the transaction partners (the agent) knows more than the other (the principal). Contracts, or more generally compensation mechanisms, serve the double function of providing an incentive (rewarding effort) and allocating risk. There is an obvious tension between these two objectives, in particular when the agent is risk-averse.

Holmstrom and Milgrom (1991) have conceptualized a further important aspect of the p-a framework, namely the situation where the task performed by the agent has more than one dimension (i.e. when the agent is "multi-tasking") and the reward system is mono-dimensional. The classical example is the task of the teacher. The teacher's performance cannot be fully measured in terms of the test scores obtained by his or her students. Standard test scores often do not take into account important qualities such as the students' creative thinking abilities and oral and written communication skills. If the teacher was paid according to the observable measure of the students' test scores, he or she might decide to focus entirely on improving their test scores and neglect the non-measurable dimensions of the task. In practice, therefore, teachers – and many other professionals – are seldom paid according to performance measures such as test scores, but are paid a fixed wage (with sometimes an additional performance component).

The same problem arises when the government contracts out services to autonomous agencies or to private contractors in the market. For example, it will not reward a social insurance institution merely for having a low number of unemployment benefit recipients. That would not be sensible. First, the

institution would have no influence on the inflow. Second, it has only limited instruments to control the outflow. Third and perhaps most important, it would not matter to the institution – at least not from a purely financial point of view – whether the outflow is due to discouragement of further labour force participation or to returns into paid employment. The only incentive would be to lower the numbers in the books and that can be achieved in various ways, many of them not in the public interest.

Institutions may be paid according to the actual number of benefit recipients or they may receive a budget, but the budget will in practice never be entirely fixed. Adjustments may be made *ex post* – the volume component may be adjusted to the actual number of beneficiaries, or the price component may be adjusted to compensate for inflation. They may also be made *ex ante*: levelling the expected costs of a health care insurance fund, for instance by taking into account in the budget formula the share of elderly insured or the share of people who live in less prosperous areas, is an example of such an adjustment mechanism. An insurance fund with a (disproportionately) large number of elderly would then receive a (disproportionately) higher budget. In this example the budget is devised to dissuade the insurance fund from engaging in risk selection ("creaming"). The government could of course take other measures, such as introducing a legal obligation for insurance funds to take on all applicants, but this is not likely to work perfectly if the financial incentives point in another direction.

Another implication of the multitask p-a framework concerns "outside" activities. These are agent's activities that do not coincide with the interests of the principal. A typical example is that of a civil servant engaging in private business during office hours. Holmstrom and Milgrom (1991) argue that the principal will more likely prohibit those outside activities when he has no sufficient means of monitoring the agent's performance on the inside activities – his proper job. Incentives for a task can thus be provided in two ways: "either the (inside) task itself can be rewarded or the marginal opportunity cost of the task can be lowered by removing or reducing the incentives of competing (outside) tasks" (idem, p. 27).

3.4.1.2 New institutional economics

This theoretical strand deals with the institutional framework and the institutions of governance. North (1991, p. 97) defines institutions as "the humanly devised constraints that structure political, economic and social interactions [consisting] of both informal constraints (such as customs, traditions) and formal rules (constitutions, laws, procedures)."

Williamson (1998) distinguishes four levels of institutional characteristics in all. The first level comprises customs, traditions, religion, and social norms. The formal institutional environment makes up the second level: this is where the constitution, laws, and the organization of government and the public sector

are situated; changes in these institutions occur gradually, over decades or even centuries. Then there is the governance level, in which changes can occur within less than a decade. The central issue on this level is getting the governance structures right. The fourth level is the level of resource allocation and employment, where adjustments are made continuously in response to changing market conditions. According to Williamson, this is the level with which neoclassical economics, as well as the principal-agent theory, is concerned. New institutional economics, he affirms, deals with the second and third levels, and in particular with the third (the governance framework).

Under the neoclassical theory, institutions would not matter in the functioning of markets. However, in a world with imperfect information markets may be absent and the absence of particular markets, for instance for risk coverage, has profound implications for the functioning of other markets (Stiglitz, 2002). Some of the previously listed arrangements of dealing with information imperfections (such as the quality certificate) are examples of institutions that allow markets to function.

An important strand within the new institutional framework is *transaction cost* economics. Transaction costs are costs related to information acquisition, bargaining and contract settlement and to monitoring and policing the contract. Complex contracts are unavoidably incomplete. They contain gaps, errors and omissions, first because individuals do not possess perfect foresight, and second because of opportunistic behaviour of the parties to the contract. For both reasons, complex transactions will not occur unless some insurance device ("credible commitment") is built in. Institutions are a means of dealing with these risks.

The transaction cost approach originates from the work by Coase (1937) on vertical integration. Firms operate in a market, and inter-firm and firm-to-customer transactions are governed by price signals. However, within the firms themselves transactions are not directed by the price mechanism but by hierarchical decisions. Coase found that it seemed efficient to organize some activities not as transactions in the market (outside) but to restrict them within the boundaries of the firm (inside). It is this "make or buy" decision that is at the core of transaction cost economics.

The same question can be recast with respect to the public sector. Which activities should the public sector perform itself, and which ones can be contracted out to the private sector? Which activities can be privatized, and which ones cannot? What, in other words, "are the boundaries of the public sector?" (Bovenberg, 2000). We will come to this shortly.

Another strand within the framework of new institutional economics is the *property rights* approach. The cornerstone of this theory is the lack of complete contracts, which brings it very close to the transaction cost approach. The property right is the right to decide what happens in contingencies that are not included in the incomplete contract. This is called residual decision-making power: the discretionary power that remains within the limits set by the contract

and the general regulatory framework. Ownership, or authority, is important in investment decisions (Hart and Moore, 1990; Aghion and Tirole, 1997). In respect of activities taking place in the public sector the government has residual decision-making power in circumstances not covered by the contract. Ownership gives control and bargaining power in situations that contracts do not explicitly describe (Shleifer, 1998). If the government contracts out activities to the private sector, residual power is in the hands of the private sector and the government has to use other, less tailor-made instruments, such as regulations, subsidies or tax incentives, to influence the behaviour of private agents (Bovenberg, 2000, p. 299).

Under this approach, privatization and the contracting-out of public services improve the incentives to *innovate* and invest in cost-cutting measures. However, public provision is preferable if the government cannot prevent the private provider from reducing *quality*. Private providers have an incentive to keep costs down and to invest in innovative techniques, but private provision may affect quality. Hart et al. (1996) have developed a model explaining why contracting out to the private sector is generally cheaper but in some circumstances delivers lower level of quality. If the provider is a government employee he may not benefit from suggesting innovative quality or cost-cutting techniques and may thus have no incentive to do so. If he is from the private sector he may have to renegotiate the contract to obtain higher prices in order to ensure the introduction of a quality innovation, otherwise he would not benefit from it. Cost-cutting innovations, on the other hand, will always be adopted in private sector delivery.

Blank (2000) lists four arguments against relying on the market mechanism:

(i)   externalities (causing under- or overprovision);

(ii) information asymmetries (multifaceted in-/outputs, monitoring difficulties, unobservable output or quality);

(iii) agency problems (decision-makers are not the recipients: "the private market decisions of the decider may not produce optimal outcomes for the recipient"; and if the decision-maker is the recipient, he/she may not always act in his/her own long-term best interest); and

(iv) distributional concerns (guarantee of access versus universal provision).

Another, perhaps less economic and more political science-oriented approach is the view that, often, governments are not benevolent. Organized interest groups (single-issue focused groups) can successfully pursue their agenda at the cost of the non-organized and powerless taxpayer. Further down this line of reasoning is the "grabbing hand" model (Shleifer and Vishny, 1998), under which privatization can be seen as a means to discipline bureaucrats and prevent them from pursuing hidden agendas, political patronage and corruption. This argument, however, is not entirely convincing. "Self binding" – committing the bureaucrats to a framework of procedural

rules – is indeed important, but it is not clear why it cannot take the form of a transparent governance structure with a clear set of rules, with democratic checks and balances and a well-performing supervisor (Bovenberg and Teulings, 1999).

3.4.2 Public versus private provision of social protection

It is time now to construct on the above theoretical basis a more structured analytical framework with direct relevance to the efficient delivery of social transfers. We will first analyse the potential sources of market and government failures that can be deduced from economic theory and then outline the choices resulting from that environment.

3.4.2.1 Market and government failures

The market mechanism – Adam Smith's "invisible hand" – is credited with achieving efficient outcomes. However, markets do fail. That happens when unregulated markets do not generate efficient outcomes. The "invisible hand" needs a helping hand. But governments may fail as well. The two concepts are briefly examined below. Understanding both types of failures and their systemic reasons is important for the efficient design of social transfers systems.

The following sources of market failure are often mentioned in the literature: natural monopolies and concentrations of market power, public goods and services, externalities, and information imperfections.

Natural monopolies and concentrations

Natural monopolies are a source of market failure but legal monopolies and patents – a requisite for protecting the property rights on intellectual capital – can lead to a similar situation. The monopolist firm has the power to set the price. It is not restricted since there are no competitors to push the price down to the level of marginal costs. Only the price elasticity of demand may act as a check on the monopolist's price-setting power. When consumers have an option not to purchase the good or service in question the monopolist will have an incentive to keep prices down.

Natural monopolies and concentrations are not a motive for public provision, however. Technological developments may allow competition, for example in the network industries (communication, energy, etc.) where due to "depending" several providers can use the same network or a similar service – such as the Internet – can be distributed through different networks. Governments can alleviate market failures by applying a well-designed set of rules: cartels, for example, are outlawed in most (if not all) countries of the world.

Public goods and services

Atkinson and Stiglitz (1980, Chapter 16) have listed the following efficiency motives for the public provision of goods. First, it may not be possible (or would be extremely expensive) to exclude non-contributors – the feasibility of charging for the consumption of goods depends on the available technology. This is referred to as the principle of *non-exclusion*. Second, application of the price mechanism may not be efficient either because demand is inelastic or because consumption by one individual does not affect the amount available for consumption by other individuals (the latter is often referred to as the principle of *non-rivalry*). Note that for Atkinson and Stiglitz the distinguishing characteristics are not entirely embedded in the goods themselves, the circumstances may be relevant as well. Hence, there is no "once-and-for-all" choice for the public versus private provision of a set of goods or services. The decision regarding public provision depends on the available technology and demand conditions as well as on the technical characteristics of the actual goods and services itself. For example, modern financing instruments facilitate private insurance against the unemployment risk and cover the inflation risk in private pension provision.

Externalities

Externalities may be defined as unanticipated side effects of calculated courses of action. For example, decisions of subject *A* may affect the welfare of *B*, and transactions between *A* and *B* may affect the welfare of *C*. The transaction partners do not take sufficient account of the societal impact of their transaction. In case of negative external effects the transaction would take place even though other individuals would experience welfare losses. Coase (1960) has argued that these externalities can be bargained away – *A* and *B* could agree with *C* to compensate him/her for the external effects, for example. However, this is not always feasible, in particular in complex contract situations with a large number of stakeholders. In these situations the *free rider* problem occurs: it is not possible to "internalize" the externalities, that is, to exclude individuals who would profit from a certain service without contributing to it. Bovenberg et al. (2003) characterize these complex contracting situations – where private transaction partners are not able to internalize externalities – as "public interests".

Information imperfections

These are the imperfections listed in section 3.4.1.1, including multifaceted inputs and outputs, monitoring difficulties, unobservable output or quality, hidden characteristics (adverse selection) and agency problems (moral hazard).

This list sets out the most important sources of market failure. However, markets – if left to themselves – fail not only because they do not operate in

an ideal environment but also because they do not produce ideal outcomes. Redistributive failures, another motive for government intervention, are of particular relevance for the social transfer sector.

Redistributive failures

Markets will seldom lead to an equitable distribution of welfare. Moreover, access to the market is rarely universal. Insurance markets – for example, private health insurance markets – curtail access for individuals or groups that are considered to be high risks. Private universities charge high tuition fees that act as barriers for low-income students. We could draw up a long list of such examples.

Market failures are usually seen as a rationale for government intervention. Governments could intervene in many ways to correct them: through the tax system, subsidizing the providers, offering subsidies to low-income groups, imposing regulation; finally, the government could provide the service itself – which is the traditional way of providing social protection. In selecting the best instrument the government faces some systemic restrictions to efficiency. These restrictions are often referred to as "government failures", but in fact they are no different from the issues already discussed in the context of the new institutional and information economics theories: information imperfections, incomplete contracts, and credible commitment.

However, government intervention also raises systemic problems inherent to all government activity. First, governments may interfere with individual ownership rights and political intervention distorts existing incentive mechanisms to achieve, for example, social policy goals. An example would be applying political pressure on the Central Bank to pursue a less restrictive policy. This could lead markets to lose confidence, force the interest rate upward, thus leading to less investment and, eventually, a higher rate of unemployment – exactly the opposite of what the government had in mind. This credibility problem is called the "intervention paradox" (Bovenberg et al., 2003).

A second problem is the trade-off between insurance and incentives. As already mentioned in section 3.4.1.2, a contract is a means of both allocating risk and providing incentives to perform certain tasks. One form of possible intervention is contracting-out. In this case the government needs to balance the efficiency gains accruing from high-powered incentives to focus on certain outcomes in a contractual arrangement against the risks imposed on (perhaps risk-averse) private providers. An example is the current debate in the Netherlands concerning incentive contracts for providers in the recently privatized reintegration services market (van de Meerendonk, 2003). The advantages of a greater focus on outcome and less monitoring of contract compliance (through performance reporting obligations for service providers) need to be weighed against the increased risk of insolvency for placement service providers when a labour market faces a severe economic downturn and

where placement outcomes might be poor not because of bad management but simply because of the unfavourable economic environment.[25]

Third, there is the problem of tension between asset specificity and competition. Competition generates information for the principal – the government – concerning the performance and prices of the various providers in the market. However, when investments are required competition suffers from the "hold-up" problem which can arise when investments are specific to the relationship between the principal and the provider (Malcolmson, 1997). Let us take the example of a private provider deciding to build a new, state-of-the-art hospital. Once the investment is made the provider's hands are tied – he cannot put the assets to an alternative use without suffering a substantial loss. The government knows this and could force the provider to lower the price (even below marginal cost level), threatening to change suppliers. This risk of the provider being "held up" by the government or the public health insurance fund can be excluded by negotiating a service contract before the investment is made.

Fourth, organizations often perform several tasks: an unemployment insurance fund, for example, collects contributions, assesses claims and re-integrates benefit recipients back into employment. In such a "multi-tasking" situation the government needs to decide whether or not it wants to separate certain tasks and allocate them to different institutions in order to establish a checks-and-balances situation. However, this comes at a price in terms of a loss in coordination. In general, the advantages of privatization are less obvious the more a given task entails:

- outcomes that are not easily observable for the government – this follows from the multitask p-a framework described in section 3.4.1.1;
- externalities to the public budget – an example would be the privatization of the unemployment or sickness risk above a certain threshold (that is, allowing for a private tier in addition to the public tier that provides basic income support). Suppose the public scheme provides a benefit that is set at 70 per cent of previous earnings. This would give the individual insured an incentive to resume his or her work as soon as possible. However, when the individual has purchased additional insurance that covers the full income risk of unemployment or sickness, no financial incentives to resume work remain. Still, the largest part of the costs accrues to the public insurance fund. The private transaction between the individual and the insurance company affects the public budget ("negative externalities").

3.4.2.2 Governance choices

The above dilemmas and trade-offs thus turn the government's choice of either providing a service itself or contracting it out to a (semi-)public organization or a private firm into a multi-facetted decision (Bovenberg et al., 2003). Moreover, the choice does not lie between just two alternatives – public or

private provision – since there is an extensive range of possibilities: public providers can be placed at arm's length, budgeting mechanisms can be tailored to the outcomes desired by the central authorities, competition can be introduced between public providers, and customers can be given a more prominent role. Moving from the public to the private end of the spectrum, we find the following arrangements:

(1) Government provision (full government ownership) *with* control by authority (hierarchical control)

(2) Semi-autonomous public institutions/agencies (public ownership) *with* formal responsibility separated from operational (executive) responsibility

(3) Quasi markets (public or private ownership; public financing) *with*

- Budget mechanism
- Yardstick competition
- Incentive contracting in procurement

(4) Markets (private ownership; private or public financing) *with*

- Tendering (*ex ante* competition)
- Regular competition (*ex post* competition) – with/without vouchers
- Contestable markets

(5) Regulation and supervision (also required in all the previous categories) *with*

- Regulation of markets (setting the framework; determining price(s) and/ or price ceiling(s); etc.)
- Supervision (of competition and of the use of public funds)

First, there is a category of services that the government best provides itself. This is the case when externalities occur on a national scale. Examples are national defence and foreign policy. The tax office would be another example; however, this is less obvious since it is conceivable to have a decentralized tax system with some additional clearing mechanism in place that serves to level major regional disparities in tax burdens. Such a mechanism could be incorporated in the Constitution and would not require an ad hoc government agency. In this category, the government owns the assets and provides the service and the Minister assumes full hierarchical control. On the "flexibility-commitment" axis this is closest to flexibility.

Second, there is a category of services that are provided by a public organization other than central government. For example, municipalities may provide garbage collection or local transport services. And organizations may be established by law to provide certain services (e.g. a public social insurance

fund). An important characteristic of these organizations is that formal and operational responsibilities are separated. The Minister commits to a contract with the organization. The contract contains outcome directives and perhaps a set of procedural guidelines. The organization can choose the instruments that are applied to meet the outcome targets. The idea behind this separation of formal and executive responsibilities is that decentralized organizations have less informational gaps and are better placed to tailor services to individual needs. The central government, in decentralizing tasks and responsibilities, thus agrees to trade off some of its intervention instruments to gain a reduction in the information imperfections that are characteristic of the centralized model.

However, this will result in an information advantage of service providers over the government as to the true resource requirements to meet the (government's) objectives. To deal with this, and to improve the efficiency of either public organizations or private organizations that are publicly funded, instruments like budgeting are used. The budget mechanism is a means to solve the problem residing in the fact that the principal – the central government – has no accurate information on the provider's costs and efforts. Still, the problem remains that the ill-informed principal (central government) may set the budget either too high or too low. This is where ''yardstick competition'' comes in. It entails comparing the performances of different providers, all facing more or less similar (technological) conditions, and using the outcomes in the design of the financing mechanism. This requires the principal to formulate a set of performance criteria. Benchmarking the performances of the various organizations – often operating in different areas – provides the principal with the required information. Subsequently the principal can tailor the budget to the cost level of the most efficient organization.

In procurement situations it is optimal for the government to offer a menu of incentive contracts. The idea is that the contract should be tailored to the firm's information.[26] A common feature of these arrangements is the creation of a ''quasi market'' – a managed market designed to mimic the outcomes of real markets.

In the process of fine-tuning the financial mechanisms, the government faces a trade-off between insurance and incentives. In the subsequent category – relying on markets – it faces an additional trade-off, that between asset specificity and competition. Competitive tendering (*ex ante* competition) is preferable to regular, *ex post* competition in situations where sunk investments may elicit opportunistic behaviour on the part of the government. The political process tends to be volatile and this could cause private investors to be reluctant to participate in infrastructural projects – in public utilities, but also in the hospital sector, for example.

Service provision could be opened to competition by specifying and announcing service requirements, calling for tenders and contracting – for some fixed term – with the supplier submitting the most favourable bid (Lundsgaard, 2002). An example could be the farming out of investment services for

the placement of social security reserves to competing investment managers using short- and medium-term internal rates of return within overall investment policy guidelines as benchmarks for the competition (see Chapter 6). *Ex ante*, competition is introduced and full access is granted to new entrants. Lundsgaard (2002) claims that "the openness of competitive tendering to new entrants makes it a stronger mechanism than benchmarking for revealing the true level of necessary costs."

For tendering to be a means of achieving the government's objectives, some requirements need to be met. One of them is transparency: the purchasing agency needs to have information as to performance track records and service quality, and procedures for selecting contractors need to be transparent. Another requirement is that providers compete on a level playing field. This is especially important when providers with access to public financial resources (on account of the fact that they also perform public tasks) are allowed on the market, since they could cross-subsidize their market activities out of public resources and offer lower prices than their competitors.

The government could also allow regular, *ex post* competition on the market. Customers then have the option of selecting a service provider. This can be a powerful incentive for providers to improve their service standards. Again, transparency is an important condition for such a market to be efficient. For services like health care and education, for example, funded predominantly out of public resources, the government could resort to vouchers. These are earmarked budgets that are disbursed not to providers but to customers, to purchase a certain service. The advantage of this arrangement is that it allows the market to function without constraints, while at the same time access for low-income and/or high-risk customer groups is maintained. A similar effect can be achieved in a per-user budgeting framework with the incorporation of risk-related parameters – for instance, age or level of education – in the budget formula. In the Netherlands, for example, this has been applied in the area of sickness funds and the budgeting of social assistance outlays to municipalities.

Even in markets with a limited number of suppliers competition is feasible as long as the market is contestable – that is, the thresholds for new entrants are low. The market for hospital services will therefore be less contestable than the market for cleaning services. Markets with government licensing of providers are less contestable than those without such statutory entrance barriers.

Regulation and supervision are not substitutes for public or market provision; they should rather be seen as a complement. Even in the case of government provision, legislation will apply and parliament may appoint a supervisor (e.g. National Audit Office in the United Kingdom). In situations where the government relies on the market to provide services, a framework of rules and a supervisor to safeguard fair competition between suppliers and access to services for low-income or high-risk customers are required. The government's role then changes from one of direct supplier to that of regulator.

3.4.2.3 Conclusions

Market failures are not sufficient to legitimate government intervention since the same factors, notably information imperfections (including agency problems) and incomplete contracts are widespread both in public provision and in markets. However, complex transactions give rise to externalities and it is these that may affect public interests. The protection of public interests is the main motive for government intervention in private markets, and public interests in this context include redistribution concerns.

The government needs to balance the gains of intervention against the losses and select the most appropriate means of action. The economic theory has not managed as yet to provide a clear set of general guidelines to politicians as to when to intervene and to what degree, and when not to, and in any case it remains important to keep an eye on the social consequences of the chosen governance mechanism.

The government should set a framework that ensures social outcomes but also provides all possible incentives for the efficient delivery of transfers that can achieve these outcomes. That framework includes legislation and law enforcement that guarantee contracts, delineate and protect property rights, require the government to monitor the market mechanism, and establish conditions that promote fair competition and protect the interests of consumers and workers (such as product-safety regulations and occupational health and safety standards). Last but not least, it requires welfare state arrangements that *guarantee* – while not necessarily *delivering to* – all citizens a basic level of subsistence, as well as access to health and educational facilities. If governance is able to set the rules or write a watertight contract which, either way, guarantees a defined outcome, then there is little economic purpose in a purely ideological debate on public versus private provision.

Ultimately, delivery and financing systems have to stand a double test:

(a) Can they deliver intended social outcomes?
(b) Can they do this in an efficient way?

Many private and public delivery systems will not pass these tests. If both private and public systems can deliver the intended outcomes, the actual cost of provision should, in practice, tip the balance.

3.5 WILL WE BE ABLE TO AFFORD THE WELFARE STATE IN THE FUTURE?

The analyses in sections 3.2 and 3.3 were of a retrospective nature. Contemporary welfare states however face two challenges that are rapidly assuming new dimensions and raising questions as to whether the present design of the welfare state remains affordable. "Affordability" is a fuzzy concept, and requires clarification. Since we have not been able to establish

what constitutes economically optimal social expenditure, we must resort to a pragmatic income concept of affordability. We simply assume here that NSPSs are affordable as long as the population is willing to finance them. Accordingly, it is ultimately the willingness to pay that determines affordability. That willingness will depend on the level of taxes or contributions. Two new developments could push up this level: the changing demographic environment, and internationalization of the global economy.

3.5.1   The demographic challenge

Pension expenditure accounts for more than 50 per cent of all social expenditure almost everywhere, and the projections examined in Chapter 2 indicate that this proportion will continue to grow. Ageing will drive up pension (and health) expenditure in the decades to come, putting particular pressure on government budgets in countries with an extensive public pension tier financed on a PAYG basis.

As noted in Chapter 2, the elderly dependency ratio will accelerate in the next few decades. The anticipated increase has been estimated at one-half to one percentage point in all the countries reviewed here. This means that the pressure on pension systems will increase accordingly, and some might become unsustainable. Thompson (1998) measures the total cost of the support for the retired (the "retirement burden") as the ratio between the consumption of the retired and GDP. "Non-sustainability" would consequently mean that populations regard that share as being too high. It is thus first and foremost a political term, not an economic one. When a pension system becomes "unsustainable", four policy instruments are available to ease financial and fiscal pressure (Holzmann, 1997):

(i)   lowering pension benefit replacement rates;

(ii)   raising contribution rates;

(iii)   increasing the *effective* retirement age; and

(iv)   reallocating resources from elsewhere in the government budget (raising taxes, allowing a larger budget deficit, or reallocating funds inside the budget).

Generational accounting can reveal the impact of ageing on the expected tax/contribution burden of individual cohorts of the population. It is also a means of assessing the extent to which public finances are in balance over the long term. It is a fairly new method but has already been applied in a number of countries (Auerbach et al., 1999). Generational accounts display net payments or net revenues for all cohorts (the present value of all taxes and contributions and received income transfers and public services in the course of a lifetime). They allow us to assess which cohorts bear the heaviest burden and which ones receive the revenue. Table 3.9 shows such data for two cohorts – one that has just entered the labour market (age 25) and one that is on the threshold

Table 3.9 Generational accounts for two groups (age 25 and age 65) in thousand US$ (scaled for GDP/capita), selected countries, 1995

	Australia	Belgium	Canada	Denmark	Germany	France	Italy	Japan	Netherlands	Sweden	United States
(1) Net lifetime payments of generation aged 25	202	337	247	295	408	409	250	360	321	414	173
(1) Net lifetime payments of generation aged 65	−18	−206	−107	−219	−278	−257	−188	−58	−124	−161	−96

Source: Kotlikoff and Leibfritz (1999), pp. 82–84.

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of retirement (age 65). It can be seen that the elderly in countries with an extensive public pension tier (in particular Belgium, France and Germany, and to a lesser degree Italy and Sweden) receive more than the elderly in the other countries considered. The generation just beginning its working career, though, has a negative lifetime revenue. The table does show some substantial differences between the countries: net payments are largest in Sweden, France and Germany, and smallest in Australia and the United States. It must be noted, however, that the results of generational accounting analyses are extremely sensitive to the discount rates used.

Nevertheless, the data in table 3.9 allow us to discuss the policies that the governments of the various countries have at their disposal to accommodate the pressures created by an ageing population. We have already mentioned that non-sustainability is chiefly a political term: it means that when allocative decisions are made within all public and parastatal budgets there is no political agreement to increase the share of resources that goes to the pension system (i.e. financing consumption by the elderly). The results of implicit or explicit calculations like those in table 3.9 may determine the willingness of future younger generations to finance the public pension scheme.

Out of the four policy instruments listed above, *lowering replacement rates in the public tier* may be an option for countries with substantial earnings-related public schemes, but far less for countries that operate a flat-rate public tier. This latter group already have a larger private pension tier. And some of these private schemes are defined-contribution schemes. *Increasing the contribution rate* means that in all countries the current working generation would face an even higher net burden. *Reallocating the government budget* is not really relevant here as it does not alter the generational imbalance.

This leaves us with the option of *increasing the effective retirement age*. Bovenberg and ter Rele (1999) have calculated generational accounts for the Netherlands allowing for a gradual increase in the employment rate among older age groups (this has been the trend from the mid-1980s onwards). They calculated how the generational imbalance is affected by an increase in the employment rate and the expected rise in private pension incomes (due to the maturation of the private pension schemes). While the imbalances could not be completely abolished, they would at least be dramatically reduced.

It is obvious that the results from generational accounting should be regarded with some caution. They do not necessarily provide a comprehensive picture of the lifetime balance between implicit and explicit benefits reaped from national social protection systems and payments made towards their financing. Future, smaller generations will pay higher pension contributions, but they will probably have benefited from much bigger transfers to them in their youth than the previous generations did. Not all of these transfers would necessarily be informal or formal cash transfers; they might also be transfers in kind, such as small classes at school creating a better learning environment.

Intergenerational accounting results also suffer from the exclusion of private income and wealth transfers in societies. Preliminary calculations by ILO FACTS show that a person born in 1950 in Germany who goes through a "standard" private and working life, retires at age 60 and dies at age 83, has a disposable lifetime income 20 per cent lower than that of a person born in 1980. The reason is simple. The calculations add informal intra-family income transfers to income from employment and formal transfers. In this case bigger informal income transfers due to smaller family sizes, later ages of entry into the labour market and larger overall family incomes more than compensate higher taxes and contributions and lower benefits of the younger generations. This also shows – by reverse analysis – the still substantial net cost of raising children in that national setting. Similar effects can possibly be calculated for other countries. Consequently, one might argue that child- and family-related benefits are economically still too low to provide incentives for families to correct the ageing problem by having more children.

However the above calculations do show – thereby confirming the conclusions reached in Chapter 2 – how the impact of ageing can be contained. Enlarging the tax base by achieving a substantial increase in the employment rate is one way of keeping costs manageable. And, as the number of people aged 55 to 64 increases, the labour force participation rate of this age group has to increase.

One factor that we have not addressed so far lies outside the standard social protection policy toolkit but is acquiring some prominence in the European social policy debate: replacement migration. For the time being Europe is the region facing the most imminent ageing problem, since other parts of the globe are still young. Would it not be logical, then, simply to import young labour into Europe, thereby increasing the tax base and solving the growing demographic dependency problem? Issue Brief 2 provides a preliminary quantitative investigation into the problem and concludes that the answer to this question is: Not really, or probably only in a non-xenophobic ideal world.

Issue Brief 2 tries to assess what migratory inflows would be required for EU countries to maintain a certain per capita GDP growth level (a proxy for the standard of living) over the coming decades. The reasoning is that if levels of GDP per capita can be maintained, then the social transfer systems are probably sustainable. If recent per capita growth levels are the declared target, then replacement migration – without any change in labour force participation for the original population – would cause EU's total population simply to explode. The reason is that each new young immigrant normally arrives with dependants, and all of the new inhabitants would need to be fed – that is, they would require the same per capita GDP as the native population (if not immediately, then after a short transition period), which would lead to a new labour gap after each wave of immigration that would have to be filled with ever-increasing numbers of immigrants. The model is "chasing its tail". The obvious conclusion is that a combination of more and longer work and modest income expectations would

probably contain the effects of ageing. This means that the classic policy instruments described above would still have to be implemented in full.

3.5.2   The challenge of internationalization

The growing economic integration during the last decades of the twentieth century coincided with rising wage inequality – notably in English-speaking countries – and increasing unemployment among the low-skilled, mainly on the European continent. This gave rise to theories that trade hurts the less-skilled workers in advanced economies (Wood, 1995). According to these theories, such workers suffer because their wages are not set in their own domestic markets but, in line with the neoclassical "factor price equalization theorem", in Manila, Bangkok or Beijing – to use Freeman's phrasing (1995). Others have argued that trade was not the main culprit. There were far too few low-skilled workers employed in the manufacturing industries to account for the observed rise in inequality; most low-skilled jobs were found within the sheltered service sector. Instead, technological change should be held responsible for the sluggish demand for low-skilled labour in the advanced economies (Sachs and Shatz, 1994).

The debate is not yet closed, and it probably makes sense to conclude that both arguments contain elements of truth. What matters for the purposes of this book, however, is less the impact of internationalization on wages than the extent to which it affects the capacity of national governments to set their own targets with respect to social protection. Critics of the welfare state have argued that increased international openness creates difficulties in raising sufficient revenues, and therefore requires a downsizing of the welfare state.

Three kinds of constraints that international economic integration imposes on national-scale social policies can be cited in support of this argument. The first of these is trade. We have already discovered that trade cannot be held responsible for the problems of low-skilled workers – or at least not as the prime suspect. The next question is to what extent trade could be a motive for welfare-state retrenchment. The channel would be through high labour costs leading to uncompetitive prices for tradable goods and services. First, there is ample evidence that net-of-tax wages are more likely to be affected than labour costs. Second, most trade is regional, not global (Ruigrok and van Tulder, 1995). When France trades a Renault for a German Volkswagen, neither country's welfare state will be affected. Third, public expenditure – on educa-tion and health care facilities, for instance – increases labour productivity; income transfers may enhance entrepreneurship, or the willingness to take risks. In this respect, public social expenditure improves – rather than weakens – the competitiveness of the country's tradable goods sector.

The second constraint is labour mobility. Here we can make a distinction between high-skilled and low-skilled labour. Highly skilled labour and tech-nological change are linked; they are complements rather than substitutes.

Hence, in a standard neoclassical (Heckscher-Ohlin) framework countries will specialize: high-skilled labour will move to the advanced industrial countries, and low-skilled labour will disappear there. However, the facts do not support this theory. What we observe instead is a gradual diffusion of technology. In the initial stage after the Second World War, Japan was a capital-intensive low-wage country, but from the 1960s onwards it rapidly closed the gap with the United States and European economies, and increasingly specialized in high-tech products. With a time lag of about one and a half decades, the same process took place in the "economic tigers" such as the Republic of Korea, Taiwan and Singapore. In the 1990s, countries like Thailand and Vietnam took the leap and presently China too is poised to make the transition. In fact, some coastal areas of mainland China (Guangdong and Fujian provinces, for example) are already developing rapidly into medium-tech strongholds, attracting large numbers of migrant workers from the rural hinterland. With the diffusion of technology comes an upgrading of skills, while low-skilled labour flows in the opposite direction, often seeking means of subsistence in the informal sectors of the economies of advanced industrial countries. There, these migrant workers largely remain outsiders with no entitlements to the generous provisions of the welfare state.

The third possible constraint is capital mobility. This is probably the most serious candidate, and the Asian crisis of the late 1990s has proved that capital markets can indeed have a strong impact on economies with institutional weaknesses. However, ineffective and inefficient (or corrupt) government administrations are the main culprits in this regard. Taxes and social protection schemes do not classify as an institutional weakness unless incentives to invest effort or savings are so greatly distorted that investments cease to be profitable. If social protection schemes are well designed, they may even be an asset in attracting venture capital from abroad.

There is some evidence that countries are currently engaged in tax competition, although the effects seem to be much smaller than might be expected. In the case of tax competition triggered by globalization, we would expect to observe declining capital tax rates and rising labour and consumption tax rates. In particular, tax rates on the most immobile production factor, low-skilled labour, should have risen. Table 3.10 shows average effective tax rates (AETRs)[27] in a number of OECD countries. The figures reveal no across-the-board decline in AETRs on capital income, but AETRs on labour income and consumption have risen considerably. A closer look at tax revenue and the tax base (see table 3.11) reveals that the substantial decline in the latter has been responsible for the rise in AETRs on labour income. AETRs were raised in order to compensate for the shrinking tax base.

The tables might be interpreted in such a way as to prompt the conclusion that domestic labour must absorb some of the pressures of internationalization. However, that would be a massive problem only if disposable income in the industrialized countries actually dropped dramatically as a result of new

Table 3.10 Average effective tax rates (as % of GDP), selected OECD countries, 1980–97

	Capital			Labour			Consumption		
	1980–85	1986–90	1991–97	1980–85	1986–90	1991–97	1980–85	1986–90	1991–97
United States	28.3	29.2	31.1	21.6	22.1	22.6	6.3	5.9	6.1
Germany	22.9	21.1	19.9	33.1	34.8	35.9	14.8	14.6	15.8
France	24.3	22.9	23.6	35.4	38.5	40.2	18.8	19.0	18.0
United Kingdom	46.4	47.1	38.4	24.3	22.3	21.0	16.0	16.4	16.9
Australia	26.1	28.0	28.0	21.4	23.7	22.6	14.0	13.5	11.9
Netherlands	22.5	23.4	24.7	41.1	42.0	41.0	16.1	18.3	18.7
Norway	27.1	22.8	20.2	33.8	34.7	35.5	27.6	27.4	26.9
Sweden	25.5	35.3	30.5	46.8	51.0	48.5	17.7	20.4	18.7
Switzerland	22.4	25.9	25.1	27.2	28.1	30.2	8.5	8.9	8.4
OECD	25.1	26.7	26.6	30.0	32.2	33.4	16.1	17.2	17.1
EU	24.2	25.1	25.1	33.0	35.3	36.8	16.6	18.6	18.7

Source: Carey and Tchilinguirian (2000).

Table 3.11 Average annual changes in AETRs (as % of GDP), selected OECD countries

	Tax revenue			Tax base		
	Capital	Labour	Consumption	Capital	Labour	Consumption
United States	0.0	0.0	0.0	0.2	−0.2	0.1
Germany	0.0	0.0	0.0	0.3	−0.3	0.0
France	0.2	0.1	0.0	0.5	−0.4	0.1
United Kingdom	0.0	−0.2	0.1	0.1	−0.2	0.1
Australia	0.1	0.1	0.0	0.1	−0.3	0.1
Netherlands	0.1	−0.3	0.1	0.4	−0.5	−0.4
Norway	0.0	−0.1	0.1	0.1	−0.3	0.1
Sweden	0.2	0.0	0.0	0.3	−0.4	−0.1
Switzerland	0.0	0.3	0.0	−0.2	0.2	0.0
OECD average	0.1	0.1	0.1	0.2	−0.4	0.0

Source: Carey and Tchilinguirian (2000).

financial pressures on the social transfer systems. This has not happened yet, and there is no evidence that it might happen soon.

The theoretical arguments for cuts in social provisions are basically not different from those we reviewed in section 3.2.1, and the counter-arguments come down to those we listed in section 3.2.2. International competition merely puts additional pressure on the alleged institutional rigidities in extensive welfare states. But it also increases the need for sound social policies. Therefore, at this point it makes sense to take a look at the empirical data. One way to do this is to compare the economic performances of comprehensive welfare states with more liberal market-oriented economies so as to find out which group performs better.[28] We concluded in section 3.3.6 that this exercise provides no clear answers.

We can also acknowledge that different countries pursue different paths and that different kinds of policies can be successful as long as they are implemented with a view to the long-term impact. Recently, for example, the ILO studied the economic performances of four small European countries (Austria, Denmark, Ireland and the Netherlands), all of which are highly exposed to international trade (Auer, 2000). The findings were that the combination of sound macroeconomic policies, innovative labour market reforms, and the re-establishment of a social dialogue (corporatist governance) contributed to the remarkable economic track records of these countries in the 1990s. The Maastricht process[29] resulted in the redressing of budget deficits, and this enhances the scope for fiscal fine-tuning.

The ILO points to the correct timing of macroeconomic consolidation as one crucial element in preventing cyclical unemployment from becoming

persistent.[30] Activating labour market policies, such as tax cuts for low-wage employment and improvements in the operation of (public) employment services, have also contributed. Corporatist governance – combining in a social dialogue the divergent interests of specific groups with the interests of the economy as a whole – has been conducive to sustained wage moderation and the recovery from high unemployment. A particular lesson drawn by the ILO from the country studies is that economic openness pays off. Globalization seems to have no longer-term adverse effects on the labour markets of these countries (ibid., p. 96).

Elmeskov et al. (1998) have studied a larger set of countries, and find that those that managed to reduce structural unemployment in the 1990s (Australia, Denmark, Ireland, Netherlands, New Zealand and the United Kingdom) had implemented broad policy packages that included reductions of the tax wedge, reform of social security schemes, and reductions in employment-protection legislation. The authors emphasize that one of the keys to their success and public acceptance was the inclusion of measures to compensate those who were negatively affected by the reforms.

This chapter has focused on the welfare state debate in the advanced industrialized economies (roughly the OECD area). The issues at stake here, however, are relevant for transition and developing economies as well. Their integration in the global economic system can be facilitated when economic and labour market policies are firmly grounded in the awareness that the losers will need to be compensated. Workers who are set to lose their jobs in the process of labour market liberalization, or those who find that their pension savings were never real savings but rather part of the companies' now obsolete stocks, will not be rushing to welcome the new free-market standard. They are more likely to mobilize their unions or man the barricades themselves in order to force their politicians to slow down the process of economic restructuring.

The good thing for the countries lagging behind is that they can learn from the (often expensive) mistakes that more advanced countries have made during the same process. Their economists and financial analysts should take these lessons on board so as to be able to advise their politicians to make the right choices.

3.5.3   Summing up

Our model simulations in Chapter 2 and Issue Briefs 1 and 2 show that there is very little reason to suppose that even under fairly conservative growth assumptions social expenditure in OECD countries is likely to explode – although it may increase somewhat over the next two to three decades, provided that the present level of employment can be maintained and that resources can be shifted between different categories of social expenditure, for instance from less-needed family benefits and education expenditure to old-age benefits.[31]

Relatively small changes in the benefit structure would even make it possible to keep expenditure and hence redistribution at present levels.

There is no reason to believe that social protection systems cannot be maintained as long as the overwhelming majority of all societal subgroups accept that level of redistribution and the consequential reduction of personal incomes and profits from contributions and taxes, and do not resort to various forms of tax evasion.

Assume a European society that finances its social protection system by redistributing 30 per cent of its GDP. Let us assume further that a neighbouring country, possibly in Eastern Europe, has overall labour cost and profit levels that are 30 per cent lower, with the result that its total GDP is also around 30 per cent lower. There is no reason why that society could not redistribute about 30 per cent of the lower level of GDP through the social protection system – or, in other words, share the cake in the same way as its richer neighbour.

No generic rule determines the limits of solidarity (which historical experience shows to be changing over time) in any given society and in particular between generations. These limits can only be tested politically, and they reflect basic societal concepts and values rather than economic parameters. What we observe in Europe is that these limits seem to be shifting. Financing burdens appear to be becoming increasingly "unacceptable".[32] The reasons are manifold and touch on such fundamental concepts as changing social values, which are beyond the scope of this book. It is a fact, however, that in every society there are limits to solidarity and, accordingly, to the level of redistribution deemed acceptable – or, in more concrete terms, limits to public acceptance of tax and contribution rates. Non-acceptance of financing burdens is often camouflaged as economic criticism citing the abovementioned macro- and microeconomic effects of social protection and citing unemployment as the major single negative effect, and may be accompanied by threats of economic migration.

Some of the public criticism levelled at the welfare state may be defused if the system is making credible efforts to achieve cost efficiency by using either private entities or market mechanisms within public entities. However, the actual political balancing of the public-private mix is much more complex than strict microeconomic reasoning might suggest.

3.6   SUMMARY

On the whole, the debate on the economic effects of the welfare state and its different forms remains inconclusive. Poverty and equality indicators are better in the extensive welfare states, whereas the residual welfare states seem to achieve slightly more reliable labour market outcomes – even though exceptions can be cited. We have discussed arguments for and against, and they themselves appear to be open to some dispute.

We have spent some time showing that the labour market is a crucial transmission belt in the interaction between transfer elements and non-transfer elements of comprehensive welfare states. We noticed that less comprehensive welfare states face trade-offs similar to those confronted by the more comprehensive welfare states. In their solutions, the less comprehensive welfare states in English-speaking countries appear to put more emphasis on the take-up of employment. The incentive for less-educated workers to work in low-paid jobs is enhanced, owing to work-conditional benefits. The downside of that approach, however, is that upward mobility is impeded, for reasons related to the high median effective tax rates (METRs) in the phase-out range of in-work benefit schemes. This is one major factor in the explanation of the unfavourable poverty record (in terms of both incidence and persistence) of these liberal welfare states. The more comprehensive continental European welfare states tend to pursue an approach where employment and benefit dependency are mutually exclusive. Incentives to take up low-paid work are not strong, but, once employed, workers face no great barriers to moving up the earnings ladder. Income transfer schemes are effective in their target of reducing poverty. The situation is not static, however. In the 1990s some countries managed to incorporate elements of all welfare models in their policies, with successful results.

Overall, we decided that it all comes down to the fine print in the design of the welfare state; it is not the welfare state's size but its internal structure that is important. The incentive structure in some benefit systems has the potential to cause adverse economic effects. If the pension system in an ageing population, where labour supply is shrinking, continues to provide incentives for early retirement, the result will clearly be waste unless the reduction in production capacity can be fully offset by capital.

At this point we should go back to the reasoning outlined in Chapter 1, where we concluded that all societies require a certain overall level of transfers between active and inactive people. How much of that is formalized will depend not only on administrative capacities but also on the society's goals concerning equity and such values as solidarity. These goals may change in line with economic development, but they are not established primarily by economics. We need to understand how the transfer system in itself creates positive or negative economic effects that bear on the achievement of these social targets. The role of social protection analysts, planners and financial managers should be to keep potential productive inefficiencies in check.

There is no point in clinging to ideologies and remaining entrenched in either public or private social protection schemes. Where there is scope for market provision of welfare-state services and where there are good arguments (not just the commonsense ones) for assuming that the market itself or market-like mechanisms in a public sector may deliver the goods more effectively and efficiently, why not take advantage of that? However, it is a misconception that more market means fewer rules. For markets to perform well, governments need to make their targets clear and explicit. Public goals can be achieved with

private means, but this requires governments to be aware of possible shortcomings and to maintain the capacity to step in and enforce public policy whenever necessary. The ultimate test as to whether public or private provision is superior should simply be whether the systems achieve their delivery targets or not, and whether they do it as inexpensively as possible.

Facing the ultimate question as to whether the welfare state will remain affordable in the future, we argued that there is scope for an extensive welfare state. Globalization, changing social patterns and ageing populations put pressure on comprehensive welfare states – pressure to modernize outdated arrangements.[33] However, modernizing is not necessarily the same as retrenching. There are no convincing arguments for cutting down on social expenditure as long as the schemes are well designed – and taxpayers accept the burden. Willingness to pay depends crucially on whether the transfers are perceived to be reasonably free of waste, since no-one is willing to finance someone else's leisure if it increases his or her own tax burden. We cannot afford "rent-seeking" behaviour and waste, but we can afford a welfare state that provides decent benefits.

A checklist of questions for financial and social policy analysts

If the economic tolerance of a new or old social protection scheme and its financing system is to be tested, then a list of research-leading questions might look like this:

1. What is the overall target of the measure: reducing poverty, reducing inequity, reducing government spending?

2. What is the specific social need that the new/old measure is addressing? Are there more pressing needs at this time? In other words, is this measure making the best use of scarce resources?

3. Can similar outcomes be achieved by other economic means (for example, alternative labour market policies)? In other words, what would be the economic opportunity cost if the measure were not introduced?

4. What behavioural incentive would this measure create for employers, workers and other players in the economy? How would the incentive structure affect the cost of the measure? Would that incentive affect overall economic performance?

5. Would the country's competitive position in the global marketplace (or relative to its main trading partners) change, and would that change occur in the short or the long run?

6. Which would be more effective and efficient in delivering the benefit, the public sector or the private sector? Which incentives are employed to achieve efficiency? Can we estimate the cost of the alternative delivery methods?

Further reading

To find out more about:

- the mechanics of the interrelations between the economy and social protection, see:
  – Scholz et al. (2000), Annex I, Issue Brief: "Interdependencies between macroeconomic developments and social protection"
- the economic effects of pension systems, turn to:
  – Gillion et al. (2000), Chapter 13: "Economic effects"
- the economics of health care, see:
  – Cichon et al. (1999), Issue Brief 1: "Concepts of health economics".

Notes

[1] That governments have such ambitions is clear from both historical economic literature and the works of the major economic scholars of the past two centuries, from Adam Smith to John Maynard Keynes and beyond. Political economics in the tradition of Smith and Ricardo was all about how the economy operated and the tools the State could apply to redirect its course. The final decades of the twentieth century showed how industries could be fostered and shielded by governments until they were mature enough to face international competition, and how governments could help maintain the right domestic conditions (labelled "selective comparative disadvantages" by Porter in 1990) to enable those industries to outperform their competitors.

[2] See, for example, the table on page 148 of Gillion et al. (2000).

[3] Ibid.

[4] Lindbeck (1994, 1997a) describes this process of overshooting in politics and provides common examples of moral hazard in Sweden.

[5] The term "reservation wage" describes that wage at which a benefit recipient is ready to give up his or her benefit and return to work.

[6] See, for example, Katz and Meyer (1990) for the United States, and Carling et al. (1996) for Sweden.

[7] Note that this, in itself, poses no problems as long as the scheme is in actuarial balance; to the extent that this is not the case, labour supply decisions will be affected, not investment decisions.

[8] This is a standard text book explanation, derived from Atkinson and Stiglitz (1980), pp. 367–368.

[9] Auer (2000, p. 94) observes, for example, that " . . . in the labour markets of Denmark and Austria, weak dismissal protection. . . seems to go together with relatively strong income protection at the societal level. . ."

[10] Lindbeck and Snower (2001) provide a survey.

[11] Akerlof's (1970) "market for lemons".

[12] The concept of a trade-off between equity (equality) and efficiency was introduced by Arthur M. Okun in 1975 in his essay "Equality and Efficiency: The Big Tradeoff".

[13] This section draws on earlier work, in particular Doudeijns et al. (1999) and van de Meerendonk (1998, 2000).

[14] This ratio is the ratio of the average earnings in the ninth earnings decile and the average earnings in the fifth earnings decile.

[15] The methodology is explained in OECD (1996c), pp. 78–79.

[16] Most countries have special allowances for families with children. Our results do not necessarily apply to other household types.

[17] The left-hand panel of Panel B in fact shows the net replacement ratios for working families of the type assumed here.

[18] Formally, NRI is defined as the ratio of the total increase in the net household income and the total increase in gross earnings. In this case, the total increase in earnings equals the total gross earnings that the non-active partner would receive if he or she was working.

$$\text{NRI} = 100\% \times (\text{NI}_1 - \text{NI}_0)/\text{GE}$$

where:

NI_0 = net household income in the starting or reference situation
NI_1 = net income that the household would have if the non-active partner were to work
GE = total gross earnings that the non-active partner would receive if he or she were to work.

[19] Antolin and Scarpetta (1998), p. 16.

[20] See also OECD (1999b), p. 63 and Council of Economic Advisers (1999), p. 143.

[21] Rust and Phelan (1997); Council of Economic Advisers (1999), p. 149.

[22] In 1997 the cost of this programme amounted to almost $30.5 billion, of which $6.1 billion was in the form of a tax credit, regarded as a tax break here. The remainder, $24.4 billion, is a tax credit that exceeds the tax liabilities of the recipients and is therefore treated as (untaxed) social expenditure (Adema, 2001).

[23] Council of Economic Advisers (1999), p. 153.

[24] Atkinson (1995a, 1995b, 1997).

[25] In the case of procurement contracts a similar trade-off occurs between rent extraction and incentives (Laffont and Tirole, 1993).

[26] Laffont and Tirole (1993) provide an extensive theoretical elaboration.

[27] AETRs were calculated by taking the tax revenue of a specific income item, such as capital income, and dividing this by the tax base with respect to that particular income item.

[28] See, for example, SZW (1996, 2000); van de Meerendonk (1998).

[29] The EMU ("Maastricht") entrance criteria have served as a benchmark for fiscal policies not only in the EMU area, but in various countries all over the world.

[30] See also Franzmeyer et al. (1996), who in particular blame the German Central Bank for its overly rigid stance or – what amounts to the same thing – its excessively narrow focus on the inflation target throughout the 1990s.

[31] See Cichon 1997a, 1997b.

[32] From the 1980s to the mid-1990s there was a substantial increase in wage inequality in Europe and the United States, partly as a result of rising low-wage employment. These developments resulted in a widening of the income distribution (see ILO, 1996).

[33] For a more extensive analysis, see ILO (2000a).

THE PUBLIC FINANCE NEXUS AND RESOURCE MOBILIZATION STRATEGIES[1]

4

Public outlays on social protection schemes can amount to more than one-third of GDP, depending on the country's state of development, the age composition of its population, and other characteristics of its employment and social structure. Financing transfers of this magnitude inevitably affects the system of public finance: either directly, when governments pay benefits and finance them from general revenues or through contributions, or indirectly, when private institutions pay benefits and finance them through contributions that are part of the overall tax and contribution burden of citizens.

This chapter sets out to explore the manifold direct and indirect links between social protection financing and public budgets of which financial analysts have to be aware. Even in countries where they are organized through independent parastatal organizations or where parts of their delivery and financing are contracted out to the private sector, social protection transfers affect overall fiscal policy. Ultimately, they are all financed from the same resource base: the income of households and the profits of enterprises. The share available for social protection financing is definitely finite and is limited to a certain share of the overall resource base. This nexus is the background against which we will be exploring the possibilities of developing national strategies aimed at mobilizing resources for the social protection sector.

4.1 SOCIAL PROTECTION IN NATIONAL AND GOVERNMENT ACCOUNTS

In the United Nations System of National Accounts (SNA), the most frequently used account structure,[2] public social benefits – whether financed directly by government or by autonomous public bodies – are regarded as government expenditure and appear in the general government accounts. These include all income and expenditure of the government sector; they thus cover income and

expenditure of central, state or province (if applicable) and local governments as well as some parastatal autonomous organizations such as social security institutions.

All or a subset of these accounts can be combined into one consolidated account. International Monetary Fund (IMF) financial statistics, for example, provide consolidated accounts for central governments that combine the latter's budgetary sphere with nationally operating social security schemes.[3] Consolidation does not simply mean adding up all income and expenditure components of the various accounts for the different benefit levels since the accounting levels (or levels of government) are often connected by a complex system of transfers. State governments might receive transfers from central government while at the same time subsidizing local governments. Social security institutions might receive government transfers or they might transfer excess contributions to the central government account. The different transfers between government levels cancel each other out when a summary account is established for the overall government sector.

The balancing item of the consolidated (central) government account or general government account (which is technically called "net borrowing or net lending", or "cash balance", or also "public sector borrowing requirement", in the terminology used in the United Kingdom), indicates whether the general government sector is in surplus or in deficit. The component accounts within different government levels, including the social security account, help to trace the source of a deficit or a surplus. This means implicitly that current deficits in social security institutions are part of national deficit.

A surplus or deficit measures the difference between current income and expenditure. In the case of short-term cash benefits (e.g. maternity and sickness benefits) this approach might provide a full picture of the financial status of a social security programme. The income and expenditure of short-term benefit schemes are normally expected to balance within a year. Social security pension schemes whose accounts are in balance do not contribute to national deficits in terms of the consolidated general government account. However, balanced annual accounts do not necessarily signal a sound financial status for the pension scheme, which might still be underfunded in the long run. Thus, by implication, current national accounts also fail to provide a full picture of the government's financial obligations in respect of pension scheme financing. The focus on annual balances is a major deficiency of current national accounts for assessing government obligations for all social security benefits that may accrue substantial reserves or potential future debt – primarily social security pensions or public service pension schemes.

This standard international accounting practice indicates that in the logic of the SNA and IMF International Financial Statistics, social security benefits provided through public institutions or lower-level government agencies are regarded as government expenditure in the same way as benefits organized and financed directly by central government. In effect, from an accounting

perspective the provision of benefits through autonomous social security schemes is considered as being merely a different form of government organization or provision. The IMF and United Nations accounting methods subsume social security contributions under tax revenues.

However, current national accounting usually does not cover the full national expenditure on protection, both public and private, or the financing thereof. Incomplete accounting of liabilities and benefits is the second major shortcoming of standard national accounts with respect to pension and social security accounting. The provision of benefits by private entities such as employers, private occupational pension schemes and life insurance companies is not captured in government accounts. Most importantly, this also concerns pension or health care provisions mandated by law but administered, as in Switzerland, by private insurance companies. This effect not only distorts international comparisons of national social expenditure based solely on government accounts but might also lead to an underestimation of total long-term potential government liabilities for the financing of social benefits. Some of these liabilities are implicit and contingent, such as government guarantees for private pension schemes, which only lead to concrete expenditure when private schemes fail. These are difficult to account for under any accounting system. Others are implicit and hidden, such as tax subsidies for private pension and health care schemes, which represent income forgone by the government (tax expenditures) but should in fact be counted as an implicit part of overall government pension or social security expenditure.

This does not mean that the revenue and outlay of non-public pension schemes are unaccounted for in standard national accounts: individuals' contributions to funded private schemes, and the benefits they receive, are to be found in the accounts of household income and expenditure, while employers' contributions are to be found in the production and savings accounts of the private sector. What it does do is to underline the dangers of comparing the size of the welfare state solely on the basis of government accounts, especially between countries that may have very different proportions of social security benefits derived from public and private sources.

In principle, the accounts for all identifiable social protection expenditures and revenues can only be captured in national social expenditure accounts (social expenditure budgets) used in countries of the European Union.[4] They are essential tools for the overall management of the social sector at a macro-economic level. *Social budgets* compile expenditure for all national social transfers, including the expenditure for benefits financed and administered by private entities but mandated or promoted by law or agreed upon in collective agreements between employers and workers. In addition to pensions and other long-term benefits, these include health care and short-term cash benefits, as well as goods and services in kind. The accounts relate them to the totality of all sources of financing, which include mandatory social security and private insurance contributions, voluntary contributions, out-of-pocket

contributions, employer liabilities and imputed contributions and financing through taxes.

Only when such a comprehensive social accounting is established and projected under realistic economic and demographic assumptions can the long-term sustainability of the overall national social protection system (NSPS) be evaluated. Moreover, only then can one assess to what extent the government budget will be affected by the financing of social transfers.[5,6] Some countries also include the estimated tax revenues forgone through tax allowances: in Germany, for example, indirect fiscal benefits accounted for 7.6 per cent of total social expenditure in 1993.[7] The methodology is fully explained in Scholz et al. (2000).

In many countries (e.g. Turkey) the government covers or has for a long time covered the deficit of social security institutions. This budget link is more or less automatic. However, it is not the only way of associating government budgets and social security budgets, as we will see in the following sections.

4.2 FINANCIAL LINKS BETWEEN SOCIAL PROTECTION SCHEMES AND GOVERNMENT ACCOUNTS

There are a number of ways in which social security accounts and government accounts are explicitly or implicitly linked, and in which social protection financing affects the government's short- and long-term financial positions.

There are essentially three ways of organizing the delivery of social protection benefits:

- government delivery, where benefits are provided through government agencies or departments;
- public institutional delivery, where benefits are provided by autonomous public institutions; and
- private delivery, where benefits are provided by private entities (private insurance schemes, occupational pension schemes, and employers).

There are also three sources of financing for social protection schemes:

- taxes, where benefits are financed or co-financed simply by allocations from general revenues or earmarked taxes;
- social security contributions, where benefits are paid by mandatory contributions collected from employers and workers (this includes mandatory contributions to private pension, health care or accident schemes that are charged as a percentage of insurable earnings); and
- private sources, such as private insurance contributions or imputed contributions attributed to an employer, or to employees, who finance pensions directly out of the current income of a company or through forgone wages paid on the basis of collective agreements or legal obligations (entirely voluntary individual financing is excluded here).

Table 4.1 lists some of the main instances of the possible combinations of benefit provisions and sources of financing.

Apart from government delivery-tax financing for social assistance, the income of most schemes comes from a mix of different sources. General tax revenues are often a major source of income, even in systems that are not predominantly tax financed. In many cases, government resources flow in the form of open or hidden subsidies to national social insurance schemes, and there are even instances where they flow to the accounts of private insurance companies, for example when governments contribute to privately managed pension or health care schemes on behalf of their own employees, or when they grant tax concessions to employers or workers contributing to a private pension scheme.

At the same time, not all of the current income of social insurance schemes, notably pension schemes, may be used to finance concurrent pensions. Resources flow from pension schemes to the private sector or government accounts when social insurance or private insurance reserves are lent to governments or private companies.

As a result there are many explicit or implicit, conditional or unconditional, recurrent or occasional transfers of financial resources between government accounts and social protection schemes, even if the latter are officially independent.

4.2.1 Financial flows from social security schemes to government accounts

The debate about public deficits and high overall public spending on social protection may hide the fact that some government budgets have benefited from the existence of national pension schemes. Young pension schemes normally produce large surpluses in their early years since that is a period when often substantial contributions are collected but few, if any, pensions are paid. In schemes with direct government provision and earmarked financing for pensions (e.g. through payroll taxes), these surpluses might simply be absorbed into the general government budget. Social security pension schemes in many Central and Eastern European countries, for example, for many years transferred surpluses into the general government account. The volume of money collected through the high social security contributions levied on the wage funds of enterprises bore no relation to present or expected future benefit expenditures. Social security contributions were thus simply another form of tax.

Also, young pension schemes operating under the social insurance model of public provision accumulate substantial reserves. These reserves must be invested. Many schemes invest in government bonds, either out of choice or because they are forced to do so (by law or through the lack of functioning

Table 4.1 Combinations of types of social protection benefit delivery and financing in selected national social protection arrangements

	Government delivery	Public institutional delivery	Private delivery
Tax financing	**(1) Social assistance schemes:** almost everywhere **(2) Health care schemes:** national health services schemes (United Kingdom, some former British colonies), public service schemes (Scandinavia); National health insurance schemes (e.g. Canada); **(3) Pension schemes:** e.g. Denmark (first tier), Australia, South Africa (social assistance scheme)	**(1) Social assistance schemes** **(2) Health care schemes** **(3) Pension schemes:** e.g. Sweden (basic pension guarantees)	**(1) Social assistance schemes** **(2) Health care schemes** **(3) Pension schemes:** second-tier pension schemes for public servants, e.g. United States
Contribution financing	**(1) Social assistance schemes** **(2) Health care schemes**	**(1) Social assistance schemes** **(2) Health care schemes:** all social insurance schemes in Latin America (e.g. Mexico), Europe (Austria, Germany, France), Asia (Thailand) and schemes operated by social insurance in French-speaking Africa	**(1) Social assistance schemes** **(2) Health care schemes:** mandated private insurance in Switzerland

Table 4.1 (cont'd)

	Government delivery	Public institutional delivery	Private delivery
	(3) Pension schemes (e.g. United States, Cyprus, Canada, Ireland)	**(3) Pension schemes:** all social insurance schemes in Latin America (e.g. Mexico), Europe (Austria, Germany, France), Asia (China) and schemes operated by social insurance in French-speaking Africa and some English-speaking countries (e.g. Ghana), also Sweden (basic pension guarantees)	**(3) Pension schemes:** Switzerland; Australia (mandated second tiers), Chile (mandated savings schemes)
Financing form private sources	**(1) Social assistance schemes** **(2) Health care schemes** **(3) Pension schemes:** some optional second-tier pension schemes for government employees	**(1) Social assistance schemes** **(2) Health care schemes** (optional benefits in some social insurance schemes) **(3) Pension schemes** (optional benefits in some social insurance schemes?)	**(1) Social assistance schemes** **(2) Health care schemes:** private insurance in United States and some Caribbean countries **(3) Pension schemes:** e.g. Germany, France (second-tier schemes)

Source: United States Social Security Administration.

financial markets). In many countries these investments have been devalued by high inflation rates or have earned lower than market interest rates.[8] In other cases governments have simply forced the scheme to write off government debt. In all these instances social security pension schemes subsidized government budgets by accepting a low interest rate, write-offs or no or negative real interest rates. In such cases social security contributions are simply another form of tax helping to finance current government expenditure. These types of implicit transfers from a social security scheme to the government budget are often not directly visible in government accounts.[9]

Box 4.1 describes the relationship between the government budget and the Social Insurance Fund in Cyprus during the 1990s, when the cash flow from the scheme to the government turned negative.

Box 4.1   Links between government budget and the Cyprus Social Insurance Fund

The information given here draws on the findings and observations of a recent ILO actuarial valuation of the country's social insurance scheme (ILO, 2000d).

Box table 4.1.1 describes the development of the net cash flow between the government budget and the finances of the Cyprus Social Insurance Fund which provides pensions, short-term cash benefits and unemployment benefits. The net cash flow results from the following links between the budget of the Fund and the government: the scheme invests its reserve almost exclusively in government bonds; this represents a positive cash flow for the government, giving it access to capital funds; on the other hand, negative cash flows result from the fact that the government must contribute to the scheme by way of its general subsidy, which amounts to about 4 per cent of total insurable earnings, and by way of its contribution as an employer; it also has to pay interest on money borrowed from the scheme.

The net cash flow became negative in 1989 and went on increasing each year, as can be seen in box table 4.1.1. What the table shows is that in practice the government simply pays the difference between the scheme's total expenditure and the contribution income from the private sector. That cash-flow relationship cannot be identified when reading the law. The law simply regulates the government's financing responsibilities vis-à-vis the Fund, namely paying a general subsidy and paying contributions as an employer. The financial regulations require the scheme to invest in government bonds and the government to pay a certain interest rate, which has a fixed relationship to the Lombard rate.

Without further increases in the present combined contribution rate of 16.6 per cent (including government contribution) for the basic and supplementary tiers of the system, the government subsidy will

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Box 4.1 (cont'd)

**Box table 4.1.1   Net cash transfers between the government budget
                    and the Cyprus Social Insurance Fund, 1988–97
                    (in thousands of Cyprus pounds)**

Year	Positive cash flow	Negative cash flows			Net cash flow to the government[2]
	New loans granted to the government by the scheme[1]	General government subsidy	Contribution of the government as an employer	Interest payments on borrowed money	
1988	64 969	26 417	16 174	21 889	489
1989	72 488	29 005	17 406	26 390	−313
1990	82 628	32 548	19 295	31 273	−488
1991	86 324	34 950	20 891	36 651	−6 168
1992	104 747	39 453	22 001	42 912	381
1993	123 247	49 634	26 163	52 337	−4 887
1994	141 643	56 204	31 918	61 239	−7 718
1995	146 213	59 108	30 683	70 736	−14 314
1996	155 067	63 826	34 340	80 934	−24 033
1997	160 816	67 393	38 970	91 899	−37 446

[1] Equal to total income of the scheme minus scheme's expenditure.
[2] Equal to income from private sector contributors minus scheme's expenditure.
Source: ILO (2000d).

continue to grow. In the case of Cyprus – and in contrast to many other countries – this does not come as a surprise to the government as it commissions regular actuarial reviews and is fully aware of cash-flow projections for the coming decades. When the scheme was conceived in its present form in the early 1980s, the government made a conscious decision to borrow from the scheme while the country was entering a crucial phase of its economic development. It was aware that at some point the scheme's investments in government bonds had to be paid back. The options open to the government – currently discussed in the tripartite advisory board – are either to increase the contribution rate and buy some more time before the start of the payback period, or simply to continue increasing net payments to the Fund.

4.2.2   Flows and links between government accounts and social protection schemes

Direct government involvement in financing social protection is not limited to full financing of benefits as found in the basic pension system of the Netherlands or the National Health Service (NHS) in the United Kingdom, for example. Governments may also subsidize social security pension schemes

through a general subsidy (which is the case in Cyprus, as we have seen). In other countries government subsidies transfer specific amounts or percentages of total benefit expenditure to compensate the scheme for specific tasks considered to be those of general government: in Germany, for example, the Ministry of Finance transfers a fixed percentage of benefit expenditure to social insurance pension schemes. Governments also often contribute to social security pension schemes or to private pension schemes, as is the case in Switzerland, through employer contributions for their own employees.[10]

Public financing of transition costs – which fall due when a country is changing its social security pension scheme from a pay-as-you-go (PAYG) or partially funded defined-benefit (DB) scheme to a funded defined-contribution (DC) scheme – is another form of an explicit government financing of a national pension scheme. The government could finance these additional obligations through immediate tax increases, by using the proceeds from privatization, borrowing on the capital market, or even borrowing from the new pension scheme which is accumulating substantial reserves in its early years; or it could issue recognition bonds, which are bonds that honour the pension rights of beneficiaries from the old pension scheme. Recognition bonds thus transform a government debt (which is equivalent to the current value of all pension rights of all present pensioners, as well as the acquired rights of all contributors at the time of the reform) into a series of annual transfers from the budget into the new pension scheme.

The use of borrowing, or of recognition bonds, spreads the financing of the transition over several decades, or even over a number of generations of insured persons. In this context it should be noted that the issuance of recognition bonds, or the promise to finance a defined transitional cost, transforms a conditional government liability into an unconditional one. Pension promises that are underwritten by governments, or even directly financed by them, are generally conditional as the related or contingent government liabilities are, in practice, often adjusted to fiscal and financial constraints. Bonds, or other forms of financing and defined debt, are unconditional liabilities. Such switches might be good policies for a variety of non-fiscal reasons, but they greatly reduce the governments' flexibility in dealing with future financial situations. The limitation of future financial flexibility becomes even more severe when governments issue inflation-indexed bonds in order to enable the private insurance industry to issue price-indexed annuities.

Table 4.2 shows the degree of general revenue financing within the overall national public social protection scheme[11] in selected countries. The countries have been selected according to their system of providing and financing basic pension benefits, ranging from schemes which come under the system of government provision (Australia, Netherlands, United Kingdom) and those dominated by social security provision through autonomous public institutions (Austria, Bulgaria, Egypt) to schemes dominated by the private provision model (Chile). They all have some form of mixed financing system. Even in the

Table 4.2 Simplified central government accounts (as % of GDP), selected countries, mid-1990s

	Austria	Australia	Bulgaria	Chile	Egypt	Netherlands	United Kingdom
	1994	1995	1995	1995	1993	1995	1995
Expenditure							
– Social assistance and social security	18.8	9.2	10.5	6.4	3.0	18.8	13.0
– Health	5.5	3.7	1.4	2.3	0.7	7.4	5.8
– Other	16.2	14.5	29.6	10.5	23.7	24.6	23.0
Total	40.5	27.4	41.6	19.2	27.4	50.9	41.8
Revenues							
– Taxes	18.8	22.2	20.3	16.5	14.2	23.8	27.3
– Social security contributions	14.1	0.0	7.7	1.3	2.6	19.2	6.2
– Pensions	0.0	0.0	0.0	0.0	0.0	0.0	0.0
– Other income	3.3	2.5	8.4	3.8	13.8	3.1	3.0
Total	36.2	24.6	36.4	21.5	30.6	46.1	36.5
Surplus/Deficit	−4.2	−2.8	−5.2	2.3	3.2	−4.7	−5.3
General revenue share of financing of the social sector in % of total social expenditure	41.98	100.0	35.36	85.05	28.86	26.92	66.83

Source: IMF data.

United Kingdom, which is often cited as the standard case for general revenue financing of social protection, social security contributions account for about one-third of total social security financing. In Chile, with its emphasis on private financing, in the late 1990s current benefits were overwhelmingly financed from general revenues. This is because the government collected contributions only from those who decided to remain in the old system. The contributions were not sufficient to cover the benefits awarded on the basis of the old law and those benefits were therefore financed from general revenues.

Box 4.2 shows how transition costs can affect government's long-term financial situation through the example of Chile, the first country to change from a DB social insurance pension scheme to a mandatory DC scheme in the early 1980s.

The details in table 4.2, based on IMF government account data, are limited to measuring explicit financial flows into the social sector, and hence into basic public pension schemes. Government accounts generally do not display indirect or implicit government liabilities for the financing of public and private pension schemes, which are discussed in the following section.

Box 4.2   Long-term government financial commitment to a privatized pension scheme: The case of Chile[1]

Chile's famous pension reform replaced the DB social insurance pension scheme in 1980 with a mandatory savings system. Contributors can join a pension fund (Administradoras de Fondos de Pensiones, or AFP) of their choice and pay 10 per cent of their insurable earnings into individual accounts. These savings are invested by the AFP and the balance of the individual accounts is converted into pensions either through the purchase of annuities from life insurance companies or through the so-called programmed withdrawal where the member deducts a certain amount calculated on the basis of the remaining balance and his/her life expectancy. Invalidity and survivor protection is purchased in addition, in the form of collective private insurance contracts.

The government continues to play a vital role in the system as a financier of transition costs and guarantor of a minimum old-age income.

Its role as financier of transition costs basically consists in covering the deficit of the old DB scheme that is being phased out but still pays pensions to people already in or near retirement when the new scheme was introduced. In addition, the government finances recognition bonds. These represent the current value of the pension entitlements earned under the old system. They are basically a paper value that is adjusted for inflation and earns a guaranteed real rate of return of 4 per cent annually. Payment on these bonds only falls due when the recipient retires.

As the guarantor of a minimum old-age income, the government has to protect a minimum rate of return on individual accounts (even though the greater part of that risk is covered by legally required contingency reserves of the AFPs) and acts as ultimate underwriter if private insurance companies that sold annuities or are paying invalidity pension become insolvent. The main part of the guarantee, however, consists in paying minimum pensions to people who after 20 years of contributions do not have enough savings to purchase an annuity at a minimum pension level. In addition, the government pays basic social assistance pensions to old non-qualifiers. Its total financial commitment to the national pension system is summarized in box table 4.2.1.

There is some uncertainty as to when the actual burden due to recognition bonds and the deficit under the old system will peak and begin to recede, but it must be assumed that for the next decade or two some transition cost will persist.

At the same time the AFPs are building up reserves; these passed the level of 50 per cent of GDP in 1998. The interest on savings of that magnitude would theoretically be high enough to finance most of the national pension deficit. In any case, the total pension debt accumulated since the reform exceeds the present level of AFP savings. The future fiscal cost of the system will depend primarily on the long-term cost of the minimum pension provisions and the social assistance pension

Box 4.2 (cont'd)

Box table 4.2.1   Chile: Social pension deficit (as % of GDP), 1981–2000

Year	Old pension scheme	Military pensions	Social assistance pensions	Recognition bonds	Minimum pensions	Total
1981	1.6	2.0	0.2	0.0	0.0	3.8
1982	3.9	2.1	0.3	0.1	0.0	6.4
1983	4.4	2.1	0.4	0.2	0.0	7.1
1984	4.7	2.2	0.5	0.2	0.0	7.6
1985	4.0	2.0	0.5	0.2	0.0	6.7
1986	4.0	1.9	0.5	0.3	0.0	6.7
1987	3.5	1.7	0.5	0.4	0.0	6.1
1988	3.2	1.5	0.4	0.4	0.0	5.4
1989	3.4	1.3	0.3	0.4	0.01	5.4
1990	3.2	1.3	0.4	0.5	0.01	5.4
1991	3.2	1.3	0.3	0.5	0.01	5.3
1992	3.1	1.2	0.3	0.5	0.01	5.1
1993	3.1	1.3	0.3	0.6	0.01	5.3
1994	3.0	1.2	0.3	0.7	0.01	5.2
1995	2.7	1.2	0.3	0.7	0.02	4.9
1996	3.0	1.2	0.3	0.7	0.02	5.2
1997	2.9	1.2	0.3	0.8	0.02	5.2
1998	3.1	1.2	0.3	0.9	0.03	5.5
1999	3.1	1.3	0.4	1.1	0.04	5.9
2000	3.1	1.3	0.4	1.1	0.05	6.0
Average 1981–2000	**3.3**	**1.5**	**0.4**	**0.5**	**0.0**	**5.7**

Source: Arenas de Mesa and Benavides Salazar (2003).

scheme. These costs in turn consist of explicit social guarantee cost but also implicit underwriting cost covering the potential failure of the private AFP schemes. If the latter fail to achieve high population coverage and high contribution density because of deficient enforcement of membership obligations, then the government's obligations will increase accordingly. One might well ask whether Chile could not afford to convert the contingent and uncertain liability for social assistance and minimum pensions into a predictable explicit liability by introducing a universal anti-poverty minimum first-tier pension scheme.

Note

[1] There is extensive documentation on the pension scheme and the effects of the reform. The information in the box was extracted from Arenas de Mesa and Benavides Salazar (2003) and Gillion et al. (2000).

4.2.3   Indirect subsidies and contingent liabilities

In addition to direct financial costs, governments may bear indirect costs or be liable for potential costs. When government agencies administer social protection benefits directly they often bear part of the administrative cost which might not be clearly attributed to the administration of pension benefits. If benefits are administered by the ministry of labour and social affairs (as in Cyprus), part of the ministry's administrative cost should normally also be financed through social insurance contributions. If this is not the case, the government supports the scheme through a further indirect transfer.

If delivery of benefits is contracted out to private entities (as in the case of Australian occupational pension schemes, AFP pension funds in Chile, or mandatory health insurance coverage in Switzerland, among others), the provision of benefits still creates costs for the government as it has to supervise and regulate these private bodies (for example through the superintendent of pension funds in Chile). Another form of indirect government co-financing of national social expenditure consists in granting tax concessions to individuals or employers who join private occupational protection schemes.

It is often overlooked that governments frequently subsidize private health care financing schemes. In most countries with an explicit public sector health care infrastructure, private insurance schemes use public facilities. The facilities concerned charge user charges, but these often do not reflect the full cost of the case.[12] In many developing countries user charges cannot even reflect the full cost because (i) cost accounting in hospitals and other public facilities is often rudimentary at best, and (ii) most of the people who do not belong to the fortunate minority that enjoys private or public insurance coverage would not be able to afford full-cost charges. Community-based schemes that are springing up in many developing countries can generally survive only because governments or local authorities sell services to them at subsidized prices. There are various other forms of indirect subsidization as, for example, when the medical consequences of work accidents, an original employer liability, are treated in government facilities.

Yet another form of government participation in the financing of benefits is becoming increasingly important, especially after reforms which mandated private entities to carry out some of the national pension provision. This is the government's role as financial guarantor, or ultimate underwriter, of social security and private pension schemes (see the case of Chile, box 4.2). This contingent liability through underwriting of social security or private benefit schemes can take several explicit and implicit forms. An explicit form occurs when the social insurance law stipulates that the government covers potential deficits of a social security scheme. Guarantee payments of this type exist in several European countries (e.g. Bulgaria). In other cases of direct guarantees, governments might guarantee minimum benefit levels by complementing social security or private pension benefits, which provide a minimum benefit level to

each beneficiary who meets certain conditions (as is the case of the pension scheme in Chile). These benefit guarantees are sometimes called conjectural liabilities (see Heller, 1998). They are affected by systemic declines in the price of assets of private savings schemes, or liabilities associated with drops in asset prices triggered by market turmoil.

An implicit guarantee is given if, as a result of public pressure, the government simply must bail out non-performing private or social security schemes: Bag-Kur, the public system for the self-employed in Turkey, is one such example. A form of indirect bailing out of failing public and private schemes is the increased payment of social assistance benefits or public subsidies if private systems are not in a financial position to pay benefits in full, or when benefits are provided at a low level. Guaranteeing an adequate minimum consumption and hence income of pensioners is unavoidable for most governments. Pensioners in ageing societies make up an increasing proportion of voters. Most elected governments need a good proportion of their votes and thus will not be able to "walk away" from the ultimate responsibility to safeguard their income either explicitly or implicitly.

Through financial guarantees governments provide *de facto* reinsurance for public and private social transfer systems. Thus, even without directly financing pension benefits governments underwrite multiple risks, including:

- unforeseen negative developments in system demographics and economics;
- insufficient returns on investments (lower-than-expected interest rates and falling asset prices);
- bad management; and
- failing political support for the existing systems leading to changes in the regime.

These risks may be difficult to predict. However, they embody substantial financial commitments by the government. If the latter were a private sector financial management company, these commitments would have to be accounted for by recurrent reinsurance premium payments. It can be concluded that the direct amount of social expenditure in government budgets to be financed from general revenues is higher under government direct delivery than under the other models. However, under the indirect delivery models, governments may face substantial hidden fiscal risks. Indirect delivery of benefits also means that the government's ability to manage the financial development of the main national pension benefit may be more limited than under the direct delivery pattern. Under the private delivery model the government share in the financing of benefits could in theory be reduced to zero, but the implicit – and to a certain extent unpredictable – liabilities, some of which stem from capital market risk that is largely outside government managerial control, are bigger than under the public institutional delivery of pensions.

Standard government accounts and other commonly used ancillary accounts fail to record indirect subsidies and contingent liabilities. This might be largely due to technical difficulties involved in quantifying these liabilities. Yet their quantification should be part of the design of a rational long-term overall public finance strategy incorporating a social security financing strategy.

4.3 EFFECT OF SOCIAL PROTECTION FINANCING ON PUBLIC DEFICITS AND DEBT

All types of explicit public expenditure, indirect subsidies and contingent government liabilities, including those for publicly guaranteed or financed social protection schemes, can produce annual deficits in institutional or government accounts. Since annual deficits are components of debt, the discussion here focuses on the concept of public debt caused by social expenditure. It centres on the effect of direct expenditure, as indirect subsidies and contingent liabilities are generally not, or not completely, recorded in government accounts. It should be sufficient to clarify the main nature of the impact of social protection financing on public deficits and debt.

It has become common practice to distinguish between explicit and implicit debt, in particular with regard to pensions, although both notions are fraught with definitional and methodological problems. The two phenomena are analysed here separately.

4.3.1 Explicit debt

The above analysis of the links between current government accounts and pension financing indicates that any explicitly recorded expenditure position in a negative consolidated government account contributes to a deficit and hence to public dissavings or the creation of public debt. In the same way, deficient tax collection, attributable either to a poor design of the tax revenue structure or to tax evasion, contributes to deficits, and hence also to public dissavings or debt.

If a social protection scheme (whether government-executed or administered by an autonomous public institution) has its earmarked resources either in the form of social security contributions or earmarked taxes, annual positive or negative balances can be calculated. Consequently, it is possible to calculate explicit debt accumulated in the past. Debt accumulation can be rapid if the revenue shortfall is large. It should include interest that the government must pay to lenders to finance the accumulating debt in case of an overall negative government budget, or the forgone interest income that it would earn on the total accumulated amount of pension subsidies. In the latter case, the government could have invested the resources elsewhere and would have

earned interest on those investments had the pension scheme not required subsidies. In the case of Turkey, the ILO estimated in 1995 that unless the current financing practice was changed, debt (largely for pensions) would accumulate within one decade from 1.7 per cent of GDP in 1995 to 23 per cent of GDP in 2005.

If a social security pension scheme is financed from general revenues, no annual deficit or surplus – and consequently no social protection reserve or debt – can be calculated directly. The only way to introduce the notions of deficits and debt would be to fix a certain arbitrary level of maximum acceptable expenditure – codified, for example, in the form of explicit budget allocations, and to regard positive or negative past deviations from that benchmark as a (normative) deficit or surplus. In the same way as in the case of schemes with earmarked revenues, these deficits can then be linked to the overall national public surplus and deficit and hence, in a longer-term view, to savings or debt.

However, even in the case of a scheme with earmarked resources and a negative balance, earmarked taxes or contributions might never have been designed to cover the full social security pension cost; general revenue subsidies might always have been foreseen (as is the case in Cyprus or the Farmers Pension Scheme in Germany). This also applies to the provision of pensions through public institutions where, when the contribution rates were determined, government subsidies were always envisaged. In this case, singling out explicit social protection deficits as a unique or major source of general public debt is politically misleading.

4.3.2 Implicit debt

While explicit public debt is a retrospective concept summarizing real past deficits, implicit debt is a prospective concept. It is generally only applicable to long-term benefits (pensions), some parts of health expenditure and long-term care. Short-term benefit schemes are normally expected to balance their books within a fiscal year, so that no future implicit debt can accrue. Implicit debt is the result of a summation of expected future deficits. Depending on the source, the term is often defined in two different ways:

Definition 1

Implicit social security pension

> debt = Present value of all future benefits to present
> pensioners and all accrued rights of current
> contributors/taxpayers
> *minus*
> the amount of the initial reserve of the pension scheme;

Definition 2

Implicit social security pension

> debt = Present value of all future benefits to present and
> future pensioners
>
> *minus*
>
> the amount of the initial reserve of the scheme
>
> *minus*
>
> present value of all expected future contribution
> payments of present and future insured persons
> at a constant initial contribution rate.

The first definition follows a strict private insurance concept, whereas the second is a modification that follows a public finance approach. The first has been used by the World Bank in one prominent publication (1994, pp. 139–140), while the second is preferred by the ILO and the IMF and is commonly used by the World Bank in its analysis of client countries (see Heller, 1998, p. 17).

In the first definition, an amount is calculated that (except for the initial reserve) is equal to the termination reserve, which is the reserve that one would need to have available in order to settle all financial obligations to present pensioners and present contributors with accrued rights according to the present rules of the scheme.[13] The level of the termination reserve can be regarded as the full funding level of the scheme. This amount thus also equals the resources that would be required to close down a social security scheme in order to start a new one while honouring all past commitments. No major social security scheme in the world has a termination level of reserves.

For social security schemes, which are not secured exclusively by amounts of invested financial resources but rather by societal commitments and contracts between generations, this level of funding is not necessary. This notion of debt may be useful for some intergenerational accounting, for example for determining the amount of contributions that would be required in the future to pay for pension liabilities already accrued, but it has little relevance as an indicator for the overall financial status of a social protection scheme.

The second definition assumes that promises are made to all present and future generations of pensioners and contributors, that these promises must be honoured and protected by law, and that present and future contributors will always have to pay their dues to finance the system. These assumptions have sometimes proved to be invalid, as countries have failed to fulfil their social security commitments. For countries with sound governance, however, this definition describes the gap between expected future expenditure and revenues, provided that present and future contributors continue to contribute at presently legislated contribution rates.

In tax-financed systems the second definition can only be applied by proxy. It must be assumed that the present level of government resources used to

finance benefits (measured in relative terms, for example, as a percentage of GDP) will stay constant throughout the foreseeable future and that rising pension expenditure (also in relative terms) will create potential annual pension deficits, leading to an accumulation of implicit pension debt. For the ministry of finance this potential financing gap is an indicator of its potential additional financial liability in the financing of the pension scheme.

It must be emphasized that the term "implicit debt" (second definition) does not describe a real financial liability of the government. Due to its prospective nature it only describes potential debt, which is merely an indicator of a financial risk for the government rather than a real financial obligation. This debt might never occur if – by practising good and pre-emptive governance – the government is always able to adjust the contribution rates or the tax allocation for the financing of benefits, or to reduce benefit expenditure. Sweden's pension reform of the 1990s, for example, will most likely substantially reduce potential government debt. Another open question is why the concept of implicit debt should be applicable to unfunded public pension schemes but not to other tacit promises of a State, for example public health care, education and defence spending, or un-built geriatric hospital wards or nursing homes in ageing societies. All of the latter will have to be financed by future taxpayers and similarly constitute unfunded state liabilities.

The concept of implicit pension or social security debt is frequently misused in pension reform debates. It is often argued that a large implicit debt using the first definition is a problem that should be resolved by a change in social security financing. However, that is only correct if there is a large debt under the second definition. If there is a large implicit debt under the first definition but financing has been agreed upon by society and ratified in legislation so that there is no implicit debt under the second definition, there is no social security financing problem. It is thus intellectually questionable to offset transition costs triggered by a change of pension financing systems (for example from a PAYG defined-benefit to funded defined-contribution system) against implicit pension debt, as is done in many national reform debates, since fiscal transition costs are real or unconditional whereas implicit debt occurs only if governance fails.

Figure 4.1 shows an estimate of the emerging financing gap between social security pension expenditure (measured as a percentage of GDP) and the present financing level for all OECD countries. In 1990 OECD countries spent an average of 8.5 per cent of GDP on pensions. An ILO model projects that this proportion will increase to 15.2 per cent of GDP by 2050.[14] The graph assumes that the present level of financing as a percentage of GDP would be maintained throughout the 60-year projection period.

The implicit pension debt under the second definition can be calculated on the basis of emerging annual social security deficits. Figure 4.2 shows the total implicit debt (assuming the present financing level) in 13 selected countries for which data could be obtained, thereby permitting long-term projections.

Figure 4.1 Potential pension deficit (as % of GDP), OECD, 1990–2050
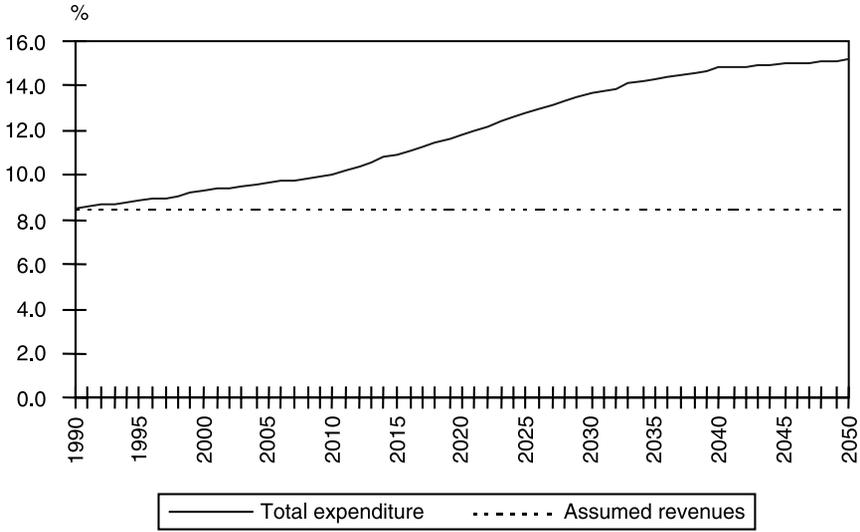
Source: ILO projections.

Figure 4.2 Estimated potential implicit pension debt (% of GDP), selected countries, 1990
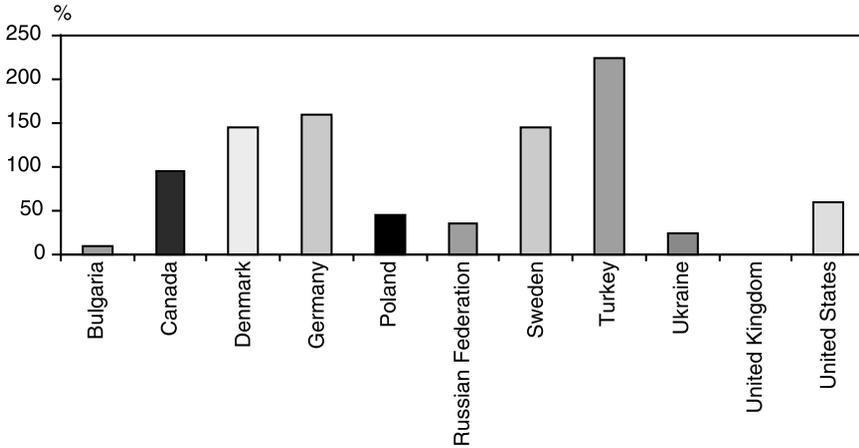
Source: ILO projections.

Figure 4.3 Consolidated potential pension deficit, OECD, 1990–2050
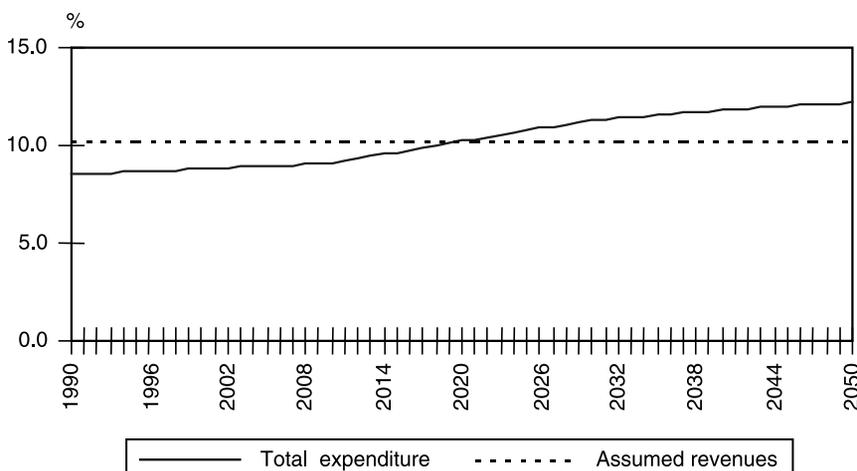
Source: ILO calculations.

As shown in figure 4.2, implicit social security pension debt under the second definition ranges from virtually zero in the United Kingdom to about 210 per cent of GDP in Turkey. The middle ground is covered by countries like Denmark, Germany and Sweden with implicit debts from around 100 to 160 per cent of GDP.

Figure 4.3 demonstrates how a potential financing shortfall of a social security pension scheme can be resolved. It is assumed that in OECD countries the retirement age will increase by 3.5 years on average, combined with a 20 per cent rise in the financing level. The combination of policy measures reduces the implicit debt over 60 years to zero. This implies that national schemes will initially be overfinanced for a number of years. In later years, the return on investments on the accumulating reserves – and ultimately phased dissavings, together with current tax and contribution allocations – would be sufficient to cover expenditure.

4.4   SOCIAL PROTECTION FINANCING AND PUBLIC FINANCING STRATEGIES

The direct and indirect links between general government budgets and social protection financing make the latter *de facto* part of national fiscal and public finance policies. That relationship, which is too often overlooked in day-to-day governance, is explored here in more detail. No social protection scheme is a

financial island, however independent its legal status might be. The interconnectedness of fiscal policies and social protection financing also determines the options and limits for social protection resource mobilization strategies that are described in section 4.5.

Fiscal policy makers must match the cost of fulfilling a set of government commitments (generally perceived as public obligations ranging from national defence, the guarantee of internal security and the provision of basic infrastructure and services to education, health care, social protection, and so on) with the amount of (generally) scarce resources available. They have at their disposal a limited range of options to raise revenues, namely:

- tariffs and excise duties,
- charges for government services,
- indirect and direct taxes,
- social security contributions and, in the case of developing countries, possibly some foreign aid.

As regards discharging their obligations to society, policy makers have basically three options open to them: direct provision (e.g. providing external security by maintaining an army), commissioning services out to the private sector or to parastatal institutions (e.g. by having private doctors deliver outpatient care) while financing these services from public revenues, or relying on the private sector for the provision and financing of some services (e.g. provision of automobile insurance in many countries, or requiring mandatory contributions to private health or pension schemes).

However, the different financing and delivery options are interconnected. If, for example, the level of pension expenditure – regardless of its method of financing – becomes too high, either it will begin to crowd out other national social expenditure or public expenditure, or fiscal pressure will result in a reduction of benefits in an effort to keep the overall tax and contribution burden for citizens at an acceptable level.[15] Contributing and tax-paying citizens demand that governments provide – directly or indirectly – a certain range and quality of services, and they naturally want to minimize the cost of these services in terms of overall tax and contribution burden.

It should not be assumed that contracting out the financing and provision of pensions, health care or long-term care to the private sector has no effect on tax revenues, although these effects will normally be indirect. There is good reason to believe that even private insurance premiums are crowding out public taxes. If a government withdraws from the public provision of health care, for example, and requires its citizens to turn to the private sector so that they have to join expensive private insurance schemes, they might be very reluctant to accept a simultaneous increase in the overall income tax. Apart from the implicit or explicit obligations mentioned in section 4.3 (i.e. the government's role as ultimate underwriter of many national social protection provisions),

Table 4.3 Estimated total tax and private social security revenues in selected OECD countries, 2000

Country	Non-social security taxes	Social security contributions	Total tax revenue (including social security contributions)	Net private social expenditure[1]	Total taxes and private social security contributions
Australia	31.5	0.0	31.5	4.1	35.6
Austria	28.8	14.9	43.7	1.3	45.0
Belgium	31.5	14.1	45.6	2.2	47.8
Denmark	46.6	2.2	48.8	0.8	49.6
Germany	23.0	14.8	37.8	1.6	39.4
Netherlands	25.6	16.1	41.7	3.8	45.5
Sweden	39.0	15.2	54.2	2.2	56.4
United Kingdom	31.3	6.1	37.4	3.2	40.6
United States	22.7	6.9	29.6	8.1	37.7

[1] 1997 data, taken from Adema (2001).

Source: OECD taxation data.

government budgets can obviously be affected indirectly by private provision of social security.

There is no rule as to what constitutes acceptable limits of overall taxation and contribution payments. They can be tested only in a trial-and-error process by governments, and we can safely assume that governments have been doing it for decades. There are indications that across societies these limits vary.

Table 4.3 adds net private outlays for social security (i.e. after reduction in the cost of private insurance premiums through tax breaks) to the overall tax burden of a society (as measured in per cent of GDP and consisting of social security and other taxes). It seems to suggest that societies in Europe, and notably those in northern and central Europe (that is, the classical welfare states), accept higher limits than countries in the Anglo-Saxon group where scepticism vis-à-vis the government is generally more widespread and has even been nurtured politically over the last few decades. The exception to the rule is Germany, which is often considered as over-taxed, but surprisingly does not seem to have a much higher combined tax and private insurance burden than the United States. Much more research is needed on the overall limitation of taxes and contributions in different societies and their determinants. For the purpose of this book it is assumed that these limits exist. Ignoring them would probably mean designing unrealistic financing strategies for NSPSs. Similar conclusions have been reached by a number of researchers, for example Besharov (1998) in his reasoning on the "tax ceiling" in OECD countries.

It is also unclear whether these limits generally depend on the actual mix of financing instruments (for example, taxes or contributions). However, with the

existence of such limits mandatory contributions to social protection schemes – whether they are paid to parastatal social insurance schemes or mandatorily to private insurance carriers – potentially limit the government's general taxation capacity or restrict other government expenditure.

Thus, whether governments prefer to commission pension financing to parastatal authorities or private insurance carriers, or else to administer all compulsory pension provisions themselves, the matter is inevitably one of overall national financial and fiscal strategies.

Leaving income policy considerations aside for a moment, a government would then prefer direct provision of all mandatory pension programmes over mandated private sector provision if that direct provision would leave it with higher tax revenues for the coverage of non-social protection expenditure. If it believed that the overall tax, plus contribution income, would be higher under mandated private sector provisions and that earmarking resources for social protection would leave it with higher revenues to finance non-social protection obligations, it would most likely prefer this type of financing mix.

When weighing the different options, however, the government should also take into account the hidden cost of the financial guarantee it offers with mandated private sector provision, as well as the loss of room for financial manoeuvre when overall uniform tax revenues are replaced by a system of earmarked taxes (or contributions). Considerations of this nature have led some IMF representatives to prefer for certain countries direct public financing of public social transfer obligations through the government – in other words, to promote the principle of unifying all public finance commitments "under one roof" in the interest of greatest possible manageability of the overall system of public finance.[16] The interests of the citizens, however, might differ from those of fiscal policy planners. Citizens might prefer to have a certain share of their overall tax and contribution burden at least formally reserved for the provision of health and long-term care or old-age benefits. They may not realize that they might have to pay for this earmarking in the form of a higher overall financial burden (for example on account of higher administrative costs under indirect institutional or private provision of pensions), or they may be willing to accept this type of transaction costs to insulate resources for old age against rival uses of public resources.

The design of overall national public finance and fiscal policies, including the choice of the social protection financing system, is always the result of a long explicit – or implicit – negotiation process between the public and the government. The ultimate choice of public finance instruments will reflect the popular trust or distrust of governments, public perception of the role of the State, the trust or mistrust of private sector institutions, including the functioning of the capital markets, the perceived need for publicly guaranteed social and income security and values such as the degree of societal solidarity and the acceptance or non-acceptance of income inequality.

4.5 MOBILIZING RESOURCES FOR THE SOCIAL PROTECTION SECTOR

We saw in Chapter 2 that social protection expenditure in any country will follow a certain logistical growth path, and Chapter 3 showed us how to avoid, within certain limits, the negative side effects of social transfers on the economy. We have just seen that resourcing social transfers – that is, deciding which type of income-generating mechanism to use in order to finance expenditure is in effect, directly and indirectly, part and parcel of overall national financing strategies; as such, it is subject to fiscal policy limitations. It is now time to explore the possible sources of money that can be tapped to finance a set of transfers that a society has decided to afford. In fact, such explorations are a routine part of any preparatory process for a new benefit scheme. Their results are normally contained in a financial justification part which is generally a component of legislative bills that are submitted to parliament by the government or by parliamentary factions. No parliament should adopt any law that creates benefit expenditure but contains no indication on how the resources to finance the benefits can be mobilized.

4.5.1 Basic choices

From the nature of social transfers as explored in Chapter 1 we have learnt that each society has a fundamental choice: it can leave transfers to informal arrangements between people within and among households, or it can formalize them. There are certain stages of development at which conversions from informality to formality generally take place, although there is no hard-and-fast rule as to when certain transfers have to come on board. The case of the Republic of Korea, which developed the core of its social protection system between 1963 and 1996, is quite typical (see Jung and Shin, 2002). The country started out with pension provisions for government employees and the military in early 1960. It added employment injury protection for larger companies in the mid-1960s and social health insurance for workers in larger companies in the second half of the 1970s. Between the mid-1970s and the mid-1990s the group of protected persons was constantly extended and universal coverage in health insurance was reached around the year 2000. Unemployment insurance was introduced in the early 1990s and assistance to cope with the fallout from the Asian financial crisis towards the end of the decade. Unemployment benefits are usually introduced only when labour markets have reached a certain level of formality. Their introduction is currently debated for example in Thailand.

This does not mean however that in industrialized countries the build-up of the national transfer system has been fully completed. It was only in the 1990s that countries like Austria and Germany decided to formalize their long-term care transfers by introducing a long-term care insurance, recognizing that

ever smaller nuclear families and changing employment patterns made caring for the disabled and the elderly in a household setting in many cases an impossible task.

Half-way between leaving benefit transfers to the family or household setting and formalizing them into public or private transfer arrangements we find community-based solidarity schemes (mostly applied in health care, in the form of so-called micro-insurance schemes). These schemes operate on a voluntary basis, normally insure a group of a few hundred or a few thousand people, and are – at least in theory – run by the community. Their strengths and weaknesses are analysed in more depth in Chapter 5.

The main categories of sources that governments can tap to finance social transfers are:

(1) *Family/household sources:* used for informal need-dependent coping with contingencies in households and families;

(2) *Community sources:* used to finance limited basic transfers for contributors and possibly dependants on a voluntary basis in a community or occupational group;

(3) *Private insurance contributions:* used to finance social transfers for contributors in larger pools in mandated or voluntary private insurance;

(4) *Social insurance contributions:* used to finance mandatory social transfers for employees and their dependants, operated by public social insurance;

(5) *Taxes, general revenues or earmarked taxes:* used to finance social transfers for the total population of a special group (for example, public employees).

We should not overlook a further important component of any resource mobilization strategy for certain social transfers: savings in other expenditure categories. These can be simply shifts of resources or efficiency gains. Shifts would fall within the five categories listed above. As for efficiency gains, they are largely the consequence of government deficiencies; they will be dealt with in Chapter 7, where we will try to develop a set of mechanisms designed to help avoid such inefficiencies.

The optimal use of the different sources and the optimal combination of sources can only be established in the context of an overall national public finance strategy and within agreed fiscal constraints. This involves choosing a national portfolio of specific financing sources aimed at optimizing combined tax and contribution incomes. This results in a theoretically very sophisticated exercise (described in box 4.3) through iterative finding of an optimal composition of the resource portfolio. In practice this will most likely be a heuristic trial-and-error process that simply increases the share of each component until it can be empirically observed that people react adversely (for example through increased tax evasion).

Box 4.3   The tax and contribution maximization problem

Many different forms of taxes and contributions can be levied on a society. That does not mean however that 100 per cent of all potential tax or contribution income will actually be collected. If taxes are too high, a growing number of companies or individuals will not be able or willing to pay; if tax rates are too low the cost of collecting them might be higher than the potential revenues. Law-abiding firms and citizens will seek legal exemptions, and others will find illegal ways to avoid paying. There are always some taxpayers or contributors that will not comply with their obligations. Workers might move into informal sector arrangements to avoid social security contributions and income taxes, employers might under-report their workforce numbers or their wage bill in order to save on contributions, or not declare their full turnover in order to avoid taxation. Employers and workers might collude to avoid the payment of contributions.

We have little empirical knowledge about the general behavioural pattern or the ratio of the amount of contributions or taxes actually collected to the total amount of contributions legally due (or the collection rate, sometimes also called the compliance rate) depending on the level of taxes. And most likely, as we have seen from national examples, the patterns and the overall accepted limits of taxation and contributions differ from country to country.

In public sector economics the relationship between the amount of taxes collected and GDP tax ratio is described by the so-called Laffer curve.[1] The original Laffer curve looks like a half-circle (see box figure 4.3.1). For our purposes it has been slightly modified, plotting the intended target tax ratios to GDP versus the proportion of maximum possible tax revenue that is actually collected in taxes. This maximum revenue is always less than the target ratio. At a target ratio of 50 per cent of GDP, actual collection might only reach 45 per cent due to inevitable losses attributable to evasion and imperfect enforcement. The target ratio is a theoretical ratio: for example, the result of a mathematical application of income tax rates to the income distribution in a country and a division of the resulting amounts by the GDP in the respective year. The target ratio thus implies a 100 per cent tax and contribution collection ratio.

The Laffer curve represented in box figure 4.3.1 simply shows that at target tax ratio of zero per cent there is no tax revenue and at target tax ratio of 100 per cent of GDP there will also not be much tax income as all economic activity in the formal sector will probably cease. It can be safely assumed that the optimum level of taxation, that is, the level of the targeted GDP tax ratio that creates an optimum amount of *de facto* tax income, would be somewhere between these extremes. The figure suggests a ratio of 50 per cent as optimum but that is only an illustration and, as we have seen, real values have to be tested empirically in every country. It would be ideal if one could add all target rates of direct and

Box 4.3 (cont'd)

Box figure 4.3.1   Target national tax ratios versus *de facto* tax revenues (a modified Laffer curve)
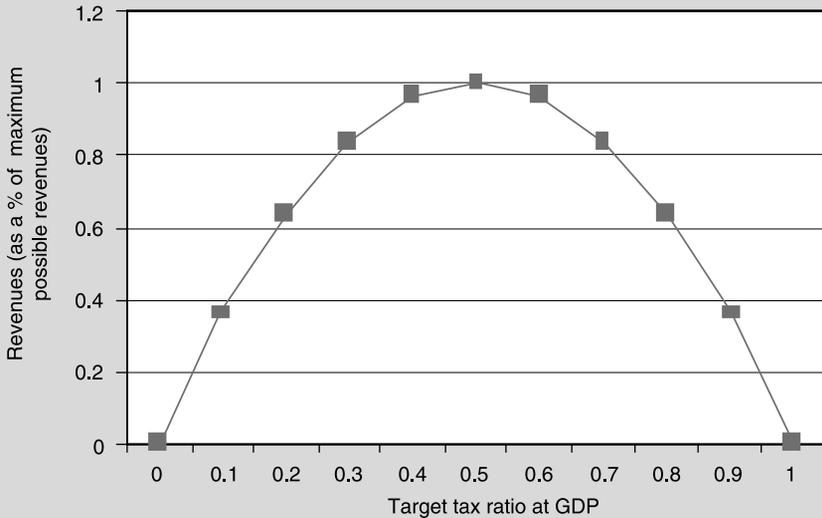
Source: ILO.

indirect taxes and contributions that are levied in a country and then simply find an empirical way to establish a national Laffer curve. The choice of the overall level of taxation would then simply involve the optimization of national tax ratio.

However, that one-dimensional model is much too simple a view of the world. In reality people are subject to various forms of taxes and contributions and react differently to different charges. Optimum revenues might be collected at a targeted general tax ratio of 20 per cent of GDP, at a private insurance contribution ratio of 10 per cent of GDP and a social security contribution ratio of GDP of 25 per cent. The situation is described in box figure 4.3.2 where potential net revenues from different financing instruments have been expressed as a percentage of GDP. This means there are a set of Laffer-type component curves that affect the population in question simultaneously and that social protection planners need to respect. There is no point in aiming at a target contribution of private insurance to GDP if we know that due to the nature of the private insurance business a contribution of, say, 10 per cent as in this example is the optimum to which one can aspire. Higher contributions may be unrealistic since, for example, not enough members of the population are able to afford the income-independent health insurance premiums of private health insurance.

Box 4.3 (cont'd)

Box figure 4.3.2   Simplified simultaneous Laffer curves for contributions and taxes in a model society
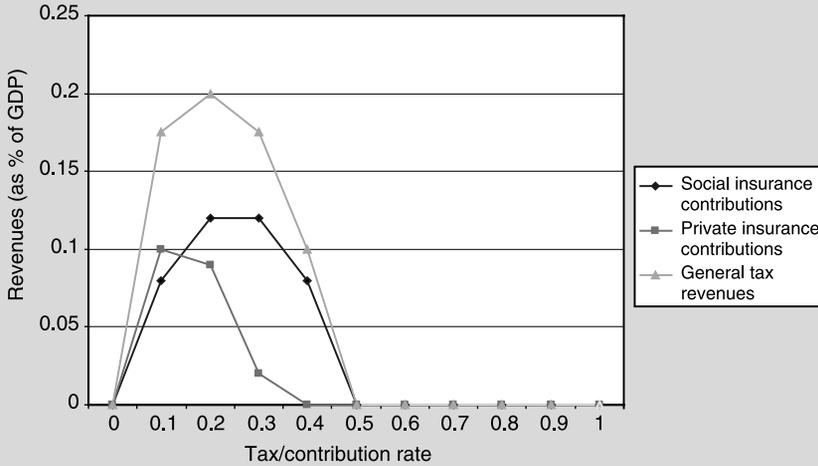
Source: ILO.

If there were no limits to overall taxation one could simply go for the sum of the individual optima of the component Laffer curves and thus arrive at a maximum overall level of tax and contribution income. However in the above example the sum of the optimum ratios would add up to 55 per cent of GDP; a level against which the population might revolt. If there was an assumed overall level of taxation of 45 per cent of GDP, for example, then one would have to find an iterative process to arrive at an optimum combination of the target level of the different instruments that would yield maximum revenue at minimum collection cost. If it were assumed here that in the example given in box figure 4.3.2 relatively low-cost collection can be achieved for taxes and social security contributions, then the optimum level of taxation and contribution income might be reached without using the private insurance option. In other countries, where tax and contribution collection might be a bigger problem, the choice could be completely different.

In theory one could build a linear or non-linear programming model to determine the ideal portfolio of financing instruments. In practice one would probably never find the data to establish the individual curves, so the exercise reverts to the pragmatic process referred to earlier. Nonetheless, the concept of simultaneous Laffer type curves is useful for understanding the nature of policy choices in mobilizing resources for publicly financed social protection.

Box 4.3 (cont'd)

However, the isolated optimization of GDP tax ratios might not be the only objective of national policy, there might also be overall long-term economic goals. Optimal taxation – in relative terms – might lead to long-term opportunity cost in term of economic growth (see analysis in Chapter 3). Thus the design of a national public finance and social protection resource mobilization strategy also has to be aligned with the overall national economic policy. Again this will be a pragmatic process involving the search for policy compromises among different players in national policies.

The extent and the mix of the use of the above instruments to finance a certain transfer or the transfer system as a whole together make up a resource mobilization strategy.

Note

[1] See, inter alia, Stiglitz (1986), pp. 118–119.

4.5.2   Developing a national resource mobilization strategy

A planned rational use of the different financing sources should first establish the limits of formal sector sources (taxes and contributions) and set the priorities for coverage in the form of a coverage map. Coverage is here understood to have three dimensions: scope (the number of contingencies covered), extent (the share of people having access to services/goods provided within the different categories of contingencies), and depth or quality (the level of protection as measured for example by the replacement rates). More details about the performance of social protection schemes are provided in Chapter 7.

Table 4.4 describes the coverage map of Thailand in the late 1990s. It includes the effect of the recently introduced 30-baht health care scheme which provides practically universal health care coverage to all those who are not covered by social insurance and are able to make a moderate 30-baht co-payment to the public hospitals at the point of delivery of care.

The map does not show the depth/quality of coverage and disaggregates the population according to employment. A different disaggregation would be possible. There is obviously no general rule as to how such coverage maps should be organized. What is important is that white spots can be clearly identified, though this does not necessarily mean that no transfer system can take care of a certain need. Their presence simply indicates that no formal transfer system is in operation. It can be assumed that in most of the white spots informal transfer schemes are in operation. Maps like this one can serve as descriptions of current conditions or may be drawn up for certain years in the future as milestones for a strategy to extend the coverage of formal transfer schemes.

In order to develop a credible strategy to fill in the white spots in the coverage map, five steps have to be taken:

Financing social protection

Table 4.4   Social protection coverage map, Thailand, late 1990s

POPULATION GROUPS		Proportion of workforce (%)	Health care		Work injury	Disability	Death	Old age	Maternity	General family needs	Unemployment
			Health care workers	Health care family dependants							
PUBLIC EMPLOYMENT	Civil servants	4									
	Government regular & temporary employees	3									
	State enterprise employees	3									
PRIVATE EMPLOYMENT	Enterprises >10+ employees	15									
	Small enterprises <10 employees (including informal sector)	9									
SELF-EMPLOYMENT (including informal sector)	Self-employed outside agriculture	19									
	Self-employed in agriculture	30									
NOT IN EMPLOYMENT	Unemployed persons (including the poor)	6									
	Persons incapable to work	2									
	Elderly (non-pensioners)	8									
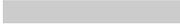
HIGH SOCIAL INSURANCE COVERAGE
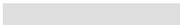
LOW SOCIAL INSURANCE COVERAGE
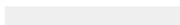
SOCIAL WELFARE ASSISTANCE COVERAGE

NO SYSTEMIC FORMAL TRANSFER COVERAGE

COVERAGE BY 30-BAHT HEALTH CARE SCHEME

Source: ILO (forthcoming).

Step 1:

In national decision-making processes the priority white spots, those that need to be tackled first, have to be identified.

Step 2:

Policy options for covering the contingency have to be developed.

Step 3:

Policy options have to be costed.

Step 4:

The cost-sharing arrangements between different financiers (the government, private households and employers) have to be worked out.

Step 5:

Exploring appropriate financing instruments for each financier either by raising new funds (introducing or increasing co-payments, raising contributions, introducing a new earmarked tax, and so on) or by reallocating resources (for example by terminating other expenditure); this presupposes assessing the room for manoeuvre in the government budget and the budget of other financiers, both in financial terms and in terms of political acceptability of new financial burdens by the stakeholders in the respective systems.

The pragmatic testing of alternative financing instruments and the financial room for manoeuvre would normally be established in a social budget analysis (see Chapter 7 for more details). Table 4.5 summarizes the main structure and development of the social budget in Thailand during the 1990s. The political decision-making process there has generated a clear demand for universal access to health care as the country's next social protection priority. Such processes do not always send clear messages as they can at times be ill-defined and are often a matter of political economy (see also Conclusion).

The case of Thailand however was relatively straightforward. The present government won the elections on a platform in which the introduction of the 30-baht scheme featured prominently. Planners in the Ministry of Health and diverse political interest groups must have calculated that covering some additional 45 million people by that scheme would have an additional net cost to the government of 25 billion baht (2003 estimate), largely for capitation fees that will have to be paid to participating hospitals. The amounts are roughly equivalent to about 0.5 per cent of GDP, which is assumed to decline in the longer term as coverage under the social insurance scheme increases. The planners must have concluded that in future that amount of revenues can be raised or shifted from other sources although a detailed health budget plan (which would be a sub-budget of the national social budget) has not been made public.

Table 4.5 Aggregated social budget (as % of GDP), Thailand, 1990–98

	1990	1991	1992	1993	1994	1995	1996	1997	1998
Social expenditure	4.35	4.60	5.11	5.30	5.46	5.41	5.55	6.62	6.77
Education	2.85	2.96	3.21	3.53	3.55	3.52	3.49	4.17	4.25
Pre-primary, primary and secondary education	2.12	2.15	2.32	2.78	2.76	2.74	2.69	3.16	3.22
Tertiary education	0.31	0.39	0.43	0.54	0.62	0.58	0.58	0.75	0.78
Other	0.42	0.43	0.47	0.20	0.18	0.20	0.22	0.26	0.25
Social protection expenditure	1.49	1.63	1.90	1.77	1.91	1.89	2.06	2.45	2.52
Health	1.00	1.12	1.31	1.20	1.33	1.33	1.44	1.74	1.77
Hospitals	0.47	0.54	0.65	0.74	0.79	0.80	0.86	1.04	1.14
Clinics and medical, dental	0.31	0.35	0.40	0.22	0.27	0.23	0.25	0.30	0.30
Other	0.21	0.22	0.27	0.25	0.27	0.31	0.33	0.40	0.33
Social security	0.48	0.50	0.57	0.50	0.52	0.50	0.55	0.63	0.67
Welfare	0.01	0.01	0.02	0.07	0.06	0.06	0.07	0.08	0.08
Revenues									
Social security contributions	0.02	0.14	0.18	0.20	0.26	0.24	0.26	0.28	0.26
Out-of-pocket outlays of households	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Local government taxation	0.08	0.10	0.13	0.14	0.11	0.11	0.15	0.16	0.14
Central government taxation	4.24	4.36	4.80	4.95	5.09	5.07	5.14	6.18	6.38

n.a. = not available

Source: ILO (forthcoming).

Various options for resource mobilization (higher co-payments, or the introduction of general health care contributions, for example) have been suggested[17] but have not yet been agreed upon. However, new options will most likely have to be found as the government is operating under tight budget restrictions and the additional cost represents a substantial rise in overall national social expenditure. As table 4.5 shows, public social expenditure (excluding education) amounts to only 2.52 per cent of GDP in 1998; the inclusion of the new 30-baht scheme would add 20 per cent to total social expenditure, which would be a major increase.

Box 4.4 describes a similar coverage extension exercise currently under way in Ghana. The President there has declared that his government wishes to abolish the "cash and carry" health care system requiring people to pay substantial user fees, and to replace it by a national health insurance system within the next few years. Finding the resources for that political priority is a typical resource

mobilization exercise in social protection; it will therefore be discussed in detail. The ambitious new plan requires raising new financial resources. The government will most likely finance it by resorting to a combination of resource shifting (from pension financing to health care), new health insurance contributions and increased value added taxation. Box 4.4 is a result of a quantitative policy analysis of an ILO team which visited Ghana in early 2003.[18] The analysis concludes that while matching the expected cost with resources appears possible in theory, it seems realistic to try to phase in additional burdens and full coverage over the next ten years, instead of going for immediate universal coverage. The extent of immediate hikes in value added tax combined with a substantial health insurance premium appears prohibitive.

Box 4.4 Ghana's health insurance plan: Attempting to mobilize resources for universal coverage

Background

The President of Ghana has stated categorically that the country's present "cash and carry" system of health care is to be abolished by 2004. The Government is seeking to replace it by a National Health Insurance System (NHIS) designed to provide universal coverage for the population.

Ghana's economic situation is difficult. The new government inherited a US$7.2 billion national debt (US$5.9 billion external and US$1.3 billion domestic). The national currency has depreciated dramatically and inflation is spiralling. The present budget situation is fairly serious. Revenues in 2001 reportedly covered only 72.6 per cent of total expenditure. The deficit amounted to US$3.2 billion in 2001, or approximately 9 per cent of GDP. Debt relief schemes will probably ease the situation somewhat.

Although there has been some improvement in many health indicators, including mortality and morbidity, crude indicators still demonstrate the need for major improvements. Life expectancy in 1999 was only 54.2 years for males and 55.6 years for females, and is thought to have gone down even further since then due to the impact of HIV/AIDS. The mortality of under-fives is high: 118 per 1,000 for males and 109 per 1,000 for females. Public expenditure on health in the late 1990s was only in the order of US$11 per capita annually, and more than 50 per cent of it was borne out of pocket. Access to and use of health facilities is low and has been declining. A survey conducted by the Ghana Statistical Service revealed that in 1992 as many as 42.5 per cent of the urban population and 54.7 per cent of the rural population did not seek medical attention in times of illness or injury. By 1998 medical consultations had fallen by 46.6 per cent among the urban population and by 69.2 among rural dwellers. This trend can likely be linked to rising health care user fees in recent years.

Box 4.4 (cont'd)

The proposed health insurance system and its financing

The health insurance system being proposed is a fusion of Social Health Insurance (SHI) and Mutual Health Organization (MHO) concepts. It will be based on a district-level MHO approach covering both the formal and non-formal sectors. It is assumed that the scheme is formally mandatory for all residents. *De facto* only the formal sector workforce will probably (after a transition period) be covered on a mandatory basis. Community-level and non-formal occupational groups will be encouraged and supported to collect premiums from the non-formal sector to be paid to the district MHOs.

The introduction of a NHIS in the national health care financing system requires an overall health care budget and financial planning of the sector so as to ensure that the additional administrative cost incurred through the introduction and the maintenance of the NHIS actually leads to real improvements in access and quality of care. There is a real risk that the system may only facilitate access for groups who already have access to health care delivery systems and that the quality of care may actually deteriorate if the overall budget of the sector is not increased. The health budget thus needs to stipulate explicitly the target level of additional resources that are meant to be used in the sector, and identify the financiers of the additional resources. It must show that the new resources do not simply feed additional medical inflation but rather finance better care and improved access.

The present design of the scheme envisages a variety of resources to finance the system, ranging from social insurance contributions of the formal sector to earmarked taxes and levies (on alcohol and tobacco, gross investment of the Social Security and National Insurance Trust (SSNIT), car sticker revenue), plus a variety of other sources. All or part of the resources will go into the National Health Insurance Fund, from where they will be allocated to the participating insurers. The allocation is planned to include risk-equalization payments, reinsurance and cross subsidization.

The calculations portraying a simplified quantitative mapping of the envisaged NHIS reveal some structural problems with the financing of the new system. Box table 4.4.1 presents a simplified but structurally correct picture of the present national health care budget (for care provided in public facilities) based on data supplied to the ILO project team by the Ministry of Health. However, much more detailed health budget analyses including basic projections are needed to support the government's decision to introduce the NHIS.

According to the data provided to the team, the health care delivery system is currently used by about 50 per cent of the population, or some 10 million people. Per capita costs are at a level of around US$16.40 – only about one-third higher than the absolute minimum calculated by the WHO macro-economic commission for health. Total expenditure on

Box 4.4 (cont'd)

publicly provided health care is in the order of 2.5 per cent of GDP. Government resources account for only 55 per cent of the total financing of care in public facilities, which is equivalent to about 5.8 per cent of total general revenues. Overall public health spending as well as the share of the government's budget is low by the standards of many other developing countries (see, for example, WHO 2000, Annex table A8).

Box table 4.4.1   Total estimated health expenditure, Ghana, 2003

	Billion cedis	US$ (million)	In % of total
Care financed by			
Regular budget	763	90.83	55
External aid	389	46.31	28
Co-payments	228	27.14	17
Total	1 380	164.29	100
Key structural data			
GDP	58 500.00	6 964.29	
Status quo health expenditure in % of GDP	2.36	2.36	
Estimated general revenues	13 250.00	1 577.38	
Status quo government health expenditure in % of general revenues	5.76	5.76	
Average annual expenditure amounts per user	Cedis	US$	
Regular budget	76 338.17	9.09	
External aid	38 919.46	4.63	
Co-payments (cash and carry)	22 811.41	2.72	
Total	138 069.04	16.44	
Estimated population access			
Population		million	
Formal sector population		5	
Informal sector population		15	
Total		20	
People with access	rate		
Formal sector population	1	5	
Informal sector population	0.333	5	
Total	0.49975	10	

Source: Data from Ghana.

Box table 4.4.2 simulates in round figures what would happen to the health sector if the health insurance system as presently planned had been introduced in 2003, without a transition period. Technically speaking, this means that the calculations assume an ad hoc transition to the stationary state on the day the new system becomes effective. This is

Box 4.4 (cont'd)

hypothetical but still useful to illustrate structural weaknesses of the NHIS design. The key assumptions in this model calculation are as follows:

- the cost of care and present level of fees are unchanged;
- abolishing co-payments at the point of delivery would increase the rate of utilization by the population by about 50 per cent (in technical terms, the price elasticity of utilization is 50 per cent); and
- the scheme would cover all the people in the formal and informal sectors.

Box table 4.4.2   Simulation health insurance, Ghana (stationary state for 2003)

Structural assumptions			
Assumed increase of utilization due to abolishment of user fees (%)			50
Coverage		Rate	
Formal			100
Informal			100
		Number of persons (millions)	
Formal			5
Informal			15
Total			20
Contributions			
Formal sector			
Average monthly wage	Cedis	860 000	US$ 102.38
Compliance rate (%)		100	100
Contribution rate (%)		2	
Informal sector			
Average annual contribution	Cedis	24 000	US$ 2.86
Estimated expenditure	Billion cedis	Million US$	
Formal	1 035.52	123.28	
Informal	3 106.55	369.83	
Total	4 142.07	493.1	
In % of GDP	7.08	7.08	
Financing			
Present government contribution	763.00	90.83	
Present external aid	389.00	46.31	
Contributions			
Formal sector	206.40	24.57	
Informal sector	360.00	42.86	
Deficit	2 423.67	288.53	
In % of general revenues	18.29	18.29	

Box 4.4 (cont'd)

Box table 4.4.2 (cont'd)

Potential financing of deficit

	Additional % points	Billion cedis	Million US$
General SSNIT	0.02	206.40	24.57
VAT	0.02	459.20	54.67
Remaining deficit		**−1 758.07**	**−209.29**

Source: ILO calculations.

The table demonstrates that if:

- the government were to maintain the present level of its financing;
- external aid were to remain at the present level;
- formal sector workers were to contribute 2 per cent of their insurable earnings together with their employers to the NHIS;
- people in the informal economy were to contribute 24,000 cedis per person and per year;
- VAT were to be increased by 2 percentage points; and
- 2 percentage points were shifted from pension contributions to health care;

the scheme would still incur a deficit of about 1,800 billion cedis. It would be very difficult to close that gap through other types of incomes. Even a further 2-percentage-point increase of VAT and an additional subsidy by the SSNIT of 2 percentage points of their present contribution would not solve the problem. It appears that the government cannot afford 100-per cent population coverage in the immediate future. However, further calculations show that if general revenues were to increase in real terms by about 3 per cent annually, then this bold endeavour to move towards an effective health care coverage of the complete population could be financed in ten years – if the government were willing to devote about 40 per cent of the additional revenue to the health care sector.

Once the general resource mobilization strategy has been decided upon, the financial instruments have to be designed in more detail. This requires some technical knowledge, which will be provided in Chapter 5.

4.6   SUMMARY

Social protection schemes make promises, some of them of a very long-term nature. Financing such promises requires a clear financing strategy that encompasses both the public and the private sector as there are multiple direct

and indirect relationships between the financing of social transfers and government budgets. This chapter has shown that the accounting instruments necessary to monitor the full public cost and commitments of a national social transfer system are not yet fully developed. Implicit government debt incurred for example by an underfinanced and overpromising pension scheme is not accounted for in any standard government accounting system. The same is true of risks that governments incur as *de facto* ultimate underwriters of systematically captured parastatal and private sector transfer schemes.

Given the numerous direct and indirect links between general government accounts and pension financing, as well as the pivotal role of government as the ultimate guarantor of income security, it is difficult to establish whether a specific financing option is ultimately cheaper for governments and their financiers, the taxpaying and contributing citizens, than other available options.

The analysis of the various links between public finances and pension financing shows that governments, representing society at large, always remain the ultimate guarantors of national social security pension schemes. If promises covering in part the lifetime of several generations can be made at all, they can only be made by societies as a whole. Capital markets, private insurance companies or enterprises – as alternative providers of old-age security – cannot give long-term guarantees as to their proper functioning or even their mere survival over such long periods.

If one takes a global view of social security schemes and presupposes that the government's ultimate responsibility is to ensure at least a minimum level of transfer of resources for consumption to the elderly, the disabled, survivors, the sick and the poor, then national choices of public and private provision of pension benefits, or any specific public-private mix, are reduced to questions of social and income policies versus questions of public finance policies.

Public provision of social protection benefits means that the income distribution effects of these transfers can be designed to provide protection against poverty and to reduce income inequality to some extent through the pension scheme. Contracting out part or even the bulk of social protection provision to the private sector will inevitably lead to greater income inequality among the beneficiaries, since private entities can hardly be expected to include redistributive elements in their benefit provisions. For the social protection analyst all this means that the financial analysis of a national social protection scheme or the development of a blueprint for introducing a comprehensive system requires not only straightforward actuarial costing and financing for that system or an individual scheme, but also an extensive analysis of explicit and implicit government obligations. In addition, an understanding of the limits of the acceptable overall contribution and tax burden as well as the acceptable composition of that burden (between taxes, social insurance contributions, out-of-pocket-outlays and private insurance premium) must be developed. Limits and compositional preferences can only be tested in trial-and-error operations

that often take decades of feeling one's way ahead in complex societal consensus processes.

Only if such analyses have been carried out is it possible to design a financing strategy allocating financial burdens to certain financiers and financing instruments.

A checklist of questions for financial and social policy analysts

If a resource mobilization or financing strategy for a new benefit scheme is being developed analysts might wish to try to use the following checklist to ascertain whether the major potential impacts on government finance and fiscal policies have been covered:

1. Who is the ultimate guarantor of the new benefit? The government? If so, does that mean that the government would have to bail out the system if the resource mobilization strategy for the scheme fails?

2. Are there other long-term direct or indirect liabilities for the government inherent in the design of the benefit?

3. Is the resource mobilization strategy realistic – in other words, is the public likely to accept the additional financing burden in the form of taxes, contributions, or private outlays? And is it ready to accept the way in which that burden is being allocated to different financiers by the resource mobilization strategy?

4. Could the introduction have any potential negative side effects on the overall tax compliance in the country?

5. Would the resource mobilization strategy have any opportunity cost for the government – that is, are there other government projects which would have to be shelved because the measure in question is likely to crowd out the financing for that alternative use of public resources?

Further reading

To find out more about:

- the United Nations System of National Accounts (1993 SNA), consult the UN Statistics Division's website (http://unstats.un.org/unsd/sna1993)
- the links between the SNA and a social accounting system, turn to Scholz et al. (2000), Chapter 6
- the economic effects of taxation, see van den Noord and Heady (2001)
- public expenditure management, read Allen and Tommasi (2001).

Notes

[1] This chapter draws heavily on Chapter 14, "The consequences for public finances", written by Michael Cichon, in Gillion et al. (2000). However, it has been extended to cover benefits other than pension benefits and has been thoroughly reviewed.

[2] See United Nations (1968), p. 25.

[3] See IMF (1997a, 1997b).

[4] See, for example, EUROSTAT (2000).

[5] For example, if a country introduces a new pension scheme with a relatively generous pension formula (as was the case in many countries in Africa, the Caribbean and Latin America), financed through partial funding – that is, through a contribution rate which in the initial years is much higher than the contributions which would be needed in order to cover the initially low cost, then the government could borrow from the schemes and invest in national infrastructure, for instance by financing an extensive health care infrastructure. Proper social budgeting will show that the flow of money between the schemes and government accounts will subside at some point, and must even be reversed, or contribution rates in the pension schemes will need to be increased. The government's financial planning has to prepare for these events: it either has to prepare the public well in advance for higher contribution rates, or it has to be prepared to redeem some of its loans and might even have to suppress other expenditure (e.g. on health care and other social transfers) in order to be in a position to retrieve funds for the scheme. The case would be the same if the government were to borrow from private pension insurance schemes.

[6] The principles of social budgeting are explained in greater detail in the social budgeting textbook of this technical series (see Scholz et al., 2000).

[7] See Federal Ministry of Labour and Social Affairs (1994).

[8] See, for example, Cichon and Samuel (1995).

[9] In this context, national accounting adds an interesting connotation to the debate on funded versus unfunded PAYG financing of pension schemes. If an allegedly funded social security scheme invests all its reserves in government investment facilities, and if the government pays the correct (inflation-indexed) interest rates and correctly redeems capital borrowed, then the pension scheme is no more than a mixed contribution and tax-financed PAYG scheme, as liabilities for interest payments and redemption must be financed by general taxation. At the level of the consolidated government account the scheme turns into a PAYG scheme.

[10] On the other hand, the fact that governments directly provide benefits does not automatically mean that the schemes are fully financed by general taxation. Governments might well execute a social insurance type arrangement which collects contributions in the same way as an autonomous social insurance scheme (as in the United States, for example). Even schemes with universal benefits for every resident might collect contributions (or earmarked taxes) which help to finance the benefits (as in the United Kingdom).

[11] Including pensions, short-term benefits, health, unemployment benefits and social assistance.

[12] There is plenty of evidence to support this. One of the most recent findings is reported in the ILO study of a potential catastrophic health insurance fund in the Bahamas: see ILO (2001b).

[13] This also means, by implication, that in any scheme where such a level of reserves is required at any given point in time total annual contributions paid in any future years must be equal to the present value of all future pension rights derived from this annual contribution.

[14] The model was used to project long-term social expenditure in OECD and Central and Eastern Europe. Details of the methodology and the assumptions are described in Latulippe (1997). The central assumption of the model is a 2-per cent annual average real growth over the projection period. Total employment is assumed to grow by an average of 1 per cent annually. The long-term average real interest rate is assumed to be 3 per cent.

[15] In this context the appropriate financial planning instrument for national social policy and hence pension policy is comprehensive national social expenditure accounting and planning in the form of national social budgets.

[16] See, for example, Tanzi (1996), p. 31.

[17] See ILO (2002b).

[18] See Cichon et al. (2003b).

FINANCING TECHNIQUES[1]

5

The expenditure of national social protection systems (NSPSs) or individual subsystems is determined by the rules governing respective social transfers. These rules are themselves determined first and foremost by societal values; over the last few decades, however, they have been more and more frequently checked against the perceived affordability of the individual schemes or systems as a whole. In order to evaluate that affordability, which is – as we saw in Chapter 3 – largely a political process of trial and error, the immediate, mid-term and long-term costs of a given scheme or system have to be established. This is done through actuarial and social budget studies. As the relevant techniques are described extensively in three other textbooks of this series,[2] there is no need to dwell on them here. Understanding what typical cost developments might be expected in a young pension scheme, for instance, and what factors influence them, is quite sufficient (these elements were described in Chapter 2).

This chapter takes cost developments as granted and, as mentioned earlier, also assumes that a society has taken all necessary measures in terms of risk avoidance. It limits itself to presenting the options that financial planners and policy makers have at their disposal to finance the expected expenditure – in other words, how they can ensure, once basic political decisions on resource mobilization strategies have been made (see Chapter 4), that the right amount of liquid resources is available when expenditure falls due. We are restricting ourselves here to financing techniques for formal transfer systems, with some extension into community-based schemes. Designing and choosing financing systems is about finding ways to keep benefit promises. This chapter will therefore address the following questions:

(1) who pays...

(2) from what income...

(3) what amounts of contributions or taxes...

(4) at what point in time...

(5) for whom...

given a certain expected development of expenditure.

In order to make sure that resources are always available when needed, societies decide the above questions by selecting specific *financing systems* – in other words, by determining the way in which the income needed to finance different social benefit schemes will be generated. As we have already seen, resources can be mobilized in a variety of was, ranging from tax to contribution financing (and a number of mixed financing systems in between), and within contribution financing available options range from full funding to zero funding.

In the following pages we will define and explain the main concepts involved (section 5.1) before discussing in detail the options open to a country when it comes to selecting a financing system for health care benefits, pensions and other social protection benefits (sections 5.2, 5.3 and 5.4 respectively). Acknowledging the all-pervasive trend of globalization, section 5.5 explores the potential options for the international financing of social protection. A brief summary is presented in section 5.6.

5.1 FINANCING SYSTEMS: DEFINITION, PARAMETERS AND MAIN APPLICATIONS

After defining financing systems and their principal objective, this section analyses the systems' constituent parameters and provides an overview of typical applications for the various social protection benefits or transfers.

Financing systems are defined as a set of legal provisions aimed at ensuring that at each point of a scheme's life cycle the amount of expenditure is matched by equal and available financial resources – in other words, that the scheme is in financial equilibrium. As mentioned above, all financing systems are fully described by four parameters:

(1) size of the covered group *(Who pays . . . for whom?)*;

(2) financing rules under which they operate *(. . .what amounts)*;

(3) definition of actuarial equilibrium, which is synonymous with the scheme's level of funding *(. . . at what point in time)*; and

(4) sources of financing (i.e. the resource base) earmarked for the financing of benefits *(from what income?)*.

The expected evolution of spending and the choice of the financing system then determine the financial burden of each generation of contributors. Before exploring the above basic parameters, we need to introduce the concept of financial equilibrium that all financing systems seek to maintain.

5.1.1 The principal objective of financing systems

From the actuarial point of view, a scheme is in financial equilibrium if the present value of all future expenditure plus the initial reserve $t = 0$ is equal to the present value of all future income of the scheme at a given point in time.

This can be translated into the fundamental (simplified) equation for the general *financial equilibrium*[3] of a social protection scheme:

$$R_0 + \sum_{t=0}^{\infty} \pi_t * TIW_t * r_t = \sum_{t=0}^{\infty} TEX_t * r_t \qquad (5.1)$$

where:

$t = 0, \ldots 4$ denotes years
R_0 is the initial reserve
π_t is the contribution rate charged in year t
r_t is the discount rate $(1/(1+i))$ to the power of t
TIW_t is the total amount of insurable wages or incomes in year t
TEX_t is the total expenditure in year t

The above equation has to hold at any point in time for a theoretically unlimited period. The non-limitation of the time frame is justified by the fact that the existence of social security systems is guaranteed by law for unlimited periods.

The equation applies to pay-as-you-go (PAYG) financing systems, to systems financed on a fully funded basis[4] and to all forms of intermediate funding.

It should be noted that – when applied to pension schemes – the above financial equilibrium is a close cousin of the concept of implicit pension debt. If the contribution rate π_t is kept constant at the initial level over time then the second concept of implicit pension debt is equivalent to formula 5.1. Ensuring the schemes' financial equilibrium through responsible management of the income and expenditure side is thus equivalent to avoiding implicit pension debt.

This general long-term equilibrium does not automatically guarantee liquidity at each specific point in time. In PAYG systems the scheme is by definition in equilibrium on a year-to-year basis, whereas under other options temporary annual deficits (which would have to be closed by borrowing) are theoretically possible, provided they are compensated by later annual surpluses. The rules and regulations of a given financing system have to translate the financial equilibrium and the annual liquidity requirement into an "actuarial equilibrium" (a close relation of the general financial equilibrium) that ensures the provision of cash flow to cover the benefit expenditure at each point in time and which is a more pragmatic and manageable requirement than the "eternal" general financial equilibrium.

Before proceeding to analyse the main features of financing systems, we should recall briefly one of the main messages of Chapter 2, namely what determines the level of expenditure in social transfer systems. As we have seen, the expenditure (and therefore also the financial equilibrium) of a benefit scheme is influenced by three sets of factors:

- *demographic factors*, which determine the relative size of the active (and financing) generation to the non-active (and benefiting) generation;
- *economic factors*, which determine the ability (itself dependent on the level of economic development) of the different financiers to honour their contractual arrangements; and

Table 5.1 Factors affecting the financial equilibrium of a social protection scheme

	Impact on income items	Impact on expenditure items
Economic factors		
(1) growth	insured persons and wages	entitlements and number of beneficiaries
(2) employment (most likely depends on (1))	number of contributors or taxpayers	number of beneficiaries (invalidity, sickness, unemployment, poverty alleviation benefits: immediately; old-age, survivors' benefits: in the long run)
(3) wage share of GDP and wages (might depend on (1))	insurable earnings	benefit amounts (after a time lag)
(4) wages/inflation	insurable earnings	benefit amounts
(5) interest rates increase	investment income	
Demographic factors		
(1) initial population age structure	number of actives	number of beneficiaries
(2) mortality changes	number of actives	number of beneficiaries and average length of service that determines entitlements
(3) fertility increase	number of contributors (long run) if economic development permits	number of beneficiaries (long run)
Governance factors		
(1) design of the scheme	contribution or tax provisions	benefit formula and entitlement conditions determining the number and amounts of benefits
(2) maintenance (adjustment of pivotal scheme parameters)	ceiling on insurable earnings	benefit levels
(3) administrative complexity		administrative and hence total expenditure
(4) registration compliance	(short-term) total amount of insurable earnings	(long-term) number of beneficiaries and amount of benefit expenditure
(5) wage compliance	(short-term) insurable earnings	(potentially long-term) level and amount of benefit expenditure

- *governance factors*, which describe the actual nature of the contract, namely how much is promised to the inactive generation and how well the financial flows are managed.

Table 5.1 summarizes the impact of these concrete and measurable influence factors on the income and expenditure of a social protection benefit scheme.

5.1.2   Parameters of financing systems

5.1.2.1   The size of the covered group

The smallest group within which social transfers take place is obviously the nuclear family. The next group in size is the extended family or a neighbourhood, followed by a community or occupational group. Unless mandated by specific legal provisions (such as alimony provisions in family law), transfers within families and/or small communities are often of an informal nature. The extent of solidarity within nuclear groups varies greatly, depending again on societal values and specific family or community circumstances. There are generally no clear entitlements to benefits, even in community-based schemes. As in informal family settings, community-based transfer levels are often income-defined – in other words, actual levels of social protection depend on the income level of the group as a whole rather than on the objective need of potential transfer recipients.

The reliability of benefits increases, at least in theory, with the size of the group covered by a specific transfer arrangement. National schemes – or at least social insurance schemes with wide coverage – generally have a more stable benefit experience and income than smaller groups. All social transfer systems are based on resource pooling to cope with contingencies such as invalidity, poverty, old age, sickness, and so on. The variance of the benefit experience of big groups (i.e. their financial risk) is inevitably more stable than that of smaller groups, and this in turn stabilizes the financial position of larger groups. This point is illustrated by a random number exercise in box 5.1.

In addition to the principal mathematical internal risks set out in box table 5.1.1, small groups also often face joint external risks like unemployment in an occupational group, poverty in a family, epidemics in communities. In other words, as long as they are well governed, bigger schemes can usually cope better with most risks. The disaggregation of national solidarity into smaller solidarity groups inevitably also leads to a greater disparity of benefit levels. With some likelihood this will create smaller groups with a wide range of average income, which means that these groups can potentially also cater for different levels of benefits: richer groups will be able to finance more and better benefits.

However, actuarial arguments for large risk pools might be in contradiction with a society's political preferences. A society might choose wide risk pooling in one social protection subsystem (like the National Health Service [NHS] in the United Kingdom), while at the same time opting for a very heterogeneous pension system (like United Kingdom's mixed public/private pension system). Others may opt for strong basic protection against poverty in old age while leaving the guarantee of adequate income replacement rates to group-based schemes (the Netherlands pension system, for example). Worldwide, a trend towards greater

**Box 5.1   Does the size of the risk pool influence the stability of
benefit experience?**

Assume there is a health insurance scheme. We know that the average
"true" benefit per insured person per period is 10 Currency Units (CU)
and that the true standard deviation is CU 5. We further assume that this
scheme has a choice of insuring ten, 100 or 1,000 members with a
homogenous risk structure (that is, a normally distributed random
variable with mean CU 10 and standard deviation 5). Of course, in real
life not every member would experience exactly such a benefit take-up
that the overall average would be CU 10 and the standard deviation
exactly 5. According to the law of large numbers, an exact normal
distribution with these two parameter values would be approximated
only if the scheme were insuring a high number of people. The smaller
the number of insured persons, the further away would the real benefit
experience be from the true values. To illustrate the point, a standard
random number generator of Excel was used to simulate normally
distributed random benefits over ten years for a scheme with ten, 100 or
1,000 people.
    The standard deviations from the true mean of CU 10 are noted in
box table 5.1.1. In a second step the average standard deviation of the
observed standard deviation from the true standard deviation of 5 was
also calculated over the period of ten years. The results show clearly that
the ten-year experiment with a scheme covering 1,000 members was
much closer to the true value than in the scenarios with ten or 100
members.

Box table 5.1.1   Results of a random number experiment

Year	Standard deviation from true mean		
	10 members	100 members	1 000 members
1	3.69	4.63	5.16
2	5.06	4.87	5.17
3	4.8	4.54	5.32
4	4.41	4.17	5.12
5	4.38	5.09	5.26
6	5.12	4.56	5.21
7	3.47	5.05	5.26
8	5.05	4.82	5.17
9	5.62	5.25	5.37
10	6.51	4.63	5.17
Standard deviation (SD) of observed SD from true SD	2.38	0.47	0.17

Source: ILO calculations.

> **Box 5.1** (cont'd)
>
> The contingency reserve that a small scheme would have to maintain in relative terms (that is, relative to the overall average benefit expenditure) would obviously have to be much bigger than that of a scheme with a large number of members. In other words, a small scheme faces a higher probability of bankruptcy than a large one. A small scheme has two alternative ways of insuring against bankruptcy. One way would be to limit its liabilities and thus push some of the risk back to its members; building up a contingency reserve will then be enough to cover a conservative estimate of a total annual or multi-annual benefit outgo. Alternatively, the scheme could buy reinsurance, thereby turning an unpredictable risk of high annual benefit expenditure into a constant and predictable reinsurance premium.

disaggregation of solidarity groups can be observed, all the way down to full individualization found in Mandatory Retirement Savings (MRS) schemes. This inevitably creates a greater differentiation of individual benefit levels.

5.1.2.2 Financing rules

Statutory public social security schemes operate on the basis of financing rules or principles that are fundamentally different from private arrangements aimed at ensuring income security. Private insurance companies, for example, finance pensions on the basis of individual equivalence, a financial rule which stipulates that the present value of the contributions of each individual contributor entering the scheme has to equal (on average) the present value of all expected benefits (plus administrative cost). In the case of defined-benefit (DB) pension schemes, in practice this generally leads to pension insurance contribution rates that are calculated for cohorts defined by the age of entry into the insurance. Individual premiums might be charged for persons with certain handicaps. Normally there are no income transfers between generations or income groups, the only risks insured being longevity, premature death or invalidity (if the last two contingencies are included in the insurance contract). In the case of MRS schemes, the principle of individual equivalence is automatically fulfilled. Each participant's account balance is determined solely by his or her contribution and the associated investment earnings, and the present value of the benefit provided by the scheme is exactly equal to the balance of the scheme (minus administrative fees which, incidentally, may be substantial).

The rules governing social security financing systems are more discretionary than those dictated by private sector financial requirements but can be deduced from the general societal mandate of NSPSs. Three main rules can be identified: the financial solidarity rule, the rule of collective financial equivalence, and the rule of intergenerational equity. In practice, they are

hardly ever all fulfilled at the same time and are almost inevitably the result of political compromise.

The financial solidarity rule[5]

Under this rule, contributions or taxes for the financing of benefits are charged on the basis of the members' ability to pay, regardless of their risks or circumstances (suffering from a health impairment or having eligible dependants, for example). In social insurance schemes this principle is generally embodied in uniform contribution rates charged as a fixed percentage of insurable earnings. This might even be modified by lower contribution rates for low-income earners. In the case of pension financing from direct taxation, this rule generally applies automatically owing to the usual overall progressiveness of tax rates.

The rule of collective financial equivalence

This rule is parallel to the principle of individual or cohort-based equivalence in private insurance – in fact, it extends the equivalence rule from the individual or a cohort (of the same age, sex or occupation) to a covered community. It requires that at any point in time the total present value of all expected future expenditure of the social protection scheme should be equal to the present value of all future income of the scheme (plus the initial reserve at the respective point in time, if applicable). This has three implications: First, it simply requires that the scheme be in financial equilibrium (as does the principle of individual equivalence in the private sector). Second, it permits redistribution of income between groups as long as the long-term financial equilibrium is secured. It also stipulates that in the long run income has to cover expenditure regardless of whether reserves are built up or the scheme runs on a pure PAYG basis. Third, it implies that social security resources should not be used to finance non-social security expenditure (which might happen if governments borrow resources and either do not return them or return them at a substantially lower real value), and that the scheme should not receive any external subsidy. The latter can occur if a scheme does not cover the whole population but is subsidized from general revenues. Both these situations raise serious questions of equity with respect to whether a particular population group should be asked to pay extra taxes (which happens if social security contributions are used for purposes other than social security requirements) and whether the general public can be obliged to subsidize the standard of living of a specific group (which occurs when a scheme is subsidized from general revenues).

The rule of intergenerational equity

This rule is generally applied only to long-term benefit schemes – that is, to pension schemes and long-term care schemes (the latter provide non-time bound nursing care for the permanently disabled, mainly the elderly, at home or

in specialized establishments). It requires that members of all generations (i.e. successive generations) pay roughly the same share of their disposable income during their active life in order to earn equal benefit entitlements (in terms of replacement rates). This principle is the most contentious, least clear and most open to diverse interpretations.

In PAYG or partially funded systems, early generations normally pay lower contribution rates than the generation at or near the maturity stage of the scheme, while often earning similar pensions. Generational accounting would clearly show that the present value of their contributions is lower than the average present value of their benefits. This might be called a windfall profit when a new pension scheme is started in an economy with a roughly constant high standard of living. For developing economies one might argue that a lower contribution rate for early generations is justified on the grounds that their living standard is normally only a fraction of that of the following generations and that it is therefore only equitable to transfer some of the benefits of later growth to early generations. If one were to finance a pension system by a theoretically eternally constant contribution rate, then most of the contributions made by the early generations would go into building up reserves. At the maturity stage of the scheme, the income from investments would help to finance the scheme and keep the contribution rate at its eternal level. If the early generations had not contributed to building up reserves then the missing investment income in the later stages would be equivalent to the redistribution of income from later (normally richer) to earlier (normally poorer) generations. Such income redistribution might still be regarded as socially equitable even if it is not equitable in strict actuarial terms.

In most cases the above rules are not applied in their pure form. There are often tax subsidies for pension schemes that do not cover the total population or, on the contrary, pension reserves may be borrowed and consequently written off. Both cases violate the rule of collective equivalence. In defined-contribution (DC) schemes, survivors' benefits might depend to a crucial extent on the age of the breadwinner at time of death, which would violate the financial solidarity rule. The concept of intergenerational equity is much debated but is seldom clearly defined. It might even be in conflict with reality if there are no capital markets to absorb the initially high reserves under "eternally" constant contribution rates, or if the scheme lacks access to experienced investment management skills. The extent to which societies adhere to the different rules and the priorities they give to one principle over another are a matter of political preference, and the choice of a particular financing system implicitly reflects these preferences.

5.1.2.3 Actuarial equilibrium and the level of funding

As mentioned above, the actuarial equilibrium translates the general financial equilibrium into a rule that can be followed easily in day-to-day practice. In

Table 5.2 Independence of financing methods and benefit formulae

Type of benefit formula	PAYG	Partial funding	Full funding
DC formula	NDC schemes (e.g. Latvia, Poland, Sweden)	Could be achieved in NDC schemes with demographic buffer funds	Mandatory savings schemes in Latin America (e.g. Chile, Mexico, Peru)
DB formula	Tax-financed first-tier systems (e.g. Denmark, Netherlands), contribution-financed systems (e.g. France, Germany)	All social security schemes with higher than PAYG funding level (e.g. Cyprus, Japan, United States)	Occupational pension schemes (e.g. United Kingdom), some rare cases of social security schemes (Kuwait)

short-term benefit schemes, which provide health care, unemployment benefits, sickness or maternity benefits and where benefit and/or contribution levels can be adjusted relatively quickly to changing economic, demographic or political realities, it is enough to stipulate that a scheme's contribution rate is calculated on the basis of the expected total expenditure in the coming fiscal year plus a reasonable contingency reserve. In a health system the contingency reserve may vary from less than half to the equivalent of one year's expenditure. That level of contingency reserve would "buy" enough time for the scheme to adjust benefits or contributions to new realities. The actuarial equilibrium should normally be defined by law.

The following paragraphs deal mainly with pension schemes as the most prominent long-term benefit schemes, where setting the necessary level of reserves is somewhat more complicated.

Actuaries commonly distinguish three financing methods that create different levels of reserves in a pension scheme:

- virtually no funding (i.e. PAYG),
- full funding, and
- intermediate funding (i.e. partial funding).

It has already been mentioned that the determination of pension levels (i.e. the level of benefit protection in a society) and the financing of the scheme are in theory mathematically independent areas. This can be demonstrated by table 5.2 which shows that both major types of pension benefits, namely pensions calculated on the basis of the *defined-benefit method* and those calculated on the basis of the *defined-contribution method*, can be financed by each of the three main financing methods. But before we explore that relationship, we should take a closer look at the definition of "defined-benefit" and "defined-contribution" schemes (see box 5.2).

Private sector pension schemes are governed by rules that usually require full funding – in other words, they need to have sufficient resources at their disposal to honour their obligations should the insurance company or the

**Box 5.2   Defined-benefit and defined-contribution schemes:
            A terminological excursion**

In a *defined-benefit (DB) scheme*, the scheme's regulations define a benefit level that may have no strict relationship with the amount of contributions actually paid by the contributor during his or her career. A good example is the following pension formula for old-age pensions:

$$PENS = (n * 0.015 + 0.2) * RW \quad \text{if } n >= 15 \qquad (5.2.1)$$

where:

   n is the number of contribution years
   RW is the reference wage
   0.015 is the accrual rate.

   The reference wage is the wage indicator on which the pension may be calculated. This could be, for example, the average of the last three annual wages before retirement, or the adjusted career average wage. In both cases a ceiling could be applied to the amount of wages that enters into the calculation. In the above case, after 40 years of contributions a worker would receive a pension of $40*1.5$ per cent, plus 20 per cent of the reference wage, hence a total of 80 per cent of the full reference wage. That may or may not be generous. If the reference wage is a career average, for example, and the annual wages entering into the carer average calculation were not indexed to compensate for inflation, then the reference wage may be relatively low compared to the pension recipient's last wage. This means that the ratio of the amount of pension to the last wage (the replacement rate of pensions) may also be very low. A low replacement rate in turn generally signals a relatively big drop in the standard of living when a person retires. Also, pensions may not be indexed during the pensioner's lifetime, which means that the purchasing power of an initially relatively high pension may diminish quite quickly as a result of inflation. In cases where $n < 15$ (i.e. if the person has less than 15 insurance years), there may be only a lump-sum payment instead of a pension.
   In any case, the above formula makes the pension independent from the contributions actually paid by the individual. Insurable earnings enter into the equation but the actual contributions paid on these earnings do not. The pension rights earned during a career may have been paid for by very low contribution rates in young pension schemes, or by very high contribution rates in old schemes serving a very old population.
   In a *defined-contribution (DC) scheme* the total amount of contributions paid is generally accumulated in an individual account. The accumulation includes the accumulation of interest earned during the active career. At the time of old-age or invalidity pension receipt the balance in the account is divided by an annuity factor, which is in fact the present value of a lifelong pension of 1 currency unit (possibly adjusted for inflation). In an MRS scheme the total amount of balances is

Box 5.2 (cont'd)

actually available in the scheme. Theoretically the scheme could be liquidated at any given point in time and the total amount of contributions and earned interest could be reimbursed to all active members, and the pensioners could receive the present value of their expected remaining pension payments till the end of their lives. In this case the simplified "pension formula" for a standard old-age pension would look as follows:

$$PENS_{t,x} = BAL_{t,x}/\ddot{a}_x \qquad (5.2.2)$$

with $\ddot{a}_x = \sum_{t=0}^{\infty} \left(L_{x+t} * (1 + w)^t\right)/\left(L_x * (1 + i)^t\right)$
where:

$t = 0,\ldots,\infty$	is the year of pension receipt,
$BAL_{t,x}$	is the balance in the individual accounts at age x in year t
L_x	is the number of people surviving till age x
w	is the annual rate of adjustment of pensions (assumed equal throughout pension receipt)
i	is the interest rate (again assumed equal throughout pension receipt)

The latest arrival in this definitional context is the *notional defined-contribution (NDC) scheme*. These are actually non-funded schemes (like the pension schemes in Sweden and Latvia) which simply use the formula of the DC scheme as a benefit formula without having the actual amount of reserves to back up all the entitlements. They sometimes assume that the annual rate of adjustment of pensions is identical to the interest rate. In this case the pension formula would look even simpler as the $\ddot{a}_x$ would turn into the life expectancy at retirement age e_x:

$$PENS_{t,x} = BAL_{t,x}/e_x \qquad (5.2.3)$$

It can be mathematically shown that these schemes are close cousins of DB schemes with actuarial increments or reductions to account for late or early retirement (see Cichon, 1999a).

occupational pension scheme be dissolved. Public pension schemes, which are backed by a societal promise guaranteeing their liquidity and indefinite existence, do not require the same level of funding; their level of funding is determined by objectives other than the exclusive financial safeguarding of pension promises.

The level of funding in a social security scheme is defined by the legal definition of the scheme's *actuarial equilibrium*. A private pension scheme is in actuarial equilibrium if at each point in time the amount of reserves is equal to

the present value of all liabilities of the scheme, including the present value of all pensions in payment as well as the present value of all pension rights accumulated by active contributors. If this condition is met then the scheme is fully funded. The corresponding reserve level is called the *terminal funding level*, since the reserves are sufficient to finance all present benefit obligations if the scheme were to be terminated at a given point in time. With the exception of very few social insurance schemes, such as the Social Insurance Fund in Kuwait, no major social security pension scheme pursues a similar funding strategy.

In social security the actuarial equilibrium is a discretionary concept. Technically it is usually stated in the form of a provision in the social security law which stipulates:

(a) that the scheme has to maintain a certain level of funding of k times the annual expenditure (i.e. the funding ratio)

(b) for a certain number of years x (i.e. the period of equilibrium).

The periodical actuarial review of many national social security pension schemes tries to establish whether their present and likely future financial status complies with the legally defined actuarial equilibrium. If this is not the case, then the valuation will make recommendations on how that equilibrium can be restored. It should be noted here that the financial equilibrium and the actuarial equilibrium are closely related but are mathematically by no means identical. Being in financial equilibrium in the long run does not mean that the scheme is in actuarial equilibrium at each and every point in time. Likewise, if the scheme is in actuarial equilibrium at a certain point in time, that does not mean that it will also be in equilibrium beyond the actual period of equilibrium. Ideally, an actuarial valuation should propose a sequence of contribution rates for the future that would keep the scheme in a permanent actuarial equilibrium; this would then also mean that the scheme would be in "close financial equilibrium". However, this would require exact projections for an unlimited period, which is hardly a realistic expectation.

If – in the legal definition of actuarial equilibrium – k is smaller than unity (i.e. the scheme holds less than the equivalent of one year's expenditure as reserves) and x equals 1, then the scheme is financed on a PAYG basis with a small contingency reserve. A bigger k indicates that the scheme is at least partially funded. Internationally, a wide variety of rules are applied: in the United States, for example, k is relatively high and x equals 75 years, whereas in Germany k is smaller than 1 and x is only 15 years. A full terminal funding level of reserves would lead to a much bigger k, which would in each case depend on population mortality rates, on interest rates and on the benefit provisions of the scheme. Recent ILO calculations for the social security scheme in Trinidad and Tobago, for instance, indicated that the terminal funding level of k would be in the order of 24 in a near-stationary state.

It should be noted in this context that, from a national perspective, complex and pluralistic systems composed of PAYG tiers and fully funded tiers are nothing other than a partially funded pension system. Fully funded national pension systems are thus an exception rather than the rule, but a pension system may well have fully funded components.

5.1.2.4 Sources of financing

This section examines only public formal social protection systems, which have four types of revenues:

(a) taxes, in the form of a share of general revenues or taxes earmarked for social protection purposes;

(b) social security contributions paid by employers and/or workers;

(c) investment income; and

(d) a wide range of other revenues, which ordinarily play only a marginal role.

Social protection schemes are generally categorized according to whether they are dominantly tax financed or contribution financed. Fully tax-financed or fully contribution-financed schemes (and hence systems) are rare. Most NSPSs are actually financed through a mix of sources. Even many dominantly contribution-financed subsystems, such as pension schemes, are often subsidized to some extent from general revenues. The degree of mixed financing in selected national public pension schemes is presented in table 5.3.

In practice, social protection benefits can be financed using any source of government revenue. The source of financing is usually related to the characteristics of the benefit. Universal benefits are normally funded from general tax revenues but they can be funded from mandatory contributions, possibly including contributions from the unemployed and non-workers. Means-tested social assistance type benefits (such as the public pension scheme in South Africa) are normally funded from general tax revenues because the low-income recipients of these benefits might not qualify on the basis of accumulated contributions. Provident funds and individual account DC plans are financed by workers' contributions withheld from wages, often without a corresponding contribution from employers. Social insurance systems are usually financed through shared contributions of employers and workers, at times complemented by government contributions (see table 5.3). To the extent that schemes are funded, investment earnings also help to finance benefits.

In Africa, where coverage is low, social insurance schemes are usually financed entirely from employers' and workers' contributions and investment income. General tax subsidies for schemes with low population coverage could hardly be justified on equity grounds. In countries where coverage is low but the

Table 5.3 Current contribution rates in selected national social security
pension schemes

Country	Total contribution rate (in % of total insurable earnings)	Employer share (percentage points)	Employee share (percentage points)	Government contribution
France	14.85	8.2	6.65	Variable subsidies
Belgium	16.36	8.86	7.5	Annual subsidies
Luxembourg	24	8	8	8% of total insurable earnings
Canada	7	3.5	3.5	Cost of basic universal pension and cost of income-tested benefits; contributions finance only earnings-related tier
Italy	32.7	23.81	8.89	Cost of social assistance benefit plus overall deficit
Germany	19.5	9.75	9.75	Cost of non-insurance benefits
Gabon	7.5	5	2.5	None
Poland	32.52	16.26	16.26	Funds for minimum pension guarantee
Pakistan	5	5	None	Subsidies as needed
Trinidad and Tobago	8.4	5.6	2.8	Full cost of social assistance benefits
United States	12.4	6.2	6.2	Cost of special benefits and means-tested allowance
Republic of Korea	9	4.5	4.5	Partial cost of administration

Source: SSA (1999).

government contributes to the social security system from general revenues, if
the source of general revenues includes taxes from low-income people then this
type of social security financing is regressive, precisely because in countries
with low coverage it is the low-income workers who tend not to be covered.
Primarily tax-financed social protection systems are generally progressive
(and are thus often more efficient at alleviating poverty than social insurance
schemes). They usually provide flat-rate benefits and are paid also to people
who have little or no attachment to the labour force or have limited capacity to
contribute (as in Denmark and the Netherlands, for example). Financing can
also come from earmarked taxes (reserved specifically for social security

financing), or from general revenue taxation. A portion of government contributions to social security in Panama, for example, comes from a tax on alcohol. Proceeds from the privatization of government enterprises can also be used to finance public pensions or the transition from one pension system to another. Part of the financing of Bolivia's DC system, for example, came from the privatization of several state-owned industrial enterprises.

In the early 1990s France introduced an innovative hybrid between tax and contribution financing of social protection, called *contribution sociale généralisée* (CSG). This general social contribution is described in box 5.3.

Box 5.3   A hybrid form of social protection financing: The case of the
***contribution sociale généralisée* (CSG) in France**[1]

During the 1990s social security financing in France underwent a number of important changes. Despite a relatively high level of public taxes (around 45 per cent of GDP) income taxation was comparatively low by international standards, and there was a chronic social protection deficit. The CSG, which came into effect in 1991 with the aim of introducing an element of taxation into the financing of social security, has since become one of the key elements of social protection financing.

Almost every individual in France is now covered by social security. Traditionally, social security financing had been almost completely assured by workers and employers, through wages. As this was both inequitable and financially insufficient (since the sum of wages tends to grow very slowly), the CSG was created to introduce taxation into social security financing. It has since been used to improve the financial equilibrium of the different schemes and to ensure greater equity among the population covered by social security, through a diversification of resources, mainly through taxation of capital income.

Indeed, the CSG has broadened the financing base of social protection. It has every legal feature of a tax (and was in fact recognized as such by France's Constitutional Council) except that it is not allocated to the state budget but to the social security schemes themselves (health, family and old-age funds) – which is a classic feature of a contribution. Unlike social security contributions, however, it gives no entitlement to benefits. All individuals fiscally resident in France pay the CSG. The tax base includes the following:

- Income from employment (wages of public and private sector workers, bonuses).
- Replacement income (old-age and invalidity pensions, unemployment benefits, early retirement pension, illness, maternity, work injury, and occupational disease benefits). Reduced rates apply to low-income households that do not pay income tax. Most family benefits are exonerated, as is income from social assistance.

Box 5.3 (cont'd)

- Income from assets (revenues from estate – land and property, capital income, life insurance income, fixed-yield investment, equity dividends, capital gains).

   In 1993 it was estimated that while 87 per cent of income from employment was subject to the CSG, for replacement income and for taxed asset and investment income the figure was less than 50 per cent; by 1997, however, most of the exonerated assets had been incorporated into the calculation base.

Box table 5.3.1   CSG tax base, 1993 (in billion French francs)

	Household income	CSG base	Share (%)
Employment income	3 107.4	2 706.9	87
Replacement income	1 353.8	641.4	47
Income from assets	558.2	245.7	44

Source: Syndicat National Unifié des Impôts, 1997.

   The CSG is collected by different institutions depending on the nature of the tax base (social security institutions for employment and replacement income, tax authorities for income from assets). The CSG rate was set at 1.1 per cent in 1991 and has already been raised three times. At the time when the CSG came into effect the old-age pension contribution rate was cut by 1.05 per cent. The CSG was not deductible from income tax. A first increase in 1993 was not compensated and remained non-deductible. The second increase, however, was offset by a reduction in the health care contribution rate, as was the third; both of these increases were income-tax deductible. As the CSG base is broader than that of social security contributions, the net effect of substitution is positive.

Box table 5.3.2   Evolution of CSG rates since 1991

Date	Rate (%)	Reduction of social security contributions (%)	Deductible from income tax (%)
1991	1.1	1.05 (old age)	No
1 July 1993	2.4	No	No
1 January 1997	3.4	1 (health care)	1
1 January 1998	7.5 (6.2, 3.8 or 0 for replacement income, means-tested)	4.75 (health care)	5.1

   The allocation of CSG income is linked to the historical development of the contribution as follows:

Box 5.3 (cont'd)

- 1.1 per cent Caisse Nationale d'Allocations Familiales (CNAF) (family benefit fund)
- 1.3 per cent Fonds de Solidarité Vieillesse (FSV) (old-age fund)
- 5.1 per cent Caisse Nationale d'Assurance Maladie (CNAM) (health fund).

CSG income growth is shown in box table 5.3.3.

Box table 5.3.3   Revenues generated by the CSG since 1991 (in billion euros)

	1991	1992	1993	1994	1995	1996	1997	1998	1999
	4	6	8	13	14	14	21	46	51
(% of GDP)	0.4	0.5	0.8	1.1	1.1	1.2	1.7	3.5	3.8

Source: Assemblée Nationale française, 2000 (French Parliament report) and ILO calculations.

In 1999 CSG returns represented about 25 per cent of central government revenues, and roughly the same proportion of the income of the main social security scheme. Moreover, that was the first year that CSG returns were higher than income tax. It is important to note the differences between these two charges: the CSG is a flat-rate tax, whereas income tax is progressive. Nevertheless, both taxes have their own redistributive effects: the CSG levied on capital income, for example, obviously affects higher-income groups more. In addition, the CSG allows for reductions in social security contributions, which has resulted in net salary increases together with a transfer of charges from low-income to high-income households. Likewise, the CSG implies a transfer of charges from the economically active to the inactive.

Box table 5.3.4   Relative importance of the CSG versus income tax (in billion French francs)

	1991	1992	1993	1994	1995	1996	1997	1998	1999
CSG	28	38	55	85	89	92	138	302	337
Income tax (Impôt sur le revenu des personnes physiques)	304	307	310	296	297	314	293	304	334

1 euro = 6.55957 French francs.

Source: Assemblée Nationale française, 2000 (French Parliament report).

There have been many changes and improvements in the provisions governing the CSG since its inception, making it one of the most prominent, but also one of the most complex taxes in France. Almost every government, whatever its political orientation, has strengthened the role and structure of the CSG.

Note

[1] This box was prepared by Florian Léger of ILO FACTS.

The source of financing has some bearing on the level of funding. Dominantly tax-financed social security schemes are generally financed on a PAYG basis, whereas contribution-financed schemes can operate at any level of funding. Second-tier pension schemes, most notably occupational pension schemes, are usually financed on a contribution basis and are generally fully funded. It should be noted, however, that some countries have unfunded occupational pension schemes. In France, Germany, Luxembourg and Japan, pension schemes provided in the private sector are not fully funded. In France, the mandatory industry-wide pension schemes use PAYG financing. In Germany and Luxembourg, and to a lesser extent in Japan, most occupational pension schemes are financed using book reserves, meaning that no separate fund is established but the pension promises are backed by the assets of the company. During the 1950s and 1960s, this has especially helped to finance major corporations which did not have to seek external financing to the same extent as enterprises in other countries. Pension promises, however, are secured by a national reinsurance co-operative.

The differences between contribution and tax financing have been much discussed in the past. The comparative strengths and weaknesses of the former in relation to the two major forms of tax financing of social protection pension schemes (general revenue financing or earmarked tax financing) are summarized in box 5.4.

Box 5.4   Tax versus contribution financing of mandatory pension schemes

In theory, contribution-financing and tax-financing options have certain advantages and disadvantages in specific economic and socio-economic environments. The main characteristics generally attributed to the different financing options are set out in box table 5.4.1. The table can also be used as a policy checklist by social protection planners setting up or reforming a national or regional public pension scheme.

Box table 5.4.1   Contribution financing versus tax financing of statutory pension schemes: A policy checklist

Characteristics or impact on:	Contribution financing	General revenue financing	Earmarked tax financing
Population coverage	(1) Appropriate for schemes that do not cover the total population (*equity considerations under the collective equivalence*	Appropriate for *universal coverage*	Appropriate for universal coverage, but can also be used for partial population coverage (if taxes can be targeted,

Box 5.4 (cont'd)

Box table 5.4.1 (cont'd)

Characteristics or impact on:	Contribution financing	General revenue financing	Earmarked tax financing
	principle), but can be used for universal coverage (2) Could lead to unwanted exclusion of low-income groups from coverage		consumption taxes on agricultural inputs, such as fertilizers, could be used for example to co-finance a farmers' pension scheme)
Administration	Higher administrative cost of collection than in general revenue financing	Easy to administer, as no *extra cost for administration*	Collection easier than in case of contributions but more costly than general revenue financing
Compliance	Thought to be high if benefits are attractive, reliable and income-related	As high as for general tax collection, *thus possibly lower than contribution financing*	Same as general revenue financing
Benefit design	(1) Generally thought appropriate for *income-related benefits* as it permits a close relationship between benefit levels and contribution payments (2) In practice the only option for DC schemes	Generally used for *flat-rate benefits*	Generally the same as general revenue financing but in case of earmarked income tax could be as appropriate as contributions for earnings-related benefit schemes
Income policy considerations	(1) Permits financing according to the *ability to pay* (*principle of financial solidarity*) within the covered group (2) Also permits the exclusion of high earners or parts of their income from coverage	Can make social protection financing *more progressive*	Basically the same as (1) under contribution financing
Financing	(1) Allocation of public funds to pensions more *transparent and reliable* and more (though not fully) independent of overall government budget decisions (see Chapter 4)	(1) Provides no earmarked source of income for the social protection scheme and con-sequently for the pension system, making benefit	(1) *Combination of contribution (earmarking) and tax financing (government control)*, actual form depending on legislative provisions

Box 5.4 (cont'd)

Box table 5.4.1 (cont'd)

Characteristics or impact on:	Contribution financing	General revenue financing	Earmarked tax financing
	(2) Maintenance of financial equilibrium requires explicit choices on long-term benefit levels (3) Offers the option of accumulating *flexible level of reserves* (and hence of pursuing *secondary economic policy goals*)	levels subject to annual budget decisions; as a result, thought to be less reliable than contribution financing (2) Provides greater flexibility and overall government control over public sector financing (3) Generally used only for PAYG financing	and practice of financial governance (interventionist vs. non-interventionist); in theory could accumulate reserves, but in practice this is unlikely
Economic implications	(1) *May increase labour cost* in labour markets where contributions cannot be passed on to the insured persons, thereby reducing labour demand (2) May provide incentive for informal sector activity rather than formal employment on a microeconomic level for both employers and workers	(1) No direct repercussions on the labour market in a macroeconomic policy context (2) same as (2) in contribution financing with regard to employees	Same as for general taxation
Governance	Generally thought appropriate for organizationally *independent schemes governed by tri- or bipartite governing bodies*	Generally used for schemes operated by government departments	Could be used for independent and government-operated schemes

Box table 5.4.1 and the reasoning developed in Chapter 4 show clearly that far from being only a matter of social protection policy, the choice of a financing option also involves public finance and fiscal policy issues, as well as economic (or investment policy) considerations.

The complexity of the repercussions of the different financing options may explain why most governments opt for mixed financing of their NSPS.

5.1.3 Application of the different types of financing systems

While most financing systems can theoretically be applied to all social protection benefits, certain preferences have developed in international practice. Table 5.4 provides a broad overview of the financing systems used in different countries for major benefits or transfers. The transfers are grouped into three major categories: health care, pensions, and others. We will discuss their potential financing systems in that order in the following sections. Table 5.4 thus also provides a "roadmap" through the next three sections of the chapter.

Whatever the financing system, all benefits schemes ultimately have to fulfil the condition of financial equilibrium (see formula 5.1 above). If schemes are contribution financed, then the collection of contributions and the returns on investments have to be scheduled in such a way that resources are available when the benefits fall due. The same applies to tax financing; however, since taxes are collected from many different tax bases, for many different purposes and in many different forms, the equivalence is often less obvious. One way of making financial equivalence explicit is to collect taxes earmarked for specific purposes, for example health care. If taxes are not earmarked for social protection purposes then one cannot project easily whether future resources of the social protection system will be sufficient to cover expenditure without a comprehensive or at least a medium-term financial plan on the part of the government. There are many competing uses for scarce tax money in the government budget, and if allocations of tax resources to an alternative use – the military, say, or the education system – are higher than anticipated, they might well crowd out resources planned for social protection. The future financial soundness of a tax-financed social transfer system can only be assessed if financial planning encompasses the total government budget.

Table 5.4 shows very clearly that pragmatic preferences have developed in many social protection contingencies with regard to the actual choice of financing systems. The most complex menu of financing options is obviously the one open to pension schemes. The financing of pensions will therefore be described in more detail than that of other schemes (see section 5.3).

5.2 FINANCING HEALTH CARE BENEFITS

The financing of health care benefits is markedly different from that of other social protection benefits. Health care benefits are usually benefits in kind rather than cash transfers, but even as in-kind transfers they complement the income of the recipient, who does not have to pay the user charge or the market price for the services received. The benefits are delivered by provider units (doctors in health centres or in private practice, hospitals, pharmacies, etc.) which may or may not belong to the financiers of care – that is, the government or a social or private insurance. These providers have economic objectives of their own: the private

Table 5.4 International overview of applied financing systems

Type of benefit	Tax-financed PAYG	Social insurance contributions PAYG	Social insurance contributions Partially funded	Social insurance contributions Fully funded	Private insurance and other private sources
Health care	National health service or public service health care systems in United Kingdom, Scandinavia, some former socialist countries	Bismarckian social insurance schemes (Central Europe, Thailand, many countries in Latin America)			United States system for the general work-force, second-tier systems in many countries (reserves are built for old age of insured persons); mandated private insurance coverage in Switzerland
Pensions Invalidity, survivors', old-age	DB schemes universal schemes (first tier), United Kingdom, Ireland, Denmark, Canada, Netherlands	Classic Bismarckian pension DB schemes in Germany, France, Austria, Belgium, first tier in China	Classic Bismarckian pension DB schemes in United States, Luxembourg, Cyprus, all of the Caribbean, Africa and Asia	Rare exception in case of DB schemes (e.g. Kuwait)	DB schemes as second tier (e.g. Switzerland), DC schemes in Latin America (e.g. Chile, Peru, Argentina, Mexico)
Other benefits Social assistance (general assistance to cover cost of living, or means-tested supplements to other benefits, e.g. pensions)	Means-tested almost everywhere (United States, United Kingdom, Germany, France, Scandinavia, etc.)				
Universal Basic Income	Scheme thus far not employed anywhere, but taxes or earmarked taxes would be the only logical source				

Table 5.4 (cont'd)

Type of benefit	Tax-financed PAYG	Social insurance contributions PAYG	Social insurance contributions Partially funded	Social insurance contributions Fully funded	Private insurance and other private sources
Short-term cash benefits (sickness, maternity, unemployment)		Classic short-term social insurance schemes; in most countries where applied, earnings-related benefit with some employer co-payments (payment of sickness or maternity benefits for some weeks or severance pay in case of unemployment)	Same as under PAYG		
Other short-term benefits (housing, food stamps, education vouchers, etc.)	Wherever this system is used, general or earmarked taxation possible				
Employment injury benefits		Non fault social insurance either with uniform or industry- or firm-specific experience-rated contribution rate	Non fault social insurance either with uniform or industry- or firm-specific experience-rated contribution rate	Non fault social insurance either with uniform or industry- or firm-specific experience-rated contribution rate	In many former British colonies, employment injury is still an employer liability paid from employer sources on PAYG principles
Family benefits	Tax-financed universal benefits, sometimes with means test, in Germany, United Kingdom, Ireland, Scandinavia	Social insurance benefit in France and French-speaking countries in Africa			
Long-term care	PAYG-based, social assistance principles in most countries	Special branches of social insurance in Austria, Germany, Luxembourg			

entities among them can generally be expected to maximize income, and the public sector ones to reduce stress and workload. In both cases they most likely also wish to maintain or earn professional recognition in their own peer group. The economic relationships on the health care market are among the most complex of all product markets. Box 5.5 provides an overview of its basic characteristics. However, financial planners and political decision-makers require a much deeper understanding of these relationships than can be listed here. A detailed analysis thereof may be found in Cichon et al. (1999, Issue Brief 1).

Box 5.5   Basic characteristics of the health care market

The health care market has some specific characteristics that distinguish it from most other markets for goods and services:

- the need for health services cannot be substituted easily by other products;
- the individual need for services is highly uncertain;
- how need is transformed into demand depends on a variety of factors, including physical access to services, information about available services and their potential beneficial effect, and the ability to pay;
- the structure of the supply of services is dominated by provider peer groups (such as leading doctors in hospitals or doctors in private practice); in other words, it is ultimately the providers who determine to a large extent the baskets of goods and services offered in a country and those that are consumed in specific cases of illness;
- third-party payers, necessary to facilitate the financing of uncertain individual demand, also impact on the demand and pricing of health services;
- government regulations and legal liabilities of providers co-determine the quantity and structure of services delivered;
- the health care labour market is characterized by severe imbalances:

    (a)   the income distribution among health professional is extremely skewed: medical professionals in leading positions often earn many times the average income of the population they serve, while junior doctors, nurses and ancillary staff may receive rather meagre salaries;

    (b)   the perceived high income and status of medical professionals lead to permanent over-abundance of doctors in industrialized countries and brain drain in developing countries;

    (c)   high education cost hinders the training of a sufficient number of health professionals in many developing countries;

Box 5.5 (cont'd)

    (d)   professional health care managers and administrators are not trained in sufficient numbers;

- the health delivery system in developing countries operates under severe budgetary and general resource constraints.

    The demand for health services is almost unlimited but marginal health gains are approaching zero above a certain expenditure level of production and expenditure at a given level of medical knowledge and technological development. The key problem is that nobody knows exactly how to define the spending cut-off point, as health gains are difficult to measure and health expenditure generally competes with other uses for scarce societal resources. Moreover, with their privileged knowledge of the necessity and effectiveness of the services they offer, providers – who are either too numerous (in many industrialized countries) or too few (in many developing countries) – are in a position to determine their own income and thus influence resource allocation in the health care sector.

Despite the complexity of the health care market and potentially unlimited demand, relevant financing systems (that is, third-party payment systems) have to be designed rationally: the contractual relationships in the triangle constituted by *contributors/taxpayers/patients – providers – third-party payers* have to be clearly defined in the design of the financing system. The design has to provide answers to the following five questions:

(1) What is covered (benefit package)?
(2) Who is covered?
(3) Who pays for what?
(4) Who provides what?
(5) How are providers paid?

The last item is of crucial importance for cost control. The way in which providers are paid – on a salary basis, by capitation, by fee-for-service (for individual medical acts, by case, by day), or out of an overall budget – has a major influence on their economic behaviour. Without going into great detail, it is obviously clear that providers who are paid on the basis of an uncapped fee-for-service schedule have an incentive to maximize the volume of care provided, possibly beyond the amount and structure that would yield optimum medical results. At the other extreme, providers paid on an overall budget basis would most likely economize on time and cost. If paid on capitation,

they may spend more time attracting new patients than treating those already registered with them. Payment by case gives them a clear incentive to increase the number of cases and inflate the diagnosis of the cases treated, turning them into higher value added cases. Hospitals paid on a per diem basis have no incentive to send their patients home as long as their capacity utilization is below 100 per cent.

It is clear that a well-balanced provider payment mechanism is crucial for a sound financial architecture of all national health care systems. As elsewhere in this chapter, we will concentrate on the options available in financing a given level of expenditure. The estimation of expenditure levels and the impact of provider payment mechanisms on the expenditure of health care financing systems are described in full detail in Cichon et al. (1999).

5.2.1   National health care financing systems

There are different health care financing schemes operating in various countries (see Cichon et al., 1999, figure 3.2), ranging from dominantly privately financed systems (like the one in the United States and the mandated private insurance scheme in Switzerland) to dominantly tax-financed systems. In fact, all national health care financing systems are pluralistic – that is, they consist of a combination of different schemes. In all countries the State will play some role in the delivery of services, most likely in basic health promotion and prevention (such as vaccination campaigns) or in basic public health (hygiene); at the other end of the spectrum, in many countries highly expensive and specialized tertiary care hospitals have to be maintained. Employers in numerous countries will finance some type of on-site health services in their enterprises. Pluralism in health care financing is unavoidable, as the better-off will always find ways to buy the care they consider adequate. Table 5.5 breaks down total health expenditure by type of financing from public and private sources.

Table 5.5 shows that even in the United States, often said to be the epitome of a dominantly private health care system, the public share of health financing is about 44 per cent, higher than in many developing countries where out-of-pocket financing of scarce services is much more frequent than in industrialized countries.

Due to the complexity of health markets and the inevitable public-private mix of the financing system, careful design and meticulous control of the latter are of crucial importance from both a health care and a fiscal policy point of view. We have seen in earlier chapters that there are specific limits to the overall social expenditure in every country. Health costs are a part of this envelope of possible expenditure. Unlike many other social expenditure items, health expenditure enjoys a high degree of public acceptance. If health costs are not tightly controlled then there is an obvious risk that they might crowd out other social expenditure. In other words, due to the overall limits of spending,

Table 5.5 The public-private mix in health financing, selected countries, 1997

Country	Public expenditure on health in % of GDP	Private expenditure on health in % of GDP	Total expenditure on health in % of GDP
Bangladesh	2.4	2.5	4.9
Bolivia	3.4	2.4	5.8
Brazil	3.2	3.3	6.5
Bulgaria	3.9	0.9	4.8
Canada	6.2	2.4	8.6
Central African Republic	2.0	0.9	2.9
China	0.7	2.0	2.7
Czech Republic	7.0	0.6	7.6
Egypt	2.6	4.4	7.0
France	7.5	2.3	9.8
Germany	8.1	2.4	10.5
Ghana	1.5	1.6	3.1
India	0.7	4.5	5.2
Italy	5.3	4.0	9.3
Mexico	2.3	3.3	5.6
Nigeria	0.9	2.2	3.1
Poland	4.4	1.8	6.2
Sri Lanka	1.4	1.6	3.0
Switzerland	7.0	3.1	10.1
United Kingdom	5.6	0.2	5.8
United States	6.0	7.7	13.7

Source: WHO (2000).

uncontrolled growth of health expenditure might be financed by increased levels of poverty. Complementary to the widely held view that bad health is an attribute of poverty, there is a risk that over-dimensioned health expenditure for some portions of the population might create poverty for others. On the other hand, the health sector is an employment-intensive sector. National governments might well use it to increase and encourage service sector employment and thus combat unemployment.

The financial management of a national health sector shows more clearly than the management of any other social protection subsystem that:

(a) the sector has to be governed comprehensively; the classic instrument of financial governance is a national health budget (see, for example, Cichon et al., 1999, Chapter 5);

(b) the management of the health sector has to be aligned closely with a global national view of the social sector; the technical instrument to be used here is a national social budget (see Scholz et al., 2000).

The instruments used for financing a pluralistic health system are listed in table 5.6. The design of an overall national health care financing system involves a rational choice as to what mechanism is used for which services and for which covered group.

All of these financing instruments are PAYG-based. Hardly any systems (except for some private insurance arrangements) create reserves that exceed the size of contingency reserves. Tax-financed systems almost by definition maintain no reserves. Social insurance schemes generally maintain a contingency reserve, which caters exclusively for unforeseen expenditure hikes during a budget year, and which is generally measured as a multiple of benefit experience. The multiple is generally smaller than 1.

It may well be asked why social health insurance schemes do not maintain a technical reserve which would help to finance the negative cost effects of ageing once they occur. In principle health insurance schemes with wide population coverage face the same ageing-related cost increases that pension schemes will have to confront. However, thus far conventional wisdom among health insurance managers and planners has been that demographic development is one of the major cost determinants of any health care scheme but not necessarily the critical one. Ageing – even if it may appear dramatic – is still a predictable and relatively slow process. Health care costs are much more directly influenced by medical inflation and changes in the general levels and structure of utilization than by pure demographic shifts. Their effects are hard to predict, and no rational rule on the level of necessary reserves can be devised. Reserves in a health care scheme might actually be counterproductive. In order to contain their overall use in the health sector, resources have to be kept scarce. The availability of a sizeable technical reserve would send the wrong signal to health providers and patients alike. On the whole, short-term budget management might be the most rational way to finance health care schemes.

The application of most of the instruments used involves some actuarial techniques. A basic set of formulae for calculating expenditure and the necessary contribution rate in a social health insurance scheme are given in box 5.6.

Many national health care and social security schemes have failed to reach the informal sector in urban and rural areas. Millions of people in developing countries, but also increasingly in transition economies, find themselves out in the cold: working under informal conditions, they have no formal labour contract that would guarantee them access to the benefits of public social transfer schemes. They work without the right to sickness, invalidity or unemployment benefits and without the entitlement to survivors' or old-age pension benefits. The national public service health care and social assistance schemes often lack the resource base to reach out credibly to people in remote rural areas or the slums of big cities.

It may be noted in this context that growing informal sectors are not just a social protection problem, but a problem for the State as a whole. Members of the informal sector generally pay neither social protection dues nor any direct taxes, they are often not registered as workers, and the overall infrastructure

Table 5.6   The menu of health financing instruments

Groups covered by the scheme	Category of services	Possible financing instruments
Informal sector communities	Health promotion and prevention	Government financing International grants
	Primary care services	Government financing User charges Contributions to community-based schemes International grants
	Secondary care services	Government financing User charges Contributions to community-based schemes (to a lesser extent than under primary care) International grants
	Tertiary care services	Government financing User charges International grants
Formal sector workers and their dependants (or groups thereof)	Health promotion and prevention	Government subsidies International grants
	Primary care services	Government subsidies User charges Contributions to social insurance schemes Private insurance contributions Employer financing
	Secondary care services	Government subsidies User charges Contributions to social insurance schemes Private insurance contributions Employer financing
	Tertiary care services	Government subsidies User changes Contributions to social insurance schemes Private insurance contributions Employer financing
Inactive former formal sector workers	Health promotion and prevention	Government subsidies International grants
	Primary care services	Government subsidies User charges Contributions to social insurance schemes Subsidies from active members of social insurance Private insurance contributions
	Secondary care services	Government subsidies User charges Contributions to social insurance schemes Subsidies from active members of social insurance Private insurance contributions

Table 5.6 (cont'd)

Groups covered by the scheme	Category of services	Possible financing instruments
	Tertiary care services	Government subsidies User charges Contributions to social insurance schemes Subsidies from active members of social insurance Private insurance contributions, employer financing
Total population	Health promotion and prevention	Government financing from general revenues International grants
	Primary care services	Government financing from general revenues or earmarked taxes User charges International grants
	Secondary care services	Government financing from general revenues or earmarked taxes User charges International grants
	Tertiary care services	Government financing from general revenues or earmarked taxes User charges International grants

of the State is not built to meet their needs. If they pay taxes at all they have to pay indirect taxes (such as value added tax, or VAT). Many of them live from subsistence farming and subsistence-level service activities, most of which are not even subject to any form of indirect taxation. Poverty and destitution in the informal sector are rampant. People find themselves simply excluded from the society as a whole rather than from social protection alone.

The existence and growth of the informal sector in societies and economies is a major failure of overall governance, not just a failure of existing social protection mechanisms. It can thus be safely assumed that the long-term solution for the problem of exclusion of whole subgroups of the population from social protection coverage lies in the upgrading of overall national governance systems. However, proponents of community-based health care schemes argue that in the meantime something must be done for the people who are living today and are affected by exclusion today (see Dror and Jacquier, 1999). Community financing is currently being promoted as the second best answer to ensuring wider access to care. Its possible strengths and weaknesses therefore merit a separate section.

5.2.2 Community-based schemes for the informal sector

Community schemes, sometimes also called micro-insurance schemes, could conceivably deliver and finance a variety of benefits. However, most of them

Box 5.6   Costing health care schemes: A summary of calculation techniques

This box deals with basic calculation techniques of social insurance financing of health care, which is the most complicated case in public financing of health care. The following formulae follow a classical three-step approach:

Estimation of expenditure (simplified formulae)

The principal formula for the projection of total benefit cost in this category is as follows:

$$TBE(t) = \sum_j FC_j(t) + VC_j(t) \qquad (5.6.1)$$

where:

$TBE(t)$ = total benefit expenditure in t
$FC_j(t)$ = fixed benefit cost for category of care j in year t and
$VC_j(t)$ = variable benefit cost in year t.

Fixed benefit cost is all cost items which – at least for the duration of one financial year – are not directly dependent on the degree of utilization of a provider unit (for example, salaries of regular staff). For the fixed benefit cost, a budget plan for the next four to five years (prediction period) is usually established.

Variable benefit cost (assumed here that providers are paid on a per case basis) can be formulated as (variable j omitted here):

$$VC(t) = \sum_{s,x} VC_{s,x}(t) * COVPOP_{s,x}(t) * f_{s,x}(t) \qquad (5.6.2)$$

where:

$VC_{s,x}(t)$ = variable cost per case for a patient of sex s and of age (group) x in year t
$COVPOP_{s,x}(t)$ = the numbers of protected eligible persons of sex s and of age (group) x in year t
$f_{s,x}(t)$ = frequencies of cases per protected person of sex s and of age (group) x in year t

Variable cost per case and *frequencies* are most easily modelled in the following general recursive way:

$$VC_{s,x}(t) = VC_{s,x}(t-1) * (1 + vc_{s,x}(t)) \qquad (5.6.3)$$

$$f_{s,x}(t) = f_{s,x}(t-1) * (1 + if_{s,x}(t)) \qquad (5.6.4)$$

Box 5.6 (cont'd)

where:

$vc_{s,x}(t)$ = the rate of increase of $VC_{s,x}(t)$ in year t
$if_{s,x}(t)$ = the rate of increase of $f_{s,x}(t)$ in year t

The *rate of increase* in *cost per case* (unit cost), which in this case is mainly the cost of materials and drugs, might be projected by the following method. In principle, this method will also be applied to other cases:

$$1 + vc_{s,x}(t) = (1 + p(t)) * d_{s,x}(t) \qquad (5.6.5)$$

where:

$p(t)$ = the general inflation rate in year t
$d_{s,x}(t)$ = the *average deviation factor*, which describes the average deviation of the rate of increase in the unit cost from the observed general inflation rate during the whole or a part of the observation period

The $d_{s,x}(t)$ for a single year during the observation period is calculated as follows:

$$d_{s,x}(t) = (VC_{s,x}(t)/VC_{s,x}(t-1))/(1 + p(t)) \qquad (5.6.6)$$

Estimation of the total contribution base

$$TAB(t) = \sum_{i,s,x} CONT_{i,s,x}(t) * AB_{i,s,x}(t) \qquad (5.6.7)$$

where:

$CONT_{i,s,x}(t)$ = number of contributors in category i of sex s, age x in year t
$AB_{i,s,x}(t)$ = average assessment base (average income subject to contributions)

Calculation of contribution rate

$$CR(t) = \frac{TBE(t) - OI(t) + AC(t)}{TAB(t)} \qquad (5.6.8)$$

where:

$TBE(t) - OI(t) + AC(t)$ = the amount of total benefit expenditure minus other income $OI(t)$ (non-investment income) plus administrative cost $AC(t)$ during the whole period t

Contributions for the medium term are calculated in the same way as in the case of pension benefits (see box 5.10 on page 264).

are presently focusing on the provision of health benefits. These schemes are financed by voluntary contributions of small groups of insured persons and cover the insured plus the members of their immediate family. As they are considered by some as a major new source of health care financing, we will examine their potential contribution in more depth.

Most community-based voluntary health insurance schemes have several characteristics in common. The following observations are based on first-hand experience in Uganda and Ghana, but a review of recent literature suggests that similar schemes in other countries encounter the same systemic problems.[6]

Community-based schemes often obtain services for their members from a single provider, either a hospital or a health centre. Even if initially created by communities, most provider facilities now benefit from substantial external subsidies. These may take the form of payments of salaries of core health centre staff by the national or district governments or foreign donors, the provision and maintenance of buildings or equipment, or general subsidies (for example, Anglican Church donations to the Kisiizi Mission Hospital in Uganda). In these cases "micro-insurance" thus denotes a *pooled pre-payment arrangement of user fees charged by a specific (or preferred) provider.* In this way the schemes smooth the potential financial consequences of illness for participating families while also stabilizing non-subsidy income for the (preferred) provider units.

It is obvious that the government and external donors are not covering the provider units' full operational cost. Provider units are thus dependent on the collection of user fees or on other forms of subsidies from the community they serve. It appears that health centres and hospitals in many developing countries are fairly strict when collecting user charges. This is a perfectly rational strategy, in particular for provider units which operate their own scheme or co-operate closely with an affiliated community-based health financing scheme. Leniency in the collection of fees would undermine the credibility of prepayment schemes.

Contribution collection rates are not easily determined in an environment with weak data, but statements from health centres and hospital staff in Uganda, for example, indicated that in spite of rigorous fee collection policies bad debt was a relatively widespread problem. In all cases, debtors (patients or heads of household) are registered and if they make no further effort to repay their debt they may be refused access to the facility concerned. An ILO mission to Uganda in April 2000 was told by local communities that access to hospital care was their main priority. In case of hospitalization many people have to sell livestock or land to pay hospital fees if they can no longer borrow from family and friends. That means that serious illness of a family member may actually cost a family its means of existence. In other words, one spell of illness can make the difference between poverty and longer-term destitution. A chronic disease is almost inevitably a death warrant. The principle of replacing a potentially catastrophic expense in the event of illness with modest recurrent

prepaid amounts thus obviously appeals to many community members, notably women; men appear to be less responsive to the possibility of averting potentially catastrophic risks to the family.

Systemic and solvable problems

Most community-based schemes are still at an experimental stage and inevitably face a series of problems:

Management deficiencies. Whatever the size of a health insurance or health financing scheme, its operation requires substantial managerial competence and specific health care-related management experience, as well as basic accounting and statistical skills. These basic skills seem to be lacking in many schemes.[7] It is obvious that micro-insurance schemes, like all other health insurance schemes, cannot be started and operated successfully in the initial phase without support from an experienced professional health care administrator who has to be available for at least one year. Longer-term management problems can and must be solved through training and coaching of staff.

The "poverty wall". There is generally very little information on the actual income distribution of the population effectively or potentially covered by the schemes. However, especially in rural areas, cash income levels are obviously low and irregular. In many rural communities cash income is highest during harvesting time. Many families who depend exclusively on income from subsistence farming reported in 2000 to an ILO mission to Uganda, for example, that they would find it impossible to contribute regularly more than very small amounts. Many schemes covering hospital services demand quarterly contributions that are simply prohibitive. If no alternative (non-cash) ways are found which permit these families to contribute (for example through direct labour, which has to be remunerated by a third-party sponsor), then the population coverage of community-based schemes will, at least in rural areas, have natural limits (in other words, it will hit the "poverty wall").

The actual *premium level elasticity of insurance coverage* is unknown in most countries, but it is obviously negative: each rise in the amount of the contribution will lead to a fall in population coverage. Even poor people may be able to raise enough money from family or friends in order to pay user fees in the event of sporadic, isolated cases of illness, or they may be able to sell some of their productive capital, but they will be neither willing nor able to raise money recurrently from these channels to pay their insurance premiums.

Overcoming the "poverty wall" thus requires some systemic external subsidization if high coverage at community level is a policy objective.

Systemic financial disequilibrium or the recovery gap. All micro-insurance schemes that provide a full range of ambulatory and stationary services face a structural cost problem. Many of them appear to be affected by systemic financial disequilibrium.[8] As a result, community-based schemes relying on regular contributions of insured persons will not be able to reach out to the very poor.

Benefits have to be delivered by a core group of highly skilled formal sector workers and financed from the money income of informal sector employees. This leads to a state of *systemic financial disequilibrium*. This point is illustrated in box 5.7.

Box 5.7   Systemic financial disequilibrium of a typical small community-based health insurance scheme

The example chosen is one of a scheme covering around 2,000 people;[1] the following assumptions are made:

(1) the scheme would require the services of at least:

- one medical officer
- one paramedic
- one auxiliary staff member

to provide ambulatory care; about 25 per cent of the staff budget would have to be added for non-staff cost (investment in and maintenance of medical technology, general overhead costs of a health centre) of ambulatory care; the scheme would also have to employ at least one administrator (or purchase administrative services equivalent to the staff cost of one administrator);[2]

(2) the cost for inpatient services and pharmaceuticals would be similar to that required for ambulatory care;[3]

(3) the health care professionals and the administrator would have an average annual income of about ten times the average annual income of the insured population;

(4) the average family would consist of five people, with one person economically active in the informal sector.

The 400 economically active people financing the scheme would have to pay about 21 per cent of their money income to finance their health care.[4] In a formal sector context, where the income differential between providers and financiers is much lower (say in the order of 3 to 4), the relative cost of such a scheme could be kept in the order of 6 to 8.5 per cent of the family income. In the context of a developing country this would be an acceptable order of magnitude.

Box 5.7 (cont'd)

Box figure 5.7.1 Theoretical contribution rates in micro-insurance schemes (by number of covered persons and provider/financier income distribution)

%

Contribuition rate

150.0

100.0

50.0

0.0

200   600   1000   1400   1800

Number of covered people

| Income differential 10 | ············· 7.5 | 5 | 2.5 |
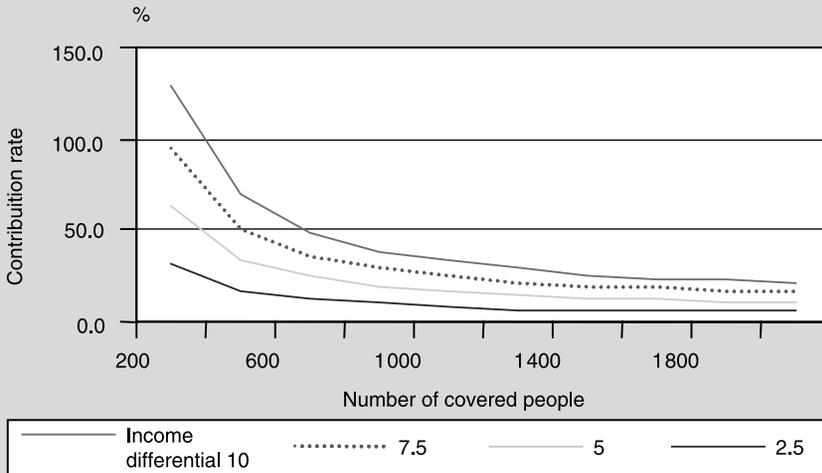
Source: ILO calculations.

If the scheme size fell short of the 2,000 figure, as many schemes do, then the relative cost of health care for each participating family would increase further as staff costs in medical care are not necessarily a linear function of the number of people covered. The provision of outpatient services for an insured group of 1,000 people would probably require retaining approximately the same group of health care staff as a group twice that size. If one assumes that staffing for the first 2,000 covered people would be roughly constant for outpatient care and that costs for hospital care and pharmaceuticals would be directly related to the number of covered persons, then the PAYG cost rates (that is, the PAYG contribution rates that theoretically have to be paid from the cash income of insured persons) for different levels of income differentials between health sector professionals and informal sector workers would be as presented in box figure 5.7.1.

Much more detailed country and community-based studies would be necessary to confirm the above pattern. However, some systemic conclusions can be drawn from the example. The model calculation shows that a cost covering contribution rate for a provider/financier income differential of over 5 would never be lower than 10 per cent, and should certainly be expected to be much higher, notably for small schemes. This theoretical exercise clearly shows that small schemes

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Box 5.7 (cont'd)

which have to cover the full cost of a comprehensive range of services will most likely require prohibitive contribution rates. Bigger schemes would require more staff (although the relationship is not a linear one) and the pattern of above cost curves would most likely simply repeat itself in a higher bracket of covered persons.

Notes

[1] This is roughly the size of the practice of a general practitioner in the United Kingdom.

[2] This is a rather optimistic exercise. The German health funds, for example, required one administrative staff member per 220 members in 1989 (see Normand and Weber, 1994, p. 97).

[3] This relationship reflects roughly the relationship observed in the statutory health funds in Japan in 1994 (see Cichon et al., 1999, Table JPN6, p.323). This is again an optimistic assumption as the referral rate in Japan seems to be less than 5 per cent of all ambulatory visits, while at least the health centre-based scheme in Kunaba and the hospital-based scheme in Kisiizi faced referral rates of around 10 per cent.

[4] Calculation: $CR = ((1.25 * 3 * AI * 10 \text{ (ambulatory cost)}) + (1.25 * 3 * AI * 10 \text{ (hospital cost)}) + (AI * 10 \text{ (administrative cost)}))/400 * AI = 85/400 = 0.2125$.

The results of the ILO Social Re project[9] seem to indicate that financial shortfalls are systemic for many schemes and that only part of them can be financially stabilized through re-insuring random excess losses alone. It thus appears unlikely that community-based insurance schemes in informal sector settings could ever achieve a systemic full cost of recovery; in other words, in most of them there would be a *recovery gap* between the total cost and the total amount of contributions that can be collected. Consequently, such schemes will most likely always remain dependent on external subsidies. The poor cannot take care of the poor on their own. Some means must be found to maintain or introduce a certain level of national or international subsidy (should all institutions of national governance fail) on behalf of the poor. These subsidies can be organized in various ways, ranging from national to international forms of systemic subsidization.

However, the potential of community contribution to the financing of health care must also be exploited. Being poor does not carry with it the right to default on any self-responsibility. When it comes to health care financing, every able-bodied and able-minded person of active age should contribute either in kind or in cash. In-kind contributions could take the form of voluntary community service, for example.

One possible option of combining "macro-solidarity" with community involvement would be to organize community-based satellite insurance

schemes to complement national social health insurance schemes.[10] Maintaining such satellite systems could become a new activity of national social insurance schemes. Instead of trying to reach out to the informal sector with their standard benefit package and standard contribution provisions, they could play a role in the organization and subsidization of community-based schemes, acting as their "godfathers" – that is, as tutors, sponsors or even supervisors. A similar role could be played by new departments in national ministries of health. In effect, these arrangements would lead to a hybrid form of community-based health care consisting of a combination of voluntary community-based contributions and systemic subsidies from the taxpayer or formal sector contributors (see the example of the planned National Health Insurance Scheme in Ghana, presented in Chapter 4). A lot more work needs to be done on concrete country examples before definitive conclusions can be reached about the long-term financial stability and viability of micro-insurance schemes.

Random expenditure fluctuations in small schemes (see box 5.1) may be levelled out through reinsurance. Private insurance schemes – be they life, non-life or health insurance schemes – never carry their risk alone. They normally reinsure, which means concluding a contract with a reinsurance company which accepts to cover their bad risks in exchange for a premium. One could test whether a form of reinsurance could be applied to micro-insurance schemes. Although there has been reinsurance for particular social protection schemes, such as company-based insurance arrangements in case of employment injury schemes, explicit reinsurance on a larger and systemic scale is a rather novel idea in social protection financing. The ILO is presently exploring the idea of reinsuring micro-insurance schemes, but it is still too early to judge whether that idea can be viable in many national contexts.

In sum, it appears that micro-insurance schemes have the potential to increase coverage by health care systems. However, to overcome the recovery gap and bring contributions down to a level that the poor can afford, they most likely need financial support from external sponsors (such as the State or formal sector social security schemes). The exercise for Ghana in Chapter 4 demonstrates that the extension of coverage through micro-insurance might lead to an increase in overall government financing through the subsidization mechanism. This is something that social security planners should bear in mind.

5.2.3 Private insurance and mixed financing systems

Private health insurance schemes usually cater for the better-off on a voluntary basis. They provide either a full range of benefits (like many schemes in the United States) or top-up benefits that complement the benefit package of a

National Health Service or a Social Insurance System. They hardly ever cover the full population and their premiums are usually risk- and age-dependent. From a social protection point of view they generally play a limited role in national health systems, the United States being a notable exception. A discussion of the main features of private health insurance schemes and the calculation of contribution rates may be found in Cichon et al. (1999, section 3.3.3, respectively Issue Brief 3). A newer approach to private health care financing is the introduction of mandatory savings accounts for health care purposes, as practised in Singapore. Basically, health care is a classical case for insurance, or risk pooling, where the cost of unlikely but expensive events is pooled among numerous people. Individual savings schemes – if applied in pure form – are the opposite of pooling. They lead to an influx of money into health savings, money that is blocked in individual accounts of many people who are healthy and do not need the money, while it is lacking in the financing of care for the sick who are in need of it.

While exclusively private financing arrangements are hardly a comprehensive answer to national health financing problems, private schemes can be assigned specific roles within the public-private mix of overall national health care delivery and financing systems.

One of the latest additions to the range of patterns of the public-private mix originated in China, where the health financing system for urban employees was reformed in the 1990s, and an attempt is being made to incorporate a savings component into the system. The main characteristics of the Chinese health care system are summarized in box 5.8.

Another way of bringing in private financing arrangements is to use private insurance schemes as substitutes for social insurance schemes either by mandating private insurance or by subsidizing private insurance if it complies with certain quality, minimum benefit and enrolment requirements. The latter strategy is followed in Switzerland where in 1899 a referendum on the introduction of a compulsory social health insurance failed, and that approach was substituted by a subsidization of "approved" private insurance carriers. Meanwhile, about 99.5 per cent of all Swiss citizens are covered by an approved health insurance even though many of them are not obliged to resort to such schemes. The extent of the federal subsidy makes it simply unattractive to seek insurance on the unregulated insurance market (Schneider et al., 1993).

Similar options might be of interest for countries where private insurance has already captured a substantial market share before the government has been able to devise plans for a universal health care coverage and needs to be incorporated into the universal coverage plans. There are various ways of doing this. One option was developed recently by an ILO team for the Bahamas. Within the framework of a technical cooperation project, the ILO has suggested a public reinsurance arrangement for private health insurance schemes (see box 5.9 on pages 262–3).

Box 5.8   The new hybrid health care financing system in China

China's total public expenditure for health care is only in the order of 2 to 3 per cent of GDP. Even in the United States, where health care has the reputation of being a predominantly private affair, public health expenditure as a percentage of GDP is more than triple that of China (see box figure 5.8.1). Health indicators in the United States show better results than in China. Life expectancy at birth for females in the United States, an admittedly crude health indicator, exceeds the Chinese value by about eight years. However, the Chinese public health care system seems to be more efficient than the United States system, at least in achieving high life expectancy. One simple method of comparison is to divide per capita health expenditure by the average life expectancy for females. One then obtains a ratio $/per life-year, which could be interpreted (boldly) as an efficiency indicator, saying that the Chinese

Box figure 5.8.1   Composition of public social expenditure in selected countries, mid-1990s (in % of GDP)
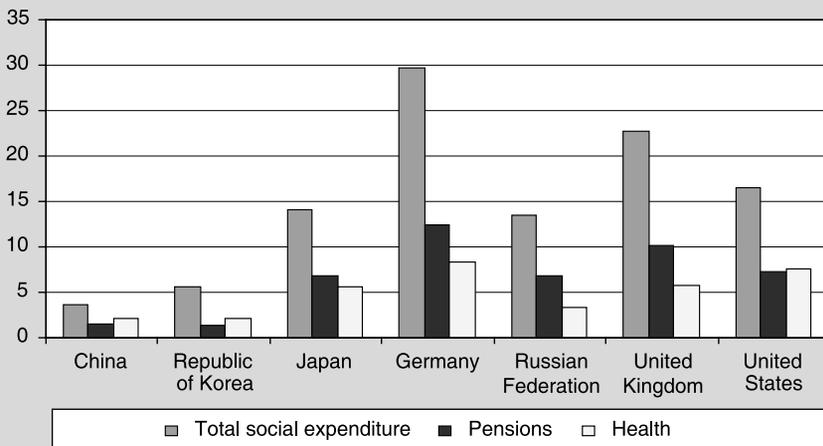
Source: World Bank.

performance is indeed worse than that of the United States but that China gets more out of the dollars it spends in terms of health outcomes than the United States (see also a similar indicator developed in Chapter 7).

The comparison would not be fair if it were calculated with the (statistical) absolute amount of dollars spent on health care per capita. The bulk of health care costs are staff costs, and staff is cheap in China and expensive in the United States. To correct for that bias we have adjusted the dollars per capita in China to the United States GDP per capita level – that is, the average income per capita in China is artificially taken to be the

Box 5.8 (cont'd)

Box figure 5.8.2   A crude efficiency indicator for national health care schemes in selected countries, mid-1990s
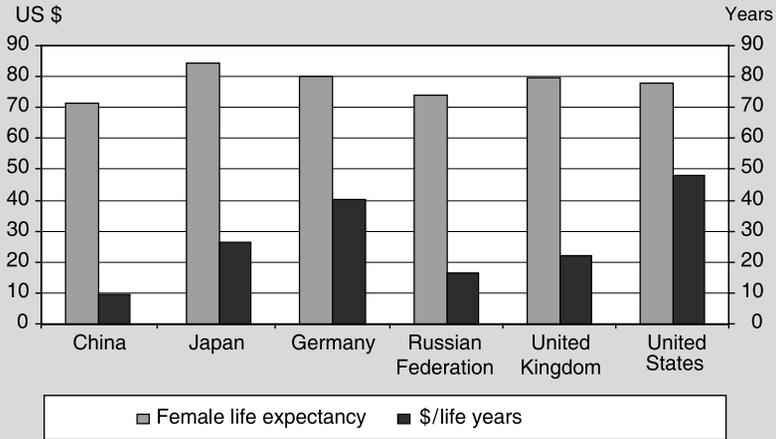
Source: World Bank, ILO calculations.

same as in the United States. Then the comparison basically draws on the difference of the GDP share that is spent on publicly financed health care in the two countries. The result is impressive (see box figure 5.8.2). China seems to spend about one-fifth of the amount per life-year that is spent in the United States. We are aware that the comparison is crude. It is used here simply to set the scene for the ambitious reform that the Chinese designed for their health system in the late 1990s.

Even if public expenditure appears low and fairly successful, the overall economic restructuring in China and in particular the progressive dismantling of the health facilities in formerly state-owned enterprises forced the government to seek alternative financing for the health sector. The option chosen and recommended by the Central Government to provincial level governments for the urban population is a hybrid financing model, composed of a solidarity-based social insurance scheme combined with a system of Individual Medical Accounts (IMAs). The system presently covers some 13 per cent of the total population (so far the rural population is excluded). It is financed by a contribution rate of 8 per cent, of which 2 per cent is paid by the workers and 6 per cent by employers. The workers' contributions are paid fully into the individual accounts, as is 30 per cent of the employers' contributions. That means the solidarity tier receives an average total of 4.2 per cent. When an insured person or a family member uses health services, fees are charged first to the individual account up to a limit of ten times the average annual

> **Box 5.8** (cont'd)
>
> wage per insured person, and after that it is the solidarity tier that pays. The total amount of benefits per year is limited to four times the average annual wage per insured person. It is unclear what happens if a family exceeds that threshold. The schemes are administered on the prefecture level or the provincial level.
>
> The main problem facing the scheme appears to be of a systemic financial nature. Epidemiological studies show that everywhere about 80 per cent of total health expenditure is consumed by 20 per cent of the population. That in itself is the classical justification for insurance – covering contingencies that are rare but, if they do occur, are too expensive for the individual to finance. If the ratio of heavy users of the health system in China is anywhere near the international experience, then those 20 per cent of seriously or chronically ill persons will soon exhaust their accounts and move over to solidarity financing. However, a substantial amount of resources reputedly flowing into the health system is blocked in the accounts of healthy people and not available for solidarity financing but is rather feeding the capital markets or other government expenditure when borrowed by the prefecture, provincial or federal treasurers. There is a risk that the system will run into financial difficulties.

5.3 FINANCING SOCIAL SECURITY PENSIONS

Before we can discuss the various options for financing social security pensions, we need to understand the typical cost developments in pension schemes. The main problem is that – unlike short-term benefit schemes with relatively short qualifying periods – pension schemes mature very slowly, that is, over many decades. The financing systems adopted have to take account of that phenomenon in particular. We should therefore first of all analyse the process of maturation in pension schemes.

5.3.1 Typical expenditure life cycle of pension schemes

There are two basic indicators that describe the evolution of current expenditure of a pension scheme. Both of them are relative measures: the PAYG contribution or cost rate describes the expenditure of the scheme in relation to the insurable earnings of the insured persons, while national pension cost describes the expenditure of a pension scheme as a share of GDP. The first indicator describes the real (for a PAYG-financed social insurance scheme) or hypothetical (for a universal scheme financed from general revenues) "financing burden" of the active contributing population (measured as a percentage of their gross insurable earnings), and the second places pension

Box 5.9   A social reinsurance arrangement for the private insurance system in the Bahamas

This proposal is an innovative combination of the Swiss (mandated private insurance) approach to health financing and a public reinsurance arrangement, called the Catastrophic Health Insurance Fund. It envisages coverage of formal sector workers by mandated private insurance, meaning that all employees have to be insured either on a group insurance basis or on an individual basis by a health insurance contract providing a minimum pre-defined basket of services. Insuring all staff would be an employer liability. There would be open enrolment and no exclusions on the basis of pre-existing health conditions (including HIV). In turn, the public sector would provide a per person stop-loss reinsurance coverage. This means that if the approved expenses per person exceed a threshold of, say, US$15,000[1] (for care not available in the country's public sector), then the public reinsurance fund would finance the excess cost. A lower threshold could be fixed for pensioners and the National Insurance Board (NIB) could be charged with paying part of the premium for pensioners (however, this option has not been assessed in financial terms). The threshold would be adapted annually on the basis of a common binding fee schedule for medical services.

Non-contributing informal sector workers would be provided (as they are in principle today) with general care in public facilities and granted cost coverage of treatment not available in the public sector (either in-country in the private sector or in the United States, based on rate agreements with selected providers). That expenditure could be financed by a catastrophic health tax or levy. In exchange for obligatory open enrolment (which means that private insurance schemes are no longer able to screen out or exclude bad risks), private insurance companies would not have to pay reinsurance premiums. The structural relationships of the proposal are mapped out in box figure 5.9.1.

The advantage of this approach is that the whole population is covered. Mandated private insurance for all formal sector employees increases significantly the number of those covered for general health care by private insurance and reduces the financial burden on the public health sector for general health care provision. Thus there would be higher per capita resources available for those accessing health care in the public sector. The resources available in the public sector can then be spread over a smaller proportion of the population and, therefore, the quality of care provided should improve.

Since all formal sector employees would be covered by private health insurance, and the private insurance organization would be contributing indirectly to the catastrophic health insurance fund through the co-financing of all catastrophic cases up to US$15,000 (or US$20,000), this would effectively reduce the health contribution payable by each household. Initial estimates are that the household tax could be reduced

Box 5.9 (cont'd)

to $12–24 per month. It can be assumed that through the extended coverage of private health insurance as well as the use of public funds for a smaller part of the population, the overall quality of care provided to individuals will improve.

Box figure 5.9.1   Structural relationships in a reinsurance proposal for the private health insurance schemes in the Bahamas
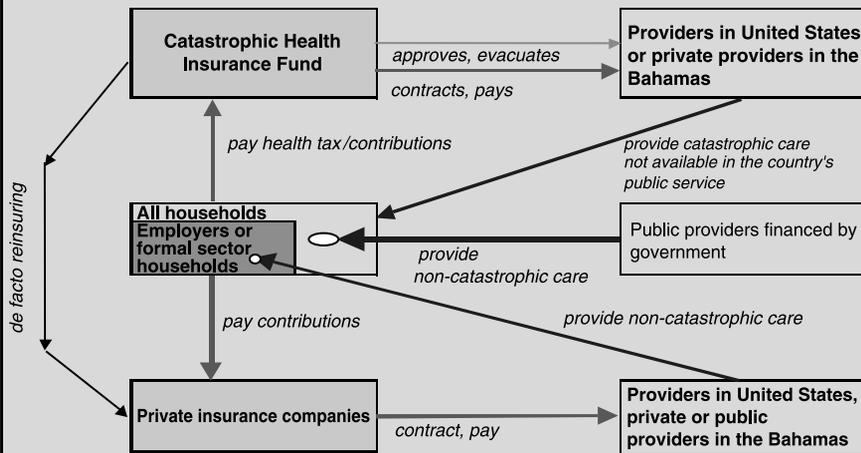
Source: ILO.

Note

[1] For the purpose of the crude actuarial calculations it was assumed that the frequency of this event is equal to the frequency of cases of over US$15,000 per year.

expenditure within a national context. It may be noted that the PAYG cost indicator is equal to the product of:

- the *demographic ratio*, which is identical to the ratio of beneficiaries to active contributors, and
- the *financial ratio*, defined as the ratio of the average pension to average insurable earnings.

Mathematically this product is equal to the ratio of total pension expenditure to total insurable earnings. If the share of total insurable earnings in the total remuneration of employees in the country stays constant, and if the share of the total remuneration of employees in GDP (i.e. the wage share of GDP) also stays constant, then the curve of both indicators will have the same shape over time. The mathematical formulation of the two indicators is given in box 5.10.

**Box 5.10   Two basic indicators and a rule of thumb for
          pension expenditure**

The first indicator for the financial development of a social security
pension scheme is the *PAYG cost*, defined as:

$$Net\ PAYG_t = P_t/A_t * AP_t/AIW_t \qquad\qquad (5.10.1)$$

where:

P_t/A_t = the demographic ratio
AP_t/AIW_t = the financial ratio
A_t = the number of active contributors in year t
P_t = the number of pensioners in year t
AP_t = the average amount of pensions in year t
AIW_t = the average amount of insured wages or income in year t

The notation delineates the net PAYG cost. This formula also
encapsulates a famous rule of thumb used by pension analysts: for a
quick assessment of the relative cost of a pension scheme measured in
percentage points of the overall tax or contribution base of the scheme,
it suffices to multiply the average system replacement rate in the
scheme with the demographic ratio or burden. For example, if a scheme
has an overall replacement rate of 50 per cent (across all pensions, that
is, old-age, invalidity and survivors') and has to cater for about 50
pensioners per 100 contributors (meaning that the demographic ratio is
also 50 per cent), then the overall PAYG contribution rate in the
stationary state should be in the order of 25 per cent. The rule is also
useful for quick checks on the results of actuarial valuations of pension
schemes.

  The second indicator is the national pension cost, measuring pension
cost as a percentage of GDP:

$$NPC_t = (Pt * AP_t + AC_t)/GDP = PAYG_t * ir_t * WS_t \qquad (5.10.2)$$

where:

NPC_t = national pension cost in year t
ir_t = the share of total national gross wages sum (i.e. in terms of
           national accounts the remuneration of employees) which is
           subject to contributions in year t
WS_t = the share of total remuneration in GDP (or wage share in
           GDP) in year t
AC_t = the administrative cost of the scheme in year t

All pension schemes, whether introduced on a national basis or for specific subgroups of the population (occupational pension schemes, for example), show a similar characteristic expenditure development over time as represented by the SEM curve in Chapter 2, box figure 2.1.1. Figures 5.1 and 5.2 describe the typical life-cycle expenditure patterns of a young pension scheme.

The first graph (figure 5.1) depicts the schematic process of maturation in a new pension scheme. The horizontal bars describe consecutive generations of people (every fifth generation, to be exact). To keep things simple, all the people have been given the same life expectancy of 85 years. To simplify the process even further, it is assumed that they start working (or go into paid apprenticeship) at age 15, work until age 65 and enjoy 20 years of retirement before dying at age 85. In our simplified cost calculation every cohort that is marked black at a certain point in time is receiving a pension of a constant amount in real terms. If the scheme is introduced at the age 65 of the first generation then maturity is reached 70 years later – that is, when the generation that was entering the labour force at the time of the scheme's inception has died out. At that point in time all cohorts have a full career in the scheme and hence all cohorts have full pension entitlements.

The second graph (figure 5.2) describes the typical schematic expenditure pattern of a new scheme in hypothetical expenditure units (they could be currency units, percentage points of the PAYG cost or percentage points of GDP share). This hypothetical example assumes a constant demographic structure: it assumes no mortality during active age; from the outset the scheme covers the total working population or all members of a specific insured group, and the relationship between the number of retired persons and the number of persons of active age remains constant during the projection period. It is further assumed that the average replacement rate during the projection period stays constant. As we will see, this latter assumption is a major simplification. Invalidity pensions and survivors' pensions are ignored here. Under these circumstances, the cost curve of the pension system is a perfect logistical curve, painting an ideal picture of a scheme's maturation over 75 to 80 years. In reality, the logistical maturity curves are never as smooth as in this hypothetical example.

Quasi-logistical cost curves (i.e. imperfect logistical curves) are observed for the following reasons: During the first years after the inception of the scheme, usually only very few pensions are paid. If pensions are paid at all during these early years, these are mostly invalidity pensions. For the first decade or two hardly any old-age pensions would be paid (unless generous transitional arrangements are made for persons close to retirement age when the scheme is introduced). During a second phase, the number of pensioners grows rapidly and as a result the PAYG cost indicators and GDP share indicators rise steeply. There are three reasons for these steep cost increases:

Figure 5.1 Stylized demographics of the first decades of a pension scheme: From inception to maturity
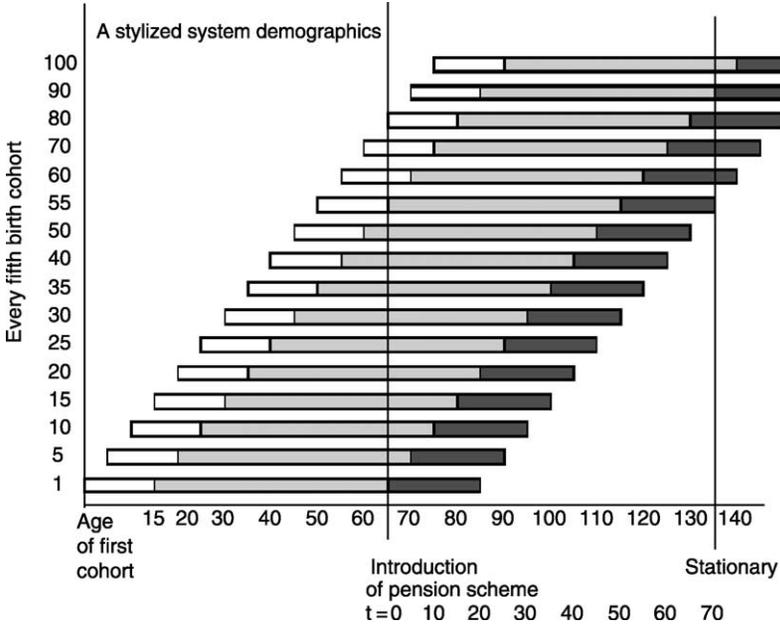
Figure 5.2 The first decades of a pension scheme: Typical cost development
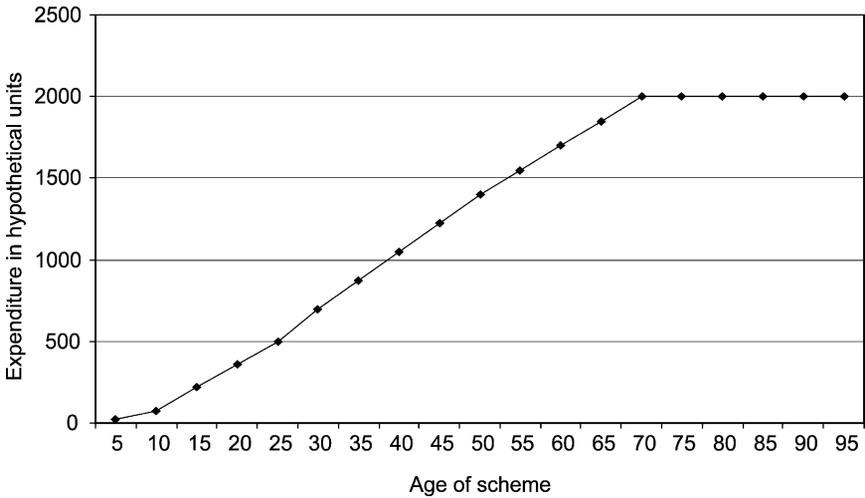
(i)   a new cohort of new pensioners joins the "pension force" each year;

(ii) as the coverage of pension schemes increases, these cohorts of pensioners (generally after a time lag of two to three decades) also increase every year. If the growth of the pension cohort in the early years after the first pensioners become eligible for benefits exceeds the growth of the active contributing population in the same years, then the PAYG cost increases naturally. This is a normal phenomenon, since the growth of the first pensioner cohorts during the maturing phase reflects the growth of the scheme's coverage rate in its early years, which normally slows down after the first one or two decades of the scheme's existence;

(iii) the average pension entitlements of each early new cohort of pensioners increase in line with a generally rising average number of years of service of the new cohorts.

The stage of maturity (also called the stationary state) is reached when all pensioners in the scheme can look back on a full career insured in the scheme. This is the case at the time of death of the first cohort of workers who joined the scheme on joining the labour force, and at a point in time when the population coverage of the scheme has reached its ultimate level.

As we saw in the theoretical example, this cannot happen earlier than about seven decades following the inception of the scheme. Even then any scheme can only be in a stationary state if the legal provisions have not changed substantially during the maturing process, and that is not often the case. In anticipation of the demographic impact of ageing, for example, the retirement ages might be pushed back and benefit provisions might have to be reduced. On the other hand, gender inequalities might have to be abolished. All these changes have their own maturation period. The increase in retirement age normally has to be announced to individuals approaching pension age at least a decade in advance and the increase then has to be phased in by cohort. The process of increasing the retirement age by two years may easily take one to two decades. Maturation processes of this type are superimposed on the general maturation process of the scheme. In practical terms it means that they "put back the clock" – that is, they reduce the pace of overall maturation of the scheme. In the "legal" stationary state of the scheme the financial indicators defined above only change in line with the scheme's demographic environment (in the simplified picture of reality portrayed in figure 5.2, the curves of the two indicators are turning flat). Given the extremely long maturation period and the additional condition of legal constancy, some analysts claim that no existing major social security pension scheme has ever reached its stationary state.

The above analysis shows that increasing pension costs are a perfectly normal phenomenon during the maturation phase of national pension schemes, which lasts several decades. Rising pension costs per se are not necessarily indicative of a financial problem. The design of pension financing systems has to accommodate that natural growth of expenditure.

It is also worth bearing in mind that a current expenditure pattern similar to the one above will occur in any national context regardless of whether benefits are determined by a classical pension formula, flat-rate tax-financed universal pensions or by way of an annuity derived from the final balance of lifelong savings under an MRS system.

As noted earlier, cost increases in national pension schemes are natural. However, they have a secondary effect in that they bluntly reveal initial benefit overpromising. Young pension schemes which for decades have to pay hardly any old-age pensions can afford almost any level of generosity in their provision, but as they approach maturity that generosity might become unaffordable: the public may resent further contribution rate increases, the schemes can run into financial difficulties and end up being discredited politically. It is of crucial importance that actuarial studies with long-term projections of the schemes' financial development be undertaken even before the schemes are introduced. Overpromising and later correction of benefit levels undermine a scheme's credibility. The credibility of schemes that make promises stretching over several generations is a more important asset than real reserves.

The pension cost described above can be financed in various ways – through taxes, through contributions coupled or not with income from interest, or a combination thereof. Tax financing is generally combined with PAYG financing which makes it mathematically and financially simple. In the following sections we will therefore focus on the most complex form of pension financing, which is contribution financing. Contribution systems are character-ized by the actual incidence of contributions, the contribution base and the desired funding level.

5.3.2   Incidence of contributions

The relative level of employers' and workers' contributions varies considerably across countries, although in most cases the employer pays half or more of the total contribution. In the former communist countries of Central and Eastern Europe the contribution was paid almost entirely by the employer. More recently, in countries of Latin America such as Bolivia, Chile and Peru, which opted for radical reforms using DC systems, social security contributions are paid entirely by the employee. El Salvador, however, has established a mandatory DC system to which the employer contributes at a higher rate than the employees. The split between employers and workers should not affect total labour cost if the employee ultimately bears the cost through receiving a lower wage than he or she would otherwise receive, and if the tax treatment of employers' and workers' contributions is consistent.[11] If this is the case, as economists generally believe, then self-employed workers should pay a contribution rate equal to those of employers and employees put together. An advantage of having employers and workers pay at least part of the social

security contribution, however, is that it makes them more aware of the cost of the system and gives some sense of ownership of the schemes.

In some countries the contribution rate varies depending on the worker's age and sex. It may also vary by occupation, especially when special provisions or special schemes apply to some occupational groups. In Switzerland, the contribution rate to the mandatory employer-provided second-tier pension is higher for older workers and increases at earlier ages for females than males because women can retire earlier. In Bulgaria, the contribution rate varies depending on occupation. In Norway, it is reduced in certain geographic areas to encourage employment there and is lower for workers under 16 and over 69 years of age. In Finland, the contribution rate is reduced for workers starting a business for the first time. In a few countries the employer's mandatory contribution rate varies depending on the perceived ability of the employer, and perhaps ultimately the employer's workers, to pay.

Social security contributions are usually mandatory, but in a number of countries they are voluntary for some categories of workers or in some situations. In Argentina, for example, housewives may make voluntary social security contributions. Some countries allow self-employed workers to be covered on a voluntary basis. This is the case in Chile, as well as in Panama, where self-employed workers whose earnings fall within a certain income band and who have no employees may make voluntary contributions. In several countries, including India and Indonesia, establishments with less than five or ten employees may voluntarily cover their workers. In a few countries, workers meeting qualifying conditions can reduce their social security contribution payments so long as they participate in an individual or occupational pension scheme of sufficient generosity. This arrangement, called contracting-out, is possible in the United Kingdom and Japan. Some schemes allow for the payment of supplementary contributions on a voluntary basis. This is the case in Chile, where a 10-per cent contribution rate is mandatory but workers can voluntarily contribute more to their DC plan.

In most countries the mandatory contribution rate is constant across income levels, but in some it is progressive, being higher for higher-income workers. This is the case in Haiti and the United Kingdom. In Egypt, a higher contribution rate applies to earnings above a certain ceiling.

The financing of pension benefits for the self-employed under social security is a critical topic in many national schemes. Compliance is a notorious problem. Defining contribution obligations in a way that does not make them a deterrent to self-employment and at the same time maintaining a meaningful level of protection is a major challenge. National approaches vary greatly. In many social security schemes self-employed workers are paying a contribution rate equal to the sum of the employers' and workers' contributions, as in the United States. In the United Kingdom, low-income self-employed are exempt from the requirement to contribute, but may do so voluntarily. Self-employed workers earning above a minimum amount pay a flat weekly contribution,

while higher-income self-employed workers also pay an earnings-related contribution. To encourage self-employment, the contribution rate charged to higher-income self-employed workers is less than half the combined employers' and workers' rate. In Egypt, self-employed workers can choose the level of earnings on which their contributions are based, while taxi drivers are charged a flat rate, payable when they renew their driving licence. In Panama, self-employed workers may be covered voluntarily. In Chile, self-employed workers earning above the minimum wage may participate if they wish, but nearly all choose not to. Those who do participate pay the same rate as employed workers.

It may be noted in this context that voluntary participation in public social security schemes has not met with much success anywhere. Significant incentives in the form of tax breaks are necessary to induce people to participate in any voluntary scheme. Such incentives are effectively a public subsidy for the voluntary coverage of specific groups, which may raise equity problems when no public subsidies are granted for the schemes of employees.

5.3.3 Contribution base

The contribution base is generally the worker's wage or a certain part thereof. Rather than using actual earnings, however, some countries use a series of wage bands, where all workers whose earnings fall within a particular band pay the same amount. This system is currently used in some countries of Central America and the Caribbean, as well as in Turkey. In Japan, where there are 30 wage classes, so long as the worker's wage does not go outside a band, the same contribution amount is paid the whole year. In Jordan, employers submit to the social security corporation a statement of the earnings for each employee as at 1 January. For employees who remain with the same employer, those earnings form the contribution base for the entire year, even though the employee's earnings may rise or fall during the year. These systems of basing contributions on a single earnings figure for an entire year and on the midpoint within an earnings band simplify record-keeping and the calculation of benefits.

Restrictions are often placed on the earnings subject to mandatory social security contributions. Many countries have a ceiling on covered earnings, with no social security contributions required on higher earnings. Most countries believe it desirable to allow room for high-income workers to establish occupational pension plans and to have private savings. Alternatively, if there is no ceiling on covered earnings but there is a ceiling on benefits, high-income workers receive no additional benefit for contributions made on earnings above those necessary to receive the maximum benefit.

Only a few countries, Ecuador and Guatemala among them, have no ceiling on employers' and workers' contributions. Brazil and the United Kingdom have

no ceiling on employers' contributions but do have one on employees' contributions. Not applying the ceiling on contributions while maintaining it on benefits makes the scheme more progressive, but contributions above a ceiling not relevant to benefits effectively constitute a tax.

Most OECD countries have a ceiling on covered earnings, which generally lies between 100 and 200 per cent of the average salary. In other regions there are variations in the level of a ceiling when expressed as a percentage of average wages. This goes along with the greater dispersion of earnings between the different sectors of the active population and is the case in many countries. Non-indexation of the ceiling is a major problem in some developing countries. Often ceilings are not adjusted in line with wages or inflation, so that the proportion of total earnings subject to contributions of the countries' total wage bill declines rapidly. As long as benefits are more or less strictly related to covered earnings, this might not pose a big problem for the financial equilibrium of the scheme but might make benefit levels irrelevant from a social point of view. The ILO has observed these phenomena in some Caribbean countries and Turkey. Ceilings should thus be indexed in line with the growth of earnings in order to maintain the level of protection over time; otherwise the level of protection will be gradually eroded and could ultimately lead to the payment of flat-rate or minimum pensions to all participants.

Ceilings can make social security schemes regressive. That can happen if total earnings are used to calculate social security contributions but flat-rate benefits are provided. The maximum affects only upper-income workers and reduces their contributions relative to their total earnings. The maximum is usually justified in order to leave room for private provision of occupational pension plans. In some countries, like the United Kingdom, the maximum applies to the employee's contribution but not to the employer's.

Many countries generally have a floor on income subject to mandatory social security contributions, not requiring workers with low earnings, or who work few hours, to contribute. Low-income earners either have no benefit entitlements or enjoy only reduced entitlements, as in Japan. Also, workers below a minimum age are often not required to contribute. This age is 16 in Jordan. Some countries do not require workers above a maximum age to contribute. If workers with earnings below a certain floor are not covered by social security then this might create perverse incentives for employers to create low-income jobs without social security (as is apparently the case in Germany).

Questions arise as to types of compensation excluded from the contribution base. The contribution base is the measure of worker earnings subject to mandatory contributions. The growth of non-wage benefits such as pensions and employer-provided health insurance in some developed countries has eroded the contribution base as well as the tax bases by reducing the percentage of total compensation that is subject to mandatory contributions. In order to

deal with this issue, in the United States employee contributions to a popular type of employer-provided DC plan – called the 401(k) plan (after the section of the tax code that created it) – have been made taxable under the social security payroll tax.

Total contributions can be increased by raising the contribution rate or extending the contribution base. When governments need to increase social security contribution income, they often do both. The contribution base could be extended by raising the ceiling or lowering the floor on earnings subject to contributions, or by making additional aspects of non-wage earnings subject to social security contributions. This may lead to a corresponding increase in the benefit level in the future.

During the 1980s and 1990s researchers and policy analysts in Europe suggested changing the basis of the contribution payment for employers' contributions from the payroll to the value added of an enterprise. The rationale behind the proposal was to avoid "penalties" on employment and improve the cost structure of enterprises with an employment-intensive production vis-à-vis those with a capital-intensive production through the so-called "machine tax". In effect, that would bring about a reduction in labour cost in enterprises with employment-intensive production.

Thus far no country has introduced such a change in the contribution base and the issue has largely disappeared from the political agenda. One reason is certainly globalization. Enterprises with capital-intensive production are usually relatively mobile. Increasing their tax and contribution burden would clearly heighten the risk of their migrating to low-tax and low-cost regions. The other reason may be that the labour market situation in most OECD countries has improved considerably since the 1980s and 1990s. In some countries (such as the Netherlands) labour costs have been reduced by wage restraints rather than a change in the social protection financing system. Trade unions in Luxembourg have recently reopened the "machine tax" debate. The various arguments put forward in the debate are presented in box 5.11.

5.3.4   Types of contributions

The type of contribution charged by a pension schemes reflects two things:

(a) the policy choice a country has made concerning its preference with respect to the different financial rules of social protection; and

(b) the level of funding it has accepted or is aiming to achieve.

A summary of the different types of contributions and their major characteristics is provided in table 5.7. The mathematical formulae for the calculation of the different contribution rates are displayed in box 5.12.

Box 5.11   Broadening the contribution base: Is "machine tax" the answer?[1]

The basic concept

The basic idea of a Value Added Contribution (VAC) is to replace wages as the contribution base for social insurance schemes with the broader aggregate of value added as an assessment basis for employers' pension contributions (or, in general, for their social security contributions). The core socio-economic reasoning behind this proposal is as follows: If, in the context of technological progress, labour is replaced by "machines" (capital), then these should contribute to the financing of social protection. Literature on this topic makes the distinction between gross and net value added. Gross value added is generally defined as the value of output less the value of intermediate consumption (input) of an economic unit (e.g. an enterprise). Net value added is derived by further subtracting the consumption of fixed capital.

Furthermore, "substitutive" as well as "additive" concepts have been discussed: in the former, VAC fully replaces employers' contributions; in the latter, employers' contributions would be maintained and a VAC introduced in addition. During the 1950s and 1960s the discussion on VAC was prompted mainly by concerns that purely wage-related contributions might have detrimental effects on the competitiveness of small and medium-sized enterprises – which could not be proven in empirical studies. During the 1980s the debate regained momentum, focusing on potential positive employment effects of a VAC.

The labour-income-to-GDP ratio ("labour income share")

One of the major concerns behind the VAC proposal is the observation and/or expectation that the share of the macroeconomic income left for social protection financing will continue to decline in the long term, which might be the result of an unfair underlying income redistribution mechanism and/or of technological developments ("machines" replacing human labour). Statistically, this hypothesis is usually measured by calculating the percentage share of labour income in GDP (or one of its suitably chosen derivatives); therefore, part of the related discussion often concentrates on these measures, obtained through national accounts.

Indeed, statistical information on Europe provided by EUROSTAT indicates a trend decline in the adjusted[2] labour income share. The linear trend value of the labour income share – calculated for the period between 1975 and 1999 – dropped by 8.6 percentage points, and in Japan by 9.6 percentage points.[3] The long-term development of the labour income share is essential with respect to financing social security. If, at given contribution rates, labour income does not grow as fast as value added (GDP), then the amount of revenues to be expected under a VAC regime would be higher than under the usual wage-related contribution collection system.

Box 5.11 (cont'd)

Still, whether (even under this perspective) the introduction of VAC would resolve or at least attenuate social security financing problems remains an open question.

Expected theoretical impact of VAC

The VAC concept broadens the assessment base for employers' contributions as the value added includes not only the sum of wages and all other labour-related costs (including employers' social security contributions) but also capital-related costs (interest, rents, leasing costs and – in the case of gross value added – the consumption of capital) and profits. The *relative share* of the cost of social security financed through labour income could thus be reduced – depending on the actual determination of the level of VAC. Many advocates of VAC maintain that if the labour share declined the relative inputs of production factors would react to the changed cost relation between labour and capital and, accordingly, lead to more labour-intensive production – that is, bring about an *increase in employment*. Its opponents, on the other hand, argue that, for exactly the same reasons (impact of changed cost relations), the volume of the overall fixed capital stock would fall below the level accumulated otherwise, resulting in lower growth and, thus, *lower employment* over the long run.

Sectoral cost shifts

Implementing the VAC concept could lead to a reallocation of the financial burden of financing social security among employers. Overall production costs of sectors with a high labour cost content will diminish, and those of sectors with a high capital input will increase. A number of studies undertaken for Germany show that VAC would imply cost reductions in many branches of the manufacturing industry and the State as they are both relatively labour cost intensive. Cost increases would have to be borne by capital-intensive sectors like energy and water supply, oil refining industries, housing, agriculture, as well as financial intermediaries (banks, insurance, etc.).

In this context, a number of issues should be considered: First, in case of a government move to introduce VAC, heavy lobbying for exemptions can be expected. For instance, cost increases in housing might result in higher rents, which the general public might vehemently oppose – even if there were counterbalancing price decreases for other goods and/or services. Exemptions might also be sought in the agricultural sector. Second, due to normally applied accounting rules the State would be one of the main winners, although "in reality" its value added is probably much higher than measured. In the political process prior to the introduction of VAC this grey zone of measurement might lead to some arbitrariness in fixing the "correct" contribution rate. Third, technology (i.e. sectoral production functions) is undergoing rapid

Box 5.11 (cont'd)

changes worldwide, with obvious direct and indirect impact on capital and labour markets. It might very well be that the introduction of VAC would be consistent with production function technologies observed in the past but not with future technologies, and might actually impede their dissemination.

Evolution of contribution income

To the best of our knowledge, the two most recent econometric studies on the macroeconomic impacts of introducing VAC date from the mid-1980s and concern the German economy (Schmähl et al., 1984; Krelle et al., 1985). Both of them reveal only small (though statistically significant) growth and employment effects. It is argued that such minor effects would not justify a systemic change in financing social security. A later (non-econometric) study argues – on the basis of the same findings – that any negative growth effect can obviously be considered too small to be used as a counter-argument to a system change. While the results of the three studies show all in all that the introduction of VAC should neither inspire excessive optimism about positive employment effects nor be characterized as a penalty on capital, there is evidence that the evolution of contribution income over time of social security institutions could be stabilized and thus be positively influenced. This coincides with an economic intuition as some of the macroeconomic aggregates involved – sum of wages, sum of profits, sum of capital costs – usually fluctuate in a mutually compensating manner over the business cycle. However, analytical results date from the mid-1980s and in the meantime global competition has intensified. It is therefore not certain that the findings from almost two decades ago are still valid.

VAC incidence

The distributive impact of VAC is equivalent to the impact of a value added tax (VAT). The latter is usually considered regressive – that is, the relative tax burden increases with declining personal incomes as low-income earners on average have a higher consumption share than high-income earners. This effect can be (and in many countries actually is) counterbalanced by lower VAT rates for basic goods and services. But such a measure cannot be applied if VAC were to be introduced since it is difficult to establish and maintain product-related bookkeeping systems – these would permit to calculate product-related income generation accounts and thus, theoretically, split (product-dependent) VAC rates.

   If VAC is introduced so that it replaces the (previous) volume of employers' contributions, then this is equal to reducing labour costs while refinancing state (or social security) income losses through a VAT equivalent. The impact on CPI (and, thus, on real incomes) depends on the relative reaction of prices on the production level and how these

Box 5.11 (cont'd)

would spill over into the CPI basket. In principle, it is an open question whether – and if so, how – overall cost reductions in labour-intensive industries (including the State) might trigger wage increases so that earlier cost levels in these industries might be attained once again, after some time. Yet, under full or nearly full employment conditions this might easily happen. Whether the related cost-push could be transformed into price increases (in which case the consumers would bear the costs) or would have to be counterbalanced by rationalization measures (in which case employment would be reduced) is, again, difficult to answer.

Systemic aspects and administrative considerations

VAC would undoubtedly loosen the link between contributions and benefits as the actual payment of employers' contributions would no longer be based on individual employment contracts – in other words, the equivalency principle would be (partially) challenged. The meaning of individual, contract-related contributions could thus mutate to a general employers' grant (transfer) to social security. The VAC might then be considered a tax rather than a social security contribution; this might, more fundamentally, question social security's ownership rights of VAC income. In fact, ownership of VAC might be attributed to the State rather than to social security. In case of (hitherto) tripartite administrative structures of social security management, the inclusion of employers would no longer be justified.

The introduction of VAC would mean establishing a second set of short-term accounts – in addition to the "normal" (monthly) wage accounts – that would consist of preliminary elements (estimates) to a considerable degree. It often takes tax offices a long time to determine the "correct" profits of an enterprise. If VAC were to be introduced it would have to be decided whether the responsibility of determining profits, this time for social security purposes, would be taken on by the social security administration (profits might then differ from those calculated by the tax offices, inevitably triggering law suits), or whether social security should rely on (and wait for) the tax offices' determination. In any case, social security would have to make do with growing incidence of part payments and equalization payments (to balance out past over- and under-payments). This would add to possibly increasing efforts to circumvent social contribution payment obligations by using interpretation margins of "soft" accounting and taxation rules.

On balance…

Until now, all countries that have discussed VAC have shied away from introducing it because of its administrative and political complexity and

Box 5.11 (cont'd)

unclear economic effects in the context of growing globalization of markets. One of the most powerful disincentives to the introduction of VAC is probably the fact that there are easier ways of reducing labour cost, for example by increasing the general revenue share in the financing of social security. This reasoning is in line with an apparently renewed trend towards greater universalism in social security which is seen as a reaction to growing problems of coverage exclusion in all societies.[4]

Notes

[1] This box is based on the reasoning furnished by the ILO for the case of Luxembourg (ILO, 2001c). It should however be valid for most European and other industrialized countries.

[2] The "simple" labour income share might decline/increase because the share of the self-employed in total employment is increasing or decreasing, respectively. The statistical information quoted here, was calculated on the technical assumption that the share of self-employed and, thus, employees in total employment does not vary over time.

[3] It is interesting to note that the only major industrialized countries with stable or almost stable labour income shares are, over the same 1975–99 period, the United Kingdom and the United States. For EU Member States and Japan the same negative trend holds true if one extends the observation period back to 1960, whereas for Luxembourg the trend is reversed as the labour income share during the 1960s was on average only 58 per cent.

[4] As observed inter alia by Hoskins (2002).

Private sector DB schemes generally charge flat-rate contributions per cohort (by age and sex, possibly differentiated by risk), while many occupational schemes (DB or DC) and virtually all first-tier social security schemes charge an earnings-related contribution in the form of a fixed percentage of insurable earnings (i.e. a contribution rate). The latter approach is an effort to charge contributions according to the ability to pay (solidarity principle). Benefit levels may – but do not necessarily have to – depend on the amount of contributions paid or on earnings during active age. In case of major non-earnings related components in the pension formula, contribution charges as fixed rates of earnings can make the schemes progressive.

Several features of social security financing contribute to the progressiveness of social security pension schemes. First, countries can establish an earnings deduction. For all workers, earnings below a fixed level are not subject to contributions but the earnings deduction does not affect the earnings used in calculating future benefits. Because the earnings deduction is a fixed amount, it is relatively more important to low-income workers than to upper-income workers. This feature is used in Canada.

Table 5.7 Types of contributions

Financing method	Contribution rate	Funding level
Private pension schemes		
Full funding	Flat-rate uniform contribution amount, usually differentiated by age of entry (in theory stable over long periods).	Should lead to the terminal level of funding, i.e. reserves are always equal to the present value of all accrued rights and pensions in payment.
Pay-as-you-go	Flat-rate or income-related premium (could change on an annual basis).	Exceptional case for occupational schemes in France, state mandated and state guaranteed.
Book reserves	Earnings-related imputed contributions generally paid by employer (in theory stable over longer periods but differentiated by age and sex).	In theory same as fully funded option, but investments in enterprises operating the scheme, reinsurance obligatory in most cases (for example in Germany).
Public pension schemes		
Pay-as-you-go	Contributions collected year by year should almost exactly match the expected expenditure of the year and could thus vary from year to year.	Does not lead to the accumulation of funds except for a modest contingency reserve maintained to avoid liquidity problems.
Partial funding (scaled premium)	The contribution rate is fixed and maintained constant over a defined period (called "equilibrium period") so that incomes and expenditure should be in actuarial balance/equilibrium over this period, taking into account the funding objective at the end of the equilibrium period.	The size of the reserve normally increases in line with the length of the equilibrium period, and a funding objective at the end of the equilibrium period is fixed, either to avoid liquidity problems or to pre-finance a part of the liabilities.
Partial funding (general average premium)	Premium balances the present value of total expected future benefits minus initial reserves and contribution income, stays constant in theory *ad infinitum*.	Accumulates similar level of reserves as full funding but higher during initial phases of a scheme and lower towards the final years (if calculated over a defined period).
Full funding (individual mandatory savings)	Earnings-related theoretically constant rate throughout the life of the scheme, scheme is in automatic financial equilibrium.	Terminal funding level of reserve automatically equal to total amount of savings in all individual accounts.
Full funding (terminal funding)	Contributions collected over a defined period should be equal to the discounted value of the benefits accrued during this period, subject to adjustments for accumulated surpluses or past unfunded liabilities.	A reserve equal to the value of all accrued benefit entitlements is accumulated. The value of accrued benefit entitlements includes the value of current pensions and the value of benefit entitlements earned to date by active and inactive members.

Box 5.12 Summary of actuarial formulae for main contribution systems

The mathematical formulae for the different types of contribution rates can be summarized as follows:

Pay–as-you-go (PAYG)

$$CR(t) = \frac{TE(t) - OI(t)}{TAB(t)}$$ (5.12.1)

where:

$TE - OI$ = the amount of total expenditure minus other income (non-investment income) during the whole period t

TAB = the amount of total insurable earnings respectively the total assessment base subject to contributions.

Scaled premium

The constant contribution rate $CCR(t)$ for a period of t years, i.e. for the years $0,1,2,\ldots,t-1$, on condition that the level of funding is $k(t-1)$ at the end of the period, is calculated as follows:

$$CCR_{(0,\ldots,t-1)} = \left(\sum_{j=0}^{t-1} D\big(TE(j) - OI(j)\big) + k(t-1) * D\big(TE(t-1)\big) \right.$$
$$\left. - RES(o) \right) \Big/ \sum_{j=0}^{t-1} D(TAB(j))$$ (5.12.2)

where:

$D(TE(\text{i}) - OI'(j))$ = the discounted value of total expenditure minus other income (non-investment income) in year j,

$D(TE(t-1))$ = the discounted value of the expenditure in year $t - 1$, the last year of the period with a constant contribution rate,

$RES(0)$ = the initial reserves at the beginning of year $t = 0$ and

$D(TAB(j))$ = the discounted value of total insurable earnings in j.

The discounted value of total expenditure of a year t is calculated as (simplified):

$$D(TE(t)) = TE(t) * (1 + i)^{(-t)}$$

where:

i is the interest rate which is assumed constant throughout the calculation period. The discounted values of the other variables are calculated accordingly.

Box 5.12 (contd.)

We can simplify the notation by substituting the letters *DS* for the summation of present values for the year $j = 0, \ldots; t - 1$ and write:

$$CCR_{(0,\ldots,t-1)} = \big(DS(TE(t) - OI(t)) + k(t-1) * TE(t-1) - RES(o)/DS(TAB(t))\big)$$

If a new scheme is introduced, the necessary initial reserve is usually created by a time-lag between the commencement of contribution collection and that of benefit payments.

General Average Premium (GAP)

$$GAP(0) = \frac{DS(TE - OI) - RES(0)}{DS(TAB)} \tag{5.12.3}$$

where:

$DS(TE - OI)$ = discounted value of total expenditure minus other income (non-investment income) during an infinite period to the point $t = 0$, i.e. the beginning of the projection period,

$RES(0)$ = initial reserves at the beginning of year $t = 0$ and

$DS(TAB)$ = discounted value of total insurable earnings for the infinite period following $t = 0$.

Full funding (terminal funding)

$$CGAP(0) = \frac{DS\big(TEE(0)\big) + DS\big(TEE(t)\big) - RES(0)}{TAB(0)} \tag{5.12.4}$$

where:

$DS(TEE(0))$ = discounted value of all benefits (present and future) which are already in payment in year $t = 0$

$DS(TEE(t))$ = discounted future value of all benefit entitlements accrued but not yet in payment at time $t = 0$

A second feature of progressiveness is to charge higher social security contribution rates on higher-income workers but to base benefits on earnings rather than contributions. This feature is used by the United Kingdom in its DB system. The DC scheme in Colombia requires all members who earn more than

Figure 5.3 Typical developments of alternative types of contribution rates
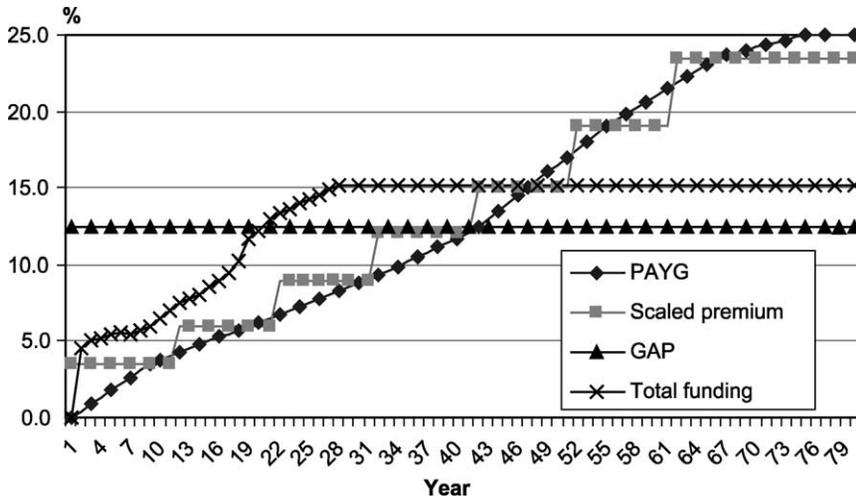
Source: ILO calculations.

four times the minimum wage to contribute an additional 1 per cent of their income as a solidarity tax. The revenue is matched by budget transfers and used to subsidize the contributions of targeted poor groups in an attempt to extend the coverage of the formal social security system.

Most social security schemes are *de facto* scaled premium systems. Even systems which started out as fully funded schemes or schemes financed on the basis of a GAP were often turned into scaled premium schemes when the real financial development of the scheme, more often the deterioration of the reserves due to inflation, was not in line with original expectations, and contribution rates had to be increased successively (the more than 100-year-old history of the German pension system might serve as an example here).

The typical evolution of the most important alternative contribution rates – the PAYG rate, the terminal funding (or full funding) rate, a scaled premium rate, and the GAP – for a social security pension scheme experiencing typical cost development is described in figure 5.3. It should be noted that this is an actuarially idealized picture of reality. It accepts that all assumptions made on the demographic, economic and governance environment of the scheme hold true in reality. This will not be the case. Thus the height and the width of the steps in the "staircase" of the scaled premium system might vary over time and the general average premium will not remain perfectly constant. The graph depicted in figure 5.3 is based on a real example of an Asian country and the cost curve is hence not as smooth as one would expect for a theoretical exercise.

5.3.5   Determining the level of contributions

Even if we regard benefit levels and eligibility criteria as given – and thus also the level of total expenditure and the basic type of contribution financing, the actual setting of the contribution rate remains discretionary to some extent.

The level of the contribution rate in social security pension schemes chosen by governments varies according to:

- the political need to maintain the stability of the contribution rate over extended period for reasons of political acceptability;
- the need to adapt the contribution level (and hence non-wage labour cost) of the scheme to the present economic situation and expected future developments;
- the capacity to invest and manage the accumulated reserves effectively without undue risk of mismanagement or asset depreciation;
- the capacity of the accessible financial (mostly domestic) markets to absorb the accumulated reserves;
- the need for a contingency reserve to cope with unexpected income shortfalls or increases in expenditure.

The most appropriate level of funding has to be determined in each national case, reflecting a variety of social, fiscal and economic objectives. Recent years have seen a heated political debate about the necessary level of funding in national pension schemes. Box 5.13 details the principal theoretical arguments for and against full or high-level funding.

Box 5.13   The "funding versus PAYG" debate in pension financing

Most current proposals to re-introduce full funding in national pension systems or in parts thereof advocate the introduction of MRS schemes, following the example set by Chile in the early 1980s. The World Bank has become a major advocate of such schemes, although concrete proposals by country vary as to whether they should be introduced as a first or a second-tier system.[1] Leaving aside all arguments dealing with the administrative feasibility of transition as well as all evidence of past mismanagement of funded and non-funded systems, we are listing below the main arguments for and against[2] a pension system which relies on individual savings.

Arguments in favour of funded systems

1. Population ageing and the resulting greater demographic burden of national pension systems will lead to PAYG contribution rates that will become unsustainable as contributors will not be willing to

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Box 5.13 (cont'd)

accept higher contributions to finance income transfers to the non-active population. Current PAYG schemes place an enormous implicit debt on the active population. Collective or individual savings for the future would avoid such a burden, since part of pension expenditure would be financed from past savings. National pension systems would thus be less vulnerable to adverse demographic developments.

2. The economies in many countries – notably countries in transition and developing countries – are in urgent need of investment capital. Since foreign investment often remains sluggish, forced savings by the population through a "pension" system can create domestic capital for investment. The schemes would lead to higher national savings rates which would create more resources for investments and consequently increase long-term growth.

3. Savings schemes are *DC schemes*, meaning that individual benefits are determined exactly by the amount of contributions paid during the active working life. Since these contributions have to be credited to individual accounts they cannot be diverted by the State and, at the same time, benefits do not pose a (major) risk to public finances, since the sums paid out are on average equal to the accumulated savings. The schemes are thus deemed to be in automatic financial equilibrium. As a result, this system helps to stabilize allegedly "exploding" social expenditure.

4. In times when $i > w + g$ funded schemes provide a higher return on contribution payments than PAYG-financed schemes: where i describes the rate of return on investments, g the rate of growth of employment and w the rate of growth of wages. In an ageing society with declining or stagnating employment levels that should be the case. This is the standard relationship that was first mentioned by Samuelson (1958).[3]

Arguments against funded systems

1. Funded systems need reliable and stable capital markets as the pension levels of future generations of pensioners rely on long-term positive real returns on investments. Capital markets in many countries are not yet functioning and even in functioning capital markets long-term positive real rates of return cannot be relied upon. Funding merely replaces the *reliance on the willingness of future generations to support the older generation* by *reliance on the long-term performance of the economy*.

2. Funded systems and hence future pension levels are vulnerable to inflation. The historical evidence in Europe regarding the long-term reliability of savings is clearly less than encouraging.

3. Since benefits are individually dependent on personal savings, institutions have less incentive to collect contributions than in

Box 5.13 (cont'd)

collectively financed systems. Individuals, on the other hand, are just as likely to evade contributions as under PAYG systems. In particular, low-income groups (maybe particularly myopic) might find ways to avoid paying, preferring to solve present financial problems rather than distant income problems in time of old age. The Chilean example shows that despite the alleged attractiveness of the system, compliance could not be improved. Low compliance in particular by low-income groups means increased poverty in the long term, which in turn means higher social assistance payments (through a hidden or contingent liability for the State).

4. Pension schemes with individual accounts have only a very limited solidarity component. The only form of redistribution is due to the insurance component (people who live past normal life expectancy might benefit from an annuity-based pension). Income redistribution between different income groups is generally excluded. DC schemes in particular offer no or only scant protection to younger workers against the risk of invalidity, and very limited survivors' benefits. They also offer no possibility to reward women and men for such desirable activities in society as periods spent child rearing or taking care of disabled or sick family members. Without publicly financed subsidies the negative effects of still shorter employment biographies cannot be compensated. Savings-based pensions in their pure form *de facto* desolidarize a society, putting squarely on the shoulders of the individual the financial risks that periods of sickness, unemployment and disability pose for the maintenance of the standard of living during invalidity, survivorship or old age.

5. If decent pension levels were to be maintained in the present PAYG schemes during transition to the new, funded levels, the active generation would face a double burden. It would have to finance the transfer incomes of the inactive population and simultaneously build up reserves for the future financing of its own retirement income. This would either place a prohibitive burden on the present active generation, or the government would have to borrow resources, inter alia from the savings for future pensions under the new systems. However, this would again – as in the present PAYG systems – mean borrowing from future generations which would have to pay back the borrowed amounts.

6. The part of GDP that is consumed by the retired population has to be financed out of the production of the active population under any financing system, whether pension payments are actually financed from the capital income share or the labour income share of GDP. On the GDP level all social transfer systems are *de facto* PAYG systems. This is due to the fallacy of composition: individuals can shift consumption forward over time (into retirement age) by contributing to a pension scheme, but societies as a whole cannot. The goods and services that will be consumed by the next generation of pensioners

Box 5.13 (cont'd)

cannot be stockpiled – they have to be produced by the next generation of workers.[4] Hence national pension schemes – whether fully funded, partially funded or PAYG – are only devices that define how future consumption is shared between active and inactive groups in a society. The relative size of these generations will always influence their share in total national consumption. All financing systems are thus vulnerable to economic and demographic trends. If the active population and/or overall output decline (either due to the demographic shrinking of the workforce or to unemployment) and if the pensioners' share of current disposable income is boosted relative to the share of the fall in employed population, inflationary pressures are likely to reduce the income levels of the inactive population under both PAYG and funded pension schemes. This effect could be avoided if the drop in working-age population can be compensated by increased productivity. Such higher productivity – needed to safeguard benefit levels in funded pension systems – could also be used to stabilize the financing of PAYG pension systems.

7. A high level of funding would create reserves which would rapidly approach the level of GDP that could easily become concentrated in the hands of very few institutional investors. This might constitute a serious non-democratic shift of power in any society. Furthermore, there might not be enough investment outlets nationally and reserves would have to be exported (which adds a further measure of risk or is of no use to the domestic economy) or the domestic rates of return will be driven below the inflation level, which erodes the pension entitlements of the saving generations.

8. The ageing crisis is a myth. There is no automatic explosion of social expenditure in ageing societies. First, pension expenditure has to be seen within the context of overall national social spending. The increase in pension expenditure will be compensated by certain expenditure items that will diminish over time (family benefits, unemployment, housing and education). Second, if a generation makes a rational decision to have fewer children than its parents' generation, then the members of that generation will simply have to work longer – thus compensating for missing workers in the generation of their children. Effective increases of retirement age, combined with a higher labour force participation of women, can defuse most of the demographic tension in overall NSPSs (see the Euroland exercise in Chapter 2). ILO model calculations show that if present employment levels in Europe were to be maintained and the retirement age increased to 67 during the next decades, then the overall cost of national social expenditure could be kept in the present order of magnitude.[5] With growing longevity and improved health status of the elderly population there is no demographic supply side constraint that would make a dramatic increase in the demographic

Box 5.13 (cont'd)

ratio inevitable. Ageing alone is thus no reason to move to a funded system. The real problem is therefore an employment problem. If economies were able to maintain the level of employment, then social protection would most likely remain sustainable.

On (tentative) balance...

Some tentative conclusions can be drawn from the above sets of arguments:

1. Ageing alone does not provide sufficient financial or economic reasons for replacing present PAYG pension systems. Overall expenditure is not likely to explode and can be controlled by parametric reforms of PAYG schemes.

2. Individual savings may isolate the overall financing of the pension system more effectively against poor social governance. They may make it more difficult to "load" pension expenditure with unfunded liabilities, which are often a consequence of government "generosity" (especially before elections) or hidden financing of unemployment.

3. Mandatory savings schemes individualize financial risks. If the economy does not perform well or if the individual has an unfortunate personal economic biography (interrupted by sickness, disability or unemployment), the individual savings are reduced and the consequence is a lower individual pension without repercussions for the society or the community of contributors. Since governments generally function only as financial guarantors of last resort to national pension systems, this reduces their fiscal risk. Actuarially speaking, savings schemes are in "automatic financial equilibrium".

4. PAYG-financed schemes provide more predictable benefit replacement rates to individuals, as benefits are less dependent on economic performance and hence less vulnerable to bad economic policies or governance. The benefit package under a PAYG scheme can also be more comprehensive, as it can provide adequate coverage of contingencies like invalidity and death and minimum income guarantees to low-income workers. Savings-based pension schemes individualize financial consequences of poverty, unemployment, invalidity and sickness and lead to particular disadvantages for women and low-income earners. However, they can only guarantee a relative pension level, as the absolute amounts of the average level of pensions depend on the economic and demographic environment.

5. The effect of pension funding on national savings rate is generally inconclusive (see Brown, 2002, pp.13–14), but positive effects cannot be excluded under certain economic circumstances, for example in countries where the propensity to save is low, and where well-targeted and concentrated investments are urgently needed (inter

Box 5.13 (cont'd)

alia in countries emerging from a major economic or political upheaval and lacking access to foreign investment).

6. On a macro-societal and macroeconomic basis PAYG and funded pension systems or savings schemes are both subject to demographic and economic risks. The fact that highly funded schemes are subject to the same demographic risks as PAYG schemes is demonstrated in box table 5.13.1 – an illustration of stylized simplified demographics of a national old-age pension scheme – which shows the evolution of two pension schemes operating in the framework of a declining population. A more sophisticated analysis is provided in Issue Brief 2. The schemes only differ by the pension formula and the method of funding. Ten points (or better periods) in the schemes' life cycle are concerned. It is assumed that at each of these points a full new active generation that spends 40 years in activity is starting to contribute and a retired generation that spends 20 years in retirement is starting to draw pensions. At each period a new generation joins the active status and an "old" active generation goes into retirement (even if in this simplified model the old generation dies out after half the period). On the road to retirement the active generation loses 25 per cent of its members to death. An arguably conservative real rate of return of 1 per cent per annum was assumed for a savings scheme. The table shows that if one assumes that asset prices in capital markets and in the real economy adjust themselves in line with declining populations, then the replacement rates under the funded scheme fall in line with the demographic development, whereas in the PAYG scheme the contribution rate should increase if no policy intervention takes place. If contribution rates are perceived to be high in PAYG schemes then policy action would consist of reducing replacement rates or the number of beneficiaries by increasing the retirement age. That means that neither the PAYG nor fully funded schemes are demographically immune.

7. The transitional cost of switching from a PAYG scheme to a savings scheme is substantial. Cost may be borne by the transition generation or pushed forward to a future generation by borrowing throughout the transition period; in either case, the double-burden effect for at least one generation remains. Some reforms even "consolidate" present pension expenditure – that is, reduce benefit levels and hence force pensioners to "contribute" to the financing of the transition. The ILO study on pension reform in Turkey has shown that it takes about five and a half decades for the total annual deficit financing of the transition to the government to disappear, if the government finances the transition by covering the liabilities of the phased-out old pension scheme. The reason for the persistence of the double burden effect is simple. In PAYG schemes one or more early generations receive a windfall profit (they receive more in

Box table 5.13.1   Stylized development of funded and unfunded pension schemes

	Standard PAYG									
Time periods	1	2	3	4	5	6	7	8	9	10
Actives	1 000	1 000	1 000	900	800	700	600	500	500	500
Survival rate		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Initial pensioners	0	750	750	750	675	600	525	450	375	375
Average wage	100	100	100	100	100	100	100	100	100	100
Average pension	40	40	40	40	40	40	40	40	40	40
Replacement rate	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Accumulated capital	0									
PAYG cost - PAYG	0.00	0.15	0.15	0.17	0.17	0.17	0.18	0.18	0.15	0.15
Contribution rate	0.15									

	Standard Fully Funded						Asset Price Adjustment			
Time periods	1	2	3	4	5	6	7	8	9	10
Actives	1 000	1 000	1 000	900	800	700	600	500	500	500
Survival rate		0.75	0.75	0.75	0.75	0.75	0.75	0.75		
Initial pensioners	0	750	750	750	675	600	525	450	375	375
Average wage	100	100	100	100	100	100	100	100	100	100
Average pension	0.00	40.23	40.23	36.21	35.76	35.20	34.49	33.53	40.23	40.23
Replacement rate	0.00	0.40	0.40	0.36	0.36	0.35	0.34	0.34	0.40	0.40
Capital price adjustment	1.00	1.00	0.90	0.89	0.88	0.86	0.83	1.00	1.00	1.00
Accumulated capital (for survivors)	549971.7003	549971.7003	494974.5303	439977.3602	384980.1902	329963.0202	274985.8501	274985.8501	274985.8501	274985.8501
PAYG COST	0.00	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Contribution rate	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15

Box table 5.13.1 (cont'd)

	Time Periods									
					Standard Fully Funded			No Asset Price Adjustment		
	1	2	3	4	5	6	7	8	9	10
Actives	1 000	1 000	1 000	900	800	700	600	500	500	500
Survival rate		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Initial pensioners	0	750	750	750	675	600	525	450	375	375
Average wage	100	100	100	100	100	100	100	100	100	100
Average pension	0.15	40.23	40.23	40.23	40.23	40.23	40.23	40.23	40.23	40.23
Replacement rate	0.00	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Capital price adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Accumulated capital (for survivors)	549971.7003	549971.7003	549971.7003	494974.5303	439977.3602	384980.1902	329983.0202	274985.8501	274985.8501	274985.8501
PAYG Cost	0.00	0.15	0.15	0.17	0.17	0.17	0.18	0.18	0.15	0.15
Contribution rate	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15

Notes

Assumed average wage: 100
Assumed average pension: 40
Wage increase: none
Pension increases in line with wages
Interest rate in % 0.01
Discount rate 0.99009901
Surviving cohort 750 out of 1000

Source: ILO calculations.

Box 5.13 (cont'd)

pensions than they contribute). Think of it as a "grandfather clause" – that is, a case where the first generation of retirees is receiving pensions without paying at all, their pensions being paid by the next generation. That "debt" is now carried forward from generation to generation, each active generation paying for the consumption of the previous one. If we see this as a problem, then we automatically assume that society's days are finite (or numbered) – at some point in time there is a last generation of youngsters who will not have successors to finance their consumption. As long as nobody questions the system we can go on taxing the next generation forever. As we have seen, active generations need to produce the goods and services for the inactives anyway. Questions will arise only when the relative size of the generation shifts and the burden of the active generations is perceived as becoming too heavy. At that point society will be looking for a new formula of sharing consumption between actives and inactives. This is the situation we are now encountering in many "old" or "ageing" societies. The debate of funding versus PAYG financing of pension schemes is *de facto* a distributive battle for shares of consumption between the old and the young.

8.   Therefore, both PAYG and funded schemes are facing demographic and economic risks. They differ by the actual allocation of the risk between the society and the individual. This allocation is a policy decision, one that is obviously not independent of income policies. If the overriding policy objective is relative income stability for the elderly, dependants and survivors, a society would maintain a DB scheme regardless of its overall cost. If on the other hand the main policy objective is to maintain fiscal and financial stability to the greatest extent possible, then letting a financial market mechanism decide on the respective consumption shares of the elderly and disabled versus the active population would be the preferred option. In order to "sell" the latter option to the public, the notion of "equity" is used as a policy instrument. That means that pension levels are linked not only to financial market performance but also strictly to own contributions to the scheme. The idea of "I get out of it what I put in" appeals to many people's feelings about equity and fairness, but ignores elements of "social" insurance whereby personal contributions also buy protection against a wider set of social risks. If you are unlucky enough to live in a country which undergoes fundamental political or economic crises while you are of active age, your pension under a DC scheme will be small, whereas a PAYG scheme can compensate to some extent for previous hardship and make sure that you participate to a much larger extent in present affluence. Pension formulae are

Box 5.13 (cont'd)

      ultimately a means to ration consumption of the inactive population in line with policy preferences.

9.   Ultimately, the total size of consumption depends on economic growth which in turn depends on labour productivity. There may be valid arguments to use the national pension system to create additional national savings in a particular historical situation, namely if these savings are used to invest in the long-term ability of the society to maintain a solid growth path. In the absence of other sources of investment, that may be the perfect way of investing in the long-term financial stability of the pension scheme. If a country falls into anarchy, even investing in a national police force might be a good investment from a long-term pension perspective. It may help to protect property rights and hence attract long-term investments which are the basis of economic affluence. However, as we have already seen, in DB pension schemes almost any level of reserves can be achieved. The difference from funding pension schemes on an individual level would then simply be that the reserves are collective rather than individual in nature and that their level has no impact on the level of pensions. Reducing pensions or extending the duration of working lives would require transparent policy decisions when the demographic or economic environment changes, whereas in the case of individual funding this would occur automatically, without any explicit government intervention.

Notes

[1] The first and most prominent source is World Bank (1994).
[2] Many of the arguments are discussed in detail in Beattie and McGillivray (1995).
[3] As quoted by Barr (2000).
[4] See for example Barr (1993), p. 223.
[5] See Cichon (1996).

Textbooks should not offer personal opinions and in box 5.13 efforts were made to carefully weigh the pros and cons. However, sometimes we feel the need to state a view. The one featured on the following pages was expressed by one of the teachers in the Maastricht Masters Course in Social Protection Financing in the form of a letter to the students. It should be read like a newspaper commentary. You could also skip it and read instead much more scientific arguments put forward by Barr (2000) and Brown (2002).

Commentary

Sorry, you won't make it

A letter to Social Protection Financing students at Maastricht University on their prospects for early retirement

Sometime around 1880 in a small town in Poland my great-grandmother took her precautions. She saved for a rainy day. Rainy days were days without income from the tiny shop where her husband, a cobbler by trade, repaired the shoes of the town folk. The savings would also be for "later", for when they got old. A bit of money could make it a little more attractive for the eldest son to take care of them when my great-grandfather could no longer work. She put her money away safely. She put it under her mattress.

When her husband actually could work no longer they began to spend the money. What neither of them had realized was that during the time it had been stashed under the mattress the money had lost a lot of its value. It was certainly not enough to pay for their upkeep after retirement, but they gave the shop to the eldest son, my grandfather, who in turn took care of them. He had his own problems, though, as one of his sons was sick and needed a lot of medical attention, which had to be paid out of pocket. So when his parents died, my grandfather sold the shop and moved to the Ruhr Valley, where he became a travelling salesman: self-employed, and without any social protection from the then young social insurance scheme which did not cover the self-employed. But he had learnt the lesson from his mother, so he too – hard as it was – saved for a rainy day. But he also remembered the lesson about inflation and put some money in the bank, where it happily accumulated interest, but not much. He bought a small place to live in, even though – so the story goes – his wife nagged constantly that it wasn't good enough and that he would have done better to save a little longer and buy a better place later. But she dropped the subject when the Great Depression wiped out all their savings in the 1930s.

Nothing could be put aside during the pre-war and war years. Grandmother died, but grandfather lived beyond retirement age and actually received a small pension from the white-collar scheme that now covered the self-employed, even though – as I suspect – he had always cheated on his income when paying contributions. What he did not think about was that the 1957 pension reform had effectively changed the financing of the pension scheme from a highly funded one to a *de facto* PAYG scheme. That meant the scheme no longer had any sizeable reserves for when that rainy day came. But there was no need for reserves – such was the thinking at the time – there would always be new contributors who would be able to finance the pensions of the older generations. That worked well even when my father retired in the early 1980s, although contribution rates kept going up, slowly but surely.

When the economy slowed down in the aftermath of the 1970s oil crisis, the main problem was unemployment. In a great show of

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consensus, politicians and employers got people to retire early so they would be "off the books". The falling numbers of the labour force due to that great invention, the birth-control pill, would at some point take care of the unemployment problem anyway, they thought. The success of the health system and the general improvement in living conditions means that most people now spend about half as many years in retirement as they spend working (up from a ratio of 1 to 4 half a century ago). They enter the labour market later, they leave it earlier, may not be employed throughout their working lives and when they retire, they live happily for about two decades. The PAYG pension scheme showed cracks of distress. Retirement age should go up. But in times of high unemployment that is politically almost unfeasible. Alternatively pension benefits should come down, and contributions should go up. But that's harsh medicine, and getting spoilt generations to swallow it is far from easy.

Then, in the early 1990s, the World Bank came up with a solution. Save for a rainy day, it said, but not like your great-grandmother. Don't put your money under the mattress. Save intelligently, invest wisely, and we can keep contribution rates as they are. As long as the real rate of return on investment that can be earned on the capital market is higher than the sum of the rate of growth of employment and the real increase of wages, you are better off taking your money to the capital market. There it will not be vulnerable to ageing. And it will also do a lot of other good: it will increase national savings and hence investment, which in turn will create higher growth, and that will increase the welfare of us all. Privately operated pension funds (so-called "defined-contribution (DC) schemes") which collect your savings and convert the balance at the end of the savings period into an annuity – that's the answer to the "pension crisis", the Bank said...

There is little doubt that institutions on capital markets are interested in institutional savings that are available for investment and that can be managed for a substantial fee but at no risk to the manager. If these savings are not performing well then pensions will be lower than they would be otherwise, but there is little risk to the manager of the scheme. There is ample evidence that the administrative fees of DC schemes are relatively high, or at least considerably higher than reasonable administrative cost ratios of DB schemes in OECD countries. The pensioner incurs additional costs when the savings are converted into an annuity. Of course, in the interest of good governance the whole system also has to be supervised, which creates further cost. The whole process represents anywhere between 10 and 36 per cent of annual contributions – at least 20 times as much as it costs to administer the United States DB social security scheme (Old Age, Survivors and Disability Insurance (OASDI) program) (see Baker and Kar, 2002). All these costs reduce the ultimate pension levels by the same amount, as each year the new contributions going into your account would be reduced by the administrative cost and hence the whole balance of your savings would be affected in the same way.

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If you base your pension income on a 35-year savings time, that would mean losing between 0.5 and 2 percentage points of interest income per year, depending on the actual level of administrative cost and the rate of return earned. There is considerable debate on the reliability of the return of investments on the capital market. It is hard to tell how big your risk is when you save, but it is a fact that without protective regulation (stipulating minimum pensions and a minimum rate of return) you have to bear it alone.

The impact of the new schemes on the aggregate national savings rate is inconclusive. Countries with the highest pension reserves have lower (or not significantly different) savings rates compared to other countries with relatively low pension reserves. However this is only an indication as we are comparing stocks and not changes of aggregate savings rates after the introduction of mandatory pension savings. But that evidence is virtually non-existent, even though Chile claims a higher savings rate after the introduction of its scheme. So the macroeconomic impact is doubtful.

The problem of the double burden for those who are active when the system is changed is not solved. They theoretically have to save for themselves and to transfer income to the elderly at the same time. If monies have to be borrowed (from the new pension savings) and repaid from future generations' tax payments then the scheme remains *de facto* a PAYG scheme. But there might be miracle gains from somewhere (like privatization proceeds) that may help to finance the transition.

That leaves us with the argument that we are better protected against the effect of ageing under a fully funded DC scheme.

Is a fully funded DC scheme better at protecting us against the effects of ageing than a PAYG scheme?

"Protecting" would certainly mean that we would get approximately the same pension independently of demographic developments. The pension formula of a DC scheme is:

$$P = B/\ddot{a}$$

where B is the balance of our savings at retirement and $\ddot{a}$ is the present value of a (let us say, indexed) pension of 1 currency unit paid from the day of retirement. The present value is a function of the assumed future interest rate, the annual adjustment rates of pensions but also the assumed mortality rates after retirement. If we live longer that factor gets bigger and our pensions get accordingly smaller.

Not ideal for me, but fair enough, you might say.

However that still implies that the rates of return in the economy are indifferent to ageing, which may not be the case. To understand the issue,

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we should try to understand, step by step, how a DC scheme actually functions. Let's assume that we live in a simplified two-phase world, where we save in phase one and dissave in phase two, while the next generation saves. In reality these phases are cohort-based processes that overlap, but that does not change the logic.

Step 1: We save

Let us assume that we belong to the first cohort of savers and that we put our contributions into our savings scheme (DC pension scheme) every year. These contributions are entered in our account. At the end of each year the interest earned on last year's balance and the contributions paid during the year and the interest thereon are credited to the account. That is the paperwork. But where does the interest rate come from?

Well, what happens internally is that our money – say the balance at the beginning of each year (to make things simpler, let's say we are not withdrawing anything this year) – is invested together with all other balances in bonds, stocks, direct investments, etc. The market value of these investments is Ro equal to the amount of reserves in the scheme at the beginning of a year. At the end of the year, some interest and dividend payments will have been made and the asset price will have changed. Together the value of the investments will then be $R1$. The rate of return is then calculated as:

$$I = 2(R1 - Ro)/(R1 + Ro)$$

That rate will be applied to our initial balance at the beginning of the year. We can assume that it will be applied pro rata temporis to the new contributions made during the year as well. As long as $R1$ is bigger than Ro all should be right with the world. Again, at the beginning of the new year the total amount in all accounts should add up to the value of the joint portfolio of reserves held by our scheme. The accounts in the portfolio are being managed together. Nobody deals with hundreds of different accounts separately. If the portfolio of the scheme as a whole is predominantly made up of bonds with fixed-interest payments and as long as inflation is lower than the interest there is no loss, at least. If a growing number of governments pursue a balanced budget policy and repay their debt then the volume of bonds declines and we have to look for alternative investments. Let us simplify matters again and assume that we go for stocks.

This means that apart from dividends our rate of return is largely affected by the price on the stock market. The price has been going up since our first investments. We were buying in increasing numbers and no pensions were paid. The latter means that our scheme had not yet had to sell assets to finance our pensions. If a nation does this, prices on the stock market should go up if institutional savings through pension funds are a net addition to savings in a world without DC schemes. We are

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forced to buy – as required by our government. We have no option not to save. And asset prices went up for a long time, as we all know. Around 25 per cent of total equity capital in the United Kingdom and the United States is already owned by pension funds. The only option open to us if we want to consume more would be to reduce our non-pension savings. If we are lucky enough to have any, that is…

Step 2: We retire

Let us assume that we retire at the beginning of a year when the next generation of contributors comes in. The dissaving period begins, we are selling assets to the next generation of savers. Through the capital market they transfer some of their current income to us. They thus earn an entitlement to a future pension for themselves. In the PAYG system these entitlements were earned by a legal reward for taking care of the previous generation.

In practice our savings balance enters into a cohort pool from which annuities are paid. That pool should be exhausted when the last survivor of our cohort dies – provided the actuaries did their job properly and the assumed future rates of return behave as assumed. If not, the scheme may be in surplus or in trouble. However, if we think of ourselves as just average guys, it suffices to think of us as drawing down our savings by an equal amount every year (assuming there is no inflation in the system).

Now let us assume that our society is ageing. To take things to the extreme, we are assuming that we are living in one of two alternative worlds. One is a closed economy, the other a completely open one. Let us look at them in turn:

Closed economy

All other things being equal, the numbers of the active generation go down. If their productivity increases enough to compensate for the loss in numbers then their wages will increase faster than during our time. Overall economic growth rates might be sustainable. Let us assume they save more per capita to keep the overall national savings rate constant; that would mean sustained demand for financial and tangible assets, enabling us to sell ours with a probably modest but real rate of return, which would be needed to finance our pension through the conversion of our balance into annuities. That means we would receive the pension that we more or less expected. But if the new generation can keep up productivity to that extent they could have also paid us a PAYG pension. And Issue Brief 2 casts some doubt on whether standards of living and income can really be maintained in the face of ageing.

What happens if the decline in the new generation is faster, and the fall in numbers cannot be compensated by productivity gains? Then

Commentary (cont'd)

GDP would drop, savings would most likely go down with it and the amount of savings available to absorb our dissavings would be reduced. The demand for financial assets would hence decline and asset prices would go down, which in turn means our pensions would be lower than anticipated. We could counteract that by working longer and thus compensate for the loss in the numerical size of the active generation (for which we are ourselves responsible since we did not produce enough babies), by retiring later and technically speaking reducing the annuity factor in the pension formula (i.e. reduce our pensions).

We could have done that just as well in a PAYG scheme.

Open economy

Let us assume that we simply trade our assets on the world's financial or tangible asset markets and that our investments are all globally mobile (which they may not be), and let us assume also that the number of buyers on the world market grows indefinitely. It may not do that, as the world is ageing globally. But let us assume that we are still retiring in a phase of growing numbers of global buyers.

We would be able to earn at least a decent rate of return on our assets. We would be able to draw down a substantial pension from our "dissavings account" every year. So far, so good.

Unfortunately, we – or most of us – would want to (or probably have to) live in the society we grew up in. An ageing society. The return on our assets would be converted from, say, US dollars into euros. As we would bring in an increasing amount of dollars, the exchange rate would most likely fall since the ageing society would buy less from the global market and there is less demand for dollars. That means our pension would be devalued in purchasing power terms. That may or may not happen.

Let us assume the exchange rate stays constant; we would then – as a generation of elderly people – bring in substantial amounts of money into the economy. We would want to finance our consumption (or that of our grandchildren) with that amount of money. We would not buy goods like consumer durables on the world market, nor would we buy quantities of houses or domestically produced cars. We would first of all buy health care, nursing and other services, as well as food. Food is either produced or processed locally or brought into the country and distributed locally. Nursing and health care have to be produced locally. For political reasons we may not be able to import enough foreign nurses and doctors. The services are thus most likely produced by a shrinking generation. If their productivity could compensate for the loss of numerical size of the labour force we would be able to finance the consumption we need. If they are that productive, they could also finance a PAYG scheme. However, if they are not, then our money will compete for the purchase of a contracting

Commentary (cont'd)

amount of goods and services produced and hence will produce inflation. Our real consumption would go down.

To avoid this, we could compensate for the loss of the work force and work longer. We could have done that under a PAYG scheme.

What really matters is the entitlement to consumption

What my great-grandmother was trying to do when she put that money under the mattress, or my grandfather when he put it into the bank, or my father when he paid his social security contribution, was to make sure that they could finance a decent level of consumption once they were no longer active. My great-grandmother knew that she had to give that money to the household she would be living in so the family could take care of her. She knew that she would have to pay the local doctor or the hospital, and the community when buying her gravesite. Somehow that knowledge got lost. She did not know enough about making sure that the value of her money kept up with the prices of the services that she would have to buy. But she knew that she and her husband could not afford to retire too early so as not to make the family take care of her for too long. Somehow that knowledge got lost, too.

What ultimately matters is that when we are old there are enough people around ensuring GDP that provides for levels of consumption high enough that those other people are still willing to share with us. What we earn during our active lives is a set of certificates that entitle us to a future share in GDP. Whether that is a piece of paper with a legal claim in a PAYG scheme or one with a figure on it that says that we once put a certain amount of money into the capital market, appears rather a secondary notion. Ultimately, entitlements in both systems can be reviewed and altered. If we do not want to see our level of consumption drop too dramatically we would have to do our bit to make sure that the overall GDP gets produced. Investing wisely into an economy that maintains high productivity rates or one that provides workplaces for the elderly may do that. Even if the former succeeds we still don't know whether the next generation is willing to share as much as we feel they should. Our safest bet is to keep producing as long as we can. Reduce dependency, as the technicians say.

In the end, it all depends on the magnitude of the different effects. But – to this day – nobody knows exactly how an economy reacts to ageing. Again, the best bet is to reduce the amount of transfers needed. Whether there is money under the mattress or not, we won't have as much time as we thought to lie on that mattress and be idle.

Incidentally, who said that being idle is a good thing, anyway?

I am turning 50 and might still make it into a relatively early retirement. As most of you are 20 years behind me you most likely will not. Sorry, folks.

8 November 2002

5.3.6   Rate setting in fully and highly funded schemes

Where contribution rate levels are concerned, the least room for manoeuvre exists when countries opt for a very high level of funding or for fully funded pension schemes.

Some countries have decided to operate their schemes on a high level of funding in the belief that this would increase their national savings rate. We have seen that research on this issue is inconclusive, as discussed in lectures on the economic implications of social security. Other countries follow a full funding regime for different purposes: Kuwait turned to full funding so as to exploit its current positive economic situation, backed by still abundant oil supplies, in order to provide some guarantee for its long-term pension promises even for the day when the oil runs out. Its present economic state of affairs allows high initial contribution rates, calculated on a terminal funding basis. Countries such as India and Jordan have a relatively high level of funding of their DB social insurance schemes. Their aim is to have their pension liabilities fully funded. The schemes' reserves are mainly invested in either public securities or short-term assets.

It should be noted that public pension funding through investment in government securities is little more than PAYG financing in the context of overall public sector financing. While excess reserves are invested in public securities, non-social security tax rates are kept "artificially" low since excess government expenditure is financed through social security contributions. During the phase when governments have to redeem their debt, this has to be done from current government revenues – in other words, the government has to raise taxes or forgo other expenditure.

In fully funded DB schemes the contribution rate is the dependent variable once the level of benefits has been set. The setting of the contribution rate under mandatory retirement savings systems should ideally be based on similar calculations starting from desired benefit levels under a full career, but in practice it seems to be governed by affordability, economic and financial aspects.

The accumulation of a high level of reserve funds can be desirable to promote contribution rate stability in the context of an ageing population or a maturing scheme. Nevertheless, as shown in figure 5.3, stability of the contribution rate is not synonymous with full funding of pension liabilities. Maintaining a high level of funding makes the contribution rate sensitive to the unavoidable deviations of experience from actuarial assumptions, contributions and benefit payments. These deviations generate surpluses or deficits that necessitate periodic changes in the contribution rate to maintain the scheme's funding objective.[12] The risks of pension funding are more pronounced for countries with unstable macroeconomic conditions or limited capital markets. History has shown that pension assets may be depleted by high inflation, bad

investment policies (i.e. poor management) or government abuse of pension reserves (i.e. poor governance).

In any case, if a country decides to build up a substantial reserve for economic purposes it has to do so during the early stages of a scheme's existence, while expenditure is low and a contribution rate markedly higher than under PAYG standards can be charged. One way of doing this is to aim for a constant contribution rate from the inception of the scheme. This is theoretically possible with a GAP system. While this contribution level is not needed to cover current expenditure in the early years of the scheme, it can be considered fair to the early contributing generations as they acquire the same title to future benefits in exchange for their contributions as future generations (principle of intergenerational equity).

The stability of the contribution rate may enhance the scheme's sustainability by strengthening fiscal discipline via an early recognition of the scheme's long-term cost and the cost implications of benefit amendments. If a scheme was operated on a scaled premium or a PAYG system from inception, the first generations of insured persons would inevitably benefit from the scheme as their "return" on investment compared with that of subsequent generations would be positive. The GAP can be calculated on the basis of the formula for the general financial equilibrium. The resulting reserve level is a dependent variable and will reach a maximum at about half of the period during which it is calculated (which is usually a long period used as a proxy for the theoretical infinity on which the concept of the general average premium is based).

5.3.7   Rate setting in PAYG or scaled premium regimes

Even after the recent reforms in a few countries in Latin America and Central and Eastern Europe, most national social security schemes are still financed on a PAYG or partial funding basis (as defined through a scaled premium system). The boundary between the two systems is a matter of definition. Whether a scheme is a PAYG system with a necessary contingency reserve or scaled premium with a relatively small technical reserve is a matter of subjective judgement. Still, the process of fixing the level of contribution rates under both systems deserves a more in-depth analysis.

There is no hard-and-fast rule as to the level of the contingency reserve that a PAYG scheme has to maintain. The most rational procedure would be to simulate, through a combined economic and actuarial risk analysis, the financial development under a most pessimistic economic scenario and then calculate a contingency reserve which has to cover income shortfalls during the period that policy makers would need to adjust either the contribution rate or the benefit provisions to the different economic circumstances. The level of reserves is

obviously dependent on the volatility of the economy and the state of maturity of the scheme, but a contingency reserve of one to two times the annual expenditure should be sufficient in most cases.[13]

Frequent revisions of the contribution rate under a PAYG or scaled premium system could be preferable in order to avoid an excessive accumulation of reserve funds or in order to keep the contribution rate at a low level in a period of economic difficulties or in the early stages of economic development.

The decision of countries that have opted for partial funding rather than PAYG financing was motivated by either the intention to limit contribution rate increases during the first years of the schemes or the wish to have investment income in order to finance part of future pension expenditure. Some OECD countries (Canada, Sweden) have recently decided to raise the funding level of their social insurance schemes as a way of reducing future contribution rates during periods of high pension spending associated with the ageing of their populations.

Experience has shown, though, that the phased increase of contribution rates under a pure PAYG or a scaled premium approach has substantial political risks. It is tempting to introduce a pension scheme with a generous pension formula and an initially very low contribution rate. However, when the perfectly normal cost increase, as demonstrated in figure 5.2, sets in with full force later on in the maturation process, the contribution rates will have to be increased. The rule of thumb is as follows: the longer the period of contribution stability under a scaled premium system, the higher the necessary increase in contribution rates between the different periods of equilibrium, provided that a defined level of funding (i.e. a defined capitalization ratio k) has to be maintained.

The political problem is that governments often wait too long before raising contribution rates as each increase, even if perfectly normal and foreseeable financially, is politically unpopular. Waiting too long means that the scheme will either run into liquidity problems or necessitate a big contribution hike. Uninformed political propaganda will immediately declare the scheme bankrupt and call for it to be fundamentally reformed or dissolved. Political managers often react by taking "consolidation measures" which entail cutting benefit levels or tightening eligibility conditions. To some extent these might even be justified, as beneficiaries in young schemes generally have only limited entitlements and a generous pension formula helps to boost their standard of living. Later on, as the average careers of beneficiaries get longer, stricter eligibility conditions and benefits entitlements earned per year of service might be justified. However, maintaining the financial equilibrium through ad hoc adjustments to the benefit side is common practice, often necessary but certainly not always constitutive of good governance. Ad hoc modifications of the benefits side are generally detrimental to the scheme's public credibility, which is in effect its most important asset. In order to avoid such manipulations as much as possible, schemes need three regulatory provisions:

1. A clear definition of the actuarial equilibrium (stipulating the duration of the period of equilibrium x and the level of funding k) combined with a rule on when the contribution has to be increased, if necessary.

2. A benefit formula that can be maintained at the stationary state and not only during the scheme's "youth", possibly combined with transparent transitional benefit provisions for the early pensioner generations (so-called "grandfather clauses").

3. A set of demographic and financial stabilizers stipulating clearly how the financial consequences of adverse demographic and financial developments are allocated between contributors and beneficiaries.

Experience shows that without such a set of rules the financial equilibrium of a partially funded or even a PAYG scheme cannot be maintained. Wherever partially funded schemes have failed in the past, their failure could be traced back to political opportunism that failed to define the above rules or adhere to them.

5.4   FINANCING OTHER BENEFITS

This section groups considerations that should influence the determination of the financing system for the remaining major social transfers in an NSPS. Prominence is given to the main anti-poverty tool in national social protection schemes, namely means-tested social assistance, sometimes also called "welfare". This is followed by the exploration of a universal basic income (BI) which is in many ways an alternative to targeted social assistance but would certainly under national expenditure constraints also require substantial adaptations of national social transfer structures. The system is not yet fully operational in any major country, but a lively debate on its pros and cons is going on in South Africa, for example. In an era marked by simultaneous trends towards greater universalization of basic benefits and greater individualization of higher-level benefits, we felt that we should not leave this alternative out of our technical analyses.

The section is completed by a cursory mention of other short- and long-term benefits. The financing systems used for them are basically a combination of the systems that are applied to health care, pensions or social assistance and do not warrant any special treatment.

5.4.1   Social assistance

In most countries with fully developed social protection benefits, social assistance schemes are the schemes of last resort for the poor, providing general income cash subsidies as well as a variety of in-kind benefits ranging from food and clothing assistance to the provision of health care benefits for the population lacking coverage. The only determinant for benefit eligibility should

be need. In practice, benefit expenditure is often *de facto* cash-limited – that is, benefit levels are also determined by the amount of resources that are made available by the financiers. The financiers of anti-poverty benefits are generally national and local governments. Benefits are thus financed out of general taxation. Public funds may be complemented by charities or other private initiatives. In all cases PAYG is the financing method used.

As noted in Chapter 4, social assistance schemes are also part of the State's role as ultimate guarantor of a minimum level of social security to all citizens as well as *de facto* re-insurer for other social transfer schemes. In some cases social assistance schemes also function as the "default repair system" of the welfare state. Some NSPSs may be confronted with new risks for which no specific protection schemes have yet been developed, and social assistance schemes are therefore used to fill the void. The classic example is the soaring cost of nursing care for the very old in many OECD countries. Since family patterns have changed 24-hour nursing of disabled and mostly elderly relatives could no longer be provided in a family setting, and yet monthly nursing home rates were prohibitive for many families. Social assistance was thus used almost routinely to finance nursing care at least in part. In some countries (Austria, Germany, Luxembourg) this situation triggered the introduction of a new branch of social insurance, the so-called long-term care insurance.

Social assistance benefits are generally means-tested. Means tests seek to establish and measure the need of an individual or a family for benefits. Principal eligibility to income support benefits is established by assessing the level and potential sources of income of a family (such as support from family members or potential revenues from the sale of assets) and comparing that level to an amount of income needed to buy a basket of goods and services that an individual or a household needs in order to enjoy a minimum standard of living. The benchmark income for the comparison is generally created by establishing a basket or baskets of minimum goods and services which are then costed at current price levels. In the former planned-economy countries in Central and Eastern Europe these baskets were called Minimum Consumption Baskets. If the income of a family falls short of the cost of the basket for their family type – that is, a household in a certain region with a certain demographic composition, then the difference between the household's income or potential income and the cost of the basket (or a certain percentage thereof) should be the social assistance benefit that is paid to the family. In practice many social assistance schemes thus follow an absolute concept of a poverty line when it comes to determining benefits even though a relative concept may be followed in national statistics. If social assistance income support is paid up to a certain proportion of the cost of the minimum consumption basket, that proportion is called the social assistance intervention line (SAIL) or the guaranteed minimum income.

The total minimum income for households is generally "anchored" to a minimum income estimate for one adult and all further family members are then taken into account by means of "adult equivalent" weightings. In Ireland,

for example, the second adult in a household is counted as requiring an additional income of 60 per cent of the minimum income of the first adult, and a child a further 40 per cent. Special additional transfers in cash or in kind may be made in case of special need, such as chronic illness or disability. Many countries also pay special housing allowances for the poor.

The price of the minimum basket and hence the minimum income may vary from region to region, as price levels within larger countries also generally vary. The actual relationship between the SAIL or guaranteed minimum income and the actual price of a minimum consumption basket may not always be strict. Governments may choose not to adjust the SAIL for inflation for several years in order to keep costs down. Table 5.8 details the guaranteed minimum income in several European countries for an adult. These figures may not be completely comparable as some countries pay additional ancillary benefits.

The strictness of the means test varies greatly between countries. It may be a test of all financial means available to a person, ranging from the income and assets of direct relatives and own assets to income from all types of sources, or merely a test of current income. In Germany, for example, children may be held responsible for the provision of a minimum income to needy parents. In Australia, on the other hand, public pension is in theory means-tested but the means test is fairly generous. In any case, means testing is the most frequently used way of targeting benefits (i.e. directing the bulk of the expenditure to those most in need). Critics of means testing argue that the procedure itself is very costly and a deterrent to efficient benefit delivery and that the receipt of a social assistance benefit inevitably leads to social stigma. Stigma may actually be used implicitly as a means to contain expenditure. Means-tested social assistance benefits might also create poverty traps whereby it may not be rational for a

Table 5.8 Guaranteed minimum income, selected European countries, 1998–2000

Country	Amount of guaranteed minimum income per month per single adult (in euros)	Year
Estonia	25	2000
Latvia	21	2000
Czech Republic	107	2000
France	367	1998
Ireland	367	1998
Italy	(maximum) 268	1998
Germany	316	1998
Denmark	930	1998
Belgium	513	1998
Portugal	109	1998

Source: European Commission (1999); Council of Europe (2001).

social assistance recipient to take up a low-paid (formal sector) job with an income close to the social assistance level. All three pitfalls – relatively high benefit administration cost, social stigma, and the poverty gap – can of course be avoided if benefits are paid across the board. But this means paying benefits to a number of people who do not actually need them and who would thus consume resources that would not be available for redistribution to those who are truly in need.

A "mid-way" house between general means testing and universal benefits is "categorical targeting". This method of channelling cash and in-kind support to the needy identifies categories of people who – with a substantial probability – require financial assistance. One such category would be, for example, families with more than one or two children. The probability of living in poverty is much higher for families with children than for those without any. Box 5.14 shows that relationship in the arguably extreme case of the Russian Federation in the late 1990s, when the country was simultaneously coping with a difficult structural economic transition and the effects of a financial crisis.

Box 5.14   Poverty and the financial crisis in the Russian Federation[1]

World Bank data[2] paint a dramatic picture with regard to the poverty triggered in the Russian Federation by the financial crisis of the late 1990s. Already in 1996, basing itself on the findings of three rounds of a Russian Longitudinal Monitoring Survey (RLMS),[3] the Bank placed Russian Federation's poverty rate at 43.1 per cent, or nearly double the rate quoted by the country's statistical office (Goskomstat). Its estimates are based on the same minimum subsistence levels (differentiated by children, active-age adults, and persons older than normal retirement age) as those used by Goskomstat. The Bank reckons that in 1996 about 15 per cent of the population lived in extreme poverty – this figure refers to persons living in households where less than 50 per cent of the official subsistence minimum consumption basket is consumed.

Later World Bank data show that the August 1998 financial crisis probably pushed up the extreme poverty rate by between 2.1 and 4.4 percentage points. If the general poverty rate were to increase proportionally, that would mean that in the aftermath of the crisis as many as 55 to 60 per cent of all Russians might have been poor. It should be noted that the above data try to take account of income earned in the shadow economy, by basing household poverty calculations on the value of total household consumption (instead of money income per household, which is lower because of underreporting). But it is not quite clear to what extent this procedure really succeeds in accounting for the full amount of income earned in the informal sector.

However, as in other countries, poverty does not affect all population groups evenly. World Bank data also showed that in 1996 almost half of all households with one child were poor and about 16 per cent extremely

Box 5.14 (cont'd.)

poor, while some 61 per cent of all families with two or more children were poor and about 30 per cent extremely poor. The 1998 crisis has almost certainly sent even more families with children into poverty. One might assume that about two-thirds of all families with two and more children are poor. The data for households with one or more elderly members are quite surprising: their poverty rates are clearly below the national average poverty rate. The World Bank's main findings on poverty in the Russian Federation are summarized in box table 5.14.1.

One should not use the above data to jump to premature conclusions regarding the effectiveness and target efficiency of the social protection system of the country. It is patently true that the social assistance scheme, designed to alleviate poverty by providing some form of minimum income protection for all in need, is not fulfilling its objective. On the other hand, it should not be simply assumed that the resources spent on the overall NSPS are all ill-targeted or inefficiently allocated. It is obvious that the pension system continued to function even in difficult circumstances, managing to keep millions of elderly and disabled persons as well as widows and orphans at least out of severe poverty and

Box table 5.14.1 Poverty and extreme poverty estimates for the Russian Federation

Population groups	Pre-crisis estimate 1996		Post-crisis estimate[1] 1998/99	
	Poverty rate %	Extreme poverty rate %	Poverty rate %	Extreme poverty rate %
All persons	43.1	15.0	49.1	18.3
Persons in households with number of elderly members				
None	47.8	16.3	54.1	20.2
One	39.9	13.6	45.1	16.2
Two	31.5	12.2	37.6	14.6
Three	38.8	17.9	43.3	22.4
Persons in households with number of children				
None	30.6	9.9	35.6	12.9
One	48.6	15.9	55.6	19.0
Two or more	61.2	29.2	67.5	28.5

[1]Assuming a linear decline of incomes across the income distribution due to the August 1998 crisis.

Source: Data supplied by J. Braithwaite and M. Rutkowski, World Bank, 1999.

furthermore providing some indirect transfer income to younger members of the households (who can be assumed to be taking care of the elderly). Without money transfers from the pension systems – even if these transfers are smaller than promised decades ago and often paid

Box 5.14 (cont'd.)

late – pensioners would be the core group of the poor. It must thus be said that the bulk of the overall social transfer payments in the country was successful in preventing poverty. This fact is often overlooked by those who focus their critique of the Russian social protection system on the inadequacy of its social assistance scheme.

Notes

[1] Based on Cichon (1999b).
[2] As supplied by M. Rutkowski and J. Braithwaite (World Bank) in January 1999.
[3] The database is public, and estimates and calculations are open to checks by any researcher.

There is an obvious relationship between the use of rights-based benefit systems (such as social insurance schemes where a certain number of contributions entitle the contributor to a certain amount of benefits or in countries where benefits are universal) and social assistance schemes. Generally, countries that rely quite heavily on means-tested social assistance benefits have a smaller share of non-means-tested social expenditure than countries relying on a rights-based approach. The former also generally apply a "residual model" of the welfare state (according to the taxonomy in Chapter 3). Table 5.9 illustrates that point by detailing the expenditure and income composition of seven NSPSs, three of which follow the classical Bismarckian social insurance model, two the Nordic welfare model, and two the residual model. Relying to a considerable extent on social assistance is obviously synonymous with following a conservative policy when it comes to the "generosity" of social transfers.

The quantitative techniques needed to establish the cost of a social assistance scheme are essentially the same as those needed to calculate the amount of the poverty gap (see Section 1.4.1.2 in Chapter 1) and require no further explanation at this point.

However, any government in charge – whether national or local – has several ways to determine the level of overall expenditure or to shift costs to other social protection institutions at any given "objective" poverty level. Table 5.10 summarizes the administrative means of determining the level of social assistance expenditure.

In any case, there is little doubt that social assistance schemes in a functioning governance environment can be a cost-effective measure to combat absolute poverty. The actual cost depends to a large extent on the society's values – they determine on the one hand the generosity of the level of benefits and on the other the extent to which the population might abuse the benefits. In a developing country context, using a categorical system broader than elaborate individual means tests might be a more appropriate way of identifying the needy.

Table 5.9 Composition of benefits and receipts of three classical types of welfare state in Europe, 1998

	"Social insurance countries"			"Nordic welfare states"		"Residual welfare states"	
	Belgium	France	Germany	Denmark	Sweden	Ireland	United Kingdom
Expenditure and receipts in % of GDP							
Expenditure	27.5	30.5	29.3	30.0	33.3	16.1	26.9
Means-tested benefits	1.0	3.3	2.7	0.9	1.9	4.9	4.3
Non-means-tested benefits	24.9	25.6	25.5	28.3	31.0	10.5	21.6
Administrative cost	1.0	1.2	1.0	0.8	0.5	0.7	0.9
Other expenditure	0.6	0.3	0.1	0.0	0.0	0.1	
Revenues	**30.2**	**30.7**	**30.1**	**34.2**	**36.2**	**16.1**	**29.1**
Social security contributions	22.0	20.4	19.9	9.1	17.5	6.0	14.9
Tax receipts	7.4	9.4	9.3	22.9	16.6	9.8	13.8
Other receipts	0.8	0.9	0.9	2.1	2.1	0.2	0.4
Discrepancy	2.6	0.2	0.8	4.2	3.0	0.0	2.2
Expenditure and receipts in % of national total							
Expenditure	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Means-tested benefits	3.7	10.9	9.4	2.8	5.6	30.3	15.8
Non-means-tested benefits	90.4	84.1	86.9	94.3	93.0	65.2	78.4
Administrative cost	3.8	4.0	3.4	2.7	1.5	4.3	3.1
Other expenditure	2.1	1.0	0.3	0.2	-0.1	0.1	0.3
Revenues	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Social security contributions	73.0	66.4	66.1	26.6	48.3	37.5	51.2
Tax receipts	24.4	30.7	30.9	67.1	45.8	61.3	47.6
Other receipts	2.6	2.9	3.0	6.3	5.8	1.2	1.2
Discrepancy	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: EUROSTAT.

5.4.2 Universal (basic) minimum income

Proponents of this idea, found across the political spectrum,[14] have suggested a variety of alternative benefit systems to cure the apparent ills of the traditional systems, namely adverse incentive effects, stigma of needs-related benefits, increasing difficulties to achieve universal coverage in view of changing labour market attachment patterns, and the rising cost of overall NSPSs.

Table 5.10 Administrative determinants of social assistance expenditure at given objective poverty levels

Impact	Measures
Total social assistance expenditure	Shifting social assistance tasks to other social protection schemes (e.g. social assistance pensions to be paid through the pension scheme) or other government units (e.g. shifting cost down from the national level to local government)
	Limiting overall expenditure in budgets and providing benefits on a "first come, first served" basis or on an upward sliding scale of neediness
Number of recipients	Changing the amount and types of income and assets incorporated into the means test (e.g. the income and assets of close relatives)
	Using stigma or complicated procedures to deter utilization of benefit
	Suppressing/publishing information about entitlements
Amount of benefits	Determining amounts or ingredients of minimum consumption basket discretionarily
	Adjustment/non-adjustment of the SAIL

Most of these alternative benefit systems are derivatives or combinations of three basic elements:

(a) an unconditional transfer payment (income) for every member of the society, financed from general revenues (the so-called citizen's income (CI) or basic income (BI));

(b) negative income tax, which automatically supplements the income of taxpayers when their income is below certain thresholds,

(c) public or socially useful employment for persons excluded from the labour market (also called "workfare"), often as a condition for the granting of social assistance payments.

The negative income tax mechanism is fundamentally only slightly different from a means-tested social assistance cash-income support system or other income-dependent benefits (like various types of family benefits in several countries). Administratively speaking it is likely to be more cumbersome and less flexible, but for benefit recipients it is more accurate and less stigmatizing. It indicates that the tax system can be used to better target tax-financed benefits but is hardly a viable administrative response to urgent problems on the individual basis. The concept of "workfare" has been criticized on the grounds of undemocratic coercion and the fact that it could undercut the wage structure in an economy.[15]

The main discussion on alternative benefit systems is presently focused on the concept of basic or citizen's incomes, but it is still largely confined to academic circles, although wider political debates are under way in South Africa and some states of Brazil. The political supporters of the concept come

Table 5.11 Structure of an alternative social protection system with a basic income

Social protection subsystem and benefits	Contingencies covered	Population covered	Principal conditions
Universal benefits (tax financed)			
• health services	Ill health	All residents	Event of contingency
• basic income		All residents	None
Social security			
A. Statutory	All benefits to be replaced largely by BI		
B. Voluntary			
(financed by voluntary contributions)			
• pensions	Old age, invalidity, survivorship	Defined subgroups of employees plus dependants	Event of contingency plus eligibility conditions
• health	Ill health		
Social assistance (tax financed)			
• benefits in kind	Income (poverty), other specific conditions (disability, handicap)	All residents	Event of contingency plus means test

from different parts of the political spectrum. One group is predominantly concerned with rising poverty, another with long-term prospects of growing expenditure for what they consider to be unsustainable traditional social protection systems and is eager to "buy itself" out of a social policy debate. In most countries such schemes are still considered as being too radical. However, there is a new debate on the universalization of benefits (see Hoskins, 2002) that might lead to a re-introduction of some universal elements.

In order to finance a BI it is generally proposed to use the present budget allocation for social assistance and part of the budgetary or contribution financing for social security benefits as a financing tool for the new system. In effect the introduction of BI thus not only amounts to a fundamental restructuring of the benefits system but also of the financing system. The new structure of the overall social protection system – after the introduction of BI – could look as outlined in table 5.11.

The main systemic difference between the present and alternative system of social transfers is that BI is designed as a multipurpose benefit replacing a number of other benefits totally or in part. The main arguments for and against BI are summarized in box 5.15. A much more passionate defence of BI can be found in Standing (2002, pp. 201–238).

Preliminary, rough calculations by the ILO's Central and Eastern European team in the mid-1990s (see box 5.16) show for example that in a typical country in Central or Eastern Europe a BI benefit equal to the poverty-line level (i.e. 45 per cent of current average wage) would most likely increase the overall social expenditure ratio (SER). But this is largely an effect of churning income from the employed to the unemployed workforce by financing BI income from tax payments of the actives themselves. The real income redistribution to non-active groups would probably be reduced. The benefit would have to be paid out of general revenues. It will probably only stand a chance in the policy debate if the overall tax and contribution burden after such fundamental restructuring of the benefit and financing system does not exceed previously accepted limits in the respective societies (see Chapter 4). It is not clear yet how the income churning effect affects the acceptable limits of taxation.

Box 5.15   Discussing the pros and cons of a universal basic income

The arguments in favour of an unconditional BI are the following:[1]

1. The right to a minimum standard of living and hence a minimum income is a human right; BI would achieve that objective.
2. BI benefits could achieve a 100 per cent benefit take-up rate without any social stigma.
3. Even a minimal income has a liberating effect on the labour market as it encourages geographical, occupational and educational mobility. It reduces the pressure to find traditional forms of formal full-time employment, at a time when the labour market obviously cannot provide such employment for all who are available for work.
4. BI would reduce the poverty trap and the unemployment trap – that is, the recipient could afford to take up a low-paid job without losing a full benefit (the loss of benefits can prevent beneficiaries from re-entering the labour market).
5. BI would be a way of rewarding types of socially useful work for which the society has not yet found other adequate means of compensation.
6. BI is simple and avoids extensive administrative means testing.

Arguments against an unconditional BI:

1. Unconditional income encourages dropping out from the formal labour market or even from the formal economy, either through simple long-term idle dependency or the "topping-up" of BI through informal sector activities, which

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Box 5.15 (cont'd)

- reduce directly the tax and contribution income of the State,
- decrease "formal" GDP through a reduction in labour utilization.

2. By reducing the pressure on government and society to pursue full employment policies, BI increases long-term unemployment particularly of high-risk groups and can therefore cause social exclusion instead of curing it.[2]

3. BI cannot replace the existing social assistance and universal benefit systems. Social assistance provides benefits in cash and in kind based on specific personal needs identification. Such benefits will still have to be provided to recipients with personal above "normal basic needs" (the disabled, the single old, orphans, etc.). Hence not only the institution of social assistance remains necessary but also a major part of the administrative machinery (i.e. local social welfare offices).

4. BI cannot replace existing social security and social insurance schemes without reducing the level of social security of most "classic" employees. More resources than can be saved from a reduction of the social assistance schemes and family benefit schemes are needed to finance BI. As it is unlikely that the overall resource allocation to the social sector will increase substantially in most countries in Europe resources will have to be "freed" from other purposes, most likely social insurance. This can only mean that replacement rates of the present pension schemes (or other earnings-related social benefit systems) have to be reduced.

5. BI makes the overall level of social protection in a country dependent at least in part on government discretion. There is historical evidence that tax-financed benefit systems, the financing of which has to be obtained each year in competition for budget resources, face more difficulties in preserving the real level of benefits. There is a risk of BI benefits deteriorating over time and of social security deteriorating owing to the additional burden for BI, thus leaving with adequate benefits only those who during their active lives can afford supplementary non-statutory cover. In addition, social partners are generally involved in the management and supervision of social security schemes. It is hard to envisage a similar "empowerment" of the main stakeholders of social security under BI provisions.

Notes

[1] Standing (1994).

[2] Social exclusion is not solely about lack of money – it is also a question of not being able to contribute to society.

Box 5.16   Rough calculations on the financial impact of the introduction of a basic income in a Central and Eastern European country

A. Assumptions for a standard Central and Eastern European social protection system

Structural assumptions

(1)   Demographic composition[1]

population under 20:   29 per cent
population between 20 and 64: 58 per cent
population over 65:   13 per cent

(2)   The system dependency rate in the pension system can be kept at the 50 per cent level (which implies that present actual retirement ages must be increased).

(3)   Employment rate: 80 per cent of population of working age

(4)   Registered unemployment: 15 per cent

(5)   Poverty rate[2] in total population: 30 per cent individual average poverty gap: 30 per cent of the poverty line

(6)   Wage share of GDP: 40 per cent[3]

(7)   Employment in health services: 5 per cent of total employment

(8)   Staff cost share in health services: 50 per cent[4]

(9)   Sickness and maternity lead to an average absence rate of 7 per cent (6 per cent for sickness and 1 per cent for maternity).

(10) The overall administrative cost of all benefits, including the maintenance of social care institutions accounts, is included in average benefit calculations.

Normative assumptions

(11) The beneficiary rate in the unemployment benefit system is 70 per cent.

(12) An average benefit replacement rate of 50 per cent of average wage, subject to a minimum equal to a poverty line (45 per cent of 1993 average wage)[5] for all cash present cash benefits is acceptable to the population.

(13) Limiting family benefits to an average recurrent benefit of one-third of the poverty line is acceptable.

Box 5.16 (cont'd)

B. Assumptions for a BI

(1) BI is paid as a proportion of average wage to all adult citizens and as half that amount to all children under age 20.

(2) The overall pension level is kept constant (i.e. the sum of BI plus additional pension for pensioners is equal to the pension level under the previous system).

(3) Family benefits are abolished.

(4) All other traditional cash benefits are paid in addition to the BI up to the poverty line.

Box table 5.16.1   Crude model calculation of the cost of basic income benefits in a standard country of Central and Eastern Europe, in % of GDP

Item	Base scenario	Variant I	Variant I	Variant I	Variant I	Variant I
		BI equal to 0.45 times average wage	BI equal to 0.35 times average wage	BI equal to 0.3 times average wage	BI equal to 0.25 times average wage	BI equal to 0.2 times average wage
Pension scheme	10.00	1.00	3.00	4.00	5.00	6.00
Short-term benefits	1.40	0.00	0.28	0.42	0.56	0.70
Unemployment benefits	2.78	0.00	0.56	0.83	1.11	1.39
Family benefits	3.75	0.00	0.00	0.00	0.00	0.00
Health care	4.00	4.00	4.00	4.00	4.00	4.00
Social assistance	3.89	0.40	1.18	1.56	1.95	2.34
Basic income (BI)	0.00	33.17	25.80	22.11	18.43	14.74
Total expenditure	**25.82**	**38.57**	**34.82**	**32.92**	**31.05**	**29.17**

Source: ILO model calculations, 1995.

Notes

[1] Approximate Bulgarian structure for 1991.

[2] Poverty rates and poverty gaps are "median" assumptions based on UNICEF data; see UNICEF (1994), p. 2.

[3] Data on wage shares of GDP are scarce. United Nations data for Hungary in 1991: 58 per cent and Bulgaria: 43 per cent including the employers' share of social security contributions. In Poland the 1991/92 share of wages and other labour costs was 48–50 per cent. Discounting social security contributions would lead to a gross wage share of between 30 and 40 per cent GDP. The assumed 40 per cent might thus be already of a normative nature. In comparison, the respective values for Belgium and Germany in 1992 were 54 per cent and 55 per cent.

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[4] Bulgarian data.

[5] UNICEF uses 35 per cent of the 1989 real wage as its lowest national poverty line, which implies that the equivalent line for 1993 is much higher since real wages have deteriorated dramatically since 1989 (by 54 per cent in Ukraine, about 40 per cent in Albania and some 20 per cent in the Czech Republic, for example). For the purposes of updating the poverty line, the Czech decline of real wages was used here (which is the lowest in the region). Poverty line and poverty rates used here are therefore extremely conservative.

As we mentioned, our calculations are only preliminary and aggregated and cannot replace a more in-depth analysis. But there is reason to believe that even a BI at a poverty level will leave classic social security recipients with less transfer income than traditional social protection systems, the reason being that simplicity and non-targeting have opportunity cost in terms of lower concentration of payments to "classic groups" of benefit recipients. However, BI will obviously increase income security in the society. Again, this is ultimately a matter of national priorities and values.

5.4.3   Other short-term and long-term benefits

This section summarizes some salient aspects of financing systems for the remaining social transfer schemes. The techniques that can be applied to these schemes are essentially the same as those discussed above in respect of major schemes.

Short-term cash benefits

As a general rule, short-term cash benefits (these are inter alia sickness, maternity, family benefits, housing, food stamps) are usually financed on a PAYG basis, as they are considered to be short-term commitments on society's part. Adjustments to benefit levels and the financing mechanism can be made in a relatively short period of time should the schemes face financial difficulties. This means that the financial horizon of a scheme's financing system is usually one year. The actuarial calculation techniques involved are simple and can be easily derived from the more complex ones described in the preceding sections. Earnings-related benefits (unemployment, sickness and maternity benefits) are generally financed through contributions while other universal or needs-based benefits are generally financed by taxes.

Unemployment benefits

The micro- and macroeconomic implications of unemployment benefits were discussed in depth in Chapter 3. These effects are more interesting than the

financing systems, which are generally straightforward. The overall unemployment benefit financing systems are in some cases hybrid systems consisting of:

- – a contribution-financed scheme that covers a certain number of months after the onset of unemployment, and
- – a tax-financed means-tested component aimed at preventing poverty during longer spells of unemployment.

As in the case of pensions and (more recently) health care, there seems to be an emerging debate as to whether part of the financial consequences of unemployment cannot be individualized by introducing a savings component into the financing system. In parallel to the discussed savings for health (see box 5.8) this would leave essentially younger unemployed and persons with frequent spells of unemployment at an obvious disadvantage, as substantial periods of savings would probably be needed to generate enough income during longer spells of unemployment.

Employment injury benefits

Benefits paid under employment injury schemes are either short-term (medical care or short-term cash benefits) or long-term (e.g. disability pensions). In theory they can thus be financed like other short- and long-term benefits. This is automatically the case (as in Cyprus) if there is no separate branch for employment injury benefits. Where such a branch exists, contributions are generally made by employers alone as the financing of employment injury benefits is in most countries considered an employer liability. Contributions may be uniform for a country, region or industry, or experience-rated by enterprise (see Plamondon et al., 2002, Part III).

Long-term care

Long-term care benefits (largely nursing care in institutions or at home) are financed in most countries by a mixture of private funds and general revenues or community or regional taxation. Only in a few countries are they financed under a new branch of social insurance (Austria, Germany, Luxembourg); in other countries some benefits are financed under other social transfer systems like the Medicaid scheme in the United States.

Since these are essentially long-term commitments in theory they should be financed using similar financing systems as for pension schemes. However, as in the case of health care, their long-term cost is much less predictable than pension expenditure. It is relatively easy to project the demographic number of people at risk of becoming dependent on long-term care as most of these people belong to the age group over 65. However the actual incidence by age and sex within that group will vary over time as health status changes and the cost of care is equally difficult to predict. This means that explicit benefit systems for

long-term care should probably be financed on a partially funded or PAYG basis. Incidentally, the redistributive aspects of the introduction of explicit benefit systems for long-term care deserve special attention. Indirect beneficiaries may be communities or families who would have to finance a part of the care in the absence of a special long-term care insurance scheme. A long-term care insurance may thus provide income protection for the families of the long-term disabled and sick as much as it provides secure care and income security for the direct beneficiaries.

5.5 INTERNATIONAL INSTRUMENTS

The financing of NSPSs is already connected internationally through global capital markets and the interest of global players with respect to tax payments. If that is the case, then it is legitimate to ask whether increasing globalization may also constitute the opportunity to construct global financing mechanisms for at least a minimum of social protection in all countries.

Alleviating poverty is – or should be – the primary objective of all social protection financing in many developing countries. However, some of them are simply not able to do this on their own. Countries might well redistribute more than 40 per cent of their GDP through formal or informal transfers (see Chapter 1) without abolishing poverty. Only a few countries are so poor that even an assumed uniform equal relative redistribution would not lead to a per capita consumption higher than the poverty line. In most other countries persistent poverty means that the inequality of pre-transfer income distribution in combination with the societally adopted transfer mechanisms does not permit to redistribute enough income to lift all the people over the poverty line.

The ILO has estimated how many countries (of the 110 countries with an adequate database) do not have sufficient own means to provide at least a minimum level of material security to their people. Table 5.12 shows how many countries cannot provide their citizens with a consumption of one, two, three or four dollars per day and would thus need, at least temporarily, transfers from the global community. The estimates are admittedly crude, but the relatively small dimension of the necessary transfers makes one wonder whether it is really politically impossible to eradicate destitution worldwide. There was never any doubt that it would be financially possible – if the world community were willing to share.

However, what these model calculations also show is that the other countries should be able to avoid extreme poverty. And reality shows that many of them choose not to.

The globalization of social protection financing in recent years has gone almost unnoticed but has already established itself quite firmly. Major second-tier pension schemes are already dominant players on the international financial

Table 5.12 Countries in need of global social transfers

Poverty line in PPP US$ per day	Number of countries unable to provide transfers to inactive persons of at least the poverty line level	Estimated total share (%) of global GDP of necessary external transfers to close the poverty gap
1	1	0.2
2	16	1.1
3	31	1.3
4	37	4.3

Source: ILO.

markets. As the performance of these markets is interconnected, the reliability of social security entitlements of many workers around the world is already highly interdependent. If one major stock exchange crashes, or if stock markets collectively make a downward adjustment to stock market prices, as was observed in 2001 and 2002, millions of workers around the world are simultaneously affected. Indeed, already today the savings of workers in the industrialized world are financing investments and therefore jobs in developing countries.

International financial institutions are increasingly lending money for the inception or reform of social security systems. International loan and grant monies go into national and regional social funds. International aid is providing disaster relief, subsidies to national health systems, and so on. The IMF and the World Bank are now tying debt relief to the development of sound national anti-poverty policies through the so-called Poverty Reduction Strategy Papers (PRSP) instrument. All these developments and initiatives have thus far proceeded without any coordination. A global social protection financing policy is still not in sight. And yet, just as in national economies, global markets alone will not create reliable social protection benefits.

It is difficult to imagine that, faced with global markets and tax competition, NSPSs will be able to provide inhabitants with reliable levels of social security without some form of global social standard setting and regulations. So far the ILO is the only international body with a mandate to set such standards.

While global adherence to an agreed set of standards might take a few more decades to develop, the global war on severe poverty (that the Bretton Woods and United Nations organizations have vowed to wage) could become a starting point for a global social policy. Just as at the national level societies are the ultimate underwriters of national social protection schemes or at least basic safety nets, in the worldwide context international organizations could be the organizers and underwriters of at least a minimum global social floor. According to the ILO estimates mentioned above, it would take only about 2 per cent or less of world GDP to lift all people out of most severe poverty that cannot be abolished by national transfers. Organizing or even channelling

transfers of that magnitude is still an enormous challenge for global governance, but it does not seem impossible. With their debt relief campaign the international financial institutions have made a first decisive step.

Now more imagination is needed. In addition to already existing internationally financed national social funds, a Global Social Trust whose feasibility the ILO is presently exploring[16] could probably help to avoid social disasters in some of these countries. The Tobin tax proposal has often been quoted as one option to create a globally collected tax that could be used to finance minimum global social transfers. The history and content of this proposal are described in box 5.17. The Zedillo report (United Nations, 2001d) has recently introduced into the international debate, as an alternative, the possibility of an international carbon tax. For the time being, however, it seems that mandatory international tax mechanisms to finance global transfers are still far off. But that does not mean that innovative voluntary global initiatives could not be explored. It does not appear unrealistic that in the near future some sort of global support through voluntary contributions or debt swap agreements might become accessible to some national social protection schemes.

Box 5.17   The Tobin tax[1]

It was in 1972 that James Tobin, longtime Professor of Economics at Yale University and Nobel laureate, first floated the idea of a 0.25-per cent tax on all foreign exchange transactions. The thinking behind his proposal was inspired directly by Keynes, who had advocated a fee on speculation.

The idea is very simple: a unique flat-rate tax on foreign exchange transactions. Different rates of taxation have been suggested, from 0.05 per cent to 0.5 per cent; the most common is 0.1 per cent. Thus, for instance, if a 0.1 per cent tax rate is applied, speculative traders would pay 2.4 per cent over a year (0.1%*2*12) for an "in/out" transaction once a month, 10 per cent (0.1%*2*50) for an intervention once a week, and 48 per cent (0.1%*2*240) for a once-a-day transaction, assuming that the transaction amount is constant, and irrespective of the gains. Exemptions could be granted for small transactions.

It is estimated that 80 per cent of foreign exchange transactions are cleared within a week or less. It is thus anticipated that the Tobin tax would discourage a significant proportion of short-term speculative currency trade without affecting long-term productive investment. Less speculation would lead to less volatility in exchange and interest rates and would subsequently generate greater stability.

As foreign exchange transactions total about US$1,500 billion daily (see box table 5.17.1), income from the tax could be quite substantial. It is however difficult to estimate, as the tax would lead to a reduction in the volume of transactions. Frankel (1996) estimated that in an extreme scenario the amount of transactions could drop by as much as 60 per

Box 5.17 (cont'd)

Box table 5.17.1   **Volume of daily foreign exchange transactions (in billion US$)**

	April 1989	April 1992	April 1995	April 1998
Cash transactions	30	400	520	600
Term transactions	240	420	670	900
Total	590	820	1 190	1 500

Source: Groupe de réflexion d'Attac-Liège (2000).

cent; revenue from the tax would, at a rate of 0.1 per cent, amount to about US$144 billion a year, or about 0.5 per cent of the world GDP.

James Tobin was well aware of the limitations of the tax: he once said that its objective would be to "throw some sand on the fire of speculation"; he did not see the income from the tax as its only *raison d'être*. This might explain why the utilization of such income is not a clearly defined issue. Some argue that it should be managed by an existing international organization (UNDP or ILO, for example), while others advocate the creation of an organization devoted exclusively to this purpose. Whatever the technicalities, the aim should be to use the money raised to combat poverty and to finance projects of social interest.

Financial markets experts disagree, however, on the potential real impact of the Tobin tax. In theory, speculation is often seen as one polar use of futures markets (the other pole being hedging), both uses together stabilizing financial markets. In practice, it is not known which transaction is speculative and which is not. Therefore, it is probably not possible to

Box table 5.17.2   **Distribution of transactions by currency (%)**

	April 1992	April 1995	April 1998
US dollar	82	83	87
Deutsche mark	40	37	30
Yen	23	24	21
Pound sterling	14	10	11
Swiss franc	9	7	7
Canadian dollar	3	3	7
ECU and other EMS currencies	16	23	22
Others	13	13	18
Total (*)	200	200	200

(*) Each transaction implies two currencies, which explains why the total is 200.

Source: Groupe de réflexion d'Attac-Liège (2000).

Box 5.17 (cont'd)

Box table 5.17.3 Geographical distribution of transactions (%)

	April 1989	April 1992	April 1995	April 1998
United Kingdom	26	27	30	32
United States	16	16	16	18
Japan	15	11	10	8
Singapore	8	7	7	7
Germany	–	5	5	5
Switzerland	8	6	6	4
Hong Kong	7	6	6	4
France	–	–	–	4
Total	79	77	78	81

Source: Groupe de réflexion d'Attac-Liège (2000).

tailor the tax so that it precisely targets (only) those actors that it intends to reach. Experts also question its effectiveness, warning against a paralysis of the foreign exchange market. Moreover, the Tobin tax would not be substantial enough to prevent major attacks on currencies. One of the main arguments raised by its opponents, however, is that its introduction would require a consensus within the international community and that this will never be achieved.

Nevertheless, box tables 5.17.2 and 5.17.3 show the high concentration in the foreign transactions market in the 1990s, meaning that the agreement among just a few countries could be quite sufficient to start implementation of the tax.

Supporters of the Tobin tax have never presented it as a universal panacea but rather as a first step towards a new international financial policy whose overriding aim would be to improve the well-being of the people.

The issue is a highly political and controversial one, and no consensus is likely to emerge soon. However, for a few years now, and particularly since the Asian financial crisis of 1997, proponents of the Tobin tax have taken many initiatives in favour of its introduction. Its implementation, or studies relating thereto, have been put to the vote in different institutions such as the European Parliament, the French Parliament and others. Despite its rejection, the number of votes in favour of the Tobin tax was significant. More than 30 years after it was first proposed and 20 years after its main advocate was awarded the Nobel Prize, the Tobin tax is more topical than ever.

Note

[1] This box was prepared by Florian Léger of ILO FACTS.

5.6   SUMMARY

This chapter presented the full menu of options open to societies for the purpose of financing their formal social transfer provisions – in other words, the ways of making sure that the money is there when promised benefits need to be paid. Choosing a certain financing system for a specific benefit implies answering the questions listed at the very beginning of this chapter, namely:

(1) who pays...

(2) from what income...

(3) what amounts of contributions or taxes...

(4) at what point in time...

(5) for whom?

The wide range of different financing instruments used in different countries for the same benefits shows plainly that there are no clear-cut, ''one-size-fits-all'' answers to these questions and hence no optimal financing system for the various types of benefits. We have analysed however the underlying principles and the salient characteristics of the most important forms of financing.

It has also become clear at various junctures that the actual choice of financing system is a policy choice which rests not only on technical considerations but also on non-financial policy objectives and the need to develop financing systems that fit into the financial architecture of the social sector and into the national fiscal system. But even if the choice of a financing system turns out to be a political issue, it is still important for financial planners and managers to understand the full technical consequences of that choice.

Gillion et al. (2000) conclude the chapter on pension financing with a number of observations which hold true for the financing of other benefits as well.

When it comes to selecting a financing mechanism for an individual benefit scheme, the prime concern from a social protection point of view is clearly that of generating sufficient cash flow from the various sources of income to cover the costs set by the benefit provisions, administrative costs, the demographic environment and the economic environment. Benefit levels are decided by social policy on the basis of societal values. However, financing systems are also expressions of policy decisions. The choice of any financing system involves constraints, opportunity costs, short- to long-term political strategies and side effects. Moreover, financing systems have their own policy effects.

Policy choices that are implicitly and explicitly made when adopting a financing system concern the following policy areas:

• *equity and fairness:* the choice of financing system determines whether there are any income subsidies involved and whether benefit levels equitably reflect the contributions or taxes paid;

- *benefit levels and eligibility:* in many national circumstances it is the amount of resources available for a specific benefit in a complex web of social and fiscal relations that actually determines the level of benefits and the number of eligible recipients;

- *economic utility and effects:* the amount of reserves that are accumulated in a social transfer system makes that system a potentially powerful instrument of economic policy. The choice of financing system also influences labour cost and hence potentially employment, or it may also impact on the microeconomic behaviour of individuals (for example, through "I want my money back"-type utilization behaviour in contribution-financed systems);

- *intergenerational equity:* it is through the level of funding that financing instruments determine whether generations are contributing to a different degree to the financing of social protection;

- *efficiency of overall resource allocation in the social sector:* the actual choice of financing system also determines to some extent the amount of resources channelled into a certain type of benefits (e.g. a contribution-financed health scheme appears to be more successful in allocating resources to health than a tax-financed system where resources are subject to stiff budgetary competition); isolating resources for a certain benefit may protect them against competition from other social purposes but may not be efficient from the viewpoint of overall social policy.

- *efficiency of overall fiscal resource allocation:* as we saw in Chapter 4, the choice of a financing instrument also indirectly co-determines how much resources a government is left with for other purposes.

The choice of a financing system also involves long-term strategic social policy decisions. For example, if a developing country introduces a pension scheme with a relatively low contribution rate, which helps to "sell the scheme" to workers and employers at the beginning, an implicit choice is already made with regard to long-term allocation of overall social protection resources. Partially financed schemes will have to raise their contribution rates as they mature if they want to keep their benefit promises. That means that the financial room for other benefits in coming decades is already limited once a pension scheme, as cheap as it may seem at the outset, is introduced.

The above reasoning shows that the theoretical independence of expenditure and hence benefit levels of the financing systems is an elegant theoretical concept, but in social policy practice it is a myth. If countries pursue multiple social, economic, financial and fiscal objectives with their social protection schemes then the level of social expenditure and consequently the level of benefits become to some extent dependent variables. In economies governed by scarcity of resources it cannot be otherwise.

A checklist of questions for financial and social policy analysts

If a country's overall social protection system and its financing system are being analysed, the financial analyst may keep the following questions in mind:

1. Is the financing system chosen for a benefit, respectively for the sector as a whole, generating enough cash flow at each point in time to cover the expenditure caused by benefit promises?

2. What alternative financing options are there?

3. Why were the present financing systems chosen? Why were others not chosen?

4. What are the explicit or implicit policy implications with respect to:
   – equity and fairness
   – benefit levels and eligibility
   – economic utility and effects
   – intergenerational equity
   – overall efficiency of resource allocation in the social sector
   – efficiency of overall fiscal resource allocation?

5. Which long-term social, financial and fiscal strategies were pursued when the financing system was chosen, or should be pursued when a new financing system is designed?

Further reading

To find out more about:

- the costing and calculation of contribution rates for long-and short term benefit schemes, turn to Plamondon et al. (2002).
- the costing and financing of health care schemes, see Cichon et al. (1999).
- the development and nature of social security pensions, turn to Gillion et al. (2000), which contains a complete anthology.
- the financing of community-based schemes, see Dror and Preker (2002), where you will find detailed information on the subject.
- the funding versus PAYG debate in pensions, see Orszag and Stiglitz (1999); Holzmann (1999); Barr (2000); Brown (2002).

Notes

[1] This chapter draws to some extent on Gillion et al. (2000), Chapter 6 ("Financing pension systems"), but has been extended substantially to incorporate later thinking, as well as financing aspects of benefits other than pensions.

[2] See Iyer (1999), Scholz et al. (2000), Plamondon et al. (2002).

[3] The actuaries among you might realize that this is a simplification, since here it is assumed that all benefits for the year are paid on 1 January and that all of the wages or incomes subject to contributions are earned on the same day. We should also use integral signs for the formula, but in real life – where all is finite and discrete – integrals have a tendency to turn into sum signs.

[4] In this context, "fully funded" means that at each point t in time the scheme holds an amount of reserves equivalent to the present value of all future pension payments and all future financial liabilities that would arise from accrued entitlements of the insured population. This would theoretically allow terminating the scheme at point t while the scheme would still be able to honour all its liabilities to the insured persons.

[5] It should be noted that this solidarity rule or principle refers to the financing side of a benefit scheme only; the expenditure side, embodied in a benefit formula, might have more solidarity elements.

[6] For an extensive listing of micro-insurance schemes and some first-hand assessment of their strengths and weaknesses, see ILO (2000b).

[7] This point may be illustrated by the following example. The ISHAKA hospital scheme was forced to suspend operations in February 2000 because of a deficit of some 10 million Uganda shillings accumulated during 1999. Its activities were investigated by a team from the Uganda Community Health Finance Association (UCHFA). The team's findings and recommendations showed that the scheme was suffering from all the administrative, managerial and conceptual problems that could confront an inexperienced health care management team: adverse selection (for example through over-proportional enrolment of chronically sick members), imperfect registration procedures, deficient contribution collection, illegitimate use of facilities (exemplified by a utilization rate of 30 contacts per family in one sub-plan), as well as a general underestimation of per capita cost.

[8] This is a consequence of the income gap between providers and insured persons. It seems difficult to finance income expectations of formal sector providers through contributions paid by informal sector employees (whose per capita income is often a fraction of the income that professional providers would accept).

[9] More details can be found in Dror and Preker (2002), Chapter 13.

[10] See ILO (2002c), Annex 1.

[11] Generally, employees' contributions are tax deductible and employers' contributions are not considered as taxable income to the employees. Contributions to social security and contributions to occupational pension schemes should be treated equally. In both cases employer contributions on behalf of employees are not usually treated as taxable income to the employee. Employee contributions to social security are generally not a deduction from taxable income, while employee contributions to occupational pension schemes often are. In those circumstances, employees' contributions to social security and occupational pensions are not treated equally for income taxation.

[12] The great difficulty of guaranteeing pension indexation with funded schemes illustrates this point.

[13] The Quebec Pension Plan estimates that in the face of an economic downturn a contingency reserve of one times the annual expenditure is sufficient. However, in order to provide for supplementary protection the pension plan maintains a reserve of two times its annual expenditure.

[14] Some of them are organized in the Basic Income European Network (BIEN).

[15] See Standing (1990).

[16] See ILO (2002c).

ANNEX 5-A1   TESTING FACTOR SENSITIVITY IN THE CONTEXT OF A YOUNG AFRICAN PENSION SCHEME[1]

For the purpose of this annex a simple pension projection model was designed which permits to demonstrate the typical cost development of a pension scheme as well as the simulation of the relative impact of the different influence factors. The case used for the modelling is a typical new pension scheme in Africa showing the characteristic African features of a steadily growing demographic environment and a rapidly changing economic environment based on a realistic population prospect. Placing the scheme in the African context has the advantage of presenting a typical but realistic development of a scheme that starts from a zero basis (i.e. with no pensioners).

The typical relative cost development of a hypothetical pension scheme in Africa has been simulated under the following key assumptions:

Demographic assumptions

The population structure of Zimbabwe is used here as a basis for the model case. The determinants of the future demographic development – that is, mortality and fertility, are based on the projections of demographic indicators for Zimbabwe.[2]

Economic assumptions

It is assumed here that the economy in question has a 3-per cent real growth rate per year. The assumed wage share of GDP is 44 per cent. Labour force participation rates and employment rates again are those of Zimbabwe.[3]

Governance assumptions

It is assumed here that the scheme has a benchmark replacement rate of 40 per cent of career average earnings (here approximated by a ten-year average of revalued earnings) subject to a minimum replacement rate of 20 per cent. The 40 per cent corresponds roughly to the requirements of ILO Social Security (Minimum Standards) Convention, 1952 (No. 102). Shorter periods of employment lead to a reduction in the pension level of about 1.33 per cent for each year worked less, down to the 20-per cent replacement threshold. This is a fairly conservative pension formula which does not reflect most of the more generous formulae in French-speaking Africa. In the Base Case, pensions in payment are adjusted in line with insurable wages. Invalidity pensions are paid at the benchmark rate and survivors' pensions are paid at a rate of 60 per cent of the entitlement of the deceased.

It is assumed that the population registration compliance rate increases from an initial value of 10 per cent to 80 per cent after 35 years and stays constant thereafter. Wage compliance rises from 50 per cent to 80 per cent after 15 years and stays constant thereafter.

Typical cost developments

The results show that under rather careful assumptions on the pension formulae and with the slowly ageing population, the overall cost of the pension scheme remains at fairly low levels for at least the next six and a half decades, provided the scheme's management is sound (see table 5-A1.1). But the PAYG cost development also shows the characteristic pattern of increasing expenditure typical of all national pension schemes. Starting from very low levels the overall PAYG cost will amount to some 13 to 14 per cent in the relatively stationary state. This implies generally that the labour market has to have reached its final stage of formalization. We have avoided speculating here on the length of that period, but it might easily take several decades.

The bad news in this case is that – on the basis of assumptions which are thought to be realistic – even after six decades only about 17 per cent of the labour force would be covered and only about 20 per cent of the total population over the age of 60 would be receiving a pension (if one assumes that at least two persons over the age of 60 per household benefit from a pension).

If one were to assume that the formalization of the labour market and the economy were to occur much faster and reach European levels by the end of the projection period, then the overall cost of the pension system would probably be in the order of magnitude of 6 to 7 per cent of GDP, which is still considerably lower than in OECD countries, because the country in our example has a younger population and the scheme is still not fully mature.

Within overall social spending, health and social assistance schemes could finally take up another 10 per cent of GDP (OECD average for 1990). The national social protection scheme could at the end of the phase of economic development – lasting about six decades, assuming real average growth of about 3 per cent throughout the projection period – cost as much as Greece and Portugal allocated to their social protection schemes in 1994.

However, it is worthwhile discussing briefly in this context whether the above typical country in Africa could not already afford a much more efficient social protection system, for example a universal tax-financed pension scheme for all invalids and persons over 70 years of age. Even a modest benefit of 20 per cent of the present average wage in the formal sector would go a long way in combating poverty. The option is explored in more detail in the recent ILO publication on pensions (Gillion et al., 2000, Technical Brief 4). The result is that a modest benefit paid to eligible persons not presently covered by the national social insurance scheme (in this typical country) would initially cost

Table 5-A1.1 Base Case and sensitivity test results of the financial development of a typical African pension scheme, 1992–2057

	PAYG rate (% of total insurable earnings)			General average premium	National pension cost (as % of GDP)		
	2010 t=18	2030 t=38	2057 t=65		2010 t=18	2030 t=38	2057 t=65
Base Case	1.9	5.69	13.17	7.1	0.21	1.09	2.53
Sensitivity tests							
Demographic parameters							
• increase in life expectancy variation by 10%	1.91	5.76	13.69	7.26	0.21	1.11	2.63
Economic parameters							
• GDP growth by 10% (including interest rate)	1.89	5.61	12.82	6.96	0.21	1.08	2.46
• Productivity growth by 10%	1.91	5.72	13.29	7.15	0.21	1.1	2.55
Governance parameters							
• increase of benchmark replacement rate by 10%	2.05	6.26	14.49	7.8	0.23	1.2	2.78
• excess adjustment of pensions by 1% point (which is equal to a gradual increase of the replacement rate to about 11% in the final year)	1.95	5.96	14.35	7.56	0.22	1.15	2.76
• increase in compliance registration by 10%	1.9	5.69	13.17	7.1	0.23	1.2	2.78
• increase in wage compliance by 10%	1.9	5.69	13.17	7.1	0.23	1.2	2.78

Source: ILO calculations.

about 2 per cent of GDP. This could be collected through a 2.2-per cent increase in income tax or a new consumption tax of 3.6 per cent. These figures appear low but they would require a substantial political effort at a time when the country's budget is already in deficit. Whether this modest additional social protection system is affordable depends on whether the government and the public are either willing to set different priorities in their present public spending or whether they would accept to collect and pay additional taxes. Acceptability might be higher in about 25 years' time, when the economy and the tax bases will have grown. Yet again, economic affordability is a matter of public acceptance rather than macroeconomic forces.

Sensitivity testing

The planning and design of any national pension scheme requires an understanding of the relativity of projections. In other words, it requires understanding the relative impact of the determinants (demographic development,

economic development and governance) on the typical pattern and hence on the specific national projections. Their potential impact is best proven by a sensitivity analysis, which was performed for certain differentials of the properties of the factors. The results of sensitivity test on some of these parameters are set out in table 5-A1.1.

The above sensitivity tests clearly show that governance parameters are the determinants with the most direct impact on the financial development of the scheme with respect to the Base Case. This theoretical exercise in a developing country context thus confirms the statistical observations in OECD countries as mentioned in Chapter 2.

Amongst governance determinants, the 10-per cent rise in the benchmark replacement rate (and implicitly the assumed accrual rate) increases the PAYG cost and the national pension cost and the GAP by 10 per cent after 65 years. The effects of the increase in this benchmark rate take effect immediately, notably with an increase in the PAYG cost of 8.0 per cent after 18 years as pension benefits paid out increase without a growth of insurable wages. An increase in the registration compliance as well as in wage compliance has an impact both on the income of the scheme (through higher contribution income) and on its expenditure (through pensions calculated on higher reference wages) – therefore, the PAYG cost as well as the GAP do not change with respect to the Base Case presuming the increases take effect immediately.[4] However, the national pension cost rises as the overall expenditure volume increases.

The 10 per cent rise in GDP, while the productivity per worker remains unchanged with respect to the Base Case, generates a higher total employment level which in turn increases the wage base of the scheme. However, in the long run there is also a rise in the number of beneficiaries. Therefore, after 65 years the GAP decreases by only 2 per cent with respect to the Base Case scenario. However, in the opposite case, where there is a rise in worker productivity, GDP remaining unchanged with respect to the Base Case, there is a decline in employment. This drop in active contributors generates a decrease in the contribution income and only after some time lag a fall in the number of future beneficiaries.

Greater life expectancy affects the length of time during which benefits are paid out to the insured and hence the cost of the scheme. In the sensitivity test, life expectancy rose by two years over a 65-year time span and generated a PAYG cost and a National Pension cost increase of 3.9 per cent.

Notes

[1] Taken and adapted from Gillion et al. (2000), Technical Brief 4.

[2] Indicated in United Nations (1998).

[3] ILO: Yearbook of Labour Statistics 1995, 54th issue, Geneva 1995.

[4] This is to some extent an over-simplification of the model. In reality the effect on the income side would precede the effect on the expenditure side.

INVESTING SOCIAL PROTECTION RESERVES

6

Growing numbers of social protection schemes, notably national pension schemes, are raising or seeking to raise their levels of reserves either through major reforms introducing an explicitly fully funded (defined-contribution) component into the system (as in Bulgaria, Germany, Latvia, Poland, Sweden, and Latin American reform countries) or by raising the funding level of the existing defined-benefit system (as in the case of the Canada Pension Plan). As a result, national social protection systems find themselves having to manage potentially huge amounts of money that is collected today for the purpose of financing future obligations. Understanding the basic mechanics of capital markets and principles of investing social security reserves is a necessity for financial planners and decision-makers in social protection. The purpose of this chapter is precisely to introduce them to that subject matter.

The literature on investment is vast and so is the concept, even when restricted to the investment of social security reserves. A comprehensive discussion of this type of investment would need to encompass macro- as well as microeconomic issues, different types of capital markets and their operation, institutional arrangements and legal provisions, probability theory, mathematical and statistical tools for the analysis of market performance and the preparation of investment decisions (risk analysis), and much more besides. Given the constraints set by the purpose and volume of this book, we will focus on some basic considerations that should govern decisions on the investment of social security reserves.

Social security reserves are essentially deferred parts of wages; these are (generally) mandatory savings made for the purpose of meeting future benefit payments. In defined-contribution (DC) systems, where the deducted share of income is fixed, future benefits are calculated on the basis of individual contributions. Ideally, the contributor receives back what he or she has put in. At each point in time the balance in the individual pension account belongs to the contributor's personal wealth even if he or she is not free to use that wealth

for purposes other than social security. In fully funded defined-benefit (DB) schemes, which guarantee the beneficiaries a fixed income, benefit wealth cannot be measured simply as an amount of money in an individual account at a defined point in time, but is rather the actuarial present value of the pension entitlement that an individual has earned up to that point in time. This portion of the collective amount of the scheme can be regarded as being owned by the individual.[1]

Obviously, the amount the individual is entitled to at each point in time also depends on the development of the reserves and the results of investment decisions. Moreover, in the case of fully or partially funded schemes, it is evident that those who are accumulating the reserves should exercise strong control over the way in which the monies are invested; after all, it is their delayed income that is influenced by investment decisions. Likewise, the State, with its power to introduce forced savings, has a vested interest in supervising investment decisions since it usually acts as *de facto* reinsurer of all social protection schemes. Rightly or wrongly, investment decisions thus influence the future budgetary obligations of the government. Employers are interested parties because a scheme's investment performance could affect the setting of contribution rate levels – even if the incidence of contributions ultimately falls on the worker.

In any case, social security reserves are either directly part of a person's benefit wealth or have a direct or indirect influence on his or her income. Investment performance affects the present and future financial obligations of the government and indirectly those of the employers in their role as financial guarantors or contributors. It is thus four groups – employees, employers, beneficiaries and the government – that have an interest in safeguarding pension reserves and optimizing investment performance. This is a clear case for the participation of all four groups in the supervision of investment management. Many schemes have special investment boards made up of elected (in the case of contributors and beneficiaries) and appointed (in the case of employers and the government) members from all four interested parties.

6.1 FINANCIAL MARKETS: DEFINITION AND GENERAL CHARACTERISTICS

A financial market is a place where people, institutions or enterprises requiring financial resources ("deficit units") meet people, institutions or enterprises that are in a position to provide such resources ("surplus units") under certain conditions.[2] Assume that person *A* has a business idea but lacks resources to finance the necessary investment. Person *B* has excess resources but has no investment opportunities of his own and is willing to lend the money. The two persons meet and agree that *B* will transfer money to *A* for her business purposes, while *A* promises to pay back the amount to *B* plus some additional

cash payments ("interest") in future. *A*'s promise is normally available in some written form: that written promise is called a financial asset. *A* is the issuer of the financial asset, and *B* (holder of the asset) is the investor. *B* holds a legal claim on future payments against *A*.[3]

This example shows that financial assets allow for a transfer of resources from "savers" to "entrepreneurs".[4] Furthermore, they allow for a redistribution of the risk of loss of income associated with investments in tangible assets among those seeking and those providing liquidity. In order to understand this function, imagine the following situation: a unit is in a surplus position but has no business skills (lack of interest, knowledge, training, education, etc.). If that unit were to invest its liquidity surplus in a specific business (in tangible assets) it would run a high risk of failing (say $\alpha = 0.95$). The likelihood of success is low $(1 - \alpha = 0.05)$.[5] Assume the surplus unit has knowledge of a deficit unit whose capacities (experience, knowledge, training, education, etc.) allow a high probability of running a business successfully (say, the risk of business failure would be only $\beta = 0.01$ and the likelihood of its success $1 - \beta = 0.99$). This is clearly a case for considering a transfer of the surplus unit's liquidity to the deficit unit instead of running the business (investing in tangible assets) oneself.

Assume now a large economy with many deficit and surplus units. The deficit units are ready to issue financial assets and the surplus units are ready to invest in them. However, issuers and investors have a severe information problem. How do they match their respective sets of preferences? Where are the profitable businesses? What is the "true" price for assets? It would obviously be of great help if both sides knew where to find their counterparts. Lack of information would very likely lead issuers and investors to make inefficient transactions at wrong prices, and many transactions would simply not take place at all. The opportunity costs of such a situation would be very high for all participants. The place where all such information is available and where transactions incur minimum costs is the financial market.

Box 6.1   Financial market: A definition

"A financial market is a market where financial assets are exchanged, i.e. traded. It is in this market that the cost of capital is determined. Although the existence of a financial market is not a necessary condition for the creation and exchange of a financial asset, in most economies financial assets are created and subsequently traded on some type of organized financial market." (Fabozzi and Modigliani, 1992).

Deficit units can expect their financial instruments to meet their intended purpose – cashing in money – only if there is sufficient demand. Financial markets depend on the sustained readiness of surplus units to buy the financial

assets offered by deficit units. This readiness depends on the *justified* expectation of positive returns associated with these investments. If the expected returns on the assets were zero or negative, or if the surplus unit expected the investment of the deficit unit to fail, then it would be advantageous for the surplus unit just to hold cash instead of turning it over to the deficit unit. The creation of profitable investment opportunities lies in the hands of active and capable entrepreneurs whose business ideas are the foundation of successful financial markets.

The notion of "justified" expectations of positive returns is important in this context, and is synonymous with "according to the best knowledge" of all participants in the underlying transactions. In other words, surplus units investing in financial assets must be sure to the highest possible degree that their money will not be lost and that returns on investments will at least not be negative; moreover, in order to attract investment they must out-compete alternative investment projects. It is this fundamental urge for investor protection that has given rise to stock market regulations concerning the admittance of instruments traded, the prevention of insider trading, and so on. Such regulations are aimed at preventing fraud. If financial markets were fraudulent surplus units would withdraw from them sooner rather than later and the markets would dry out. One of the distinguishing features of stock markets around the world is the degree to which such regulations exist and are being enforced (see La Porta et al., 2000). One of the core problems of social security investment decisions is finding markets governed by reliable regulations that help to safeguard the value of the savings of insured persons. The following section describes the main characteristics of formal financial markets. An overview of the organization, classification and instruments of financial markets is provided in Issue Brief 4.

6.1.1   Characteristics of formal financial markets

The existence of formal financial markets is not a necessary condition for the creation and exchange of financial assets. It is obviously possible to have and hold financial assets without institutionalized financial markets. Also, financial markets are generally not a prerequisite for starting an investment process in an economy.[6] However, where market participants have decided to rely on financial assets as one form of investment financing, then formal financial markets can be supportive in the design and trade of such instruments.[7] In this sense, if they fulfil certain criteria, formal financial markets help to make the life of market participants easier – certainly easier than it would be in the absence of any market order.

It is usually taken for granted that financial markets, whether formal or informal, *should* function well (i.e. be "efficient"); in other words, they are assumed to contribute to the issuers' and investors' confidence. Issuers (deficit units) may be the State or private firms whereas investors (surplus units) are for example pension funds.

According to Fabozzi and Modigliani (1992, p. 11), financial markets are considered efficient only *if* they perform the following functions:

1. Financial markets discover the prices of financial assets. The financial inducements of deficit units to acquire funds depend on the return required by the surplus units. This feature of financial markets signals how the savings of an economy should be allocated among financial assets.

2. Financial markets provide a mechanism for investors to sell financial assets. In this respect, they offer liquidity. In the absence of liquidity, the asset holder will be forced to hold a debt instrument until it matures and an equity instrument until the company is liquidated. The degree of liquidity is one of the main factors that characterize different financial markets.

3. Financial markets reduce and – under conditions of perfect competition – even minimize the different costs associated with transactions: search, information, contracting, contract enforcement and contract control costs.

Therefore, when people talk of financial markets they usually mean *organized* markets. Such markets bring together *effectively* issuers of and investors in financial assets and allow them to trade *efficiently*. Market institutions such as banks or stock markets serve as *intermediaries* between the two sides of the market. In performing their role, financial intermediaries support economic growth by matching the preferences of issuers and investors at low cost.

The efficient functioning of financial markets in practice is of great importance for the investment of social protection reserves. It is not enough for financial managers of social protection systems to trust in the theoretically positive attributes of financial markets; they have to monitor the actual functioning of financial intermediaries – that is, to check whether reality matches theory. As an element of this monitoring process, social protection managers are obliged to determine not only in which type of instruments to invest but also in which specific market or markets. If national legislation limits their choice of markets, they have the obligation to find out whether the markets that are within their reach perform well – that is, whether they operate at least in accordance with internationally recognized "best practice". If they come across deficient, malfunctioning or otherwise sub-optimal operation, social protection managers would have to use their institution's purchasing power to the maximum degree possible to initiate improvements. The requests to improve performance would have to be raised with the stock exchange or bank management itself as well as with trading partners registered at the exchange. This type of intervention is largely independent of the size of the reserves to be invested. Even relatively small short-term contingency reserves may be used to exert influence. The purchasing power of high reserves, either existing or expected to accumulate in fully or partially funded pension schemes, may lend considerable weight to the intervention of financial managers of social protection systems.

In the case of long-term oriented pension reserves, formal financial markets should not only be working efficiently today, but also in future. The same holds true with regard to the stability of volumes traded. If, for whatever reason, participants were to withdraw from the market, pension fund managers would have to face an unorganized environment and would thus incur enormous search and information costs in trying to invest the institution's reserves or liquidizing accumulated funds.

The operation of modern financial markets is founded on general societal acceptance and enforcement of property rights through state authorities in countries governed by civil law (or variants thereof) on the European continent and common law (or variants thereof) in the Anglo-Saxon world.[8] These legal traditions stipulate that, in principle, every single item of the stock of fixed assets[9] of an economy is owned by someone[10] – the owners being the State, an enterprise, or an individual. In other words, each owner holds a certificate (a "paper", which in the case of state ownership can be a law) stipulating that he or she owns the specified fixed asset. Selling or buying a fixed asset is then paralleled by exchanging documents stipulating the respective ownership. In this sense, every individual contract or certificate determining the ownership of property can be considered a financial asset – but, of course, by far not all of these assets (ownership rights) are usually traded on the financial markets.[11,12] Under conditions of perfect competition the values of the fixed assets equal the values of the documents.[13,14] This relation – which in reality holds true only to a certain degree – paves the way for an interpretation of financial assets in a macroeconomic context (see Issue Brief 4).

From the point of view of investment of social protection reserves, especially where partially or fully funded pension schemes are concerned but to some degree also in the case of short-term contingency reserves, the above efficiency requirements of financial markets have to be assumed existent over a long-term horizon. By virtue of their potentially enormous purchasing power, social protection schemes may themselves contribute to maintaining these conditions over the long run.

6.1.2 Macroeconomic context and role of financial markets

This section provides a brief explanation of the role and position of financial markets in a macroeconomic flow-of-funds context.[15] Linking the supply side ("savers") and the demand side ("entrepreneurs") for monies, financial markets may assume a significant position in generating economic prosperity. We will begin with a rough standard explanation of the production process, its result and the use made of the latter. Much of the explanation refers to figure 6.1 which sketches out the basic elements of the production process and its relation to financial markets.

Figure 6.1 Factor markets, GDP, fixed and financial assets
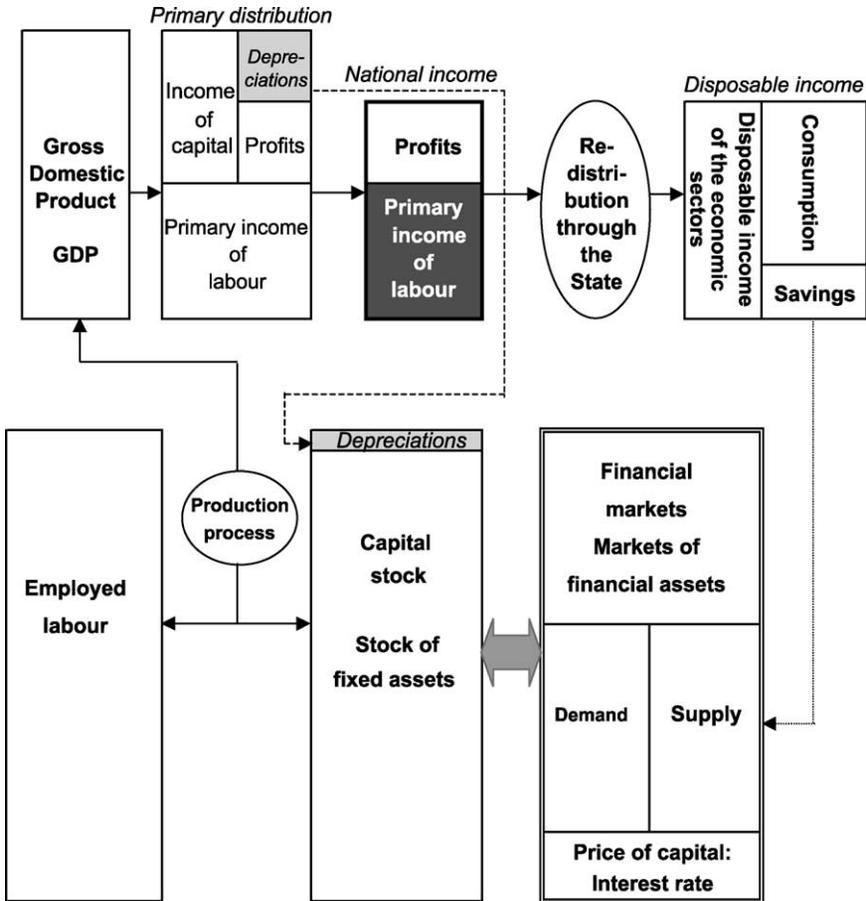
Source: ILO.

The two standard production factors are employed labour ("labour force") and the stock of fixed – tangible and non-tangible – assets[16] ("capital stock"). Management (of firms, institutions, etc.) combines these two factors to get the production process going. The result of the overall production within the borders of a given country is its gross domestic product (GDP),[17] which measures the income of the production factors and the cost of production. GDP is allocated to the two production factors according to their relative contribution to that result.[18] The production factor labour receives its share in the form of labour income, and the production factor capital in the form of capital income.

Some of the goods and services produced have to be channelled back to the stock of tangibles in order to substitute for the consumption of parts thereof during the production process (resulting from physical deterioration, normal obsolescence or normal accidental damage). The remainder, usually called "national income", is available for allocation to the owners of the two production factors in the form of profits (income of the owners of capital) and wages (income of the employed). Once allocated to capital and labour, national income is available for redistributive activities of the State, based inter alia on tax legislation, state budgets and social protection provisions. The economic position of all sectors of the economy – enterprises, private households, the State itself – is influenced by such activities: after state intervention, the disposable income of all sectors is different from what it was before. "Disposable income" is the amount of resources available to the respective sectors for spending on consumption, investments and the derivative of unspent disposable income savings, which constitutes the influx from the real economy to the financial markets.

"Savings" is the amount of income available for use on the financial markets.[19] In other words, surplus units offer (i.e. supply) unspent income to the units of the economy that are in deficit and are hence seeking resources. It is the relation between supply and demand that determines the price of the instruments traded on the financial market.

If channelled through the financial markets into capital stock investment, savings can contribute to economic growth. It is understood that the growth of an economy is dependent on a growing stock of fixed assets.[20] The capital stock grows by way of investments in tangibles made by enterprises and the State. These investments can be financed out of the sectors' own resources and/or through the issuance of debt and/or equity instruments via the financial markets.

In this context, it is important to note that during the 1980s in the industrialized world by far the most resources for investment financing of the private sector stemmed from profits retained in the companies (that is, not distributed to the owners). A comparison between Germany, Japan, the United Kingdom and the United States over the period 1980–89 shows that between 71 per cent (minimum, Japan from 1985 to 1989) and 100 per cent (maximum, United States from 1985 to 1989) of business investments was financed out of retained profits. Analysis also shows that over the same period in the United Kingdom and the United States even more common stock (in value terms) was bought back from the markets than was newly issued.[21]

These findings are supported by recent World Bank-based research[22] which shows that equity issuance (initial public offerings, or IPOs) over the period 1991–95 levelled at around 1.4 per cent of GDP in the emerging markets, 2.8 per cent of GDP in the "Asian tiger" countries, 1.0 per cent in the G4 and, taken as a total of all three, around 1.5 per cent of GDP. These figures are in sharp contrast to the overall national investment ratios which in the above regions ranged between 20 and 35 per cent of GDP. They might no

longer reflect exactly the financing structure of the late 1990s when issuance of equity as a form of fund raising was even more prominent. Yet, except possibly for the so-called "new market", it can well be assumed that retained profits still are, and will continue to be, the main financing source of business investment.

Thus, for many cases private business expansion is contingent on the issuance of financial assets only if the investment in tangible assets cannot be financed out of own resources. The owner of a business has to be in a financial deficit position before being able to issue a financial claim against his or her firm (or himself/herself personally) in order to cash in the necessary liquidity. Only those investments that cannot be covered out of own resources have to rely on the services of financial markets.[23] It is mainly in phases of technological or other market innovations that deficit units may be in need of support through surplus units.[24] In any case, such innovative investments may often be especially risky as it is not always obvious that markets will accept them.

If the investment financed through the financial markets is successful[25] (in the sense that the product or service can be sold), it adds to the productive capital stock of the economy. Otherwise it has to be written off and the surplus unit's financial investment is lost. The perceived chances of success or failure influence the price of an asset on the financial market.

Aside from its legislative power to shape market settings, as a sizeable debtor the State plays a major role in determining the size and evolution of financial markets. As long as it is in a deficit position, the State cannot but continuously offer financial claims (debt instruments) to cash in the missing monies. As long as these financial claims are used for financing public investments the production base of the economy is being broadened (assuming that public investments are directly or indirectly productive). As in the case of private business, such investments contribute to economic expansion.[26] Since economic expansion increases tax revenue but may also offer the opportunity to broaden its tax base, the State can repay its debt or, at least, pay interest regularly.

6.2 NATURE AND INSTITUTIONAL MANAGEMENT OF SOCIAL SECURITY RESERVES

The type and number of social security funds implemented in different countries vary widely. Generally speaking, there is a link between the level of economic development and historical governance traditions (federal versus centralized governance structures, for example) and the number and structure of social security funds in a country. Highly developed countries often have a multitude of social schemes, while less developed countries frequently have only one or two such schemes. The former centrally planned economies

(known as "transition economies") with their inherited uniform centralized schemes lie somewhere in between these two extremes.

The problems of (and solutions for) investing social security reserves very much depend on the type of social scheme under consideration and the socio-economic environment of their country of residence. Problems differ widely between pension funds and unemployment insurances; there are differences between schemes based on individual contributions and those paid out of general taxation. Similar types of schemes may face different investment problems depending on the level of economic development of their host countries. Different solutions may be needed in countries experiencing hyperinflation and high unemployment as opposed to those enjoying full employment and acceptable rates of inflation.

It would be impossible to cover here the myriad possible combinations. Our focus is on the distinction between funds with a long-term investment orientation and those with a short-term one. Classic funds with a long-term investment horizon are fully or partially funded pension funds; short-term orientation is characteristic of pay-as-you-go (PAYG) financed social security schemes, which most often collect cash reserves only on a contingency ("buffer") basis. All considerations are generally based on a low-inflation assumption. In section 6.7, however, special attention is given to social security schemes' investment problems in countries with underdeveloped financial markets and often more volatile inflation.

6.2.1 Long-term funds versus transitory reserves

Both of these notions – "long-term funds" and "transitory reserves" – are imprecise and to some extent enigmatic. While the former suggests stability over a long period of time, the latter reflects expectations of irregularity and fluctuation within short periods. This intuitive understanding of the two terms is justified in the following sense: there are funds (like pension funds, for instance) which by their very nature make long-term legal promises to their individual members – individuals rely today on the availability of fund resources over a potentially extended period starting at a distant point in the future. If social policy is to honour these promises on the basis of accumulated assets, then the availability of these funds, in absolute terms and by their structure, as well as their maximization, must be guaranteed over the long run. This requirement implies a long-term orientation with respect to the management of such funds – that is, the application of "correct" investment policies. In the practical application of such investment policies the total assets accumulated in a long-term fund or parts of it may actually be rolled over within short periods and, in this sense, be only of a transitory nature.

Other types of funds make only short-term promises to their members in the sense that funds are offered to be available at any time, though for short periods

only. Legally, the benefit guarantees of such funds stretch only over relatively short periods ahead – in case of unemployment schemes, for example, up to around three years (Germany). Such a fund, by construction, needs only relative small reserves, if at all,[27] and relatively limited sophistication with respect to investment strategies. Equally, a PAYG pension scheme may be required to accumulate only a minimum small contingency reserve by the beginning of each fiscal year; in practice, this may be a simple bank account with little activity (thereby displaying elements of long-term stability). Investment problems and strategies are thus discussed here under aspects of different practice in relation to the legal time dimension of promises.

6.2.1.1 Pension funds

Pension funding strategies usually assume the following stylized fund development: over the active savings period – ideally from an individual's late teens until around 60 to 65 years of age – the accumulating funds are being invested in the financial markets. Investment in equity is often preferred because of expected higher rates of return over the long run.[28] However, returns are volatile. Therefore, at a certain time before retirement these investments are usually converted into fixed-income securities guaranteeing a constant or indexed (rule-bound) flow of income over the expected retirement life span. This pattern broadly relates to both DB and DC schemes. Therefore, funded pension systems have to rely on the existence of diversified financial markets that offer both equity and fixed-yield securities.

Determining the right moment for shifting assets from equity into bonds is a standard problem of pension fund management. Missing that point in time is always equivalent to losses for the fund member. The solution to this problem very much depends on the experience and professionalism of fund management. Its success, however, equally depends on the reliability and continuity of growth-oriented macroeconomic policies (monetary, fiscal, labour market policies, etc.), which are usually out of managers' reach. Volatility of equity markets, especially when it is irregular, reduces the chances of avoiding losses. The widespread problems of maintaining the values of existing pension funds around the world since 2001 prove this point. By contrast, volatility on different markets that follows regular patterns may even help to reduce the risk of losses of fund portfolios if their asset composition is adequate (on this issue, see section 6.4.3). Another problem is building up a certain portfolio structure according to a pre-defined investment strategy (see section 6.6). The investment choices to be made in this case can benefit from the analytical tools presented in section 6.5. They help to value assets on the basis of the issuing company's prospects.

A different aspect of the management of pension fund assets relates to a country's prevailing approaches to investment financing strategies of private firms or the State. Especially during the build-up phase of fully funded pension

Figure 6.2 Fixed assets and financial markets
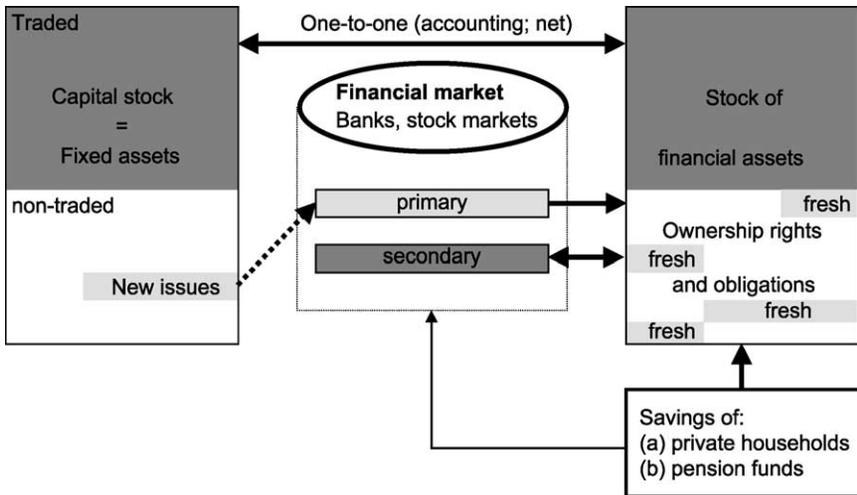
schemes, it is important for formal markets to attract a continuously growing number of IPOs of productive and profitable firms. The reason lies in the potentially enormous size of pension funds in relation to the capitalization as embodied in the financial markets. It can be expected that with a sustained extended supply of monies through growing pension funds the profitability of available investment projects declines, as the most profitable ones would be chosen first. If an adequate minimum number of IPOs fails to materialize, the increasing purchasing power of growing pension funds may become excessive in comparison to the volume of new market issuance, thus introducing inflationary tendencies in the pricing mechanisms of financial assets. The resulting asset price bubbles would typically occur when growing pension funds meet a stagnant number and volume of financial instruments issued. In that case the price increases would not reflect a change in the fundamental value of the underlying fixed assets[29] but would merely be driven by excess demand.[30]

Figure 6.2 helps to clarify the argument by mapping out the macroeconomic considerations of the possible volume of the stock of financial assets in relation to capital stock.

The left box represents fixed capital stock, parts of which have been successfully sold to surplus units in the form of financial assets (dark shading in both the left and the right box). The value of the ownership rights of these parts of the fixed assets is being "represented" on the financial markets. They are traded on the secondary market. The prices of the financial assets on the secondary market are, in principle, determined independently of the initial

issuance by the economic laws of supply and demand. After purchase, these assets are being held in the investors' stocks.[31]

New and additional financial assets (light shading) are issued on the primary market by either (i) existing business entities wishing to go public or to expand by investing in fixed assets, (ii) the State, seeking monies to cover deficits, or (iii) new business entities.

This mirror relation between tangible capital stock and accumulated financial assets is useful for anticipating the economic effects of growing pension funds investing in the financial markets. If the volume of additional issuances does not match the volume of contributions collected by pension funds (represented by the lower right-hand box in figure 6.2), inflationary prices for financial assets are to be expected. Overvalued financial assets pose the threat of future consolidation resulting in a substantial loss of monies invested. Pension funds are legally bound to protect the contributors' monies from this threat; however, a rapid growth of their reserves might itself create price bubbles that need to be inverted.

These considerations take on a special significance under the 1990s neo-conservative fiscal policy paradigm of aiming for surplus public budgets. Assuming the paradigm materializes in practice, large-scale funding of pensions would have to cope without one of the main issuers of *safe* financial instruments on the primary markets, namely the State, because it would gradually drop out.[32] The portfolio structure of pension funds would then necessarily have to change towards possibly *riskier* private sector investments, both nationally and internationally.

6.2.1.2   Contingency reserves

Contingency reserves cover temporary mismatches of income and expenditure of social security schemes that provide short-term benefits. The level of such reserves may be legally defined as a certain absolute or relative amount of current expenditure (measured, for example, by the end or the beginning of a fiscal year) or otherwise. For example, legislation may stipulate that the reserve by the end of the year has to match one, three, six or 12 months of actual past spending or of that expected for the following fiscal year. The appropriate level of contingency reserves depends on several factors. Most prominent among them are the country's general economic situation (growing versus stagnating or even declining GDP; price stability versus inflation, and so on) and, especially, the quality of the country's overall financial system, represented inter alia by the effectiveness and efficiency of its financial intermediaries. As a rule of thumb, one can say that the more stable a country's economic situation and/or the better the functioning of its financial intermediaries, the lower the level at which the contingency reserve can be set, and vice versa.[33]

In any case, investments of contingency reserves require treatment different from funds with a long-term orientation. By their very nature, such reserves

have to be held liquid as they might be needed within short periods. In principle this does not exclude investment in equity if financial markets are liquid. However, if financial assets of a contingency reserve include speculative elements, this might result in losses that compromise the risk-insurance character of the reserve.

Therefore, secure short-term investment usually takes advantage of the instruments provided by the money markets, including depositing cash reserves in usually non-yield accounts at commercial banks; however, the bargaining power of big funds might even lead to modest interest income on such accounts. Social security reserves may also be deposited in fiduciary accounts of public bodies or other social security institutions overseeing the deposit as trustees. To safeguard reserves for a specified period of time, individually negotiated lending to governments outside the public financial market may sometimes provide another opportunity to place deposits.

6.2.2   Institutional organization of reserve management

Reserves are generally managed in a specific investment department of social protection schemes. In the broadest sense, such a department has two functions: maintaining the fund's investment in line with the chosen investment strategy, and ensuring proper accounting of the fund, its gains and losses.[34]

Social protection schemes are most often governed by a director or a board of directors with little or no investment experience. However, investment practice has to be embedded into an investment policy and strategy laid down in writing and constituting the investment department's framework of action (often called "Investment policy statement"). A social security scheme would thus normally require an investment advisory body ("Investment Committee" or "Advisory Panel") to formulate the investment strategy on a recurrent basis.

Figure 6.3 Organization of an investment department
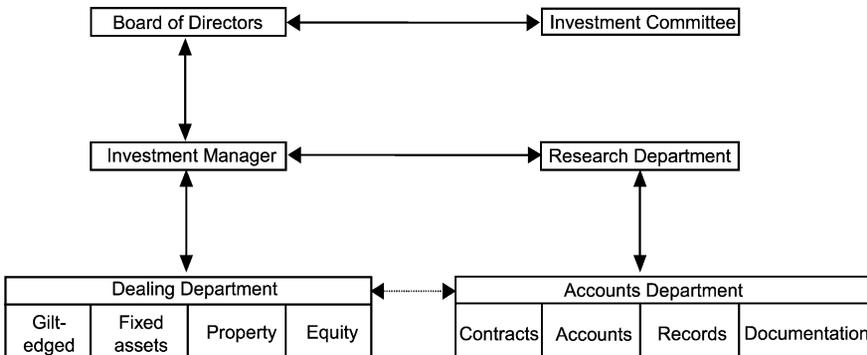
Source: Day and Jamieson (1980), p. 206.

The question of whether a social security fund has an own, integrated investment department or whether investment tasks are outsourced to an independent institution depends on the size of the fund's reserves and on the fund's capacity to attract and retain investment professionals. Figure 6.3 presents a simple department structure on the assumption of high volumes to be invested and, hence, a department integrated into the social security institution.

6.3 BASIC INVESTMENT PRINCIPLES

Traditionally the ILO stresses four basic principles that should govern the investment of social security funds.[35] The first three are the same as those relating to other fiduciary institutions: safety, yield (return), and liquidity. However, once these basic conditions have been met, another factor should also be considered, reflecting the responsibilities and importance of social protection schemes in the national economy: social and economic utility.

6.3.1 Safety

Safety is the overriding requirement. A social security institution has been entrusted with the management of other people's property. Consequently, very strict rules have to be observed as regards the safety and control of investments. In the first instance, the social security body should ensure formal safety (that is, that the nominal value of the invested capital is recovered) and regular payment of interest. However, formal safety is not sufficient if in the meantime the value of money depreciates. The body in charge of investment should therefore try to maintain the real value of the invested amounts as well as their real yield. Real safety is of particular importance for pension schemes' technical reserves, even if the risk of devaluation is also present for the investment of contingency reserves under short-term benefit schemes. These considerations have led some social security bodies to place the funds in investments of variable value – that is, in shares and real estate. Obviously, such investments should be made with great prudence and under strict control; since they are vulnerable to economic variations, only a certain proportion of the funds should be allowed for this kind of investment.

Another argument advanced in this connection is that investment in variable values requires a comprehensive knowledge of the capital market and management of real estate. This kind of investment often involves a speculative element, which should be avoided in a social security body whose primary function is the promotion of social welfare. A further consideration in investment decisions is the safety of investments in case of insolvency of non-state enterprises. Generally debt instruments have priority over equity instruments when it comes to the liquidation of remaining assets in insolvent enterprises.

6.3.2   Yield

The yield or return on investment is also essential, even if in the case of contingency reserves for short-term benefits it is not of primary importance because it is usually small. Yet, the yield offered should govern the choice of comparable assets in which to invest social security reserves. Priority being given to a high degree of investment security, the trade-off between risk and return suggests that earnings on investment will not be substantial. In any case, the yield cannot have a great influence on the scheme's financial equilibrium. It is therefore not necessary for the investment of the contingency reserve to seek investments with the highest yield as the principal consideration in the placement of these funds is liquidity. On the other hand, as far as the technical reserves of a pension insurance scheme are concerned, yield is of fundamental importance. As we have seen, actuarial calculations are based on an assumed long-term interest rate. It is obvious that the investment of the technical reserve must earn interest at least corresponding to the technical rate of interest as otherwise the scheme will have to face an actuarial deficit that has to be covered in one way or another.

6.3.3   Liquidity

As we have already seen, the contingency reserves of short-term benefit schemes should be placed in rather liquid investments that are easily convertible into cash. On the other hand, the technical reserves of a pension scheme, primarily intended to earn interest, do not require a high degree of liquidity. In fact, in most national schemes use of the principal amount is not envisaged so the question of liquidity does not arise. However, this "dispensation" from liquidity requirements is justified only for the case of stable economic development. If economies start to falter, affecting the stability of financial markets and thus the value of instruments held by social funds, then their managers might wish – or be obliged by law – to restructure their funds and move them to safer or more profitable assets, thereby contributing to the momentary destabilization of the market. In this case, social security funds heavily depend and rely on the liquidity of the assets held. It should be noted that the liquidity of assets at any point in time is not determined by the holder of the assets but is a function of the market for the asset or group of assets under consideration.

6.3.4   Social and economic utility

If the conditions of safety, yield and liquidity are satisfied, the economic and social utility of the investment may be taken into account in the investment policy. It is in the interest of the social protection scheme that the funds be invested in such a way that they contribute directly or indirectly to improving

the insured persons' health and education conditions or their standard of living, for example. Also, as successful investments always contribute to the creation of higher or new means of production they may be channelled in such a way that they simultaneously create a maximum of new employment, thus contributing to an employment-based increase in national income and, consequently, to a sustained improvement of the population's standard of living.

Pension funds in particular may contribute to fostering national production since, unlike other investors, they have at their disposal not only a big volume but also a long time horizon for their investment. If these means are strategically employed, they might help to ensure a high-income base of the economy. This is best achieved through a combination of high productivity per capita and high employment, which in turn ultimately guarantees the survival of a social protection scheme. In an ageing society *ceteris paribus*, the available workforce diminishes and the GDP created by it would consequently decline, too. Socially and economically responsible investments in an ageing society could consist of directing the available financial resources into investments that foster the creation of workplaces suitable for older workers.

In countries with scarce capital it may be justified to put the funds at the disposal of the national economy, but due account should be taken of the requirements of safety, yield and liquidity, thus ruling out the use of pension funds' capital for mere development aid purposes. It may be stressed here that this supply of resources will contribute to the economic development of a country only if there is sufficient entrepreneurial demand to absorb the funds into productive investment. They should be used as a means of obtaining money for the government *only* if they are being channelled into infrastructure investments. Furthermore, such investments have to meet the condition of directly or indirectly broadening the tax base from which the interest on and the principal of the financial instruments issued can be paid.

It is therefore indispensable for financial regulations to contain clear provisions regarding investments and control thereof. Investments should be easy to manage and not divert management too much from social security's primary responsibility, namely the application of social security legislation, including effective provision of benefits.

6.4   CRITERIA OF ASSET MANAGEMENT IN PRACTICE

The above basic principles have to be turned into practice. Social security managers who are not pursuing the goal of maximizing fund returns are potentially acting irresponsibly as they do not make optimal use of workers' and employers' contributions. However, maximizing returns can be associated with increasing the risk of losing financial investments. This section will deal with the methodological and empirical aspects of the quest for the "right"

balance between risk and return, and with the issue of optimizing the time horizon of investments.

It is mentioned here only in passing that the risk associated with financial assets of major issuers (private or public) is often evaluated and published by rating agencies. Their results may be helpful to financial investors, including social security funds, as long as the agencies keep an independent view and refrain from pursuing their own economic or political goals, which may not always be the case.

In evaluating public debt, agencies use past servicing and recovery performance as well as the governments' actual payment commitments and, to some extent, national accounts as valuation proxies. For a risk classification of corporate debt the following criteria are often monitored: profitability, coverage and liquidity ratios, the debt to equity ratio and the cash flow to debt ratio.[36]

Rating agencies' results may introduce elements of additional security into fund managers' investment decisions but they do not guarantee safe investments for the simple reason that there is no systematic monitoring of agencies' performance. How often have they been right or wrong in their judgements? The 2002 Enron scandal in the United States is just one example of failure on the part of rating agencies.[37]

6.4.1 Maximizing return

Investors in financial markets, including social security fund management, would naturally want to maximize the return on their investments. However, return on investments made can be measured only *ex post*. This is usually done by an annualized geometric mean, which can be interpreted as the annual compound interest earned. Funds sometimes measure their annual returns by an arithmetic mean which – as can be shown mathematically – is at least as high as the geometric mean. It is therefore important to clarify the method of performance measurement before comparing the returns of alternative funds or assets.

While maximizing their funds' return is one of the primary goals of fund managers, it is vital that this be done under conditions that safeguard the investment – that is, avoiding income losses or even losses in the fund values.

The occurrence of such losses can never be fully excluded in reality. By their very nature financial market investments may be exposed to low, medium or high risk. This is why investors have been classified accordingly: *conservative investors* look for "safe" returns (including safe repayment of the initial amount); they are ready to forgo possible higher earnings if these can be achieved only in return for higher risk. *Return-oriented investors* also tend to be risk-averse, although to a lesser degree; they are ready to accept a limited higher risk in return for higher earnings as long as the increased risk of loss is acceptable within the context of their overall income and wealth position. *Risk-prone investors* focus almost solely on maximizing their investment; they are ready to accept a failure of their investment.

Table 6.1 Rate of return of selected investment funds, 1993–98[1]

No.	Name	Development of return in %
10 funds with highest returns		
1.	ODIN Finland Stocks Finland	+ 326.5
2.	Fidelity Nordic Fund Stocks Scandinavia	+ 320.1
3.	ODIN Norden Stocks Scandinavia	+ 302.1
4.	Fidelity Iberia Fund Stocks Iberian Pen.	+ 283.1
5.	UBS EI Netherland Stocks Netherlands	+ 281.3
6.	CS EF (L) Netherland Stocks Netherlands	+ 263.7
7.	DWS Iberia-Fonds Stocks Iberian Pen.	+ 261.6
8.	MST European Opport. Stocks Eur. Small Cap	+ 254.9
9.	SBC EP – Netherlands Stocks Netherlands	+ 250.2
10.	Parvest Holland (C) Stocks Netherlands	+ 248.7
10 funds with highest losses		
1.	FFF-Japanese Fund Stocks Japan	−46.7
2.	Fidelity Malaysia Fd. Stocks Malaysia	−48.6
3.	St. Street Act. Japan Stocks Japan	−49.7
4.	UBS EI Gold Stocks Goldmines	−50.5
5.	Parvest Asian Gr. (C) Stocks FE ex Japan	−51.0
6.	Fidelity Japan Small Stocks Japan Small	−53.2
7.	Fidelity Asean Fd. Stocks EM Far East	−55.6
8.	UBZ Gold Fund Stocks Goldmines	−57.0
9.	Fidelity Thailand Fd. Stocks Thailand	−69.4
10.	Citip.-Emerg. Asian M Stocks EM Far East	−71.5

[1] Selection taken from a total of 1,097 funds, calculations based on fund-specific currencies.

Source: Bopp Fondsführer 1998, quoted in Den Otter (1999), pp. 59 ff.

The practice of asset management depends on the level of risk-proneness of investors. This is especially important for social security fund management. As explained in section 6.3.1, social security funds are and should be conservative investors, with elements of a return-orientation – but only under strict regulations.

Measurement of expected returns relates to past performance. Expected returns are usually trend-extrapolations of this experience, sometimes downward-adjusted because of elements of caution that might be required by law or by standards of practice. Formal restrictions with respect to unrealistically optimistic earnings forecasts are an important element of investor protection on financial markets. They may serve as a substitute for the unsolved problem of forecasting cyclical or non-cyclical turnarounds of general economic and financial market activities. Table 6.1 shows to what degree the failure of forecasting non-trend events may affect investor income and wealth. Positive developments can be taken as an *indicator* only but are no guarantee of professional management, to be expected also in future; equally, negative

developments are not necessarily an indicator of unprofessional management, but can be a reflection of unforeseen adverse effects on specific markets. Funds with a positive past performance can turn negative; conversely, funds that have been performing negatively can start achieving positive returns.

6.4.2   Minimizing risk

Risks associated with asset management are manifold. There are economic risks – that is, the investment allocated to a country, a company or a financial intermediary may fail because of macro- or microeconomic mistakes. Such failures may be correlated with or caused by adverse political developments, such as changes in the political or legal context of investments. A few years ago environmental risks came on the scene, massively affecting the value of equity issued by global reinsurers, for example. It is obvious that the observation of emerging risks and adequate reaction to them is one of the major problems facing social security investment.

Most of these risks are widespread, at least from a global perspective. For example, Stockholm Peace Research Institute reports that the number of local or regional armed conflicts increased dramatically during the second half of the twentieth century, as did the number of countries suffering serious economic downturns (most often accompanied by exchange rate shocks, hyperinflation and political instability). World Bank international inflation statistics show that over the last 40 years at least one country each year was affected by hyperinflation – the numbers peaked at between 20 and 30 during the 1990s. Such developments always imply dramatic losses for the investments channelled through these countries' financial markets (where they exist).

National economic or political risks should influence the decision regarding the extent to which social protection schemes should be funded in the first place. If there is a high risk of hyperinflation due to deficient or unreliable macroeconomic policies and reserves cannot be invested abroad, or if reserves cannot be protected from "improper borrowing" (see also Chapter 4, section 4.2.1) by the national government, then the decision to pursue a high level of funding is highly questionable. Introducing a DC scheme or aiming for a high level of funding through the rate-setting process as described in Chapter 5 may simply be wrong policies in an unstable political or economic environment. The key determinant for the funding decision is – once again – good governance. But even in relatively stable political and economic environments decisions on the extent of funding (notably in respect of the pension system) can be made subject to a macro-portfolio risk analysis. The analysis should attempt to assess the relative risks affecting the development of employment and the wage share of GDP, on the one hand, and financial market risks, on the other. If financial market risks are high and expected returns on investments are relatively low and subject to high volatility while employment seems to experience a stable upward trend; then that would call for a greater reliance on

PAYG financing, and vice versa. Analytical research on this issue is still in its early stages.

If the planning staff in charge of managing social security financing fail to respond to such risks adequately, then the risk of investment losses increases. Professional failure is thus another essential risk that needs to be minimized.

Unlike financial planners, social security managers have little possibility of minimizing the risks associated with fund income developments such as those mentioned above. We will therefore focus on standard problems and solutions of risk management, assuming only standard volatility of financial markets. That volatility can be described by two sets of risks affecting respectively the value of the assets and the value of the cash flow generated by these assets. These include:

– market risks, due to changes in portfolio values resulting from market movements;

– credit risks, due to debtors' inability to fulfil their obligations;

– operational risks, due to the mismanagement or fraud in the management of investments;

– interest rate risks, due to losses arising from the disinvestment or reinvestment of cash flows in different interest rate environments;

– liquidity risks, i.e. the risk of unexpected amounts of cash being demanded at unexpected times, requiring forced sales of assets; and

– foreign investment risks, due to currency, regulatory, legal or other risks associated with this type of investment.

By their very nature, the certificates offered at financial markets are sold with two basic types of promises. Fixed-income securities promise a fixed periodical yield plus the repayment of the principal, whereas equity promises dividends on a residual basis. Intuitively, the promise of fixed-income securities seems more trustworthy than that of equity. Therefore, estimation of the (present) values and the associated risk of loss of the two types of certificates on a given market should be straightforward for securities and more complicated and indirect for equity. Since profits are volatile, the payment of dividends on equity may definitively or temporarily fail. However, in practice corporate and even sovereign issuers of income securities sometimes fail to deliver due payments, or meet their obligations only partially.

The best method of avoiding the risk of loss of income is to stay clear of investments in risky assets or, alternatively, to invest only in risk-free assets. The "risk-free" asset is not to be understood literally, but in relative terms as the least risky certificate available at the market, usually United States Treasury bonds or money market certificates. The main problem associated with this method is that the rate of return of such assets is normally lower than that of riskier assets. Fund managers executing a conservative, risk-free policy

will most often be exposed to pressure of their clients (which in case of a social security fund can be the general public, the contributors and beneficiaries, but also financial markets lobbyists), especially when other fund managers who accept riskier assets in their portfolios are able to show, *ex post*, higher returns.

There are methods of mixing risk-free (or, rather, low-risk) and risky assets so that, under certain stability conditions, a higher return at unchanged risk can be achieved. In order to understand better how this asset-mix method works, the concept of *portfolio efficiency* has to be introduced: a portfolio is called efficient if there is no other portfolio that, at equal risk, offers a higher return or, alternatively, if there is no portfolio offering the same return at lower risk.

Let us assume that only two real-world portfolio alternatives exist: one is low-risk, the other high-risk. Both are obviously efficient, the low-risk alternative will be chosen by a conservative investor, the other one by a more risk-prone investor. What happens if both alternatives are being mixed – that is, if different portfolios are constructed using a combination of a certain share y of risk-free and a share 1−y of risky assets?

In order to answer this question without bringing in cumbersome mathematics, a simple example is presented in table 6.2 and figure 6.4. It displays 21 different portfolio combinations (I to XXI), each consisting of one risky and one risk-free asset. The empirical basis for the risk-free asset in this example is the German REX Index (representing a basket of securities), the basis for the risky asset is the German DAX30 Index (representing a basket of equity) – each measured over the period June 1987 to June 1997.[38] For example, combination I consists of 100 per cent equity, combination XI is divided equally between equity and securities, and combination XXI consists of 100 per cent securities. Portfolio I – the "maximum risk" portfolio – is exposed to a risk of income loss of 19.3 per cent.[39] The other extreme, portfolio XXI, is exposed to a risk of only 3.6 per cent. At the same time, the rate of return of the full-risk portfolio is 10.6 per cent whereas that of the risk-free portfolio is only 7.3 per cent.

Now let us assume that an investor is "moving" his/her portfolio composition from XXI to XX. The rate of return increases by 0.16 percentage point whereas the risk increases only by 0.1. In other words, by adding risky assets to the risk-free portfolio the investor is able to increase the rate of return over-proportionally. In this example, going from XXI to XX is the only "movement" with that very result; in all other cases the risk increases faster than the return. Still, all portfolios are obviously efficient in the above sense. The actual combination of expected return and risk chosen within the portfolio depends ultimately on the individual investor's risk aversion. Varying degrees of risk aversion are imaginable, requiring different risk coefficients. Moreover, different shapes of utility functions are possible, originating from different certainty equivalents. Determining the optimal risk-return allocation requires solving a maximization problem, but that is not the province of this book. If portfolios I to XXI were the only ones offered to a social security fund, its managers would be advised to invest in portfolio XX.

Table 6.2 Risk-return development of alternative portfolio compositions

Equity-security combination	Portfolio		Risk	Return
	Equity	Securities	Standard deviation in per cent	Per cent of portfolio
	Per cent share			
I	100	0	19.33	10.60
II	95	5	18.39	10.44
III	90	10	17.46	10.27
IV	85	15	16.52	10.11
V	80	20	15.59	9.94
VI	75	25	14.67	9.78
VII	70	30	13.74	9.62
VIII	65	35	12.82	9.45
IX	60	40	11.91	9.29
X	55	45	11.01	9.12
XI	50	50	10.11	8.96
XII	45	55	9.22	8.80
XIII	40	60	8.35	8.63
XIV	35	65	7.50	8.47
XV	30	70	6.68	8.30
XVI	25	75	5.90	8.14
XVII	20	80	5.18	7.98
XVIII	15	85	4.54	7.81
XIX	10	90	4.03	7.65
XX	5	95	3.71	7.48
XXI	0	100	3.61	7.32

Source: Hehn (ed.) (1998), p. 294.

The above example is interesting in that it seems to indicate that one can increase the return of a given portfolio by adding risky assets without increasing the risk of income loss (or, at least, by increasing that risk only sub-proportionally). How is this possible? The explanation lies in the statistical relation between the two assets as observed over the period June 1987 to June 1997, which – in this case – is statistically not independent but correlated. The intensity and functional type of that correlation is, again in *this* case, such that it produces the above result.[40] The correlation is usually measured by "co-variance", a coefficient that can take values between "1", implying perfectly parallel development of the two assets, and "−1", implying perfectly adverse development. In taking advantage of the patterns of the assets' behaviour relative to each other, it is possible to compose portfolios with considerably lower overall volatility, and in case of the coefficient taking the value −1, even to eliminate return risk of the portfolio completely. Correlation

Figure 6.4 Risk-return development of alternative portfolio compositions
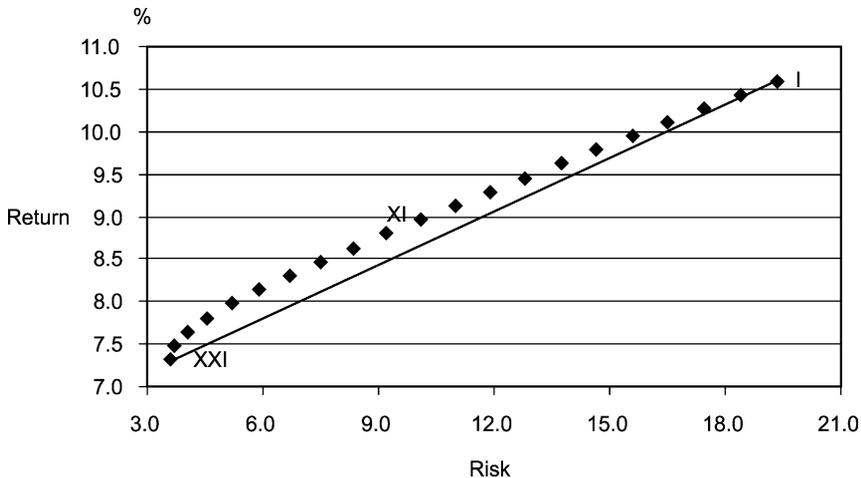
coefficients, which have to be significantly different (in terms of the probability theory) from zero[41] in order to be meaningful, are retrieved by regressing the historical performances of the two respective assets.

The observation of positive or negative co-variances between the indices of multiples of different assets (or indices of baskets of assets) has led to a multitude of financial market models attempting to optimize the composition of portfolios so as to maximize their return at unchanged risk. Likewise, the development of such models has triggered the ''invention'' of new types of assets (such as derivatives) designed to exploit as much as possible the risk-reducing implications of co-variances between assets.

Have such models helped to increase returns of investors over and above what they could have expected without them? Probably yes, at least for those who were in a position to take advantage of sophisticated model builders and as long as markets followed a stable trend. Have they helped to avoid income losses on financial markets? Obviously not, as can be seen from the worldwide developments on financial markets and their negative implications for many funded pension schemes and the balance sheets of many (formerly) AAA-rated companies. Like any other economic projection models, either macro- or micro-econometric, these models too usually fail to forecast the turnaround points in time of business cycles or of upward- or downward-directed structural breaks of the economy or market under consideration. The reason for this failure of financial market models in particular is obvious. They rely on the dynamic stability of the co-variances between assets or asset groups – in other words,

they assume that correlations observed in the past between sub-markets or groups or types of financial papers will continue to operate equally in the future, which, of course, nobody can guarantee. The future is never certain, however sophisticated formal mathematical models may be. Box 6.2 translates the theoretical aspects of risk into the concrete pension context.

The selection of single assets to constitute a portfolio involving return and risk calculations is known as active portfolio management strategy. Alternatively, fund managers may follow passive strategies-that is, construct portfolios that mimic the asset composition of preferably large indices, such as the S&P 500 (see section 6.5.1). Passive strategies offer the advantage of saving on information and analysts' costs. Moreover, the management may behave as a free rider and benefit from the information incorporated in the financial markets (see Bodie et al., 1996, p. 185).

Box 6.2   How financial market investment affects pension payments
      (Excerpt from Burtless (2000))

"A popular proposal for reforming Social Security is to supplement or replace traditional publicly financed benefits with a new system of mandatory, defined-contribution private pensions. Proponents claim that private plans offer better returns than traditional Social Security. To achieve higher returns, however, contributors are exposed to extra risks associated with financial market fluctuations. This *issue in brief* offers evidence on the extent of these risks by considering the hypothetical pensions US workers would have obtained during the past century if they had accumulated retirement savings in individual accounts. The hypothetical workers are assumed to have identical careers and to contribute a fixed percentage of their wages to private investment accounts. When contributors reach retirement age (assumed to be 62), they convert their account balances into level annuities, which provide a fixed stream of annual income for life.

Contributors differ only with respect to the stock market returns, bond interest rates, and price inflation they face over their careers. These differences occur because of the differing start and end dates of workers' careers. The analysis demonstrates that pensions under private plans would usually have been adequate, but that financial market risks are empirically quite large. For example, for workers investing all of their contributions in stocks, the average pension obtained was about 53 per cent of peak pre-retirement earnings but potential outcomes ranged from about 20 to 110 per cent of earnings. This striking difference is due solely to differences in stock market returns and in the interest rate used in determining annuity charges. Stock market and interest rate volatility mean that workers who follow an identical investment strategy but who retire a few years apart can receive pensions that are startlingly unequal. For example, workers retiring in 1969 would have received a pension

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Box 6.2 (cont'd)

equal to nearly 100 per cent of their pre-retirement earnings, while workers retiring just six years later in 1975 would have received only 42 per cent.

Workers could reduce their risk by following a more conservative investment strategy of investing half of their contributions in stocks and the other half in bonds. However, while this approach succeeds in significantly reducing the variation in potential outcomes, the size of annual pensions would typically be about one-third lower than for workers investing solely in equities.

Finally, after workers retire, they face another risk: price inflation. While Social Security protects against this risk by indexing benefits to inflation, workers who purchase private annuities are rarely protected against inflation. All workers retiring after the mid-1930s suffered significant losses in purchasing power during retirement. For example, the real value of a pension for a worker retiring in 1966 dropped by over two-thirds between ages 62 and 80. To protect themselves against price inflation, retired workers could continue to rely on the stock market: either directly by investing some of their retirement nest egg in stocks or by purchasing a variable annuity that is linked to a portfolio that includes stocks. However, this decision would substantially increase the investment risk to which the retired worker is exposed, making the amount of pension income uncertain from year to year. Some of the financial risks described above would also be present in Social Security if reserves of the system were invested in private securities, but a public system has one important advantage over private pensions. Because Social Security is backed by the taxing and borrowing authority of the government, it can spread risks over a much broader population of potential contributors and beneficiaries, including workers in several generations, reducing the financial risks faced by covered workers."

6.4.3 Optimizing the time horizon

The above portfolio risk analysis is based on the assumption that equity is exposed to higher volatility of returns than bonds. However, many argue that equity volatility decreases with an extension of the observation period. Indeed, many empirical analyses show that the long-term trend of market indices of equity (or groups of equity) follows an upward trend. Research for Germany, covering the period from 1991 to 1996, was undertaken as follows: different portfolios were constructed, consisting of real-world bonds and real-world non-domestic equity, the share of equity in the portfolio increasing by 10 per cent steps from zero to 100 per cent, the bond share decreasing accordingly. Then, these portfolios were moved over time in monthly steps. In one version the time horizon was one year, i.e. the rate of return of the portfolios was calculated on the assumption that the portfolio was sold after one year. In a second version the same method was

Figure 6.5 Impact of the time horizon on the rate of return of different portfolios
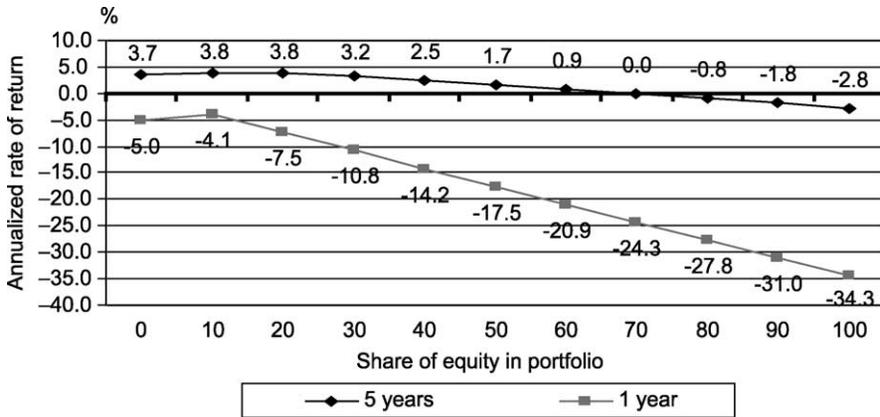
Source: Underlying data quoted in Hehn (ed.) (1998), p. 397.

applied, allowing however for a five-year investment horizon. Both versions were controlled for the share of equity in the portfolio; the annualized *minimum* rate of return was then calculated for both versions depending on this share.

The results show that the number of negative minimum rates of return increased drastically with the share of equity under the one-year investment horizon but was limited to only a few in the case of the five-year horizon, i.e. with the share of equity rising to over 70 per cent of the portfolio (see figure 6.5). Taking the time horizon into account is important; however, time horizon optimizing strategies are only possible if past time patterns continue to prevail in the future. Fund management is therefore obliged to monitor closely and continuously the time structure of financial investments made.

The above findings have been used for instance to bolster arguments in favour of implementing funded private pillars of large-scale pension systems in order to overcome the so-called ageing crisis (World Bank, 1994). It can however be assumed that the costs of insuring stock holdings against returns smaller than the risk-free rate will actually rise with time. This holds true if stock prices follow a "random walk" or a "mean-reverting" development (see Bodie et al., 1996, pp. 886–887). In any case, whatever the portfolio composition or model used, there is no guarantee for the future stability of patterns observed in the past. Major volatility will always come as a surprise. Implications for social security fund management can be drawn from box 6.2. The advice to optimize the time horizon of investments is sound, although its practical application presents as many problems as all other means invented to overcome the tricks and traps of financial market developments.

6.4.4   Benchmarking

Benchmarking is a method aimed at improving the performance of an asset manager or asset management company by way of systematic comparison with the performance of a pre-defined competitor. It tries to reveal performance weaknesses and their underlying reasons in order to allow for measures to improve one's own (or the company's) competitive stance. Benchmarking thus needs. . . benchmarks.

In this context, a benchmark is usually defined as a reference portfolio that reflects the investment goals, expected investment returns, and the risk-proneness of a given investor. If the investor is a social security fund, the benchmark would have to be defined by the fund management. If it is to permit a meaningful comparison, a benchmark obviously has to be defined so as to reflect the characteristics of the fund's investment strategy. Box 6.3 provides an example of the benchmarking process that is often used in actuarial valuations of national social security schemes.

Efforts to optimize performance can be qualitative, quantitative, or both. Questions of quality broadly relate to organizational (administrative) issues, including competitors' methods and processes of collecting and using information, and so on. Quantitative performance comparisons are based on quantitative indicators. Own performance is in this case compared to the risk-return results of the benchmark. Improvements in quantitative performance may well be expected only once quality improvements have been made.

Benchmarks can serve as a basis for the structuring of the assets of an investor (a social security fund). Given the broad variety of available financial instruments and other assets, a benchmark can help to define the strategic allocation of the investor's assets and monitor their development over time. A benchmark helps to formulate a long-term risk-return profile.

Furthermore, a benchmark serves as a guideline for the asset manager. While aiming to increase the volume of assets, the manager has to turn the investor-defined benchmark into a concrete investment strategy. It is worth mentioning here that the more detailed the investor-defined benchmark the lower the extent to which the asset manager takes decisions based on own responsibility.

For both the investor and the asset manager, the benchmark serves as a basis for measuring the *performance* of the investment (its rate of return in relation to the benchmark). Performance is here understood as the difference, in a given period, between the investment return and the return on the benchmark portfolio. If, at identical risk, this difference is positive then the investment portfolio has outperformed the benchmark; if the difference is negative, it has underperformed. Taking into account possible differences in the portfolio's risk (which, *ex post*, may turn out to be higher or lower than that of the benchmark) adds an extra dimension to the measurement of success.

Box 6.3   Basic actuarial rate-of-return benchmarks

Social security actuaries who analyse the financial situation of a social security scheme traditionally also establish the overall rate of return of the investment of the scheme. They normally limit their analysis to one or two crude performance indicators of the investment performance of the scheme. If these indicators signal any problems, a more detailed invest-ment performance analysis by financial market specialists is usually requested. The basic formula for the gross nominal rate of return of reserves is:

$$RoR_t = 2I_t/(R_{t+1} + R_t - I_t) \qquad\qquad (6.3.1)$$

where:

RoR = internal rate of return
I = investment income
R = amount of reserves at the beginning or the end of year t

The difference between the amount of reserves R at the beginning of the year and the end of the year is the annual increase or reduction of the reserve originating from the scheme's cash surplus (contribution income plus other income plus investment income minus expenditure) plus the change of the value of the investment portfolio. I consists of regular cash income generated by reserves (such as interest payments or for example rents paid for a real estate investment) in addition to the appreciation or depreciation of the value of investment assets.

The above nominal rate of return may not be very informative without any benchmark. To arrive at a real first-hand assessment of the investment performance one should deduct the cost of investment management from I and divide the RoR by the inflation rate (generally the CPI rate of change) to arrive at a net real rate of return. Comparing this indicator to the zero benchmark shows whether the scheme earned real additional income from investing the reserves. Normally this operation would have to be repeated for a number of years and a compound and average rate of return should be calculated over a number of years (see also Chapter 7).

The comparison with the zero benchmark can generally be regarded as minimum benchmarking. Comparisons with a time- and volume-weighted average government bond rate are more meaningful. This rate can be composed by assuming that all new reserves – at the time when they were generated, respectively when they had to be reinvested – were directly invested in long-term government bonds. In most national circumstances and under normal economic and governance conditions this would be an extremely risk-averse strategy which would also minimize administrative cost.

The bigger the scheme and the bigger the reserves, the more should the longer-term average real net rate of return be approaching the average real rate of return on the national capital stock in the economy (see also Issue Brief 2).

Performance measurement in relation to a benchmark has the obvious disadvantage that – as long as the loss of the benchmark portfolio is higher – it attests to outperformance even in the event of investment losses. More generally, the definition of a benchmark does not necessarily provide a univocal interpretation of investment performance. An attempt to standardize performance interpretation has been made by the international Association for Investment Management and Research (AIMR) through performance presentation standards and global investment performance standards,[42] broadly reflecting other professional associations' efforts (actuarial associations, among others) to introduce certain minimum standards of practice.

Benchmarks may serve as an incentive for portfolio managers to outperform the benchmark if their remuneration is linked in part to the difference between portfolio and benchmark returns. In other words, the higher the (positive) difference between portfolio and benchmark, the higher the additional remuneration to be paid by the investor. While this is clearly an option for private contracts between investor and portfolio manager there are strong doubts as to whether such an arrangement would comply with the basic investment principles of social security funds. The reason is twofold: first, only after a sufficient period of time is it possible for the investor, for example the social security fund, to assess a fund manager's professional qualities. Insiders' estimates put the minimum period at 25 years (!). There is also the view that "most of the apparent differences in performance stem from good luck or bad luck" (Hehn (ed.), 1998, p. 123). Second, there is a typical principal-agent asymmetry in the distribution of relevant market information among the social security administration ("principal") and the asset manager ("agent"). This asymmetry usually continues to exist in either case – that is, regardless of whether the asset management is outsourced or maintained as a separate department within the overall social security administration (see section 6.2.2).

6.5   ANALYTICAL TOOLS

This section examines a few core analytical tools that should be understood by the top management of any social security scheme in a position to invest reserves at the financial markets. It is not intended to replace an in-depth study of financial analysis since it only scratches the surface of a highly complex subject.

6.5.1   Equity performance indicators

Practically all stock exchanges have developed indices targeted at measuring the performance of the stocks traded. These indices are usually calculated on

a daily basis.[43] Internationally, the best-known index by far is probably the Dow Jones Industrial Average, measured at the New York Stock Exchange. It has been calculated since 1896, and since 1 October 1928 it has contained 30 large "blue-chip" corporations.[44] The Dow Jones is a price-weighted average as it measures the return of a portfolio that holds one share of each stock. Its composition has been changed often over the years as it contains only a small number of firms. For instance, of the 30 companies that were included in the index on 1 October 1928, only seven remained by early May 1991.[45]

By contrast, Standard & Poor's calculates and publishes a number of different, usually much broader-based indices. The best known of these is Standard & Poor's Composite 500 (S&P 500). It is a *market-value-weighted* index. The S&P 500 calculates the total market value of 500 firms on day *t* and compares it to the total market value of these firms on day *t*−1. The change of the two values represents the change in the index from one day to the other. Many existing funds mirror the composition of, for example, the S&P 500. In doing so, they provide a low-cost passive investment strategy for equity investors who will be on the safe side as long as the underlying base index maintains quality of composition and performance.

Other indices have been constructed and are in permanent use by professional analysts and investment firms, including a number of indices for specific regions or markets. Some focus on the respective market leaders or comprise a large number of listed companies. The calculation of the indices might differ with respect to the deployment of arithmetic averages or geometric means, which provide a downward-biased measure of a rate of return.[46]

There are a number of other well-known indices of major stock exchanges outside the United States – among them the Nikkei (Tokyo), the FTSE (London) and the DAX (Frankfurt). These, as most other "modern" indices, are value weighted and calculated as arithmetic means (see figure 6.6).

Performance indicators do not serve only as measures of the overall market; there are specific indices for particular market segments, industries and aggregates of high- or low-performing stocks. Indicators generally provide a benchmark instrument to compare the performance of a specific share or portfolio to the development of other market participants. To obtain information on a share's performance, it can be helpful not only to confront the share price development with the observed total market trend but also with a cross-industry aggregate. The indicators are therefore a means of comparing a company's share or investment strategy to its competitors represented in the exchange indices, on which a decision to buy or sell shares may be based. If the comparator index accounts for selected quality stocks, the comparison would be especially sensible to less favourable performance records.

Figure 6.6 FTSE, DAX, Nikkei historical data
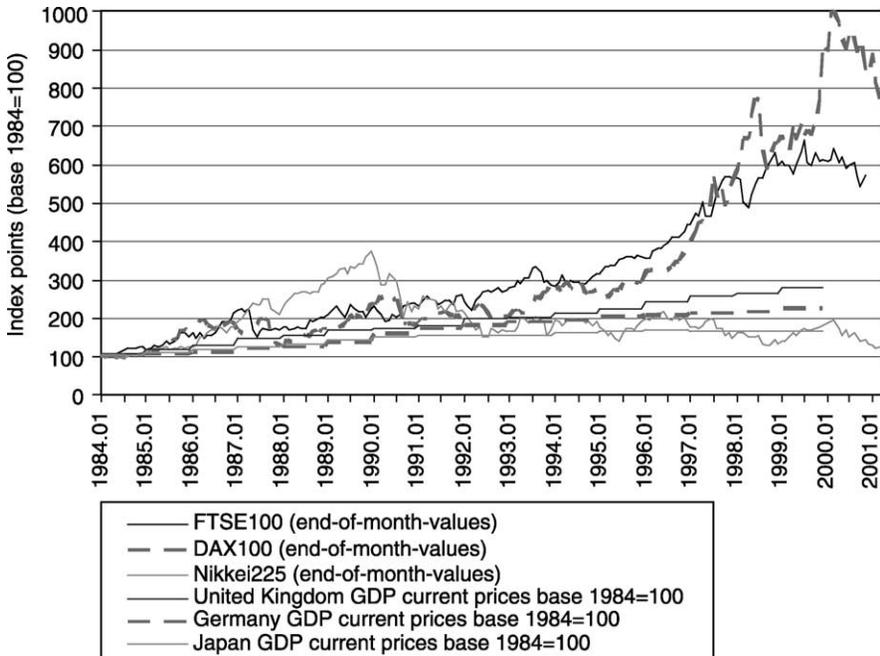
Source: FTSE, DAX, Nikkei.

6.5.2 Equity valuation[47]

A multitude of approaches have been developed and are currently used by professional financial analysts seeking to find out whether a stock held in a portfolio is valued at the "right" price. The concern is that a portfolio stock might be overvalued – in which case the fund manager would sell the stock or parts of it, or else undervalued – in which case the manager would add additional stock to his or her portfolio as price increases are to be expected.

6.5.2.1 Balance sheet concepts

Classical methods refer to the balance sheet of a company. The simplest way of checking the value of stock is to refer to the *book value* of a company, which is being presented in its balance sheet. Let us assume that table 6.3 presents a company's end-of-year balance sheet.

According to the books of XYZ, on 31 December 2000 the share value was €50.00 (€ 12 500 000 000/250 000 000 shares). Roughly at the same time, the share of the same company was traded at, say, Frankfurt Stock Exchange at a

Table 6.3   Balance sheet of company XYZ, 31 December 2000 (in € million)

Assets	Liabilities and owners' equity	
€ 50 000	Liabilities	€ 37 500
	Common equity	€ 12 500
	Shares outstanding	250 000 000

market price of €70.00. So, did the market overvalue the firm? Not necessarily, as accounting rules may for example have some bias towards undervaluing it. At the same time, the market is looking at the company as a going concern. Present estimation of its future value might actually be higher or lower than in past accounts. In addition, if the share's market value is about to fall, the book value of a company cannot serve as a floor for the stock price, below which the market price would never fall. History has proven this in all those drastic cases where corporations went bankrupt.

A guesstimate of a floor for the stock price is the *liquidation value* of a company – that is, the value that could be realized per share if the firm were sold (as a whole or in pieces). If the stock price falls below this value, it would be rational for the owners (the stockholders) to break up the company because this would bring in more than selling the stock. Of course, it is difficult to estimate the liquidation value of a firm as long as the sale does not take place in reality.

An interesting balance sheet concept is valuating the firm by the *replacement costs* of its net assets (per share). It is argued that the market value has to correspond to the replacement cost of the firm because, if not, competitors would set up the same business and start competing in the same market. Then competition would drive down the market value of all these firms. Anticipation of this process lets the market value remain close to its replacement cost value. Proponents of this concept argue that the ratio between replacement cost and market value will converge to 1 over the long run.[48]

6.5.2.2   Concepts based on future cash flows

Looking at balance sheets may give valuable insights into the actual economic condition of a company. However, shareholders are mainly interested in the future profitability and future value of a firm. Therefore, analysts have to think about techniques to value future dividends and earnings that the firm is expected to produce.

The first concept to be addressed here is the *intrinsic value* concept, which may provide a useful reference for the stock's actual market price. This concept is based on the observation that an investor in stock expects a return consisting of dividends (cash) and capital gains (in cash or on paper). The intrinsic value, denoted V_0, of a share of stock is defined as the present value of all cash

payments to the investor, including dividends as well as the proceeds from the ultimate sale of the stock, discounted at an appropriate (risk-adjusted)[49] interest rate, k. Whenever V_0 exceeds the actual market price, the stock is considered undervalued, i.e. a good investment.

In the case of company XYZ, using a one-year investment horizon, knowing that the dividend D_1 will be €5.00, a forecast that the stock can be sold at the end of the year at price $P_1 = $ €75.00, and a risk-adjusted interest rate of 10 per cent, $E(\ )$ denoting expected values, the intrinsic value is

$$V_0 = [E(D_1) + E(P_1)]/(1 + k) = [€5 + €75]/1.1 = €72.72 \qquad (6.1)$$

The intrinsic value, €72.72, exceeds the current price, €70.00 – we conclude that the stock is undervalued by the market. It is obvious: If our expectations are correct, then in case of undervaluation, the investor would buy additional stock, in case of overvaluation he or she would sell. If all investors behave accordingly, then the market equilibrium reflects the intrinsic value estimates of *all* market participants. This means the individual investor whose estimate of V_0 differs from the market price P_0, in effect disagrees with some or all of the market consensus estimates of D_1, P_1 and/or k.

Dividend Discount Models (DDMs) are a generalization of the intrinsic value concept. Take formula 6.1 as a platform to begin with. Then,

$$V_1 = [E(D_2) + E(P_2)]/(1 + k) \qquad (6.2)$$

If it is assumed that the stock will sell at its intrinsic value by the end of period 2, then P_1 (from formula 6.1) equals V_1 (from formula 6.2), $E(P_1) = V_1$. Substituting V_1 for P_1 in formula 6.1 leads to:

$$V_0 = [E(D_1)/(1 + k)] + [E(D_2) + E(P_2)]/(1 + k)^2 \qquad (6.3)$$

which can be interpreted as the intrinsic value of a stock holding period of two years. In general, one can write:

$$V_0 = [E(D_1)/(1 + k)] + [E(D_2)]/(1 + k)^2 + \ldots + [E(D_H) + E(P_H)]/(1 + k)^H \quad (6.4)$$

for a holding period of H years. Indeed, the intrinsic value of a stock with a holding period of H years is the discounted value of all dividends paid plus the proceeds of the final selling of the stock in year H. If one assumes H ever growing to infinity then formula 6.4 turns into:

$$V_0 = [E(D_1)/(1 + k)] + [E(D_2)]/(1 + k)^2 + [E(D_3)]/(1 + k)^3 + \ldots \qquad (6.5)$$

It should be noted that this formula does *not* state that the intrinsic value is independent from any capital gains. It only states that any capital gains at the time the stock is sold will be determined by the estimated (expected) dividends paid in future.

If – for the sake of simplicity[50] – one assumes that the known dividend D_0 grows forever in future at a constant rate g (which may be positive, zero, or negative), then formula 6.5 turns into:

$$V_0 = [E(D_1)/(k - g)] \qquad (6.6)$$

which is often called the constant growth DDM or *Gordon formula*.[51] Mathematically, the formula is valid only as long as $k <> g$ (that is, k does not equal g). In case of $k = g$, the stock value would be infinite, which is economic nonsense. But also, $g > k$ does not make sense from an economic point of view, as it *either* implies a negative intrinsic value of the stock (the company should then be bankrupt and disappear from the market) or the market has to adjust its estimate of k. If a stock market analyst promotes an estimate of $g > k$, that is, a dividend growth rate higher than the interest rate, one should be careful because such an estimate might seem like an investment opportunity, but only if short-term growth rates were meant. It might not be sustainable over the longer run.

DDMs have been made more sophisticated by assuming that dividends paid out depend on the amount of earnings retained for the investment policy (expansion) of the company. The question is whether the intrinsic value falls or increases in case of such a strategy. If the firm's additional, expansionary investment earns higher returns than the generally required market rate k, then the intrinsic value of such a company will increase (which is in accordance with general economic wisdom). Furthermore, the models have been fine-tuned in order to reflect better the firms' position over their assumed life cycle (multistage growth models).[52]

DDMs are easily applied but the challenge lies in establishing their inputs as they all refer to future expectations. Stock value estimates are no better than the underlying assumptions. Therefore, as in all other rational techniques that have been established in an attempt to look into the future, sensitivity tests should always be undertaken in order to determine how much DDM results react to different sets of combinations of assumptions.

An evaluation concept different from DDM is the *price–earnings ratio* of stocks. This analysis starts from the consideration that the stock value should be positively linked to the growth opportunities of the corporation in question where growth opportunities are – in this model – identical to the long-term growth of the dividends paid. One version of the price–earnings ratio is as follows:[53]

$$E[P_0/E_1] = (1 - b)/(k - \mathrm{ROE}*b) \qquad (6.7)$$

where:

P_0/E_1 = ratio of (known) share price in period 0 over (expected) earnings in period 1

b = retention rate, i.e. share of operational surplus reinvested (or "ploughed back") into the company $0 < b < 1$

k = expected "normal" market rate of return on investments
ROE = return on equity of the company under consideration

Observe that the growth rate g of dividends in this model is:

$$g = \text{ROE} * b \tag{6.8}$$

Formula 6.7 has the following characteristics: k is usually considered constant as it represents the normal market rate of return. As long as b differs from zero, a growing ROE increases the price–earnings ratio (given the term ROE*b does not equal or increase over k). This makes sense, because investment projects with high ROE provide the firm with growth opportunities. As long as ROE exceeds k, a higher b increases the ratio. This again makes sense, as the market will honour such firms with a higher share price in relation to dividends paid, if they exploit such opportunities by ploughing back parts of the operational surplus into these opportunities.

Some simple calculations are summarized in table 6.4 which reflects numerically the above considerations.

The higher the plowback rate, the higher the growth rate, but not necessarily a higher P/E ratio. A higher plowback rate increases P/E only if investments made by the corporation offer an expected rate of return higher than that offered by the market. Otherwise, higher plowback is negative for shareholders because it means more money is put into projects with inadequate rates of return.

The above equity price calculations should constitute the basis for deciding on the underestimation or overestimation of the share. As stock exchanges are usually considered near-perfect markets that reflect the "right"

Table 6.4 Effect of ROE and plowback rate on dividend growth and the P/E ratio

b	$1-b$	k	ROE	g	P/E
0.00	1.00	0.12	0.09	0.000	8.33
0.00	1.00	0.12	0.12	0.000	8.33
0.00	1.00	0.12	0.15	0.000	8.33
0.25	0.75	0.12	0.09	0.023	7.69
0.25	0.75	0.12	0.12	0.030	8.33
0.25	0.75	0.12	0.15	0.038	9.09
0.50	0.50	0.12	0.09	0.045	6.67
0.50	0.50	0.12	0.12	0.060	8.33
0.50	0.50	0.12	0.15	0.075	11.11
0.75	0.25	0.12	0.09	0.068	4.76
0.75	0.25	0.12	0.12	0.090	8.33
0.75	0.25	0.12	0.15	0.113	33.33

Source: ILO.

prices in a timely manner, gains by buying undervalued shares ("lucky buys") are not likely to occur. Yet, if new information on the prospects of a company revises the results of the equity price calculations, the information lead against the overall market allows for those gains. In this light, if stocks are priced correctly, brokerage profits rely solely on discovering information not yet incorporated in the market price. This highly sensitive type of information may be available to insiders, who are expressly forbidden from exploiting it by acting on the financial markets. Given the sophisticated organization of exchanges and the large number of traders, hopes on speculative gains in stock trading are slim. Pension funds with their long-term orientation should instead rely on quality investment promising stable growth and dividend payment.

6.5.3   Debt instrument performance indicators

Other than for equity, constructing bond indicators that reflect true prices for private sector bonds is not a straightforward matter. Certain government bonds of major industrialized countries are commonly traded on exchanges, and price indices for them are computed on a daily basis. As regards bonds of less reputed governments and commercial bonds in general, the problem is that they are traded less frequently and true rates of return are therefore difficult to compute (Bodie et al., 1996, p. 69). Hence, up-to-date prices are usually difficult to obtain and price estimates are derived on the basis of bond valuation models. Several indices of overall bond market performance are available, some of the better known ones being Merrill Lynch, Lehman Brothers and Salomon Brothers.

6.5.4   Bond yield[54]

Because a bond's regular payments (often called "coupon payments") and principal repayment[55] all occur months or years in the future, the price an investor would be willing to pay for a claim to those payments depends on the value of currency units, say euros, received in the future compared to euros in hand now. It is plausible that the present value of a euro to be received in future is less than €1. Obviously, the time spent waiting to receive that €1 imposes an opportunity cost on the investor; if the money is not on hand it cannot be used for alternative investment that would generate income immediately.

To calculate today's value of a bond the expected cash flows (coupon plus final face value payments) are being discounted by the appropriate discount rate (interest rate). In other words:

Bond value today = Present value of coupons + present value of face value

If one calls the maturity date T and the appropriate interest rate r, then the present value of the bond can be written as:

$$PVB_{t0} = \sum_{t=1}^{T} [\text{Coupon}/(1+r)^t] + [\text{Face value}/(1+r)^T] \qquad (6.9)$$

where:

PVB_{t0}	=	present value of Bond B at valuation date;
Coupon:	=	regular payments at fixed dates between t_0 and T
Face value	=	final payment in T
r	=	market interest rate

The first term in formula 6.9 is often called the present value of an annuity.

In the following, we consider a 3-per cent coupon, 30-year maturity bond with a face value of €1 000 paying an annual €30 coupon. Suppose the market interest rate is 3 per cent annually. Then the bond's present value (the fair price at which an investor would buy) can be calculated as follows:

$$\text{Price} = \sum_{t=1}^{30} \dots 30[€30/(1+0.03)^t] + [€1\,000/(1+0.03)^{30}] \qquad (6.10)$$

Using a standard PC spreadsheet software program it is easy to confirm that the present value of the bond's annuity is €588.01 whereas the present value of the final repayment of the face value is €411.99.

Both values add up to €1, 000. The reason is obvious: The market rate is assumed to match exactly the coupon rate. The investor would get a fair return in future for an investment of €1, 000 today. In other words, the bond would sell at par value.

If the market interest did not equal the coupon rate, then the bond would not sell at par value, as is illustrated for different interest rates in table 6.5. Let us assume that the long-term market rate rose above the initial 3 per cent (coupon rate and face value unchanged). Then the present value of the bond's annuity and of the face value would be lower than par. The reasoning is as follows: at the higher market rate the investor would earn higher returns for his or her €1, 000, the price of the bond has to fall. Equally, if the market rate were assumed to decline, the bond present value would increase.

It should be noted that increases and decreases in interest rates do not lead to symmetric results in terms of the bond price. While the interest variation for example is + and −1/3 (4-per cent and 2-per cent market rates compared to the 3-per cent coupon rate) the price decrease in case of an assumed higher market rate is −17.3 per cent (€827.08/€1 000) whereas the increase in case of an assumed decline of the long-term market rate is 22.4 per cent (€1, 223.96/ €1, 000).[56] This biased property of bond prices is called *convexity* because of the convex shape of a graph plotting bond price against market interest. Figure 6.7

Table 6.5 Bond present value (€1,000, 30-period maturity, 3% p.a.) at different interest rates

Market interest rate (%)	Coupon present value	Face value present value	Bond present value
1	741.92	774.23	1 516.15
2	552.07	671.89	1 223.96
3	411.99	588.01	1 000.00
4	308.32	518.76	827.08
5	231.38	461.17	692.55
6	174.11	412.94	587.06
7	131.37	372.27	503.64
8	99.38	337.73	437.11
9	75.37	308.21	383.58
10	57.31	282.81	340.12
15	15.10	196.98	212.08
20	4.21	149.37	153.58

Source: ILO.

shows the inverse relationship between price and opportunity asset interest for the sample bond.

Interest rate fluctuations represent the main source of risk in the fixed income market. Also, bond prices react sensitively to maturity. This is obvious, because if the investor has bought the bond at par and the market rates subsequently rise then the investor makes a loss, and the longer the money invested is tied up, the greater the loss.

Figure 6.7 Convexity axiom on bond present value versus market interest rate
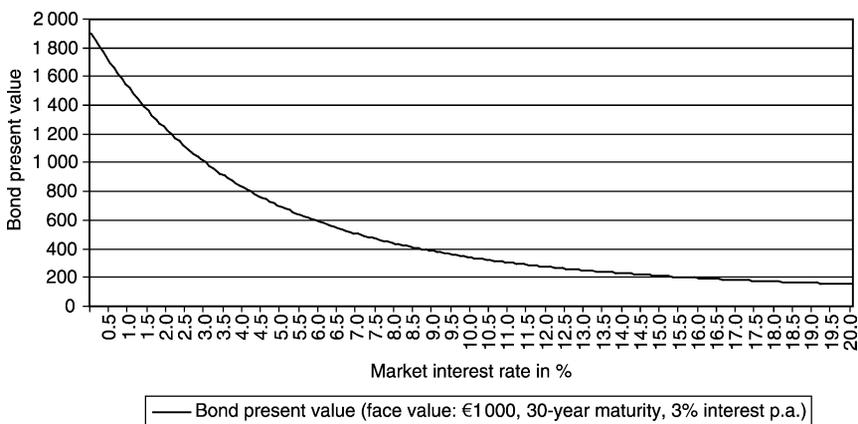
Source: Table 6.5.

6.6 INVESTMENT STRATEGIES

For public social security funds there are normally guidelines provided by law that may be perceived as quasi-"benchmarks" (see box 6.4). The preciseness of these guidelines depends on the circumstances. The more the public wants or needs to have control over the strategies pursued and decisions taken by pension fund management, the more detailed the legislation. The control exerted should comply with constitutional, legal and other public requirements. Sometimes this might be in conflict with a desired higher degree of freedom of the fund management to act. The relative importance of the two factors probably needs to be based on expert knowledge and decided on a case-by-case basis. Advice with respect to investment guidelines for the management of pension funds can be obtained from the OECD.

We will examine a number of modern investment strategies: investments by industry, market and region, as well as socially responsible investments. The list is not exhaustive, and the order in which the strategies appear does not indicate authors' preferences. Investment strategies focusing on derivatives have been deliberately omitted as they are not deemed to comply with the basic investment principles of social security funds. In any case, focusing investment on certain pre-defined industries, markets or regions increases investment risk. For social security funds mixed strategies are possible and are generally advised.

6.6.1 Investment by industry

This kind of investment entails investing in firms that belong to the same type of industry. The incentive to invest in industries comes from the long-standing observation that in economies there are often certain industries that grow faster and are more profitable than others; there are emerging and dying industries; there are firms with long records of high performance and others that are more or less permanently ailing. The aim of investment would be to invest in the successful industries only. If this strategy were applied, financial reserves of social security schemes would be allocated exclusively to equity and/or bonds of those (groups of) firms.

Obviously, pursuing such a strategy is not possible without industry analysis, which involves solving numerous methodological problems. First, industries have to be defined: at first glance this seems simple, but is actually quite complicated. Many industries issuing equity or securities are in fact conglomerates producing and trading different types of products that might or might not be easily classified under the same heading (industry). One available classification system is the *International Standard Industry Classification of All Economic Activities* (ISIC), widely used in the OECD and all other countries that regularly publish national accounts. The ISIC is used by governments' statistical offices to group firms for purposes of statistical analyses. Its latest version is ISIC Revision 3.1.[57]

Box 6.4 Pension fund for municipal employees: The example of Denmark[1]

The Danish pension fund for the employees in municipalities, a fully funded DC scheme, operates according to the following asset allocation principles:[2]

The 50/50 rule
A maximum of 50 per cent of the assets may be held in volatile assets (e.g. stocks, junk bonds) whereas the rest must be held in secure assets (state bonds, gilt-edged corporate bonds, real estate, etc.).

The 3-per cent rule
No more than 3 per cent of the pension liabilities may be invested in one company (limitation of risk of default exposure).

The currency rule
A minimum of 40 per cent must be held in assets denominated in national currency, a maximum of 40 per cent in European Union (EU) currency and a maximum of 20 per cent in other currencies.

No control rule
The legislation says explicitly that the fund must avoid any decision control over single companies – except over Asset Management Companies.

Rules like the ones listed above exist in many countries, adjusted to the specific circumstances. In recent years there has been a tendency to expand the investment share of stocks and reduce that of bonds accordingly. This was based on the observation that over the longer run the rates of return on stocks seemed to be higher (and no less safe) than those of bonds. Most recently, given the strong downturn on international equity markets, pension funds have revised their general rules on asset allocation in order to better protect their members' contributions. In doing so, they may have contributed to a downward spiral of the (already bearish) stock markets.

The Danish currency rule, in fact, exposes a maximum of 20 per cent of the fund's assets to an exchange rate risk – as long as the government pursues a policy of a fixed exchange rate of the Danish crown in relation to the euro and assuming that the national currency is floating freely against other currencies.

The 3-per cent rule is aimed at limiting financial damage to the pension fund in case of bankruptcy of a firm in which the fund has invested money. It only works as a safety barrier if the bankrupt firm does not trigger bankruptcies of, for example, complementary or dependent companies.

The no-control rule is important for market economies, which depend on free competition. If, for example, a pension fund were to gain control through investments in equity over two competing companies, decision conflicts might arise; avoiding them might be temporarily helpful to the fund's assets, but in the long run detrimental to the proper functioning of

Box 6.4 (cont'd)

the economy – and of the fund. In addition, principal–agent problems might arise within pension fund management if its voting power grows: interests may be obscured at the level of a single official and for the pension fund as a whole, leading to biased decisions (as regards governance of the shares, for example). One should be aware of the fact that this problem (avoiding pension fund control over company decisions) will become an acute problem with growing numbers of pension funds and their growing investment potential. For the time being, funds in small countries that are big nationally but are small in international comparison may, as a remedy, easily divert their invest-ment streams to other countries; however, once full funding of pensions became broadly popular in all industrialized countries, then the control problem would accelerate fast in its economic and societal dimensions.

The above rules say nothing about the worldwide regional allocation of the assets held by the Danish fund.

The Danish case reflects an *active fund management* approach. The fund management is given room for discrete decisions with respect to the purchase of investment certificates within the limits of the rules stated. These provisions are kept unchanged over reasonable periods but are permanently and closely monitored. If the rules are considered outdated or no longer applicable, for example because market conditions have changed, they are then revised in order to redirect fund management decisions.

If the pension fund management were to follow a *passive manage-ment strategy*, a portfolio would have to be built up replicating the major companies included in the targeted benchmark indices. The development of the fund reserves could then be tied to the performance of, e.g. the Dow Jones, the FTSE, the DAX or the DJSGI (Dow Jones Sustainability Group Index covering 64 industries).

Passive strategies are considered rational if the stock exchanges (by way of their corporate rules) guarantee that only highly profitable companies with a long-lasting good economic reputation ("blue chips") are permitted for trading and form part of the reference indices, and if the pension fund is small enough not to exert considerable price influence. In addition, the rules for a company to be delisted from the exchange or dropped from the index must be transparent. If the exchange provides for these conditions, it can be expected of the market to honour these companies with a growing index and, in turn, with increased returns (dividends) on the listed stock.

However, movements of indices might be biased by decisions of single, influential, large market participants such as pension funds. The bigger a fund becomes the more its decisions will contribute to general market movement, measured at the level of indices. Therefore, passive investment strategies may be an option over the short term, but not over the longer term. If all investors pursued a passive strategy, the

> **Box 6.4** (cont'd)
>
> market would eventually come to a standstill. Passive investment strategies are therefore a *contradictio in adjecto*, at least over the longer run.
>
> *Notes*
>
> [1] Sampension Administrationsselskab: Handout to the PSI Pension Leadership Meeting, 25–26 January 2001, The Hague (Netherlands).
> [2] Such principles are usually open to change over the medium term.

Placing a specific firm into one of the classes requires detailed knowledge of its actual purpose and activities. On this basis, financial analysts would have to check which firms have issued equity and securities on the formal financial markets – that is, whether they are at all ''accessible'' to investors (such as a social security fund, for example). Even if the classification is obvious and in every sense correct, high- and low-performing firms might still be included in the same class, posing analytical problems to financial analysts. Moreover, analysts have to maintain close professional contact with the practice of statistical offices, as these might include "newcomers" and exclude firms that have come to the end of their life cycle. Furthermore, financial investors may want to place their monies domestically as well as internationally, in which case the contents of classifications in different countries have to be merged. After solving these and other problems (see Bodie et al., 1996, pp. 506–520), financial analysts would look into the movement of performance-related indices of the firms of interest in a macroeconomic context and, using macroeconomic forecasts as indicator for expected index movements,[58] transform the results into portfolio decisions.

Building up and maintaining the required level of technical expertise is obviously expensive, and social security fund managers are usually not in a position to employ the professionals needed. A fund management firm would have to be commissioned to manage the portfolio. Again, a typical asymmetric principal-agent situation of imbalanced knowledge allocation would occur. In short, social security scheme management would be well advised not to put ''all its eggs in one industry basket''.

6.6.2   Investment by financial market

This notion covers investing in formal markets. For example, the strategy could be to invest in one or several of the indices developed for stock exchanges around the world, for example the Dow Jones, FTSE, DAX, or a combination of these (for a list of existing markets, see Issue Brief 4). Other indices servicing specific investment policies could also be developed, but this would require enormous additional input in terms of research and analysis. The incentive to

invest in specific formal markets is positively linked to the degree of prudent regulations actually enforced and executed at these markets and designed, inter alia, to prevent fraud and insider trading. The investment aim would be to invest only in the high-performing markets among the well-regulated ones. The problems to be solved are similar to those in respect of investment by industry. If this strategy were applied, financial reserves of social security schemes would be allocated to equity and/or bonds of those markets only.

One of the main problems of investing only in certain formal financial markets is of a "black-box" nature. In preparing and executing this investment strategy, financial analysts might be inclined to analyse the trend and/or cyclical behaviour of indices provided at the markets only, without analysing the underlying performance of the industries represented. Obviously, the content of financial market indices differs significantly from the indices constructed for industries, as mentioned earlier. In order to overcome this obstacle, models linking industry-performance indices with market indices would be desirable. However, there are multiple methodological and analytical problems to be solved. Even if such models could be constructed on the basis of past observations, there are strong doubts about successfully keeping their structure time-invariant over sufficiently long periods. Again, their embedment into macroeconomic contexts poses additional problems.

As regards the level of technical expertise required, here too the same remarks and conclusion apply as in the case of investment by industry.

6.6.3 Investment by region

This means focusing on one or more countries or regions in the world, including the decision on whether to invest only (or predominantly) at home or (also) abroad. Such investments can be made "by industry", "by financial market", a combination of both, or by other investment means (direct investment, for example).

For private portfolios as well as for social security funds, domestic restriction of investment has long been one of the most controversial issues of asset management. For the OECD, meanwhile, there seems to be general agreement that investment anywhere in the world should be allowed.[59] Funds in major OECD countries are being collected in convertible currency – in other words, in principle there is no problem for their monies to be accepted anywhere in the world. Because of existing prudence rules, however, OECD-based funds tend to invest within the OECD and only to a limited extent in non-member countries. The Danish pension fund for municipal employees, for example, in 2000 allocated 26 per cent of its *equity* to firms based in Denmark, while 29 per cent went to developed European countries (excluding Denmark), 16 per cent to Japan, 23 per cent to the United States, and only 6 per cent to the emerging markets.

In addition to issues raised by investing in different industries or markets, regionally oriented investment decisions involve additional monitoring and analytical problems for asset managers.

6.6.4   Socially responsible investment

Socially responsible investment (SRI) belongs to the group of investment strategies with an explicit ethical background. It is defined as "investment where social, environmental or ethical considerations are taken into account in the selection, retention and realization of investment, and the responsible use of rights (such as voting rights) attaching to investments" (Mansley, 2001, p. 2). For some years now it has been standard practice of institutional investors, especially in the private sector, to offer so-called filters that allow for an allocation of individual portfolios ensuring that the investment meets certain responsibility requirements set by the investor.

Public social security funds have thus far maintained a more conservative attitude vis-à-vis these issues. One of the main reasons is that they are legally obliged to avoid positive or negative discrimination. If – in a democratic country – a company's business is legal, how can investing in that company be socially irresponsible? Public pension funds are not the only entities confronted with this consideration – private funds may also have to tackle it, depending on national or international legislation and their own profile regarding the destination of their investment.

It is often thought that violations of basic social standards occur only in less developed regions. However, companies' conduct should be critically examined regardless of the location of their activities. "Social filters" may take into account the following aspects:

6.6.4.1   Corruption

There is growing awareness the world over of the damage that corruption can cause to a country's social and economic fabric. Economic growth and investment levels are lower in countries with high levels of corruption because of prevailing uncertainty, the costs of bribes and time-consuming bureaucratic procedures. The 1998 OECD Anti-Bribery Convention requires each Party "to establish that it is a criminal offence under its law for any person intentionally to offer, promise or give any undue pecuniary or other advantage, whether directly or through intermediaries, to a foreign public official".[60] Achieving compliance with such rules in firms is never easy, and is especially difficult in large multinational companies, with subsidiaries and joint ventures in many countries. It is therefore important that firms develop a comprehensive programme designed to alert all employees to the need to resist corruption in its different forms.

6.6.4.2   Labour standards

Many companies source an increasing portion of their goods from developing countries. While international trade and investment can bring much-needed jobs to these countries, abuses sometimes occur. If the created jobs are dangerous,

or if the workers are forced to live in appalling conditions, the actual benefits to them may be minimal. A great majority of the international community has signed the ILO "core labour standards" which cover issues such as forced labour, non-discrimination, health and safety, freedom of association, collective bargaining, and child labour. Unfortunately, many governments do not enforce them, often because they fear that international investors may be deterred by such laws.

6.6.4.3   Human rights

The internationally accepted standard for human rights is the 1948 United Nations Universal Declaration of Human Rights. This framework should form the basis of a company's human rights policy and be implemented across its sphere of influence. The reputation of many companies has been tarnished because of real or perceived mismanagement on the issue of human rights.

6.6.4.4   Social security

One of the major problems of social security financing in developing and transition countries is non-compliance with contribution payments to social security, often leading to a shortfall in the resources that social security institutions need in order to deliver benefits, both in cash and in kind. This practice is frequently tolerated by company management and employees for cost and net-income reasons and by governments for (alleged or actual) reasons of international competitiveness. Governance – including administrative relations between social security funds and companies – is often inadequate. When entering into joint ventures, internationally operating companies have a crucial role to play in improving the situation in this regard.

Before deciding on making any financial commitments vis-à-vis a given company, social security fund managers may ask whether the company has explicit policies on the above issues, whether such policies are being implemented, and how. Other issues, too, may be addressed, such as armed conflicts or access to medicine. What is the policy on company conduct in this regard? Furthermore, social security fund screening practices can be applied so as to exclude companies involved in producing certain goods (e.g. tobacco, oil).

The performance of SRI has so far confirmed the validity of this type of strategy. It can be proven that funds pursuing SRI strategies do not perform worse than those applying standard investment strategies. A survey comparing 183 United States screened mutual funds to unscreened funds found even higher average returns for screened funds as of 1999, especially for longer period records of three to ten years. Also, the funds' investors seem to have a higher commitment, as turnover rates are comparatively lower than for the comparator unscreened portfolios. The sample of the screened funds

accounted for higher volatility and higher share prices than the comparator unscreened funds.[61] Other studies drawing on risk-adjusted comparisons find no return advantages against unscreened funds. Additional risk exposure seems to be inherent in screened portfolios.[62] However, such considerations are challenged by the "no-effect" thesis claiming that screened funds, by the very nature of their construction, counterbalance such risk-enhancing effects, in which case SRI, exhibiting the same risk-return features, could be regarded financially fully equivalent to conservative investment opportunities (Kurtz, 1999).

Reasons for the relative success of SRI have been seen in linkages between a management's setting up of socially responsible programmes and superior skills in general production management – in other words, one would not exist without the other. Some of these effects may rebound from the socially responsible practice of offering fringe benefits to employees, from improvements of workplace environment to further professional training. In addition to having a positive impact on labour productivity, such measures also shape the company's outside reputation. A good reputation may exert crucial influence on a company's clients, future business partners and employees and enhance business prospects. Of course, for social security fund investment decisions these *general* statements would have to be proven in every *individual case*.

Investment in SRI-scanned funds in the United States has grown by more than 30 per cent between 1999 and 2001. The market for socially screened fund investment exceeded US$2 trillion in 2000. Private investors have preferred to put their money into fund portfolios ensuring socially responsible investment with a growth rate 1.5 times that of non-screened portfolio funds.[63]

The more popular that SRI strategies become, the closer this approach will come to its limits. Firms not complying with social filters might increasingly rely on self-financing of investments; the more limited the pool of firms complying with the filters, the more social security funds pursuing SRI will compete for investment possibilities in exactly these firms. The share price of these companies might then increase on account of excessive demand, though not necessarily for reasons of good economic performance. It should be noted that the SRI strategy applies not only to investment in corporate equity but might also be applied to the holding of government bonds. This means screening governments for their commitment to observe the same rules, if applicable, as corporations.

6.6.5   Common considerations

Whatever investment strategy a social security scheme decides to implement – an industry orientation, a financial markets or regional orientation (with

domestic or international focus), an active social filtering policy, a mixed strategy, or other strategies not addressed here – the procedures of selecting the concrete investment portfolio should be formally laid down in writing as a standard element of pension fund operations. The specific steps to be taken by a scheme's asset management department (or an asset management firm carrying out the fund's policy) could follow the sequence set out below, proposed by Cummins (2001):

- defining criteria: these should be stable over an extended period but may be revised periodically;
- screening data: permanent access to a professional data provider is necessary;
- auditing data: in-house analytical capacities are indispensable;
- investment analysis: in-house analytical capacities are indispensable;
- stock versus securities selection: according to the outcome of prior research;
- portfolio construction: to be offered to the social security fund management (i.e. no black-box policies);
- voting: decisions have to be supported by the majority of the social security scheme management and may include the stakeholders.

Before this can be done, the social security scheme has to define its priorities. In the case of a social filtering policy, for example, financial investments should only go to companies which observe:

1. Employee rights, that is:
   - allow for workers' representation;
   - pay fair wages and pursue an equal opportunities policy;
   - share profits with their employees;
   - obey international standards of labour and industrial relations;
   - take care of health and safety of their employees.

2. Societal needs, that is:
   - actively sponsor communities;
   - help to improve local infrastructures.

3. Product quality standards, that is:
   - employ explicit product quality and safety guaranteeing mechanisms;
   - have a research & development department and a good record of innovations;
   - pursue a fair marketing and contracts policy.

4. Environmental issues, that is:

    - pursue a policy of preventing environmental damage;
    - obey legal safety regulations;
    - avoid ozone-depleting chemicals;
    - avoid other chemicals (as far as considered counter-environmental);
    - communicate their environmental problems and the respective policy of amelioration openly;
    - do not use tropical hardwood.

Social insurance fund managers must not forget under any investment strategy, SRI or otherwise, that the fund's primary goal is to pay out benefits, such as pensions. Contributors have a stake in expecting maximum return (at a given, low risk) at a future date, on the contributions paid today. Therefore, filters such as the ones described above have to be translated into explicit requirements. For example, the fund's stakeholders might not want to invest their contributions in firms that pollute the environment. The meaning of "polluting the environment", however, depends on the definition of "pollution". To avoid futile discussions and consequent delays in investment decisions, one might say that investment in such firms is prohibited unless their contribution to environmental pollution is unavoidable despite best practice. Or, stakeholders might not want the scheme's funds to be invested in certain countries (non-democracies, for instance). This is difficult to enforce vis-à-vis companies operating internationally; again, rules should be clearly laid down in order to avoid counterproductive delays in investment decisions.

6.7   INVESTMENT PROBLEMS IN COUNTRIES WITH UNDERDEVELOPED FINANCIAL MARKETS

Serious problems arise when markets do not have full faith in the governments or when market participants do not trust the operations of the (formal) markets. This is the case when bad governance and corruption undermine public trust in governments' ability to fulfil their obligations in the long run, and when markets are unable to agree upon and enforce generally accepted prudence rules in order to create a common practice of following best standards. State creditors as well as financial market participants will then ask for additional risk benefits on top of the basic interest that would be charged to trusted debtors.

Where funded pension schemes, public or private, are the sole source of finance left to be tapped by governments, they often find themselves in a complicated position, since they are then usually obliged to invest solely in the

domestic markets *and* in government bonds – thus acting as a saviour of otherwise ailing public budgets while *simultaneously* maintaining otherwise failing financial markets.

The following sections deal with various aspects of pension fund investment problems that have been observed or might arise in emerging financial markets, in the financial markets of transition countries or in countries pursuing investment strategies that explicitly address domestic (national) development.

6.7.1   Emerging markets and investment of pension funds

Emerging markets are generally characterized by lack of transparency, asymmetric distribution of information and lack of culture of mutual trust in the credit business. As a result, only small amounts of capitalization relative to GDP are available for trading in these markets. Low market capitalization, in turn, serves as a defining criterion of emerging markets (IFC, 1999, p. 3) and thus contributes to perpetuate potential investors' low grading of financial markets in middle- and low-income countries.

An international comparison of primary financial market developments was published by the World Bank in 1999.[64] The results are especially interesting when seen in the context of policies promoting the introduction of fully funded pension schemes around the world, including developing countries, as they indicate the absorption capacity of these countries' markets.

Two observations are of particular importance in this context (see tables 6.6 and 6.7). First, long-term *private sector debt issuance* in relation to GDP from 1980 to 1995 in the emerging economies was low (0.6 per cent of GDP, on average); however, it showed a growing trend of 0.2 per cent over the period 1980–85, 0.6 growth per cent for 1986–90 and 0.9 per cent for 1991–95. The levels are probably overestimated, as GDP figures for these countries often do not include informal market production. GDP, including informal sector investment, is of interest here as one would like to know how much leverage primary market issuances contribute to overall growth. Second, equity issuance in percentage of GDP in emerging markets is higher than in the major established market economies[65] and as high as in the "Asian tiger" countries. Here too, there is possible overestimation. The relatively high equity issuance levels may be explained in part by the fact that a banking sector, when developed, usually covers substantial volumes of business financing. In most emerging markets, however, the banking sector is underdeveloped.

Emerging markets display a number of characteristics:

New debt issuance is offered by public borrowers. Newly issued sovereign debt instruments accounted alone for 53 per cent, with a further 15 per cent of

Table 6.6 Long–term private sector debt issuances (as % of GDP) by type of economy, 1980–95

	1980–85	1986–90	1991–95	1980–95
Emerging markets				
Argentina		0.0	0.3	0.2
Brazil	0.3	0.1	0.4	0.3
Chile	1.3	1.9	3.2	2.3
China	0.0	0.5	0.6	0.3
Colombia	0.2	0.2	0.4	0.3
Greece		0.0	0.0	0.0
Hungary				
India	0.0	0.1	0.1	0.1
Indonesia	0.0	0.0	0.2	0.1
Jamaica				
Jordan	0.4	0.2	0.1	0.2
Kenya			0.1	0.1
Malaysia		1.7	3.8	2.8
Mauritius		0.2	0.0	0.1
Mexico	0.0	0.4	2.3	0.9
Pakistan				
Peru	0.0	0.1	0.4	0.1
Philippines	0.2	0.2	0.5	0.3
Portugal	0.3	2.3	2.0	1.4
Sri Lanka			0.0	0.0
Thailand		0.0	2.4	1.2
Tunisia		0.6	0.5	0.5
Turkey	0.1	0.3	0.0	0.1
Venezuela	0.7	1.8	0.3	0.9
Total	**0.2**	**0.6**	**0.9**	**0.6**
Asian tigers				
Hong Kong, China		0.1	1.0	0.7
Republic of Korea	4.1	6.3	9.5	6.5
Singapore				
Taiwan, China	0.2	0.1	0.3	0.2
Total	**2.5**	**2.5**	**3.6**	**2.8**
G4 Industrialized countries				
Germany	9.9	8.4	11.5	9.9
Japan	7.5	12.6	11.3	10.3
United Kingdom	0.2	0.5	0.3	0.3
United States	1.8	5.4	7.5	4.7
Total	**4.8**	**6.8**	**7.6**	**6.3**
Grand total	**1.7**	**2.1**	**2.4**	**2.1**

Source: Aylward and Glen (1999).

Table 6.7   Equity issuances (as % of GDP) by type of economy, 1980–95

	1980–85	1986–90	1991–95	1980–95
Emerging markets				
Argentina	0.0	0.0	0.2	0.1
Brazil	0.2	0.2	0.3	0.2
Chile	1.1	2.0	1.1	1.5
China	0.0	0.1	0.1	0.0
Colombia	0.3	0.2	0.4	0.3
Greece	0.1	0.5	0.6	0.4
Hungary	0.0	0.0	0.9	0.3
India	0.0	0.0	0.1	0.0
Indonesia	0.0	0.8	1.5	0.7
Jamaica	0.0	0.1	0.6	0.2
Jordan	3.2	0.7	5.1	3.0
Kenya	0.0	0.1	0.2	0.1
Malaysia	1.3	2.3	3.6	2.3
Mauritius	0.0	0.4	2.1	1.8
Mexico	0.0	0.1	0.6	0.2
Pakistan	0.1	0.1	0.5	0.2
Peru	0.0	0.0	0.0	0.0
Philippines	0.3	0.3	1.2	0.6
Portugal	0.0	2.5	3.1	2.8
Sri Lanka	0.0	0.1	0.9	0.5
Thailand	0.4	3.3	3.9	2.4
Tunisia	3.9	2.2	3.4	3.2
Turkey	0.2	0.4	0.7	0.5
Venezuela	0.3	1.0	1.4	0.8
Total	**0.6**	**0.8**	**1.4**	**0.9**
Asian tigers				
Hong Kong, China	0.0	0.6	6.9	3.2
Republic of Korea	0.6	4.0	1.4	1.9
Singapore	1.1	0.7	1.8	1.2
Taiwan, China	0.6	0.8	1.1	0.8
Total	0.7	1.5	2.8	1.6
G4 Industrialized countries				
Germany	0.5	0.8	0.7	0.6
Japan	0.7	2.0	0.2	1.0
United Kingdom	0.7	1.8	1.7	1.4
United States	0.9	1.0	1.3	1.1
Total	**0.7**	**1.4**	**1.0**	**1.0**
Grand total	**0.6**	**1.0**	**1.5**	**1.0**

Source: Aylward and Glen (1999).

overall market volume issued by other public sector institutions.[66] All actors in emerging markets face a high interrelation with developments on mature international financial markets. The interest and return conditions on the emerging financial markets as compared to the mature markets are the most important factors; they depend, inter alia, on the investors' views on market risk differentials and differentials in expected long-term macroeconomic prospects.

Emerging markets' assets are generally viewed as risky assets, mainly owing to general lack of transparency in those markets. The ratings produced by rating agencies for emerging-market instruments are generally found to be in the B-range, the highest attainable score being AAA, and the lowest D, for expected certain default.[67] This implies the existence of high-risk premiums in compensation of expected lower payback rates.

Emerging-market debt certificates are often denominated in United States dollars, euros or yen. The foreign currency denomination shifts the exchange rate risks to the debtor, thus possibly increasing its overall default risk. In comparison, local financial markets ask for lower interest rates. However, they are often less liquid since the savings rate and total savings in emerging markets are usually low.

Low levels of IPOs and the above characteristics have a number of implications for international and local pension fund investment policies.

Mature, OECD-based international funds, for example, would invest only small parts of their reserves in the emerging markets, if at all, because the risk–return conditions on these markets most probably do not comply with standard prudence rules of investment at home. In addition, by investing substantial amounts on those markets, mature pension funds would most probably distort their operation (sending wrong price signals, etc.).

After reaching a certain volume, domestic emerging pension funds probably face similar investment problems as they might provoke price bubbles and large-scale shifts in asset ownership, given the low level of IPOs in emerging markets. Investing abroad is usually not an alternative since it requires convertibility of the national currency. If full convertibility were not given, then any transformation of nationally denominated funds into a convertible currency (United States dollar, euro, yen, pound sterling, or some other) would be costly or downright impossible.

Convertibility of national currency normally depends on the volume of international reserves held by the national bank. Positive reserves depend either on a permanent positive trade balance or on domestic financial market conditions attracting foreign supply. If these were attractive, however, there would be no need for pension fund monies to leave the country. Consequently, access by domestic pension funds to emerging markets is costly when aiming at investments denominated in convertible currency; in any case, whether reserves are channelled to instruments denominated in convertible currency or placed in local instruments, volatility remains high and thus poses high risk of losing workers' contributions.

6.7.2 Funding pensions in transition countries[68]

Many – if not most – transition countries have recently taken steps to implement funded pension systems. The funded tier usually supplements a maintained but downsized standard PAYG system. It is often mandatory, and is then completed by a voluntary third tier on a pure savings basis (private insurance).

Given these decisions, the existence and good performance of financial markets in these countries are obviously crucial to the success or failure of pension reform. One might have expected the markets to have been created before pension reforms got under way. However, many transition countries are in this respect still in a problematic position because neither long-term bond markets nor equity markets exist yet, or – if they do – they are still small and performing poorly because they are badly regulated (see box 6.5 on pp. 386–7).

The main reason, however, is that in many transition countries the emergence of a ''new business'' community, especially with respect to small and medium-sized enterprises, is still being hindered by a number of factors, including lagging economic and institutional reforms. An overview of the reform backlog as it was assessed by the Bretton Woods institutions in the second half of the 1990s is given in table 6.8. The table may now be outdated for a number of countries that have made significant progress but remains valid as an example of a basic checklist of governance prerequisites for a proper functioning of financial markets.

A number of countries, especially the Baltic States and other EU accession countries have meanwhile done their homework but there too the financial markets are still underdeveloped, largely because the entrepreneurial spirit has yet to achieve widespread acceptance. Individuals' efforts to become self-employed or private employers are still often greeted with scepticism by the public and are not particularly strongly encouraged by the local administration. Service structures in support of setting up businesses are still underdeveloped or lacking, and the small scale of newly founded businesses allows for only limited access to the financial markets for the purpose of financing business expansion.

The above are some of the reasons why primary equity markets and markets for the issuance of long-term debt (especially corporate bonds) in transition countries are still largely underdeveloped. In order to develop a long-term bond market[69] that could bolster the functioning of funded pension systems in the years to come, many countries still need to achieve a reliably stable macroeconomic environment that allows investors to find the future predictable beyond the six-month horizon and making them disposed to shift to more long-term instruments.

What are the prerequisites? Inflation kept under control, small fiscal deficits, exchange and interest rate volatility reduced to internationally comparable levels, an increased stock of international reserves to cushion the economy, and

Table 6.8 Areas of remaining major reform backlog

Countries	Privatization	Governance & enterprise restructuring	Price liberalization	Trade & foreign exchange system	Competition policy	Banking reform & interest rate liberalization	Securities markets & non-bank financial institutions	Commercial law	Financial regulation law	Memorandum item: macro-stabilization not achieved
EU accession countries (excluding the Baltic States)										
Bulgaria		*			*		*			
Czech Republic										
Hungary										
Poland										
Romania		*			*		*			
Slovakia							*			
Slovenia					*					
Baltic countries										
Estonia										
Latvia										
Lithuania					*					
Other south-eastern European countries										
Albania	*	*			*	*	*	*		*
Bosnia & Herzegovina	*	*			*	*	*	*		
Croatia					*		*			*
Macedonia, FYR		*			*		*			

Commonwealth of Independent States (CIS)

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
Armenia		*			*	*	*			
Azerbaijan	*	*			*	*	*		*	
Belarus	*	*	*	*	*	*	*	*	*	*
Georgia		*			*	*	*	*	*	
Kazakhstan		*			*	*	*			
Kyrgyz Republic		*			*	*	*		*	*
Moldova					*	*	*			
Mongolia (not CIS)	*	*			*	*	*			*
Russian Federation		*			*	*	*			
Tajikistan	*	*			*	*	*			
Turkmenistan	*	*	*	*	*	*	*			*
Ukraine	*	*			*	*	*	*	*	
Uzbekistan		*	*	*	*	*	*		*	

East Asia

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
Cambodia		*			*		*	*	*	
China	*	*		*	*	*	*	*		
Lao P.D.R.	*	*		*	*	*	*	*	*	
Viet Nam	*	*		*	*	*	*	*	*	

* indicates reform backlog

Source: IBRD; IMF.

Box 6.5 Establishing a fully funded second-tier pension in a country with underdeveloped financial markets: The case of Bulgaria

The *Bulgarian pension reform* of 1999 introduced a fully funded mandatory second tier and a voluntary third tier. The mandatory second tier entered into force in January 2001 for some occupational groups (types of work considered as arduous) and was extended to all employees beginning in January 2002. Nine pension funds have been licensed so far, seven of which have already been active in administrating voluntary private pension funds (covering about 10 per cent of the workforce) established since 1994.

Bulgaria's financial markets are still underdeveloped even though the macroeconomic and institutional environment has improved considerably since the economic crisis of 1996-97. The introduction of a Currency Board Arrangement and the linking of the Bulgarian lev to the deutsche mark in 1997 have successfully depressed inflation and interest rates to low and stable levels. Over recent years Bulgaria has enacted a large number of measures necessary to render its financial markets compatible with EU regulations during the accession process. However, these regulations have not yet been fully implemented.

Although the *banking sector* is well developed in terms of liquidity and regulation, capital is invested mainly in low-risk government securities while only a small share of the banks' money is loaned to private enterprises. It is not clear whether the low level of private sector loans is due to a lack of demand because of high fees and unattractive loan conditions, or driven by the banks' high risk aversion.

The *capital markets* do not provide an alternative, as the financial institutions are yet to be fully developed. The official segments (A, B, C – with decreasing requirements as a precondition for being listed) of the Bulgarian Stock Exchange could only attract a small proportion of companies; indeed, most of them prefer to be listed in the free market (even though many were eligible to be listed in the official sectors). Their reluctance to seek access to the formal sectors has been explained by high fees for intermediaries, auditing requirements, scant awareness of the advantages of being listed in the formal sectors, and the unfavourable tax treatment of capital gains on private securities. Consequently, the bulk of trade is carried out in the free market; as a result, pricing mechanisms lack transparency.

Box table 6.5.1 Market capitalization and volume of trade, Bulgaria, 1990s

	Market capitalization (%)	Volume of trade (%)
Segment A	2	1
Segment B	0	0
Segment C	9	30
Free market	89	69
Total	**100**	**100**

Source: Bulgarian Stock Exchange, cited in Ulgenerk and Zlaoui (2000), p. 20.

Box 6.5 (cont'd)

In this situation, pension funds largely rely on government securities, as other long-term investment instruments do not exist or are associated with considerable risk. Although pension fund regulations would allow for a higher share of other investments, some 57 per cent of pension fund assets is invested in government and municipal securities, and a third in domestic receivables on demand bank deposits (as of 30 September 2001). Only 1.2 per cent of pension funds is invested in securities registered for trading at the regulated securities markets. The dominance of government securities in pension fund assets is associated with relatively low returns. In addition, the hope that growing savings in pension funds would boost domestic capital markets and make capital available to entrepreneurs has not (yet?) materialized.

References: IMF (2001b); Ulgenerk and Zlaoui (2000); USAID (2001); World Bank (2001b).

avoidance of large macroeconomic swings. In this regard, the outlook for EU accession countries is quite good. Indeed, thus far they have been moving successfully from controlled to market economies, and implementation of rather stable macroeconomic policies in recent years has led to the rapid development of a liquid short-term bond market. However, a long-term bond market, which would be the primary focus of pension fund investments, has yet to develop. As regards most non-accession countries, the likelihood of this happening in the near future is low.

For the funding of pensions, it has been argued, it suffices to develop a fixed-income securities market only later on, as the pension schemes are at present immature and do not yet need to pay any instalments to their members. If one considers the development of long-term bond markets inevitable then this pension-funding strategy appears rational with respect to later annuitization. Experience shows, however, that it was always and everywhere the State – by way of its deficit-financing requirements – that massively supported the development of long-term security markets. For example, the volume of long-term government debt issued in the G4 (Germany, Japan, United Kingdom, United States) over the period 1980–95 was higher than the respective volume of private debt.[70] Funded pension systems in these countries were able to take full advantage of this large element of primary market activity.

Meanwhile, the paradigm of most States with respect to financing their budgets has changed. Finance ministers are targeting surplus budgets, which means not issuing long-term government debt any more. Therefore, this instrument may no longer be available in the future for pension funds of transition countries, or only at reduced levels, putting them in a less favourable

situation than their OECD-based counterparts during their start-up phase decades ago. In order to safeguard ordinary workers' incomes, one would have liked to see the structure of the future bond markets emerge and become stable before a funding strategy is launched. Given the decisions taken, it should now be a political priority for the transition countries to parallel pension legislation with establishing private bond markets, while complementing these with a market for public long-term bonds.

As regards equity, it is generally agreed among financial market experts that in almost all transition economies markets are still underdeveloped (see Claessens et al., 2000). According to the World Bank, in the 1990s formal stock markets were set up in 20 out of 26 transition economies, and yet many of them are undeveloped or dormant, with generally low equity turnover. In the more advanced transition countries – Czech Republic, Hungary, Poland – market capitalization[71] did not exceed some US$15 billion by the end of the decade. Among the members of the Commonwealth of Independent States (CIS), with the exception of the Russian Federation, market capitalization was even less than US$1 billion and, expressed as a share of GDP, level with that of Estonia and Hungary. As a consequence of low turnovers and small market volumes, information processing costs and contracting costs are high (see Fabozzi and Modigliani, 1992, pp. 8, 17). Even assuming good progress in macroeconomic and legal reform, the market capitalization of all transition economies is projected to be about US$150 billion, equalling just around 4 per cent of today's global market capitalization. There are growth prospects for the markets in Central Europe and the Baltic States, but under World Bank projections only the Polish financial market capitalization would exceed US$20 billion at the start of the twenty-first century.[72]

Many transition economies still need to focus on developing the basic infrastructure for a financial system, including stronger legal rights for creditors and shareholders, better information, greater disclosure, well-governed institutional investors, and supportive public and private institutions. In many CIS countries it is inflation, large-scale expropriation and limited trust in contracts and institutions that discourage people from investing in any financial assets. Furthermore, given their small size, most countries (except perhaps the Russian Federation) will find developing substantial stock markets to be very costly. They should instead aim to develop their banking systems and open up access to the international market for domestic borrowers. A potent banking sector would also be the most effective way to foster the development of small and medium-size enterprises, which are the key to economic growth.

As long as financial markets in transition countries remain poorly developed, pension funds will accumulate only slowly. The non-accession countries in particular have little chance of investing accumulating funds abroad because their national currencies are not convertible. Keeping funds within national boundaries may be considered a development advantage at first

glance, but it may easily turn into a severe economic disadvantage for workers as long as the local financial markets remain underdeveloped.

For some EU accession countries there might be an option of investing pension scheme reserves in the established EU markets, thus probably better safeguarding workers' and employers' contributions from fraud or other types of misuse. These countries' stock markets are not very likely to endure independently but will probably merge with bigger European exchanges. Many countries have already harmonized most of their financial laws with those of the EU. Moreover, corporations increasingly seem to use foreign jurisdictions to help define property rights. This part of financial market regulation puts EU accession countries far in the lead of other transition countries.

6.7.3   Investment in support of national development plans

In many countries, especially in the developing world, social protection reserves have been used to support national development plans. Such policies can be perceived as a special realization of possible asset management strategies like, for example, an SRI strategy (see section 6.6.4). If managed prudently, such policy approaches can be considered justified to the same extent as any other investment strategy. In reality, they have often been considered conform to the investment principles stressed by the ILO, even if this was not always the case.

The advantage of such policies has been seen in their twofold function of pursuing a social security goal (building up pension entitlements, for example) together with a broader development goal which, if successful, in turn enhances social security. In simplifying to some extent, this approach was part of the post-Second World War capital-led approach to international development aid. The 1994 World Bank publication on averting the old-age crisis can be interpreted as a late replay of that policy approach – late because discussions within the international development community have long since gone beyond the belief in simple linear development triggering effects of capital accumulation.[73]

In principle, the execution of such investment policies is conditional on the solution of the same problems as discussed elsewhere in this chapter. Priority must be given to an adequate return on the investment at minimal risk and maximum liquidity. High professionalism of fund management is required to optimize the financial outcome for the stakeholders of the social security scheme. Then, broader social and economic development aspects may come to the fore.

National development plans often aim to build up, improve or maintain public or public–private infrastructure. The former context includes roads, bridges, hospitals, schools, and so on, while the latter involves public measures

in preparation for private tangible investments ("technology parks"). The idea is that all such measures in the long run broaden the taxation base because they foster economic growth and can thus be used to pay back the instalments, including interest, to the social security fund. Although theoretically attractive, in reality most of these approaches have failed, fully or in part, especially in the least developed countries. Their failure can be laid at the door of poor governance, a concept already discussed in various sections of this chapter.

Investments in real estate are one example of a typical element of social protection reserves used in a national development plan. Many pension funds, especially in developing countries, seriously investigate or have embraced this option, for social reasons and in order to support national development. Such investments are considered as a safe haven to protect workers' contributions against loss, since real estate is seen as constituting "real value".

The following few points are highlighted for consideration:

1. As with any other asset, the current value of a single house, apartment building, office building or a building hosting retail stores or other types of (industrial) business depends on the future flows of funds generated by the building in question. The present value of a building may often greatly distort the actual costs of construction. Even if these were high owing to the high quality of construction work and of the material used, the present value may be low: if business is down and the environment changes for the worse expected rents will subsequently be low. Conversely, if the construction costs were low but monetary demand for apartments and office space is high, then the present value of the building is high because high flows of funds can be expected.

2. Net rates of return of investment in real estate very much depend on the specific circumstances concerning the building. In any case, if the investment is made with the aim of selling the building right after construction on a profit basis then sufficient demand needs to be effective. Demand can normally be "leveraged" only if an adequate financing instrument was tailored to the needs of potential real estate buyers. If, alternatively, the aim is to retain property of the building over the longer run (as is often the case with life insurance companies), then the initial good quality of the property must be maintained over that period, for two main reasons: (i) the owner wants to be able to increase the real rent from time to time – which the fund can do on a fair basis only if the real value of the object increases; (ii) the owner may, in the longer run, want to sell the real estate. In order to obtain a good price, the property must be in good condition. In other words, investment in real estate is costly and the rates of return to be expected are low. The overall rate of return may be high only if one includes the amount to be cashed in once the building is finally sold.

3. Investment in real estate can be very profitable if it is part of a general development plan for a community or a region. In this case initial investment costs (land, construction, infrastructure) might be low but real estate value increases subsequently if the surrounding area is developed positively.

4. Investing in real estate for social reasons normally means that the institution holding the property must be subsidized in one way or another. In such cases, rents often have to be kept below cost-covering levels. This means that either maintenance cannot be financed at the required amounts or the owner of the property has to finance it out of "other" revenue, which – in case of a social security institution – might be general contribution income. Also, rents might be low compared to rates of return achievable if the contributors' money had been invested alternatively. This could, in turn, negatively affect benefit levels to be paid to the contributors at a later date.

The above points show the interdependence of the real estate market with overall economic development. Contradicting deep-seated belief, it can be argued that real estate markets are also volatile but react differently from other markets, showing a higher turnover rate with substantial time lags on changes in the relevant economic environment.

In general, private funds or insurance companies tend to hold only a limited portion of their assets in this form. The Danish pension fund described in box 6.4, for example, holds only 5 to 7 per cent of its assets in real estate. Institutions consider these investments to be steady and reliable, producing low but solid returns, if maintained well.

6.8   WHAT COMES FIRST: PENSION FUNDS OR FINANCIAL MARKETS?[74]

Assuming that all over the world social protection financing will in future be based increasingly on funding, primary markets will have to play a growing role in attracting and successfully placing IPOs. Only if the new and growing[75] pension funds meet a growing supply of assets on the primary and, consequently, secondary markets, will they be able to invest their stakeholders' resources at fair prices. Otherwise, financial markets might not be buoyant enough to meet the pension funds' rising demand, and this might result in long-lasting price bubbles, possibly leaving pension fund contributors with false hopes for high pensions on retirement.

For countries wishing to reform their pension system but lacking an efficient financial market sector, questions of reform sequencing arise. We will address here the advantages and disadvantages of introducing pension systems with a mandatory fully funded tier in an environment of underdeveloped financial markets, which has been done recently in many Eastern European countries (see Müller, 1999).

Imagine a country lacking all basic elements of a functioning financial system:

- no solvent banks and insurance companies;
- no organized markets for bonds and equities;
- no long-term financial instruments and annuity products;
- no experienced regulators and supervisors;
- no bankers, actuaries, accountants or lawyers;
- no rating agencies.

Introducing a fully funded pension system under these circumstances seems hardly feasible, as even PAYG social security systems would suffer from administrative deficiencies. It has been argued, however, that even in these "non-starter" circumstances such a pension reform would nevertheless be advisable, provided that three preconditions are met (Vittas, 1998, p. 2):

1. A strong, long-term and persistent government commitment to implement the pension reform successfully.
2. Introduction of effective arrangements for the safe custody of pension fund assets.
3. Free access to foreign expertise.

The first implies a comprehensive reform approach, including a willingness to address simultaneously and with equal rigour the issues of banking, insurance, capital market, as well as macroeconomic and fiscal reforms. It also requires that successive governments, even if representing opposite sides of the political spectrum, commit themselves to the same set of reforms and move in the same direction. If this is the case, then the other two prerequisites can be considered derivatives of the first.

If such an approach exists, the answer to the question "What comes first?" is obvious: reform aimed at introducing funded pension schemes must not take the lead – at best it can be parallel to the other required reform strings addressing the creation of functioning market structures.

In the political discussion, advocates and opponents of the introduction of funded pensions would apply different measures as to what aberrations from the "ideal" market conditions are tolerable, whereas both groups would probably agree that "patience and persistence [are] strongly to be recommended" (Vittas, 1998, p. 6).

The proponents of funded schemes would allow for relatively high aberrations. For example, they would be satisfied with a reform prerequisite consisting of a commitment to macroeconomic stability and accompanied by a small number of sound and well-functioning banks and insurance companies.

In addition, they would argue that the relatively limited resources of pension funds could initially be invested in treasury bills and/or bank deposits; as funds increased, growing portions could go into long-term government bonds and corporate securities.

The opponents, on the other hand, would allow for only small aberrations. They would demand proof of a reliable commitment to macroeconomic stability and require more than just a partially functioning banking sector. Depending on the country's particular circumstances, meeting these conditions may take a long time. Yet, the opponents are concerned that, once the funded scheme is introduced, reversing to different pension systems would be possible only after accepting high additional costs for the stakeholders of the old as well as the new system.

Concerning the commitment to stable macroeconomic policies in order to secure the purchasing power of pension benefits, the proponents would argue that the time when governments used high inflation to solve their debt problems is definitely over and done with. The opponents would answer in turn that some countries in transition and some developing countries, especially in Africa, have not yet shed this policy (or, as is the case in some transition countries, that failure was due to limited experience and lack of success on the part of international advisers).

From the point of view of economists stressing the innovative role of entrepreneurs, the discussion on the installation of an effective capital market and its sequencing is an artificial one. They would argue that if sound entrepreneurship exists (which is a prerequisite for a functioning market economy, anyway) then expanding businesses would automatically attract financial investment and the capital market would evolve accordingly. In the absence of entrepreneurship the accumulated monies could not be profitably invested, in which case instituting funded pension schemes would just deprive contributors of consumption, thus weakening demand and reducing business incentives. Then, in closing the circle, investment opportunities would be lost.

In this context, the importance of entrepreneurship as a prerequisite for the development of financial markets should not be underestimated. Enlarging investor portfolios and stock market volume is only viable in an environment of entrepreneurs creating new business. Indeed, no serious government would start "funded pension" reforms in order to develop financial markets.[76] Developing financial markets is not the task of pension funds, but the role of entrepreneurs. If entrepreneurs do not have sufficient own resources then demand for financial means to bridge temporary non-liquidity will automatically become economically significant. Therefore, it is not so much the short supply of savings that limits the development of financial markets in these countries, but the (excessively) small number of entrepreneurs that have sustainable business ideas and are ready to take on the risk of business failure.

6.9   SUMMARY

Equity markets were never far from the spotlight in recent years for they seemed to promise dizzyingly high returns on investments, especially in the form of windfall profits. Not surprisingly, they also attracted the attention of social protection as they appeared to offer the possibility of improving the income and wealth distribution of societies by broadening ownership participation of labour in capital. However, past performance of individual assets – although following an upward trend for the overall markets – was quite volatile, putting equity among stakeholders of pension funds at high risk. Whatever calculation method was used, all established stock indices showed very strong increases over the period 1980–2000, but also a steep decline since 2001.

This volatility should be kept in mind when pushing social protection reforms in the direction of more funding. The risks involved with stock investments have to be carefully taken into account when setting up and reviewing rules on the extent to which stakeholders' contribution may be invested in stocks and securities, for example. The development of the Dow Jones Index over the last 20 years and its nosedive in 2001 (together with the indices of most other exchanges around the world) reaffirm the findings set out in box 6.2.

Contrasting the short-term volatility argument of equity with a long-term view, the attractiveness of stock investment seems to be reinforced. The annual real return of equity assets for almost two centuries, from 1802 to 1998, was 7 per cent on average (Diamond, 1999, p. 5). With the latest rise in stock prices, equity investment accounts for a substantially smaller dividend return than the long-term benchmark, as dividend payment remained at the same level. To reconcile the short-term observation with the stable long-term prospects, either a rise in GDP growth or a drop in stock prices (according to the Gordon formula) would need to take place. Assuming a ten-year period to adjust from a current 3-per cent dividend yield to a 7-per cent return thereafter, stock prices are calculated to decline by 33 per cent (ibid., p. 13). Yet, apart from a dramatic downturn in stock prices restoring them to historical levels, it would also be feasible to assume lower rates of return for an extended period, abandoning historical data values.

Policies promoting large-scale introduction of funded pension systems, especially during their accumulation phase (that is, before maturing), implicitly or explicitly rely on the long-term existence of primary markets. In other words, they rely on the continued readiness of the owners of fixed assets to go public. If for whatever reason the primary markets were to dry out, then pension funds would have to invest in secondary markets only. In countries without a developed banking system[77] through which investment could be channelled into attractive investment projects, alternately to primary and secondary markets, pension funds are set to compete with other private and institutional investors. The latter could easily be crowded out of these markets, given the

enormous purchasing power of pension funds.[78] It could be expected that asset prices rise and returns on investment would be limited. Generally, the market would be distorted once the "big players" come on the scene.

The volume of big pension funds raises concerns of a shift in ownership and hence in control of national tangible assets. For illustration, sample data of emerging markets' private long-term debt and equity issuance are compared with invested pension fund contributions. Pension funds may raise 2.5 per cent of GDP in contributions under the assumptions of a labour income share of 50 per cent of GDP, a contribution rate of 5 per cent of wages and full compliance. Under slightly changed assumptions of a labour income share of 40 per cent and a 10-per cent contribution rate, the collected funds to be invested annually would even account for 4 per cent of GDP. Such funded pension schemes could without difficulty absorb *all* IPOs, thus gradually monopolizing ownership in the economies. This scenario could easily come to pass, especially in transition countries. If annual supply of savings is higher than annual IPOs, then pension funds would be competing on the secondary markets for financial instruments issued earlier, again contributing to an insidious monopolization of the economy.

A checklist of questions for financial and social policy analysts

When dealing with the issue of investing social insurance reserves or of improving such investments, answers to the following list of questions could be helpful prior to action:

1. What is your country's general economic situation? Is growth steady or volatile? Labour productivity? Inflation rates? Exchange rates? Convertibility of your national currency?

2. Does your country have a formal financial market? Who, institutionally, are the financial intermediaries – banks, stock markets? How active is the primary market? Are statistics about domestic IPOs available? Are the main issuers public or private? Secondary market: Level of market capitalization in relation to GDP? Liquidity: Market turnover?

3. Are the formal markets in your country regulated and actually operating according to international best practice?

4. Investment policy guidelines: Does your institution have to support actively (through its concrete investment decisions) national development goals? How independent is your institution with regard to its investment decisions? Do written investment guidelines exist? If so, have these been made "tangible" by (a sequence of) investment strategy papers?

5. Analytical resources I: Does your social security institution have institutionalized (continuous) analytical capacities available (or access to such capacities at reasonable cost) to carry out financial

market analyses, nationally and internationally, on a permanent basis?

6. Analytical resources II: Does your social security institution have institutionalized (continuous) analytical capacities available (or access to such capacities at reasonable cost) to carry out economic research (business cycle and structure of the economy, its competitiveness, growth prospects, either *in toto* or in segments) on a permanent basis?

7. What are the pros and cons of managing investments in-house? Should investment management rather be outsourced?

8. Your institution's liquidity needs: How much of your fund's reserves can be invested long term (equity, real estate), and how much needs to be kept in money-market instruments? Is a clear pattern of future changes in the institution's liquidity needs readily available?

Further reading

To find out more about:

- Financial markets, their functioning, their interaction with the real economy, valuation techniques and the like, you should read at least one of the following two books:

    – Fabozzi and Modigliani (1992)

    – Bodie et al. (1996)

- Turn-of-the-millennium problems relating to and links between savings, institutional investors and financial market developments, see:

    – Catalan et al. (2000); Claessens et al. (2000); Day and Jamieson (1980); Mathieson and Schinasi (2001), Chapter III: Emerging Market Financing; Vittas (1998)

- Investor protection at formal financial markets, turn to La Porta et al. (2000).

Notes

[1] This proportion of the collective amount would normally be transferred if the individual changes from one scheme to another, for instance as a result of relocating abroad, provided that the two countries have concluded a respective bilateral agreement.

[2] The terms "deficit" and "surplus" unit are used here in a broad sense: a unit can be in a deficit position even if it has a net surplus of financial wealth but nevertheless requests capital on the financial market as it is not ready (for whatever reason) to use its own resources for investment purposes.

Similarly, a unit can be in a surplus position even if it had to borrow the liquidity from a third party. Therefore, the two terms do not relate to the profitability or financial standing of the unit.

[3] For a further illustration, see Fabozzi and Modigliani (1992), pp. 5–6.

[4] Some actors on financial markets do not match the characteristics of entrepreneurs, e.g. consumers, banks (in their function as intermediaries on financial markets) and governments, but they do take out loans. These are then serviced through redistributed asset funds, which – in principle – are raised by entrepreneurs.

[5] In the case of a credit contract, the probabilities stated would indicate the likelihood of repayment of the principal and interest on the amount transferred.

[6] In modern economies the bulk of investments are financed directly out of retained profits and not through the financial markets.

[7] In fact, the stable existence and trade of such instruments is one indicator for efficient (i.e. transaction-cost minimizing) markets. Whether market institutions are efficient depends on opportunity costs determined by prevailing behavioural codes of business conduct, market size and the legislative setting. Historically, the existence of banks and other financial intermediaries may be "rationalized" on different grounds.

[8] See, for example, La Porta et al. (2000).

[9] A useful list of fixed assets may be found in Commission of the European Communities et al. (1993), p. 223.

[10] For simplicity's sake, here we disregard any "pathological" cases of non-proven / non-existing ownership rights.

[11] Also, not all such contracts (claims) create a positive income stream to their holders.

[12] In this context, the word "financial asset" is used here in the broadest, unspecified sense. To become a financial asset that would be accepted for trade on regulated markets, such an unspecified financial asset has to fulfil a certain minimum set of safety criteria.

[13] In principle, these considerations are true not only for market economies but also in relation to the former communist countries (including the few still existing). In these latter cases one can say that the respective legislation (stipulating people's ownership of the means of production) is the "financial asset" reflecting value and ownership of the (totality of) fixed assets of the socialist economy. Of course, fixing the "value" could turn out to be an impossible mission.

[14] This is a strong statement, which (empirically) holds true only in the longer run. It takes into account (and explicitly acknowledges) the existence of stock market "bubbles", but argues that there are in-built market mechanisms forcing bubbles to implode, sooner or later, in order to re-establish the stated match between the "real" and the "paper" value of the economy. We consider the 2000–01 fall on the markets a proof of this assumption.

[15] Readers unfamiliar with the basic economic flow-of-funds theory are advised to refer to a modern standard textbook on macroeconomic theory. This will not only help them to follow this discussion more easily but will also broaden the perspective of all those who are or will be responsible for the investment of social protection reserves in the financial markets.

[16] Fixed assets include: dwellings; other buildings and structures; machinery and equipment; cultivated assets (land, trees and livestock); mineral exploration; computer software; entertainment, literary or artistic originals.

[17] This is of course a simplification: GDP is in fact the difference between output and input, both of which have to be meaningfully defined. Also, GDP is only the most commonly known and used measure of the results of economic activity. Details on other measures may be found in Commission of the European Communities et al. (1993), pp. 121–156.

[18] Determining theoretically what constitutes a "fair" share of remuneration attributed to the production factors is a classic problem of economic theory.

[19] Again, we simplify. Savings, in a national accounts context, is all disposable income (production) not used for consumption. For example, unsold production is considered "investment in stocks" (= savings). Such details are disregarded here.

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[20] It is assumed that capital stock growth is a result of investments moving along the "technology frontier", i.e. the most recent technology affordable.

[21] von Hagen and von Stein (eds.) (2000), p. 412, Figure 94.

[22] Aylward and Glen (1999), Table A.1 (Primary Market Activity).

[23] In theory, entrepreneurs invest their monies in those investment projects which promise the highest returns. If the business is not their own, they might lend their monies to the higher-yield project, and, at the same time, may find an investor for their own projects outside their own business (be it because of different risk-aversion considerations, lack of information on third party, etc.). This argument is sometimes used to explain the high observed amounts of gross capital flows, yet small net capital flows.

[24] One of the most creative contributors to theories about the mutual roles of innovative entrepreneurs and financial markets in modern economies was Joseph A. Schumpeter. In his *Theory of Economic Development* (1911), Schumpeter basically argued that entrepreneurs create technical and financial innovations in the face of competition and falling profits, and that it is these activities that induce economic growth.

[25] An investment is here seen as successful if it creates income that at least permits the amount borrowed plus interest to be paid back. This is a minimum requirement. Normally one would expect that an investment create income to the extent that also allows for a profit that can be (partially) reinvested.

[26] If private and public entities compete over resources, crowding-out effects are immediately suspected. Creditors are likely to prefer sovereign debt because non-servicing and default risks are lower (depending on the debtor's reputation), yet public investments do not necessarily have to follow the same return-maximizing principles as private business investment. Public debtors may attract investments because they offer better interest and servicing conditions but may have inferior efficiency records compared to private businesses, leading to an economically sub-optimal allocation of investments.

[27] It might be noted that private insurance companies' moves during the 1990s aimed at introducing private unemployment insurance on a fully funded basis have come to a halt. This is because, unless financed on a social solidarity basis, members' individual contributions would have to be prohibitively high.

[28] There is a theoretical argument that supports this expectation by stating that companies, once they have gone public, are bound to be especially profitable also in future because otherwise they would lose market value and thus no longer be able to finance business expansion by tapping the savings of private and institutional investors.

[29] This is what obviously happened to the stock prices of the "new economy" during the late 1990s.

[30] The process of correcting such price bubbles can result in dangerous economic situations. Examples of such downward price corrections may be found in Japan (which has been suffering economically since the beginning of the 1990s from the earlier price bubble on the domestic real estate markets) and the many banks and other "global players" whose national and international investment strategies were based on the assumption of further rises in stock market indices. In the face of failed expectations since 2001, they are now in a process of writing off the assets in their balance sheets; in some cases this has had dramatic implications for their profit development and, what is especially important from a social policy viewpoint, resulted in substantial cuts in employment.

[31] The case where no buyer is found for all or parts of the issuance is, in this context, equivalent to non-issuance.

[32] Related concerns have been indirectly expressed by the World Bank. With respect to the Asian crisis in the late 1990s it was argued that it is because of budget surpluses that governments fail to play a leading role in developing fixed-income markets. See Del Valle Borraez et al. (1998).

[33] Most often, the functioning vs. malfunctioning of a country's economy and the effectiveness vs. failure of its financial intermediaries are positively correlated.

[34] For further details see, for example, Day and Jamieson (1980), p. 199.

[35] See ILO/ISSA (1997), pp. 101–103.

[36] See Bodie et al. (1996), pp. 395, 406–407.

[37] For example, http://www.senate.gov/~gov_affairs/012402partnoy.htm provides a very interesting account of the Enron story, including some realities of United States financial markets at the beginning of the twenty-first century.

[38] Elisabeth Hehn (ed.) (1998), p. 294.

[39] "Risk" is here represented by the standard deviation of the average trend of the equity index.

[40] Finding out such relations by fine-tuning and applying formal mathematical models is one of the main tasks of financial markets analysts. Concrete model versions belong to the usually classified assets of financial analyst companies.

[41] For the details of mathematical statistics the reader is advised to refer to any modern standard textbook on empirical and mathematical statistics and probability theory.

[42] For details see http://www.aimr.com/standards/pps/.

[43] For details of calculation methods see, for example, Bodie et al. (1996), pp. 60–67.

[44] There is no single definition of the term "blue chip". However, it is used to describe well-known, brand-name companies that have reported growth and sound profits and paid dividends reliably over the long term. Blue chips are considered safe investment opportunities, offering a stable development rather than peak yields.

[45] *The Wall Street Journal*, May 3, 1991, quoted in Bodie et al. (1996), p. 66.

[46] The geometric mean, by construction, always produces results smaller than those calculated by an arithmetic mean.

[47] This section is largely based on the content and structure of Bodie et al. (1996), Chapter 17: "Equity Valuation Models", pp. 521–559, which provides excellent reading.

[48] The ratio between market price and replacement cost of a firm is James Tobin's famous "q".

[49] The risk-adjusted concept starts from the observation that an investor in stocks expects higher returns from this investment than from a "safe" investment (e.g. bonds). Thus, simplified, k equals the risk free interest rate of, say, government bonds plus a risk adjustment that depends on the degree of risk which the stock in question adds to the overall market volatility. For details see Bodie et al. (1996), pp. 236–265 ("The Capital Asset Pricing Model" – CAPM).

[50] Estimating D1, D2, D3, until infinity is obviously a tough job!

[51] For a proof of formula 6.6, see Bodie et al. (1996), p. 526.

[52] Bodie et al. (1996), pp. 528–536.

[53] For a detailed discussion, see Bodie et al. (1996), pp. 536–541.

[54] This section is based largely on Bodie et al. (1996), pp. 386–422.

[55] Principal repayment, the final payment made at the date of maturity, pays back the "par value" or "face value" of the bond.

[56] Although the percentage change in the market rate is one percentage point in both cases, and the equivalent differential in the face value to a one-percentage-point change would give the same amount, for the above calculation it is the percentage rates which are set in relation to the base value, resulting in non-symmetric percentage change differentials.

[57] For details and further reference, see http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=17.

[58] Accordingly, in case of a combined index both domestic and international macroeconomic forecasts would have to be available.

[59] Notwithstanding legislation that might still regulate, for better or worse reasons, regional investment decisions of public institutions or private institutions with a public mandate.

[60] The full text of the Convention is available at www.oecd.org.

[61] See Socially Screened Mutual Fund Statistical Summary: 1999 Report: Comparative statistical information on 183 screened mutual funds versus unscreened funds, at http://www.socialinvest.org/areas/research/other/FundStats_1231-98.htm.

[62] Depending on the screening criteria, up to 50 per cent of the stocks found in the S&P500 index are excluded; consequently, the risk exposure of screened funds against unscreened funds seems immediate. Moreover, certain large companies that account for large-volume issuances are frequently

screened out of SRI-committed funds. The fact that entire industries (e.g. tobacco, oil producers) are not reflected in the funds adds an element of risk to the funds' risk profile.

[63] Social Investment Forum: 2001 Report on Socially Responsible Investing. Trends in the United States, November 2001, available at http://www.socialinvest.org/areas/research/trends/2001-Trends.htm.

[64] Aylward and Glen (1999).

[65] This would probably also hold true if informal GDP were taken into account.

[66] See Mathieson, Schinasi et al. (2001), Chapter III: Emerging Market Financing, p. 51.

[67] Following Standard & Poor's classification. For details on rating systems, see, for example: http://www.britannicaindia.com/eb/spotdisplay.asp?spotid=991&pgid=3&cid=4.

[68] This section is broadly based on Scholz (2001).

[69] See Del Valle Borraez et al. (1998).

[70] See Aylward and Glen (1999), Table A.1.

[71] Market capitalization (market value) is the share price times the number of shares outstanding.

[72] By comparison, the balance sheet of Deutsche Bank Group accounts for 42.5 per cent of Germany's GDP (1999 figure). The amount of US$20 billion represents just 2.5 per cent of the Group's balance sheet.

[73] The most recent proposals for North-South income redistribution seem to be getting greater attention instead of being dismissed outright. See, for example, the ILO's Global Social Transfer initiative (ILO, 2002c).

[74] This section is largely inspired by Vittas (1998) but reaches significantly different conclusions. It may be interesting to recall that much of the general public's devastating privatization experience in the former communist countries of Eastern Europe and Central Asia during the early 1990s can be traced back to the virtual non-existence and/or non-performance of primary markets. See, for example, Uvalic and Vaugham-Whitehead (1997).

[75] Growing in terms of funds available for investments in assets.

[76] See, for example, Catalan et al. (2000).

[77] When channelling money of surplus units to deficit units, banks perform the same role as primary markets.

[78] Here we disregard the possibility of direct investment in individually owned businesses.

FINANCIAL GOVERNANCE

7

This chapter completes the body of knowledge and the set of instruments that financial planners and managers of social protection systems require in their work. Assume that the financing system of a national social protection system (NSPS) has been designed giving due consideration to the possible macroeconomic and fiscal effects, the right financial instruments have been selected, and the management of the reserve is flawless. In short, all the techniques and considerations developed in the previous chapters have been successfully applied. What is left then for financial managers and planners to do? They need to make sure that the resources entrusted to the social protection schemes or systems are used effectively and efficiently so as to avoid waste or deficient delivery of promised benefits.

Inefficiency and ineffectiveness set off a chain of events that can lead to the demise of the entire system. They undermine the credibility of any NSPS, and credibility is a social protection scheme's most important capital. The lack of credibility will trigger declining compliance which will in turn trigger financial problems which will aggravate the credibility problem, and so on. One of the main shortcomings of many national social protection design processes, for example, has typically been that the society in question was not made aware of the long-term natural cost increases along the maturity pattern described in Chapter 2. Generous and inherently costly pension schemes were often initiated with low contribution rates which were fully adequate when the scheme was still "waiting" for its first pensioners to claim their benefits, but became insufficient once the scheme entered the steeper maturation phase. Necessary hikes in contribution rates were too often delayed for political reasons, with the result that ultimately the rate increases necessary to establish a new period of equilibrium were so big that they were politically unsustainable. Benefits would then deteriorate in an effort to contain costs, with often disastrous effects on the scheme's credibility. The failure of a considerable number of schemes can be traced back to bad governance.

Even if inefficiency (i.e. waste of resources) does not lead directly to a system's downfall it might still have high opportunity cost in terms of forgone

social protection. There are social insurance pension schemes in some developing countries with administrative cost ratios that exceed tolerable levels by a very high margin. In some cases, halving these ratios through good governance could free enough resources to finance a 50-per cent increase in the resource base of national public health schemes.

Financial or quantitative planners and managers are in charge of developing and employing the tools that help to ensure sound governance practices in all financial matters of social protection. Good governance in a broader sense is the subject explored in this chapter.

Cichon and Samuel (1995, p. 2) define the term "governance" in the context of national social protection systems as follows:

> ... we include under governance all consultative and decision-making processes, institutional arrangements and managerial and administrative action by which social protection policies are designed, agreed upon, implemented and supervised. The definition encompasses the first blueprints for a social protection system in government or other institutions, the national consultation process, the legal enactment and finally the managerial and administrative implementation and the national and lower level supervision of the performance of individual social protection systems. Hence the term governance covers all policy, managerial and administrative means to make social protection work. A system of governance for a social protection system is a set of legal and institutional arrangements designed to achieve the following two main objectives:
>
> (...)
>
> - Determining a socially and economically acceptable level of social protection through democratic distributive structures.
>
> - Ensuring that benefits are delivered effectively and efficiently through a democratically supervised administration.

For the purposes of this book, financial governance is considered as the set of all instruments of the overall system of governance of an NSPS that focus on ensuring:

(a) effectiveness (that the social protection system delivers the level of protection envisaged by the law(s) and policy objectives);

(b) efficiency (that it does so in the most efficient way possible);

(c) sustainability (that it is financially, fiscally and economically sustainable over the long term and assists decision-makers); and

(d) transparency (that the use of resources in the social protection sector is transparent).

We are aware that this is a fairly broad definition and that it actually involves quantitative analysts (i.e. financial managers and planners) in all aspects of social protection governance. This is fully intended. Indeed, we

believe that financial managers and planners have too often been excluded from the design and governance of systems and schemes, which is detrimental to the latter's performance. Ultimately they are the custodians of resources entrusted to social protection schemes that organize the transfer of these resources between different population groups.

To achieve social policy objectives, financial planners and managers have two sets of instruments at their disposal: legal and managerial.

The first type comprises all laws and regulations seeking to enforce social protection objectives set by a country's parliament or government. These instruments, aimed at the management and administration of the scheme, range from the framework legislation setting out clear definitions of levels of protection to rules and regulations governing the investment of social security funds or the accounting system of social security institutions. Only when the objectives and standards of good governance are clearly and measurably defined can the effectiveness and efficiency of the schemes' performance be ensured. Financial managers and planners must therefore be involved already at the design stage of the scheme and the formulation of the legislation to ensure that the objectives defined remain objectively verifiable. The first part of this chapter thus provides an annotated and hierarchical list of legal instruments that they have to use in order to carry out the tasks that have been assigned to them.

Managerial instruments, on the other hand, are planning and supervisory instruments used to manage and control the performance of schemes in respect of specific targets derived from the overall objectives set by the legal framework. These instruments generally:

(i)   describe or project system performance in the form of statistics, accounts or budget projections, and

(ii)   with the help of performance indicators, compare scheme or system outcomes or processes to chosen benchmarks.

The second part of the chapter provides a wide range of hierarchically ordered managerial instruments. We do not expect each scheme to use them all. Our main purpose is to encourage planners to select and design a set of instruments that will both generate regular measurable information and help to assess performance.

However, more than the earlier ones, this chapter is in many respects a construction site. It does not offer ready-made answers. Still, difficulties in the design and application of sound instruments of financial governance should not be used as an excuse for not attempting to develop governance systems. This chapter may be tedious reading, but beneath the surface is a fervent plea for us all to work towards building good legal frameworks that set clear objectives and indicators that will help monitor the achievement of social policy aims.

7.1 BASIC LEGAL FRAMEWORK AND INSTRUMENTS OF FINANCIAL GOVERNANCE

Legal instruments form the basis of any social protection system. They range from basic framework legislation governing principal entitlements and benefits to regulatory frameworks for their administration, enforcement and supervision. The most important role of a basic legal framework is to define the objectives of a particular social protection system. From a governance point of view it thus defines the fundamental benchmarks against which the performance of the various schemes should be measured.

Specific legal instruments are necessary to ensure the effectiveness, viability and transparency of a social protection system's financial governance, and they are intimately linked to that system's performance. Governance systems are extremely diverse, but a general typology can be established on the basis of certain common features.

Social protection schemes and systems have developed over time, influenced by traditions, social and cultural values, and social and economic change. By the same token, the legal instruments that govern them have evolved from simple, informal arrangements based on family, community and non-profit relationships into complex social institutions that are constantly extending their scope. This development has brought with it an increasingly intricate legal structure, particularly in view of the growing trend towards mixed (public–private) provision of social protection programmes.

7.1.1 Framework legislation and relation to other legislation

Some countries establish the legal foundations for different aspects of financial governance – for example, benefits and financing – in their own national constitutions. Others have developed a body of specific legislation to safeguard citizens' rights to social protection. In general, sooner or later all countries establish comprehensive legislation to cover different types of social risks. In the United States, for example, the 1935 Social Security Act was a response to economic insecurity generated by the Great Depression. That year, two national-level social security programmes were established to mitigate the risks of old age and unemployment. The various states also provided grants to implement means-tested programmes, along with other general social assistance programmes. Financing for the social protection programmes for old age and unemployment was also included in this comprehensive legislation.

Another important aspect of financial governance involving the legal aspects of social protection systems arises from the country's own institutional structure. Countries that have developed from the start as unified nations (that is, as single entities) tend to have less fragmented legal systems, whereas

countries based on federations are more fragmented. Many of them have nonetheless managed to create national legislation establishing mechanisms for coordinating social protection programmes and making their benefits portable, particularly for migrant workers. This issue has taken on new importance in the context of globalization and international integration since as a result of these trends workers and their families will, during their lifetimes, belong to different labour markets governed by different legal regulatory frameworks. The problem of harmonizing these frameworks and making them compatible is of growing concern.

The decentralization of social protection systems is another relevant legal issue, with important consequences for system performance. The larger the pool of people sharing risks, the more viable insurance coverage is likely to be. Moreover, one of the traditional objectives of social security – namely, the redistribution of income – would be badly compromised if programmes were not managed and coordinated in a centralized fashion. According to public finance theory on fiscal federalism and decentralization, this function should be performed by the federal government. Legislation should thus favour unified schemes in order to reduce potential inequalities and inequities resulting from system fragmentation.

Another relevant consideration has to do with ensuring that social protection and other types of related legislation are both coordinated and coherent in terms of legal jurisprudence. Because programmes are composed of an interconnected set of social insurance and social assistance programmes, some aspects of their enforcement and regulation can generate institutional conflicts. Thus, some social protection programmes (for example, pension systems managed by private entities) nonetheless involve the participation of public institutions in their regulation, enforcement and supervision.

7.1.2 Regulatory framework for state-operated systems

In the context of state-run social protection systems, relevant regulatory issues basically involve accounting and auditing procedures, financial reporting, and supervision. Thus, regulations focus on establishing a management-administration and control structure that seeks to minimize any deviation from the objective of the common good.

7.1.2.1 Legal set-up

Some social protection programmes can provide significant elective benefits. This is a temptation for the State's political bodies to pressure the institutions managing these programmes to reassign resources for purposes other than those defined legally. Programme objectives may also be distorted when the budget of the managing institution forms part of the general public budget and is consequently subject to national fiscal policy objectives.

In this sense, the design of an administrative system that is legally independent of political interest groups and allocates its budget on the basis of programme objectives is crucial to the good management of state-run social protection programmes. A case in point is the Social Security Administration (SSA) in the United States. This is the body responsible for administering mandatory public programmes such as old-age, disability and survivor pensions. The SSA has been functionally and financially integrated in the government system since the late 1930s, and as a result its benefit programmes and institutional development were always closely affected by the vicissitudes of governmental fiscal policies. To solve this problem, in 1994 Congress and the executive branch agreed on a new law designed to give the SSA financial and managerial independence. It provided that the service would be headed by a commissioner appointed by the president for a six-year term, subject to Senate approval.

In the United Kingdom, public social security programmes are run by the Department for Work and Pensions (DWP), which is a governmental body created from the Department of Social Security (DSS) and parts of the former Department for Education and Employment (DFEE). Although this administrative body is part of the government, a series of institutional safeguards have been put in place to ensure that it is managed in accordance with the legally established objectives of the common good. The 1980 Social Security Act thus created a committee independent of government and sectoral interests which is responsible for advising the DWP and many social security programmes on matters pertaining to the public interest. The committee's functions include a wide range of social security programme reviews, which serve as the basis for regular reports and analyses concerning the performance of these programmes. The committee is formed by members appointed in consultation with representatives of workers, companies, and social security authorities themselves from the governments of the different countries that make up the United Kingdom. Moreover, the review and reporting process is carried out by competent technical experts widely recognized for their experience with the relevant issues. The committee is also subject to a code of practice and a registry of interests, in compliance with the standards established for advisory committees (SSAC, 2002). In addition, actuaries with the Government Actuary's Department (GAD) regularly evaluate DWP-managed social security programmes. The GAD carries out actuarial evaluations of the assets and liabilities of DWP-managed programmes when asked to do so by the DWP or Parliament.

In Latin America, social protection programme administration has traditionally been the province of public-sector or semi-public entities which in some cases are governed by bipartite (employer–worker) or tripartite (State–employer–worker) bodies. This institutional structure was designed to ensure that managers make decisions that are consistent with the common good. However, the system proved ineffective on many occasions. As a result, social protection programmes often departed from their objectives, a tendency further aggravated by policy-makers' inability to implement sanctions against negligent or corrupt managers.

These problems, together with economic and demographic factors, prompted radical reforms in most countries. The institutional and financial redesign of social security programmes focused largely on introducing privately managed schemes.

7.1.2.2 Audits and controls

Another aspect of state-run systems is *management risk*. The ability of a publicly managed programme to achieve its objectives is sometimes taken for granted. However, it seems clear that achieving goals is far from automatic and that consequently instruments for measuring and evaluating results and correcting inefficient methods are essential.

Supervision of state-run social protection systems must take place on two levels: one is accounts and procedures, where supervision focuses on formal aspects and on how well the required functions are performed; the other level involves necessary technical supervision that focuses on evaluating the relationship between the resources used and the results achieved, thereby measuring and evaluating programme efficiency. Public institutions are usually subject to a more or less generalized system of accounting audits, designed to prevent or punish inappropriate use of resources.

Nonetheless, any effort to generate management indicators for public bodies must first resolve significant methodological difficulties, among them the broadness and ambiguity of the definitions of objectives. Similarly, where products or services are provided free or significantly subsidized, beneficiaries are not always able to provide a suitable expression of their value since no explicit individual transaction has taken place. Moreover, the technical supervision or evaluation of social protection programmes is complex, especially when programmes are not managed by qualified, specialized independent bodies.

In the United States, the SSA regularly reports on its management in an annual, public Performance and Accountability Report. The United States public pension system, along with other programmes, is regularly evaluated from an actuarial perspective as well. A board of trustees prepares an annual report on the Federal Old Age and Survivors Insurance and Disability Trust Funds, which includes medium- and long-term projections (SSA, 2002).

Another element that helps control management risk is the obligation to publish wide-ranging statistical reports, thereby facilitating research and analysis by independent bodies such as universities and specialized study centres. In this way, irregularities become apparent and problems in the management of social protection systems are more easily detected.

In the United Kingdom, the National Audit Office (NAO) – a body independent of the government – audits all government departments and agencies, presenting reports to Parliament that assess the effectiveness and efficiency with which public resources are used. These reports cover the social protection system, especially public old-age, disability and survivor pensions, which consume a significant and growing portion of fiscal resources (NAO, 2002).

7.1.3 Regulatory framework for social insurance schemes

Social insurance, as a form of organized social protection, seeks to distribute the risks covered among all insured individuals. It also permits the establishment of benefits that are not necessarily proportionate to contributions, thus helping to correct income inequalities.

Social insurance may be administered by public or private (company or employee representatives), bipartite or tripartite entities, with each type of organization offering different administrative advantages and disadvantages. However, regardless of how social security is managed, the public interest or common good remains the supreme criterion for ensuring suitable management, which directly or indirectly also affects public opinion and hence programme legitimacy. To control the risk of ineffectiveness or fraud in these programmes, governments create specific regulations and monitoring and enforcement mechanisms, in addition to the evaluations and monitoring mechanisms to which the insured or their delegated managers may have access.

States attempt to prevent inefficiency and fraud by regulating insurance programmes. An interesting example worth mentioning in this context is the Chilean social security system covering occupational hazards and diseases. This system was created in the mid-1960s and its management assigned to non-profit mutual organizations; or, alternatively, in the case of a single company employing 2,000 or more people and meeting certain solvency requirements, the company itself could request authorization to manage its employees' insurance scheme. In the latter case, the company adopts a "self-insurance" strategy. Thus, the same law that created the insurance provides for its regulation and supervision by a single independent public entity called the Social Security Superintendency (*Superintendencia de Seguridad Social*), which defines mandatory financial and accounting standards to be followed by insurance managers, and is also responsible for enforcement.

7.1.4 Regulatory framework for mandatory private insurance schemes or occupational schemes

The regulation of mandatory private insurance or occupational schemes is probably the area that has generated the most attention in recent times with respect to public policies relating to financial governance. Pension and health care programmes have become the object of intensive structural reforms with the introduction of private management in many developing countries, particularly in Latin America and Eastern Europe. However, the subject is intensely debated in developed countries as well, including Germany and the United States, which are also discussing pension system reform.

The recent crises in many companies, particularly in the United States, have led governments to review regulations concerning *corporate governance*,

including occupational pension plans. One of these high-profile cases involved the recent collapse of the Enron conglomerate in the United States, which caused enormous losses to workers with occupational plans. Also in the United States, the performance of state public-employment pension plans has proven sensitive to the financial governance structure resulting from regulation. For example, Useem and Mitchell (2000) found that financial governance policies, especially independent performance reviews, affect the performance of investments and hence the level of social protection that affiliates will accomplish. Under the auspices of the OECD, the International Network of Pension Regulators and Supervisors (INPRS) has developed *Fifteen principles for the regulation of private occupational pension schemes*. These general guidelines (OECD, 2001d) also provide useful guidance on the contents of regulations for private occupational schemes. The most important financial elements are developed further in the following paragraphs.

7.1.4.1   Regulation of private mandatory pension systems[1]

The financial regime for private mandatory pension systems generally involves individual capitalization and its management by private entities in the form of limited companies set up specifically to manage pension funds and their benefits. A specific law governs the functioning of the system, while a state regulatory body responsible for enforcement and supervision, generally called a *Superintendencia* in Latin America, establishes specific regulations and standards. Moreover, the system enjoys the judicial protection afforded by legislation governing securities markets and private companies. Similarly, the general laws governing commercial financial entities protect investments in the financial system. Thus, regulation and supervision not only allow the State to guarantee minimum benefits, but they are natural complements to the state-imposed requirement that workers contribute to the pension plan.

Systems are designed to keep pension funds secure. They do this by three basic means:

(i)   separating pension fund assets from those of the managing entity;

(ii)   requiring that managers maintain assets (reserves) equivalent to a percentage of the amount of resources under management, guaranteeing (in some cases) a minimum profit level; and

(iii) requiring management entities to register as legally constituted companies.

The main regulations governing the pension system fall into two categories: financing and information/advertising.

Financial regulation

Financial regulation aims primarily to control risk assumed by pension funds and protect them from fraud. To do so, regulations define eligible financial

instruments, risk ratings and related factors, investment limits, authorized markets, custody of securities, privileged information and conflict of interest, foreign investment, accounting methods, and how investments are valued.

Authorized financial instruments. Pension fund resources can only be invested in financial debt instruments, capital instruments and their derivatives that are expressly authorized by law. The main requirement for all these instruments is that they must be publicly offered. Thus, they must be registered in the appropriate public registry, and information on them must be available to both the capital market regulatory body and the public.

Risk rating. In general, all debt issues receiving pension fund investment not issued by the State, including securities issued by financial entities, are subject to a risk rating. The rating is conducted by private, controlled agencies. In general, these are affiliated with the main international risk-rating agencies.

Limits to investment. In order to limit the amount of risk assumed by pension funds, the make-up of the investment portfolio is subject to several types of limitation on investment, which are set by regulatory authorities within a range established by law. In general, all limits on investment are expressed as ceilings, so there are no compulsory investments. Limits can be based on different criteria, categorized by financial instrument, issuer, specific risk (for example, real estate sector), group of instruments, or issues associated with the pension fund manager.

Authorized markets. Financial instrument transactions that involve pension fund resources can only be carried out in formal primary or secondary markets. This ensures that instrument buyers and sellers come together simultaneously to determine prices; it also guarantees that their transactions have the benefit of publicly available information, formally established mechanisms for negotiating instruments, and explicit internal regulations.

Custody of securities. All instruments representing pension fund investment must be held in the form of custody specified for this purpose and determined by the regulatory body.

Privileged (insider) information and conflicts of interest. To avoid conflicts of interest between pension funds and their managers, as well as inappropriate use of insider information by the latter, financial regulation creates a set of safeguards, including the following:

(i)   A stricture prohibiting pension fund managers from divulging information on fund investment decisions or using it for their own benefit or that of a third party; the law governing the securities market describes and penalizes such conduct as the use of privileged information.

(ii) Procedures for electing the candidates for whom pension fund managers must vote when they elect representatives to the boards of directors of companies in which they hold shares.

(iii) Internal control systems for pension fund managers, which must be externally audited in order to ensure compliance with conflict-of-interest standards.

Investment abroad. Investment abroad is subject to regulations stipulating eligible instruments, limits on investment per issuing entity, authorized markets, risk rating, and custodial conditions.

Accounting and establishing the value of investment. Specific regulations govern the accounts of pension funds and their managers. At the same time, the value of pension fund assets is generally determined on a regular and standardized basis according to the economic or market value of the investments. This system, applied uniformly to all funds, avoids undesirable transfers of wealth among system affiliates as the result of deposits and withdrawals from individual accounts. These regulations also establish safeguards for privately administered compulsory pension savings.

Regulations governing information/advertising

Ensuring the accuracy of the information and advertising issued by pension fund managers is vital so that those insured can select the right company to manage their funds. In general, managers must provide their affiliates with regular reports that include comparative tables showing the profitability of the various pension funds after payment of all commissions. These reports must also explicitly detail the commissions charged by each manager for administration and insurance.

Advertising by pension fund managers is also subject to important regulations. For example, they are not allowed to use arguments or situations that could confuse their affiliates. Advertising projected rates of return is forbidden if no mention is made of the commissions charged. The way calculations are made and the periods covered in a profit promotion are also regulated, and whenever the rates of return achieved by managers of a specific fund are mentioned, the average profit ratio for the entire system must also be pointed out.

7.1.4.2   Regulation of life insurance companies

Private life insurance companies play an important role in at least one tier of many reformed pension systems that rely on mandatory savings. Regulation of private insurance thus automatically becomes part of the overall regulatory framework governing the NSPS. Life insurance companies complement the pension system by:

– providing disability and death insurance, and
– supplementing individual savings arrangements by offering annuities that can be contracted by insured persons or their beneficiaries once the relevant entitlement conditions have been met (e.g. attainment of legal retirement age).

In many countries, pension system reforms have played a decisive role in the development of the life insurance industry. During the early stages, the most important effect is the institution of collective insurance covering the risks of disability and death during the working life of the employee. Subsequently, as the system matures, the annuity market becomes increasingly important.

In general, insurance companies must be commercial entities duly constituted in the country in which they operate, dedicated exclusively to the provision of insurance, and holding a minimum capital determined by the regulatory authority. Moreover, they must have a permit to engage in the insurance and reinsurance business, issued by the body responsible for regulating, enforcing and supervising these activities.

The main regulations governing life insurance companies with respect to pension systems cover the following aspects: technical bases, solvency, investment limits, model policies and clauses, prices, insurance inflation adjustment, premiums and indemnities, insurance sales, and state guarantees.

Technical bases

Without clear legal frameworks the annuity market is a particularly opaque market for the general public. Various technical elements (choice of a life table, pattern of indexation, modalities of the choice between joint versus single life annuities, etc.) have a direct bearing on the level of old-age pensions when savings amounts are commuted into annuities. The incidence tables used to calculate the premiums or benefit levels for old-age and survivors' pensions have a bearing on the contributions or benefit levels of invalidity and survivors' pensions. A minimum regulation on the permitted technical bases, for instance stipulating the mandatory use of a standard unisex life table, may avoid hidden profit-making by insurance companies and protect the pension level of pensioners or the income of contributors.

Solvency

Insuring entities must maintain a required minimum level of equity that is usually related to solvency margins and limits on borrowing. The purpose of the solvency margin is to ensure that the company has the resources necessary to cover unexpected costs resulting from deviations beyond the statistically predictable risks. To determine this margin, the regulating body establishes a certain percentage of additional reserves for each type of insurance. Borrowing limits must be associated with equity and cannot be exceeded. Moreover, total borrowing that does not generate insurance technical reserves cannot go beyond a specific percentage of equity.

Investment limits

The regulatory authority must protect the insurance company's obligations to those it insures by setting aside reserves equivalent to the actuarial value of those obligations. To limit the risks affecting reserves and to protect state

guarantees to the insured, insurance norms generally include regulations governing investment. Technical reserves must be invested in publicly offered financial securities and real estate up to the investment limits established by law. The ratio between assets representing reserves and the obligations that companies assume towards those insured is also regulated.

Model policies and clauses

To ensure market transparency and to protect the insured, model policies and clauses that companies intend to offer in the marketplace must be submitted to the regulatory body which authorizes and registers them if they do not induce error or confusion or violate the law. Once registered, these clauses and/or policies can be used by any company.

Prices

In general, companies freely set the premiums for any kind of insurance generally contracted for, together with the fees and commissions for the sales agents and brokers who sell policies for them. The law generally requires insurance policies to specify the commission amount or percentage earned by the insurance agent or broker responsible for the sale.

Insurance (premiums and indemnities) inflation adjustment

In general, the premiums and indemnities associated with insurance should include an indexing system to deal with inflation.

Insurance selling

Insurance can be contracted directly with the insuring entity through its sales agent or an independent insurance broker. Sales agents are individuals who market and sell insurance for an insurance firm and cannot provide these services to more than one company at a time. They must be listed both in a special registry maintained by the company and in a registry maintained by the regulatory authority. Insurance brokers are also individuals or registered firms whose function is to advise people seeking to contract insurance, informing them of the contract and coverage conditions, and assisting them when they sustain a loss. Regulation of these activities has been the subject of some controversy because of important asymmetries in information that arise during the process of selling a product as special as this one.

State guarantees

If an insurance company goes bankrupt, the State usually guarantees payment of pension annuities up to a specified amount, which is normally related to the value of guaranteed minimum benefits (see also Chapter 4).

7.1.4.3   Supervision

International experience has shown that there is no single optimum supervisory scheme. One starting point for the debate on this issue is whether social protection programmes, particularly pensions and health insurance, should be supervised by specialized agencies. Most of the recent social security reforms in different countries have introduced such agencies, the *Superintendencias* in Latin America being one such example. Some observers object to them on the grounds that supervisory authority is already vested in existing entities (e.g. the country's central bank, internal revenue administration, and/or bodies regulating capital markets). They argue that specialized agencies reduce the effectiveness and efficiency of other entities and generate significant problems of coordination among the different entities.

A wide range of arguments have been put forward in favour of the creation of specific supervisory agencies. The five listed here relate to new pension systems (Demarco and Rofman, 1998):

1. Savings for pensions fall into a special category because they are usually mandatory, and as a result the State is responsible for ensuring that their management is based on specific, suitably enforced rules.

2. Capitalization systems have been created in countries with no prior experience with this sort of scheme, and they generate important inter-actions with capital markets, insurance markets and social security institutions. A specific agency helps formalize a minimum level of coordination among the relevant institutions.

3. Some products and processes within these new pension systems, such as life insurance and retirement pensions, as well as qualifications for disability and the management of resources by third parties, have not, in the past, been governed by clear, specific regulations – or, in some cases, by any regulations whatsoever. Meanwhile, benefits provided by public systems were understood to be governed by implicit regulations by their very nature.

4. The confidence in old supervisory institutions is low because of their lack of transparency and inefficient functioning. The creation of modern supervisory bodies can overcome the lack of trust in pre-existing institutions.

5. New systems permit the creation of new supervisory agencies in which the participation of pension fund proprietors is potentially more active, reducing the risk of deviation from the original objectives established for this kind of saving.

The basic question regarding the role of the supervisory agency is whether this agency should be "pro-active" or "reactive". An active role implies that the agent is concerned with regulating, supervising and auditing most activities carried out by insurance managers. The purpose is to avoid actions, intentional or otherwise, that could damage the interests of system affiliates.

The second focus is based on the idea that the system must be capable of "self-control" through the same competitive forces that generate a market composed of multiple managing institutions. This assumes that those managing the funds have the right incentives to exercise self-control and avoid damaging behaviour. In this case, the State intervenes only when these incentives fail. Accordingly, the penalties for violating the system's rules must be very strong, to send clear signals to the institutions participating in the market.

Experience in Latin America shows that regulatory agencies in general are very pro-active when it comes to investment: for example, they control day-to-day transactions, evaluate the instruments included in pension funds, review the management of pension savings funds in detail, and so on. However, they are more reactive when dealing with matters such as publicity, customer relations, information provided to affiliates, and other non-essential processes in which the public can play a much more active role than in investments.

A particularly significant issue that is probably insufficiently regulated in many countries – especially those with mandatory pension and health care insurance industries just beginning to develop – is the conflict of interest that exists for senior officials in supervisory and regulatory agencies. In some countries these positions are held by industry personnel who in many cases return to work for private mandatory insurance managers after completing their stint of public service. This creates an obvious conflict of interest, and regulations do not clearly prohibit those who have worked in a regulatory body from going on to work in industry.

7.1.5 Financial market regulations

The social protection system reforms that have changed pension schemes from simple pay-as-you-go (PAYG) to individual-capitalization or defined-benefit (DB) schemes with higher reserve levels, together with the development of voluntary pension saving systems and occupational plans, have led to strong growth in the reserves involved in these schemes, significantly affecting the financial system and capital markets. This development underlines the importance of suitable regulations in these areas. Since some aspects of the need for effective financial regulations were discussed in Chapter 6, this section can be kept fairly short.

Requirements for developing and regulating the financial system and capital markets vary enormously depending on the system adopted. In fact, under a PAYG financial regime, system reserves are relatively small compared to the total value of current liabilities, and basically serve to deal with potential temporary disparities between revenue flows from contributions and expenditures occasioned by benefit payments. These disparities occur mainly as a result of economic cycles. Investing these reserves, then, basically requires short-term financial instruments issued by either financial entities or the State. In contrast,

under the system of individual full capitalization, all liabilities generated by pensions in the course of payment and accumulated rights must be backed at all times by financial reserves. As already seen in Chapter 6, this situation requires capital markets and rather sophisticated systems of financial management.

7.1.5.1 *Savings–investment intermediation mechanisms*

Economic literature identifies two basic models for resource intermediation between savings and investment (see, for example, Tsuru, 2000). First, there is the model based on financial intermediation in which banks assume the task of selecting clients and investment projects, long-term monitoring of projects and intervention in case of poor investment performance. In this model there is a long-term relationship between the bank and its client, based on both parties' reputation, which constitutes a sort of implicit contract. This practice of channelling resources into the economy prevails among Asian and European economies, especially Germany, and in Latin America.

The other model is based on public issues of financial assets (bonds and shares) for placement in the portfolios of private and institutional investors through capital markets. The most obvious example of this model is the financial system in the United States. Under this model, those that contribute resources to a company are protected only by the investment contract itself, and risks are essentially monitored through the marketplace. Naturally, for this model to assign resources efficiently, a competitive, liquid, deep capital market is required, operating in a climate of extensive company disclosure.

7.1.5.2 *Regulations relevant to financial markets*

Basic regulations governing financial markets deal essentially with three issues: (i) generation and circulation of reliable information about the economic and financial situation of those issuing securities; (ii) stock market regulations, and (iii) company regulations.

In terms of *regulating information*, it is common to require that the issuer register with the relevant public security registry and commit to providing the regulatory/supervisory body with regular (quarterly, annual, or other) audited financial statements. This last task is carried out by auditors who are also accredited with the regulatory body. Issuers must prepare their financial statements in a standardized format and, in addition, must report any essential fact that affects the company's situation. Similarly, expert agencies must evaluate the risk of all publicly offered debt instruments. Usually these agencies must be accredited with the regulatory/supervisory body.

Regulations governing stock markets seek to ensure the transparency and efficiency of the market by having instrument buyers and sellers come together simultaneously to establish prices, as well as requiring formally established mechanisms for negotiating instruments and explicit internal regulations.

Finally, *regulations governing private companies* seek to establish a basis for the good corporate governance of these firms and, above all, to protect minority shareholders from any attempt by controlling shareholders to withdraw value. Regulations seeking to protect the positions of minority shareholders are crucial to the pension system because pension funds must remain minority shareholders in the companies in which they invest; otherwise, pension reserves could be used in takeover bids.

7.1.5.3   Basic regulations governing the banking system

Normally, the State provides a limited guarantee on demand and term deposits that the public holds in commercial banks. To ensure both the coverage of this guarantee and, above all, the general stability of the financial system, regulations have been established to govern the solvency and management of banks and other financial companies.

The establishment and enforcement of regulations governing financial institutions are vital for the healthy development of a pension system, especially new national pension systems like those in Latin America and Eastern Europe where bank-issued securities, together with state-issued instruments, are the main investment alternative. Adequate, up-to-date supervision of the banking system should incorporate certain basic principles in terms of capital requirements, management requirements and market discipline.

Capital requirements

According to the 1988 recommendations by the Basel Committee, capital requirements should be set in relation to the financial institution's risk profile. A suitable capital requirement imposes discipline on bank management and covers unforeseen losses that may arise during the normal course of business. It is important to remember that capital requirements should be seen as flexible elements that are adapted to the total risk associated with banking, not just lending.

Management requirements (corporate governance)

By their very nature, financial institutions work with high degrees of leverage and, as a result, even capital requirements above the recommended minimum may not be adequate if management is not solid, particularly when it comes to identifying and controlling business risks. One way of stimulating the development of competent risk management within the banking business is to rate companies in this area. The rating is based on indicators that are publicly announced by the regulatory body.

Market discipline

Banking enforcement or supervision carried out by public authorities must be supplemented by private agents. This means that accurate, timely and

precise information on the exposure and risk of financial institutions must be available. The analysis of institutional exposure to risk is in the public interest, since the use of this information by some agents does not make it any less useful to others. Accordingly, the function of monitoring banks in the private sphere should be especially encouraged as a benefit to society. In many countries, insurance and pension fund companies may channel resources into financial institutions only by means of financial instruments that are subject to risk ratings. This requirement encourages the development of professional risk-rating agencies which provide information to the entire market.

7.2 HIERARCHY OF QUANTITATIVE GOVERNANCE INSTRUMENTS: AN OVERVIEW

Instruments used to manage the finances of national social protection schemes fall into several categories, matching different stages in the management process. Descriptive instruments reveal the current state of a given scheme or the entire NSPS (statistics, accounting and reporting). Analytical/controlling instruments facilitate the analysis of scheme or system performance in terms of its objectives, using available statistics and other information to build performance indicators. Performance analysis must precede any decisions about the system's future, budget preparation and plans.

Descriptive instruments are tools that express the present status of a system or scheme in quantitative terms – namely, national or scheme-based statistics and accounting, which are the basis for all further analytical or supervisory work. At the individual scheme level, these are the classic, almost universally used instruments. At the national level these two concepts (i.e. consolidated national statistics and accounts) are less frequently used.

Analytical instruments are tools that help the scheme or national social protection managers assess the effectiveness and efficiency of a scheme or the system as a whole. These tools thus consist largely of a set of performance indicators. Although they have been used in various schemes, a systemic set of indicators has been developed in only a few cases. Many indicators are used on an ad hoc basis. In recent years ILO FACTS has started to develop new standard instruments designed to measure the performance of schemes and national systems – a system of social security scheme-based performance indicators and, at the national level, Social Protection Expenditure and Performance Reviews (SPERs).

When it comes to planning new schemes, designing or – most likely – redesigning a national system, or evaluating the future financial, fiscal and possibly economic sustainability of a scheme or system, instruments with a certain projection and simulation capacity are needed. For individual schemes, this role is filled by the classic actuarial study (for new schemes) or actuarial

Table 7.1 Hierarchy of quantitative governance instruments

Main purpose of instrument	Scheme level	National level
Descriptive (statistics, accounting and reporting)	Scheme statistics	National social protection statistics
	Scheme accounts	National social accounting system (SAS)
	Annual reports	National social protection reports
Evaluation and planning (budgeting, projections, simulation, resource mobilization)	Actuarial studies and valuations	Social budgets
Performance measurement, monitoring and analysis	Scheme-based system of performance indicators	Social Protection Expenditure and Performance Reviews (SPERs)

valuation (for periodic reviews of existing schemes). Most countries have legislation providing for periodic actuarial reviews of existing schemes.

At the national level, social budgeting should be used to model the full social transfer system of a country and to project and simulate the way it is likely to perform in alternative economic, demographic, social and legislative scenarios. Social budgets can be used for periodical assessments of the present and probable future performance of an existing scheme or to simulate the financial and fiscal effects of new benefits. Simulations of this nature are key instruments in social policy planning. They can help prevent socially, economically, financially and fiscally expensive mistakes in the legislative planning process.

A hierarchical overview of quantitative governance instruments is given in table 7.1.

The following sections will discuss these descriptive and planning instruments only briefly since they were either already covered in other books in this series or will be the subject of forthcoming publications. The newer instruments, system-based performance indicators and Social Protection Expenditure and Performance Reviews, will be described in more detail.

7.2.1 Descriptive instruments

7.2.1.1 Accounting frames

The last textbook planned for this series will detail the basic blueprints for the essential statistical and accounting frameworks of social security schemes. In the meantime, a standard accounting frame can be found in Cichon et al. (1999, Issue Brief 2). The frame described there is for a national health insurance scheme but can easily be adapted to accommodate other kinds of benefits (see box 7.1). A standard statistical frame for actuarial valuations, published in

Plamondon et al. (2002, Technical Brief I), can easily be expanded or condensed to summarize all the information that a scheme would need for its annual report to members or for regular statistical reporting to its board and supervisory agency. Regular reporting procedures are a key element of sound governance, and need to be followed with due diligence.

There is no generally accepted format for annual or more frequent scheme-based reporting. As most social protection schemes are public institutions, their accounting and reporting should follow the standard rules for public finance in that particular country. Box 7.1 suggests a possible model for annual reports which, based on the structure developed by one scheme over decades, seems to provide a fair picture of the scheme's activities in the course of a year. Such reports summarize statistical and accounting information from the scheme and make it accessible to the general public.

Box 7.1   An accounting framework and financial reporting for a national social insurance scheme
(Excerpts from Cichon et al., 1999, Issue Brief 2)

The accounting framework is a reporting system that enables the budget to be monitored, and is set up to produce other necessary financial reports, e.g. the income and expenditure report and a balance sheet. Before an accounting framework can be drawn up, a system of accounting must be decided upon, for this will affect the design of the reports. The most crucial elements of the accounting framework are the income and expenditure account, and the balance sheet.
(...)
Once a system for accounting has been decided, the *accounting framework* should be designed. A blueprint of accounts should be drawn up for the following statements:

a. Income and expenditure account
b. Balance sheet
c. Other management accounts.

The income and expenditure account shows the results of the financial operations carried out *during the period* covered, and measures the (accounting) surplus or deficit for the period. The balance sheet shows the financial position at a *particular point in time*, that is, it lists all assets and liabilities at the date of the balance sheet. The balance sheet is derived from the income and expenditure account, incorporating information on accruals, assets, liabilities, reserves, depreciation and stock balances.

If the scheme involves a substantial amount of capital expenditure, a separate capital expenditure account may be required to record capital expenditure incurred since the beginning of the financial year. Each major item should be shown separately, and should be analysed by type of expenditure – purchase of property, office equipment, etc.

Box 7.1 (cont'd)

It is also recommended that management accounts be produced. These perform the following functions:

- support the monitoring and evaluation of the financial aspects of the scheme, together with the income and expenditure account
- enable a more detailed understanding of the financial status of the scheme, by providing an analysis of costs.

The contents of management accounts will depend on the nature of the scheme, but may include, for example, tables on primary health care expenditure classified into broad components and by geographic region, or average primary health care costs per visit or per insured person by region.

The layout of statements of account differs from one scheme to another and from one country to another – institutions might also be required by legislation to observe a particular format for their accounts.

Income and expenditure account

The income and expenditure account is based on information in the ledgers, summarizing credit and debit transfers for each item. (More information on ledgers is given in the following section.) If the *cash accounting* system is used, the balances on the accounts are transferred without amendment. If the *accrual accounting* system is used, each account in the ledger needs to be examined and the appropriate accrual (adjustment) needs to be made before the balance is transferred to the income and expenditure account.

On the annual account, adjustments to balances may also include items such as financial reserves and the calculation of depreciation. The entries in the income and expenditure account from the ledger will need to be analysed, summarized and presented in the prescribed format. The items which one would expect to find in the summary of the income and expenditure account are as follows:

Income
Employers' contributions
Government contributions
Interest and other investment income
Other income

Expenditure
Total cash benefits awarded during the year
Total contributions refunded
Total expenditure incurred on:

Provision of medical care
Administration

Box 7.1 (cont'd)

Maintenance of properties (with expenditure on broad categories shown for each property)
Transfers to reserves or development funds
Amounts written off

As stated above, the amount of contributions due, but not yet written off or received, should also be shown in a footnote to the accounts.
(...)
The balance of the income and expenditure account is either a surplus (if income is greater than expenditure) or a deficit (if expenditure is greater than income). This balance is transferred to the health insurance reserves at the end of the year.

The balance sheet
As stated earlier, the balance sheet lists all assets and liabilities outstanding at the balance sheet date. After this information has been summarized in the income and expenditure account, and transfers (adjustments) have been made relating to accruals, depreciation and stock balances, individual accounts are balanced. These balances are then organized into a specific format, to produce the balance sheet.
Balance sheet format varies from country to country and may be regulated by legislation. One recommended format is:

Liabilities
Cash benefits awarded but unpaid and still outstanding at the balance sheet date
Amounts due to other creditors
Contingency reserves
Development fund, if any
Health insurance reserves, shown as:

- Amount of funds at the beginning of the financial year,
  plus surplus from income and expenditure account, or
  minus deficit from income and expenditure account, yielding
- Amount in health insurance fund at the end of the financial year.

Assets
Cash on hand
Balances on current accounts at banks
Balances on deposit accounts at banks
Any amounts due from sundry debtors
Investments, with different types shown separately
Stocks of pharmaceuticals, medical appliances and other medical supplies
Medical equipment
Office furniture and equipment

> **Box 7.1** (cont'd)
>
>   Motor vehicles (and ambulances)
>   Office buildings
>   Hospitals, clinics, dispensaries and other premises used in connection
>   with the provision of medical care.
>
>   Fixed assets are depicted according to their book value at the end
> of the previous financial year, plus the cost of additions, minus
> depreciation.
>
> ***Capital expenditure account***
> This should show the total capital expenditure for the year, with
> expenditure on various projects (e.g. construction, purchase of buildings)
> shown separately. Items to be included in a capital expenditure account
> are as follows:
>
> *Investments*
>   Deposits
>   Purchase of fixed-interest securities
>   Other investments
>
> *Purchases*
>   Pharmaceutical products, medical appliances and other medical
>   supplies
>   Furniture and equipment for hospitals, clinics, etc.
>   Furniture and equipment for offices
>   Ambulances
>   Other motor vehicles
>
> *Construction, purchase, or adaptation of buildings*
>   Hospitals and other premises for use in the provision of medical care
>   Office premises.

At the national level, accounts for the overall social protection system should follow the methodology of the national accounts (SNA 93). One possible framework is the Government Finance Statistics system developed by the IMF (2001a). However, it covers only the finances of schemes administered by institutions in the government sector and may thus exclude many other important social protection schemes. Another, much more comprehensive and focused framework, developed in the form of satellite accounts to the national accounts, is the European System of Integrated Social Protection Statistics (ESSPROS) (EUROSTAT, 1996). In the course of its social budgeting work the ILO has proposed a national social accounting system (Scholz et al., 2000), also closely linked to the national accounts and similar in many ways to ESSPROS. Box 7.2 includes the definition of a social accounting system (SAS) and guidelines for its design.

Box 7.2 Definition of a national social accounting system
(Excerpts from Scholz et al., 2000, Chapter 2)

(…) a social accounting system (SAS) is an indispensable part of the data basis required for a Social Budget model. It comprises the flow of funds data of the social protection system as observed in the past, systematically and consistently processed under a unified methodology that allows for structural analyses at a certain point of time, for time series analyses and for meaningful international comparisons. The SAS is one statistical basis for social budgeting.
(…)
The design of an SAS and, thus, a Social Budget depends on its purposes, which may be manifold. Initially, the SAS is a tool of governance for planning, monitoring and analysing social policy decisions at macro levels. It is a comprehensive formal account of the revenues and the expenditures of the social protection system of a country. Such an account is not an end in itself. Indeed, it serves as an information basis for a country's government, its general public, its politicians, its economic actors (for example, employers and employees), the social protection system's beneficiaries, the taxpayers, its scientific institutions and others who all might use the same information for different purposes. They might want to evaluate the social protection system's financial flows in an economic context; they might want to know about the existing social security institutions' relative size in terms of their aggregate expenditures; they might want to know about the structure of social protection expenditures and their financing, i.e. how much of total resources goes into different programmes and what is the relative weight of different revenue sources. All these issues might be addressed vertically (for a certain year) or horizontally (under a dynamic time perspective). And, last but not least, the addressees of this information might want to use it for international comparisons.
Given its basic character as a tool of governance and information, it is hoped that the implementation of an SAS serves to enhance rationality in public discussions on social protection and supports the government in taking reasonable decisions on future social protection legislation by taking into account the aspirations and needs of the general public, as well as future financial and economic constraints.
As the potential different users of an SAS might normally want to address different aspects of the social protection system, it is advisable to clarify from the beginning that an SAS, whatever its final set-up might be, reflects just one, though important, aspect of a social protection system, which is its fiscal flows of funds, disaggregated by different categories. Therefore, an SAS primarily provides information to those who are interested in a detailed financial picture of the social protection system in a macroeconomic and macrofinancial context. An SAS does not address microsocial or microeconomic issues. Important questions such as adequacy of individual benefit levels, equity of benefit provisions, equivalence between individual contributions paid and benefits received,

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Box 7.2 (cont'd)

the impact of social expenditures and their financing on the individual private households' income distribution, and many others, will have to be investigated by using other sources of information.

(...)

Having set its scope and limits, the design of an SAS should be based on the following principles:

(1) The SAS should be designed so that it allows for methodologically prudent links to other information systems, most importantly the *System of National Accounts* (SNA) which is in use worldwide as a methodological basis for the compilation of national accounts.

(2) The SAS statistical scope should cover the social protection system in a comprehensive and significant manner:

- with respect to comprehensiveness – it should include *all* social expenditures (and their related revenues) irrespective of their sources of financing; and

- with respect to significance – it should cover only *social* expenditure; private voluntary provisions not financed on a mandatory basis, joining which is the individual's choice, should not be included (private savings accounts, life insurance).

(3) The SAS should reflect "conventional a priori wisdom" of possibilities as to how to structure social protection finances; thus revenues should either reflect the payments to the institutions of the system by legal categories (employers, employees, government, others) or categorize revenues by their economic "sources" (enterprises, private households, the public sector, others) or both, and expenditures should be presented by all institutions administering the system or by the social "functions" of the benefit provisions, or both.

(4) The SAS design should allow for international comparisons. (Such "methodological pragmatism" is essential in order to guarantee this.)

7.2.1.2   Social protection statistics

Social protection is an important part of overall social policy. It can therefore be assessed only within the context of a much broader range of statistics and indicators describing the social situation in a country. There is no standard blueprint yet for national social statistics. Countries have different profiles, often for historic reasons. The aim of these statistics is to provide a picture of a particular country's social reality and, if possible, to trace trends in social development. National social statistics are also used to compare countries to each other but, with the exception of some expenditure statistics, they are

usually not comparable since the accounting concepts and underlying definitions of other terms differ.

EUROSTAT publishes a list of 18 key social indicators in its annual reports on "The Social Situation in the European Union" (EUROSTAT, 2001):

The European Union (EU) list of indicators for the social situation in Europe

1. Old-age dependency ratio
2. Net migration rate
3. Percentage of the population aged 18–24 having left education with low qualifications
4. Percentage of population aged 25–64 receiving education/training
5. Employment rate of those aged 15–64
6. Employment rate of those aged 55–64
7. Unemployment rate
8. Youth unemployment/population ratio
9. Long-term unemployment rate
10. Social protection expenditure as a percentage of GDP
11. Old-age benefits as a percentage of total social benefits
12. Income distribution ratio (income share of the 20 per cent of the richest to income share of the 20 per cent of the poorest)
13. Percentage of the population with an income less than 60 per cent of the national median
14. Share of households in which no member is employed among all households in which at least one person is active
15. Female employment rate of 15–64-year-olds
16. Average earnings of women as percentage of men's earnings
17. Life expectancy at birth and life expectancy without disability (by sex)
18. Percentage of employed persons who have had working accidents

The above indicators answer two basic questions: What are the social developments (social outcomes) in a particular country, and how do society and, in particular, the government alter these social outcomes? In a recent effort to develop a set of social indicators,[2] the OECD has classified relevant indicators into indicators of social context, indicators of status and indicators of societal response, and defined four categories reflecting primary social policy objectives (self-sufficiency, equity, health, and social cohesion). Table 7.2 presents these social indicators.

The ILO too has recently begun to develop a new concept of statistical indicators which would reflect all the aspects of its Decent Work Agenda

Table 7.2 OECD social indicators[1]

Social context	Social status	Societal response
Self-sufficiency	Employment Unemployment Jobless youth Jobless households Working mothers Retirement ages	Expenditure on labour-market activation policies Expenditure on education Early-childhood education and care (enrolment) Educational attainment Literacy Replacement rates (benefits in case of unemployment) Tax wedge (ratio of net wage to labour costs) *Social protection expenditure (public, private, net)* *Number of older people in institutions*
	Relative poverty Income inequality Low-paid employment Gender wage gap *Unemployment* *Jobless youth* *Jobless households* *Working mothers*	Minimum wages Social protection expenditure (public, private, net) Benefit recipiency (working-age population) *Expenditure on labour-market activation policies* *Expenditure on education*

Equity
  National income (per capita)
  Fertility rates
  Old-age dependency ratio
  Foreigners and foreign-born population
  Refugees and asylum-seekers
  Divorce rates
  Lone-parent families
		Early-childhood education and care (enrolment)
		Educational attainment
		Literacy
		Replacement rates (benefits in case of unemployment)
		Number of older people in institutions

Health	Life expectancy Infant mortality Potential years of life lost Disability-free life expectancy Accidents *Relative poverty* *Unemployment* *Drug use and related deaths*	Health care expenditure Responsibility for financing health care Health infrastructure *Early-childhood education and care (enrolment)* *Educational attainment*
Social cohesion	Strikes Drug use and related deaths Suicide Crime Group membership Voting *Relative poverty* *Unemployment*	Prisoners *Early-childhood education and care (enrolment)* *Educational attainment* *Public social expenditure* *Health care expenditure*

[1]Italicization of an indicator means that it also appears in another category as a primary indicator.
Source: OECD (2001c).

Table 7.3   The ILO's suggested set of decent work indicators

Fundamental rights at work	Child labour (participation rates)
	Hazardous and other worst forms of child labour
	Freedom of association
Decent employment and income	Labour force, employment, unemployment, underemployment
	Wage rates
	Labour costs
	Labour productivity
	Hours of work
	Working poor
	Skills in labour force
Social protection and security	Safe work (occupational injuries)
	Public expenditure on social security
	Coverage by social security
	Statutory minimum wage
	Contract type (casual, temporary, regular, permanent)
	Job stability
	Place of work (home, street, etc.)
	Poverty incidence
Social dialogue and voice representation	Union membership
	Strikes and lockouts
	Collective bargaining agreements (coverage)

(see ILO, 2001e). Proposed indicators are divided into four groups, reflecting four strategic ILO objectives: fundamental rights at work, decent employment and income, social protection and security, and social dialogue and voice representation (see table 7.3).

The ILO's Labour Statistics Convention, 1985 (No. 160),[3] requires member States ratifying the Convention to collect, compile and publish basic labour statistics in the following areas: economically active population, employment, unemployment and underemployment; average earnings and hours of work, wage structure and distribution, labour cost, consumer price indices, household expenditure and income, occupational injuries and industrial disputes. These statistical data would be sufficient to construct most of the "social status" indicators associated with the labour market and incomes. Although the list includes virtually none of the statistics required for the "societal response" indicators (such as data on social protection expenditure and coverage), a resolution of the Conference of Labour Statisticians (1957) concerning the development of social security statistics outlined the requirements for national social security statistics.[4] The standard reporting form of ILO Social Security (Minimum Standards) Convention, 1952 (No. 102), contains some basic statistical indicators, but they report on scheme-based performance rather than overall social protection.

The ILO has also been conducting an "International Inquiry into the Cost of Social Security", using a methodology that it hoped would serve as a model for

national statistical systems associated with social protection financing and coverage. Recently, this methodology was largely unified with the approach adopted by EUROSTAT for EU Member States.

7.2.2   Planning instruments

The key planning instruments that might be used to monitor both present and likely future performance are actuarial valuations and social budgets. They are described more fully in two other books in this methodological series (Scholz et al., 2000; Plamondon et al., 2002). Accordingly, we will give only a summary of the information that social budgets and actuarial valuations provide to decision-makers, planners and managers.

An actuarial valuation basically gives decision-makers four sets of facts:

(1) how the scheme's expenditure and income would develop under certain assumptions;

(2) whether the scheme is in actuarial equilibrium under status quo conditions and selected assumptions in the medium- to long-term future;

(3) if not, what measures on the income or expenditure side could restore the financial equilibrium;

(4) how a certain set of measures (suggested by the government or other stakeholders) would affect the actuarial equilibrium.

A social budget would inform the government and the public:

(1) about the development of all social expenditure and all revenue earmarked for social protection under certain assumptions in the medium-term future;

(2) whether measures are needed to maintain the financial equilibrium of the system as a whole;

(3) how specific income and expenditure measures suggested by stakeholders would affect the financial equilibrium.

Normally, any major change in the benefit provisions of a system or scheme should be accompanied by an actuarial and social budget analysis. The results of such analyses should enter into the financial justification that ought to accompany all social protection bills submitted to national parliaments. Let us assume that a country wishes to increase the retirement age. Parliament and Cabinet must be told about the effect that this measure will have on the pension scheme's financial situation. An actuarial study or valuation would calculate the amount by which the contribution rate for the old-age benefit scheme could be reduced, or how much longer the present contribution rate could be maintained compared to a status quo. However, raising the retirement age would also have repercussions on other schemes. It might, for example, increase expenditure in the unemployment-benefit scheme, the invalidity

scheme or even the social assistance provisions, if some people were to resort to other means of exiting the labour market. Ultimately, it is the net savings in the social protection system as a whole that should be of interest to decision-makers.

Box 7.3 describes the kind of results that decision-makers can expect from actuarial valuations and social budget analyses. It gives the results of a combined actuarial valuation and social budget analysis that ILO FACTS undertook for the Government of Panama (respectively the Caja de Seguro Social) in 2001. Not surprisingly, the results of the analysis generated considerable political debate concerning the future and sustainability of the social insurance scheme.

Box 7.3 Results of an actuarial valuation and social budget exercise for Panama[1]

The actuarial and social budget projections are designed to provide a realistic view of Panama's possible socio-economic development. The population projection is in line with the assumptions of the Panamanian government and the 2000 United Nations population projections,[2] which all expect that within the next 50 years Panama will add about 50 per cent to its present population. The assumptions about GDP were developed on the basis of per capita growth over the past 50 years, which was in the order of 2.3 per cent per annum. For the period 2000 to 2050 it was assumed that annual long-term average per capita growth could be around 2.7 per cent, this comparatively positive bias being the result mainly of an assumed higher future labour productivity growth. The total number of employed and the number of contributors to the CSS are projected almost to double between 2000 and 2050. Women's participation in the labour market will increase significantly; it is assumed that by the end of the projection period almost no differences will exist between male and female employment levels any more. Unemployment will decline from present double-digit rates to turn into almost full employment some time after the middle of the projection period. Under these conditions, Panama has the potential to improve clearly its income position relative to that of its neighbouring and other potentially competing countries.

By and large, the results of this valuation confirm those of an earlier valuation done in 1998, except that in 2001 it became evident that socio-financial reform measures would need to start earlier than previously thought. Analysts had initially projected that the CSS pension programme would run into structural deficits somewhere between 2010 and 2015, thus providing a margin of several years before reform measures would actually have to be implemented. The 2001 valuation indicates that

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Box 7.3 (cont'd)

Box figure 7.3.1 Social revenue ratio,[1] Panama, 1990–2050

%
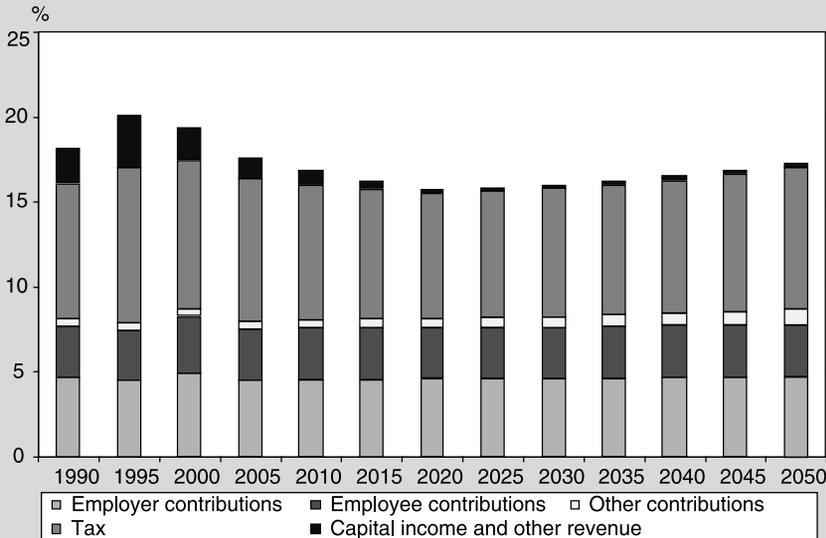
[1]Total revenue allocated to social protection as a percentage of GDP.

Source: Database and results of calculations with the ILO social budget model.

reforms might have to be implemented earlier, since the CSS structural deficit is expected to occur as early as 2005.

Panama's social budget

For 1990, total revenue of the social protection sector of Panama was estimated at around 965 million balboas; this amount doubled by 2000, reaching 1,921 million. Total expenditure was estimated at some 869 million balboas in 1990, and at 1,806 million in 2000. The balance was positive throughout the 1990s.

Total revenue amounted to 18.2 per cent of GDP in 1990 and 19.2 per cent in 2000. In all years contributions and tax revenue each accounted for an almost equal share of around 45 per cent in financing Panama's social expenditure. Capital income accounted for about 10 per cent of total revenue. Total spending amounted to 16.3 per cent of GDP in 1990, reached 20.7 per cent in 1998 and fell back to 18.1 per cent in 2000. Of that spending, old-age benefits absorbed 5.7 per cent of GDP in 1990 and 6.1

Box 7.3 (cont'd)

Box figure 7.3.2   Social expenditure ratio,[1] Panama, 1990–2050
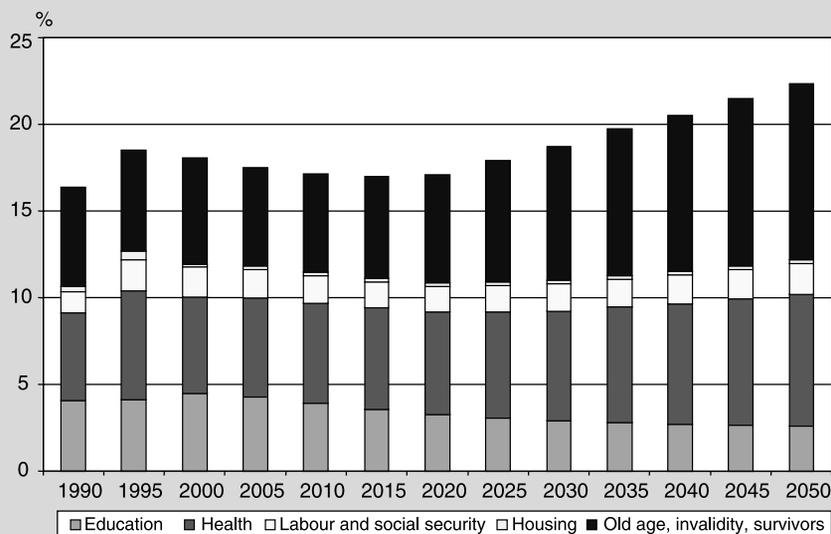
[1]Total social expenditure as a percentage of GDP.
Source: Database and results of calculations with the ILO social budget model.

per cent in 2000, followed by health with 5.1 and 5.6 per cent in 1990 and 2000, respectively, and education with 4.1 and 4.5 per cent. Housing plays only a minor role in Panama's social budget.

In the long run, overall revenue is expected to decrease from current levels to less than 16 per cent of GDP (15.6 per cent in 2020); it will remain at that low level for about a decade and then begin to increase again, although only slightly. By 2050 total revenue is projected to reach 17.1 per cent of GDP.

Over the full projection period, the development of social spending in relation to GDP is influenced by the following broad trends:

(1) as a direct consequence of the declining relative number of children in the population, the ratio of education spending is set to decrease from 4.5 per cent of GDP in 2000 to 2.6 per cent in 2050;

(2) relative spending on health is expected to rise steadily, especially since per capita spending on health will increase "structurally" because of the expected increase in the number of older patients in relation to younger ones. All in all, health expenditure is estimated to reach a level of 7–8 per cent of GDP in 2050 (from 5.6 per cent in 2000);

Box 7.3 (cont'd)

Box figure 7.3.3   Balance[1] of the social budget, Panama, 1990–2050
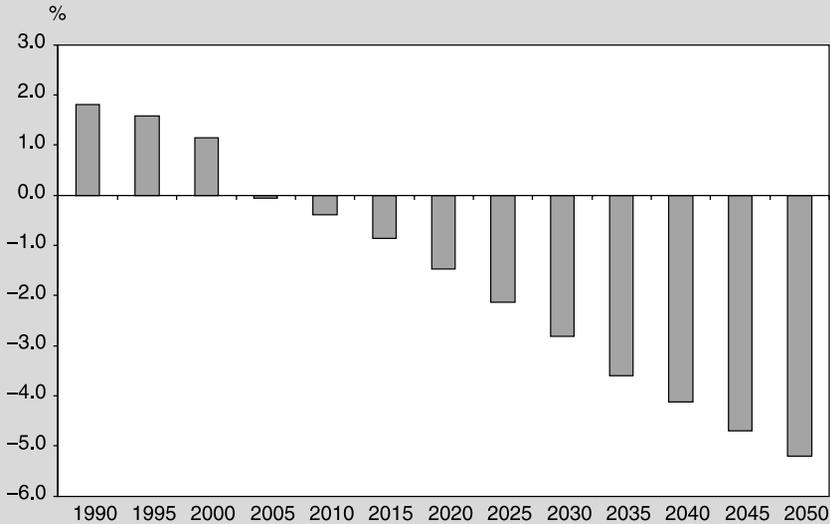
[1]Total social budget revenue less total social budget expenditure. The balance is equivalent to the change in the system's monetary reserves.
Source: Database and results of calculations with the ILO social budget model.

(3) relative spending on old-age, disability and survivors' benefits is expected to increase significantly, to more than 10 per cent of GDP in 2050 (from 6.1 per cent in 2000);

(4) housing, labour and social security spending will remain at relatively low levels.

As a consequence of cyclical developments, the overall balance of Panama's social protection system was expected to register a deficit in 2002 before returning to positive figures in 2003 and 2004, but subsequently developing a long-term structural deficit. This is unavoidable at given benefit levels, contribution and tax rates and the assumed demographic and labour-market developments. However, the deficit is expected to remain at a tolerable level until the late 2020s (around −1 per cent to −2 per cent of GDP) and to reach its peak level of over −5 per cent of GDP only by the end of 2050.[3]

Worldwide, countries spend roughly between 5 and 30 per cent of GDP on social programmes. From this perspective, Panama spends a middling share rather than "too much" of its economic resources on

Box 7.3 (cont'd)

Box figure 7.3.4   Development of the IVM reserve, Panama, 1990–2050
(in balboas)
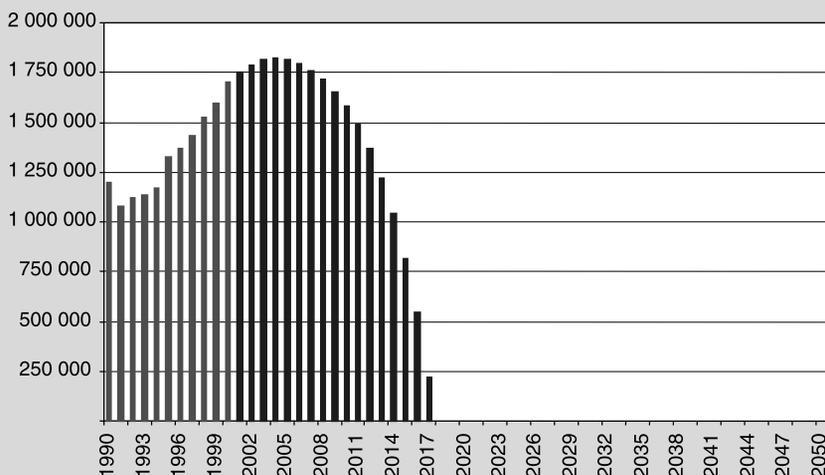
Source: Database and results of calculations with the ILO social budget model.

social protection. Moreover, the projected rise in the social expenditure ratio is in itself no reason for serious concern. If we disregard education,[4] in 2000 the total social expenditure ratio was about 13.6 per cent, and it is expected to grow to 20 per cent of GDP by 2050. Panama's social expenditure was just half of the European level[5] in 2000 and will still lag behind in 2050, when Europe will have increased its average social expenditure ratio to some 30 per cent or more, assuming that legislation remains unchanged.

The actuarial valuation of the CSS

All four CSS programmes have been separately valued for the report. Only the results for the pensions programme (Invalidez, vejez y muerte (IVM) – "disability, old age and death") are displayed here.

The current contribution rate of 9.5 per cent will be sufficient to cover the expenses of the IVM programme until 2004. As of 2005, the cost-covering rate will be higher than the present legal rate. It will grow from 9.9 per cent of basic salaries in 2005 to 24.1 per cent in 2050. The deficit will be in the order of 9.8 per cent of expenditure over the first two decades after 2001 and then increase to 60.6 per cent in 2050. Reserves

Box 7.3 (cont'd)

will be depleted in 2018; by the end of the projection period, the accumulated debt will amount to 68.6 per cent of GDP.

The main reason for this development is the rapid deterioration of the system dependency ratio. While at present 11 pensioners are being supported by 100 insured persons, in 2050 the ratio will have changed to 43:100. This trend cannot be counterbalanced by the cost-saving effects of the strong no-indexation assumption. Indeed, the system replacement ratio for old-age pensions is, under the given assumptions, bound to fall from 86 per cent in 2000 to 49 per cent in 2050.[6] If the programme valuation had taken into account ad hoc pension adjustments (as they took place in the past), the financial results would have deteriorated even further.

The system replacement ratio declines because of a number of coinciding reasons (of which the no-indexation assumption is the strongest). It does not imply any deterioration of individual new pensions (the pension formula remains unchanged). On the contrary, the pension formula is considered far too generous, at least compared with those of other countries. Therefore, an increase in the IVM programme contribution rates is inevitable, even if the pension formula is cut back. Over the medium-and long-term *the CSS cannot achieve financial stability as long as pensions are calculated on the basis of the present formula and the legal contribution rate is maintained at 9.5 per cent.*

Notes

[1] The exercise was carried out by Wolfgang Scholz and Florian Léger of ILO FACTS. The results are documented in ILO (2002d).

[2] United Nations (2001a). See http://www.un.org/esa/population/unpop. htm

[3] In all projected years the social budget deficit is estimated as slightly higher than the balance ("resultado del ejercicio") of the CSS because investment in tangible assets is considered current expenditure in the social budget but is not included when calculating the balance.

[4] In European social budget methodology, education is not viewed as one of society's redistributive expenses (and is consequently not considered part of the social budget), but rather as an investment in human capital necessary to maintain economic productivity in the long run.

[5] The level of social expenditure depends very much on how social expenditure is defined. In the United States total social expenditure, including charities and private measures, has been estimated at about 32 per cent of GDP. The European Union definition is set by EUROSTAT. Definitions used by individual EU Member States may differ from the EUROSTAT definition. For 1998, EUROSTAT estimated the level of social expenditure in the EU at about 27.7 per cent of GDP, varying between a maximum of 30.5 per cent for France and a minimum of 16.1 per cent for Ireland. See Federal Ministry of Labour and Social Affairs of Germany: *Statistics on Labour and Social Security 2001* (Bonn, 2001), tables 9-18 and 9-18A; or http://www.bma.de.

[6] The ratios for disability and survivors' pensions follow a similar pattern.

7.2.3 Analytical and performance-monitoring instruments

Over a century has passed since the Government of Germany under Chancellor Bismarck created the first widespread system of social insurance (between 1883 and 1889). The number of countries with social security programmes has been steadily expanding, with a concurrent increase in social security's impact on human welfare and the general economy. However, the overall performance of social security in many of these countries has been disappointing, especially in such essential aspects as the extent of coverage.

Although it would be difficult to list all the varied and complex reasons for the poor performance of different social security schemes, some of them are fairly obvious. Some are external: many schemes are struggling to cope with new obligations in a new political and economic environment. These adjustment problems are classified as programme design issues. Very often they are caused by a lack of national coordination and planning mechanisms in the social protection system as a whole. Other reasons for poor performance are internal – these are the so-called "governance problems".[5] For example, many schemes lack such fundamental information as the number of people who are covered, compared with how many should be covered according to the legislation in force, or the relative level of current contribution rates compared with the PAYG cost rate. As a result, the administrators of such schemes cannot and do not take the measures needed to remedy shortcomings; this inevitably erodes public confidence in social security and may cause the system to fail.

In particular, governance problems persist because of crucial lacunae at the strategic or macro-policy level,[6] such as:

- lack of mechanism for monitoring the performance of the social protection system as a whole;
- insufficient quantitative analysis to provide a sound basis for decision-making; and
- at the operational level, failure to establish key indicators relating to objectives in order to monitor scheme performance.

Whether problems arise from conceptual, design or governance issues, they cannot be solved if they are not properly understood. Remedial action can be taken only after diagnostics are clearly specified. The first step towards better planning and governance of social protection lies in obtaining correct information and analysing it from various points of view in order to determine how schemes are performing. Although much time and energy is usually needed to clarify situations and to discuss problems from the perspective of facts rather than ideology, this step is fundamental for logical, democratic decision-making by democratically elected stakeholders. Performance indicators serve as catalysts for the democratic decision-making process by ensuring greater transparency.

To ensure the sustainability of social protection, necessary information should be standardized so that it can be used to analyse the situation of the scheme, and it should be collected regularly for purposes of historical analysis. However, it is difficult to select and sort information on essential aspects of social protection without a thorough knowledge of and experience with social security in both the domestic and international contexts. Furthermore, since resources are often scarce, particularly in developing countries, core data should be carefully selected in order to provide essential information effectively.[7]

Although the basic concept of performance measurement and performance indicators has been discussed in some papers, no standard set of measuring tools has been proposed.[8] Difficult as it is to standardize indicators in different social and economic contexts, we suggest that a set of standard quantitative indicators should be developed as a pragmatic tool allowing stakeholders in a scheme to assess its performance.

However, the wide range of stakeholders involved creates conflict in indicator requirements, notably with respect to the issue of simplicity versus comprehensiveness. Professional stakeholders with extensive knowledge and experience of social security (such as social security policy analysts who carry out detailed research on social security, or managers of social security schemes who deal with day-to-day administration issues) often require numerous indicators from different levels of the social security hierarchy in order to assess performance from a variety of different viewpoints. In contrast, non-professional stakeholders with less knowledge and experience (such as high-ranking government officials, board members of social security institutions, or representatives of scheme employees and/or contributors and beneficiaries) might prefer to rely on a limited number of simple indicators.

Performance indicators are used to assess how well a scheme or system achieves its objectives. There are two levels of performance measurement:

- assessing the *process* that transforms *inputs* (resources used by the scheme) into direct *outputs* (goods or services delivered to the beneficiaries); and
- assessing *outcomes* – that is, economic or social changes resulting from a given policy or programme.[9]

Different dimensions of performance should be assessed:

(1) *Efficiency* is normally assessed against defined benchmarks (such as indicators derived from comparable schemes or systems in other countries). It normally has at least two major aspects:

    (a) Technical or administrative efficiency, which expresses the relationship between the inputs and outputs of a particular scheme or system (e.g. the number of insured persons served by one staff member of a social insurance scheme).

(b) Allocative efficiency, which expresses the social outcomes of the scheme or system as measured against the expected outcome of resource allocation to alternative social protection schemes or systems (e.g. the reduction in the number of poor per percent of GDP spent on a specific benefit).

(2) *Effectiveness* measures the social outcomes of the scheme or system against its policy objectives as set by legislation or contractual arrangements in terms of coverage, quality, adequacy, equity and fairness, compliance and access (for example, the abolishment of extreme poverty by introducing a social assistance scheme, which is never 100 per cent successful because benefits are never taken up by 100 per cent of the potential beneficiaries).

Indicators measuring *inputs* for the assessment of a social protection scheme's technical or administrative efficiency would relate mainly to human and other resources used to provide services (administrative costs, personnel, and so on). Measures of inputs used to assess allocative efficiency or effectiveness would involve resources used to finance social protection schemes and the system as a whole, such as social security contributions, taxes, and the like.

Measuring *outputs* relates to the direct results of a scheme, like the number of beneficiaries to whom benefits were paid or services provided.

Measures of *outcomes* focus on the ultimate policy objectives of a scheme or the social protection system as a whole: poverty incidence within a target group (children, elderly, disabled, unemployed), inequality of income, health status, and so on. Measuring the impact of a scheme or programme on outcomes is often problematic, since it is sometimes difficult or downright impossible to separate a given policy's impact from that of other factors (for example, it is hard to measure the impact of different specific policies on poverty reduction, unemployment or income inequality). However, it is often possible to identify intermediate outcomes – resulting from specific policies – that facilitate performance measurement.

In the following sections we will examine two sets of analytical tools: first a system of scheme-based performance indicators and then a set of tools – social protection expenditure and performance reviews – designed to assess the performance of the NSPS as a whole. We will focus largely on indicators and analyses of performance measures for cash-benefits programmes, without spending much time on problems related to the performance of health care systems. Health care is certainly one of the main components of an NSPS, but owing to its specificity and complexity any discussion of health care system performance would require an approach that goes beyond the scope of this book. The reader should refer to Cichon et al. (1999), and to the work done by the OECD and the WHO.[10]

7.2.3.1 Scheme-based performance indicators[11]

Since performance has to be assessed in relation to objectives, it is crucial to understand clearly the objectives of a social security scheme and to analyse methodically tangible key indicators that those objectives have been achieved. Since a social security scheme is a complex, multidimensional system, determining a set of indicators is in itself one way of mapping the structure of this multifaceted project.

Social protection schemes will function well if:

(1) the *legal framework* is well established and in line with sound social security principles, standards and policy objectives (for example, wide coverage and high quality of services – that is, an appropriate benefit level for all those who are supposed to be covered);

(2) the *governance or management of a scheme* is performed efficiently in accordance with the legal framework (for example, efficient contribution collection, benefit disbursement, contained administration costs) and in a way that satisfies beneficiaries; and

(3) the sound *financing of the scheme* guarantees its sustained operation (for example, affordable level with respect to the national economy, appropriate contribution level, efficient investment).

Given these many different demands, we must define a number of core indicators that are considered essential for measuring improvement in the design and governance of a particular scheme. In light of the different needs of stakeholders and the limited resources available for indicator maintenance, it is crucial that indicators be prioritized, permitting the definition of a set of core indicators.

Table 7.4 provides a set of scheme-based performance indicators used by two typical actuarial valuations in the Caribbean by an ILO actuary. Each of these indicators led the actuary to a number of conclusions and yet they mean relatively little to the reader. The increase in the average financial ratio of old-age pensions from 22 to 27 per cent in Dominica could be taken as a sign of greater "generosity" of the scheme. But in fact it is rather a consequence of the scheme's maturation process and should be mirrored against the legal objective in respect of the pension scheme. The law in Dominica only stipulates the minimum (30 per cent) and maximum (70 per cent) replacement rate of individual earnings. We can thus assume that the target overall average rate might be in the order of 50 per cent. Anything short of that level indicates either a failure to deliver (for example due to the non-indexing of pensions) or the fact that the scheme is not mature, or a combination of both. How can the observed replacement rates be that low when the scheme is already 27 years old, and why are they below the minimum rate? The latter is due in part to the fact that pensions in payment are adjusted irregularly on an ad hoc basis. Similar questions are raised by all other indicators. This leads to one basic conclusion

Table 7.4 Performance indicators for social security schemes

	Dominica social security fund		Grenada national insurance scheme	
	1999	2002	1999	2002
1. Ratio of ceiling to average insurable wage	3.2	3.1	2.3	2.1
2. Minimum pension as % of average insurable wage	7	7	13.3	12.3
3. Average old-age pension as % of average insurable wage	22	27	23.7	24.5
4. Active insured persons as % of employed population	76	–	–	–
5. Percentage of self-employed persons contributing	5	–	–	–
6. Number of contributors per pensioner	7.1	4.7	13.9	7.1
7. Percentage of population over 60 receiving a pension	28	34	–	–
8. Benefits and pensions as % of GDP	3.0	3.7	1.0	1.5
9. Reserve as % of GDP	32	40	23	31
10. Contribution rate (%)	9.75	9.75	9	9
11. Expenditure rate (%)	9.1	9.75	4.1	5.5
12. Investment income expressed as % of insurable earnings	4.4	5.0	4.2	5.5
13. Yield on reserves (%)	6.1	6.1	6.6	6.8
14. Administrative expenses as % of contributions	20.3	15.0	13.5	8.4
15. Administrative expenses as % of contributions and benefits	11.8	8.3	9.7	9.7
16. Administrative expenses as % of insurable wages	2.0	1.5	9.7	9.7
17. Reserve-expenditure ratio	8.3	8.7	17.1	16.3

Note: Contribution and expenditure rates for Dominica exclude redundancy benefit.
Source: ILO Actuarial Reviews (prepared by Derek Osborne).

concerning the selection and construction of indicators: they generally mean nothing without intelligent benchmarks to which they can be compared (as already discussed in box 6.3).

The actual application of such indicators in policy decisions takes a long time. However, it should be stressed that the process of establishing these core indicators in itself contributes a great deal to governance enhancement. For instance, the designers of the whole set of indicators are forced to think about what indicators are necessary for analysing the performance of social security schemes; statisticians realize what statistics are necessary but lacking; policymakers discussing problems reflected by the indicators are able to prioritize solutions in an organized way.

Since indicators are a governance tool for social security schemes, they should in principle be constructed to measure in an organized way every

quantifiable aspect of the complex nature of a social security scheme. Although perfect standardization of social security schemes worldwide is impossible owing to the range of different individual features in each scheme, the scope of indicators is made as broad as possible. Many indicators should be valid regardless of different scheme characteristics such as type of scheme, financing methods (tax financed versus contribution financed, or PAYG system versus the funded system) or type of benefits (pensions, short-term benefits, and so on). Furthermore, in many cases indicators measuring the performance of a specific scheme should be analysed in relation to the performance of all other comparable schemes in the country (for example, the coverage of a particular old-age pension scheme should be assessed in the context of the coverage provided by all existing old-age pension schemes).

The indicators presented here relate mainly to formal sector social insurance schemes, and not all of them are necessarily fully applicable to schemes providing universal and means-tested benefits. Different approaches must be taken for schemes in the informal sector, such as community-based schemes, for which statistics are by their very nature difficult to obtain. The following pages provide a checklist of the key characteristics that all performance indicators should have.

Desired characteristics of indicators

Indicators should meet certain requirements. In fact, they must satisfy as many of the characteristics mentioned below as possible. Some of these coincide with characteristics required of statistical or financial reports (such as accounting reports[12]), and some are more pertinent to indicators as such.

Intelligent benchmarks. As noted above, indicators mean nothing without benchmarks. The word "performance" may create the misunder- standing that every indicator can be used like a test score – in other words, that we can judge the scheme's performance simply by looking at the value of the indicator. Some indicators do permit this kind of interpretation. For example, the higher the coverage rate, the better. However, the demographic ratio, one of the important indicators for measuring ageing in the scheme, does not give conclusive information. Although it may reflect the age of the scheme, the data may be blurred by bad governance – for instance, a bad compliance record for insured persons at early ages. A similar ambiguity applies to the funding ratio.

Thus, "the higher the ratio, the better" is not generally true. Many financial indicators (such as the demographic ratio and the PAYG cost rate) fall into this category. They may provide concise key information about the status of the scheme, but *intelligent benchmarks are needed in order to assess their meaning*. In addition, care is required when interpreting even seemingly straightforward indicators. For instance, the replacement rate tends to be interpreted along the lines of "the higher, the better", and obviously a

minimum level must be attained.[13] However, overly generous benefits that are incompatible with the net income of working generations may lead to intergenerational conflicts, induce undesirable behavioural reactions, and have negative repercussions on a scheme's long-term financial situation or other negative effects on the economy and society. The choice of benchmarks requires substantial knowledge of a scheme's objectives and limitations.

Benchmarks can take several forms:

– objective-based benchmarks, which simply take the objectives stipulated in the laws as the central point of comparison (for example a replacement rate of 60 per cent in a pension scheme after a 40-year career);

– time-based benchmarks, where the performance of one scheme is simply compared to the performance in previous periods; this may be sufficient in some mature schemes with a mature management and administration (for example the administrative cost ratio);

– comparative national benchmarks, which simply compare the performance of one scheme to that of other similar schemes (e.g. regarding claim-processing times),

– comparative international benchmarks, which compare the performance of a scheme to that of a similar scheme in another country (e.g. population coverage at a given age of the scheme).

This last type of benchmarks is also of particular importance for system-based performance indicators. In an environment where planners and managers have very little national experience to analyse, for example in the early stages of new social insurance schemes, international benchmarks may be the only point of comparisons for national performances. While clearly important, international benchmarking has obvious risks and merits further exploration.

Table 7.5 presents a simple indicator showing whether a scheme is overpromising benefits or not by relating the legal replacement rate at retirement age to the contribution rate. Mature European schemes are compared with the maturing Panamanian scheme. It is obvious that the present relationship between contributions and replacement rates is generous in Panama and Luxembourg. In Panama this is attributable both to scheme immaturity and to an extremely generous initial pension. In Luxembourg the high indicator is attributable to a relatively heavy state subsidy. Comparing the Panamanian indicator and the mature European ones with each other should inject some rationality into the national debate on sustainable pension levels in both parts of the world.

It is clear from table 7.5 that measuring the performance of each individual scheme in a country's social protection system is necessary but not sufficient to assess the scheme's overall performance. Although inconsistency in basic statistics and the different social and economic situations of each country

Table 7.5 Pension replacement rates in selected NSPSs[1]

Country	Contribution rate for individuals (including employers' contribution) (%)	Pensionable age	Years of service	Replacement rate (%)	1% contribution buys ... % replacement	Remarks
France	19.85	60	40	45.00	2.27	Contribution for invalidity not included
		60	35	25.00	1.26	
		65	40	45.00	2.27	
		65	35	45.00	2.27	
Luxembourg	16.00	60	40	77.35	4.83	Plus state subsidy equivalent to 8% of contribution rate
		60	35	68.45	4.28	
		65	40	77.35	4.83	
		65	35	68.45	4.28	
Germany	19.50	60	Not applicable			Plus state subsidy equivalent to 5% contribution rate
		60				
		63	40	43.0	2.20	
		63	35	37.6	1.93	
Belgium	19.86	60	40			3.5% contribution rate for invalidity included
		60	35			
		65	40	53.33	2.69	
		65	35	46.67	2.35	
Panama	9.50	57–62	40	91.25	9.61	Plus state subsidy equivalent to 0.5% contribution rate
		57–62	35	85.00	8.95	

[1]Data are for 1999/2000, depending on availability of information.

Source: ILO (2001c), p. 12; ILO (2002d).

Table 7.6 Administrative cost in national pension schemes or provident funds, selected countries, early 1990s

Country	Administrative cost in national pension schemes or provident funds (early 1990s) expressed in:	
	% of benefit expenditure	% of contribution income
Austria	2.20	2.14
Canada	1.44	2.29
Chile	12.10	8.09
China	0.88	2.34
Denmark	0.12	0.12
Germany	1.57	1.58
Ghana	37.94	11.54
Grenada	54.25	13.16
Guatemala	19.15	12.30
Malaysia	18.71	6.52
Niger	51.83	33.04
Yemen	27.75	7.75

Source: Gillion et al. (2000), p. 248.

usually militate against any naive cross-country comparison of indicators, studying indicators in the international context sometimes helps to understand the situation in a particular country. For example, in any country the PAYG cost rate will inevitably increase in the long run as the population ages if the benefit level is kept constant; this trend can be assessed by looking at the increasing demographic ratio. Hence, stakeholders in a scheme with a young demographic structure can roughly guess future developments by comparing their scheme's indicators with those of schemes serving a more elderly population (for example, schemes of OECD countries).

There are many potential pitfalls, however, and often subtle differences in definition may lead to wrong conclusions. The following example will demonstrate this. Table 7.6 shows the administrative cost ratio of national pension schemes, one of the most frequently used indicators for measuring administrative efficiency in social protection. But the ratio is arrived at in two different ways: as a percentage of contribution income and as a percentage of benefit expenditure.

Expressed as a percentage of benefit expenditure, some of the figures are exorbitant. But they are also misleading. Relatively young pension schemes face a relatively slowly maturing expenditure curve, which means that in their early days, while they are collecting contributions that largely build up technical reserves, their administrative cost as a percentage of benefit outflow must be high. When administrative costs are measured as a percentage of contribution income, the figures are usually substantially lower – except in

countries where non-contribution resources such as taxes (Canada) or general employer subsidies (China) play an important role. In mature PAYG schemes (as in Austria and Germany) the values of the two indicators converge, as is to be expected.

Using other countries' indicators as benchmarks, while necessary, remains dangerous. Even indicators of administrative efficiency (for example, contribution or benefit handling time), which are relatively easy to understand, are heavily influenced by social and economic development factors such as the population's understanding of the scheme or the general education level of insured persons, beneficiaries and staff, or the scheme's equipment – most notably, the existence of an electronic database of insured persons and beneficiaries. Therefore, it is sometimes inappropriate to compare a recently initiated scheme in a developing country with one that is in a developed country and has a long history behind it. In addition, the underlying statistics of different countries used for the calculation of indicators are often inconsistent. It is generally more informative to compare countries enjoying similar social and economic conditions.

Comprehensiveness. As mentioned, the scope of indicators should be as wide as possible and their dimensions such that they measure all essential aspects of social security. In principle, standard indicators are constructed in such a way as to be applicable to any country and any scheme, and to cover all essential dimensions, such as coverage, benefit and contribution level, administrative efficiency and financial status.

Consistency. Indicators must be internally consistent over time, especially those that have much to do with the scheme's historical development, such as the demographic ratio (the number of beneficiaries divided by the number of insured persons). In addition, indicators should be consistent with each other, since some of them are closely interrelated and studied as a group (for example, the PAYG cost rate is in principle the product of the demographic ratio and the replacement rate). This interrelated consistency can be achieved by proper definition of each indicator and by using consistent data in calculating related indicators.

Relevance. In some cases voluminous statistical yearbooks and ledgers have been filled with obsolete data (earning them the name of "data cemeteries") and cannot be used efficiently because the lack of hierarchy in the data structure means that links to other data are missing. In other words some of the data, especially absolute figures, may simply not be relevant to the decision-maker.

For example, although the absolute number of contributors to a social security scheme is basic, indispensable information, it is not sufficient in itself to give us an idea of the extent of the scheme's coverage. The extent of

coverage cannot be grasped unless we also know the total number of employees (including self-employed persons) in the country, or the number of those who should be covered according to national legislation: the first statistic gives an idea of the coverage rate in the wider sense (the number of people actually covered compared to the maximum potential number of people covered, a number that is probably beyond the scope of the legislation), while the second gives an idea of the coverage rate in the narrow sense (the number of people covered compared to the legal potential number under current legislation). Another example is the number of old-age pensioners. To understand the financial aspect of the scheme, we must set the number of these pensioners against the number of contributors, which gives the demographic ratio.

In short, indicators must provide relevant and meaningful information that contributes to a better understanding of the situation of a given social security scheme.

Quantifiability. Obviously, indicators must be expressed in numbers or figures. Since not every aspect of social protection is quantifiable, indicators inevitably have limitations. In addition, data deficiencies may impose further *de facto* limitations on "quantifiability". Feasibility is an important aspect that should be taken into consideration when indicators are designed. If certain indicators have to be given up in the process of applying the design, at least planners and decision-makers are forced to decide whether those indicators should be used in the future or not, which means deciding whether the relevant data should henceforth be collected. Good data are the foundation of performance indicators, but this is not a one-way process: performance indicators may also be an incentive for improving underlying data.

The purpose of indicators is to raise questions. Table 7.6 raises the obvious question as to why in relative terms it is at least five times as expensive to administer a pension scheme or a provident fund in Ghana or in Guatemala as in Austria and Germany. Cost structures are not identical, of course, but does that really account for the entire difference? Indicator values like these should trigger further investigation. A set of performance indicators measuring the legal, governance and financial characteristics of a social protection scheme is provided in Annex 7-A1, along with simple quantitative examples for the calculation of a basic set of indicators.

A social protection system is a complex structure in which the components (individual schemes) interact with each other, and these interactions may have a major impact on both society and the economy. One scheme might perform excellently – as indicated by all scheme-based indicators – but it might still do so at the expense of other equally important schemes. That is why it is also necessary to measure the performance of the social protection system as a whole (see below).

7.2.3.2   Expenditure and performance reviews

Social protection schemes are all part of the overall NSPS. Individual schemes have their own roles to play and objectives to meet but, as components of the system, they also serve the objectives of the overall social protection policy, which is part of the national social policy. The NSPS is not just a set of independent components: the schemes interact with each other, and these interactions have a major impact on the economy and public finance. It is the design of the social protection system as a whole, with different schemes playing different roles in the coverage of population groups for different contingencies and needs that determines the ultimate outcomes of the overall national social protection policy. The decisions as to what resources are allocated to different social protection functions and how particular schemes providing coverage for these functions are financed have a major impact not only on the effectiveness of the whole system but also on the financial sustainability of the system and its components. Decisions concerning individual schemes should never be taken without assessing their impact on the system as a whole.

The amount of available resources is always limited, and the mobilization of new resources has to take into account the fiscal system's overall capacity to raise revenue, as we saw in Chapter 4. The total sum of contributions paid by employees, employers or other protected persons, direct taxes levied on income, and indirect taxes levied on consumption is finite. High contribution rates resulting from the uncontrolled expansion of one scheme serving one sector of the population, may significantly limit the possibility of mobilizing resources elsewhere to finance the social protection coverage of another population group. Gaps in coverage for one contingency (for example, unemployment benefits) may undermine funding for social protection schemes providing coverage for other contingencies. We observe often that in the absence of an unemployment benefit scheme, disability and early-retirement provisions are used as substitutes.

The work on indicators that measure the overall performance of NSPSs is only beginning, but there are hopeful signs that political initiatives might accelerate the process. One example comes from the EU and its "Open Method of Coordination" which aims to facilitate the convergence of protection levels between the very heterogeneous national social protection schemes through the use of performance indicators. Box 7.4 provides more details on the process.

As already mentioned, the EU approach is still in its infancy. Generally and systematically, an NSPS should – just like any of its component schemes – be assessed in terms of its objectives. As in the case of individual schemes, the main objectives can be grouped under the following headings: effectiveness, coverage and efficiency.

The reality in many countries is that not only is coordination of the social protection system deficient, but there is also no coherent, standardized

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Box 7.4   Indicators in the "Open Method of Coordination" within the European Union[1]

The EU recently embarked on a process of defining indicators for evaluating the performance of social security schemes in the framework of its Open Method of Coordination. This benchmarking exercise aims at improving policies by facilitating the exchange of information and encouraging mutual learning from the experience of others while leaving the responsibility for the policies with Member States. Based on a set of common indicators, the Open Method of Coordination will serve as a common framework to evaluate the performance of national policies in the attainment of specific objectives. The indicators are based on the premise that they should be neutral towards different institutional structures, so they focus on *outcomes* rather than on *outputs*. So far, this process does not aim to set clear targets, but this has not been ruled out for the future. However, the fact that the indicators are comparable and permit international comparison already implies a certain subtle level of benchmarking.

Open Method of Coordination procedures have been initiated in the fields of old age and pensions, health care and long-term care and social exclusion; they thus account for more than 75 per cent of total social expenditure in the EU. Where old age and pensions are concerned, this recurring benchmarking exercise aims to improve the knowledge base on the future sustainability of pensions and other forms of income security for the elderly. Grouped in three sets relating to the overarching objectives of adequacy, financial sustainability and modernization (responsiveness to changing needs), the indicators are linked to specific objectives and are supplemented by a number of context indicators. While the choice of indicators has not yet been finalized, their basic structure is already relatively clear:

1. Context information
    –   demographic information such as population by age group, life expectancy at birth and demographic old-age dependency ratio
    –   household information (such as housing arrangements)
    –   social and pension expenditure as a proportion of GDP
    –   regulatory framework for pensions
2. Adequacy
    –   "at-risk-of-poverty rates" among older people
    –   relative income of older people compared to younger age groups
3. Financial sustainability
    –   employment rates of older workers
    –   effective retirement age
    –   effective old age dependency ratio
4. Modernization: Responding to changing needs

Box 7.4 (cont'd)

Box figure 7.4.1 Elderly population at risk of poverty, EU, late 1990s

At-risk-of-poverty rate among the elderly (65+)
(cut-off lines: 50% and 60% of median equivalent disposable income)
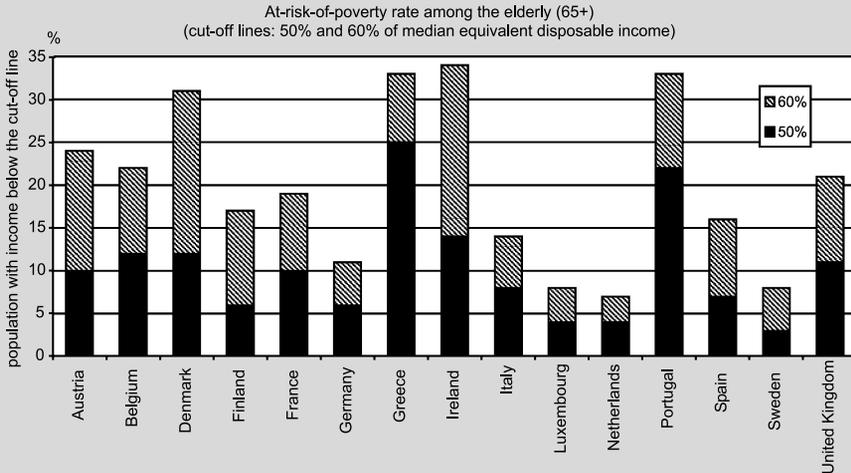
Note: Based on data from the European Community Household Panel (ECHP); disposable incomes adjusted for household size on the basis of the modified OECD equivalence scale.

Source: Council of the European Union (2003): Joint report by the Commission and the Council on adequate and sustainable pensions, 7165/03, Brussels: Council of the European Union, p. 28.

A first report is not yet formally based on the set of indicators, but it already sets the stage for their further development. Picking out two of the indicators used in this report, box figures 7.4.1 and 7.4.2 respectively show low at-risk-of-poverty rates for older people and employment rates among older workers.

Among adequacy indicators, the at-risk-of-poverty rate can be considered as a relatively uncontroversial indicator for the performance of a pension system. Avoiding poverty among elderly persons is certainly a fundamental objective of any pension system, and the focus on disposable income renders this indicator relatively neutral towards different institutional settings. However, it is relatively sensitive to methodological choices, such as the selection of the poverty line. Policy conclusions drawn from this indicator could be very different, depending on how exactly the indicator is defined.

As one example for the indicators on the financial sustainability of the pension system, employment rates among older workers are chosen because of their double effect on pension finances, both on the expenditure and the financing side. However, this indicator is quite coarse, given that it does not reflect the volume and quality of employment among older workers, which would need to be considered in a more comprehensive evaluation of financial sustainability.

Box 7.4 (cont'd)

Box figure 7.4.2   Employment rates among older workers, EU, mid-2001

Employment rates among older workers
(second quarter, 2001)
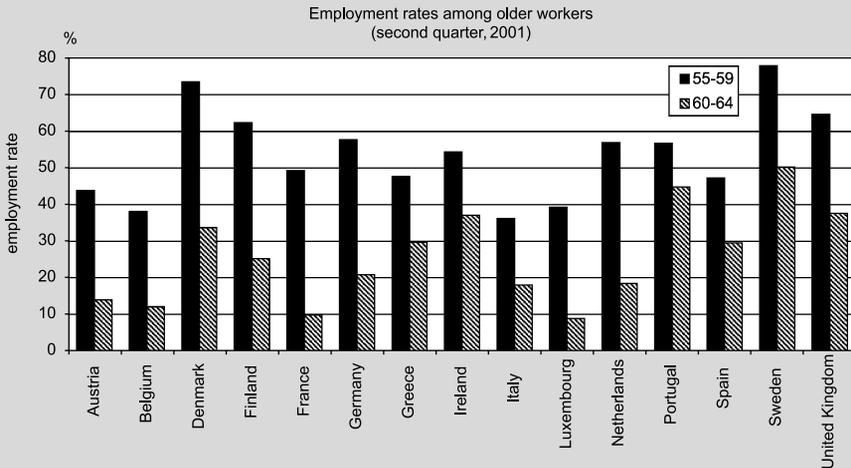
Source: Council of the European Union (2003).

The Open Method of Coordination has generated strong political interest in the definition of indicators and in the improvement of the underlying databases. It is an interesting approach to evaluate the performance of social security schemes in a cross-national context that may also serve as a model in other contexts.

Note

[1] This box was prepared by Christina Behrendt of ILO FACTS.

information on all existing schemes. While scheme-based performance indicators require standardized data, reviews of social protection expenditure and performance aim at establishing a framework permitting performance assessment of the social protection system as a whole. The ILO suggests that the performance of national social protection systems should be analysed with the help of formal test methodologies such as its Social Protection Expenditure and Performance Reviews (SPERs). The main objectives of these reviews are:

- to identify the scope of social protection in terms of risks and needs covered, as well as existing gaps in coverage (risks and needs not covered or insufficiently covered);
- to establish the costs in terms of annual expenditure (including allocation to different social protection functions) and financing structures (that is, the

different sources of the "income" of the social protection sector, such as social security contributions/general taxation, financing at different levels of the national government versus private financing, domestic versus foreign financing). Expenditure is measured both as a proportion of GDP and (in the case of public expenditure) as a proportion of overall government expenditure;

- to analyse the effectiveness of the existing social protection system and its schemes in terms of the main policy objectives (high and equitable coverage, poverty reduction and income inequality reduction, income security in the face of different social risks and needs, and so on). Particular attention should be paid to coverage: its scope (risks and needs covered), its extent (proportion of the relevant population covered), and its level and quality (replacement rates, etc.).

Generally, the focus is on discovering vulnerable groups that are not covered or whose coverage is not sufficient to alleviate or prevent poverty.

Many of the scheme-based indicators described above can also be used to assess performance of particular social protection functions (served by one or more schemes) and the NSPS as a whole. They must be aggregated and analysed in comparison with indicators of social context, status and cohesion (like those proposed in OECD (2001c) and EUROSTAT (2001)). The following pages give more details.

1. Effectiveness

Performance with respect to social outcomes. It is often difficult to identify the impact of the social protection system on different social indicators, since the latter are normally affected by many other factors. Any analysis of the social protection system should therefore begin with a detailed description of its overall context: demographic situation and trends (age distribution of the population, demographic dependency ratio, etc.), economic characteristics (economic growth, inflation, primary distribution of income, etc.) and the state of the labour market (employment, unemployment, transfer dependency ratio). Demographic dependency ratios and transfer dependency ratios (the ratio of people without any personal sources of primary income – children, unemployed, disabled and other non-actives of working age and over the working age – to the number of primary income earners) are the main indicators showing the demand for transfers, both public transfers and private intra- and interfamily transfers. When these ratios and the age structure of the population in question reveal, for example, a predominance of dependants below the working age with only a small proportion of elderly people, and the only existing form of social protection to be old-age pension schemes, something may be wrong with the national social protection policy.

Key groups of outcome indicators are poverty rates, income inequality, health status indicators, nutrition indicators and indicators of social cohesion.

Time-series analyses or comparison with other countries' experience can be used to estimate a social protection system's impact on social outcomes.

Distributional performance.   Examining the coverage provided for the most vulnerable groups of society is an important aspect of performance analysis. It should include:

- analysing the horizontal distribution of coverage and benefits (with particular attention to gender distribution, formal/informal sector distribution, and distribution among other groups identified as most vulnerable). It should cover analysis of the portion of cash benefits actually distributed to these groups and assessment of their access to social protection and other basic social services;

- analysing the vertical distribution of coverage and benefits (with particular attention to the effectiveness of the system and its schemes in reaching the poorest and closing the poverty gap). Income inequality before and after social protection transfers should be analysed, and the proportion of the poverty gap that is filled by the transfers should be estimated.

Administrative performance.   One aggregate measure of administrative performance is the ratio of administrative costs to total expenditure. This ratio should be determined for individual schemes, institutions and the social protection system as a whole. Other aspects of the administration of the particular scheme and/or institution should also be examined: the effectiveness of contribution collection (compliance rate, arrears, and so on), processing of benefit claims and benefit payment/delivery.

2. Coverage

Coverage is measured in three dimensions:

- *Scope:* range of contingencies, risks and needs covered (old age and survivors, disability, unemployment, sickness and health, unemployment, maternity, family and children, poverty).
- *Extent:* personal coverage, percentage of persons covered (by sex, age, labour market status) within the general population or the target group.
- *Level:* level of protection (benefit levels, replacement rates, and so forth).

Scope of coverage.   The scope of coverage is the range of contingencies and needs covered by existing schemes: old age and survivors, long-term disability, short-term incapacity and sickness, maternity and family, unemployment, poverty and exclusion. Specific schemes delivering benefits and services in these contingencies have to be identified, and their specific extent and depth of coverage assessed.

Extent of coverage.   This is the percentage of persons covered in a specific population group (as defined by sex, age, labour market status), or the percentage

of persons protected (i.e. insured persons and their dependants) within the total population; coverage has to be estimated based on existing regulations and population, labour market and specific scheme data (such as the number of protected persons, insured, beneficiaries). Such information can be collected only at the level of the individual social protection scheme, and then aggregated.

There might also be a difference between protection *de jure* and *de facto*; actual access to existing benefits and services has to be estimated (by density of health care or social welfare centres, number of staff per insured person, and so on), in addition to the percentage of beneficiaries within the potential beneficiary population (old-age pensioners as a proportion of those over retirement age, unemployment benefit beneficiaries as a proportion of the total number of unemployed, social assistance beneficiaries as a proportion of people living below the poverty line, and similar statistics). Thus, access is another factor to be measured, by take-up (or "access") rates, which measure the proportion of persons subject to a given contingency and entitled to benefits who actually received benefits or used services.

Level of coverage (depth/quality). The level of coverage is the level of protection provided (benefit levels, replacement rates and so on): legal replacement rates, actual benefit level relative to average earnings, average income or any other comparable basis, patients' co-payments as a percentage of total expenditure (or, at an aggregated level, private health expenditure as a percentage of total health expenditure), shares of income from different social transfers in cash and in kind in the total household income, medical services available relative to some normative basket of medical services, and other data.

Coverage can be mapped using matrices showing the scope, extent and depth of coverage for different population groups. An example of such a matrix is given in table 7.7. In this example the focus is on the status and coverage of persons providing the main source of income for their respective households. If the necessary data are available, the status and coverage of other household members should also be shown, classed not only by type of economic activity, but also by such features as age and sex.

Aggregate indicators of coverage. Partial indicators (quantitative and qualitative) could be used to calculate an aggregate index of social protection coverage using statistical methods similar to those used to build the UNDP Human Development Index. Little work has been done so far on any aggregate measure of coverage. A compound coverage indicator must be a function of the aforementioned three types of partial indicators:

(1) indicators of the scope of social protection functions available relative to all the social protection functions;

(2) indicators of the percentage of population protected for different contingencies and needs; and

(3) indicators of a level of protection measured by replacement rates or other tools.

Table 7.7   Matrix of coverage: An example

Function	Health care		Old-age pensions		Unemployment benefits	
Population group (household) by labour market status of the breadwinner	Extent of coverage (%)	Level of coverage (% of cost reimbursed)	Extent of coverage (%)	Level of coverage (%) (replacement rate)	Extent of coverage (%)	Level of coverage (%) (replacement rate)
Civil servants						
M	100	100	100	100	100	100
F	100	100	100	80	100	80
Employees in public enterprises						
M	100	80	100	50	100	40
F	100	80	100	30	100	20
Employees in private enterprises						
M	80	80	80	40	60	30
F	80	80	80	25	60	20
Self-employed outside agriculture						
M	40	50	10	30	0	0
F	20	50	5	20	0	0
Self-employed in agriculture						
M	10	50	0	0	0	0
F	5	50	0	0	0	0
Employees in the informal sector						
M	0	0	0	0	0	0
F	0	0	0	0	0	0
Self-employed in the informal sector						
M	0	0	0	0	0	0
F	0	0	0	0	0	0
Unemployed						
M	15	50	100	0	0	0
F	10	50	100	0	0	0
Economically inactive above retirement age						
M	30	100	50	35	0	0
F	20	100	30	25	0	0
Economically inactive below retirement age						
M	10	50	5	35	0	0
F	5	50	5	35	0	0

Source: ILO.

In the absence of a generally accepted indicator, we might make use of an old acquaintance, the SER. It should be noted that since the size of total social protection expenditure (measured as a percentage of GDP) is also a function of the three dimensions of coverage, it may be used as an aggregated indicator of coverage:

$$SER = \sum_{i=1}^{n} br_i \times rr_i \qquad (7.1)$$

where:

SER = social protection expenditure ratio,

br_i = ratio of the number of beneficiaries (persons protected) of scheme i to total population,

rr_i = ratio of expenditure per beneficiary (person protected) to GDP per capita,

n = number of existing social protection schemes.

Another possible and important aggregate indicator of coverage is the proportion of income from social protection transfers (in cash and in kind) in total household income. The necessary data should normally be available from the national accounts and/or from household budget surveys.

Information and data requirements. A complete list of all social protection programmes must be drawn up. This list should include:

- social insurance-type programmes (mandatory);
- state programmes;
- local government programmes;
- voluntary protection substituting for mandatory social insurance;
- mutual and community-based activities;
- charitable activities (domestic and foreign);
- foreign aid (food and other);
- other schemes.

For each programme the following is required:

- regulations making it possible to identify the number of protected persons;
- information necessary to estimate actual coverage (taking into account access problems owing to distance, staff shortages, lack of information, and other obstacles);
- data on insured persons and beneficiaries (by sex, age group, labour market status, type of employment);
- data on benefit levels and services delivered;
- data on total expenditure (benefit expenditure and other expenditure for all schemes).

General background information that may relate to population subgroups served by individual schemes must include:

- population by age and sex;
- labour force by age and sex (formal and informal);

- total employed (formal and informal);
- employees by age and sex, by sector (public, private, economic sector, type of contract – full time, part time, seasonal), by size of enterprise, etc.;
- self-employed, by age, sex, economic sector;
- family workers, by age and sex;
- characteristics of underemployment;
- unemployment, by age, sex, economic sector, etc.;
- average earnings, by age, sex, economic sector;
- any other estimate of average income that could be used as a reference to assess levels of cash benefits.

3. Expenditure, financing and efficiency

The objective is not only to identify existing social protection schemes and assess their costs in terms of expenditure, but also to reveal and assess the efficiency of financing patterns and the allocation of overall expenditure among different risks and needs (functions). Transactions financing social protection schemes can be grouped by type and source of revenue. Efficiency should be analysed by comparing the social protection system's outcomes to its overall costs. Benchmarks based on other countries' experience can be used for this purpose (for example, we could compare social protection expenditure and poverty rates, income inequality, health status, and other factors in different countries).

Another important question relates to the issue of who is financing a given scheme and what the sources of finance are for the social protection system as a whole – in other words, are resources coming from different levels of government (central, state or regional, or local), corporations, non-profit institutions, households, or the rest of the world.

Ideally, a matrix should be constructed, providing information on social benefits by function and by financing source (like table 1.4 in Chapter 1 or the social accounting matrix described in Scholz et al., 2000). This may not always be possible, since not all receipts can be assigned to specific functions – receipts of the same type and from the same source may finance a number of social protection schemes associated with different functions. However, it should always be possible to establish a matrix listing institutions, the schemes they administer, and financing sources.

Expenditure (both overall and by function) should be analysed as a ratio to GDP and also as a ratio to consolidated general government revenue and expenditure. In many developing countries, the GDP ratio is low but the ratio to total public revenue collected through all forms of tax and social contribution is comparable to that in developed countries, owing predominantly to the small size of the government in terms of the revenue collected.

Figures 7.1 and 7.2 use a simple example to show why expenditure ratios to GDP might be useful indicators of the inputs that a country is willing to invest

Figure 7.1 Total health expenditure (as % of GDP), selected countries, 1997
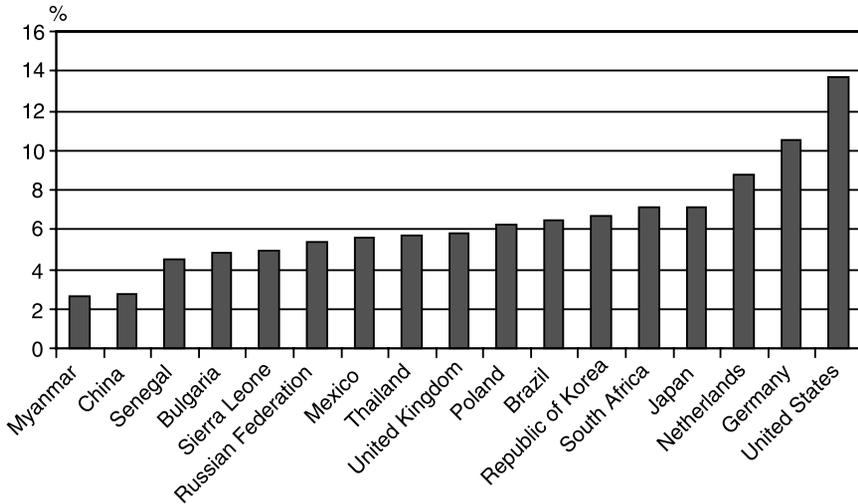
in a certain type of benefit but that may not be significant in terms of outcome. Figure 7.1 ranks selected countries by the percentage of GDP they invest in the health care system, ranging from Myanmar with 2.6 per cent of GDP to the United States with about 13.7 per cent.

Figure 7.2 relates this same investment to a crude outcome indicator, namely disability-adjusted life expectancy (DALE). DALEs are used by the WHO as a central indicator for health status (or health attainment).[14] The efficiency indicator simply divides the per capita DALE by the percentage of GDP spent on health. This may not paint a fair picture, since we probably have very small marginal benefit curves in the higher spending ranges of the health sector, and because health status is also determined by many other factors in addition to the health care system. United States social policy makers may still wish to ask themselves whether investing additional resources in the health sector might be warranted given the fact, for example, that poverty is stagnating at a relatively high level. Chinese policy makers might ask themselves essentially the same question but, unlike the United States, China would almost certainly have no reason to further contain the flow of resources into health care. The United Kingdom, which spends at about half the United States level and has a tightly regulated health system, might serve as a point of comparison for Germany and the United States.

This cross-country comparison leaves many questions unanswered, demonstrating the need for further research on social protection outcome and efficiency indicators.

Figure 7.2 Disability-adjusted life years per percentage point of GDP spent on health care, selected countries, 1997

%
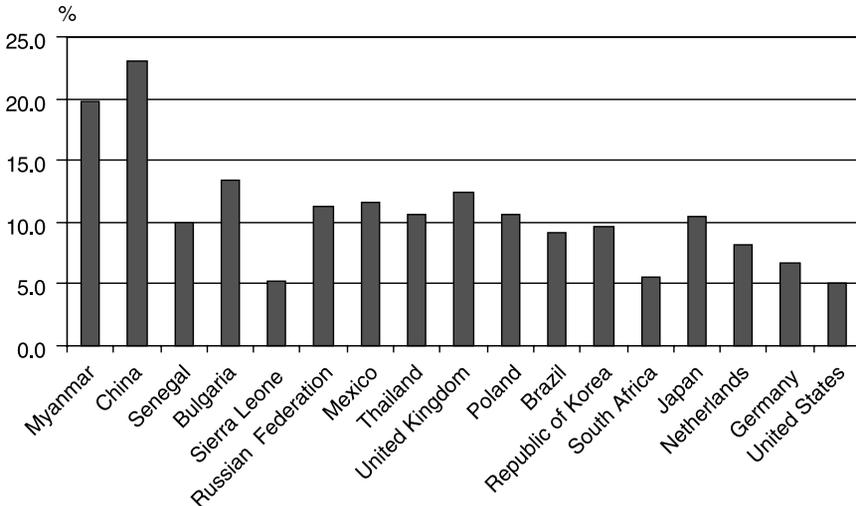
Source: WHO.

4. An aggregate indicator of the level of social protection and the efficiency of provision

With this section we venture into uncharted territory. We observed in Chapters 2 and 3 in particular that the SER does not really reflect the level of effective social protection in a country. It is an input variable rather than a measure of outcome. Moreover, it does not give any indication whatsoever of how efficiently social protection is provided. To this date there are no widely accepted aggregate indicators of the effectiveness and efficiency of social protection in a country.

Nevertheless, there has been very little research on this problem. In the ILO work has just begun. Global indicators of social protection and efficiency levels are by no means exclusively of academic interest; they have a potentially powerful political impact. If a rich OECD country discovered that its social protection indicator was lagging behind that of a much poorer country, or that its level of protection was achieved by a much higher allocation of scarce resources, policy makers and interest groups would be bound to ask some pointed questions.

The following paragraphs reflect current ILO thinking. Global indicators of effectiveness and efficiency must combine the following variables:

Scope of formal social protection: the number of social security branches plus social assistance that exist in a country – that is, a number from 1 to 10 (or 12 if we include education and housing). These data are available.

Social protection coverage as measured by ratios such as:

- the proportion of the population that has access to health care;
- the proportion of the population that would have access to basic income-security schemes if in need;
- the proportion of the labour force and the elderly/disabled that have access to or receive old-age and/or disability benefits.

Level depth/quality of coverage[15] as measured by ratios such as:

- the average amount of benefits paid by pensions as a proportion of the poverty line (for an adult equivalent preferably as a proportion of a relative line);
- the average amount of social assistance per recipient (basic income-security payment per month) as a proportion of the average individual poverty gap in the recipient group;
- the number of contacts with health care services standardized by age compared to an international benchmark (or a similar ratio).

Social protection expenditure, as measured by overall expenditure in percentage of GDP (i.e. the SER).

Two new aggregate indicators are suggested here which combine the variables described above. In this context we should bear in mind that these indicators provide merely an initial indicative diagnostic marker for certain deficiencies in an NSPS. By themselves they can never provide concrete evidence as to where the deficiencies actually lie. For this a more in-depth system analysis is required, backed up by more detailed performance indicators.

Effectiveness[16] of (public or total) social protection. As a proxy for the fuzzy concept of the social protection level in a country, an indicator can be created which might take the following mathematical form:

$$ESP = \left(\sum_{i=1}^{to} e_i * \mathrm{cov}r_i * depth_i \right) \Big/ to \tag{7.2}$$

where:

to = total number of branches of social security (or more modern number of risk categories, in other words, 10–12) that enter into the indicator

e = dummy variable that describes the existence or non-existence of the corresponding branch of social protection (0–1 variable)

$\mathrm{cov}r$ = real coverage rate/protection rate of the corresponding branch of social security (variables with values between 0 and 1); this may include estimates of the number of people who are protected *de facto* but not *de jure* (in countries where schemes exist but do not function, the difference between the two is potentially big)

$depth$ = indicator of the depth of the protection provided by the branch of social security in question (variables with values between 0 and 1, see above[17])

A *relevance weight* might also be added to the index, reflecting a certain order of priority/relevance for social schemes. Housing benefits, for example, might be relevant only for a minority of the population, and therefore should not have the same weight as pensions. It could also be argued, for example, that a basic social assistance scheme is a higher priority than a sickness benefit scheme. Even if 100 per cent of the population had access to both kinds of benefits, these benefits would still play different roles in the overall level of protection. Interesting discussions could be conducted on this subject.

Adequate indicators for cov*r* and *depth* would have to be selected for all branches of social security.

Efficiency of (public) social protection. This indicator is measured by the ratio of the effectiveness indicator and the SER:

$$FSP = ESP/SER'$$ (7.3)

In other words, how much social protection is bought by 1 per cent of GDP expenditure. The higher the figure, the greater the efficiency. SER' is the so-called maturity-adjusted social expenditure ratio. In this ratio, expenditure in the different branches of social protection is adjusted for the fact that some schemes might not be fully mature.[18]

Box 7.4 provides a sample calculation for a hypothetical OECD-type country. It is hoped that social protection indicators will be used along similar lines in the near future.

Box 7.5   Sample calculations of aggregate national effectiveness and efficiency indicators for social protection systems

If a country has a social assistance scheme that in theory is accessible to the entire population (provided they are eligible) and the average benefit is 80 per cent of the individual poverty gap, then *e* would be equal to 1, cov*r* would be equal to 1 since the benefit is available to everyone in need, and *depth* would be 0.8, since the benefit does not close the poverty gap completely. Thus, this social assistance scheme would add a value of 0.8 to the overall score of all branches of social protection (*to*) in the calculation of the effectiveness of social protection as a whole.

Furthermore, a country that spends 25 per cent of GDP on social protection, but reaches an effective level of protection of 50 per cent, would have an index of 2, whereas a country spending 30 per cent but attaining a protection level of 100 per cent would have an index of 3.33 – indicating that it was making better use of resources.

A hypothetical calculation of the two global indices of social protection effectiveness and efficiency in a mature system is shown in box table 7.5.1. According to the table, the model country would reach an

Box 7.5 (cont'd)

Box table 7.5.1 Model calculations for aggregate social protection indices

Branch/risk	Scope/ existence	Coverage (*covr*)	Indicator	Depth (*depth*)	Indicator	Score for effectiveness index	Expenditure in % of GDP	Experimental weighting relevance	Adjusted effectiveness score
Social assistance	1	1	% of total population that has access in case of need	1	average benefit in % poverty gap	1	2	1	1
Old age	1	0.9	% of labour force covered (including old people receiving)	0.75	average benefit in % of poverty line	0.675	9	1	0.675
Invalidity	1	0.9	% of employed (formal and informal) covered (including disabled people receiving)	0.75	average benefit in % of poverty line	0.675	2.5	1	0.675
Survivors	1	0.9	% of children and dependent spouses eligible in case of contingency	0.5	average benefit in % of poverty line	0.45	2	1	0.45

Financial governance

Box 7.5 (cont'd)

Box table 7.5.1 (cont'd)

Branch/risk	Scope/ existence	Coverage (covr)	Indicator	Depth (depth)	Indicator	Score for effectiveness index	Expenditure in % of GDP	Experimental weighting relevance	Adjusted effectiveness score
Sickness	1	0.9	% of employed	0.7	average benefit in % of poverty line	0.63	2	0.75	0.4725
Maternity	1	0.9	% of female employed covered	0.7	average benefit in % of poverty line	0.63	1.5	0.75	0.4725
Unemployment	1	0.9	% of labour force covered	0.7	average benefit in % of poverty line	0.63	3	1	0.63
Family benefits	1	0.75	% of children covered	0.5	average benefit in % of poverty line	0.375	1	0.75	0.28125
Work injury	1	0.9	% of employed covered	0.8	average benefit in % of poverty line	0.72	0.5	0.5	0.36

Health	1	0.95	% of population with access to health facilities (both inpatient and outpatient)	0.9	estimated average quality index (e.g. life expectancy at birth for females as a percentage of maximum)	0.855	7.5	1	0.855
Housing	1	0.25	% of poor population covered	0.5	average benefit in % of ho2using cost in poverty line consumption basket	0.125	0.3	0.25	0.03125
Basic education	1	0.95	% of children under age 16 attending school and receiving a benefit	0.5	average benefit in % of poverty line for a child	0.475	0.9	1	0.475
Total						7.24	32.2	10	6.3775
Effective social protection index						0.60		0.64	
Efficiency of the system						0.0187		0.0208	
Source: ILO.									

Box 7.5 (cont'd)

unadjusted score of 60 per cent out of a total possible score of 100 per cent (full social protection). If the single branches are weighted by relevance, the score increases to 64 per cent. This adjustment also slightly increases the efficiency score.

7.3   SUMMARY

The history of social security is filled with examples of deficient system performance. The same history shows, however, that such performance is usually the result of bad governance, in particular bad financial governance. Sound governance might be more important than a scheme's flawless initial design. Design faults can always be remedied by subsequent modifications of the law provided they are detected early and the need for corrections can be plausibly demonstrated, inter alia through sound performance-monitoring instruments.

Instruments for good governance in social protection consist of legal and managerial instruments: the former define the objectives of national systems and schemes and the monitoring and auditing instruments that have to be used, while the latter describe the schemes' operations in verifiable and preferably quantitative terms and monitor their performance.

Performance monitoring requires:

– reliable statistical and accounting information;
– clear and verifiable, preferably quantifiable objectives, defined ultimately through the basic legislative framework of an NSPS; and
– a set of solid performance indicators and intelligently chosen benchmarks.

This chapter provided a checklist of all the legislative and managerial instruments that financial or quantitative analysts of social protection schemes have to design or apply themselves or help others to do the same. Without clear and quantifiable outcome indicators it is difficult to measure the performance of a social protection system that may redistribute up to one third of a country's GDP. Without such measurements the redistribution of resources through the system is hard to justify in the long run. The credibility of the system may be in jeopardy, and credibility is the most important capital of the system and its various schemes. Losing that capital could end public support for any scheme, which in turn will be the end of the scheme.

Our major concern here – which we are not trying to hide – is the fact that the instruments meant to ensure an effective and optimal redistribution of resources are underdeveloped or at least under-applied. This is not particularly

good news. A lot remains to be done in the development and routine application of sound performance indicators in social governance – clearly a field with good prospects for those seeking employment in social protection research!

The questions listed below should be continually asked and answered in order to keep the system and all its components functioning properly.

A checklist of questions for financial and social policy analysts

When analysing the level and quality of social protection in a country or the performance of a national social protection scheme in order to improve its governance, the analyst may find it helpful to ask the following questions:

1. Does the legal system in the country define exactly:

   Who is covered?
   Who contributes?
   Who provides what benefits?
   Who supervises the functioning of:
   –   the system as a whole?
   –   the individual schemes?

2. Does the regulatory system provide for regular performance checks?
3. Does a system of national statistics and accounting exist?
4. Does it capture the full picture of the country's social situation?
5. Has a national Social Protection Expenditure and Performance Review (SPER) been undertaken?
6. Do all schemes have comprehensive and mandatory statistical and accounting frameworks?
7. Has a system of scheme-based performance indicators been developed, and is it in use?
8. Are actuarial studies and social budget simulations carried out periodically and are the resulting recommendations taken into account when policy decisions are made?

Further reading

To find out more about:

* Regulation and supervision of social security schemes, turn to:

   –   Gillion et al. (2000), Chapters 9 and 10
   –   Cichon and Samuel (1995)

Further reading (cont'd)

- Social protection statistics and accounting, see:

    – EUROSTAT (1996): *The European System of Integrated Social Protection Statistics (ESSPROS). A Manual* (EUROSTAT, Luxembourg) http://www.europa.eu.int

    – IMF (2001): *Government Finance Statistics Manual* 2001 (IMF, Washington, DC) http://www.imf.org/external/pubs/ft/gfs/manual/synopsis.htm

    – ILO (2001): *Social Security data required for the valuation of a national social security system* (ILO, Geneva) http://www.ilo.org/public/english/protection/socfas/research/stat/tabeng.doc.

- Social budgeting, see:

    – Scholz et al. (2000)

- Actuarial work in social security, see:

    – Cichon et al. (1999)
    – Plamondon et al. (2002)

- Social security/social protection performance analysis, see:

    – Hagemejer (2000), available at http://www.ilo.org/public/english/protection/socfas/research/sper/spersmet.pdf

    – ILO (2000): *Performance indicators*, available at http://www. ilo.org/public/english/protection/socfas/research/intror.htm#perfind

    – OECD (2001c).

Notes

[1] The discussion in this section largely relates to private pension systems in Latin America.

[2] OECD (2001c).

[3] See also the Labour Statistics Recommendation, 1985 (No. 170).

[4] See ILO (1957).

[5] By "governance" we mean the management of social security not only in a narrow sense but also in the broad sense of the ways in which the objectives of social security are effectively and efficiently met.

[6] See Bailey (1997b).

[7] Statistical yearbooks often lack necessary information because the statistics are not related to other data, and absolute figures which are not put in relation to benchmarks have little informational value.

[8] See, for example, Tamburi and Mouton (1976).

[9] See the discussion of performance measurement in Allen and Tommasi (2001), Chapter 15, on which the classification of performance measures described here is largely based.

[10] See Hurst and Jee-Hughes (2001) and WHO (2000). Both approaches have many similarities; generally they try to assess health care systems against three sets of objectives associated with health improvement, responsiveness and access, and expenditure and financing, respectively. Both the average outcome levels achieved and the distribution of outcomes are assessed. See also Allen and Tommasi (2001), Box 15.1, for a detailed set of performance indicators used to assess the performance of the United Kingdom health sector.

[11] Our definition of a social protection (social security) scheme is based on the ESSPROS approach (see Chapter 1). Some of the indicators may also be used to analyse institutions that administer more than one scheme.

[12] See OECD (1997) for a summary of the criteria for National Health Accounts (NHAs).

[13] See ILO Social Security (Minimum Standards) Convention, 1952 (No. 102), and other international standards.

[14] WHO (2000), p. 28. DALEs are calculated in roughly the same way as life expectancy, but the number of life years is reduced by a weighted number of years spent in disability. The data used to calculate the indicator of efficiency are taken from WHO (2000), Annex, Tables 5 and 8.

[15] Ideally, quality indicators should be supplemented by indicators of redistributive effectiveness and efficiency. *Redistributive efficiency and effectiveness* could be measured by the proportion of the aggregate national poverty gap that is closed by social protection and the decrease of pre-transfer versus post-transfer Gini coefficients. However, poverty gaps and Gini coefficients might be difficult to collect. Furthermore, the counterfactual in the comparison of pre-transfer and post-transfer distribution might be difficult to establish.

[16] We could limit this indicator to a joint coverage indicator, but this would mean losing some indicative power when it comes to using a highly aggregated indicator to alert governments and social partners to flaws in their social protection systems.

[17] If the ratio of average pensions to the average poverty line exceeds 1, then that variable would be set to 1.

[18] This largely affects pension schemes. Assume that a national pension scheme covers the total active population but has not yet reached maturity with respect to pension payments. The product of coverage, scope and depth would be high and expenditure would still be very low, indicating a very positive contribution to the efficiency index even though the scheme might waste a good deal of money on administration and other expenses. This could be avoided by multiplying the scheme by a maturity index. If, for example, the pension scheme serves only 20 per cent of the pensioners that it would probably reach in its stationary state, then pension expenditure in the SER could be multiplied by 1/0.2. Alternatively, this could be done by using SEM-type curves as described in Chapter 2, box 2.1.

ANNEX 7-A1   A SCHEME-BASED SET OF PERFORMANCE INDICATORS

(1)   Legal indicators

With respect to the legal issues involved in social security schemes, the ILO Conventions and Recommendations on social security – for example, the Social Security (Minimum Standards) Convention, 1952 (No. 102) – are used as standard references on key design features of social security schemes (such as extent of coverage, the replacement ratio, the indexation of benefits). Legal indicators are initially classified as concerning contributions or benefits. The extent of coverage is the most important concept for indicators associated with contributions, and the benefit level (quality of coverage) is the most important concept for indicators associated with benefits. Accordingly, three indicators can be selected as "core" legal indicators:

- legislative coverage rate for insured persons (L-1-1);
- relative average replacement ratio of benefits in payment (L-4-1); and
- effective rate of adjustment of benefits in payment (L-5).

Legal contribution indicators

Among indicators concerning contributions, the extent of coverage – measured not only by the number of persons covered but also by the amount of earnings subject to contributions – is the main feature to be assessed.

Extent of coverage

High coverage is one of the main objectives of a social protection scheme, and low coverage often emerges as a major problem. Furthermore, the issue is very complicated because the definition of "coverage" is ambiguous in many cases, and differently used in each case. Cases of low coverage can be complex and it is often very difficult to obtain adequate and reliable statistics to allow problems to be identified. Consequently, we propose to analyse the different dimensions of coverage in an organized way, so that each indicator corresponding to each dimension highlights the different reasons for coverage problems.

The extent of coverage can be analysed in two dimensions, namely the legal (or systemic) aspect and the governance (or administrative) aspect. Since legal indicators are supposed to examine the framework of the scheme, "legislative coverage" is measured here. It is designed to measure the estimated "legal target population" entitled to coverage under the present legislation, as compared with the total population, total labour force or total number of employed, depending on the type of scheme in question (see indicator [L-1-1]: legal coverage rate for insured persons). This indicator shows how universal the

scope of the legislation is, and has little to do with actual coverage figures. The actual coverage compared with the legal target – which tells a great deal about the management of the scheme in question – is measured by the governance indicators of coverage (see indicator [G-1-1]: registration ratio among covered persons, and indicator [G-2-1]: effective contributory ratio among insurable persons). The legal coverage should be defined as the total number of covered or insured persons who should be covered by a given scheme (or benefit branch, such as old-age pensions or unemployment benefits) divided by the total population, labour force or employment.

Coverage can also be measured not only by number of people insured, but also by the number of employers or establishments covered (see indicator [L-1-2]: legislative coverage rate for employers). It goes without saying that coverage in terms of insured persons is a more important indicator than coverage for employers, and that unless care is taken, a coverage rate calculated in terms of employers might give a skewed view, because every establishment employs a different number of people. Nevertheless, the figure for coverage based on employers provides some information, especially for the employers themselves, who are often direct partners in collecting contributions.

The catchment of insurable earnings (or the contribution base) compared with total earnings should reflect the percentage of income that is targeted in a social security scheme. Therefore, the ceilings and floors on earnings subject to contributions, often stipulated in legislation, should be assessed on the basis of the average individual earnings (see indicator [L-2-1]: relative level of limits on insurable earnings, indicator no.1; [L-2-2]: relative level of limits on insurable earnings, indicator no. 2; and [L-2-3]: catchment of earnings).

In the category of coverage associated with legal indicators, the legislative coverage rate for insured persons (L-1-1) is one of the core indicators. Although it is very difficult to establish the number of the legal target population (a statistic almost always obtained merely by estimate), this indicator tells the extent of the possible potential coverage of the labour force if it achieved the coverage stipulated in the legislation.

Other contribution indicators

The average age of insured persons is treated as an indicator of the demographic status of the scheme (see indicator [L-3]: age structure of insured persons).

Benefit (quality of coverage) indicators

The main indicators concerning benefits are those that indicate the level of benefits compared to the actual level of working generation wages/salaries/earnings, or some other benchmark (such as average consumption, minimum wage, poverty line or subsistence minimum or other national or international minimum standards).

Benefit level

The present benefit level, or more specifically, the average replacement ratio in the case of cash benefits such as pensions, should be examined in relation to the average insurable earnings or wages, broken down by each type of benefit – for example, sickness, unemployment, old-age, employment injury, family, maternity, invalidity, survivors (see indicator [L-4-1]: relative average replacement ratio of benefits in payment). Although this indicator is also influenced by non-legal factors (such as the history of the scheme, the past contributing period of individual insured persons) and also plays an important part in the financing of a scheme, it is classified as a legal indicator because it reflects, above all, the design of the scheme over the long run.

Both the average replacement ratio of all beneficiaries of the same benefit type (such as old-age pensioners) and the average replacement ratio of newly awarded benefits should be examined in order to assess not only the total average but also to judge the level of newly awarded benefits, since the mixed average of all benefits in the long history of the scheme does not always reveal much about the effectiveness of the benefits awarded most recently (see indicator [L-4-2]: relative average replacement ratio of benefits for newly awarded benefits). The average contributing period for old-age benefits is also studied as one of the determinants of benefit level (see indicator (L-4-3]: average contribution period).

Besides the current benefit level, it is important to see how the real benefit value was maintained in the past through indexation, especially long-term benefits such as pensions, because inflation often significantly affects the real purchasing power of the benefits in many existing schemes. Accordingly, indicators concerning indexation are also admitted (see indicator [L-5]: effective adjustment rate of benefits in payment).

Other benefit indicators

The average age of pensioners is an indication of the demography of the scheme (see indicator [L-6]: age structure of beneficiaries).

Another aspect of scheme coverage extent must be assessed as well: the coverage ratio for beneficiaries. This is a difficult concept both to formulate precisely (for example, "Who might be the target beneficiary?") and to calculate ("What statistics are available?"). In addition, it is not always clear exactly why potential beneficiaries are not covered. (There are always many reasons why certain persons cannot receive benefits: They might not be legally covered, or they might not satisfy qualifying conditions; and it is not always easy to count those who are not denied benefits for each specific reason.)

However, the number of beneficiaries can be gauged against a "broad" target, to provide a rough idea of the extent to which existing needs are fulfilled

by a scheme. For example, the target efficiency of the unemployment benefit may be measured by relating the number of those receiving unemployment benefits to the number of unemployed persons. Similar indicators can be designed for other benefit schemes: old-age pensioners compared to the number of those over retirement age, disability pensioners compared to the total number of disabled, recipients of social assistance benefits compared to the number of people with incomes below the social assistance intervention line (poverty threshold) (see indicator [L-7]: benefit coverage).

Nevertheless, it can be difficult to distinguish those who are not covered owing to the design of the scheme (those who are not entitled to benefits even though they meet some of the criteria, such as age, disability, poverty, or unemployment) from those who are not covered as a result of the deficient governance or administration of a scheme (such as people who are not informed about the possibility of applying for a benefit, who are not reached by social workers, who do not apply for benefits for other reasons, or who are refused benefits despite their legal entitlement). Ideally, some of the "governance" indicators should show the ratio of those actually receiving benefits to those who are legally entitled to them (the "take-up ratio"), but usually it is virtually impossible to collect the necessary information.

(2) Governance indicators

In order to design a set of indicators for the management – or, more broadly speaking, for the governance of a social protection scheme, the first step is to identify key elements in the scheme's administration. Management objectives are to register as completely as possible those persons who should be covered according to the legislation (employees and employers in case of a social insurance scheme), to collect required contributions from them, and to provide benefits without mistakes and on time. Record-keeping is critical to back up these operations (see Ross, 1996). The cost of administration should be minimized as long as the necessary scheme activities are being carried out properly.

Necessary tasks are grouped in three categories: registration, contribution collection and benefit payments. In addition to these categories, indicators measuring administrative cost are also used.

The core governance indicators are:

- Registration ratio among insurable persons (G-1-1)
- Effective contributory ratio among insurable persons (G-2-1)
- Percentage of contributions in arrears during the year (G-4-1-1)
- Speed of contribution collection during the year (G-4-2-1)
- Average claim-handling time for newly awarded benefits (G-7)
- Relative level of administrative costs (G-10)

Registration

In order to measure the effectiveness of that vaguely defined term "coverage", aspects of registration and contribution collection must be separated. The registration of employers and employees is the first step that must be taken in order to define the target of contribution collection. It is a scheme's first task to identify people who by law should be covered and to register as many of those employers and employees as possible. Parallel with the legal coverage mentioned before is the registration of both employers and employees. The percentage of registered persons compared with the legal target is used as an indicator of registration (see indicators [G-1-1]: registration rate of legally covered persons, and [G-1-2]: registration rate among liable employers.)[1]

Contribution collection

The percentage of people who actually contribute, compared with the number of insured people or with the legal target population, can be used as an indicator to measure actual contributions compared with potentials (see indicator [G-2-1]: effective coverage rate of insured persons). This indicator is usually termed a "coverage" rate, and it is one of the most important coverage indicators. The same type of indicator can be set up for number of employers (see indicator [G-2-2]: effective coverage rate of legally covered employers).

In order to assess more detailed contribution collection operations from the standpoint of timeliness and efficiency, several indicators have been established. Some measure the volume of contributions in arrears (see indicator [G-4-1-1]: proportion of contributions in arrears during the year, and indicator [G-4-1-2]: relative level of accumulated contributions in arrears). Others focus on the speed of contribution collection (see indicators [G-4-2-1]: speed of collection of contributions due during the year, and [G-4-2-2]: speed of collection of contributions in arrears).

In addition to the indicators showing the state of contribution collection, indicators concerning inspections and record-keeping are used to assess key back-up aspects of contribution collection (see indicators [G-3-1]: percentage of employers inspected, [G-3-2]: ratio of successful inspections, and [G-5-1]: record-keeping ratio of contribution collection).

Benefit payment

The administration of benefit disbursement must be efficient in order to guarantee timely benefit payment, which in turn will enhance the reliability of social security. To find out whether benefits are paid on time without errors, it is important to investigate outstanding benefits, claim-handling time and the error rate for benefit payments (see indicators [G-6]: percentage of outstanding

benefits, [G-7]: average claim-handling time for newly awarded benefits, and [G-8]: error rate on benefit payments).

Administrative expenditure

Since social insurance administration consists basically of contribution collection and benefit payment, it is appropriate to relate administrative cost to the amount of contributions (or insurable earnings) or the amount of benefits paid to beneficiaries. The administrative cost divided by total insurable earnings (in other words, the PAYG administration cost rate) gives an indication of the magnitude of administrative cost compared to the contribution rate (see indicator [G-10]: relative level of administrative costs). This indicator, of course, also has a financial aspect.

For a better understanding of the structure of administrative expenditure, the percentage of personnel cost, often the most relevant factor in administrative expenditure, is also examined (see indicator [G-11]: ratio of personnel cost to administrative cost). In addition, staffing level and relative level of staff salary are investigated in order to ascertain how much effect the demographic factor and the average salary factor have on personnel cost, given that personnel cost is the number of staff multiplied by the average staff salary (see indicators [G-12]: staffing level relative to insured persons and beneficiaries, and [G-13]: relative staff salary level).

The indicators mentioned above relate for the most part to the administration of social insurance schemes. We could develop a similar set of indicators related to universal and means-tested schemes, focusing on the registration of potential beneficiaries, claims processing and administration costs. In this case, instead of contribution collection we would assess the adequacy and timeliness of procedures of disbursing budgeted resources (from central and local government budgets).

(3)   Financial indicators

Financing is assessed in three dimensions: the macroeconomic aspect, the actuarial aspect (namely, the contribution rate and the PAYG cost rate) and the investment aspect. The core financial indicators used for such assessment are:

- GDP ratio of expenditure and income (F-1)
- Pay-as-you-go contribution rate (with and without government subsidies) (F-3)
- Funding ratio (F-5)
- Dependency ratio (F-6)
- Average annual rate of return on investment (F-7)

- Liquidity of assets (F-8)
- Percentage of public assets (F-9)

Macroeconomic aspect

The financial flows of a social protection scheme (for instance, total income and expenditure) should be assessed in light of GDP and public finance (consolidated general government expenditure and revenue, the central government budget or the local budget, depending on the type of scheme) in order to grasp its volume and its impact on the national economy and public finance (see indicator [F-1]: GDP ratio of expenditure and income).

Actuarial aspect

The first indicator describes the balance between the income and the expenditure of a scheme (see indicator [F-2]: liquidity ratio). The PAYG cost rate is a simple but significant indicator showing the present level of actual cost in relation to total insurable earnings. The PAYG cost rate should take into account the amount of subsidies the scheme actually receives, but another version of the same indicator should also be calculated without subsidies in order to ascertain the potential overall cost level without subsidization (see indicator [F-3]: PAYG contribution rate, with and without government subsidies). The PAYG cost rate is also compared with the current contribution rate (see indicator [F-4]: relative level of contribution rate) and expressed as a product of the demographic ratio to show the demographic effect on costs, and of the replacement ratio to show the effect of the benefit level on costs (see indicators [F-6]: dependency ratio, and [L-4-1]: relative average replacement ratio of benefits in payment).[2]

Investment aspect

For social insurance schemes with reserves (such as schemes providing long-term benefits, like pension schemes), indicators of funding and investment should be used. The funding ratio, obtained by dividing the reserves by total expenditure, is a fundamental indicator for assessing the volume of reserves in relation to the volume of expenditure (see indicator [F-5]: funding ratio). The efficiency of investment is measured by the average annual rate of return on investment (see indicator [F-7]: average annual rate of return on investment). In addition to these fundamental indicators of reserves and investment, indicators measuring the investment portfolio should be used. These measure the liquidity of assets (which is important when a scheme uses a portion of its reserves to pay benefits – see indicator [F-8]: liquidity of assets), and the public/private mix of investments (see indicator [F-9]: percentage of public assets).

Box 7-A1.1   Scheme-based performance indicators: Examples

L-1-1   Legal coverage rate for insured persons

The legal coverage rate is obtained by dividing the number of legally covered persons (that is, those who should be covered according to current legislation) by the number of persons in the labour force in the age bracket of coverage stipulated in the legislation. This rate shows what percentage of the labour force should in principle be covered according to law. Legally covered persons are those who, by law, should be covered by the scheme, and their number can only be estimated. For example, the national labour statistics on employment might be used for an estimation of all employees between the ages of 15 and 60, if that is the group targeted by the scheme. The legal coverage rate should be calculated by gender and possibly by other socio-economic characteristics (such as sector of the economy, employment status and type of contract, level of earnings/income, and the like).

Example:
Those in the labour force aged between 20 and 60: 1,000,000 persons
Legally covered persons (for example, public sector employees only): 200,000 persons
Legal coverage rate = 200,000/1,000,000 = 20 per cent

L-1-2   Legal coverage rate for employers

This is similar to (L-1-1) but measures coverage in terms of the number of employers (establishments). Labour statistics on the number of employers/establishments must be used. "Employers" would normally mean "establishments" (excluding self-employed persons). Care must be taken to ensure that the definition used by the scheme records corresponds to that used by the labour statistics. The rates should be calculated by the size of the establishment (number of employees), since legislation often treats small and medium-sized enterprises differently, and actual coverage is often higher for larger enterprises. Coverage of employers in different sectors of the economy should also be assessed.

Example:
Number of employers/establishments: 100,000
Legally covered employers (for example, only employers with more than 100 employees): 1,000
Legal coverage rate = 1,000/100,000 = 10 per cent

L-2-1   Relative level of limits on insurable earnings (indicator n° 1)

This measurement is obtained by dividing the maximum and/or minimum limits applicable to insurable earnings as defined by law

Box 7-A1.1 (cont'd)

(ceiling and/or floor on contributions) by the total average monthly (or daily/yearly) earnings of full contributors. This indicator shows the effectiveness of ceilings/floors in terms of average earnings. The indicator should be calculated by gender and, if possible, other characteristics of the insured (employment status, sector, etc.)

Example:
Total amount of contributors' monthly earnings: 1,000,000,000 units
Number of full contributors: 2,000,000 persons
Average monthly earnings of a full contributor: 1,000,000,000 units/ 2,000,000 = 500 units
Floor on contributions: 50 units
Ceiling on contributions: 4,000 units
Relative level of a maximum limit (ceiling) = 4,000/500 = 800 per cent
Relative level of a minimum limit (floor) = 50/500 = 10 per cent

L-2-2   *Relative level of limits on insurable earnings (indicator n° 2)*

This is another indicator that measures effectiveness of limits on earnings subject to contributions, this time from the perspective of earnings distribution. It shows the percentage of insured persons who have earnings below the floor and/or above the ceiling on insurable earnings. The indicator should be calculated by gender and, if possible, by other characteristics of the insured (employment status, sector, etc.). Calculations should be based on data from a month when the wage pattern is normal (meaning without bonus payments and the like).

Example:
Total number of insured persons: 1,000,000 persons
Number of insured persons with earnings below the floor: 50,000 persons
Number of insured persons with earnings above the ceiling: 10,000 persons
Relative level of the minimum limit = 50,000/1,000,000 = 5 per cent
Relative level of the maximum limit = 10,000/1,000,000 = 1 per cent

L-2-3   *Catchment ratio*

This is the ratio of the amount of insurable earnings (after maximum and minimum limits are applied) to the amount of total earnings (including earnings above the maximum and below the minimum). The indicator should be calculated by gender and, if possible, by other characteristics of the insured (employment status, sector, etc.).

Example:
Total amount of insurable earnings: 75,000,000 units
Total amount of earnings (before any ceilings are set): 100,000,000 units
Catchment ratio = 75,000,000 units/100,000,000 units = 75 per cent

Box 7-A1.1 (cont'd)

L-3   Average age of insured persons

Since the average age of insured persons shows the demographic ageing of a scheme, its long-term trend should be analysed. Another important indicator is the average age of those joining a scheme in a given year. These indicators should be calculated by gender.

Example:
Average age for insured persons: 42 years
Average age for those newly joining the scheme: 23 years

L-4-1   Relative average replacement ratio of benefits in payment

The average replacement ratio of benefits in payment is obtained by dividing the average annual (or monthly) individual benefit in payment by the average annual (or monthly) individual earnings of a full contributor. The rates should be calculated by gender and other specific character-istics of the beneficiaries (for example, status as widows, orphans or parents for a survivors scheme, or age in the case of an unemployment benefit scheme). For the social insurance scheme, rates should be calculated with respect both to total average earnings and to earnings subject to contributions (after ceiling and floor and other deductions are applied). If benefits are subject to income tax, then either the ratio of pre-tax average benefit to pre-tax average earnings or a ratio of average benefit net of taxes to average earnings net of taxes should be used (the preference being for gross assessment, since it is often difficult to estimate net benefits and earnings). This indicator is used to assess benefit level (quality of coverage). In some benefit schemes benchmarks other than earnings might be used — such as minimum wage, poverty line, or other minimum, national or international standards.

Example:
Average benefits: 60 units
Average insurable earnings for a full contributor: 100 units
Relative average replacement ratio $= 60/100 = 60$ per cent

L-4-2   Relative average replacement ratio of benefits for newly awarded benefits

This indicator is similar to (L-4-1) but only benefits newly awarded during a given year are taken into account. This figure is normally higher than the replacement ratio obtained by (L-4-1) because of deterioration in benefits in payments owing to the partial indexation of benefits or because of longer credit periods for recipients of newly awarded pensions. The rates should be calculated by gender and other specific characteristics of the beneficiaries (for example, status as widows, orphans or parents for a survivors scheme, or age in the case of an unemployment benefit

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Box 7-A1.1 (cont'd)

scheme). For social insurance schemes, rates should be calculated in relation to both total average earnings and earnings subject to contributions (after ceiling and floor and other deductions are applied). If benefits are subject to income tax, then either the ratio of pre-tax average benefit to pre-tax average earnings or a ratio of average benefit net of taxes to average earnings net of taxes should be used (the preference being for gross assessment, since it is often difficult to estimate net benefits and earnings).

Example:
Average newly awarded benefits: 70 units
Average insurable earnings for a full contributor: 100 units
Relative average replacement ratio = 70/100 = 70 per cent

L-4-3   *Average past contribution/service period*

The average past contribution period for a contributory scheme should be estimated both for all beneficiaries and for those who were awarded benefits during a specific year. In most old-age pension schemes and in some other social insurance benefit schemes, the length of service/contribution period is closely related to the replacement ratio and is therefore one of most important influences on benefit level. It should be calculated by gender.

Example (for old-age benefits):
Average past contribution period per beneficiary: 20 years
Average past service period per beneficiary (sick leave can be counted): 22 years
Average past contribution period per recipient of newly awarded benefits — longer than that of average beneficiary: 24 years
Average past service period per beneficiary (sick leave can be counted) — longer than that of present beneficiary: 27 years

L-5   *Effective adjustment rate of benefits in payment*

The effective adjustment rate of benefits in payment is (approximately, and assuming low inflation rates) the difference between the annual rate of increase in wages and/or consumer prices and the average annual rate of adjustment in the value of benefits in payment (rate of increase of an average benefit in payment). The effective adjustment rate indicates whether the benefits maintain both their purchasing power despite inflation and/or their ratio to average wages (that is, whether they keep pace with the improvement in wages of the working generations). The consumer price index should be relevant to the expenditure pattern of beneficiaries, if possible.

Box 7-A1.1 (cont'd)

Example:
Average percentage of adjustment in benefits: 5 per cent
CPI increase: 3 per cent
Wage increase: 7 per cent
Effective rate of adjustment with respect to inflation = 5 per cent –
3 per cent = 2 per cent (purchasing power of a benefit increased by
2 percent)
Effective rate of adjustment with respect to wages = 5 per cent –
7 per cent = −2 per cent (but since real wages increased by 4 per cent,
benefits deteriorated compared with a 2-per cent growth in real wages)

L-6   Average age and life expectancy of beneficiaries

The average age of all beneficiaries should be calculated, as well as that
for the recipients of newly awarded benefits. The average life expectancy
at the average age of newly awarded beneficiaries should also be
calculated from past and present life tables. The normal retirement
age (that is, the age at which a person meeting the requirements for
number of years of contribution is entitled to a full pension) is specified
by law. This indicator shows the demographic structure of beneficiaries.
The age structure of new beneficiaries indicates actual pensionable age.
In addition, the estimated life expectancy of the recipients of newly
awarded old-age pensions has an important financial consequence for a
pension scheme. Average age and life expectancy should be estimated
by gender.

Example:
Average age of old-age beneficiaries: 67 years
Average age of newly awarded old-age pensioners: 58 years
Average life expectancy at the average age of newly awarded old-age
pensioners (age 58): 19 years
Normal retirement age: 60 years

L-7   Benefit coverage

Benefit coverage is calculated as the ratio of the number of beneficiaries
to the estimated number of those subject to a given contingency or need.
This indicates what proportion of existing "demand" for a given type of
benefit (or, more generally, a social protection intervention) is satisfied by
a particular scheme.

Example (for unemployment benefits):
Number of unemployed persons: 100,000
Number of beneficiaries of unemployment benefits: 30,000
Benefit coverage = 30,000/100,000 = 30 per cent

Box 7-A1.1 (cont'd)

G-1-1   Registration rate of legally covered persons

This indicator (the number of registered insured persons divided by the number of legally covered persons) shows the effective coverage rate. It indicates the effectiveness of the registration process used by the social insurance scheme. See indicator (L-1-1) for explanations of the data corresponding to legally covered persons and for recommendations concerning different desired disaggregations.

Example:
Number of registered insured persons: 5,000,000
Number of legally covered persons: 10,000,000
Registration rate of the legally covered persons: 5,000,000/10,000,000 = 50 per cent

G-1-2   Registration rate among liable employers

This indicator is similar to (G-1-1), but shows the effective rate of coverage in terms of establishments registered. See indicator (L-1-2) for explanations of the data corresponding to legally covered employers/establishments and for recommendations concerning different desired disaggregations.

Example:
Number of registered employers: 40,000
Number of legally covered employers: 100,000
Registration rate of legally covered employers: 40,000/100,000 = 40 per cent

G-2-1   Effective coverage rate of insured persons (compliance ratio)

This indicator shows the effectiveness of the scheme's contribution collection process. The percentage is calculated by dividing either the number of insured persons who actually contribute at least once a year (that is, active insured persons) or the adjusted number of insured persons (full contributors) by the number of legally covered persons (excluding those people who are not required to pay contributions, such as unemployed persons if they are legally insured and do not pay contributions under a given scheme). For a definition of insurable persons, see (L-1-1). The adjusted number of insured persons is obtained by dividing either the total contributing months by 12 or the number of total contributing weeks by 52. The difference between (G-1-1) and (G-2-1) shows the rate of insured persons only registered but not actually contributing.

Example:
Number of insured persons actually contributing at least once a year (active insured persons): 3,000,000
Number of total contributing months: 24,000,000

Box 7-A1.1 (cont'd)

Number of adjusted contributors (full contributors): 24,000,000/12 = 2,000,000
Number of legally covered persons: 10,000,000
Effective coverage rate of insured persons (1): 3,000,000/10,000,000 = 30 per cent
Effective coverage rate of insured persons (2): 2,000,000/10,000,000 = 20 per cent

G-2-2 Effective coverage rate of legally covered employers (compliance ratio)

This indicator is similar to (G-2-1), except that it measures the effective coverage rate in terms of establishments rather than individuals.

Example:
Number of employers actually contributing at least once a year (active insured employers): 30,000
Number of total contributing months: 240,000
Adjusted number of contributing employers (fully contributing employers): 240,000/12 = 20,000
Number of legally covered employers: 100,000
Effective contributory rate of employers (1): 30,000/100,000 = 30 per cent
Effective contributory rate of employers (2): 20,000/100,000 = 20 per cent

G-3-1 Percentage of employers/establishments inspected

This indicator shows how often the scheme inspects employers. The percentage is obtained by dividing the number of employers inspected by the number of legally covered employers.

Example:
Number of legally covered employers: 100,000
Number of employers inspected: 2,000
Proportion of employers inspected: 2,000/100,000 = 2 per cent

G-3-2 Ratio of successful inspections

This ratio is computed by dividing the number of successful inspections by the number of employees inspected. The successful cases are defined as those which result in all necessary information being obtained to establish whether liability is being met or not.

Example:
Number of employees inspected: 2,000
Number of successful inspections: 1,000
Ratio of successful inspections: 1,000/2,000 = 50 per cent

Box 7-A1.1 (cont'd)

G-4-1-1   Proportion of contributions in arrears during the year

This indicator shows the effectiveness of contribution collection. The percentage is calculated by dividing the amount of contributions in arrears newly accumulated during the year by the amount of contributions due during the year. It should be noted that the arrears carried over from the previous year (that is, the accumulated amount in arrears) are not included here. The contributions that are no longer collectible (because the company has gone bankrupt, for example) should be written off.

Example:
Total amount of contributions in arrears newly accumulated during the year: 20,000,000 units
Total amount of contributions due during the year: 100,000,000 units
Percentage of contributions in arrears during the year: 20,000,000/100,000,000 = 20 per cent

G-4-1-2   Relative level of accumulated contributions in arrears

This indicator is designed to measure the historical effectiveness of contribution collection by comparing the accumulated contributions in arrears with the contributions due during the year. The percentage is calculated by dividing the accumulated amount of contributions in arrears by the amount of contributions due during the year. Figures from past years should be adjusted to their present value (for example, by the rate of return on investment or the interest rate) and cumulated. Any amount that has become impossible to collect (owing to the bankruptcy of the company, for instance) should be written off.

Example:
Contributions in arrears three or more years ago: Non-existent
Contributions in arrears two years ago (the value at that time): 2,000,000 units
Contributions in arrears one year ago (the value at that time): 3,000,000 units
Contributions in arrears for the current year: 4,000,000 units
Nominal interest rate of two years ago: 10 per cent
Nominal interest rate of one year ago: 5 per cent
Amount of contributions in arrears two years ago adjusted to current value: $2,000,000 * (1 + 0.1) * (1 + 0.05) = 2,310,000$ units
Amount of contributions in arrears one year ago adjusted to current value: $3,000,000 * (1 + 0.05) = 3,150,000$ units
Amount of contributions in arrears for the current year: 4,000,000
Accumulated contributions in arrears: $2,310,000 + 3,150,000 + 4,000,000 = 9,460,000$

Box 7-A1.1 (cont'd)

Contributions due in the current year: 20,000,000 units
Relative level of accumulated contributions in arrears: 9,460,000/
20,000,000 = 47.3 per cent

G-4-2-1   Speed of collection of contributions due during the year

This indicator measures how efficiently a scheme collects contributions. Average days per case spent collecting contributions due during the year should be counted. The percentage of outstanding cases should also be calculated.

G-4-2-2   Speed of collection of contributions in arrears

The collection of the total accumulated amount of contributions in arrears is divided into three categories: contributions collected by administrative action, contributions collected by the court, and the remainder (un-collected). Data on average days per case spent in collection (during the year) should also be recorded.

G-5-1   Record-keeping ratio of contribution collection

The total annual returns of reports to the organization or the institution administering a scheme are classified as incomplete returns, complete returns that have been posted to the record, or complete returns that have not been posted to the record. The record-keeping ratio is calculated by dividing the complete returns that have already been posted to the record by the number of total returns during the year.

G-6   Percentage of outstanding benefits

This indicator shows what percentage of newly awarded benefits is actually paid during the year. The percentage is obtained by dividing the number of outstanding cases by the amount of benefits due (that is, the total cases due during the year, or outstanding cases plus already paid cases). If necessary, the amount of benefits in arrears should also be assessed.

G-7   Processing time-lag for newly awarded benefits

This indicator is used to measure the effectiveness of the benefit-delivery process in terms of the average lapse of time between the receipt of the claim and the first payment of the benefits awarded and paid during the year. The average length of time (in days) is analysed separately in two phases: the time between the receipt of the claim and the decision to award benefits, and the time between the decision and the first payment. This indicator might be assessed by survey only.

Box 7-A1.1 (cont'd)

G-8   Error rate on benefit payments

This indicator is obtained by dividing the number of payment errors by the number of total payments made during the year.

G-9   Rate of complaints

This indicator is obtained by dividing the number of public enquiries and/or complaints by the total number of insured persons and beneficiaries. It is one possible way of measuring the satisfaction of those covered by a scheme with its functioning. Other methods of assessing satisfaction are surveys conducted among those covered.

G-10   Relative level of administrative costs

The relative level of administrative costs is computed by dividing the total amount of administrative expenditure by the total amount of insurable earnings or by the total amount of benefit expenditure.

G-11   Ratio of personnel cost to total administrative cost

This indicator measures personnel cost as a percentage of total administrative cost.

G-12   Staffing level relative to insured persons and beneficiaries

The staffing level of the social insurance scheme is calculated by dividing the number of staff in the institution administering a scheme (possibly only the staff dealing with that specific scheme if the institution administers more than one scheme) by the number of active insured persons and/or by the number of beneficiaries or the number of newly awarded beneficiaries.

G-13   Relative staff salary level

This indicator shows the relative average salary level of the staff administering a social protection scheme compared with average insurable earnings (in the case of a social insurance scheme) or the national average wage.

F-1   GDP ratio of expenditure and income

The data on scheme expenditure and income are contained in the financial/accounting reports. The accounting method (for instance, cash basis or accrual basis) should be clearly identified. The GDP ratio is calculated by dividing income and expenditure by GDP.

Box 7-A1.1 (cont'd)

This is a basic indicator showing the size of a social protection scheme in the macroeconomic context. Parallel indicators should be used comparing scheme income and expenditure with the consolidated general government expenditure and revenue and/or with the central or local government budgets.

Example:
GDP: 100,000,000 units
Total benefit expenditure: 10,000,000 units
GDP ratio of benefit expenditure $= 10,000,000/100,000,000 = 10$ per cent

F-2   Liquidity ratio

The liquidity ratio is defined as the quotient of total income (including or excluding investment income) divided by total expenditure (including administrative expenditure). This indicator reflects the financial situation, which changes as a scheme matures. The ratio is normally much greater than 1 when a scheme commences and eventually drops to 1 or less than 1 as the scheme matures. It also has implications for the selection of an investment portfolio, indicating how much should be liquidated from the reserves to pay benefits.

Example:
Income with investment return: 500 million units
Income without investment return: 400 million units
Expenditure: 450 million units
Liquidity ratio with investment income: $500/450 = 111$ per cent (the scheme is running without deficits by using investment income)
Liquidity ratio without investment income: $400/450 = 89$ per cent (the scheme would be in deficit without investment income)

F-3   PAYG cost rate (with and without government subsidies)

The PAYG cost rate with government subsidies is calculated by dividing the amount of total expenditure minus the government subsidies provided for by law, by total insurable earnings. The PAYG contribution rate without government subsidies is obtained simply by dividing total expenditure by total insurable earnings. The rate indicates the contribution rate that a scheme would have to levy in the absence of investment income. The rate calculated without government subsidies shows the overall financing burden that must be borne either by contributors or the government.

Example:
Total insurable earnings: 600 million units
Expenditure: 60 million units
Government subsidies: 20 million units

Box 7-A1.1 (cont'd)

Pay-as-you-go cost rate with government subsidies: (60–20)/600 = 6.7 per cent
Pay-as-you-go cost rate without government subsidies: 60/600 = 10 per cent

F-4   Relative level of the legal contribution rate

The relative level of the legal contribution rate compares the level of the scheme's actual (legally fixed) contribution rate with the PAYG contribution rate with government subsidies. This shows any discrepancy between the actual contribution rate and the PAYG cost rate.

Example:
Legally fixed contribution rate: 10 per cent
Pay-as-you-go contribution rate: 5 per cent
Relative level = 10 per cent/5 per cent = 200 per cent

F-5   Funding ratio

The funding ratio is obtained by dividing the amount of reserves at the end of the previous year by the amount of total expenditure during the year (including administrative expenditure). This shows how many years the scheme would be financially sustainable without any income other than investment income, and serves as a good indicator of the scheme's funding level.

Example:
Amount of reserves at the end of previous year: 500 million units
Amount of total expenditure during the year: 100 million units
Funding ratio = 500/100 = 500 per cent or 5 (years)

F-6   Demographic (dependency) ratio

The demographic (dependency) ratio shows the maturity of a scheme. It is calculated by dividing the total number of (full) beneficiaries by the total number of active insured persons (that is, insured persons who made at least one contribution during the year) or by the number of full contributors (or total contributing months/weeks/days divided by 12/52/365).

Example:
Number of beneficiaries: 500,000
Number of insured persons: 2,000,000
Number of active insured persons: 1,500,000
Number of full contributors: 1,200,000

Box 7-A1.1 (cont'd)

Demographic ratio no. 1 = 500,000/2,000,000 = 25 per cent
Demographic ratio no. 2 = 500,000/1,500,000 = 33 per cent
Demographic ratio no. 3 = 500,000/1,200,000 = 42 per cent

F-7   Average annual effective rate of return on investment

First, the nominal rate of return on investment is calculated, using the figures for the amount of total assets at the beginning and at the end of the year and the amount of total annual investment income. The effective rate of return on investment is calculated approximately, in any of the following three ways:

(nominal rate of return on investment) − (annual average rate of indexation on benefits)
or
(nominal rate of return on investment) − (annual average rate of increase in consumer prices)
or
(nominal rate of return on investment) − (annual average rate of increase in wages).

This indicator shows whether the rate of return is reasonable when compared with actual economic fluctuations.

Example:
Nominal rate of return on investment: 10 per cent
Average rate of indexation in benefits: 6 per cent
Average rate of increase in CPI: 4 per cent
Wage increase: 7 per cent
Effective rate of return no. 1 = 10 per cent – 6 per cent = 4 per cent
Effective rate of return no. 2 = 10 per cent – 4 per cent = 6 per cent
Effective rate of return no. 3 = 10 per cent – 7 per cent = 3 per cent

F-8   Liquidity of assets

Short-term assets are defined as those that could be liquidated within a month whenever necessary. The liquidity of assets is calculated by dividing short-term assets by the amount of total expenditure during the year. This indicates the level of contingency reserves available under a given scheme.

F-9   Percentage of government assets

The amount invested in government or parastatal papers or investment vehicles, such as treasury bills, government stocks and government bonds or government or institutional facilities, as well as the amount invested in parastatals, is calculated and divided by the amount of total assets owned by the scheme. This shows the percentage of assets in the

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Box 7-A1.1 (cont'd)

governmental/parastatal sector, and indicates the asset mix of the investment portfolio.

Example:
Treasury bills: 20 per cent
Government stocks: 10 per cent
Government bonds: 20 per cent
Government facilities: 5 per cent
Total percentage = 20 per cent + 10 per cent + 20 per cent + 5 per cent = 55 per cent

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Notes

[1] It should be stressed that the number of registered persons might be unreliable due to improper record maintenance (e.g. failure to eliminate the deceased or those who have become pensioners); the indicator might give the illusion that registration is unproblematic, which is not the case.

[2] The replacement ratio is categorized as a legal indicator. However, it is also considered an essential financial indicator.

CONCLUSION

There are a number of things that we set out to do in this book.

First of all, we have tried to demystify and explain the nature of national social protection systems (or the welfare state, if you prefer). As financial analysts, we see social protection as a set of formal social transfers aimed at alleviating or preventing poverty, abolishing or at least reducing social insecurity and providing a form of income equalization. These transfers are in part substitutes for informal societal arrangements and make social protection fairer and more reliable by increasing risk pools and dissociating access to social protection from compliance with behavioural norms. They are tools that policy makers can use to implement a variety of overall concepts of social protection and social policy, ranging from a strictly risk-related approach to income protection to a comprehensive life-cycle approach of social protection systems that are anchored in the philosophical and ethical foundations of universalism. They are thus neutral with respect to specific social policy choices.

We have shown that as a society develops economically its social protection system matures; social expenditure will go on increasing naturally until the system turns into a redistributive machine that can account for as much as one-third of the country's GDP.

Social protection systems have a direct impact on the national economy. It appears, however, that it is not their size but rather their design that decides whether that impact is positive or negative. After all, even in the absence of formal systems all societies would maintain informal redistributive systems that would not be any less costly overall but would lead to a different allocation of benefits.

We have listed the limited types of resources available to finance transfers, their effect on public budgets, and we also detailed a range of techniques that can be used to ensure the systems' financial equilibrium – in other words, making sure that the monies are there when benefit promises fall due. We have also touched upon the debate on pre-funding versus PAYG financing of pensions schemes, finding that both options face risks and that the reliability of a pension scheme ultimately depends on the society's willingness to share income – or rather consumption – with the elderly.

We have shown how, in the face of inevitably uncertain financial market performance, reserves of schemes that are largely funded can be invested responsibly.

We have also made the point that ultimately it is sound financial governance that decides how well a system or a scheme functions and that we – as financial analysts – should steer governance towards more evidence-based, rational policy choices by developing workable performance indicators. It is the quality of financial governance that determines whether the resources that a society entrusts to its social protection system are wasted or not.

We have told you what we know. But we are painfully aware that this knowledge has its natural limits. However, you should now be well equipped to help extend that knowledge base, to survive (or, why not, even sail through) the daily routine of a quantitative policy analyst in social protection, and to tackle tough financial questions in a rational manner. We had to deal with a first layer of rationality – that is, with factual knowledge and its logical consequences for policy recommendations. However, there are deeper levels of rationality and behavioural ethics that we would like to mention as parting thoughts: this may help should you despair of the quality of political decisions that are forced upon you even if you have rationally advised otherwise.

On political economy

We do not live in a pure, rational island paradise but in a complex political environment. Politics has its own economy. And in that economy the currency is electoral votes or wide public support or, in a more limited way, support of certain groups of stakeholders. The ultimate reward and capital in that economy is power. To hold on to power, politicians have to "sell" their policies to the majority of voters in a society. However, voters are not a homogenous entity; they can be classified into various interest groups. If policies are designed to satisfy the wishes of certain groups, then politicians are generally confident that the majority in that particular group (for example public servants, pensioners, physicians) will support them. Interest groups are not disjunct entities; they overlap in the sense that in addition to their group interest members of one group may have, as citizens, fundamental political convictions that are not always fully compatible with their group interest. At an early stage in Eastern Europe's transition period, Jeffrey Sachs (1995) attributed the resurgence of former communist parties in general elections to the large group made up of pensioners, since the successor organizations of the former communist parties were the only political group that had supported the principles of the old pension systems. Sachs was wrong, as was demonstrated by wide support for partly daring reforms in the pension system barely two years later. However, his reasoning serves as an example for the conceptual framework for the thinking of a political economist.

Indeed, many reforms of national social protection systems can only be explained by political economics. Reforms usually come in "packages" – that is, they contain elements that have been carefully balanced so as to satisfy

the needs or preferences of certain groups or to avoid "ruffling the feathers" of others. If in a package of health reforms cost containment measures in public hospitals are severe but glaring waste in outpatient care through private physicians is left untouched, then this efficiency gap might have been "bought" by the physicians' agreement to adopt restrictive prescription behaviour. There may also be implicit links between two seemingly different policy areas. If unions suddenly agree to a pension reform package that they have previously opposed, the sudden adoption of a new co-determination law giving unions more influence in corporate governance may explain their change of heart.

Financial analysts and planners have to be aware of such linkages. Otherwise, their feasibility studies may be built on unrealistic assumptions or simply turn out to be a waste of time. One method of approaching the logic of political economics, for example, is to carry out winners-and-losers analyses when looking into reform proposals. This can be done using complex stochastic micro-simulation models, which simulate the effect of change in the legal framework of the social protection system on a household basis, or through a static deterministic analysis of potential changes in the income distribution on the statistical basis of a household income and expenditure survey. Then it is up to the politicians to assess whether the number of losers is equal to the number of votes lost and the number of winners to the number of votes won.

In a non-democratic environment the mechanisms of political economy are less obvious, but there too the analysis and balancing of group interests are key to the feasibility of any political change. However, that context is not within our purview so we will not elaborate on it further.

On decision-making under uncertainty

We have mentioned in several places throughout the book that some of the issues addressed are not as well researched as they should be. For example, we are still unsure about the full extent of social protection's impact on the economy. We are not certain whether OECD-type social protection mechanisms will work sufficiently well in most developing countries in the foreseeable future. Nor do we really know whether their younger siblings, micro-insurance schemes, will fare any better. Most serious of all, while our policy objectives might be well defined, in our outcome measures there is room for improvement. The gaps in our knowledge will keep us all busy for some time, and that – as noted in Chapter 7 – is good news.

Is it then appropriate for financial analysts and policy makers to make recommendations to their societies about reducing or increasing levels of social protection if one or more dimensions of the potential impact of these systems are not yet fully apprehended? Well, formal social transfer systems have existed for some 120 years now and they have kept millions of people out of poverty,

in Europe and elsewhere. Had social security planners and decision-makers waited to learn all there is to know, there is a good chance that we would still be studying the potential effects of introducing new pension schemes or social assistance schemes. Decision-makers always act in a state of incomplete knowledge – whether their decision concerns going to war or going ahead with social transfer reform.

When it comes to social protection policy making, however, the minimum that decision-makers should do is to conduct a state-of-the-art risk assessment and cost-benefit analysis, and then weigh largely financial and economic risks against potential social and economic benefits. These assessments have to be undertaken by financial and economic analysts and by social policy specialists. On the basis of techniques set out in this book a financial, fiscal and economic risk and cost-benefit assessment should be possible. One method of carrying out such assessments is to go through the full checklist of questions at the end of each chapter and add some country-specific ones. To assess quantitative effects, models have to be built. New financing instruments as well as new benefits are or should normally be simulated in models before they are applied to real life. The other books in this series provide all the techniques known today for building such models.

All modellers know that a model can always be used to "prove" the viability of one policy option or another. Ultimately, it is the assumptions that determine the outcome of the model. Assumptions are used at critical junctions in all models. Since as a general rule of nature knowledge and information are always incomplete, assumptions are used as substitutes for corroborated knowledge. They often take the form of parameters that are the nerve cells of all models. They carry the message from the central brain to all distant parts of the body and make it, for instance, bend over backwards. Models – and we have all seen this – can also be made to bend over backwards.

For example, if an economist firmly believes that the introduction of a funded pension scheme will benefit the country and its population, his model will most likely assume that the aggregate savings rate and hence investment in the country will be somewhat higher than in the absence of a funded scheme, and that increased investments will create additional growth. This can be done simply by having a parameter that assumes that aggregated demand for financial assets by powerful pension funds will invigorate capital markets through "deepening" and that the availability of attractive stocks will trigger a higher savings rate. If the economist then keeps the wage share of GDP constant, then either employment or wages go up. *Quod erat demonstrandum.* Unfortunately, Latin makes no distinction between "demonstrate" and "prove"... Somebody else – holding different convictions – could simply assume that there would be no net effect on aggregate savings in the longer term once people have understood the risks of the stock markets or of capital markets in general (and why would there be?). He or she would thus assume no increase in growth and then simulate a negative effect of long-term ageing on asset

prices in the capital markets and consequently on future pension levels (see, for example, Issue Brief 2). *Quod erat demonstrandum*, again.

On analytical ethics

What is required here is a minimum of professional ethics. Every analyst should come out and say when he assumes something he does not know – even if he firmly believes that his assumptions hold true and are backed by world-famous economists. As long as there is no certainty or near-certainty, nothing should be taken for granted. Scenario analyses testing the effect of the assumed parameters have to be conducted and openly explained. The rest is then up to the decision-makers and their commonsense judgement. Making the ultimate choice remains their role and their responsibility. We should not take it off them. Otherwise we would be betraying our role in national and global governance.

Policy makers' interest may lie in the realm of political economics rather than economic economics. When Bismarck's advisers developed the blueprints for Germany's social insurance schemes in the 1880s, it is not as if the Iron Chancellor had suddenly been gripped by compassion for the suffering underclass – he simply undercut the political support of social democrats and labour unions and bought some social peace for some time to come.

Maximization of profits in political economics pursued by shrewd decision-makers works best if the public has little information about potential social, economic, fiscal and financial effects of policy action – again, regardless of whether they are embarking on war or social policy reform. It is the financial analysts' job to enhance understanding of the subject matter wherever they can and to keep to strictly neutral analyses, thereby making societally sub-optimal political profit maximizing more difficult. This is our way of contributing to good governance.

But even with the best and most conscientious of all quantitative analyses, policy choices on introducing new elements into national social protection systems or modifying old ones will not always be optimal. Whether systems are optimally or sub-optimally designed, they have to be managed in the best possible way. And here the job of the financial analyst is less contagious than when it comes to designing new systems or reforming existing ones.

Managing complex, interacting and interrelated financing mechanisms of NSPSs requires a solid understanding of their objectives and functioning, as well as a set of sophisticated management techniques. It is the actuary who may point to high administrative cost. It is the financial analyst who conducts a performance investigation into the matter. Looking for sources of waste, he may find out that the main culprit is the health care branch. The health economist may discover that the claims procedure with public hospitals is so cumbersome that many staff waste a lot of time over it. The health manager

will find that is the fault of the hospital accounting section, understaffed since the overall hospital budget is too small. And that might be the case because the health tax is too low and additional funds cannot be obtained from general revenues. A higher health tax might make the population unwilling to accept other tax hikes needed to finance anti-poverty measures. And so on and so forth. All that may lead to action on the legal front. A more likely scenario is for the financial analyst to discover that the scheme administration simply wastes money on lavish offices or fringe benefits and is overstaffed because of cronyism. The scheme's board or the legislative supervisory body can act. Abolishing waste helps the system to keep its books balanced. This in turn makes benefits safer in an unsafe world.

Honest quantitative analysts are in the business of creating transparency. What they can always do is to present the likely effects of alternative policy options and put forward assumptions, together with affiliated potential risks and benefits. They can also always trace bad administrative and management practices and quote their cost and opportunity cost. Then it is up to other people to act. It is not a bad service to society and it is well worth spending a professional life on. And, believe it or not, at times it can even be exciting.

ISSUE BRIEF 1

HIV/AIDS: MANAGING THE FINANCIAL CONSEQUENCES OF A PANDEMIC IN A DEVELOPING COUNTRY CONTEXT[1]

More immediately and much more dramatically than ageing, the HIV/AIDS pandemic poses a huge challenge to the financial management of national social protection systems. This Issue Brief enters new territory in the financial governance of social protection since it endeavours, if only on the basis of a simplified social budget model, first to assess the potential effects of HIV/AIDS on national social protection schemes and then to simulate possible coping mechanisms. It presents the impact of HIV/AIDS on the demographic and economic variables that in turn influence the finances of social protection schemes. The analysis is conducted through the case of Afroland, a hypothetical country hard hit by HIV/AIDS. The Issue Brief compares different scenarios, with and without HIV/AIDS, in order to show the possible repercussions of the various factors on the country's social budget.

1. INTRODUCTION

According to estimates of the joint United Nations Programme on HIV/AIDS (UNAIDS) and the World Health Organization (WHO), at the end of 2000 as many as 36.1 million people were living with HIV; worldwide, 3 million people died of AIDS the same year, and the number of AIDS orphans stood at 12 million. The situation is not improving: in 2000 some 5.3 million people became infected with HIV.

Ninety-five per cent of people with HIV/AIDS live in the developing world. This proportion is set to increase as infection rates continue to rise in countries where poverty, poor health systems and limited resources for prevention and care compound the problem. Sub-Saharan Africa is the region worst affected. AIDS is now the leading cause of death in Africa, responsible for one in five

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deaths. Life expectancy in southern Africa, which had risen from 44 years in the early 1950s to 59 years in the early 1990s, is set to drop to 45 years between 2005 and 2010 because of HIV/AIDS. The disease also affects other parts of the world: in Asia, for example, in 2000 there were half a million deaths from AIDS.

The socio-economic impact of HIV/AIDS is immense given that those most affected are in the 15–49 age range, the most economically productive and sexually active age group. Countries like Botswana, Namibia, Swaziland and Zimbabwe have been among the nations hardest hit, with between 20 and 26 per cent of people aged between 15 and 49 living with HIV/AIDS. The result is an increase in morbidity and mortality rates, a decline in population growth and a drop in the supply of labour. As HIV/AIDS cuts into the size and quality of the workforce, it poses ever-growing problems to business and economic policy makers, too. Its direct and indirect costs to business and the economy in these countries taken as a whole are staggering.

The number of households left without the active "middle generation" is set to increase sharply in the developing world. AIDS deaths will completely modify the age structure of the population in some countries, affecting primarily the very young and the population aged 20 to 49. Even if preventive measures can be expected to slow down the spread of the epidemic, the shape of the usual population pyramid will be completely modified and AIDS will certainly affect the demographic picture for several decades to come.

As a result, HIV/AIDS may have significant impact on both revenue and expenditure of social security programmes in developing countries.

2. PRESENTATION OF AFROLAND

The impact of HIV/AIDS will be illustrated here with the use of a hypothetical case, Afroland, a developing country experiencing a high prevalence of HIV/AIDS. Its characteristics are summarized below.

2.1 Population

Afroland has a population of 14.8 million (2000 figures). It is a young country since 43 per cent of the total population is below the age of 15 and only 5 per cent is aged 60 and over. The total fertility rate is 5.1 children per woman.

In Afroland there are presently 700,000 persons infected by HIV. Some 10 per cent of the adult population (15–49 age group) is estimated to be HIV-positive. AIDS caused 72,000 deaths in 2000. Without HIV/AIDS life expectancy at birth would be 56 years for males and 59 for females, but because of the disease it has dropped to 49 and 54 years respectively. It is supposed that the incidence of HIV/AIDS will peak in 2010 and that prevention measures will lead to a gradual disappearance of AIDS over the period 2010–50.

2.2   Economy

Afroland's GDP is currently growing at a rate of 5 per cent, and productivity per worker at 1.2 per cent annually. Labour force participation rates are 76 per cent for males and 63 per cent for females; unemployment stands at 13 per cent. It is estimated that 20 per cent of the labour force is in the informal sector. Inflation is low (2 per cent annually).

2.3   Social programmes

Afroland's pension scheme was introduced 30 years ago. The social security law provides coverage to the total labour force, but because of compliance problems and the size of the informal sector, only 34 per cent of the total workforce (for both males and females) actually pays contributions to the scheme. The present contribution rate is 8.0 per cent of insured earnings. Pension expenditure represents 1.1 per cent of GDP (2000 figures).

Health expenditure represents 3.5 per cent of GDP (1.4 per cent for the public sector and 2.1 per cent for the private sector). Other social programmes, accounting annually for 1.5 per cent of GDP, include unemployment insurance, sickness and maternity benefits, a basic employment injury programme, tax-financed family benefits and a limited social assistance programme.

3.   DEMOGRAPHIC IMPACT

3.1   Mortality

AIDS will cause an increase in mortality for two critical age groups: the very young (0–4 years) and the young adults (15–49 years). Mortality rates for them will increase dramatically. Figure IB1.1 shows projected mortality rates in 2010 for Afroland. In our example the year 2010 represents the peak of the number of AIDS deaths.

The additional deaths due to AIDS are concentrated between the ages of 15 and 50. Extra mortality for men is likely to appear at slightly higher ages than for women. Extra mortality at very young ages (0–4 years) results from cases of mother-to-child transmission of HIV.

These changes in mortality will have a major impact on life expectancy at birth. Under the scenario without HIV/AIDS, life expectancy at birth is assumed to increase gradually and continuously from its 2000 level of 56 years for males and 59 years for females to 72 and 77 years respectively in 2050. When HIV/AIDS is taken into account, life expectancy does not improve before 2010; then it starts to increase again, approaching the "non-AIDS" values only in 2050 (see figure IB1.2).

Figure IB1.1 Mortality rates for Afroland, 2010 (with and without AIDS)
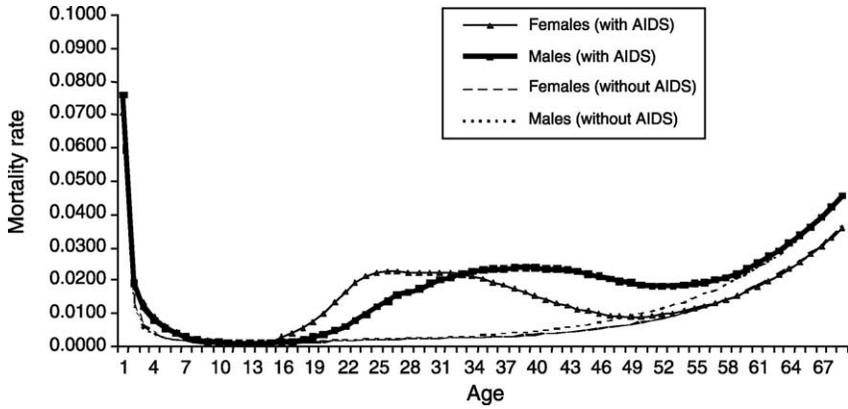
Source: ILO.

Figure IB1.2 Projected life expectancy for men in Afroland, 2000–50 (with and without HIV/AIDS)
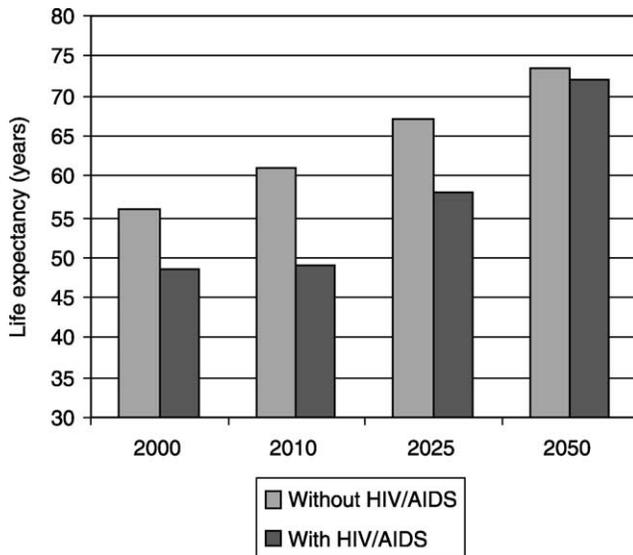
Source: ILO.

3.2 Fertility

HIV/AIDS may also affect fertility because more women will become widows, and many of them will not bear any more children. Reduction in fertility rates may also be caused by the poor health of women infected by HIV, or by their decision not to bear children.

In our base scenario for Afroland (without the impact of HIV/AIDS), it was supposed that the total fertility rate would fall from 5.1 in 2000 to 2.1 in 2025 and that it would remain at that level thereafter. In the scenario taking into account the impact of the epidemic, it is supposed that the ultimate level of 2.1 children per woman would be reached more rapidly, in 2010 instead of 2025.

3.3 Total effect on the projected structure of the population

By combining the effects of HIV/AIDS on mortality and fertility, the global impact on the projected population can be very significant indeed. Figure IB1.3 illustrates the population structure with and without HIV/AIDS by using population pyramids. Under the "no HIV/AIDS" scenario, Afroland's total population would increase from 14.8 million in 2000 to 34.1 million in 2050, representing an average annual growth of 1.7 per cent. With the effect of HIV/AIDS, the population would be only 22.6 million in 2050 because of fewer births and higher mortality. We can observe in 2025 the combined effect of lower fertility and higher infant mortality on the population below age 20, which represents the future labour force and social security contributors. Figure IB1.3 on page 500 also shows that mortality due to AIDS will prevent a large proportion of the population from reaching retirement age.

4. ECONOMIC IMPACT

4.1 General considerations

The macroeconomic effects of HIV/AIDS are difficult to assess. They are sensitive to assumptions about how HIV/AIDS is going to affect savings and investment rates. If the costs associated with the epidemic are financed out of savings, then the reduction in investment could lead to a significant decline in economic growth. The impact of HIV/AIDS also depends on whether the best-educated employees will be affected more than others. In southern Africa, for example, there is generally a surplus of unskilled labour and a shortage of certain categories of skilled labour. If the epidemic is primarily located among the unskilled and easily replaceable members of the workforce, then it will have less of an impact than if it is located among workers who are highly skilled and thus hard to replace (see Stover and Bollinger, 1999, and Sehgal, 1999).

Figure IB1.3 Population pyramids, Afroland, 2000–50
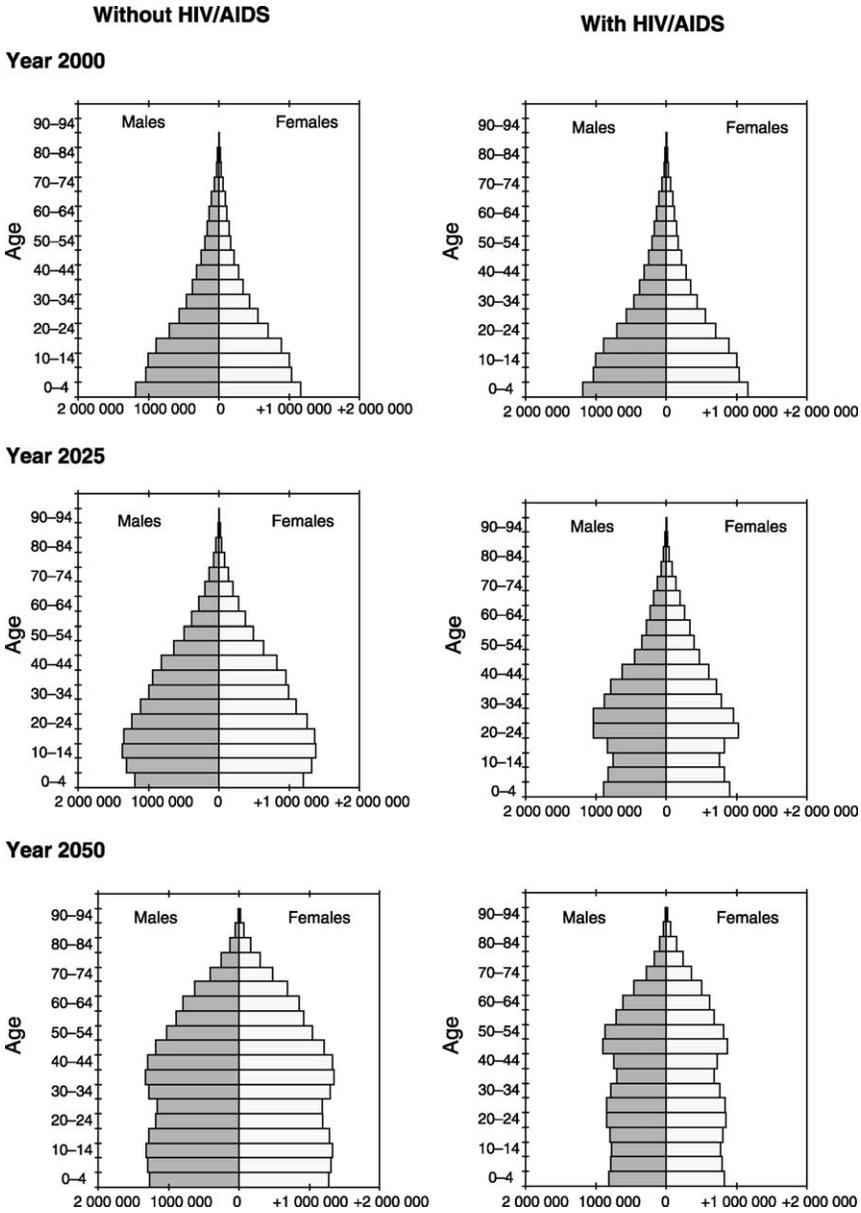
Source: ILO.

A large proportion of HIV-infected population is in the 20–49 age group. If one makes the assumption of labour force participation rates remaining largely unchanged by HIV/AIDS, this would imply that the labour force would be proportionately smaller because of the fall in the population in that age group. But it is likely that HIV/AIDS will affect the age and sex distribution of the labour force since a growing number of widows and orphans would seek employment. Moreover, the fact that a large proportion of HIV-infected population is in the 20–49 age group may result in greater pressure for an early entry of children into the labour force, early retirement of infected persons as well as a later exit of non-infected persons.

Replacing skilled workers will be difficult and will most likely remain incomplete, resulting in a decline in GDP. Theoretically, capital and technology could substitute the reduced supply of labour. But this is not always possible, especially with few technicians and inadequate systems of equipment adaptation and modification or maintenance of imported technology.

There is some evidence that with the already high unemployment and underemployment in many countries, the economic shock of reduced labour force supply will be compensated by persons seeking employment. In some cases, import of labour from neighbouring countries may also soften the blow. However, even if unemployment is high, it is not always possible to match human resource requirements with the available labour supply, in terms of skills and experience.

Since a large proportion of HIV-infected population falls in the (re)productive age group, the impact on productivity, costs and economic environment is considerable. Employers are likely to face increased labour costs because of low productivity, absenteeism, shortage of labour, shorter working hours, sick leave and other benefits, early retirement, and additional training costs. Both the well-educated/skilled and uneducated/unskilled workers are affected. Even the healthy workers are now spending time away from work visiting the sick and attending funerals of relatives or colleagues.

AIDS deaths lead directly to a drop in the number of workers available. If younger and less experienced workers replace experienced workers, productivity is reduced. A shortage in the number of workers leads to higher wages and consequently higher production costs. This may lead to a loss of international competitiveness and eventually to shortages of foreign exchange.

The decline in the number of employed persons may lead to reduced government revenues and lower private savings, causing a drop in savings and capital accumulation, which has the effect of reducing employment creation in the formal sector. Some workers will be pushed from highly paid jobs in the formal sector to lower-paid jobs in the informal sector.

Economic growth is bound to be negatively affected by all these factors. Various studies have estimated the expected decline in GDP growth. An early World Bank study on the macroeconomic impact of AIDS in 30 sub-Saharan countries predicted a reduction in the annual growth rate of GDP of 0.8 to 1.4 per cent annually.

Table IB1.1   Assumed future GDP growth for Afroland (%), 2000–2049
(with and without HIV/AIDS)

Without HIV/AIDS		With HIV/AIDS	
Year	GDP growth	Year	GDP growth
2000–04	5.0	2000–04	3.0
2005–09	4.5	2005–09	3.0
2010–19	4.0	2010–19	3.0
2020–29	3.5	2020–35	3.0
2030–39	3.0	2036–39	2.5
2040–49	2.5	2040–49	2.0
Source: ILO calculations.			

4.2   Our assumptions

It is assumed that HIV/AIDS will cause GDP growth in Afroland to decline, as shown in table IB1.1.

As regards labour productivity, the base scenario assumes that it increases by 1.2 per cent annually. Under the HIV/AIDS scenario it is assumed to increase at only 1.0 per cent annually until 2039 and to reach its former level of 1.2 per cent again thereafter. As a simplification, it is assumed that salary increases follow the increase in productivity.

With regard to the impact of HIV/AIDS on labour supply, it is assumed that the participation rates of men will be lower at all ages except for the 15–19 age group. Where women are concerned, the need for children and widows to seek employment would bring about a rise in their participation rates at all ages below 44. Combined with lower GDP growth, the unemployment rate (under the AIDS scenario) goes up from 14 per cent in 2000 to 20 per cent in 2015 and then decreases owing to the decline in total population resulting from deaths caused by AIDS.[2] The detailed economic assumptions for the different scenarios are presented in Annex IB1-A1.

4.3   Overall economic consequences

The overall economic consequences of the above assumptions on economic development and on the standard of living are quite dramatic. However, they can only be estimated using a crude indicator. They may be measured by the estimated extension of the time that Afroland would need to catch up to the standard of living of a typical southern European country (see figure IB1.4). The GDP per capita measured in purchasing power parities is here used as a crude indicator for the standard of living as well as a measure of economic development. It is assumed here that Afroland's GDP per capita, US$720 in the year 2000, reflects a purchasing power parity of US$1,700.[3] The initial purchasing power parity of the GDP (in 2000) in our comparator country in

Figure IB1.4 Projected GDP per capita for Afroland and a southern European country, 2000–2110
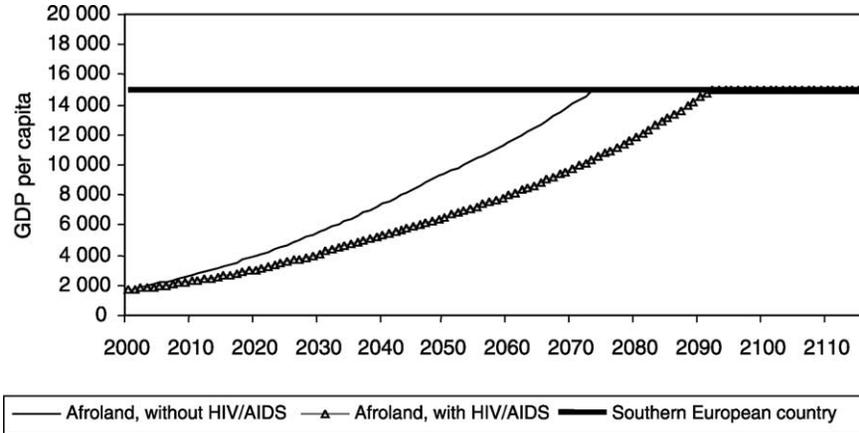
southern Europe is US$15,000 (which is similar to that of Portugal). We assume that Afroland's GDP follows the growth paths mapped out for scenarios 1 and 2. The different growth assumptions between the European comparator and Afroland lead to a slow catch-up of Afroland (in terms of per capita GDP measured in purchasing power parities) with the present GDP level of the comparator.

Under these assumptions, without HIV/AIDS Afroland would need about 74 years to catch up to the present level of GDP in the comparator country. This in itself is already bad news, but the disease would most likely extend that catch-up period by another 18 years. While it may be hoped that the economic catch-up to industrialized country level might proceed faster, one must assume that HIV/AIDS throws the development of those rapidly growing developing countries back by almost two decades. In our view, this estimate is rather optimistic.

5. IMPACT OF HIV/AIDS ON SOCIAL PROTECTION PROGRAMMES

5.1 Pensions

The impact of HIV/AIDS on pension schemes may be viewed from two angles. On the expenditure side, the epidemic is expected to reduce the number of old-age pensions in the long term, but to increase survivors' and invalidity pensions in the short term. On the revenue side, it will have an impact on the scheme in so far as the drop in the overall numbers of the population will cause a

Figure IB1.5 Projected number of old-age pensioners for the Afroland scheme, 2000–50 (with and without HIV/AIDS)
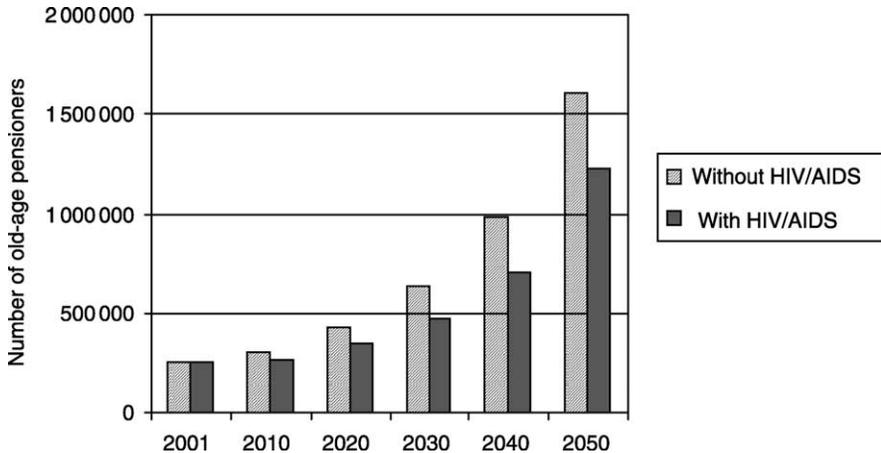
Source: ILO calculations.

reduction in the number of people in employment and that employed persons affected by HIV/AIDS are in the group of contributors to the scheme. The reality of most developing countries is that the actual coverage of social security schemes is far from complete and it can be assumed in some cases that new contributors will replace – at least partially – those who die of AIDS. However, the extent of this substitution is unknown. We have therefore chosen to analyse two scenarios with respect to the impact of AIDS on the number of contributors to the Afroland scheme: a zero-substitution scenario and a full-substitution scenario.

5.1.1 Old-age pensions

As shown in figure IB1.5, the impact of HIV/AIDS on old-age pensions varies over time. Initially their number will be almost unchanged because the disease strikes mainly persons under the age of 50. But for as long as the generations now under 50 reach retirement age, the scheme should see a fall in the number of old-age pensioners.

5.1.2 Invalidity pensions

The number of invalidity pensions will be affected by the following factors:

● The incidence of new invalidity cases is set to increase as a result of the incapacity to work of persons living with AIDS at a late stage of the disease. The impact on incidence of new pensions will depend on the length of the

Figure IB1.6 Projected number of invalidity pensioners for the Afroland scheme, 2000–50 (with and without HIV/AIDS)
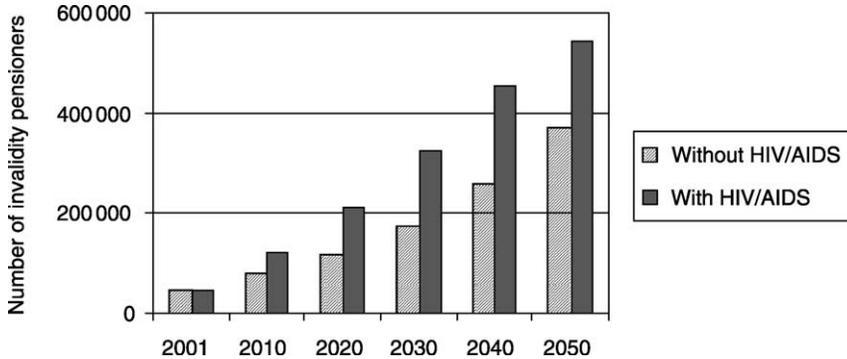
Source: ILO calculations.

waiting period before the pension is paid. In developing countries the period of time between the start of incapacity due to AIDS and the moment of death is relatively short because life-prolonging drugs are often not available. Hence, it may well happen that only few people have the time to claim the invalidity pension and receive benefits.

• The average duration of invalidity pensions will be reduced because of the rapid evolution of the disease and the rapid onset of death.

Figure IB1.6 presents one possible scenario assuming that the incidence of invalidity, with AIDS, is multiplied by a factor of 5.0 from 2000 to 2010, which gradually goes down to 1.0 between 2010 and 2050. To establish it, we have assumed that those who die of AIDS will be eligible for an invalidity pension at least for a short period before death. It is also assumed that the duration of invalidity pensions is reduced for those affected by AIDS. Furthermore, it is assumed that the mortality rates of invalidity pensioners are five times higher than in the base scenario from 2000 to 2010 and that this factor thereafter gradually drops to 1.0 by 2050.

5.1.3 Survivors' benefits

As regards survivors' benefits, AIDS will cause an increase in the number of widows and widowers as well as orphans (see figures IB1.7 and IB1.8). If the scheme provides for a funeral grant, expenditure will increase for that particular benefit.

The duration of survivors' pensions should decrease since there is a high probability of the survivors having been infected by HIV before the death of the insured person.

Figure IB1.7 Projected number of widows for the Afroland scheme, 2000–50 (with and without AIDS)
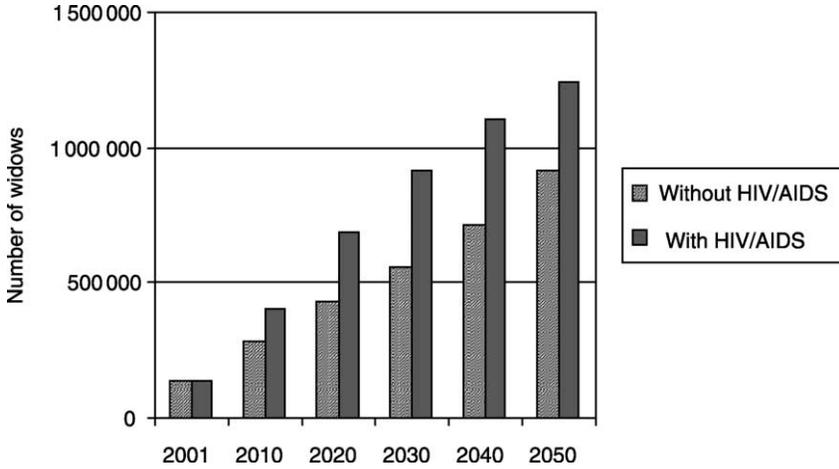
Source: ILO calculations.

Figure IB1.8 Projected number of orphans for the Afroland scheme, 2000–50 (with and without AIDS)
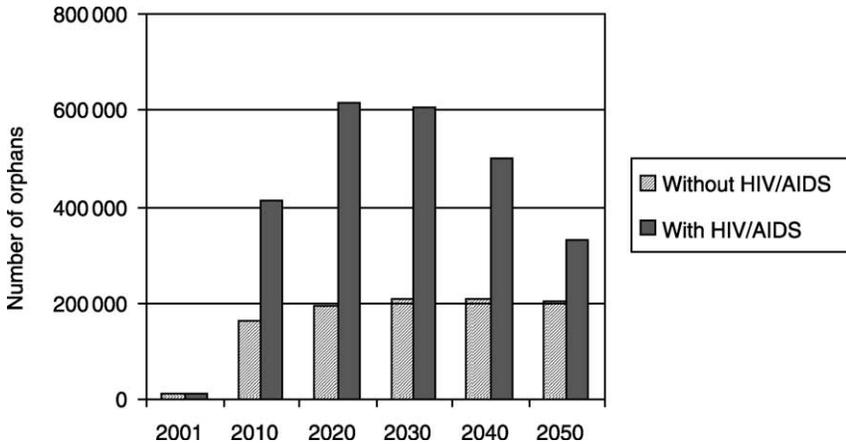
Source: ILO calculations.

As regards orphans' pensions, the increase in their number is proportionately larger than for widows' pensions because the death of the insured person happens at an early age, at a time when in the household there are more dependent children under the age of 20.

5.1.4   Impact on revenue of scheme

HIV/AIDS will have an impact on the revenue of the scheme to the extent that it affects the number of contributors and their average contributory earnings. For our simulation on Afroland, we have worked out various scenarios with regard to the impact of HIV/AIDS on the number of contributors. Scenario 1 is the base scenario, without HIV/AIDS. In scenario 2, we transfer directly on the pension scheme the reduction in the number of workers, keeping constant the percentage of workers covered by the scheme (constant age-specific coverage rates). In scenario 3 the number of contributors remains unchanged, thus leaving the revenue of the scheme unaffected; it is further assumed that the labour force is largely unemployed and easily replaceable (unskilled). Scenario 4 freezes the number of contributors at its 2000 level, assuming that the AIDS deaths and the lower economic growth prevent any increase in the covered population.

5.1.5   Global impact on cost of scheme

The global impact of HIV/AIDS on the cost of a social security pension scheme will vary over time. In the short run, the additional survivors' and invalidity pensions will increase spending and HIV/AIDS may reduce the number of contributors because of their death or incapacity to work. In the longer run, HIV/AIDS is expected to reduce the number of persons reaching retirement age, thereby lowering the expenditure related to old-age pensions.

Under the least favourable scenario (frozen participation levels), the pay-as-you-go (PAYG) rate increases dramatically from its present level of 7.7 per cent to 20 per cent in 2030, and eventually to 23 per cent in 2050. On the other hand, if we assume that those who die of AIDS are rapidly replaced by new contributors to the scheme (scenario 3), then the impact on the overall cost is slightly reduced with a PAYG rate under 12 per cent for the next 40 years. Figure IB1.9 presents the PAYG cost of the scheme under the different scenarios.

It may be helpful to compare the general average premium (GAP) under the various scenarios. It is defined here as the constant contribution rate that is necessary to finance all benefits of the scheme over the period 2000–50. Under the base scenario (scenario 1), without the impact of HIV/AIDS, the GAP would be 10.3 per cent, and under scenario 2 it would amount to 11.4 per cent. This means that an immediate and constant increase of 1.1 per cent in the contribution rate would be required over the next 50 years. On the other hand, if we assume that HIV/AIDS does not affect the number of contributors because of a full substitution of the labour force (scenario 3), then the GAP would

Figure IB1.9 PAYG cost of the Afroland scheme under various scenarios
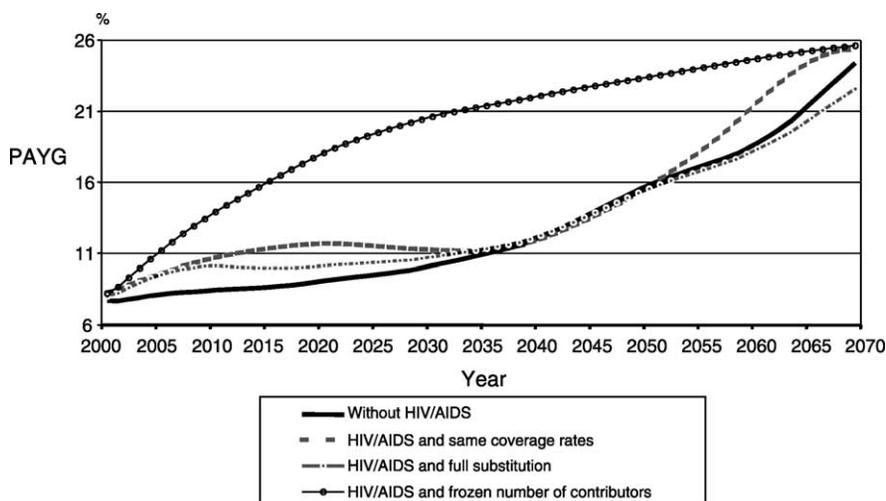
Source: ILO calculations.

increase to 11.0 per cent (compared with 10.3 per cent under the base scenario). Under scenario 4, the least favourable of all, the GAP would be 16.5 per cent over the next 50 years.

5.1.6 Impact on contribution rates

As mentioned in the presentation of Afroland, the present contribution rate of 8 per cent was considered sufficient, in the absence of HIV/AIDS, to support the scheme until 2027. The presence of the disease will change the picture and force an early increase in the contribution rate because of the short-term deficit caused by higher spending and the possible shrinking of the number of contributors. Table IB1.2 presents the contribution rates under the different scenarios. The starting rate is the present, 8-per cent rate. When it is no longer sufficient, it is increased just enough to meet the PAYG cost of the scheme.

In scenario 2, where HIV/AIDS affects the number of contributors in the same proportion as the entire labour force, we observe that the 8-per cent contribution rate is insufficient already in 2000. The contribution rate must be increased gradually to reach 10.5 per cent in 2010 in order to face the increasing expenditure pattern and the lower salary base resulting from HIV/AIDS. Scenario 3, where HIV/AIDS does not affect the number of contributors, also requires a faster contribution rate increase (compared to the base scenario, without HIV/AIDS), but at a slower pace than in scenario 2. Under the

Table IB1.2 Required contribution rates (%), Afroland, 2000–50 (with and without HIV/AIDS)

Year	Scenario 1	Scenario 2	Scenario 3	Scenario 4
2000	8.0	8.2	8.0	8.3
2001	8.0	8.5	8.2	8.9
2002	8.0	8.8	8.6	9.6
2003	8.0	9.1	9.0	10.4
2004	8.0	9.4	9.3	11.1
2005	8.1	9.6	9.5	11.7
2010	8.4	10.5	10.1	14.1
2020	9.0	11.7	10.1	17.3
2030	10.0	11.3	10.7	19.9
2040	11.8	11.7	12.0	21.6
2050	15.5	15.2	15.2	23.2

Source: ILO calculations.

worst-case scenario the contribution rate would have to increase rapidly to 17.3 per cent in 2020 and to 23.2 per cent in 2050.

5.1.7 Other pension arrangements

The above discussion used the example of a typical defined-benefit pension scheme. Other arrangements will be affected by HIV/AIDS in a different way. Annex IB1-A2 presents the impact of AIDS in the context of a defined-contribution (or Provident Fund) arrangement, discussing how this type of scheme is equipped to address the issue of HIV/AIDS.

5.2   Health

Health is obviously a sector directly affected by HIV/AIDS. Health expenditures related to the disease can be divided into curative care and prevention. Health care may be offered by the public sector, by the private sector, and by donors.

In the particular case of Afroland, it is assumed that all public expenditures on health are financed from general revenues and that there is no national health insurance scheme. On the basis of World Bank data for a number of African countries, we assume that the annual health care cost related to HIV/AIDS for an individual is equal to 1.5 times the per capita GDP. In Afroland this translates into an expenditure of US$1,080 per affected individual in 2000. This should even allow for the provision of generic

Table IB1.3   Projected health care expenditure (as % of GDP), Afroland, 2000–15 (with and without HIV/AIDS)

Year	Without HIV/AIDS	With HIV/AIDS
2000	2.5	3.5
2005	2.5	4.4
2010	2.5	4.9
2015	2.5	5.1

Source: ILO calculations.

anti-retroviral drugs in regions where their application can be properly monitored by medical staff. It is considered here that health expenditure related to AIDS does not vary much according to age because of the nature of the disease and its short duration in developing countries. It is also assumed that the health care delivery system accommodates the additional demand in full, i.e. that the delivery system is not subject to a capacity constraint. With respect to the financial consequences of the pandemic, this is definitely a prudent assumption. Based on these assumptions and the AIDS prevalence rates assumed for Afroland, total health expenditures represent, in 2000, 2.5 per cent of GDP without HIV/AIDS and 3.5 per cent of GDP taking into account the impact of HIV/AIDS.

For projections of future health care, we assume that without HIV/AIDS the total remains constant as a percentage of GDP (2.5 per cent). Assuming that HIV/AIDS-related expenditure grows at the same pace as the number of AIDS deaths (as projected under the demographic model), total health expenditures in the context of HIV/AIDS increase from 3.5 per cent of GDP in 2000 to 5.1 per cent of GDP in 2015 (see table IB1.3).

5.3   Unemployment insurance

The unemployment programme will be affected by HIV/AIDS since the epidemic will slow economic growth and cause unemployment. Table IB1.4

Table IB1.4   Unemployment rates (%), Afroland, 2000–15 (with and without HIV/AIDS)

Year	Without HIV/AIDS	With HIV/AIDS
2000	13	14
2005	12	17
2010	12	18
2015	13	20

Source: ILO calculations.

presents the unemployment rates used in our economic scenario. It must be noted that, since HIV/AIDS leads to a reduction in the population of working age, after 2015 the unemployment rate would start to decline and after 2025 become lower than the rates under the scenario without HIV/AIDS (see point 5 of Annex IB1-A1).

We assume that Afroland has introduced an unemployment insurance scheme financed by employer/worker contributions equal to 1 per cent of covered salaries. HIV/AIDS will cause a rise in unemployment, as shown in table IB1.4. It is assumed that unemployment in the formal sector and hence registered unemployment (and consequently unemployment benefits) will follow the same pattern. Therefore, the unemployment insurance contribution will have to be increased gradually from 1.0 per cent of covered earnings in 2000 to 1.5 per cent in 2015.

5.4   Short-term benefits

In our example, short-term benefits include sickness, maternity and employment injury benefits. We assume that the cost of sickness benefits will increase by 50 per cent as a result of HIV/AIDS, from 0.5 per cent of payroll to 0.75 per cent of payroll. Maternity benefits (0.5 per cent of payroll in 2000) will follow the decline in the fertility rate as a result of HIV/AIDS and the cost of employment injury benefits will not be affected, remaining at 1.0 per cent of payroll.

5.5   Family benefits

It is assumed that tax-financed family benefits will not be affected by HIV/AIDS. A change in the country's demographic make-up would be compensated by a change in benefit amounts so as to keep global expenditure at the same level.

5.6   Social assistance

Afroland has a basic social assistance programme whose expenditure, financed from government's general revenue, represents 0.25 per cent of GDP. It is assumed that HIV/AIDS will increase poverty and that the government will have to support those in need because of loss of income or higher expenses for personal health care. It is further assumed that the social assistance programme would have to pay additional cash benefits of US$500 to 53,000 persons affected by HIV/AIDS in the year 2000 and that this amount, indexed annually, would be payable to an increasing number of persons, in line with our demographic projections.

Under these assumptions, the cost of the social assistance programme would double in 2000 (from 0.25 per cent to 0.50 per cent of GDP) because of HIV/AIDS, reaching 0.9 per cent of GDP in 2015.

Table IB1.5 Afroland's Social Budget (as % of GDP), 2000–15 (without HIV/AIDS)

	2000	2005	2010	2015
Expenditure				
1. Pensions	1.1	1.3	1.5	1.7
2. Health	2.5	2.5	2.5	2.5
Public	1.0	1.0	1.0	1.0
Private	1.5	1.5	1.5	1.5
3. Unemployment	0.1	0.2	0.2	0.2
4. Short-term benefits	0.3	0.3	0.3	0.4
5. Family benefits	0.5	0.4	0.4	0.4
6. Social assistance	0.2	0.2	0.2	0.2
Total current social expenditure	4.7	4.9	5.1	5.4
Change of reserves	0.2	0.2	0.1	0.0
Pension insurance	0.2	0.2	0.1	0.0
Health insurance	0.0	0.0	0.0	0.0
Short-term benefits	0.0	0.0	0.0	0.0
Unemployment insurance	0.0	0.0	0.0	0.0
Total social expenditure	5.0	5.1	5.2	5.4
Income				
Social security contributions	1.6	1.7	2.0	2.2
Pension insurance	1.1	1.3	1.5	1.6
Health insurance	0.0	0.0	0.0	0.0
Short-term benefits	0.3	0.3	0.3	0.4
Unemployment insurance	0.1	0.2	0.2	0.2
Investment income	0.2	0.2	0.2	0.2
Pension insurance	0.2	0.2	0.2	0.2
Health insurance	0.0	0.0	0.0	0.0
Short-term benefits	0.0	0.0	0.0	0.0
Unemployment insurance	0.0	0.0	0.0	0.0
Income from General revenues	3.2	3.2	3.0	3.1
Total income	5.0	5.1	5.2	5.4

Source: ILO calculations.

6. SOCIAL BUDGET

Tables IB1.5 and IB1.6 present the social budget of Afroland without and with the impact of HIV/AIDS (see also figures IB1.10 and IB1.11). In the year 2000, without HIV/AIDS, total social expenditure represents 5.0 per cent of GDP, out of which 2.5 per cent of GDP goes for health and 1.1 per cent for pensions. It grows modestly over the next 15 years from 5.0 to 5.4 per cent of GDP mainly because of the increase of the expenditure on pensions. Since pensions are financed from

Table IB1.6 Afroland's Social Budget (as % of GDP), 2000–15 (with HIV/AIDS)

	2000	2005	2010	2015
Expenditure				
1. Pensions	1.1	1.5	1.8	2.2
2. Health	3.5	4.4	4.9	5.1
Public	1.4	1.7	1.9	2.0
Private	2.1	2.6	2.9	3.0
3. Unemployment	0.2	0.2	0.3	0.4
4. Short-term benefits	0.3	0.4	0.5	0.6
5. Family benefits	0.5	0.5	0.5	0.5
6. Social assistance	0.5	0.7	0.8	0.9
Total current social expenditure	6.1	7.7	8.8	9.6
Change of reserves	0.2	0.2	0.2	0.1
Pension insurance	0.2	0.2	0.2	0.1
Health insurance	0.0	0.0	0.0	0.0
Short-term benefits	0.0	0.0	0.0	0.0
Unemployment insurance	0.0	0.0	0.0	0.0
Total social expenditure	6.3	7.9	9.1	9.7
Income				
Social security contributions	1.6	2.1	2.6	3.2
Pension insurance	1.1	1.5	1.8	2.2
Health insurance	0.0	0.0	0.0	0.0
Short-term benefits	0.3	0.4	0.5	0.6
Unemployment insurance	0.2	0.2	0.3	0.4
Investment income	0.2	0.2	0.2	0.2
Pension insurance	0.2	0.2	0.2	0.2
Health insurance	0.0	0.0	0.0	0.0
Short-term benefits	0.0	0.0	0.0	0.0
Unemployment insurance	0.0	0.0	0.0	0.0
Income from General revenues	4.5	5.6	6.2	6.3
Total income	6.3	7.9	9.1	9.7

Source: ILO calculations.

workers' and employers' payroll contributions, the burden on general revenues declines slightly during the period, from 3.2 to 3.1 per cent of GDP.

With HIV/AIDS the picture is seriously distorted. Health spending, which represents the main social expenditure item financed from general revenues, increases from 3.5 per cent of GDP in 2000 to 5.1 per cent of GDP in 2015. The pension burden doubles from 1.1 to 2.2 per cent of GDP during the same period. The resulting impact of AIDS on general revenues is that the government will have to finance expenditure amounting to 4.5 per cent of GDP (compared to 3.2 per cent) in 2000 and 6.3 per cent of GDP (instead of 3.1 per cent) in 2015.

Figure IB1.10 Projection of social expenditure (as % of GDP), Afroland, 2000–15 (without HIV/AIDS)
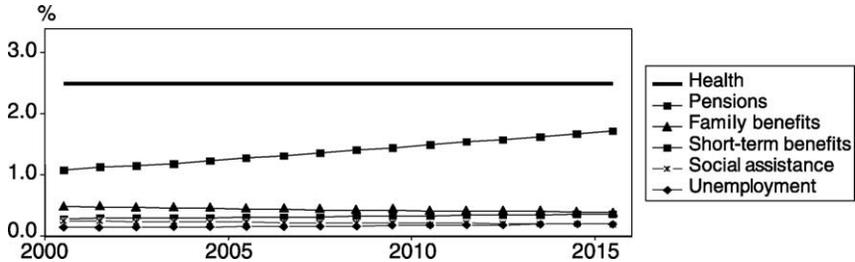
Source: ILO calculations.

Figure IB1.11 Projection of social expenditure (as % of GDP), Afroland, 2000–15 (with HIV/AIDS)
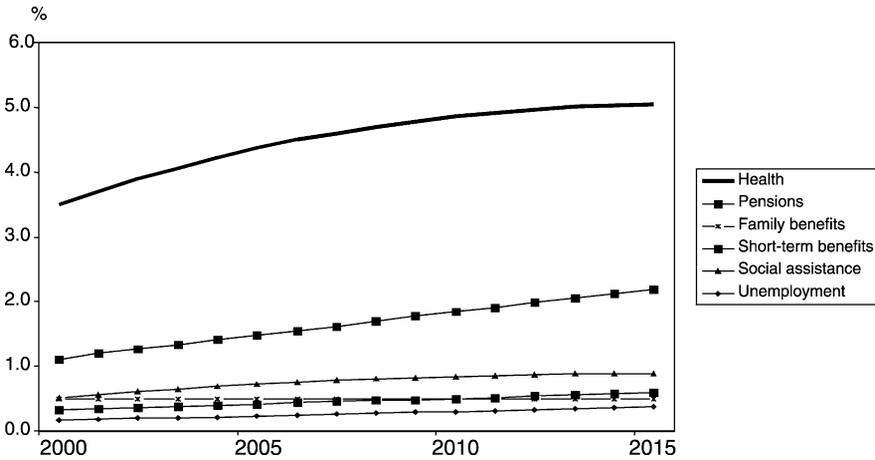
Source: ILO calculations.

The addition of all the components of social expenditures shows that HIV/AIDS will have a dramatic impact on government-financed schemes and may cause serious budgetary problems.

7.   IMPACT OF HIV/AIDS ON GOVERNMENT BUDGET

Under our hypothetical scenario, general taxes collected in Afroland represent 15 per cent of GDP and, in 2000, those taxes can finance all government

Table IB1.7 Government budget (as % of GDP), Afroland, 2000 and 2015
(with and without HIV/AIDS)

	2000		2015	
	Without *HIV/AIDS*	With *HIV/AIDS*	Without *HIV/AIDS*	With *HIV/AIDS*
Revenue				
Taxes	15.0	15.0	17.5	17.1
Social security contributions and investment income	1.8	1.8	2.4	3.4
Other income	3.2	3.2	0.5	0.5
Total	20.0	20.0	20.4	21.0
Expenditure				
Social assistance and social security	2.5	2.8	2.9	4.6
Health	2.5	3.5	2.5	5.1
Other	15.0	15.0	15.0	15.0
Total	20.0	21.3	20.4	24.7
Surplus/deficit	**0.0**	**−1.3**	**0.0**	**−3.7**

Notes:

• The increase in tax revenue between 2000 and 2015 is due to the increase of the number of workers in the formal sector; direct taxes are assumed to increase in proportion to the total payroll covered by the public pension scheme.

• The figures "With HIV/AIDS" are expressed as a percentage of a GDP that is lower than under the scenario "Without HIV/AIDS" because of the impact of AIDS on the rate of growth of GDP.

Source: ILO calculations.

expenditures not related to social security and health. It is supposed that 60 per cent of tax revenues results from indirect taxation on consumption (which follows the growth of GDP) and that 40 per cent is direct taxes that follow the contribution revenue of the public pension scheme.

In the context without AIDS, the government's budget would be in equilibrium in 2000 and its surplus/deficit position would remain the same, assuming that the increase in taxes (due to the move of workers from the informal to the formal sector of the economy) is compensated by a fall in other government revenues.

AIDS changes the picture dramatically. As shown in table IB1.7, it generates a government deficit equal to 1.3 per cent of GDP in 2000 and, if the pandemic is not controlled, the budget deficit reaches 3.7 per cent of GDP in 2015.

What are the solutions for the government in such a difficult budgetary context? Two options, attractive at first glance, are not really viable:

• Increasing general taxes in order to finance the rise in health care costs may just put additional pressure on a fragile economy and create more unemployment.

- Introducing a health insurance scheme financed by employee/employer contributions would shift the cost burden of the costliest item (health expenditure) from the government to the private sector. This would have a direct effect on the government budget. However, a health insurance scheme introduced in the context of a pandemic of this scale has no real chance of being viable because of the incapacity to charge premiums linked to the high cost of AIDS-related curative care. In addition, this option would increase the cost of labour and have a negative effect on the economy, thus reducing growth, increasing unemployment and diminishing general tax revenues.

An effective short-term strategy would be to invest in awareness-raising campaigns in order to reduce the financial impact of HIV/AIDS, especially on health expenditure. Investment in such campaigns at workplaces, designed to reduce the incidence of HIV/AIDS, could contribute substantially to safeguarding the future financial well-being of the social security system. Some co-sponsoring of campaigns by social security pension schemes seems to constitute a fully justified and rational course of action.

8. CONCLUSION

As long as a pension scheme is able to replace the workers who are prematurely dying of AIDS, the impact of the disease on national pension schemes appears manageable from the financial point of view. However, the great unknown is the impact of HIV/AIDS on the number of contributors to these schemes. For developing countries, it may be assumed that high unemployment and the large size of the informal sector will make it possible to replace AIDS deaths in the workforce to a considerable degree with workers not currently employed in the formal sector. But even under that assumption, it is possible that the overall growth rates will drop since the productivity of the new workers is not likely to be as high as the productivity of those to be replaced, and the cost of training the replacements will increase the overall cost to the enterprise, thereby affecting growth. The dramatic results of the non-replacement scenario (which certainly describes an improbable extreme case) show that the financial risks of pension schemes affiliated with a potential loss of qualified workers in the economy are indeed substantial.

On the other hand, the theoretical social budget exercise presented here shows that the cost of social programmes other than pension schemes might increase significantly as a result of HIV/AIDS. The cost of health care, sickness and unemployment benefits schemes may rise dramatically as AIDS puts people out of jobs and generates the need for income support and health care. In countries with high HIV/AIDS prevalence, the burden on general revenues may put governments in an untenable financial position. Investing in early awareness-raising campaigns remains one possible solution.

Notes

[1] This is an extended version of Cichon and Plamondon (2001). The original paper was limited to the effects of the pandemic on pension systems.

[2] The unemployment rate in many developing countries is significantly higher, sometimes reaching 40 per cent or more. In that context, our assumptions might appear optimistic. However, as described earlier in the context of AIDS, high unemployment combined with unskilled labour may lead to an easier replacement of people dying from AIDS with people coming from the ranks of the unemployed or from the informal sector. Consequently, keeping the unemployment rate voluntarily at a low level may generate a greater impact of AIDS on the social security system.

[3] Such a relationship between the two indicators is observed for example in Côte d'Ivoire.

ANNEX IB1-A1   DESCRIPTION OF THE MAIN ECONOMIC ASSUMPTIONS USED FOR PROJECTIONS

1.   Description of the four scenarios

Issue Brief 1 compares projections under four scenarios depending on the presence or absence of HIV/AIDS and the extent to which it affects the number of contributors to the social security scheme. The scenarios are as follows:

Scenario 1

Base scenario, without HIV/AIDS.

Scenario 2

HIV/AIDS affects the number of contributors to the social security scheme the same way it affects the total labour force. The coverage rates are set equal to those of the base scenario.

Scenario 3

The number of contributors to the social security scheme is the same as in the base scenario (without HIV/AIDS). It is assumed that there is full substitution of contributors dying from AIDS by workers previously not covered by the scheme.

Scenario 4

The number of contributors is constant and equal to the absolute number observed in 2000.

2.   Rate of growth of GDP (%)

Year	Scenario 1	Year	Scenarios 2, 3 and 4
2000–04	5.0	2000–04	3.0
2005–09	4.5	2005–09	3.0
2010–19	4.0	2010–19	3.0
2020–29	3.5	2020–35	3.0
2030–39	3.0	2036–39	2.5
2040–49	2.5	2040–49	2.0
Source: ILO calculations.			

3.   Rate of growth of productivity per worker (%)

Year	Scenario 1	Year	Scenarios 2, 3 and 4
2000+	1.2	2000–39	1.0
		2040+	1.2

Source: ILO calculations.

4.   Participation rates (%)

Age	Scenario 1		Scenarios 2, 3 and 4	
	Males	Females	Males	Females
15–19	58	37	65	50
20–24	89	44	90	60
25–29	97	47	90	60
30–34	98	49	90	60
35–39	99	49	90	60
40–44	98	51	90	60
45–49	97	51	90	50
50–54	97	49	90	50
55–59	90	46	60	30
60–64	88	39	20	20
65–69	72	23	20	20

Source: ILO calculations.

5.   Unemployment rates (%)

Year	Scenario 1	Scenarios 2, 3 and 4
2000	13	14
2005	12	17
2010	12	18
2015	13	20
2020	14	19
2025	16	17
2030	17	12
2035	17	7
2040	16	6
2045	15	6
2050	13	6

Source: ILO calculations.

6. Percentage of workers covered by the social security scheme

The following coverage rates are assumed for scenarios 1 and 2. Under scenario 2, the same coverage rates are applied to a reduced labour force, resulting in a reduced covered population.

Age	Age-specific coverage rates	
	Males	Females
15–19	20	20
20–24	25	25
25–29	30	30
30–34	40	35
35–39	40	40
40–44	50	45
45–49	50	50
50–54	60	55
55–59	60	60
Source: ILO calculations.		

Scenario 3 uses the same number of insured persons as scenario 1. Scenario 4 uses a constant absolute number of insured persons equal to the observed covered population in 2000.

ANNEX IB1-A2 IMPACT OF HIV/AIDS ON DEFINED-CONTRIBUTION SCHEMES

In the field of pensions, the Issue Brief has addressed the issue of the financial impact of HIV/AIDS in the context of defined-benefit pension schemes. However, as already mentioned, certain African countries have adopted different forms of pension provisions. Some countries have introduced Provident Funds or other forms of defined-contribution (DC) systems. It may be of interest to analyse how these instruments may deal with the issue of HIV/AIDS.

Under a DC scheme, contributions are accumulated in an individual account and the accumulated account is normally paid at retirement in the form of an annuity, a lump-sum or scheduled withdrawals. The usual death benefit under a DC pension scheme is a refund of the account accumulated on behalf of the individual at the time of death. The accumulated account represents the sum of contributions previously paid plus accumulated interest. If the death occurs just a few years after the individual has started contributing to the scheme, then the accumulated account will be low.

Using the same 8-per cent contribution rate as in the Afroland case, table IB1-A2.1 presents the accumulated account at different ages for an individual who started contributing to a DC scheme at the age of 20.

Table IB1-A2.1 shows that the regular income that can be purchased from the accumulated account is far below the value of a life annuity when the death occurs before age 45 (compare columns (3) and (4) of the table). It also shows that DC schemes are poorly adapted to face the threat of HIV/AIDS because of

Table IB1-A2.1 Accumulated contributions in a DC scheme (age 20 at entry)

Age	(1) Current salary ($)	(2) Accumulated account ($)	(3) Ratio of accumulated account over current salary	(4) Value of a life annuity to the spouse (of one dollar per year)
25	23 411	12 383	0.5	19.4
30	27 405	28 487	1.0	18.6
35	32 079	52 070	1.6	17.6
40	37 551	86 008	2.3	16.5
45	43 956	134 210	3.1	15.2

Note

It is assumed that:

- the salary increases by 3.2 per cent (nominal) per year
- the individual account earns interest at 6.0 per cent annually
- the life annuity is indexed at 2 per cent annually

Source: ILO calculations.

their incapacity to provide regular long-term income to the survivors of contributors belonging to the most affected age groups (20-45 years of age).

On the other hand, some Provident Funds allow the pre-payment of the account balance in the case of specific events before retirement. Such a provision may help to pay medicines and hospital expenses and to support the family during the last months of the contributor's life.

MIGRATION AND HIGHER LABOUR FORCE PARTICIPATION AS FACTORS IN SOCIAL PROTECTION FINANCING: POLICY CHOICES IN AGEING SOCIETIES[1]

1. INTRODUCTION AND OBJECTIVE

Ageing is often perceived as one of the core problems facing the social protection sector, and pension schemes in particular; however, this is an unduly curtailed view of its implications for a society. Ageing also means that a country's labour force is contracting while the relative number of people that are dependent on transfer incomes increases. All other conditions remaining equal, per capita GDP should decline, leading to a fall in the standards of living in general, and of social protection in particular.

If the population as a whole wants to maintain its standard of living then the productivity of the shrinking labour force has to increase, probably through more capital-intensive ways of production. Funding pensions might help to create the savings needed. However, the possible increase in labour productivity through greater use of capital is limited by the pace of technological change. Even during the 1990s, a decade of rapid technological progress, productivity per worker in Europe hardly increased by more than 2 per cent annually. The other option would be to expand the labour force through higher rates of participation of the existing population and through migration.

This Issue Brief explores the interrelationships between economic performance, financing of social protection, migration and higher labour force participation in a society that wants to maintain its standard of living. The setting chosen is the European Union in its current composition, referred to here as EU-15.

The Brief works through the mechanics of those interrelationships by using a simple long-term demographic and pension model linked to a

simplified long-term national economic accounting model. The simulation methods used are largely of an actuarial and deterministic nature: in other words, they project expenditure and benefit levels for the next 50 years under a variety of scenarios and prudent assumptions based on national accounts identities. The objective is not to develop a perfect model but rather to move the debate from general qualitative reasoning into concrete technical assumptions and economic hypotheses. The model used is certainly not perfect, but it can serve as a starting point to structure a policy debate on a very complex problem. The analysis brings under the umbrella of one comprehensive exercise all the technical and analytical skills that were developed in this book.

The Issue Brief sets out in particular to:

– assess the necessary replacement migration in an ageing society that does not increase its labour force participation but pursues a high productivity policy;
– assess the potential mitigating effect of higher labour force participation on migratory pressures; and
– point out the stabilizing effect of combined high productivity, high labour force participation and controlled migration policy on alternative financing options for pension schemes, which are the main expenditure item in national social protection systems.

2. DEMOGRAPHIC CONTEXT

Europe is ageing rapidly. The facts are well known and hardly disputed. According to United Nations population projections:

– the proportion of those older than 65 of the total population in the European Union[2] in 2050 will be 30.3 per cent, as compared to 16.4 per cent in 2000;
– the median age of the population will increase from 39 years in 2000 to 50 years in 2050;
– the demographic dependency ratio (*pop* (0–14 and 65+)/(*pop* (15–64)) will increase from about 500 per 1,000 population in 2000 to slightly under 800 per 1,000 in 2050, as shown in figure IB2.1.

In short, assuming constant labour force participation rates, an ever-increasing share of the population will be inactive because of old age; an ever-decreasing share of the population will have to earn the income and produce goods and services to provide them with income and the goods and services needed, and that active group will itself become older and older. These developments will constitute an obvious burden for national social transfer systems as well as affecting long-term growth rates of the Union's economy.

Figure IB2.1 Expected development of demographic dependency ratio (per thousand), EU-15, 2000–50
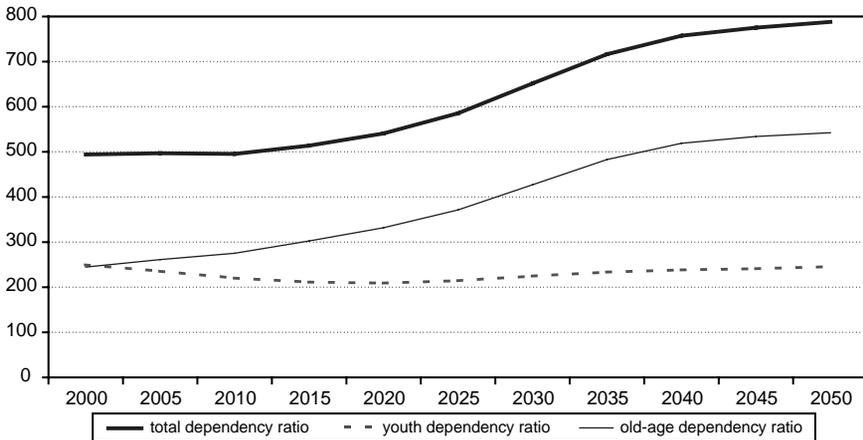
Source: Based on United Nations (2001a and 2001b).

According to a recent report by the United Nations Population Division (see United Nations, 2001c), in the current 15 EU Member States:

– about 47 million migrants would be needed to maintain the overall size of the population until 2050;
– about 79 million migrants would be needed to maintain a constant size of the age group 15–64; and
– about 674 million migrants would be needed to maintain a constant old-age dependency ratio.

It is obvious that migratory flows of that order of magnitude might pose political problems within EU-15 as well as economic problems (brain-drain) in the exporting countries outside it. The United Nations model calculations are limited to a demographic analysis and are designed to demonstrate the size of necessary replacement migration from a "population numerical" point of view. However, it is not really the potential loss of the overall population or numerical shift in demographic dependency ratios that can make a convincing case for a certain necessary level of replacement migration. Why would a smaller population be a problem for EU-15 as long as its standard of living and social protection can be maintained? To assess the required changes in national policies to counteract the effects of ageing on standards of living, a more comprehensive combined demographic and economic analysis would be needed.

3. METHODOLOGICAL APPROACH

The methodological approach adopted here is largely based on projections and simulations of the population, the labour force, as well as employment in the EU (in its present composition, here referred to as EU-15) as a whole on the basis of alternative economic scenarios. Some sweeping generalizations and simplifications have to be made so as to contain the complexity of the model to be used in the analysis.

EU-15 is thus considered here as one economy with no direct or indirect limitations on intra-economy migration; economic development is considered homogenous across the Union. That is an obvious simplification, but country-based analyses are beyond the scope of this Brief. Such analyses would require developing long-term combined demographic and economic visions of the development of individual countries. However, more detailed national analyses can be undertaken using the same principal methodology. Labour demand and productivity developments are not disaggregated by economic sector (this would only be meaningful in detailed national studies). The purpose of the exercise is to alert policy makers to the potential size of the impact of ageing on economic development and to explore the possible contribution of migration to mitigate that impact.

The central indicator as to whether EU-15 can maintain its present standard of living is the maintenance of a target per capita GDP *growth*. This is justified since in EU-15 the share of total household consumption in GDP has hardly changed over the observation period (it fluctuated between 57 and 59 per cent of GDP; see table IB2-A1.1 in the Statistical Annex). We see standards of living as including standards of social security. It is assumed here that if a certain per capita average GDP across the Union's population can be maintained then levels of social transfers required to achieve the present level of social security can be maintained. The case is demonstrated for pension schemes, which account for a major share of overall national social expenditure.

3.1 Modelling philosophy of the economic and labour force model

The model used here is fairly straightforward and is based on the deterministic economic and demographic modelling philosophy that is used as a framework for the ILO's social budget model.[3] Its basic exogenous assumptions concern the demographic development, an assumed long-term growth path, as well as assumptions on overall per worker productivity.

The basic philosophy is the following: target levels of long-term economic growth per capita of the population in the start year of the projection (namely 2000, which is the start year of the United Nations demographic projections

used here)[4] lead to a calculatory overall economic growth rate for the economy as a whole and hence to a euro amount of total real GDP for all projection years until 2050. The initial GDP per employed person is determined for the start year. Exogenous assumptions are made with regard to the annual growth of the GDP per employee, i.e. labour productivity. Labour productivity as used here thus includes potential increases in the total number of hours worked per capita per annum. Dividing total GDP amounts by the assumed product per employee returns total employment. Labour force minus employment results in unemployment or labour shortage. The aggregate numerical size of the labour force is calculated by applying labour force participation rates to the demographic structure. Alternative assumptions are made with regard to overall labour force participation rates. The latter mainly include assumptions of the actual retirement ages and behaviour of the population. Overall labour shortages, respectively unemployment, are interpreted here as gross indicators for the need for migration or the lack thereof. This is of course a simplification, as even in times of high overall unemployment, a country might well need migration workers with specific skills (as shown by the recent introduction of the ''green card'' for computer specialists in Germany).

The modelling analysis does not stop with the identification of a labour shortage. It assumes that EU-15 will try to close future labour gaps by three main alternative or combined measures:

(a) migration;
(b) higher labour force participation;
(c) higher labour productivity.

3.2   Main modelling assumptions

Table IB2-A1.1 in the Statistical Annex provides some basic data on the economic development in EU-15 between 1991 and 2000. The key variables for the model are per capita growth and per worker productivity.

Looking optimistically into the future, we assume that the target GDP per capita rate (and hence the average per capita consumption level) should increase in real terms by about 3 per cent per capita annually. We further assume that the productivity per worker can annually be increased by 2 or 2.5 per cent. All these rates are close to the maxima observed during the chosen observation period (see table IB2-A1.1). The assumptions may appear over-optimistic, but what is more important than the absolute levels of growth and productivity increases is the distances between the different growth rates. Projections with more modest per capita GDP growth rates of 2 per cent and productivity rates of 1.0 per cent, respectively 1.5 per cent, show results similar to the scenario described here. The key variables in this model are linked by the following simple formulae:

(Formula 1)

> GDP growth per capita = employment growth + labour
> productivity growth – population growth

(Formula 2)

> Real GDP growth per capita = Consumption growth per capita
>   = (proxy) increase of standard of living

For the first group of status quo projections (variant 1 and variant 2) we hence assume that EU-15:

– wants to maintain a per capita real GDP growth rate of 3 per cent annually;
– could achieve a rate of increase of productivity per employed person of 2.5 per cent (variant 1) or alternatively 2.0 per cent (variant 2), even with an ageing workforce;
– could increase women's participation rates in the labour force by about 1 per cent (not 1 percentage point!) per year for the next 25 years or so until they reach a level of only 5 percentage points below that of men (78 per cent of males of the age group between 15 and 64 are assumed to be active at the present *de facto* retirement ages);
– will not experience any general increase in effective retirement age; and
– will experience a rate of "unavoidable" frictional unemployment of 2.5 per cent for the whole period.

4. RESULTS OF LABOUR FORCE AND ECONOMIC PROJECTIONS

4.1 Static effects

Based on the above assumptions, the labour shortage would reach substantial levels. Figure IB2.2 shows the projected population in EU-15 until 2050, the total labour force and the projected static labour shortage under the 2.5-per cent and the 2.0-per cent productivity increase assumption (variants 1 and 2, respectively).

Under variant 2, in 2050 the model produces a static labour shortage of about 88 million workers. Variant 1 would close the labour gap to some extent but would not abolish it; a static shortage of 38 million would remain. "Static shortage" means that EU-15 as a whole does not take any corrective measures – in other words, there is no change in labour force participation and no migration (i.e. no import of additional workers).

Figure IB2.2   Demographic results, static projection, EU-15, 2000–50
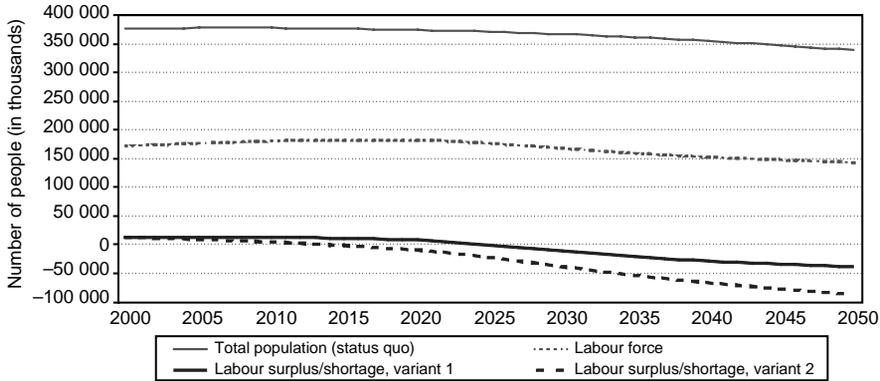
Source: ILO calculations.

The effect on the standard of living would be dramatic: GDP would drop to about 78 per cent of the expected real level by 2050 under the 2.5-per cent variant and to about 61 per cent under the 2.0-per cent variant. These figures describe the "ageing gap" of per capita GDP, the gap between the expected or target standard of living and the standard that is possible at a given productivity development, given demographic development without higher-than-"normal" levels of migration and labour force participation.

4.2   Effects of increasing migration

The key question we are putting forward is this: What would happen now if EU-15 were to take corrective action by importing labour rather than changing its labour force participation behaviour through, among others, a higher retirement age, longer working hours, or switching to more productive work patterns?

What EU-15 cannot do is to fill only the calculatory labour shortage each year. The old German experience with "guest workers" in the 1960s and 1970s will still hold true. That experience was summarized as follows: *We were calling workers, but people came.* Workers will not come alone – they will come with their families, and that leads to an increasing population. If one does not want to discriminate between the standard of living of the natives and the migrants then the same amount of per capita GDP as for the native population would be needed to feed the additional population. As long as the newcomers have a lower dependency ratio than the native population, they will still make a positive contribution to the closure of the ageing gap in per capita GDP.

To simplify the model, it is assumed here that every immigrant worker is aged 35. That is compatible with the statistical average age of adult non-EU immigrants in 1999 (see Brücker, 2002, table 2.5). It is also assumed that each

Figure IB2.3 Total population under the different scenarios and dynamic effect (in thousands), EU-15, 2000–50
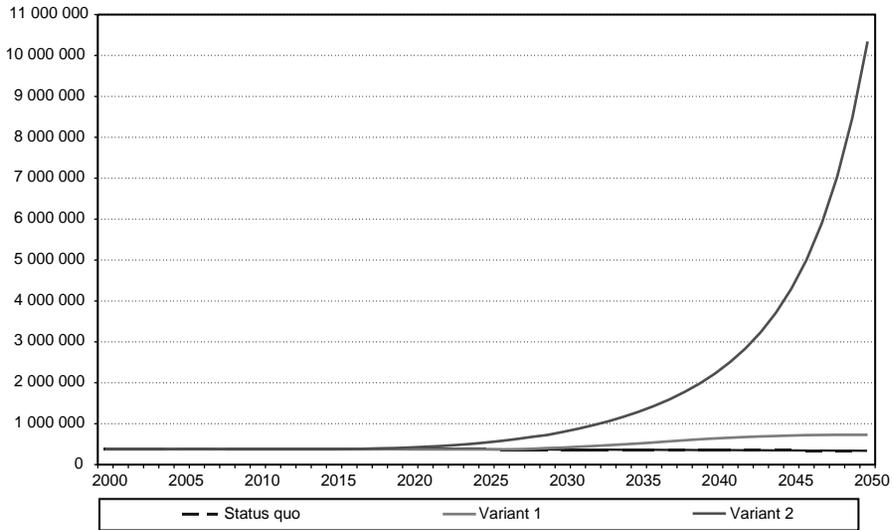
Source: ILO calculations.

worker comes with a spouse of the same age who is immediately available to join the labour market. Every second immigrant worker also has a five-year old child (ibid.). This again is roughly in line with statistical experience. A more dispersed distribution of the immigrants' age structure and family status would change the results of the models only marginally. It is further assumed that their reproductive behaviour immediately after immigration adapts to that of the native population.

Another thing that EU-15 cannot accomplish is to fill labour gaps quasi-instantaneously, at lightning speed. Workers need to be recruited and relocated, and that takes time. The model assumes that each year t the immigration authorities in Europe will allow enough workers in to fill the employment gap of $t-1$. The recruited workers will then come with their families. Even if the accompanying spouses enter the labour market instantaneously (to cover for some of the time-lag between the emergence of gaps and the filling process), the model is beginning to "chase its own tail" and the total population is spiralling upward. This is because, while closing last year's employment gap, the migrant workers and their families are pushing overall consumption levels and hence the necessary GDP level up so that the structural labour gap of the native population is wider and next year's gaps and replacement needs are bigger than the static labour shortage of the native population. The government would import a larger number of workers and their families, and so on.

The results of the simulation are striking (see figure IB2.3). The main results are summarized in the Statistical Annex (see table IB2-A1.3). In an ever-greater effort to fill the labour gap, the total population of EU-15 would have to grow exponentially to fill the employment gap. Under the 2.5-per cent productivity increase assumption (or, in other words, a distance of 0.5 percentage points between the overall expected increase of per capita GDP and labour productivity increases) the population would have to approximately double within the next 50 years, whereas under the 2.0-per cent variant the population would simply explode.

A distance of 1 percentage point in the expected rate of per capita growth in productivity would rapidly remove the labour surplus (i.e. unemployment) in EU-15 but would not be sustainable in the longer term. However, over the period 1995–2000 a distance between the two rates of about 1.1 percentage points was observed, indicating that some of the economies definitely followed a low productivity–high employment strategy. Under variant 1, the net population increase would be about 388 million, less than predicted by purely demographic calculations if one wished to maintain the demographic dependency ratios.

4.3 Increasing labour force participation

EU-15 countries would have one more option. They could increase the retirement age today from about 60 (*de facto*) to 65. A simple way to model the effects is to increase labour force participation in the age group 15–64 by about

Figure IB2.4 Total population under status quo and variant 1 with and without the effect of alternative labour force participation rates (in thousands), EU-15, 2000–50
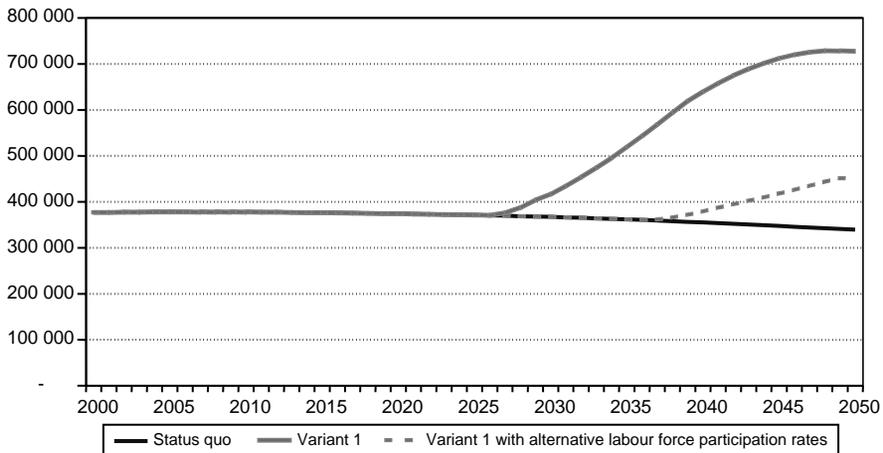
Source: ILO calculations.

15 per cent. We assume that this would take place between 2021 and 2031. It would result in building up an additional immigrant population compared to the status quo projections of about 112 million over 50 years. That figure seems to be more manageable.

Figure IB2.4 compares the total population needed under the 2.5-per cent variant and the combined 2.5-per cent variant with higher labour force participation rates. Another interesting outcome is that if one were to reduce per capita growth expectations to the level of the assumed productivity increase (say, at 2.5 per cent), then there would be no labour shortage – neither with nor without adjustments to labour force participation rates. That means no replacement migration would be needed.

5. EFFECTS ON PENSION SCHEME FINANCING

The effect of ageing and the possible mitigating effects of labour force, migration and financing policies are illustrated by an analysis of a national pension scheme. Pension schemes are most directly affected by ageing and the effects are most complex when it comes to funded pension schemes. Clearly health, unemployment and social assistance schemes (to name only the major schemes) would also be affected. But modelling these would not bring much additional insight here.

To focus the analysis on the impact and implications of systemic ("paradigmatic") reforms and to separate the impact of the parallel parametric reforms, it was assumed here that EU-15 countries have already undergone the following radical parametric reforms of their pension systems (we are not discussing either the economic desirability or the social feasibility of such reforms): The actual retirement age has been raised to 65 years and the replacement rates of social security pensions lowered to 40 per cent of the average gross wage (this being the minimum level accepted by ILO Social Security (Minimum Standards) Convention, 1952 (No. 102)) Old-age pensions of this level are assumed in our fictitious status quo ("pre-reform" variant) to be financed on a PAYG basis. Invalidity and survivors' pensions are neglected for the sake of simplifying the analysis.

The "paradigmatic reform" variant assumes that a Mandatory Retirement Savings (MRS) scheme is starting operations fictitiously in the year 2000 and intends to progressively replace pension payments of the old system during a long transition period. Savings rates and pension levels are building up over decades. The contribution rate to the MRS system is 10 per cent. The difference between the total pension cost and the 10 per cent allocated to individual accounts is the State's participation in financing existing pensions and pre-existing entitlements as well as in subsidizing MRS pensions whenever they do not meet the desired target of a 40-per cent replacement rate. This is a simple but realistic modelling of the transition cost. This kind of residual financing of

the transition cost implies that the lower the government obligations the better the performance of the reformed scheme.

Pensions in the MRS scheme are calculated as the annuity that corresponds to savings accumulated over up to 40 years (with lower numbers of saving years during the introduction phase). The annuity factors are based on unisex mortality tables and an assumed average discount rate of 3 per cent, which is equivalent to the long-run assumed average rate of real GDP growth per capita. Given a life expectancy of about 16 years in 2000 at age 65 this would lead to an annuity factor of 12.5. That annuity factor is assumed to apply throughout the projection period.[5] The annual amount of pensions of those retiring is calculated by dividing the accumulated balance on individual accounts by 12.5. In conjunction with the 10-per cent contribution rate these parameter values are aiming at the replacement rate of about 40 per cent of insurable earnings after 40 years of continuous contributions (with 100 per cent density), assuming that the rate of return is significantly higher than real growth in insurable earnings. The target replacement rate of the overall pension system is set at the minimum level of 40 per cent, but the very nature of the MRS system does not allow for any guaranteed level of benefits (see figure IB2.5). That is why the government and the taxpayer – even after the long transition period is over – have to be always prepared to provide supplementary financing in case (for some or all of the people retiring) MRS pension levels do not meet the policy target.

Figure IB2.5 Evolution of replacement rates in MRS scheme under increasing life expectancy and different real rate of returns, EU-15, 2000–50 (after 40 years of contributions at 10% of earnings, with 2% annual growth of real earnings)
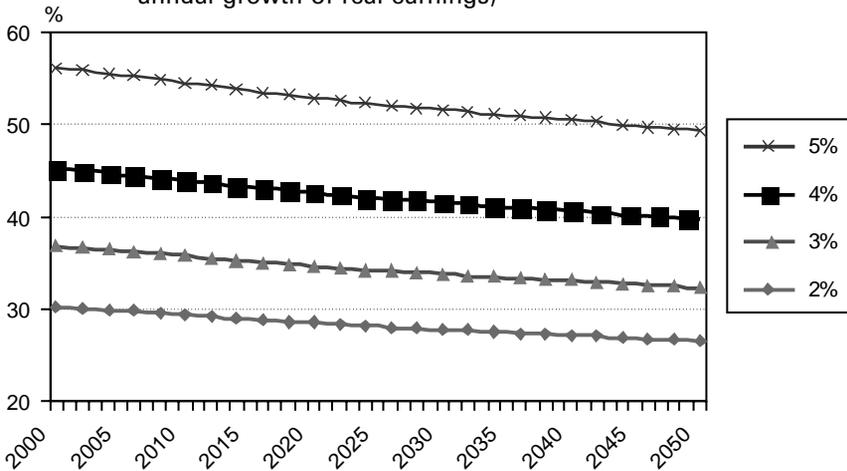
Source: ILO calculations.

Both schemes operate in the same demographic and economic environment, which is characterized by the above variant 1 with increased labour force participation rates.

With respect to migration two extreme scenarios are used: a *no migration scenario* and a *migration scenario*. The assumed demographic developments under the two scenarios are summarized in table IB2-A1.2, and the basic employment and economic developments in table IB2-A1.3 (see the Statistical Annex). Without migration, GDP in 2050 would be about 12 per cent lower than the targeted level since massive labour shortages would occur after 2035. With a lower level of productivity (e.g. 2 per cent annually) and a slower upward adjustment of labour force participation rates, the GDP shortfall could even be in the order of 40 per cent of the targeted level.

The crucial extension of the economic model is the assumed nexus between the demographic developments and the average rate of return on pension savings. Here it is assumed that the rate of return earned by the reformed scheme is equal to the macroeconomic rate of return of the national capital stock (as defined by formula 3 below). This is a reasonable assumption since the reserves of a fully funded pension scheme may account after some decades for a major share of the national capital stock. The link between savings and the interest rate is modelled by the following formulae:

(Formula 3)

National capital stock in t = National capital stock in $t − 1$ + Gross investment (= savings) in year t – depreciation of capital stock in t

(Formula 4)

Rate of return of national capital stock in t = Capital income in t / National capital stock in t

As real growth rates of private and government consumption are linked in the model to the demographic/labour market developments (through the assumed impact of changing dependency ratios on the size of government consumption and through the application of "equivalent consumption units" to measure per capita consumption growth), this results in changes also in savings (and investment) rates and thus in capital stock.

The impact on the rate of return (taking into account assumed constant shares of factor incomes in the national income) depends on what one assumes about developments of average capital productivity (in other words, the impact of higher/lower savings rates on GDP growth). In the basic version of the model, GDP growth rate per capita is exogenous and constant: growing saving/investment rates result in capital stock growing faster than GDP. Average capital productivity declines as well as the rate of return of the national capital

stock. One could complete this analysis with alternative production functions which would release the external per capita growth assumption and use a production function with high capital productivity and a strong technological growth factor. But since the productivity per worker was already assumed as very optimistic one can assume that the results may not be very different. However, more work needs to be done.

5.1 Projection results

The first set of results refers to the status quo (parametrically reformed) PAYG pension scheme. The results hold no surprises. Under the *no migration* scenario, the PAYG contribution rate (cost rate without administrative cost) and the cost measured as share of GDP (the GDP cost ratio) would increase by more than 50 per cent over the projection period. Under the *migration scenario* the cost would also increase over the next few decades but would be brought back to present levels once the replacement migration sets in. Table IB2-A1.4 in the Statistical Annex summarizes the most important results of the projections. Figure IB2.6 maps them graphically.

The central question now is what would happen to a newly introduced MRS system under the two demographic scenarios. The main assumption about the interaction between demographic development and rates of return described above is applied first to the *no migration*, then to the *migration scenario*.

Figure IB2.6 Projected PAYG cost ratios and GDP cost ratios of "parametrically reformed" PAYG pension schemes, EU-15, 2000-50
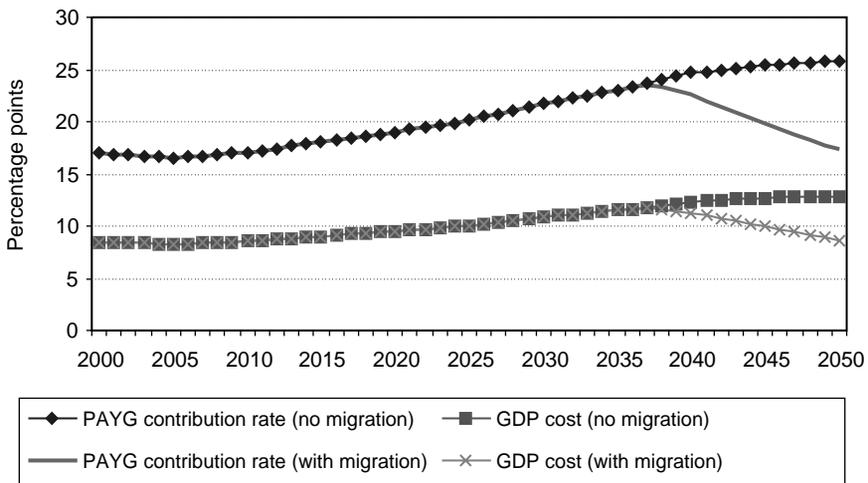
Source: ILO calculations.

Figure IB2.7 Projected development of rates of return (in %) in the reformed pension scheme under alternative assumptions, EU-15, 2000–49
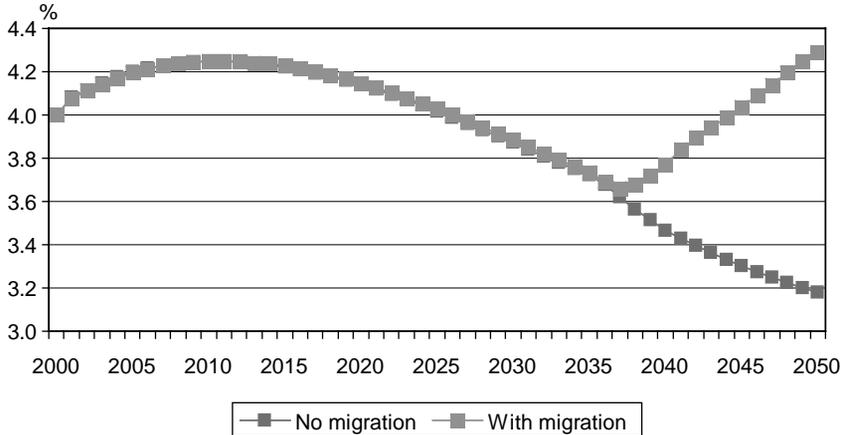
Figure IB2.7 shows how the rates of return are affected by the assumptions. The effect is considerable. The ultimate rate of return under the *no migration* scenario drops from the initial 4 per cent real to under 3.2 per cent. Under the migration scenario, when replacement migration sets in (in the 2030s) then GDP increases faster and the rates of return go back to high levels.

Together with the underlying demographic structure the above rates of return determine the actual pension levels under the MRS scheme under different variants in comparison to the expenditure under the status quo scheme. Figure IB2.8 shows the development of the total pension expenditure as a percentage of GDP under the alternative scenarios and also shows the share of the total expenditure, which will be covered through pensions from the MRS scheme.

It should be noted that the overall cost of a national pension system in which an old scheme is being phased out and a new one built up over several decades is actually identical with the expenditure under the reduced PAYG scheme, since it is assumed that the State will guarantee a minimum overall replacement rate of 40 per cent. What is actually changing is the share of pensions coming from the MRS scheme in the overall pension expenditure. It is obvious that ageing affects pension expenditure independently of the way pensions are financed. Just as evidently, the negative effect of ageing on the rates of return and hence the slower progress of new MRS pensions towards the desired replacement rate level of 40 per cent extends the period during which the

Figure IB2.8 Projected pension expenditure (as % of GDP) under alternative scenarios, EU-15, 2001–50
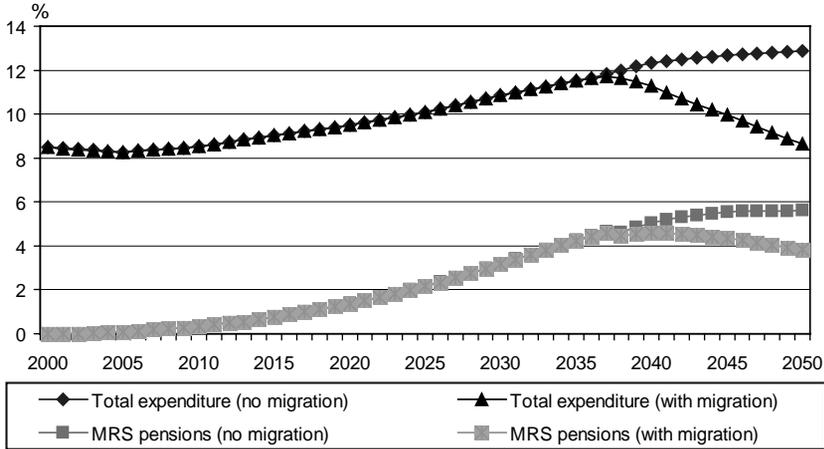
Source: ILO calculations.

government has to bear most of the transition cost. Figure IB2.9 shows the effect of migration alone on the total government transition cost until 2050.

The model is obviously only a first step towards a more complex analysis of the long-term stability of funded pension schemes in ageing societies. To demonstrate the potential effects of ageing on the long-term rates of return, numerous simplifications had to be made. The demographically triggered reductions in growth and the consequential effect on the real rates of return might therefore be overestimated.

But then, the effect of administrative and transaction costs on the real rate of return on pension savings have not been taken into account either, and they would counterbalance some of the potential overestimation effects. We have already made extremely prudent assumptions about productivity developments and labour force participation rates. Still, some of the simplifications and assumptions may not hold true in future.

However, there seems to be reason enough to believe that stabilizing national pension systems and hence the financing of the social protection system as a whole in an ageing environment obviously requires more sophisticated solutions than a mono-dimensional reliance on greater funding of pension schemes. Greater funding of national pension systems may not in itself trigger higher growth paths, as is sometimes claimed. Our analysis shows – since returns on investments are falling under the *no migration* (i.e. labour shortage) scenario – that it is most likely not capital shortage, but rather labour shortage, that limits growth.

Figure IB2.9 Development of transition cost (as % of GDP), EU-15, 2000–50 (migration and no migration scenarios)
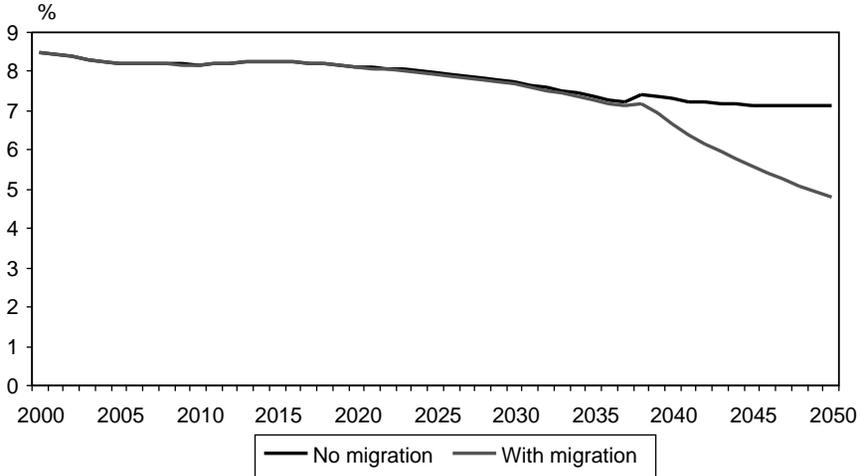
Source: ILO calculations.

6. POLICY CONCLUSIONS

Even though they could be improved through further model developments, the results of this analysis appear sufficiently robust to enable us to state that a combination of polices have to be pursued in typical ageing societies in order to maintain the standard of living, including the standard of social protection. Migration alone is not likely to provide an acceptable solution, nor is the change in the financing of national pension schemes or the full exploitation of the potential national labour supply. The obvious policy mix for old and ageing societies consists of policies that:

– invest in the creation of high productivity jobs;
– invest in the maintenance of the productivity of older workers (which requires early investments in the long-term employability of workers);[6]
– invest in increasing labour force participation rates; and
– provide for controlled migration.

Incidentally, these are the same policies that would stabilize the existing social protection and notably PAYG pension schemes.

Notes

[1] This Issue Brief takes up the contents of two papers: Cichon et al. (2003a) and Cichon et al. (2003c).

[2] The data used in this Brief refer to the current 15 EU Member States.

[3] For more details on the model component, see Scholz et al. (2000), pp. 83–110.

[4] It should be noted that the United Nations population projection already includes a yearly number of migrants of about 500,000.

[5] In reality one should expect this annuity factor to grow continuously along with increasing life expectancy; higher and higher accumulated savings will thus be necessary to buy the same annuity (pension) – this is illustrated in figure IB2.5.

[6] For a more detailed list of possible activities, see ILO (2002a).

STATISTICAL ANNEX   IB2-A1

Table IB2-A1.1   Historical structural economic data, EU-15, 1991–2000

	Average growth rates										1991 to 2000	1995 to 2000
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000		
Total population (in millions)	365.4	367.1	369	370.4	371.6	372.7	373.7	374.6	375.5	376.5	**0.33**	**0.26**
Total employment (in millions)	**154.5**	**152.7**	**149.5**	**149.3**	**150.4**	**151.3**	**152.7**	**155.5**	**158.2**	**161**	**0.46**	**1.37**
Employment growth (%)		−1.17	−2.10	−0.13	0.74	0.60	0.93	1.83	1.74	1.77		
Total number of non-employed (in millions)	210.9	214.4	219.5	221.1	221.2	221.4	221	219.1	217.3	215.5	**0.24**	**−0.52**
Total economic dependency rate (not employed pop/employed)	1.37	1.40	1.47	1.48	1.47	1.46	1.45	1.41	1.37	1.34		
GDP (constant 1991 prices, in billion €)	**5 779**	**5 854**	**5 831**	**5 994**	**6 138**	**6 236**	**6 392**	**6 577**	**6 748**	**6 971**	**2.11**	**2.58**
Real growth (%)		1.3	−0.4	2.8	2.4	1.6	2.5	2.9	2.6	3.3		
GDP (current prices, in billion €)	5 779	6 025	6 042	6 334	6 588	6 920	7 288	7 632	8 017	8 524		
Per capita GDP (in €)	**15 816**	**15 947**	**15 801**	**16 182**	**16 517**	**16 732**	**17 104**	**17 558**	**17 972**	**18 515**	**1.77**	**2.31**
Real per capita growth		0.83	−0.91	2.41	2.07	1.30	2.23	2.65	2.35	3.03		
Labour product (constant prices, in €)	**37 405**	**38 337**	**39 001**	**40 147**	**40 810**	**41 216**	**41 859**	**42 298**	**42 657**	**43 298**	**1.64**	**1.19**
Productivity increase (%)		2.5	1.7	2.9	1.7	1.0	1.6	1.0	0.8	1.5		
Final consumption expenditure of households (in billion €)	3 319	3 483	3 508	3 658	3 780	3 997	4 215	4 419	4 670	4 970		
In % of GDP	57.4	57.8	58.1	57.8	57.4	57.8	57.8	57.9	58.3	58.3		
Compensation of employees (in billion €)	3 068	3 209	3 211	3 289	3 393	3 537	3 699	3 846	4 065	4 336		
In % of GDP	53.1	53.3	53.1	51.9	51.5	51.1	50.8	50.4	50.7	50.9		

Source: EUROSTAT and OECD data.

Table IB2-A1.2   Results of two basic demographic scenarios, EU-15, 2000–50

Year	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
No migration scenario											
Population under 15	59 301	59 506	55 666	52 198	50 795	50 205	49 926	49 218	48 153	47 177	46 605
Population >65	65 729	66 012	69 571	76 325	80 595	86 938	95 000	101 815	104 881	104 557	102 951
Population 15–64	251 970	252 606	252 721	247 574	242 955	234 206	222 350	210 808	202 066	195 731	189 758
Total population	377 000	378 123	377 958	376 096	374 344	371 349	367 276	361 842	355 100	347 465	339 314
Total dependency[1]	0.81	0.79	0.77	0.77	0.77	0.79	0.83	0.86	0.90	0.92	0.94
Labour force											
Male	96 259	96 637	96 765	94 854	93 120	96 251	97 917	92 755	88 820	85 967	83 322
Female	76 202	80 183	84 242	87 549	89 371	92 335	94 008	89 201	85 584	82 965	80 452
Total labour force	172 461	176 820	181 006	182 404	182 492	188 586	191 925	181 956	174 404	168 932	163 774
Migration scenario											
Population under 15	59 301	59 506	55 666	52 198	50 795	50 205	49 926	49 218	53 208	63 106	72 680
Population >65	65 729	66 012	69 571	76 325	80 595	86 938	95 000	101 815	104 881	104 557	102 951
Population 15–64	251 970	252 606	252 721	247 574	242 955	234 206	222 350	210 808	220 717	249 632	282 996
Total population	377 000	378 123	377 958	376 096	374 344	371 349	367 276	361 842	378 807	417 295	458 627
Total dependency[1]	0.81	0.79	0.77	0.77	0.77	0.79	0.83	0.86	0.85	0.80	0.74
Labour force											
Male	96 259	96 637	96 765	94 854	93 120	96 251	97 917	92 755	97 019	109 640	124 263
Female	76 202	80 183	84 242	87 549	89 371	92 335	94 008	89 201	93 483	105 811	119 982
Total labour force	172 461	176 820	181 006	182 404	182 492	188 586	191 925	181 956	190 502	215 452	244 245

[1]Total dependency = (people over 65 + people under 15)/total employment.
Source: ILO calculations on the basis of UN data.

Table IB2-A1.3 Main results of the economic scenarios, EU-15, 2000–50

Year	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
No migration scenario											
Employment											
Total labour force (in thousands)	172 461	176 820	181 006	182 404	182 492	188 586	191 925	181 956	174 404	168 932	163 774
Necessary employment	155 000	159 502	163 358	166 751	169 865	172 656	174 968	176 625	177 603	178 065	178 170
Total employment (in thousands)	155 000	159 502	163 358	166 751	169 865	172 656	174 968	176 625	170 044	164 708	159 680
Labour shortage/surplus (in thousands)	13 149	12 898	13 123	11 092	8 064	11 215	12 159	783	−7 559	−13 356	−18 490
Labour productivity (in CU)	53 439	60 461	68 406	77 396	87 566	99 073	112 092	126 822	143 487	162 342	183 675
Growth rate (%)		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
GDP											
Target per capita GDP (in €)	22 000	25 504	29 566	34 275	39 734	46 063	53 400	61 905	71 765	83 195	96 446
Growth rate		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Target GDP (in billion €)	8 283	9 644	11 175	12 906	14 874	17 106	19 612	22 400	25 484	28 907	32 725
Realized GDP (in billion €)	8 283	9 644	11 175	12 906	14 874	17 106	19 612	22 400	24 399	26 739	29 329
Growth rate		3.1	3.0	2.9	2.9	2.8	2.8	2.7	1.7	1.8	1.9
GDP shortfall due to demography											
In % of target	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	−4.4	−8.1	−11.6
Migration scenario											
Employment											
Total labour force (in thousands)	172 461	176 820.2	181 006.4	182 403.5	182 491.6	188 585.9	191 924.7	181 956.5	190 502	215 451.8	244 245.2
Necessary employment	168 149	172 400	176 481	177 823	177 929	183 871	187 127	177 408	185 739	210 065	238 139
Total employment (in thousands)	155 205	159 502	163 358	166 751	169 865	172 656	174 968	176 625	185 739	210 065	238 139
Labour shortage/surplus (in thousands)	12 944	12 898	13 123	11 092	8 065	11 215	12 159	783	0	0	0
Labour productivity (in CU)	53 439	60 461	68 406	77 396	87 566	99 073	112 092	126 822	143 487	162 342	183 675
Growth rate (%)		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

GDP

Target per capita GDP (in €)	22 000	25 504	29 566	34 275	39 734	46 063	53 400	61 905	71 765	83 195	96 446
Growth rate		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Target GDP (in billion €)	8 294	9 644	11 175	12 906	14 874	17 106	19 612	22 400	27 185	34 717	44 233
Realized GDP (in billion €)	8 294	9 644	11 175	12 906	14 874	17 106	19 612	22 400	26 651	34 103	43 740
Growth rate		3.1	3.0	2.9	2.9	2.8	2.8	2.7	3.5	5.1	5.1
GDP shortfall due to demography											
In % of target	0	0	0	0	0	0	0	0	−2	−2	−1

Source: ILO FACTS projections.

Table IB2-A1.4 Results of projections for the PAYG pension scheme under the two migration scenarios, EU-15, 2000–50

Year	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
No migration scenario											
Replacement rate under PAYG	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Demographic ratio	0.42	0.41	0.43	0.45	0.47	0.50	0.54	0.58	0.62	0.63	0.82
– in % of total wage sum	16.96	16.55	17.04	18.05	18.98	20.14	21.72	23.06	24.67	25.39	25.79
– in % of GDP	8.48	8.28	8.52	9.03	9.49	10.07	10.86	11.53	12.34	12.70	12.89
Migration scenario											
Replacement rate under PAYG	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Demographic ratio	0.42	0.41	0.43	0.45	0.47	0.50	0.54	0.58	0.56	0.50	0.43
PAYG cost											
– in % of total wage sum	16.94	16.55	17.04	18.05	18.98	20.14	21.72	23.06	22.59	19.91	17.29
– in % of GDP	8.48	8.28	8.52	9.03	9.49	10.07	10.86	11.53	11.29	9.95	8.65

Table IB2-A1.5 Projected pension cost of the newly introduced MRS system, EU-15, 2000–50 (no migration scenario)

Year	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
GDP (in billion €)	8 283	9 644	11 175	12 906	14 874	17 106	19 612	22 400	24 399	26 739	29 329
Employment (in thousands)	155 000	159 502	163 358	166 751	169 865	172 656	174 968	176 625	170 044	164 708	159 680
Calculation of savings rate											
Government consumption rate (%)	20.00	19.51	19.01	19.00	19.18	19.69	20.54	21.20	22.31	22.84	23.22
Private consumption rate (%)	60.00	58.47	57.42	56.16	54.75	53.16	51.47	50.83	50.83	50.83	50.83
Savings rate (%)	20.00	22.02	23.57	24.83	26.07	27.15	27.99	27.97	26.85	26.33	25.95
Calculation of macro-economic rate of return											
Net capital income share (%)	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Indirect tax and mixed income share (%)	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Depreciation share of GDP (%)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Wage share of GDP (%)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Capital stock in % of GDP	500.00	482.38	477.48	481.20	491.23	506.32	525.29	546.11	585.31	613.83	637.22
Savings rate (%)	20.00	22.02	23.57	24.83	26.07	27.15	27.99	27.97	26.85	26.33	25.95
Rate of return (%)	4.00	4.20	4.25	4.22	4.14	4.02	3.87	3.72	3.47	3.30	3.18
Capital productivity											
New reformed pension scheme											
Assumed contribution rate (%)	10	10	10	10	10	10	10	10	10	10	10
Annual contribution income (in billion €)	414	482	559	645	744	855	981	1 120	1 220	1 337	1 466

Annual rates of return (%)	4.00	4.20	4.25	4.22	4.14	4.02	3.87	3.72	3.47	3.30	3.18
Compound interest factor	1.02	1.25	1.54	1.89	2.32	2.83	3.44	4.14	4.93	5.82	6.82
Average savings of retiring cohort (in €) (maximum 40 years of savings)	2 725	19 279	41 790	71 862	111 253	161 845	225 631	304 737	386 900	422 725	485 022
New pensioners (retiring cohort)	0	2 150	2 898	3 490	3 592	3 988	4 577	4 552	3 923	3 256	2 957
Annual withdrawals (lump sums)	0	41	121	251	400	645	1 033	1 387	1 518	1 376	1 434
Newly awarded pensions (in €)	0	1 547	3 353	5 765	8 925	12 984	18 101	24 448	31 039	33 913	38 911
Rep. rate of new pensions in % of average earnings	0	5.1	9.8	14.9	20.4	26.2	32.3	38.6	43.3	41.8	42.4
Annual pension expenditure (in billion €)	0	9	40	100	206	371	627	953	1 233	1 479	1 646
In % of GDP	0.00	0.09	0.36	0.77	1.38	2.17	3.19	4.25	5.05	5.53	5.61
Reserves (in billion €)	422	3 007	6 483	10 963	16 477	22 963	30 171	37 750	45 460	53 203	61 524
In % of GDP	5.10	31.18	58.02	84.94	110.77	134.24	153.84	168.53	186.32	198.97	209.77
Public transition payments and guarantees (in billion €)	702	790	912	1 065	1 206	1 352	1 503	1 630	1 777	1 916	2 136
In % of GDP	8.48	8.19	8.16	8.25	8.11	7.90	7.66	7.28	7.28	7.17	7.28
In % of wage sum	16.96	16.38	16.32	16.51	16.21	15.81	15.33	14.55	14.57	14.33	14.57

Table IB2-A1.6 Projected pension cost of the newly introduced MRS system, EU-15, 2000–50 (migration scenario)

Year	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
GDP (in billion €)	8 294	9 644	11 175	12 906	14 874	17 106	19 612	22 400	26 651	34 103	43 740
Employment (in thousands)	155 205	159 502	163 358	166 751	169 865	172 656	174 968	176 625	185 739	210 065	238 139
Calculation of savings rate											
Government consumption rate (%)	20.00	19.54	19.03	19.03	19.20	19.72	20.56	21.23	21.13	21.00	21.00
Private consumption rate (%)	60.00	58.55	57.50	56.24	54.82	53.23	51.54	50.90	50.90	50.90	50.90
Savings rate	20.00	21.91	23.47	24.73	25.97	27.05	27.90	27.87	27.97	28.10	28.10
Calculation of macro-economic rate of return											
Net capital income share (%)	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Indirect tax rate (%)	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Depreciation share of GDP (%)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Wage share of GDP (%)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Capital stock (%)	500.00	482.67	477.25	480.53	490.19	504.95	523.64	544.21	539.17	504.27	475.31
Savings rate (%)	20.00	21.91	23.47	24.73	25.97	27.05	27.90	27.87	27.97	28.10	28.10
Rate of return	4.00	4.20	4.25	4.23	4.15	4.03	3.89	3.74	3.77	4.04	4.29
New reformed pension scheme											
Assumed contribution rate (%)	10	10	10	10	10	10	10	10	10	10	10
Annual contribution income (in billion €)	415	482	559	645	744	855	981	1 120	1 359	1 736	2 212
Annual rates of return (%)	4.00	4.20	4.25	4.23	4.15	4.03	3.89	3.74	3.77	4.04	4.29

Compound interest factor	1.015	1.24	1.53	1.88	2.31	2.82	3.42	4.12	4.95	6.00	7.37
Average savings of retiring cohort (in €)	2 712	19 261	41 768	71 847	11 270	161 938	225 861	305 190	390 351	437 593	522 995
(maximum 40 years of savings)											
New pensioners (retiring cohort)	0	2 150	2 898	3 490	3 592	3 988	4 577	4 552	3 923	3 256	2 957
Annual withdrawals (lump sums) (in billion €)	0	41	121	251	400	646	1 034	1 389	1 531	1 425	1 546
Newly awarded pensions (in €)	0	1 538	3 334	5 736	8 883	12 928	18 031	24 364	31 162	34 934	41 752
Rep. rate of new pensions in % of average earnings	0	5.09	9.75	14.82	20.29	26.10	32.17	38.42	42.58	42.28	44.96
Annual pension expenditure (in billion €)	0	8	39	99	205	369	624	949	1 229	1 484	1 677
In % of GDP	0.00	0.09	0.35	0.77	1.38	2.16	3.18	4.24	4.61	4.35	3.83
Reserves (in billion €)	421	2 999	6 474	10 955	16 477	22 981	30 222	37 851	46 110	56 836	71 900
In % of GDP	5.08	31.10	57.94	84.89	110.77	134.35	154.10	168.98	173.01	166.66	164.38
Public transition payments and guarantees (in billion €)	702	790	912	1 066	1 207	1 354	1 506	1 634	1 841	1 972	2 148
In % of GDP	8.47	8.19	8.16	8.26	8.11	7.91	7.68	7.29	6.91	5.78	4.91
In % of wage sum	16.94	16.38	16.33	16.51	16.23	15.83	15.36	14.59	13.54	11.36	9.71

Source: ILO FACTS projections.

THE NUMBER CRUNCHER'S SURVIVAL KIT

We all occasionally find ourselves having to do some quick, "back-of-the-envelope" calculations. Although only approximate, they can give you some reassurance if you have doubts about the results of complex model calculations. They should normally bring you within ± 10 per cent of the results obtained through a sophisticated model. If they do not, then you have the right to ask specific questions about the assumptions and calculation methods of a complex method. In our experience, that creates red faces often enough. Similarly, back-of-the-envelope calculations can help to bring some financial realism into frequently very intense, ad hoc policy debates, especially during election campaigns when quick ideas sell best. That – again in our experience – also tends to create red faces.

But causing embarrassment is not the point of the exercise. We want you to have a set of basic survival tools that will help you to contribute to rational decision-making, even under pressure of time. The following pages will tell you how to make quick projections, calculate reserve levels and contribution rates. These are shortcuts. They provide a degree of freedom from more sophisticated expertise, but be warned: they do not provide total independence. Affirming the contrary would be sheer arrogance on our part.

1. BASIC BUDGETING TECHNIQUES

Expenditure can be projected approximately on the basis of the last observed total expenditure value of an expenditure item in the expenditure accounts of a scheme using "drivers". Drivers are variables with a dominant influence on the expenditure of a certain expenditure category. For example, total expenditure for old-age pensions in a social protection pension scheme is usually calculated as:

Formula 1

$$E_t = PENS_t * AP_t = \sum_{x=60}^{100+} pop_{x,t} * \Pr_{x,t} * P_{x,t}$$

where:

E = expenditure

t = time

$PENS$ = number of pensioners

AP = average pension amount

pop = total number of population of a certain age at a certain time

x = age

Pr = pensioner ratio (share of pensioners in pop) at a certain age and time

P = pension amount at an individual age

The notation $100+$ denotes that the summation runs up to the end of the population group displayed in the population forecast.

In a mature scheme the expenditure amount can be projected by using two drivers, namely:

(a) the rate of change of the number of people in the age group $60+$ (people aged 60 and older), which assumes that the pensioner rate at that age group stays constant during the projection period, and

(b) the rate of wage increase $(1 + w = d_1)$ or the rate of price increase $(1 + p = d_2)$, which assumes that the average pension amounts are adjusted either in line with prices or in line with wages.

Formula 2

$$E_{t+1} = E_t * d_{1,t+1} * d_{2,t+1}$$

More drivers are possible. The essential skill lies in finding the right or a plausible driver. Projections with the help of drivers are always crude approximations.

Incomes of a scheme can be projected by using a similar driver technique. Usually drivers for contribution or tax income are the rate of change of employed population $(1 + e)$ and the rate of change of wages $(1 + w)$ or incomes. This could look as follows:

Formula 3

$$CI_{t+1} = CI_t * (1 + w_{t+1}) * (1 + e_{t+1})$$

but generally one would also bring the contribution rate into the equation:

Formula 4

$$CI_{t+1} = AB_t * cons_t * (1 + w_{t+1}) * (1 + e_{t+1}) * \pi$$

where:

AB = assessment base (i.e. generally a wage up to a certain ceiling)
$cons$ = number of contributors
π = contribution rate

Other types of income can be projected by the simple driver procedure used in **Formula 2**.

2. CALCULATION OF BALANCES AND RESERVES

The balance of the scheme is simply the difference between income and expenditure:

Formula 5

$$BAL_t = I_t - E_t$$

The reserves at the end of year $t+1$ of the scheme can approximately be projected as:

Formula 6a

$$RES_{t+1} = RES_t * (1 + i) + BAL'_{t+1} * (1 + i/2)$$

where: $i =$ is the interest rate and BAL' is the approximate balance (called primary cash balance) that excludes interest income on the emerging balance during the year. This helps to avoid circular references in spreadsheet projections. If all investment income (including that on the emerging balance) is known, as is the case when the accounting results of the year $t + 1$ are already known, then the reserves are simply calculated as:

Formula 6b

$$RES_{t+1} = RES_t + BAL_{t+1}$$

In this case all interest income earned during year $t + 1$ is contained in BAL.

3. CALCULATION OF CONTRIBUTION RATES

PAYG contribution rate or cost rate:

Formula 7

$$CR_t = (E_t - OI_t)/TAB_t$$

where: OI is other income and TAB is the total assessment base.

A scaled premium for a certain length of a period of equilibrium with a minimum funding requirement k times last year's expenditure at the end of the period t:

Formula 8

$$SCR_{[0,t]} = \left(\left(\sum_t (E_t - OI_t)/(1+i)^t \right) + k*E_t/(1+i)^t - RES_0 \right) \Big/ \sum_t \left(TAB_t/(1+i)^t \right)$$

which means that the present value of all future expenditure plus the reserve requirement (discounted to $t = 0$) minus the initial reserve divided by the present value of all future total assessment bases is equal to the scaled premium for the years 0 to t.

The calculation of the general average premium (GAP) is equal to the above but without the reserve requirement and possibly the initial reserve. That means that the reserve requirement at the end of the period is zero. The GAP premium can be interpreted as an average PAYG premium over a certain period.

Reminder: Dividing an amount of expenditure or income by the *t-th* power of $(1 + i)$ is discounting a future value back t periods. For simplicity's sake, we assume here that all expenditure and income items are incurred in the middle of the year.

FINANCIAL MARKETS: ORGANIZATION AND MAIN INSTRUMENTS

Financial markets have been classified in many ways.[1] Figure IB4.1 sets out some of the most commonly used classifications, giving a brief definition of the main classes (explanations on cross-classifications such as primary markets, for instance, which can be debt markets or equity markets at the same time, have been omitted). The functioning of the markets is explained in some detail below (see also box IB4.1 on pages 554–555).

One way of classifying financial markets is by distinguishing *primary markets* (markets dealing with newly issued financial claims) from *secondary markets* (those exchanging previously issued financial claims). A classification by the type of financial claim divides markets into *debt markets* and *equity markets*. Using the maturity of claims as the relevant criterion, one can distinguish between *money markets* (financial markets for short-term debt instruments) and *capital markets* (for financial assets with longer maturity). Markets can also be classified by their organizational structure as auction markets, over-the-counter (OTC) markets and intermediated markets. In an *auction market*, some form of centralized trading facility is combined with open competitive bidding for the assets, and all trades of specified assets take place in the same centralized trading facility. *Over-the-counter markets* consist of dealers willing to buy or sell financial assets from or to any counterpart. There is no central trading facility, and investors are served one by one at several trading points. In *intermediated markets*, an entity called a financial intermediary (e.g. a bank) issues financial claims against itself. With the funds received it purchases financial assets, typically in order to achieve a long-term asset/liability objective.[2]

The rules governing the different types of financial markets are subject to national legislation. We will limit ourselves here to describing the broad lines common to all markets, from which particular national regulation can of course deviate.

Figure IB4.1 Synopsis of financial market classifications

Primary markets	Secondary markets	Debt markets	Equity markets	Money markets	Capital markets
Dealing with financial claims that are newly issued	Dealing with financial claims previously issued	Dealing with financial claims with fixed rates of return	Dealing with financial claims with residual rates of return	Dealing with short-term debt instruments	Dealing with longer maturity financial assets
Example 1: A company needs fresh money for expansion. For this purpose it issues shares. It goes "public".	**Example 2:** When issued the shares of the company under Example1 are being traded at the stock exchange.	**Example 3:** A government issues bonds in order to finance public infrastructure investments.	**Example 4:** Same as under Examples 1 & 2.	**Example 5:** A bank needs cash to fulfill the legal minimum reserve requirements. It borrows the required funds from a bank which has excess reserves.	**Example 6:** The government issues very long term bonds (e.g: 30 years). Company issues gilt-edged debt instruments (e.g: 10 years). Pension funds = typical buyers.

Auction markets	Over-the-counter markets	Intermediated markets
All trades of financial assets in centralized facility. Open bidding.	The market for unlisted stocks. (Unlisted stocks = stocks not traded at a stock exchange.)	Institution (financial intermediary) issues claims against itself. With the funds received purchases financial assets.
Example 7: Primary market for treasury bills. 3- and 6-month US T-bills auctioned every Monday. 52-week bills auctioned the third week every month.	**Example 8:** Used mainly by institutional investors and professional money managers.	**Example 9:** Banks.

1.   PRIMARY MARKETS

Primary markets deal with newly issued financial claims. Governments issuing debt instruments have always been the dominant actors on these markets. In steadily growing economies where government debt is kept under control this is routine business.

For example, the primary market for United States Treasury bills works as follows:[3] The Treasury issues securities on an auction basis. The time intervals between auctions depend on the different, fixed maturities of the securities. Short-term bills (maturity less than one year) are auctioned off weekly, with the amounts to be traded announced in advance. One-year bills are traded in the third week of

Box IB4.1   Debt instruments and equity claims

The claim of a holder of a financial asset may be either a fixed currency amount or a varying, residual amount. In the former case, the financial asset is called a debt instrument.
  Examples of debt instruments are:

- A loan by a commercial bank (investor) to an individual (issuer) to purchase a truck. The individual offers the following contract to the bank: I earn income by running the truck in a specified business and pay back the loan plus the interest on that loan in constant instalments; the bank receives a constant income from the investment; in principle, such contracts are open to be traded in financial markets, but usually they are not.
- A treasury bond issued by a government (or, in general, by a public institution) and bought by a pension fund (investor). The government is offering the following contract: I transfer the treasury bond to the pension fund in return for payment by the pension fund of a certain currency amount. I promise to pay back the full currency amount, stipulated on the bond, at a fixed date in future plus in-between, at regular intervals, a certain amount of interest (again stipulated on the bond); treasury bonds are typical papers traded in financial markets (bond markets).
- A long-term (10 years) corporate bond issued by a big firm in order to finance business expansion and bought by a private bank (investor). The contract offered by the corporation to the bank is similar to the one in the previous example (government / pension fund). As such long-term bonds imply a long-term promise of serving the bond in future and also influence the money market, their issuers are normally subject to close inspection and an approval procedure by the central bank before issuance. If approved, such bonds are considered "gilt-edged".

  A residual or equity claim obligates the issuer of the financial asset to pay the holder an amount based on earnings (profits), if any, or on other grounds, after holders of debt instruments (of the same issuer) have been paid.
  Examples of equity claims are:

- Common stock of Siemens or General Motors. The company (issuer) promises to pay to the holder of the equity (share) an unspecified amount relative to the nominal value of the share issued (dividend) in case of sufficient earnings (profits). Besides being debt instruments, shares usually carry with them a voting right for the asset holder, allowing her or him to influence the issuer's business policy (including the amount of dividends paid per share). Common stock shares are usually traded on the stock markets.

> **Box IB4.1** (cont'd)
>
> - A partnership-share in a business. An individual having an excess of cash (savings) is invited by the owner of a private business to invest those savings in the company. In return the business owner promises to let the individual participate in the profits according to her/his share in the business. Such private ("bilateral") arrangements are normally not traded on the financial markets.

every month (announcement the preceding Friday). Furthermore, the Treasury offers securities with maturities of two, three, five, seven, ten and 30 years.

Participants in the auction are the government (offering a certain amount, a "tender"), competitive and non-competitive bidders, and the central bank. According to American tender rules, at the closing of a tender any share bought by the central bank is deducted first. Non-competitive bidders are restricted to a defined maximum part of the tender[4] and, after the auction is finished, pay the average yield achieved in the competitive bid. The remainder is allocated to the competitive bidders in descending order of their bids. This means that the bidder ready to pay the highest price is served first (at the offered price), then the one with the second highest price (at that price), and so on. Alternatively, countries apply the so-called "Dutch tender", where *all* bidders finally pay the lowest price accepted by the issuer during the auction.[5]

Table IB4.1 shows the months during which longer-term United States Treasury securities are issued.

Other entities acting on the primary market are enterprises. They offer short-term and long-term debt instruments and additional shares. Papers with less than one year of maturity are often called "commercial papers", those with longer maturity "corporate bonds", and additional shares "seasoned stock".

In recent years, primary markets have attracted special attention on the occasion of major privatization moves of former government-owned entities and of private firms issuing stocks. There are two types of primary market issues of common stock. Initial public offerings (IPOs) are stocks issued by a company selling stock to the public for the first time. Before issuance, ownership of the firm may be state or private – and this may be, in principle, the case again after issuance. In the case of stock companies, ownership very much depends on the control rights associated with the share of total capital held. Seasoned new issues are offered by companies that already have floated equity. For example, a sale by DaimlerChrysler of new shares of stock would be called a seasoned new issue.

The primary market organizes IPOs and seasoned issues. Newly issued financial claims are most often distributed through banks acting as

Table IB4.1 Treasury coupon securities auctioned by month

Month	Number of years to maturity					
	2	3	5	7	10	30
January	•		•			
February	•	•	•		•	•
March	•		•	•		
April	•		•			
May	•	•	•		•	•
June	•		•	•		
July	•		•			
August	•	•	•		•	•
September	•		•	•		
October	•		•			
November	•	•	•		•	•
December	•		•	•		

• Auctioned in month indicated.

lead managers. Examples of successful privatization by means of IPOs include:[6]

1. In the United States, the privatization in March 1987 of government-owned railroad company Conrail. More than 58 million shares were sold, raising a total of US$1.65 billion.
2. British Telecom in the United Kingdom (amount raised: US$4.7 billion).
3. In Germany, Deutsche Telekom AG in 1996 (amount raised: DM20 billion); privatization of the part of Deutsche Lufthansa AG still held by the government in 1997 (DM4.7 billion raised) and Deutsche Post AG in 2000 (market value at issue: €5.8 billion).

As shown in table IB4.2, the number of IPOs rose considerably in Western Europe in 1997 and 1998.

Apart from the issuance of claims managed by market intermediaries, bond issuance and trade in equity occurs also on non-organized markets directly between business partners or on grounds of personal relation. Trade on non-organized markets is often preferred to the general market for their more reliable long-term commitment. Since the related financial flows would not be channelled through the formal markets, these investment opportunities rarely open up to institutional investors like pension funds. This is of some significance as some observers argue that privately distributed issues may tend to represent the more profitable investments.

Table IB4.2 Initial public offerings (IPOs) in continental Western Europe, 1997–98

Country	1997	1998
Belgium	13	18
France	82	226
Germany	24	153[1)
Italy	13	21
Netherlands	15	22
Spain	78	184
Switzerland	13	17

[1)] relates to the year 2000.

Source: Deutsche Börse AG, as quoted in von Hagen and von Stein (eds.) (2000), pp. 959, 963.

2. SECONDARY MARKETS

Secondary markets deal with previously issued financial claims (stocks, bonds). Broadly speaking, it is there that investors express their opinion about the economic prospects of companies by determining the prices at which trades take place.[7,8]

Usually, secondary markets are formal organizations, such as for instance a stock exchange (New York Stock Exchange, London Stock Exchange, Deutsche Börse Group Frankfurt, and so on – see table IB4.3). An exchange provides a facility for its members to trade stocks, and only members of the exchange may trade there. This explains why memberships (*seats*) on the exchange are themselves valuable assets.[9] Stocks traded on an exchange are said to be *listed stocks*. To be listed, a company must apply and satisfy certain minimum requirements relating to the number of years of the company's existence, the face value of shares, the expected share capitalization, the number of shares distributed or the number of shareholders to buy the stocks, respectively.[10] Moreover, a prospectus giving full financial details and stating the current ownership and liability situation has to be issued. Alternatively, rules with respect to the listing may originate from legislation, which, for example, may set minimum standards with respect to the legal status of a company before it is allowed to go "public".

A major advantage of formal markets lies in low transaction costs, achieved through a high degree of standardization of trading. Some argue that these markets are close to "perfect markets". A market is said to be perfect when the number of buyers and sellers is sufficiently large, and all participants are small enough relative to the market so that no individual agent can influence the asset price.[11] Moreover, thanks to direct OTC transactions at an exchange, trade can be executed without any time lag. However, "frictions" (costs interfering with the supply and demand of goods and services) are often present on these

markets as well. The extent to which such frictions exist is an important indicator when analysing the performance of stock exchanges in relation to their competitors. One way of estimating the costs associated with frictions is to compare the prices of identical assets traded on different markets.

Many formal secondary markets around the world have undergone significant changes over recent decades; one of the most striking is their institutionalization – that is, a shift away from traditional small investors to large institutional ones. At the same time, so it is assumed, the speed of trading and stock turnover have increased. At the New York Stock Exchange, for example, institutional investors nowadays account for most of the trading by far. Greater implementation of funded pension schemes around the world would strengthen this trend even more.

3. DEBT MARKETS

Debt markets deal with instruments that obligate the debtor to make a contractually fixed series of payments, generally in nominal currency, up to some terminal date called the "maturity date", when the initial lending sum is paid back. For the holder of such instruments the income derived can normally be regarded as safe.

The traded assets include money market and capital market instruments, such as:

- Treasury bills and securities
- Commercial paper
- Medium- and long-term corporate bonds
- Bankers acceptances
- Short- and long-term federal agency securities
- Short- and long-term municipal obligations
- Certificates of deposit
- Repurchase agreements
- Floating-rate instruments
- Federal funds

In industrialized countries, debt instrument[12] markets are highly diversified and developed, whereas in developing and transition countries they exist only in a rudimentary form.[13] These markets are usually dominated by state-issued instruments which are normally regarded as safe. Government ("treasury") securities are backed by the full faith and credit of the governments issuing them. This is why social protection reserves are often invested in government-issued financial assets.

Table IB4.3   List of stock exchanges worldwide, 2001[1]

Africa (7)

Botswana Stock Exchange

Cairo Stock Exchange

Ghana Stock Exchange

Johannesburg Stock Exchange

Nairobi Stock Exchange

Namibian Stock Exchange

South African Futures Exchange

Asia (24)

Bombay Stock Exchange

Colombo Stock Exchange

Hong Kong Futures Exchange

Hong Kong Stock Exchange

India National Stock Exchange

Jakarta Stock Exchange

Kansai Commodities Exchange

Karachi Stock Exchange

Korea Stock Exchange

Kuala Lumpur Stock Exchange

Mongolian Stock Exchange

Osaka Securities Exchange

Philippine Stock Exchange

Shanghai Stock Exchange

Shenzhen Stock Exchange

Siberian Stock Exchange

Singapore Commodity Exchange

Singapore Monetary Exchange

Singapore Stock Exchange

Taiwan Stock Exchange

Stock Exchange of Thailand

Tokyo Grain Exchange

Tokyo International Financial Futures Exchange

Tokyo Stock Exchange

Canada (4)

Montreal Exchange

Toronto Stock Exchange

Vancouver Stock Exchange

Winnipeg Commodity Exchange

Caribbean (3)

Bermuda Stock Exchange

Cayman Stock Exchange

Jamaica Stock Exchange

Europe – East (14)

Bratislava Stock Exchange

Budapest Stock Exchange

Lithuania Stock Exchange

Ljubljana Stock Exchange

Macedonian Stock Exchange

Prague Stock Exchange

Riga Stock Exchange

Russian Securities Market

Russian Stock Exchange

Slovakia Stock Exchange

St. Petersburg Futures Exchange

Tallinn Stock Exchange

Warsaw Stock Exchange

Zagreb

Europe – West (40)

Amsterdam Exchanges

Athens Stock Exchange

Barcelona Stock Exchange

Belgian Futures and Options Exchange

Berlin Stock Exchange

Borsaitalia

Bremen Stock Exchange

Brussels Stock Exchange

Copenhagen Stock Exchange

Düsseldorf

Easdaq (Belgium)

EUREX (Switzerland)

EURO-NM

Finnish Options Market

Finnish Option Exchange

Frankfurt Stock Exchange

Geneva Stock Exchange

Hamburg Stock Exchange

Hanover Stock Exchange

Helsinki Stock Exchange

International Petroleum Exchange

Irish Stock Exchange

Lisbon and Oporto Exchange

London International Financial and Futures
    Exchange (LIFFE)

London Metal Exchange

London Securities and Derivatives Exchange

London Stock Exchange

Table IB4.3 (cont'd)

Europe – West (40) *(continued)*	United States of America (17) *(continued)*
Luxembourg Stock Exchange	Boston Stock Exchange
Madrid Stock Exchange	Chicago Board of Trade
Mailand Stock Exchange	Chicago Board Options Exchange
München Stock Exchange	Chicago Mercantile Exchange
Nouveau Marche (France)	Chicago Stock Exchange
Oslo Stock Exchange	Coffee, Sugar & Cocoa Exchange
Paris Bourse	Iowa Electronic Markets
Paris Matif	Kansas City Board of Trade
Spanish Financial Futures and Options Exchange	Mid American Commodity Exchange
Stockholm Stock Exchange	Minneapolis Grain Exchange
Stuttgart Stock Exchange	Nasdaq
Wien Stock Exchange	New York Cotton Exchange
Zürich Stock Exchange	New York Mercantile Exchange
	New York Stock Exchange
Near East (5)	Philadelphia Stock Exchange
Amman Financial Market	
Beirut Stock Exchange	**South America (12)**
Istanbul Stock Exchange	Bolivia Stock Exchange
Tehran Stock Exchange	Bolsa de Mercadorias & Futuros Sao Paulo
Tel Aviv Stock Exchange	Bolsa de Valores de Sao Paulo
	Bolsa Electronica de Chile
Oceania (3)	Buenos Aires Stock Exchange
Australian Stock Exchange	Bolsa de Bogota
New Zealand Stock Exchange	Mexico Stock Exchange
Sydney Futures Exchange	Nicaragua Stock Exchange
	Peru Stock Exchange
United States of America (17)	Rio de Janeiro Stock Exchange
American Stock Exchange	Santiago de Chile
Arizona Stock Exchange	Venezuela Stock Exchange

[1]Internet links to all markets via http://www.boerse.de/. The above list is not intended to be exhaustive.

4. EQUITY MARKETS

Equities ("common stock") represent an ownership interest (or "share") in a corporation. Holders of such stock, called "stockholders" (or "shareholders"), are entitled to the earnings of the corporation when those earnings are distributed in the form of dividends. Shareholders' claims to the operating surplus are served after interest on bonds and tax has been paid. In case shares are sold, windfall profits may materialize if the selling price exceeds the price initially paid. Equity holdings also entitle the holder to a pro rata share of the

remaining equity in the event of liquidation of the corporation that issued the share.[14] However, these entitlements are residual. This means that stockholders are the last in line to be paid after all other claimants (tax office, employees, suppliers, bondholders) who have a claim on the assets and income of the corporation.[15] At the same time, holders of equity are not personally liable for the firm's obligations; the most they can lose in the event of liquidation of the company is their initial investment.

5. MONEY MARKETS

Money markets deal with debt instruments that at the time of issuance have a maximum maturity of one year. These relatively short-term facilities are subsumed under the item "money" as they fulfil the functions of money, for example as a means of payment. Debt certificates figure in one of the extended money stock definitions M3 or M4 of central banks, which in turn were fixed – to some extent arbitrarily – to certain withdrawal conditions and maturity periods (see box IB4.2). Moreover, if the money market is liquid – that is, if holders of short-term debt instruments are able to sell their assets at any time (which in OECD countries is usually the case), these instruments can easily be exchanged against cash supply.

Box IB4.2   Money stocks

Central banks define different money aggregates to measure the money supply to the economy and as a target for their monetary policies. The actual inclusion of certain assets varies between the respective central banks' measures, and is subject to adjustment to take account of new financial instruments or their different use. The commonly defined money stocks M1 to M3 comprise the most to increasingly less liquid assets along the following lines:

M1: currency (coins and banknotes in use by the public), demand deposits and other checkable deposits, traveller's checks

M2: M1 plus short-term savings accounts, small-denomination deposits, money market mutual fund shares (non-institutional)

M3: M2 plus large-denomination time deposits, term repurchase agreements, credit lines, money market mutual fund shares (institutional), term Eurodollar.

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6.   CAPITAL MARKETS

Capital markets deal with debt instruments that at the time of issuance have a maturity of at least one year, and trade in equity. Equity is normally subsumed under this market categorization despite the fact that many observers regard short-termism rather as an attribute of shares, especially in speculative phases of the stock markets. The reason is that equity has no specified maturity date – that is, the only possibility that equity (in terms of common stock) may "disappear" from the market is the liquidation of a company.

The conditions and development of capital markets are of special interest for funded pension schemes with a long-term investment orientation.

Notes

[1] See, for example, Fabozzi and Modigliani (1992); Bodie et al. (1996); von Hagen and von Stein (eds.) (2000).

[2] In countries with a "specialized banking system" (e.g. United States) investment banks are allowed to acquire equity share capital whereas commercial banks are not. In countries with a "universal banking system" (e.g. Germany) all banks may buy shares. Some of the reasons for such differences between specialized and universal banking systems reside in differing traditions and philosophies concerning the exercise of control rights associated with the holding of equity.

[3] For further details see Fabozzi and Modigliani (1992), pp. 415-422.

[4] For example, the government may offer a tender of US$10 billion, of which the non-competitive bidders may take a maximum share of US$1 billion.

[5] von Hagen and von Stein (eds.) (2000), p. 948.

[6] Examples taken from Fabozzi and Modigliani (1992), pp. 67, 68; von Hagen and von Stein (eds.) (2000), p. 958.

[7] See Fabozzi and Modigliani (1992), p. 225.

[8] Yet, these opinions are not immediately translated into direct consequences for the issuing business, as the face value of the bond or equity is already cashed in. The market standing of the company is taken into account in transactions to follow.

[9] For seat prices at the NYSE, see Bodie et al. (1996), p. 82.

[10] Details for NYSE, London Stock Exchange and Deutsche Börse Group Frankfurt can be found at http://www.nyse.com/, http://www.stockex.co.uk/ and http://www.boerse.de/ respectively.

[11] Electronic trading has added a new quality to the notion of perfect market as it allows more, potentially small, investors to enter the market and ensures market transactions without time lag.

[12] For a detailed discussion of these instruments, see Fabozzi and Modigliani (1992), *passim*.

[13] See Del Valle Borraez et al. (1998).

[14] Fabozzi and Modigliani (1992), p. 224.

[15] Bodie et al. (1996), p. 57.

DEMOLAND: A COMPENDIUM OF PRACTICAL EXERCISES

Demoland is a data set that represents the demographic make-up, economy and social sector of a hypothetical country. For the purpose of our exercises some real-country data have been borrowed (without naming names); other data are purely fictional but were needed in order to create a complete country case. The Demoland data set may be consulted on the ILO website or obtained in the form of a CD from ILO FACTS.

General information

Demoland is a low-income country in southern Africa. It ranks ninety-second in the world in GDP purchasing power parity (US$5,400, whereas the world average was US$6,490 in 1999). Life expectancy is 47 years for men and 49 for women (17 and 20 years lower, respectively, than the world averages). A few years ago, before the AIDS pandemic hit the country, these values were 61 and 65; the decline is dramatic.

Demoland emerged from colonial dependence fairly recently. It is currently a functioning democracy but its parliament and government are still dominated by one major party, the successor of the former freedom-fighter movement. The Cabinet is composed of highly qualified experts, variously trained in the country, in South Africa or, inevitably, at Harvard. You will be dealing with the Minister of Labour and Social Affairs (a former trade unionist with a Maastricht degree in international economics, who has been hardened by innumerable wage negotiations); the Minister of Finance (who was brought home from the IMF, where she was starting a big career as the first African woman in a tough world) and the Minister of Health (a nurse with a Harvard degree in public health, who saw many people die in the war of independence). They are all icons of the national resistance movement. They are politicians but they are also number-literate.

Social protection information

With considerable support from the ILO, Demoland introduced its first social security law in 1990. Social insurance now provides benefits in case of maternity and sickness. Survivors', disability and old-age benefits are paid only to public sector workers. Various private or occupational pension schemes operate in the formal sector. Social security provisions are complemented by benefits under the Workmen's Compensation Fund, which is financed by employers and provides benefits in case of occupational injuries and diseases. The Social Insurance Fund has registered about 200,000 workers, of whom roughly 75 per cent contribute to the scheme on a regular basis. The labour force numbers some 682,000, of whom 450,000 are actually employed. If immediate dependants are included as possible beneficiaries, it can be assumed that the scheme covers some 50 per cent of the country's total population of about 1.8 million. That leaves the other half of the population uncovered and without access to even basic social protection in case of poverty, old age, disability, sickness and maternity.

Health services are operated by the Ministry of Health and financed from general revenue. Like many other public services, the health care system – in particular rural health stations and hospitals – suffers from chronic under-funding and hence cannot provide adequate quality of care. The Ministry of Health struggles with permanent budget shortfalls, and a considerable propor-tion of national health expenditure is already financed by out-of-pocket payments. Only public sector workers are covered by a social insurance health scheme.

It was estimated in the mid-1990s that about 30 per cent of the population was living below the poverty line, and unemployment is estimated to have reached a level of 30–40 per cent of the workforce, depending on the definition. National social assistance benefits that could be extended to all the poor cannot be financed from the government budget (says the Minister of Finance).

Economic and fiscal policy

Real GDP growth has been somewhat erratic in recent years, oscillating between 3 and 8 per cent. Long-term expectations are in the order of 3–4 per cent. While most of GDP growth in the recent past has been absorbed by population growth, the Ministry of Finance expects a long-term real per capita growth of about 2 per cent. Not unlike the South African government, the government of Demoland is walking on a tightrope. It is maintaining a strict fiscal policy and a deficit of 3–4 per cent of GDP. Attracting foreign direct investment is the cornerstone of its economic policy since the potential for increasing domestic savings as a source of further investment funding appears very limited.

The government is trying to maintain relative price stability by various means, including an alliance with the trade union (most of whose members belong to the governing party) that would keep wage increases at the rate of

marginal productivity, although it had to make some concessions with respect to the minimum wage and minimum early-retirement benefits for veterans of the independence movement. It is attempting to contain the demand for land redistribution and the redistribution of other productive assets by its own party members, but is seeking to achieve at least some redistribution through social security for all.

Your role in Demoland

Life in big bureaucracies is (or should be) full of decisions. Decisions are researched by technicians and generally taken by managers or politicians. These people need concise bases for their decisions. Lengthy papers and essays belong to the academic world. No minister will want to read a 300-page thesis after asking you: "Should we introduce a funded pension scheme as recommended by Mr. Holzmann of the World Bank?" or "Can we afford a universal pension scheme?" What he or she wants is a five-page list of pros and cons, suggested solutions to the problem and essential figures. Accordingly, technicians in ministries and/or major institutions write minutes, memoranda, briefing notes or whatever the vehicle is called in the particular national context; we will call them technical memoranda (TMs).

Writing succinct TMs is an art which most technical advisers unfortunately do not master, since they have all been trained to write theses or papers full of technical intelligence and footnotes. Only a few of them know how to communicate with people who do not have the time to digest all the technical details but need to know the broad outline around which they can develop their policies.

As you may discover, TMs are also an excellent tool for transferring and storing essential knowledge. A typical TM should have the following structure:

(1) Background and issues involved

(2) Alternative solutions

(3a) Pros and cons, and/or

(3b) Model calculations

- Assumptions and caveats
- Methodology (summary)
- Results

(4) Recommendations

Your knowledge base

Statistical information on Demoland is available on the ILO website at the following address: http://www.ilo.org/public/english/protection/socfas/publ/ listpubl.htm. You may download the Excel files in order to familiarize yourself

with Demoland and to put your knowledge into practice doing the tasks described below. The model solutions that accompany the tasks are based on actual solutions proposed by students of the 2002–2003 class of the joint ILO/ Maastricht University Masters programme in Social Protection Financing; they were all checked and revised by Ms. Christina Behrendt of ILO FACTS. You can also take the exercise one step further and try to find your own solutions to the problems presented.

TASK NO. 1   PROJECTING SOCIAL EXPENDITURE IN DEMOLAND

(Based on issues covered in Chapter 2)

You are the financial analyst at the Ministry of Labour and Social Affairs. The Minister is leaving for a major donor conference in Washington, DC. He wants to make the case that Demoland needs more foreign aid for the social sector. Knowing that in these meetings figures speak louder than words, he wants you to undertake urgently a ten-year projection for the overall social expenditure broken down into its main categories, namely health, pensions, short-term benefits and social assistance. Find an easy way to achieve rapid benchmark projections for the expenditure and its financing during a ten-year period. Explain the methodology and your assumptions and write a TM to the Minister. You might wish to use the frame provided in the Demoland files, but you have to find a simpler projection technique.

MODEL SOLUTION

MEMORANDUM

From: YOU
To: Minister of Labour and Social Affairs
Subject: Projecting social expenditure in Demoland

Background and issues involved

The Minister of Labour and Social Affairs is leaving for a major conference in the United States where he has to convince the donor community that his country needs more foreign aid for the social sector. This TM has been prepared with a view to assisting the minister in making his case to the donors. It contains figures of projected expenditure and revenue for Demoland for the next ten years.

Methodology

Projections have been carried out in order to establish the development of the income and expenditure pattern of the welfare sector of Demoland for the next ten years. The results are shown in tables T1.1 and T1.2.

Owing to time constraints a simplified methodology had to be used. In making benchmark projections "drivers" need to be used. These are indicators or variables that have a direct impact on certain expenditure categories. Expenditure in these categories is expected to develop as a linear function of the drivers. In the projections, the increase in the consumer price index, for example – one of the most important drivers of nominal expenditure – has been assumed to remain constant over the ten-year period (at 10 per cent annually). Population growth has been assumed to be 1.5 per cent and constant for the next ten years, whereas GDP has been assumed to be growing at a constant rate of 11.4 per cent in nominal terms. A real interest rate of 2 per cent has been assumed. These and other assumptions, as well as the main drivers for the projections are shown in table T1.3. All three tables may be found at the end of this memorandum.

Conclusions and recommendation

According to the projections and on the basis of arguably prudent assumptions, social expenditure in Demoland (measured as a percentage of GDP) will increase by about 70 per cent over the next ten years. This is an exceptionally fast increase by all historical standards despite assumptions for rather robust growth rates. If we cannot increase the share of out-of-pocket outlays in overall financing and the share of social insurance contributions, we will be facing an increase of around 135 per cent in relative terms (i.e. about 5.69 percentage points of GDP) in the share represented by the budget in overall social protection financing. This is almost exactly a 19-per cent increase of our already high overall tax (and contribution) ratio. There is little chance of implementing that. A close look at the projections reveals that virtually all of the expenditure increase stems from higher health spending, attributable above all to the estimated effects of HIV/AIDS. We might be able to contain that expenditure more successfully, but then we would require resources for up-front investment in a major campaign aimed at raising awareness and bringing about behavioural change. We could also shift some health financing from taxes to an extended social insurance. However, that change also requires some up-front investment. We are not likely to obtain the necessary resources from the Ministry of Finance.

Therefore, without external support we will not be able to balance the social budget in the next ten years. It is thus suggested to request donor support for investments in cost-reducing and cost-shifting strategies. It is unlikely that we will receive pledges for straight budgetary support as more and more donors are sensitive about the long-term sustainability of foreign aid.

Table T1.1   Demoland's Social Budget (in million CU): Functional summary, 2000–10

Expenditure and revenues	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Expenditure											
1. Pensions and administrative expenditure of Pension Fund	203	239	284	330	384	448	521	601	695	804	933
of which: Old-age	142	162	188	211	238	268	301	334	370	411	456
Invalidity	5	6	8	10	12	15	18	22	27	33	40
Survivors	55	69	88	108	133	163	200	243	295	358	435
Retirement grants	0	0	0	0	0	0	0	0	0	0	0
Funeral benefits for pensioners	1	1	1	1	1	1	1	1	2	2	2
2. Health	1 457	1 767	2 139	2 587	3 125	3 772	4 550	5 488	6 618	7 983	9 632
3. Short-term benefits	36	42	50	56	64	74	84	94	106	119	134
4. Social assistance	299	341	391	441	497	560	630	704	787	879	983
5. Transfers to reserves	241	100	119	129	139	150	160	165	167	165	157
Total social expenditure	2 236	2 488	2 982	3 543	4 210	5 004	5 945	7 052	8 373	9 951	11 840

Revenues

Total revenues	2 236	2 488	2 982	3 543	4 210	5 004	5 945	7 052	8 373	9 951	11 840
1. Social security contributions	435	506	602	685	782	894	1017	1 144	1 287	1 448	1 629
Pension insurance	264	307	365	415	474	542	616	694	780	878	987
Health insurance	138	161	191	217	248	283	322	363	408	459	516
Short-term benefits	33	39	46	52	60	68	78	88	99	111	125
2. Private financing	595	693	823	937	1 070	1 223	1 391	1 565	1 761	1 981	2 228
3. Investment income (pension, health, short-term benefit)	174	224	250	279	310	346	385	429	478	533	594
4. Other income (pension, health, short-term benefit, including transfers from reserves)	14	16	17	19	21	23	25	28	31	34	37
Income from general revenues	1 018	1 049	1 290	1 623	2 027	2 519	3 126	3 886	4 816	5 956	7 352
In % of total revenues	46	42	43	46	48	50	53	55	58	60	62

Source: ILO calculations.

Table T1.2 Demoland's Social Budget (in % of GDP): Functional summary, 2000–10

Expenditure and revenues	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Expenditure											
1. Pensions and administrative expenses of Pension Fund	0.84	0.87	0.90	0.93	0.97	1.00	1.05	1.09	1.14	1.20	1.26
of which: Old-age	0.59	0.59	0.59	0.60	0.60	0.60	0.60	0.61	0.61	0.61	0.62
Invalidity	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05
Survivors'	0.23	0.25	0.28	0.30	0.33	0.37	0.40	0.44	0.49	0.53	0.59
Retirement grants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Funeral benefits for pensioners	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2. Health	6.03	6.43	6.76	7.31	7.86	8.46	9.14	9.98	10.89	11.89	12.98
3. Short-term benefits	0.15	0.15	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.18	0.18
4. Social assistance	1.24	1.24	1.23	1.24	1.25	1.26	1.26	1.28	1.29	1.31	1.33
5. Transfers to reserves	1.00	0.37	0.37	0.36	0.35	0.34	0.32	0.30	0.27	0.25	0.21
Total social expenditure	9.26	9.05	9.42	10.01	10.59	11.22	11.94	12.82	13.78	14.82	15.96
Revenues											
Total revenues	9.26	9.05	9.42	10.01	10.59	11.22	11.94	12.82	13.78	14.82	15.96
Social security contributions	1.80	1.84	1.90	1.93	1.97	2.00	2.04	2.08	2.12	2.16	2.20
Pension insurance	1.09	1.12	1.15	1.17	1.19	1.21	1.24	1.26	1.28	1.31	1.33
Health insurance	0.57	0.58	0.60	0.61	0.62	0.64	0.65	0.66	0.67	0.68	0.70
Short-term benefits	0.14	0.14	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.17	0.17
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private financing	2.46	2.52	2.60	2.65	2.69	2.74	2.79	2.84	2.90	2.95	3.00
Investment income (pension, health, short-term benefit)	0.72	0.82	0.79	0.79	0.78	0.78	0.77	0.78	0.79	0.79	0.80
Other income (pension, health, short-term benefit)	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Income from general revenues	4.22	3.82	4.08	4.58	5.10	5.65	6.28	7.06	7.92	8.87	9.91

Source: ILO calculations.

Table T1.3 List of drivers for expenditure and revenues

Expenditure and revenues	Drivers	Assumptions (exact annual date where applicable from Demoland file)
Expenditure		
(a) Old-age pension	(a) wages	(a) on average nominally +11.7% p.a.
	(b) change (in %) in population age 60 and above	(b) on average +0.6% p.a.
(b) Invalidity	(a) wages	(a) on average nominally +11.7% p.a.
	(b) increased rate of invalidity occurrence due to HIV/AIDS	(b) on average +10% p.a.
	(c) increase in employment	(c) on average 2.1% p.a.
(c) Survivors	(a) same overall increases as invalidity since assumed that most of the increase stems from death of actives (mostly due to AIDS)	See above
(d) Retirement grant	(a) consumer price index	(a) on average +10% p.a.
	(b) withdrawal rate of actives	(b) 0.2% of employed population
	(c) increase in employment	(c) on average +2.1% p.a.
Short-term pension fund		
(a) Funeral benefits for pensioners	(a) rate of growth of retired population	(a) on average +0.6% p.a.
	(b) consumer price index	(b) on average +10% p.a.
Health	(a) population growth	(a) on average +1.5%p.a.
	(b) annual additional rise in utilization due to HIV/ AIDS	(b) on average +5% p.a.
	(c) additional medical inflation	(c) on average +3% p.a.
Short-term benefits	(a) rate of employment increase	(a) on average +2.1% p.a.
	(b) rate of growth of wages	(b) on average nominally 11.7% p.a.
Social assistance		
Poverty relief	(a) population growth	(a) on average 1.5% p.a.
	(b) consumer price index	(b) on average +10% p.a.
	(c) reduced by half the GDP growth (elasticity assumption)	(c) on average −0.8% p.a.
Revenues		
Social insurance contributions	(a) wage increase	(a) on average nominally +11.7% p.a.
	(b) increase in public sector employment	(b) increase in public sector employment = overall increase of employment

Table T1.3 (cont'd)

Expenditure and revenues	Drivers	Assumptions (exact annual date where applicable from Demoland file)
Private financing	Same as contributions	Same as contributions
Investment income	Rough calculation of overall reserves based on surplus in social insurance and interest rate assumptions	Interest rate = 11.4%
Other income	Constant in real terms	CPI assumption: on average +10% p.a.
Income from general revenue	Residual	

p.a. = per annum

TASK NO. 2   THE WELFARE STATE DEBATE IN DEMOLAND

(Based on issues covered in Chapter 3)

Even though you have just prepared some benchmark projections for the future size of the welfare state, the Minister is still worried that the benefits introduced and immature today may be too much of a burden for the economy in the long run. During a Commonwealth meeting of labour ministers in London he heard from his colleagues that European countries and other OECD countries are apparently trying to curb the size of the welfare state. A welfare state that is "too big" appears to have negative effects on the economy. Does the Minister have reason to worry (even if it may be a distant worry for a minister in a developing country)? Write a concise briefing note in the form of a TM explaining the potential positive and negative effects of the welfare state on economic performance (i) in principle, and (ii) with specific reference to Demoland.

MODEL SOLUTION

MEMORANDUM

From: YOU
To: Minister of Labour and Social Affairs
Subject: The welfare state debate in Demoland

Background and issues involved

Social expenditure in Demoland will rise over the next decades. This is a natural maturation process in any young social protection system. However, many analysts already view the present size of the welfare state in industrialized countries with concern, and many nations are curbing its growth. For Demoland this could mean that benefits that are immature today may pose too much of a burden for the economy in the long run and would have to be curbed at high political cost at some later time. The question is whether the Ministry should take pre-emptive action.

The welfare state debate (in principle)

The present state of empirical research does not lend unambiguous support to the view that a large welfare state has a negative effect on the economy, but it does not point to a clear positive relationship, either. Although some studies show a correlation between social expenditure and economic growth, the causality is difficult to establish.

What really matters for successful economic performance is not the level of social expenditure, but rather the relationship between the social protection system (that is, the welfare state) and the *institutional and political framework* of the country. A stable and non-conflictual relationship, assisted by sound macro-economic policies, can be expected to result in good economic performance.

Arguments concerning the relationship between the welfare state and the economy

In principle, welfare states complement the market by providing individuals with the income and care security that markets do not automatically provide. The main arguments for the welfare state's positive effects on the economy focus on *equity concerns*. The simple traditional theory of a trade-off between efficiency and equity is refuted by the endogenous theory of growth, which states that investment in human capital (education, training) leads to higher productivity growth.

Supporters of residual welfare states (maintained solely to cover market failures and provide people with minimum subsistence) claim that the provision of income and care security will inevitably impair efficiency, negatively affecting the economy as a whole. Their main arguments relate to behavioural or *incentive problems*, whether in the provision of specific benefits (e.g. the negative effect of unemployment benefits on incentives to participate in the labour market), in the management of public insurance schemes (e.g. low interest in applying measures to avoid moral hazard) or in public management (e.g. a low propensity to reduce administrative costs). It appears that at least some of these problems can be overcome by intelligent *institutional design*. In this context it should be noted that simply farming out the management of benefits to the private sector is unlikely to constitute a universal solution to microeconomic behavioural problems. The private sector may also suffer from inadequate incentive structures.

Table T2.1 summarizes the main arguments explaining the potential effects of the welfare state on the economy, together with our own tentative judgement.

In this context, the interrelationship between the welfare state and the *labour market* has received the most attention. The major criticism targets the disincentives to participate in the labour market created by public transfers. It is often claimed that people can become dependent on the system, with a consequential rise in long-term unemployment. However, a variety of measures can be taken to increase people's readiness to take on new jobs or additional training. Benefits could be tied to certain forms of publicly sponsored employment – although this step might be resisted by unions fearing the undermining of the country's wage structure. In such cases, the potential beneficial effects of such measures on overall economic performance should take precedence over group interests.

Table T2.1   Main economic arguments for and against extensive welfare states (WS)

The outcomes of the WS with effects on the economic performance	Positive effects	Negative effects	Assessment
Social impact of the WS	Poverty alleviation	WS can behave like a paternalistic monopoly, depriving consumers of choice.	Absence of poverty may be more important
	Social inclusion		Social inclusion fosters long-term social peace and should be conducive to long-term growth
	Income security: insurance against loss of income induces risk taking.	May reduce individual incentives for individual effort to achieve top performance in the labour market	Excessive insecurity may have a negative effect on social peace
	Reduction of income inequality: a minimum of income inequality (i.e. at least the equality of opportunity) should help to tap the full productive capacity of a society (e.g. through all benefits that keep children at school rather than forcing them into the labour market too early)	May reduce individual incentives for individual effort to achieve top performance in the labour market	Excessive inequality may have a negative effect on social peace
Public expenditure	Substantial public expenditure involved: positive if transfers are at the same time investments in long-term GDP growth and hence in the welfare of the population	Negative if social expenditure is deficit financed and/or crowds out public/private investments	Many social transfers can be conceived in such a way that they comprise an investment aspect with regard to growth and social peace; deficit financing should be avoided as it has a long-term negative effect on government's room for financial manoeuvre
Savings		Pay-as-you-go (PAYG) pension system can crowd out private savings	Empirical evidence is inconclusive. But funding might be employed strategically to "bundle" investments

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Table T2.1 (cont'd)

The outcomes of the WS with effects on the economic performance	Positive effects	Negative effects	Assessment
Productivity	WS can subsidize productivity growth through education and training, improving human capital formation	WS allocate resources to activities with slow productivity growth rate (e.g. services, education)	Impact of social transfers on human capital formation could be stronger
Globalization	Globalization could create more uncertainties for certain groups of people; social protection can alleviate these uncertainties and have positive effects on productivity	High overall tax rates and labour cost due to social security contributions may negatively effect global competitiveness; may lead to out-migration of skilled labour and capital	Empirical evidence as yet unclear: however, there is a correlation between openness and government expenditure
Political economy	Social security might foster identification of citizens with a society; this should have long-term positive impact on their readiness to contribute to societal developments	Social benefit entitlements create vested interests which could have a sub-optimal impact on financial and budgetary allocative decisions; irresponsible overpromising can be used to gain undue political influence	Overpromising is a real danger; it can only be avoided by rigorous information and education about WS limitations

It must be recalled that the welfare state is a set of institutions, policies and programmes aimed at reducing potential losses in population welfare. They do this both by direct redistribution and by investment-oriented transfers. An overall objective for a national welfare state should be to provide the population with the greatest possible total disposable income, individual choice and opportunity while keeping poverty and avoidable ill health to the minimum. A simple examination of national formal social expenditure does not provide much information about the effectiveness and affordability of the welfare state. It is the social and economic effects of individual transfers that determine that affordability.

The case of Demoland

In Demoland public social expenditure accounts for 9.3 per cent of GDP. Its largest component (6.0 per cent) is health expenditure; this is unavoidable

because of the AIDS epidemic. Accordingly, demands for higher expenditure on health care will continue in the short- to medium term. The dramatic decline in life expectancy and the slowed growth of the labour force will put additional pressure on the invalidity pension scheme.

The health system includes a basic universal service provided by the government (in hospitals and rural health stations), social insurance, and a private health service. The effect of health expenditure is undoubtedly positive. It helps create a more stable society, supports the labour force, and prevents intergenerational risks (new pandemic). The epidemic will continue to spread and dominate the resource needs of the social sector. Demoland's current situation limits its public resources, which could be focused on other social transfers generating higher productivity growth and long-term benefits.

The inevitable focus on health has an opportunity cost. The unemployment rate is high (33.6 per cent of the labour force) and there are no unemployment benefits. The overall high poverty rate (30 per cent of the population) and gross income inequality call for government interventions, which cannot be financed. This situation poses a threat to social peace. As long as that threat is tangible (as reflected in the uncontained demands by veterans for land reform and assets redistribution) our social expenditure cannot be too high. The introduction of a basic social assistance scheme should be evaluated. At present the size of the welfare state is not a problem. Given its limited resources, the government could increase incentives for more extensive private participation in pension insurance schemes and a greater formalization of the economy, leading to an increase in income subject to taxes and contributions. The latter could be allocated to health, freeing some of the resources currently used for health to combat poverty and hence social unrest, with its long-term detrimental effects on foreign direct investment and consequently growth.

Conclusion

The European debate on the size of the welfare state is academic for us. We need higher rather than lower social expenditure. What matters to us is:

(a) finding intelligent ways to mobilize additional resources;

(b) introducing an efficient institutional structure (in design and policy) ensuring the social peace that we need – a peace reflected, among other things, in stable, non-conflictual industrial relations and rational redistributive policies. In such a good environment, sound macroeconomic policies can work and permit a sustainable increase in welfare.

Our biggest challenge remains the HIV/AIDS epidemic. If we cannot contain it, our welfare state will not be able to perform its intended stabilizing social function.

TASK NO. 3   A SOCIAL ASSISTANCE SCHEME FOR DEMOLAND?

(Based on issues covered in Chapter 3)

From your understanding of Demoland's economy and its present social situation, develop a hypothetical income distribution for the country. The Minister asks you whether it would be possible to introduce a social assistance scheme to bring everybody up to a minimum income of, say, 25 per cent of the average wage in the country. Write a TM to the Head of Planning answering the following questions:

(1)   What would be the likely cost as a percentage of GDP?

(2)   What are the risks to the calculations in terms of moral hazard?

(3)   Do you expect any negative effects on the economy?

MODEL SOLUTION

MEMORANDUM

From: YOU

To: Head of Planning, Ministry of Labour and Social Affairs

Subject: A social assistance scheme for Demoland

Background information

On the basis of the income distribution gleaned from official statistics and the results of the latest household income and expenditure survey, the poverty line for Demoland could be set at 25 per cent of the country's average wage (2,278.94 Currency Units [CU] per month), that is, CU 569.73 per month, or CU 6,836.81 per year. Assuming a linear distribution of income within each income bracket, the incomes of 1.1 million people (60.6 per cent of the population) are lower than this threshold.

Table T3.1 shows the lower part of the income distribution in Demoland for 2000 and the benefits that would be necessary to bring the poorest parts of the population up to the income threshold of 25 per cent of average wage.

Assuming an administrative cost of 10 per cent of benefit expenditure, the social assistance scheme would cost CU 2,917.8 million, or 12.08 per cent of GDP. It should be noted that this level of expenditure is the maximum. If eligibility for participation in the scheme is linked to specific criteria, actual expenditure may be lower. Moreover, actual benefit take-up may be lower, and hence estimated expenditure may decrease further.

The overall cost of the scheme is clearly prohibitive in view of the country's current overall tax-to-GDP ratio of about 30 per cent. Accordingly, we also

Table T3.1 A social assistance scheme to close the income gap, option 1
(income threshold at 25% of average wage)

Income bracket	Average income	Income gap	People in income bracket	Benefit per month (CU)
0–50	40	530	17 507	9 273 839
51–100	80	490	18 428	9 024 815
101–150	135	435	36 856	16 022 551
151–200	178	392	70 026	27 431 712
201–250	230	340	82 926	28 172 770
251–300	280	290	108 725	31 501 371
301–350	328	242	125 310	30 291 766
351–400	379	191	145 213	27 696 967
401–450	427	143	162 166	23 146 635
451–500	480	90	154 703	13 882 102
501–550	538	32	144 936	4 599 385
Total benefit expenditure per month				221 043 913
Total benefit expenditure per year				2 652 526 954
Total expenditure including administrative cost (10% of benefit expenditure)				2 917 779 649
As percentage of GDP				12.08

present the calculations for a second alternative (see table T3.2). This second option is based on an income threshold at the level of the minimum wage (CU 340 per month or CU 4,080 per year). The minimum wage amounts to 15 per cent of the average wage. It is estimated that 434,205 persons (23.6 per cent of the population) live on an income equal to or lower than this threshold.

Lifting the poor to the minimum wage level would require a social assistance expenditure of CU 608.4 million, or 2.52 per cent of GDP. Again, this is the maximum level of expenditure, but in this case actual expenditure levels would come closer to this maximum than in option 1. With lower benefit levels linked to the minimum wage, eligibility would not be made conditional upon specific criteria, and take-up rates would tend to be higher.

Future expenditure

Relative future expenditure levels for the next decade can be expected to stagnate or even fall in both alternative scenarios, since the economy is expected to grow, bringing increasing numbers of people into formal employment or allowing them to earn better incomes in the informal sector. The exact nature of expenditure development is difficult to project, since the

Table T3.2 A social assistance scheme to close the income gap, option 2 (income threshold at minimum wage level)

Income bracket	Average income	Income gap	People in income bracket	Benefit per month (CU)
0–50	40	300	17 507	5 251 980
51–100	80	260	18 428	4 791 280
101–150	135	205	36 856	7 555 480
151–200	178	162	70 026	11 344 277
201–250	230	110	82 926	9 121 860
251–300	280	60	108 725	6 523 512
301–350	328	12	125 310	1 503 725
Total benefit expenditure per month	46 092 114			
Total benefit expenditure per year	553 105 363			
Total expenditure including administrative cost (10% of benefit expenditure)				608 415 900
As percentage of GDP				2.52

distribution of the additional income generated by the economy between different income groups is almost impossible to model without a longer history of observations. Such observations are not available for Demoland.

Considerations

(a) *Moral hazard.* Depending on the actual design of the means test and the administrative procedures involved, there is a risk that the scheme will be abused by recipients and administrators. In a classic cash-income or asset test, recipients may underreport their income (for example, by not reporting informal sector income that cannot be verified); or benefits may provide too big a disincentive against accepting formal sector employment. Administrators may use the resources discretionarily to obtain favours or secure political influence. Simple asset tests in rural conditions or simple forms of categorized means tests (that is, using such categories as number of children or elderly living in the household, or disability or chronic illness) may have to be devised to make the administrative decision-making process as transparent as possible. The downside is that it would probably not be possible to reach out to all of the poor. This loss in scheme effectiveness has to be weighed against the potential damage to society and the economy if dependency becomes a lifestyle.

(b) *Possible negative economic effects* could include increased disincentives for active labour-market participation. Increasing the population's *de facto* minimum income will increase both the reservation wage (at least in the case of a poverty line set at 25 per cent of the average wage), and the wage cost to firms, resulting in the typical effects on employment levels. Benefits have to be financed by tax increases. Demoland is attempting to attract foreign investment, and increased taxes or wage costs may be a disincentive for investors.

Results and conclusions

In view of the high level of resources necessary to finance such a programme, and the possible negative effects on the labour market, a minimum income guaranteed at 25 per cent of the average wage is, at present, hardly sustainable or affordable. In Demoland's current circumstances, a minimum-wage poverty line is more manageable. Given the very low minimum wage, one option might be to increase the level of the poverty line relative to the average wage during the next year, and adjust the social assistance scheme accordingly.

The poverty line determination also needs clarification. Need levels of larger households should be examined more closely with a view to adjusting benefit levels to the respective needs of adults and children and taking into account regional price-level variations. Most importantly, longer-term poverty alleviation goals should include "empowerment strategies". This means, for example, that a minimum-income guarantee should be coupled with training, education, and health care programmes.

TASK NO. 4   FINANCING A SOCIAL ASSISTANCE SCHEME FOR DEMOLAND

(Based on issues covered in Chapter 4)

Go back to task n° 3. A consultancy agency has assessed the potential cost of the scheme. But now the Minister wants a thorough look at the financing side of the scheme, and as he was not quite satisfied with the work of the agency, he wants an assessment from his own staff. Write a minute to the Head of Planning answering the following questions:

(1)   How would we finance the benefits (through which fiscal instrument, what would be the tax base)?

(2)   What are the pros and cons of the different options in terms of administrative feasibility and equity?

(3)   Can we reduce overall government expenditure by "offloading" some other social cost from the budget?

MODEL SOLUTION

MEMORANDUM

From: YOU
To: Head of Planning, Ministry of Labour and Social Affairs
Subject: Financing a social assistance scheme for Demoland

Background and issues involved

If a social assistance scheme is to be introduced, it should be based on sound and sustainable financing principles. A scheme conceived along the lines of option 2 outlined in the solution to task n°3 would entail expenditure of CU 608.42 million per year, or 2.5 per cent of GDP in 2000.

Alternative solutions, their advantages and disadvantages

Possible ways of financing a social assistance scheme for Demoland are:

● higher taxation

● reallocation of present budgetary expenditure

● higher government borrowing

● other options (including increase in transfers from the rest of the world).

In order to assess the maximum budgetary implications of the introduction of a social assistance scheme, we undertook a simple static forecast of the expected social assistance expenditure under option 2. The forecasts of the

Table T4.1 Projected government revenue and projected increase with the introduction of a social assistance scheme, 2000–20 (in million CU)

	2000	2005	2010	2015	2020
General government revenue	7 261	13 448	22 427	37 018	56 883
1. Property income, receivable	288	532	885	1 457	2 234
2. Taxes on production and import	3 004	5 549	9 231	15 199	23 302
3. Taxes on income and wealth	2 782	5 139	8 549	14 075	21 580
4. Social security contributions	435	838	1 451	2 482	3 934
5. Current transfers from rest of the world	740	1 367	2 274	3 744	5 740
6. Miscellaneous current transfers	12	22	37	61	93
Projected expenditure for social assistance	608	993	1 481	2 190	3 051
Revenue would have to increase to	7 869	14 441	23 909	39 208	59 935
Increase (in %)	8.4	7.4	6.6	5.9	5.4
If entirely financed out of taxes on income and wealth					
Projected taxes on income and wealth	3 390	6 132	10 030	16 266	24 631
Increase (in %)	21.9	19.3	17.3	15.6	14.1
If entirely financed out of taxes on production and imports:					
Projected taxes on production and imports	3 612	6 542	10 713	17 389	26 353
Increase (in %)	20.3	17.9	16.0	14.4	13.1

volume and structure of government revenues were taken from official government forecasts (Demoland GOV file).

1. Increasing taxation

In order to cover the projected expenditure, additional revenue would need to be generated (see table T4.1). The table shows projected government revenue under current circumstances and with the projected introduction of a social assistance scheme.

All other things being equal, government revenue would have to increase by 8.4 per cent for 2000 in order to cover expenditure for the social assistance benefit. The projected relative rise would be lower in subsequent years; it would shrink to 5.4 per cent for the year 2020.

If this additional expenditure was covered entirely out of taxes on income and wealth, those taxes would have to be increased by 21.9 per cent in 2000, dropping to 14.1 per cent in 2020. Given that income inequality in Demoland is already very high, it should be carefully evaluated whether the increase in tax

Table T4.2   Projected government expenditure and projected increase with the introduction of a social assistance scheme, 2000–20 (in million CU)

	2000	2005	2010	2015	2020
Total general government expenditure	7 590	14 360	24 700	42 050	66 129
Defence and public order	994	1 836	3 054	5 029	7 710
as percentage of total expenditure	13.1	12.8	12.4	12.0	11.7
Economic affairs and services	963	1 778	2 958	4 870	7 466
as percentage of total expenditure	12.7	12.4	12.0	11.6	11.3
Current transfers to the rest of the world	240	443	738	1 214	1 862
as percentage of total expenditure	3.2	3.1	3.0	2.9	2.8
Projected expenditure for social assistance scheme	608.42	992.69	1 481.42	2 190.20	3 051.32
as percentage of total current expenditure	8.0	6.9	6.0	5.2	4.6

rates should apply equally to all taxpayers, or whether some form of progressive scale could be found. In addition, it may be useful to check whether the necessary increase in tax revenue could be partly generated by expanding the tax base and improving tax compliance.

If the government were to choose instead to push up taxes on production and imports, the necessary increase would amount to 20.3 per cent in 2000, declining to 13.1 per cent in 2020. A combined financing of social assistance benefits by the two tax types would split the necessary rise in tax rates on different sectors of the economy; this might help keep in check possible negative economic effects.

2. Reallocating budget expenditure

We have identified the following possibilities for reallocation of expenditure within the budget: defence and public order, economic affairs and services, and current transfers to the rest of the world. As shown in table T4.2, if the social assistance scheme was to be entirely financed out of the current government budget, 8.0 per cent of current expenditure would have to be reallocated, shrinking to 4.6 per cent in 2020.

After consultations with experts on African affairs, it seems that the end of the civil wars in two neighbouring countries may allow Demoland to reduce its defence budget. In 2000, the expenditure for defence and public order amounted to 13.1 per cent of total government expenditure.

Other expenditure items that might possibly be reduced include economic affairs and services (currently 12.7 per cent). It should be carefully evaluated whether efficiency gains could free some resources that could be spent on social assistance. In addition, the current level of transfers to the rest of the world (3.2 per cent of government expenditure) may also offer some room for reallocation.

3. Increased borrowing

Since in the year 2000 the government budget is already running a deficit that will widen further in the years to come, an increase in net borrowing is not a viable option for covering the cost of a social assistance scheme since it would just shift the burden of financing to future generations.

4. Other options

Another possible option could be to seek to increase transfers from the rest of the world. Given its implications, this option should be considered only for a limited period, with a clear view to rapidly building up national resources to finance a self-sustaining social assistance scheme for the population.

Recommendations

After considering various financing options for a social assistance scheme, we would recommend combining different sources of financing in order to limit the burdens created by each individual one. We would propose to generate part of the resources from taxes on income and wealth and on production and imports. While emphasis should be placed on improving tax compliance and extending the tax base, a rise in tax rates will be inevitable. Given the already high income inequality, the increase should be designed in a progressive way. In addition, possibilities for reallocation of budget expenditure should be explored, in particular with regard to defence spending, economic affairs and services, and current transfers to the rest of the world. In order to facilitate the introduction of the social assistance scheme, transfers from the rest of the world could be sought for a limited period of time.

TASK NO. 5   A UNIVERSAL PENSION SCHEME FOR DEMOLAND

(Based on issues covered in Chapter 5)

On his return from a seminar in Europe, the Minister of Labour and Social Affairs has suggested that the rudimentary pension schemes for public sector workers should be replaced with a universal pension scheme for all people over 65 years of age. However, the Head of Planning wants to know:

- How would the cost to the Government develop under the present scheme, provided it bears 50 per cent of the contribution?
- What would a new, flat-rate scheme cost?
- How could it be financed?
- Could we sell that plan to the Ministry of Finance? And (if at all) to public sector workers?

MODEL SOLUTION

MEMORANDUM

From: YOU
To: Head of Planning, Ministry of Labour and Social Affairs
Subject: A universal pension scheme for Demoland

Background and issues involved

Most of the population faces insecurity and poverty in old age. Demoland's existing pension scheme covers only public sector workers. A proposal is under consideration to improve social security in old age by introducing a flat-rate universal pension for the entire population over 65. As in the current public sector scheme, this pension would also be available to invalids and survivors. For public sector workers, benefits from the existing scheme would be replaced by those of the universal scheme after a transition period.

A.   Reform of the current public sector scheme: methodology and caveats

The public sector scheme is currently financed by a 20-per cent contribution rate shared between employers and workers on a 50:50 basis. The government presently absorbs surpluses but has agreed to cover future deficits without raising the contribution rate. The surpluses are kept in a special reserve owned by the government. According to government forecasts, the expenditure would develop as outlined in table T5.1.

Table T5.1 Expected results for the current public sector scheme, 2000–20 (in million CU)

	2000	2005	2010	2015	2020
Total expenditure including administrative cost (present cost to government)	212.47	459.26	874.96	1 590.74	2 681.53
as percentage of GDP	0.88	1.03	1.18	1.30	1.43
Contributions	263.54	508.02	879.70	1 504.44	2 391.12
Contributions from employed persons	131.77	254.01	439.85	752.22	1 195.56
Contributions from employer (government)	131.77	254.01	439.85	752.22	1 195.56
Annual balance of the scheme (surplus/deficit)	51.07	48.76	4.74	−86.30	−290.41
Net cost to government under the assumption that surplus/deficit is integrated into general budget	80.70	205.25	435.11	838.52	1 485.97
Net cost to government as percentage of GDP	0.33	0.46	0.59	0.69	0.79

If it is assumed that the surplus or deficit of the public sector pension scheme is integrated into the general government budget, the net cost for the government would be CU 80.7 million in the year 2000, but would reach CU 1,485.97 million by 2020.

B. Introduction of a universal old-age pension: methodology and caveats

The following analysis is based on Demoland's official population forecasts and statistics (see Demoland files). The following data were used:

- Total population above 65 years of age as beneficiaries of old-age pensions
- Total pensioners (current)
- Total present contributors within the governmental sector
- Total number of other pension beneficiaries (invalids, survivors, AIDS invalids)
- Total number of persons in the labour force by sector, who could contribute to the universal scheme

Calculations have been made to assess the universal benefit expenditure borne by the government in absolute numbers and as a percentage of GDP.

The pensions for invalids, survivors and AIDS invalids are calculated separately. Their composition as a percentage of pensioners has been taken from the Demoland data. The level of benefit for this category is kept at

Table T5.2 Numbers of beneficiaries, for other pensioners, 2000–20

	2000	2005	2010	2015	2020
Ratios: Other beneficiaries as a proportion of old-age pensioners					
Invalidity (without AIDS)	0.04	0.07	0.11	0.15	0.18
Survivors	0.65	0.99	1.31	1.39	1.42
– Widowers	0.25	0.38	0.50	0.53	0.55
– Orphans	0.40	0.61	0.80	0.85	0.88
AIDS invalids	–	0.07	0.07	0.08	0.07
Numbers of beneficiaries					
Old-age pensioners (pop. 65+)	67 210	69 184	73 409	81 780	91 632
Invalidity (without AIDS)	3 006	4 981	8 090	11 995	16 425
Survivors (widows and orphans)	43 683	68 355	95 951	113 590	130 319
AIDS pensioners	0	4 537	5 492	6 380	6 735
Total number of other beneficiaries	46 689	77 873	109 532	131 964	153 478
Current pension scheme for public sector workers only					
Old-age pensioners	15 382	16 121	17 416	19 754	22 535
Other pensioners	10 685	18 146	25 986	31 876	37 745
Total number of beneficiaries	26 067	34 266	43 402	51 630	60 280

115 per cent of minimum wage level – that is, CU 391 per month in 2000. This anchoring of the projections might lead to an underestimation of the future number of invalidity pensions due to AIDS. The assessment of that particular risk requires a much more detailed study than could be undertaken in the context of this TM. This effect is expected to be compensated to some degree by a corresponding overestimation of expenditure for old-age pensions. However, there remains the caveat that overall pension expenditure might be underestimated to some extent.

After examining current pension and wage levels, we suggest that the pension level be set at 175 per cent of the minimum wage level for all retirees (CU 595 per month in 2000, subsequently indexed to the development of wages). In a flat-rate scheme, this benefit level should be granted to the entire elderly population, irrespective of their coverage under the current scheme. The current scheme has an average monthly benefit level of CU 1,096.28, but covers only 23 per cent of the population over the age of 65.

Other pensions in the new scheme (see table T5.2) are calculated on the basis of the assumption that the ratio of invalidity pensioners, survivors and AIDS invalids is the same for the new scheme as for the current public sector scheme. The total number of other pensioners in the whole population is thus calculated on the following ratios (data from 2000 to 2020, including every fifth year).

$$\text{Other Beneficiaries} = \text{pensioners} * \text{ratio}$$

Table T5.3 Benefit levels and expenditure in a universal pension scheme, 2000–20

	2000	2005	2010	2015	2020
Old-age pension (175% of minimum wage)					
Monthly pension level (CU)	595.00	970.81	1 448.75	2 141.90	2 984.04
Yearly pension level (CU)	7 140.00	11 649.67	17 385.06	25 702.85	35 808.46
Benefit expenditure (in million CU)	479.88	805.97	1 276.21	2 101.99	3 281.19
as percentage of GDP	2.19	1.99	1.89	1.89	1.93
Other pensions (115% of minimum wage)					
Yearly pension level (CU)	4 692.00	7 655.49	11 424.46	16 890.44	23 531.27
Monthly pension level (CU)	391.00	637.96	952.04	1 407.54	1 960.94
Benefit expenditure (in million CU)	219.06	596.16	1 251.34	2 228.93	3 611.53
as percentage of GDP	1.0	1.47	1.86	2.01	2.12
Total pension scheme					
Benefit expenditure (in million CU)	698.94	1 402.13	2 527.56	4 330.92	6 892.72
Total expenditure (in million CU)	768.84	1 542.34	2 780.32	4 764.01	7 581.99
as percentage of GDP	3.18	3.46	3.75	3.90	4.05
Current scheme for public sector workers only					
Total expenditure, including administrative cost (in million CU)	156.12	278.25	467.14	815.18	1 347.40
as percentage of GDP	0.65	0.62	0.63	0.67	0.72

On the basis of the above analysis we estimated how government cost would develop. This is shown in table T5.3, for the current and the new scheme. It is assumed that administrative cost is at 10 per cent of total pension expenditure in the new scheme.

The new universal pension scheme could be financed from contributions of the employed or out of general taxation (see table T5.4). The calculations below are based on contributions complemented by general taxation.

The calculations rest on the following assumptions:

- Wage for private sector employees:

  $$\text{WPriv} = [\text{AvWage} * (\text{NoPub} + \text{NoPriv}) - (\text{NoPub} * \text{WPub})]/\text{NoPriv}$$

where:

AvWage	= average monthly wage in Demoland (both public and private sector)
NoPub, NoPriv	= number of public and private sector workers respectively
WPub	= average public sector wage

Table T5.4 Calculation of contribution base, 2000–20

	2000	2005	2010	2015	2020
Share of insurable earnings in wages	0.49	0.52	0.54	0.57	0.59
Minimum wage (year)	4 080.0	6 657.0	9 934.0	14 687.0	20 462.0
Average monthly wage					
All employed	2 279.0	3 718.3	5 548.9	8 203.8	11 429.3
Public sector	3 138.4	5 078.1	7 526.2	11 066.4	15 354.7
Private sector	1 973.0	3 249.5	4 889.2	7 279.7	10 203.7
Number of employed					
Employees, private sector	254 434.0	288 421.2	321 829.6	358 717.7	395 064.1
Employees, public sector	90 602.8	99 436.0	107 386.0	115 804.4	123 345.9
Self-employed	47 263.6	52 608.2	57 644.6	63 098.9	68 250.0
Captured people					
75% of private sector	190 825.5	216 315.9	241 372.2	269 038.3	296 298.0
95% of public sector	86 072.7	94 464.2	102 016.7	110 014.2	117 178.6
25% of self employed	11 815.9	13 152.0	14 411.1	15 774.7	17 062.5
Contribution (in million CU)					
Private sector	221.38	434.41	764.71	1 339.62	2 140.53
Public sector	158.84	296.45	497.53	832.74	1 273.86
Self-employed	4.82	8.76	14.32	23.17	34.91
Total contributions	385.04	739.62	1 276.56	2 195.53	3 449.30

- Contribution for the universal pension scheme $= 10\% *$ insured earnings (non-governmental contribution).
- Contribution is calculated using formula (in three labour force sectors):

$$Contribution = W * 12 * 10\% * CR * IER$$

where:

W = average monthly wage within the particular sector (see assumptions)

10% = contribution rate, constant for all years and within sectors

CR = compliance rate

IER = insurable earning ratio

However, the contributions of the employed would cover only part of the total expenditure of the scheme; the remainder would have to be covered out of the general government budget (see table T5.5).

For the year 2000, the total cost of CU 768.84 million would be shared between CU 385.04 million covered by contributions and CU 383.80 million covered out of the government budget, equivalent to 1.59 per cent of GDP. This amount would have to be financed through an increase in general taxation.

Table T5.5 Additional cost to the government, 2000–20

	2000	2005	2010	2015	2020
Total expenditure, including administrative cost (in million CU)	768.84	1 542.34	2 780.32	4 764.01	7 581.99
Contributions from insured	385.04	739.62	1 276.56	2 195.53	3 449.30
Cost to government (in million CU)	383.80	802.73	1 503.75	2 568.48	4 132.69
As percentage of GDP	1.59	1.80	2.03	2.10	2.21
Current public sector scheme					
Net cost to government (in million CU)	80.70	205.25	435.11	838.52	1 485.97
As percentage of GDP	0.33	0.46	0.59	0.69	0.79
Additional cost to government for universal pension as compared to reformed public sector scheme (in million CU)	303.11	597.48	1 068.64	1 729.96	2 646.72
As percentage of GDP	1.26	1.34	1.44	1.42	1.41

Compared with the cost for the current public sector scheme (see calculations above), this would imply additional cost for the government of CU 303.11 million (or 1.26 per cent of GDP for 2000). This increase in expenditure would finance basic income security for all invalids, survivors and the elderly.

Recommendations

1. The analysis does not include calculations for a transition period. To sell the new scheme more easily to the public sector, some reflections on the transition period could be added.

2. The scenario would be easier to sell to public sector workers if the second-tier occupational plan, part financed by the government, was maintained.

3. As regards the financing of the scheme, it is recommended that present expenditure on social security pensions for the public sector be diverted to the new universal scheme. The government would then still need CU 383.80 million in 2000 in order to finance the new scheme. This amount should be generated by increasing the compliance rate and by levying additional taxes. Possibilities of levying taxes, such as a flat-rate social security tax, or increasing income and wealth tax, should be explored. One might also consider increasing tax on consumption because of its broader tax base. This would also capture informal sector workers. Since informal sector workers would also be covered by a flat-rate universal pension, this possibility should be examined. It may also be considered to finance at least the old-age pension fully out of general taxation. Reallocations of budgetary expenditure could also be explored (i.e. reducing budget expenditure for economic affairs and services, which in 2000 accounted for 4 per cent of GDP).

4. Recommendations on actuarial valuations: The calculations rest on relatively crude assumptions in respect to the benefit levels. Those are for universal retirement pension at 175 per cent and for other pensions (survivors, invalidity) based on 115 per cent of minimum wage level. In order to fine-tune these benefit levels, it may be helpful to study need levels of potential beneficiary households more carefully and to conduct actuarial valuations in order to recommend better benefit levels.

Conclusion

The introduction of a universal pension scheme would cost the government an additional 1.59 per cent of GDP in the base year 2000. This would cover all people over 65 years, which is about four times the current beneficiary rate, in addition to beneficiaries of invalidity and survivors' benefits. We think this burden is not excessive, considering the value of a universal scheme and its primary aim in preventing poverty and vulnerability among this age group.

There are some other positive aspects of universal pensions:

The administrative cost of introducing a universal pension scheme is quite low, as it is relatively easy to identify old people. It remains to be seen whether the assumption of 10 per cent for administrative cost could be lowered once the system is running.

Most of the old people in developing countries live in large households; their pensions are thus likely to reduce aggregate poverty through transfers to younger generations (the so-called "trickle down" effect). Empirical research shows that old people are the main carers for both orphans and other children in AIDS-affected families in Africa. A universal pension for old people in Demoland could have a positive effect on the well-being of the country's children.

TASK NO. 6   A SOCIAL HEALTH INSURANCE FOR DEMOLAND?

(Based on issues covered in Chapter 5)

Working on a tight budget, the Minister of Health is seeking to increase the resource base of the health sector. She has just returned from the World Health Assembly in Geneva, where she learned about the potential for mobilizing resources through a Social Health Insurance scheme. Her idea is to introduce such a scheme – in addition to the one existing for the public sector – for formal sector workers, who are already contributing to the newly introduced universal pension scheme (see task n° 5). She wants to "sell" services from the public sector hospitals to the scheme. She wants to charge family rate contributions. She reckons that because of the rapid growth of HIV infections the actual utilization of services in the coming years might increase by about 5 per cent annually rather than the 2 per cent observed during previous years, and she is still assuming a tightly controlled public health budget. The health economist in the Ministry also estimates that excess medical inflation for the covered population would be in the order of 3 per cent annually, largely due to growing imports of AIDS drugs that are increasingly replacing domestic drugs in the palliative treatment of HIV/AIDS at the demand of employers and workers in the formal sector. The Minister of Labour and Social Affairs refuses to accept another contribution rate of more than 5 per cent as he is concerned about the negative impact on labour cost.

Write a brief TM to the Minister of Health:

- costing the scheme for a medium-term timeframe (making all the necessary assumptions),
- demonstrating its effect on government health expenditure, and
- advising her on whether you consider this an adequate solution to the funding problem of the health sector.

MODEL SOLUTION

MEMORANDUM

From: YOU
To: Minister of Health
Subject: A social health insurance for Demoland

Background

Demoland does not have a social health insurance scheme for private sector employees. It is hoped that introducing such a scheme would improve the health care of the insured population as well as the resource base of the health sector.

There is political determination as regards the following two characteristics of a potential new social health insurance scheme:

- the insurance should cover formal sector workers who are already contributing to the newly introduced pension scheme (see task n° 5) and their families;
- the contribution rate should preferably not exceed 5 per cent of earnings.

Suggested type of health insurance

The current arrangements regarding the financing and benefit delivery of health insurance for public sector workers would be extended to all workers in the formal sector. For reasons of governance, the scheme will remain organizationally separate from the public sector scheme. Contributions are designed as flat-rate contributions. They should be determined as percentages of insurable earnings covering all non-employed family members. This means that dependants without regular income from employment in the formal sector would be covered without additional contribution. The new social health insurance branch will purchase care and pharmaceuticals from public providers on a fee-for-service and full-cost-recovery basis. The Minister of Health insists on that method of payment as it puts the risk of utilization-driven cost increases under insurance on the insurance schemes and not on the public providers (which would be the case under a capitation-based reimbursement mechanism of public providers).

Assumptions

1. As in the case of the recently introduced pension scheme (see task n° 5), compliance rates are assumed as follows for the newly covered groups:

   - 75 per cent of private sector,
   - 25 per cent of self-employed.

2. It is assumed that the initial per capita cost of the new scheme will be identical to that observed in the public sector scheme. The assumed staff to non-staff cost ratios are set out in table T6.1.

   On the basis of these ratios and the present cost of the existing social insurance scheme for the public sector, the following per capita cost amounts were established for the start year (the year 2000) of the projections (see table T6.2).

3. Health insurance will lead to greater use of health services by covered persons, and it will also have to provide more expensive technologies, including drugs. The contributors are entitled to a determined basket of goods and services. According to all international experience, the utilization and per capita cost cannot be as tightly rationed as in the public health

Table T6.1 Assumed staff to non-staff cost ratios in different categories of care

Expenditure category	Staff cost share (%)	Non-staff cost share (%)
Administrative cost	90	10
Ambulatory and other care	75	25
Care in hospitals	75	25
Pharmaceuticals	10	90

Table T6.2 Assumed initial per capita cost in different categories of care, 2000

Per capita cost	Total CU	Staff cost CU	Non-staff cost CU
Administrative cost	51	46	5
Ambulatory care	101	76	25
Hospital care	254	190	63
Pharmaceuticals	101	10	91
Total	507	322	185

service. For the future development of the health system, it was assumed that per capita cost will be driven by the following drivers:

- utilization of services: set to increase annually by about 5 per cent in the coming years owing to the impact of HIV/AIDS;
- excess medical inflation: 3 per cent annually owing to the need to import drugs;
- general inflation rates and wage developments: same as those used in standard government forecasts (and as displayed in Demoland files).[1]

Modelling results

On the basis of the above assumptions, a 20-year projection of the possible economic development of the scheme was undertaken. Twenty years is usually too long for a health care scheme, but that projection period was used to demonstrate its potential expenditure dynamics. The projections are deterministic and limited to one scenario only. Sensitivity tests would have been desirable but were not possible within the allotted time. It is nonetheless believed that the results are sufficiently robust to permit basic recommendations. The results of the projections are summarized in table T6.3.

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[1]This is a slightly more sophisticated approach than the one used for task n[o] 5 where average rates of increase were used. This actually requires extracting the deflation for private consumption and the average private sector wage from the Demoland ECO file.

Table T6.3 Estimated future financial development of a social health insurance for the private sector, Demoland, 2000–20

Year	2000	2005	2010	2015	2020
Coverage					
Insured persons					
75% of private sector	190 826	216 316	241 372	269 038	296 298
25% of self employed	35 448	39 456	43 233	47 324	51 188
Total	226 274	255 772	284 605	316 362	347 486
Adjusted (reduced by 25% due to non-coverage of family members)	169 705.5	191 829	213 453.75	237 271.5	260 614.5
Covered population	678 822	767 316	853 815	949 086	1 042 458
Estimated health insurance expenditure(1 000 CU)					
Administrative cost	34 425	62 211	100 946	163 310	246 682
staff cost	30 982	56 824	93 842	153 386	233 457
non-staff cost	3 442	5 386	7 104	9 924	13 225
Ambulatory care	68 849	160 720	332 522	692 175	1 349 276
staff cost	51 637	120 873	254 766	531 464	1 032 385
non-staff cost	17 212	39 848	77 756	160 711	316 891
Care in hospitals	172 126	401 807	831 317	1 730 462	3 373 239
staff cost	129 094	302 186	636 924	1 328 679	2 580 999
non-staff cost	43 031	99 621	194 393	401 783	792 240
Pharmaceuticals and other care	68 849	159 568	313 891	649 421	1 278 460
staff cost	6 885	16 116	33 969	70 862	137 651
non-staff cost	61 964	143 451	279 922	578 559	1 140 809
Total expenditure	344 249	784 306	1 578 676	3 235 367	6 247 657
Estimated insurable earnings					
Average monthly wage	1 973	3 192	4 731	6 995	9 745
Total insurable earnings (1 000 CU)	4 017 947	7 348 768	12 119 301	19 917 027	30 477 680
PAYG contribution rate (%)	8.57	10.67	13.03	16.24	20.50
Expenditure in % of GDP	1.4	1.8	2.1	2.6	3.3
Calculation of government savings					
Per capita expenditure	384	612	996	1 646	2 622
Total savings	260 421	469 336	850 030	1 562 315	2 733 753
In % of GDP	1.1	1.1	1.1	1.3	1.5

It is obvious that the new scheme might ultimately save about half the present net government expenditure on health. However, it does so at substantial overall cost increases in the health sector that will have to be financed by fast-rising contribution rates in the new branch of social health insurance. The contribution rate will largely exceed the 5-per cent criterion set by the Minister of Labour and Social Affairs. The major structural problem is that cost-containment measures – at present so strictly applied in the public service health care scheme – are not expected to operate with the same level of effectiveness in the social insurance scheme.

Recommendations

In view of the expected cost development and the necessarily high levels of contribution rates which may actually have negative crowding-out effects on the compliance with other tax and contribution obligations, it is recommended to consider two other policy options:

- replace the insurance model by an earmarked health tax of, say, 5 percent on all incomes, to be used to increase the budget of the Ministry of Health, *or*
- reduce the social insurance approach to a catastrophic insurance cover, which can limit the actual cost to less than half of the expected levels under the social insurance approach.

The latter approach may still contain considerable medium- to long-term cost uncertainties, in particular on account of the HIV/AIDS epidemic. It might be preferable to maintain the tight overall lid on health spending until the epidemic runs its course.

TASK NO. 7   AN INVESTMENT PLAN/PORTFOLIO FOR THE PENSION SCHEME IN DEMOLAND

(Based on issues covered in Chapter 6)

The actuary has just submitted a long-term projection for the existing pension scheme (see file on long-term financial development in Demoland database). The Minister of Finance wants you to draw up:

(a) investment guidelines for the scheme (i.e. an Investment Policy Statement); and

(b) a long-term investment plan allocating the reserves shown in the projections to different types of investments, namely stocks and bonds (in-country and abroad), short-term cash deposits, as well as direct investments in enterprises.

You have to make assumptions on the nature of investments available in the country.

MODEL SOLUTION

MEMORANDUM

From: YOU
To: Minister of Finance
Subject: Investment plan/portfolio for the pension scheme in Demoland

Background

Demoland is running a pension scheme for the public sector, covering the following benefits:

- old-age pension;
- survivors' pension; and
- invalidity pension.

The scheme has accumulated reserves of CU 1.5 billion as at 31 December 2000. As provided by the regulations of the scheme, the Minister of Finance decides each year whether the annual surplus is transferred to the reserve or absorbed into the current budget. The latter course of action is justified as the Minister has accepted the obligation to cover potential future deficits. Thus far the Minister has opted for transfers into the reserve. However, the unions claim that the monies accumulated are earmarked for pension purposes, and would like to see the reserve managed as in other social insurance schemes.

For the time being Demoland's pension scheme has no investment policy statement to guide the investment of the reserves. The following sections contain the draft of such a statement.

Suggested draft Investment Policy Statement

1. Management structure

Investments of pension scheme reserves are guided by an investment committee. The Investment Committee shall be composed as follows:

- Chairperson
- General manager – ex officio member
- Worker representative – member of the board of the scheme
- Employer representative – member of the board of the scheme
- Co-opted member – with expertise in investment banking.

The Investment Committee shall be appointed by the board of the scheme, subject to confirmation by the Minister of Finance. The board shall provide the investment committee with regular projections of:

- the likely long-term development of the reserve, and
- the likely cash flow needed from the reserve to cover current expenditure for a five-year period from the date of the projections.

These projections shall be provided in the context of actuarial valuations of the scheme.

2. Statement of purpose

The Investment Committee shall apply best professional practices in its investment activities to ensure the real growth of the reserve entrusted to it by the pension scheme. The main purpose of the reserve is to achieve long-term returns designed to help contain long-term contributions to the scheme at acceptable levels. In this process, the Committee shall comply with the principles of safety, yield, liquidity and social and economic utility and ensure that top priority is given to the interests of present and future beneficiaries. In this context, long-term stable economic growth rates fostered by investing in industries with long-term growth and stable employment perspective are preferable to short-term high real rates of return earned by short-term capital market transactions.

3. Investment objectives

(1) To achieve a real rate of return of no less than 1.5 per cent or at least as much as the real Lombard rate of the Bank of South Africa.

(2)   To invest not less than 70 per cent of the fund reserve in the local market.

(3)   To maintain a 10-per cent investment in liquid assets for the purpose of covering unforeseen current expenditure.

(4)   To obtain a risk-adjusted return on all equity investments.

4. Portfolio mix

The composition of the portfolio should be as follows:

Equity	10 per cent
Prescribed assets	40 per cent
Money market	10 per cent
Real estate	20 per cent
Social investment	10 per cent
External equity	10 per cent

Equity: The equity market in Demoland is quite small and therefore cannot absorb a higher share of the reserve. This share should be reviewed every three years with a view to bringing it into line with the growth of the turnover on the equity market.

Figure T7.1 Suggested investment portfolio mix for Demoland's pension scheme
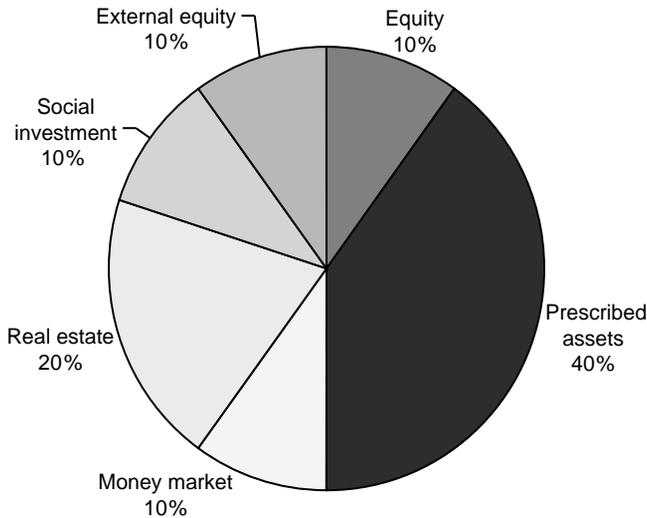
Prescribed assets: These are government bonds, treasury bills and municipal bills issued in the local capital market. The proceeds are used for infrastructure development such as the construction of roads, bridges, or communication infrastructure. Because of the small size of Demoland's economy, it is decided to invest a relatively large proportion in government instruments, i.e. 40 per cent of total funds.

Money market: In order to meet the liquidity requirement, 10 per cent of all funds is placed in the money market.

Real estate: This being a fairly stable and secure market, 20 per cent of the fund reserve is placed in real estate. Part of the real estate allocation is invested in the South African real estate market.

Social investment: Recognizing the value of efficient social investment for the long-term growth of the economy, 10 per cent of the investment is placed in areas such as housing, construction of clinics or upgrading of the public sewage system in municipal areas.

External equity: The Demoland Social Security Act permits external investment to a maximum of 30 per cent of the fund reserve. However, in view of the need to develop the country's infrastructure and of currently (and in the foreseeable future) sluggish foreign direct investment, the share of external equity is for the time being limited to 10 per cent of the pension fund reserve.

5. Investment rules

1. The 10-per cent rule: The fund shall not invest more than 10 per cent of its assets in one corporation or company.

2. No control rule: The fund shall not hold a controlling interest in any private company.

3. The currency rule: Not more than 15 per cent of the assets can be held in South African rand and not more than 5 per cent of the assets in US dollars.

4. External investment: Not more than 30 per cent of fund reserves can be held outside Demoland (see, however, present temporary limitation set above).

5. Safety: The management shall ensure the safety of funds in their investment activities, i.e. the nominal value of the invested capital should be recovered in all cases and ensure regular payment of interest.

6. Yield: As safety and liquidity are given priority in the investment of fund reserves, speculative investments are strictly prohibited. Where investment is made in equities, a risk-adjusted return should be obtained.

7. Liquidity: Not less than 10 per cent of the fund assets shall be maintained in short-term near cash assets.

8. Economic and social utility: The management may consider investments in areas that contribute to the improvement of health, education and the general

standard of living of insured persons. This should be done taking due account of the need to maintain an adequate level of diversification of the fund and should not conflict with the other principles followed by the fund.

Recommendation

We recommend incorporating the above Investment Policy Statement formally in the regulations of the scheme by Ministerial Decree. It is suggested that a general commitment by the Minister of Finance to build up the reserve be traded off against the obligation to cover all potential future deficits. This would *de facto* separate the financing of the public sector pension scheme from the general budget.

TASK NO. 8 A PERFORMANCE EVALUATION SYSTEM FOR THE SOCIAL PROTECTION SYSTEM IN DEMOLAND

(Based on issues covered in Chapter 7)

Following heavy criticism from the opposition on the effectiveness and efficiency of the national social protection system, the Minister of Labour and Social Affairs has decided to go on the offensive. He wants to issue a social protection monitoring report to be published every two years (hoping that after his departure from the Cabinet the report will be named after him). The report will be drafted by his policy advisers. You are his financial analyst. He wants you to devise a set of no more than ten quantitative indicators to measure the effectiveness and efficiency of the system as a whole. Write a briefing note in the form of a TM to him, suggesting the ten indicators. Explain what they measure and calculate one or two as an example.

MODEL SOLUTION

MEMORANDUM

From: YOU
To: Minister of Labour and Social Affairs
Subject: Performance evaluation system for the social protection system in Demoland

Background

Performance indicators allow us to identify gaps in the legal provisions of social protection schemes and performance deficiencies with respect to their legal mandates or broader social protection policy objectives. The main reasons for regular performance evaluations are to promote good governance and to ensure that programmes continue to respond to society's changing needs.

To assess the performance of the social protection system in Demoland, measurements in three policy dimensions are used: legal indicators, governance indicators and financial indicators.

Assumptions

- The performance indicators used here are defined and analysed only for the pension scheme; similar performance indicators can be developed for other schemes;

- the pension system covers only public employees;
- the pension system is still maturing (a fact that is reflected in the indicators' results);
- model calculations are provided only for indicators where data from a current database are available; in cases where the data base has yet to be developed, the principal rationale for the indicator is explained without sample calculations;
- all calculations are for the year 2000.

Proposed indicator set

Part A: Legal indicators of scheme performance

Indicator 1: Legal coverage rate for insured persons

This indicator reflects the percentage of legally covered persons in the labour force (that is, those who should be covered according to current legislation).

Example 1

Labour force (15–60 years): 675,464
Legally covered (public employees): 90,603
Legal coverage rate: 13.4 per cent

This means that, under the legislation, the scheme should cover 13.4 per cent of the labour force.

Indicator 2: Relative average legal replacement ratio of benefits in payment

This indicator (average replacement ratio) is estimated by relating average pension entitlements to the average/monthly individual earnings of a standard full contributor. The indicator allows analysts to assess the adequacy of benefit levels compared with those of other national schemes or schemes in other countries.

Example 2

The pension formula envisages a 2-per cent accrual rate on revalued career-average earnings. For a beneficiary after 35 years of service (considered a full career in the public service), this would result in a pension of 70 per cent of career-average earnings, which may be high by international standards.

Part B: Governance indicators

Indicator 3: Compliance rate of legally covered persons

This indicator relates to the legal coverage rate and reflects the participation of those who are theoretically eligible for coverage under the scheme. The indicator is the number of people actually contributing to the scheme divided by the number of legally covered people.

Example 3

Number of contributors: 75,164
Number of legally covered: 90,603
Registration rate of legally covered: 83 per cent

The less-than-100-per-cent rate may be attributable to the existence of a number of public employers who do not register all their employees. In any case, the figure should give rise to further enquiries.

Indicator 4: Average real replacement ratio of benefits in payments

This indicator (average replacement ratio) is estimated by dividing the average annual/monthly individual benefit in payment by the average/monthly individual earnings of full contributors. The indicator allows analysts to assess the adequacy of benefit levels. Monitored over time, it should also provide insight into the relative income development of pensioners versus active contributors.

Example 4

Go back to Example 2: The statistical average replacement rate for Demoland is only about 42 per cent. However, if it can be established that final average earnings are generally twice as high as career averages, then the real replacement rate for beneficiaries would drop from a legal rate of 70 per cent to something like 35 per cent. Although this may seem low, it could largely explain the overall average of 42 per cent.

Indicator 5: The administrative cost ratio

This indicator is computed by dividing the total amount of administrative expenditure by the total amount of benefit expenditure or total insurable earnings. It can serve as an indicator of administrative efficiency. To use it effectively we must obtain, by a benchmarking process, the same indicator from other national and foreign schemes.

Example 5

Administrative cost in Demoland's pension scheme in 2000: CU 5.5 million
Total benefit expenditure: CU 203 million
Administrative cost ratio (1): 2.7 per cent

This rate could be misleading, since it is likely to give an unfair portrayal of young schemes with low expenditure but a heavy administrative burden attributable to new contribution collection. Accordingly, the following indicator might be considered as an alternative:

Total insurable earnings (compliance ratio taken into account): CU 1,318 million
Administrative cost ratio (2): 0.4 per cent

In international comparison both indicators are in a reasonable order of magnitude, and a priori offer no grounds for further investigation.

Indicator 6: Average age of insured persons or the demographic ratio

This variable reflects the demographic ageing of the scheme. It can serve as an early-warning indicator for necessary future policy adjustments. The ageing process ought to be monitored over the years so that strategies for scheme adjustment can be introduced early. However, Demoland data provide no information on the average age of insured persons.

Alternatively, the ***demographic (dependency) ratio*** can be calculated (that is, the number of beneficiaries divided by the number of active contributors). This ratio also reflects the maturity and demographic burden of the scheme.

Example 6

Average number of beneficiaries in Demoland's pension scheme in 2000: 26,575
Average number of active contributors: 75,164
Demographic ratio: 35.4 per cent

The demographic ratio shows that, compared with other schemes in the region, the scheme is either approaching maturity or the regulations permit overly early retirement, or else access to invalidity pensions may be too easy.

Indicator 7: Complaint rate

This indicator measures the number of complaints about the scheme among the insured population. It is thus the indicator of satisfaction with the scheme's performance. In Demoland, however, no assessment data are available. International or national benchmarking and long-term observation are required to make it meaningful.

Part C: Financing and expenditure indicators

Indicator 8: GDP ratio of expenditure

This indicator reflects the size of the scheme. It is calculated by dividing total pension expenditure by GDP. It permits assessment of the adequacy of national expenditure on civil service old-age provision, in comparison with that in other countries.

Example 7

Expenditure on Demoland's pension scheme in 2000 (in million CU): 210.8
GDP (in million CU): 24,145
GDP expenditure ratio: 0.9 per cent

Indicator 9: PAYG cost rate

This indicator reflects the contribution rate that the scheme would have to apply if all expenditure for a given year were financed out of that year's contributions. Mathematically, it is roughly the product of the average replacement rate and the demographic ratio. The indicator shows the total annual burden of financing the scheme. In many mature schemes this indicator fluctuates between 20 and 25 per cent. When using it to evaluate the performance of a scheme designated for public employees, we must bear in mind that it is sensitive to government employment policy and employee hiring and dismissal.

Example 8

Expenditure on Demoland's pension scheme in 2000 (in million CU): 210.8
Insurable earnings (in million CU): 1,318
PAYG cost rate: 16.0 per cent

Indicator 10: Inactivity ratio

This is the ratio of the average number of years spent receiving an old-age pension to the average number of years that retirees have contributed to the scheme. If the ratio rises above, say, 50 per cent, it indicates that the scheme is rather immature, or that people are recruited too late, or are leaving too early. It is similar to the demographic ratio but offers an easier way of explaining the real burden to the public.

    No data available.

Recommendation

We strongly recommend countering public criticism of the social protection system by developing a set of indicators along the above lines for all schemes.

Ad hoc working groups for the major schemes should be set up and directed to deliver results within three months. Some international help should be recruited to develop appropriate international benchmarks.

In addition, we strongly recommend developing a global indicator that captures the performance of the scheme as a whole. One such indicator could be an estimate of the proportion of the poverty gap closed by the transfers of the social protection system. It would probably be highlighted by the media each year. If it is positive, we can celebrate success; if it is negative, we can use it to solicit more resources from the Ministry of Finance.

GLOSSARY OF TERMS

Active insured person (or contributor)   A person on whose behalf at least one contribution payment has been made to a scheme during a given period, e.g. a year.

Actuarial balance   The difference between the present value of future revenue and future expenditure of a scheme over a given projection period.

Actuarial equilibrium   The minimum level of funding in a social security scheme to be maintained over a defined period at each point in time. The actuarial equilibrium is a discretionary concept. Technically it is usually stated in the form of a provision in the social security law stipulating that the scheme has to maintain a certain level of funding of k times the annual expenditure (i.e. the funding ratio) for a certain number of years x (i.e. the period of equilibrium).

Actuarial liability   The present value of benefit entitlements accumulated under a scheme by insured persons and beneficiaries up to a given future point in time.

Annuity   A financial arrangement to provide an income for a specified number of years or for the remaining lifetime of an individual or a group of individuals out of an accumulated lump sum. The lump sum is divided by the present value of a pension of 1 Currency Unit to be paid during the remaining lifetime or a defined period.

Assessment of constituent capital   Financial system applied to employment injury benefits under which the annual cost of the scheme is determined as the present value of all future payments relative to pensions awarded during that year. Under that system, a reserve is continuously maintained equal to the present value of pensions in payment.

Asset price bubble   Notion describing a situation where the level of a market index is too high in comparison to the value of the companies included in the index as derived by other valuation methods. An asset price bubble is usually the result of mass speculation and ends with the implosion of the bubble.

Basic Income (BI) or citizen's income   A transfer income paid by the State to all residents or citizens, independent of need. BI is often seen a substitute for social assistance or unemployment benefits.

Beneficiary ratio   The ratio between the number of benefit recipients of a social security scheme at a given point and the number of contributors (or insured persons).

Benefit replacement rate   The ratio between the amount of an individual's benefit (generally monthly or annual) and the amount of the individual's previous income subject to

contributions, or the ratio between the average benefit in a given year and the average income subject to contributions in the same year.

Bond   Debt instrument issued by borrowers (government, companies) promising to the holder periodical fixed interest rate payments and the repayment of the face value at the date of maturity.

Capital market   Notion traditionally referring to the market for financial claims with a long-term time horizon.

Capital stock   The stock of all produced and non-produced assets of an economy. In economic theory, one of the two standard production factors. See *Labour*.

Catchment ratio   The ratio between the total amount of earnings subject to the payment of contributions and the total amount of earnings received by insured persons from gainful employment. Theoretically, this ratio equals 1 in case all earnings are subject to contribution payment; it should be smaller than 1 in case of a ceiling on insurable earnings or of other exemptions from contribution payment.

Claw-back ratio   The proportion of a benefit that returns to the public budget through the taxation of the benefit.

Cohort   A group of individuals with (a set of) identical characteristics, e.g. all persons born in the same year.

Collective financial equivalence   A financing rule requiring that at any point in time the total present value of all expected future expenditure should be equal to the present value of all future income of a scheme.

Combined demographic dependency ratio   See *Demographic ratio*.

Compliance rate   The ratio between the number of persons under a scheme on whose behalf contributions are actually paid and the number of persons who are legally covered for contribution payment by the scheme.

Contribution ceiling   The minimum and/or maximum amount of individual wages that is subject to contributions to a scheme. The upper ceiling usually, though not always, reflects the maximum amount of earnings on which benefits are being calculated.

Contribution rate   The percentage of the covered insurable earnings that is to be collected to finance the scheme.

Contributors' ratio   The ratio between the actual number of contributors and the number of all insured persons of a scheme. See *Compliance rate*.

Cost rate (or PAYG cost rate)   The ratio of total expenditure of a scheme to total insurable earnings.

Coverage rate   The ratio between the total number of registered insured persons (persons with an insurance record but not necessarily active) and a suitably chosen reference population, e.g. the labour force.

Crowding out   Situation where expansive developments in one sphere reduce activities in another. The traditional use of the term in macroeconomics is the hypothesis that government (deficit) spending discourages ("crowds out") private investment.

Deadweight loss   The difference between the total direct and indirect cost of a tax levied on the taxpayer and a fictive lump-sum tax yielding the same revenue.

Defined benefit (DB)   The benefit paid in a defined-benefit scheme. It is usually based on a formula that takes into account the individual number of insurance years and the amount of earnings during the same period. The formula-based benefit level is guaranteed to everyone meeting the entitlement conditions.

Defined-benefit scheme   A scheme under which the benefit is a formula-defined amount. See *Defined benefit*.

Defined contribution (DC)   The contribution to be paid in a defined-contribution (pension) scheme. See *Defined-contribution scheme*.

Defined-contribution scheme   A scheme under which contributions are paid to an individual account for each scheme member. The benefit depends on the account balance at the date of benefit withdrawal, i.e. on the amounts contributed, the interest earned and accumulated in the account as well as the administrative costs to be deducted.

Deflator   In national accounting the ratio between a "nominal" and a "real" variable (e.g. private consumption in current prices versus constant prices of a base year). Measures the inflation contents of the nominal variable. Constructing the basket of goods and services underlying a deflator is one of the core theoretical problems of measuring "real growth" of an economy, as the composition of the basket is itself a function of price developments. See *Price index*.

Demographic ratio   The demographic ratio is a statistical indicator used in demographic analyses.

$$pop = popY + popA + popR$$

is assumed to be a breakdown of the population *pop* into the sub-groups youth (*popY*), actives (*popA*) and retireds (*popR*), $pop_{x,t}$ denoting the number of persons aged x ($x = 0, 1, 2,...$) in period t; then youth may be calculated as:

(a) $popY_t = \sum_{x=0}^{x_1} pop_{x,t}, \quad x_1 \leqslant$ around 15 to 20

actives as:

(b) $popA_t = \sum_{x=x_1+1}^{x_2} pop_{x,t}, x_2 =$ around 60 to 65

retireds as:

(c) $popR_t = \sum_{x=x_2+1}^{x_3} pop_{x,t}, \quad x_3$ usually $= 100$ ("and over")

This breakdown allows defining three widely used demographic ratios:

(d)   Youth ratio $drY_t = \dfrac{popY_t}{popA_t}$

(e)   Old-age ratio $dr R_t = \dfrac{pop R_t}{pop A_t}$

(f)   Total ratio $dr T_t = \dfrac{pop Y_t + pop R_t}{pop A_t}$

When multiplied by 100, (d) can be interpreted as the number of youths per 100 actives, (e) as the number of elderly persons per 100 actives and (f) as the total number of dependants per 100 actives. See *Transfer dependency ratio*.

Density of contributions   The ratio between the number of contributions actually paid during a period and the maximum potential number of contributions that can be paid during the same period.

Domestic income   Aggregate income produced by the inhabitants of a country within the country's boundaries, as opposed to "national" income, which is produced by the citizens of a country irrespective of whether the production takes place within or outside the country's boundaries. For example, the earned income of a Belgian working in Luxembourg increases the domestic income of Luxembourg but the national income of Belgium. See *National income*.

Economically active population   Collective term comprising all persons of either sex who furnish the supply of labour for the production of economic goods and services as defined by the United Nations System of National Accounts (SNA).

Economic growth   Change over time of the income produced by an economy. Usually applied to "real" GDP, i.e. nominal GDP in constant prices of a base year. It can be linear, exponential, logistic or otherwise. Standard policy paradigm claims (exponential) economic growth to be necessary for reducing poverty and solving labour market problems nationally and worldwide. This view has been challenged for environmental and other reasons.

Eligibility conditions   The set of legally defined conditions which stipulate if and when a person has the right to claim a benefit.

Emerging markets   Notion characterizing the financial and goods and services markets in fast developing and transition countries, comprising notably the stock exchanges in Latin America, South-East Asia and Eastern Europe.

Employed persons   All persons above a specified age who, during a specified reference period, were in the following categories:

- paid employment
- at work (persons who during the reference period performed some work for wage or salary, in cash or in kind); or
- with a job but not at work (persons who, having already worked in their present job, were temporarily not at work during the reference period but had a formal attachment to their job).

Equity   Share in a business. Most often used as a synonym for common stock of a publicly traded company.

European System of Integrated Social Protection Statistics (ESSPROS)   A harmonized framework developed to present in a comparable manner national statistical data on social protection receipts and expenditure, as defined by commonly agreed and uniform criteria.

Excess burden   See *Deadweight loss.*

Financial assets   Financial assets are means of payment and financial claims, including economic assets close to financial claims in nature. They comprise all items open to trade on financial markets, especially monetary gold, special drawing rights, currency, shares, bonds and other instruments.

Financial equilibrium   A scheme is in financial equilibrium if the present value of all future expenditure is equal to the present value of all future income of the scheme plus the initial reserve at a given point in time.

Financial equivalence (collective)   A rule requiring that at any point in time the total present value of all expected future expenditure of the social protection scheme should be equal to the present value of all future income of the scheme (plus the initial reserve at the respective point in time, if applicable).

Financial instruments   Summary expression for all categories of financial assets traded on financial markets. One normally distinguishes between equities, debt instruments, entitlements (rights), options, futures and other (miscellaneous) instruments. These categories can further be broken down into groups (e.g. "equity" is made of shares, preferred shares, others) and attributes (e.g. "equity" can have the following attributes: voting right, ownership, transfer restrictions, others).

Financial investments   Investments in instruments traded on the financial markets, e.g. buying shares or bonds, putting money into a savings account or leaving money in a standard giro-deposit.

Financial market   The formal or virtual meeting point between units enjoying a financial surplus ("surplus units") and units experiencing a financial deficit ("deficit units").

Financial solidarity rule   Rule requiring that contributions or taxes for the financing of social benefits be charged on the basis of the members' ability to pay, regardless of their risks or circumstances (e.g. health impairments or having eligible dependants). In social insurance schemes this principle is generally embodied in uniform contribution rates charged as a fixed percentage of individual insurable earnings. In the case of tax-financed benefits, the rule applies as long as the system of income taxation is progressive.

Financing system   Systemic arrangement for raising the resources necessary to meet the financial obligations of a scheme. A financing system is defined as a set of legal provisions aimed at ensuring that at each point of a scheme's life cycle the amount of expenditure is matched by equal and available financial resources – in other words, that the scheme is in financial equilibrium.

Fixed assets   See *Produced assets* and *Non-produced assets.*

Formal sector   Economic sector where inhabitants' socio-economic activities are regulated and protected by formal societal institutions. In its functioning the formal sector is often closely interlinked with the informal sector. The vast majority of the world's population is excluded from the formal sector.

Full funding   Financial system under which the objective is to raise reserves equal to the amount of scheme liabilities or the annual benefit expenditure.

Financing social protection

Funding ratio   The ratio of the amount of reserves to the amount of actuarial liability under a scheme.

General average premium (GAP)   The constant contribution rate applicable infinitely, theoretically guaranteeing that scheme expenditure can always be covered by the contributions collected and the funds accumulated in the reserve. It is calculated by dividing the present value of all future benefits (minus the reserve existing at the valuation date) by the present value of all future contributory earnings.

Gini coefficient   A measure of inequality in income distribution, it expresses the size of the area between a theoretical perfect equality Lorenz curve (straight line) and the real concave Lorenz curve of a country or another entity to the size of the area under the equality line.

Governance   The sum of all consultative and decision-making processes, institutional arrangements and managerial and administrative action by which social protection policies are designed, agreed upon, implemented and supervised. The definition encompasses the first blueprints for a social protection system in government or other institutions, the national consultation process, the legal enactment and finally the managerial and administrative implementation, as well as the national and lower-level supervision of the performance of individual social protection schemes.

Grandfather clause   A provision exempting persons or other entities already engaged in an activity from new rules or legislation affecting that activity, or granting special privileges when including such groups into new legislative provisions. A typical example is special credits (fictitious insurance years) granted to older workers when a new benefit system is being introduced in order to help them fulfil the benefit conditions.

Gross domestic product (GDP)   An aggregate measure of the production of goods and services within the boundaries of a country. Broadly, the amount of gross income available for distribution to the production factors labour and capital, which, after taxation, constitutes the basis for redistributive state interventions.

Inactive insured person   A person who is registered under a scheme but has made no contribution during a given period.

Individual equivalence   A financing rule stipulating that the present value of the contributions of each individual contributor under a scheme should equal the present value of all expected benefits (plus administrative and other costs related to benefit payment).

Inequality gap   The gap between the straight equality line and the "inequality lines" in a Lorenz curve diagram.

Inequality target efficiency ratio   A ratio that expresses the degree to which a redistributive measure reduces the inequality gap.

Informal sector   Economic sector where inhabitants' socio-economic activities are not regulated and protected by formal societal institutions. In its functioning the informal sector is often closely interlinked with the formal sector. The vast majority of the world's population is part of the informal sector.

Initial public offering (IPO)   First (initial) issuance of a financial instrument on the primary financial market, either by companies (equity, debt instruments) or by the State (debt instruments).

Insider trading   Any trade on formal financial markets, especially *stock exchanges*, triggered by actually or putatively advantageous information accessible to traders only

because of their professional involvement in the functioning of the market ("floor members" and others executing the market functions). Usually strictly forbidden as such trade affects the true market price of financial assets, puts the general public trading on the market at a disadvantage, or produces other distortions undermining the business of companies and the credibility of the market.

Insurable earnings   The wages received for services rendered to an employer and subject to the payment of contributions to a social security scheme. They may or may not include additional irregular income components awarded to an insured person. See *Contribution ceiling*.

Insurance credits   The number of contributions or periods of service that have been paid on behalf of an insured person or credited to that person since his/her entry into the scheme.

Insured person   A person who is registered under a social security scheme.

Intergenerational equity   Notion non-specifically requiring a "fair" distribution of "burdens" between generations. One example is the requirement that members of successive generations pay the same share of their disposable income during their active life in order to earn equal benefit entitlements (in terms of replacement rates). Usually regarded as an element of fairness in the (legal) design of pension schemes and long-term care schemes.

Intrinsic value   Present value of all future net profits of a firm where the chosen discount rate is the rate of return required by an investor.

Labour   In economic theory, one of the two standard production factors. In statistical terms, it can be the number of members of the labour force or the volume of hours worked. See *Capital stock*.

Labour force   See *Economically active population*.

Labour income share   Ratio of the total amount of remuneration paid to employees by employers to the total amount of aggregate income allocated to the production factors labour and capital. Remuneration includes gross wages, all types of employer-sponsored in-kind income of employees, as well as employer social security contributions. The labour income share and the capital income share by definition add up to 1.

Laffer curve (or modified Laffer curve)   Describes the relationship between the amount of taxes collected and the GDP tax ratio.

Liquidity ratio   A financial indicator defined as the ratio of income and expenditure. The ratio reflects the financial situation of a scheme, which changes as it matures or for economic and labour market reasons. In funded schemes the development of the ratio over time may serve as an "early warning" indicator as it has implications for the structure of an investment portfolio, indicating how much of the portfolio must be kept or turned liquid in order to maintain regular payment of benefits.

Logistical maturation curve   A tilted s-shaped curve with a horizontal asymptote following a logistical formula that can serve as a mathematical model for the maturation of a national social protection scheme or a social security scheme.

Lorenz curve   Graphical presentation of income inequality among a group of persons. Plots the cumulative income of a group of persons lined up from "poorest" to "richest". In practice, the application of the Lorenz curve often fails as data on personal income distribution are rare.

Financing social protection

Machine tax   Proposal to replace the usual assessment base for employers' social security contributions (gross wages) by an assessment base explicitly representing the income allocated to the production factor capital ("machines").

Market index   Statistical measure constructed in order to reflect the development over time of the value of a basket of shares or other financial instruments. The most prominent indices are those maintained by the principal international stock exchanges (New York, London, Tokyo, Frankfurt). A company's goodwill is enhanced if its shares are included in a market index, e.g. the Dow Jones. However, financial institutions (e.g. banks) maintain many other indices in order to accommodate special financial investment preferences of their customers.

Market capitalization   Price of the stock of a company multiplied by the number of shares outstanding.

Maturity   State reached by social protection schemes when two conditions are fulfilled: First, stable or almost stable relationships emerge with regard to the number of persons covered as a proportion of the total active population and the number of persons receiving benefits as a proportion of the total inactive population. This state is called *demographic maturity*. Second, a relative stability emerges in the relationship between the average amount of benefits and the average income subject to contributions. This state, which is achieved or approached when all pensioners have had a full career in the scheme average contribution period, is called *benefit maturity*.

Money market   Notion traditionally referring to the short-term cash/currency markets, including financial claims characterized as "near money". Major players are banks looking for liquidity in order to cover short-term liquidity problems.

Moral hazard   A risk to private and social insurance resulting from uncertainty about the honesty of the insured, or the risk that a contract/legislation will change the behaviour of one or all of the parties involved.

National income   Aggregate income produced by the citizens of a country irrespective of whether the production takes place within or outside the country's boundaries, as opposed to "domestic" income, which is produced by the inhabitants of a country within the country's boundaries. For example, the earned income of a Belgian working in Luxembourg increases the national income of Belgium but the domestic income of Luxembourg. See *Domestic income*.

New entrant   A person who was registered for the first time with a scheme as insured person.

Non-produced assets   Non-financial assets comprising tangible non-produced assets (land underlying buildings and structures, land under cultivation, recreational and other land and associated surface water, coal, oil and natural gas and mineral and non-mineral reserves, biological and water resources), and intangible non-produced assets (patented entities, leases and other transferable contracts, purchased goodwill and other intangible assets). See *Produced assets*.

Notional defined-contribution (NDC) scheme   Non-funded scheme which uses the formula of a defined-contribution scheme as a benefit formula without accumulating the amount of reserves actually required to back up all entitlements.

Old-age dependency ratio   See *Demographic ratio*.

Pay-as-you-go (PAYG) rate   The ratio of total annual expenditure of a scheme to the annual sum of insurable earnings underlying the scheme. It reflects the contribution rate to be charged annually if a scheme were financed on a pure annual assessment (PAYG) basis.

Performance indicators   Attempt to measure the performance of the administration, benefit delivery or financial performance of a social transfer scheme or system in quantitative terms, either in absolute terms or by comparison to defined benchmarks.

Plowback rate   The share of profits not paid out as dividends but reinvested in a company.

Poverty gap   A measure of the "depth" or "intensity" of poverty, defined as the average difference between the income of poor people and the poverty line (see below). The *aggregate poverty gap* is the sum of all these differences in a country. That amount is generally related to GDP (the *relative aggregate poverty gap*).

Poverty line   The level of income defining the borderline between the groups of "poor" and "non-poor" in a society. If a person/household has less than this amount at his/its disposal, the person/household is defined as being poor. There are different (absolute, relative and subjective) approaches in estimating the poverty line.

Poverty rate (or Poverty headcount index)   The proportion of people in a group or a population with income under the poverty line.

Poverty target efficiency ratio   Describes which proportion of a total expenditure of a certain type of transfer reduces the aggregate poverty gap.

Price distortion   The result of any exogenous interference with the functioning of markets (e.g. goods and services markets, labour markets, financial markets) leading to a non-temporary significant deviation from the market-clearing price (i.e. the price that would exist without such intervention).

Price-earnings ratio   The ratio of a stock's price to its earnings (dividends) per share.

Price index   A price index is an average of the proportionate changes in the prices of a specified set of goods and services between two points (periods) in time, 0 and t. The two most commonly used indices are the Laspeyres and the Paasche indices. Both are defined as weighted averages of price relatives, the weights being the values of the individual goods and services in the "base" period 0 (Laspeyres) or the "current" period t (Paasche) compared. A price relative is the ratio of the price of a good or service in t to the price of the same good or service in period 0. See: *Deflator*.

Primary market   Financial market on which financial instruments are issued for the first time. Main function is to raise cash for deficit units (companies, State). See *Initial public offerings*.

Produced assets   Non-financial assets comprising tangible fixed assets (dwellings, non-residential buildings and other structures, transport equipment and other machinery, livestock, vineyards, orchards and other plantations of trees), intangible fixed assets (mineral exploration, computer software, entertainment, literary or artistic originals and other intangibles), inventories (materials and supplies, work in progress, finished goods and goods for resale) and valuables (precious metals and stones, antiques and other art objects and other valuables). See *Non-produced assets*.

Production factor   In economic theory, a factor producing (in combination with others) an economic entity's output. On the domestic level the production factor can be the labour force or

the capital stock (of *produced* and *non-produced assets*) which – combined via a production function – produce domestic income (for example, GDP). In order to explain long-term growth patterns other production factors have been distinguished in economic theory, among them most prominently exogenous and endogenous "technological progress".

Productivity   Output produced per unit of factor-input. Economic theory distinguishes between labour productivity, capital productivity and total factor productivity. A simple approach widely used for measuring labour productivity on a macroeconomic level is dividing real GDP by the total number of employed. The measurement of capital productivity is often hampered by the absence of capital stock statistics (which require maintaining investment-related and other data over extremely long periods).

Provident fund   A fully funded, defined-contribution scheme in which funds are managed by a public entity.

Portfolio   Composition of a basket of financial assets.

Public pension scheme   Pension scheme administered by a public entity.

Recognition bond   A government-issued bond recognizing the rights acquired by an individual contributor under a social security scheme that has been closed or transformed. Recognition bonds have been used to finance the transition costs of changing a defined-benefit PAYG social security pension scheme into a funded defined-contribution scheme. The bond value depends on the provisions of the closed scheme and the interest rate applied. Liquidation of the bond usually takes place on the date of retirement.

Re-entrant   A person resuming payment of contributions to a scheme after a break.

Reference earnings   Earnings specified by definition and amount, used in benefit formulae. Reference earnings usually refer to the average earnings over a specified period preceding the payment of the benefit.

Replacement rate   Ratio of the amount of an (average/individual) benefit in period t to the (average/individual) amount of the insurable earnings in the same or any other suitably chosen period. The rate may be calculated gross or net of taxation.

Reservation wage   The lowest amount of wages at which a benefit recipient is ready to give up his/her benefit and return to work.

Reserve   Net result of the accumulation of contributions, plus investment earnings, plus other revenue, less benefit payments, less administrative expenses, less other expenditure, under a scheme.

Reserve ratio   Ratio of the reserve at a given date to the amount of expenditure of a scheme during the previous period.

Risk-free asset   In theory, an asset that is guaranteed a rate of return. In practice, short-term government bonds are often considered risk-free.

Salary scale   Table of factors showing the evolution of the salary by age of an individual over his/her career.

Savings rate   That share of disposable income not spent on consumption.

Scaled premium system   Financial system for pensions under which contribution rates are increased throughout the life cycle of a pension scheme on a "step-by-step" basis (where the duration of the individual step is called the period of equilibrium). In practice the contribution

rate is calculated for a defined period of years, often ranging from ten to 25 years, with the objective of equating, at the end of the period, the income from contributions and the investment income to the expenditure on benefits and administration.

Secondary market   Market on which financial instruments are being traded after issuance on the *primary market*. In terms of turnover/capitalization the secondary market usually largely dominates the primary market.

Social accounting system (SAS)   Methodologically consistent compilation of the revenues and expenditures of a country's social protection system. Used in social budgeting. See *ESSPROS*.

Social assistance intervention line (SAIL)   Graphical presentation of the minimum income guaranteed by the State to each citizen through the social assistance scheme. Usually lower than the poverty line.

Social expenditure   Cash and in-kind transfers paid by state or public organizations or agreed upon through collective bargaining on "social" grounds. Transfers include cash benefits such as pensions, employment injury benefits, short-term cash benefits (sickness and maternity benefits, unemployment benefits) as well as benefits in kind such as health services and basic social assistance. Tax exemptions for social reasons are usually considered part of social expenditure; however, estimating the amount of tax forgone is difficult.

Social expenditure ratio (SER)   Total social expenditure in a country expressed as a percentage of GDP.

Socially responsible investment (SRI)   Financial investment where social, environmental and/or ethical considerations are taken into account in the selection, retention and realization of investment, and the responsible use of rights (such as voting rights) attaching to investments.

Social Protection Expenditure and Performance Review (SPER)   A report providing detailed information on the performance of a national social protection system as well as on the extent of coverage and exclusion from social protection. In an internationally comparable way, a SPER provides information about the structure and level of total social expenditure and establishes indicators of system performance with respect to its effectiveness, efficiency and the adequacy of benefit levels.

Social security   All cash and in-kind social transfers that are organized by state or parastatal organizations or are agreed upon through collective bargaining processes. Benefits include cash transfers such as pensions, employment injury benefits, short-term cash benefits (sickness and maternity benefits, unemployment benefits) as well as benefits in kind such as health services.

Stock exchange   A formal financial market most prominently trading equity (shares) and other financial instruments issued by companies.

System dependency ratio   Ratio defined as the number of beneficiaries over the number of employed contributors in a given system. In pension schemes especially this ratio must not be confused with the old-age dependency ratio calculated on overall population developments (See *Demographic ratio*). System dependency ratios and population-based dependency ratios may differ significantly.

Take-up ratio   The ratio of persons actually receiving benefits to those who are legally entitled to them.

Tangible assets   See *Produced assets* and *Non-produced assets*.

Tangible investments   Investments in the tangible capital stock of an economy.

Terminal funding   Financial system under which a premium equal to the present value of a pension is paid at the time the pension starts. The premium is set aside as a reserve for the guarantee of future benefit payments.

Time horizon   Starting from the last observed statistical values (base period), the maximum number of periods up to which the results of a projection are accessible to meaningful interpretation. The time horizon varies with the type(s) of scheme(s) and/or economy under consideration.

Tobin's "q"   The ratio between the market value of stock-listed companies and their replacement costs. Alternatively, the ratio between the change in the value of an enterprise and the underlying net investment. It shows how an additional currency unit spent on capital affects the present value of all future profits. Under this view, q may be interpreted as the market value of one unit of capital; thus, as long as $q > 1$ there is an incentive to invest ($q < 1$: to de-invest). Named after James Tobin, who argued that in reality investment should be positively correlated with q. Empirical evidence is inconclusive.

Tobin tax   A tax proposed by James Tobin to be levied on short-term foreign exchange transactions in order to curb exchange-rate speculation which harms (national) economies.

Transfer dependency ratio   The ratio of people with no or insufficient primary income – children, unemployed, disabled, part-time and casual workers, and other actives and non-actives at and above working age – to the number of primary income earners. See *Demographic ratio*.

Transition countries   Countries moving from centrally planned to market-oriented economies.

Trickle-down effect   The indirect income effect of transfers when individuals other than the formal recipient of a transfer benefit from a social transfer (for example, if grandparents receiving a pension finance the schooling of their grandchildren).

Unemployed persons   All persons above a specified age who, during a specified reference period, were:

- without work (not in paid employment or self-employment);
- currently available for work (that is, were available for paid employment or self-employment); or
- seeking work (that is, had taken specific steps in a specified recent period to seek paid employment or self-employment). The specific work-seeking steps may include registration at a public or private employment exchange; application to employers; checking at worksites, farms, factory gates, market or other assembly places; placing or answering newspaper advertisements; seeking assistance of friends or relatives; looking for land, building, machinery or equipment to establish own enterprise; arranging for financial resources; applying for permits and licences, etc.

Unfunded liability   Actuarial liability less the amount of the accumulated reserve.

Unit cost   The cost of a unit of service or good in a given category of services (for example, the cost of a "hospital day" per patient).

Utilization frequency   The number of cases of treatment or units of care per protected person in a given category of social services.

Universal benefits (transfers)   Tax-financed benefits or transfers that are paid to all citizens or inhabitants falling into a specific category of the population (for example, families with children or people over a certain age).

Wage share of GDP   Ratio between the total amount of "remuneration paid to employees by resident employers" (SNA definition) in a given year and the total amount of GDP. Remuneration includes wages, all types of non-wage cash benefits, as well as social security contributions.

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