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The Impact of Social Health Protection on Access to Health Care, Health Expenditure and Impoverishment:

A Case Study of South Africa

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Summary

In many developing countries the population has no access to health services due to high user fees. Households may be forced to use up their savings, increase borrowing and sell assets in order to finance health care costs. At the same time, labor productivity and income generation are at risk due to ill health. As a result, households might be pushed into poverty or existing poverty might be deepened.

The overall objective of the study is to demonstrate the role of social health protection in access to care and poverty reduction in South Africa. The study is part of a larger research project jointly carried out by ILO, WHO and the OECD Development Centre.

In the context of the study, social health protection is broadly defined including all forms of statutory and non-statutory schemes, such as community-based and exemption schemes, provided by both the public and the private sector. National representative data analyzed is from the individual and household level and derives from the World Health Survey 2002.

The study adopts a two-part modeling framework, whereby first the impact of membership of a social health protection scheme on utilization is modeled, and secondly the membership impact on out-of-pocket payments for health care subject to health care use. In addition, attention is paid to the importance of catastrophic payments and their impact on impoverishment. The impact of other determinants apart from membership in a social health protection scheme such as age, education, total expenditure of the household and health status are studied.

The results of the study reveal that social health protection can help to reduce health-related impoverishment. However, existing forms of social health protection are far from being perfect. This confirms the importance of political strategies, which set priorities in extending coverage of schemes to the poor. Further, in order to avoid devastating financial consequences of health care costs, it will be necessary to revisit with stakeholders national social health protection policies and strive for covering the poor against catastrophic health care costs.

1 Introduction

Rising out-of-pocket payments for health care threaten to impoverish households in many low- and middle-income countries. Every year about 100 million people[1] worldwide are forced into poverty by health care cost. The poor often bear both the financial burden of ill health and the related loss of income and savings. In many cases, ill health leads to a medical poverty trap and results in illnesses going untreated among those who cannot afford access to health services.

Against this background ensuring adequate protection of financial risks of diseases is a major concern of many governments. In 2001, under the roof of the ILO, governments and social partners agreed that highest priority should go to policies and initiatives to extend social security, including social health protection to those who have none[2]. Particular reference was made to the poor and workers in the informal sector of the economy.

Social health protection is an important instrument aiming at fair burden sharing and reducing financial barriers to access health services. It is based on a broad concept of financing mechanisms of risk pooling and usually mirrors a country's historical, cultural, economical, social and institutional development. Accordingly, notions of social health protection vary from region to region and country to country (Scheil-Adlung, X. 2001). Approaches of social health protection include protection mechanisms such as national social health insurance, mutual benefit societies, occupational schemes, commercial private insurance, community-based micro-insurance or public provision of health services. In many countries, there is evidence of convergence or coexistence of the various approaches covering different population groups, regions or risks.

Despite the various notions of social health protection, it is based on a common set of core values shared by most societies. Fundamental values include solidarity and equity particularly with regard to access to health services and utilization. This implies contributing according to financial ability and protecting households from potential catastrophic spending and related impoverishment.

The objective of this study is to analyse the role of social health protection in access to care and poverty reduction in South Africa. More precisely, the study will assess the impact of health insurance coverage on the utilization of health care services and out-of-pocket health care expenditure given use. Special attention will be paid to the determinants of catastrophic health care payments and their impact on impoverishment.

[1] WHO, World Health Survey, Geneva 2005.
[2] ILO, Social Security – A new consensus, Geneva 2001.

In the context of this study the term "social health protection" includes all sorts of statutory and non-statutory, formal and informal, public and commercial protection schemes covering the financial risk of health. Accordingly, coverage of social health protection refers to the percentage of the population covered by any scheme, which falls under this definition. The broad definition of social health protection is primarily used because it corresponds to wide international usage (ILO, 2002) and includes innovative health protection schemes found in many African countries such as micro-insurances (Ron, A, Scheil-Adlung, X., 2001). It does not imply any value judgment, e.g. about merits of specific schemes.

Our analysis is based on the data from the *World Health Survey* (2002) conducted in South Africa. The data include information on social health protection, health service utilization, household consumption expenditures and out-of-pocket health payments.

Based on the methodology developed by Xu et. al (2003) multiple logistic regressions are used to analyze characteristics associated with social health protection coverage and the impact of social health protection on service utilization and poverty. The impact on poverty due to out-of-pocket payments is measured by the percentage of households who fall into poverty after paying for health services.

The study is part of a broader comparative research project on *Social Health Protection, Poverty Reduction And Access To Care In Kenya, Senegal and South Africa* currently being carried out by the International Labour Office, the World Health Organization and the OECD Development Centre and co-funded by the German Development Cooperation.

The case study is structured as follows: section 2 presents an overview of health and health care in South Africa, while section 3 reports on materials and methods. The empirical results from the analysis are discussed in section 4, while section 5 provides conclusions on implications for health care reforms in South Africa.

2 An overview of the health and health care in South Africa

2.1 South Africa at a glance

The mid-2004 population, when considering the impact of AIDS, is estimated at approximately 46.6 million. Africans (nearly 37 million) constitute 79.3% of the total South African population. The white population is estimated to be 4.4 million (9.4%), the “so-called” coloured population 4.1 million (8.8%) and the Asian population 1.1 million (2.4%). There are 11 official languages. South Africa is composed of 9 provinces (KwaZulu-Natal is the most populated and is home to 20.7% of the total population,

followed by Gauteng and Eastern Cape) (Statistics South Africa, 2004a). In 2002, 56.6% of the population was estimated to live in urban areas (UNDP, 2004).

Following the first democratic elections in South Africa in 1994, which spelled the end of the Apartheid regime, the African National Congress (ANC) came to power and Nelson Mandela was elected as president (Spence, 1999). Constitutional changes effected during the post-apartheid area have included a shift toward a quasi-federal political organisation, with a distinction being made between national, provincial and local governance structures.

South Africa, according to the classification employed by the World Bank, is a middle-income country. It is the richest country in sub-Saharan Africa and the region's only truly industrial economy (World Bank, 2004). However, unemployment remains high, with the official unemployment rate between 1995 and 2003 having increased from 16.9 to 31.2% (Statistics South Africa, 2004a). Gross domestic product (GDP) per head in 2002 was estimated at PPP U$ 10,070 (UNDP, 2004:141). The share of GDP devoted to health care in 2001 amounted to 8.7%, with public and private health care expenditure amounting to 3.6 and 5.1% of GDP respectively. Total per capita health care expenditure amounted to PPP US$ 652 (UNDP, 2004:158). However, inequalities in access to health care wealth remain stark (McIntyre, Bloom, Doherty, & Brijlal, 1995). Furthermore, South Africa's average performance on key health status indicators tends to be relatively poor due to enormous variation in health status between provinces, racial groups, and urban and rural populations. For example, Thomas and Muirhead (2000) reported that South Africa's mortality rate (45.5 per live births) was much higher than would be expected from the amount of money that the country devotes to health care, a similar point to that made by Bloom and McIntyre (1998) and Goudge (1999).

Furthermore, South Africa is currently experiencing one of the most severe HIV epidemics in the world, with an advanced spread of the disease into the general population. It is estimated, based on the ASSA 2002 demographic and AIDS model of the Actuarial Society of South Africa (ASSA), that the HIV-positive population in 2004 is approximately 5 million, which translates into an adult HIV-prevalence rate of 11% (Dorrington *et al.*, 2004). In 2002, HIV prevalence amongst women attending antenatal clinics in the public health care sector amounted to 26.5% (Pelser *et al.*, 2004). The accumulated AIDS deaths up to 2004 were estimated at 1.2 million (Dorrington *et al.*, 2004). The epidemic ranks as the top specific cause of the premature mortality burden, with 39% of years of life lost attributed to HIV/AIDS. Furthermore, 40.3% of deaths amongst children younger than 5 years are attributed to HIV/AIDS (Bradshaw and Nannan, 2004). The epidemic has also had considerable implications for key health status outcomes, in particular in the context of goals put forward as part of the Millennium Development Goals (MDGs), such as reducing child mortality by two thirds by the year 2015 (UNDP, 2003a). Under-5 mortality has risen from 54.8 to 59.4 per 1,000 between 1988-92 and 1993-98 (Redelinghuys and Van Rensburg, 2004), a figure that has been projected to peak at 93 by 2002 and stands at 87 in 2004 (Dorrington *et al.*, 2004). Adult mortality is also on the rise. However, the roll-out of free anti-retroviral treatment in the public sector, which started in 2004, and current programmes for prevention of mother-to-child transmission of the virus is expected to slow down these increases in adult and child mortality (Bradshaw and Nannan, 2004).

The impact of HIV/AIDS damages severely the productivity of the work force and enterprises of the country. Besides problems of absenteeism and loss of income, loss of experience and technical skills are threatening the achievement of goals such as poverty alleviation and sustainable development: A recent ILO study (ILO, 2004) estimated that the South African economy lost over US$ 7 billion annually from 1992 to 2002 because of labour force losses representing a per capita loss of US$ 115.

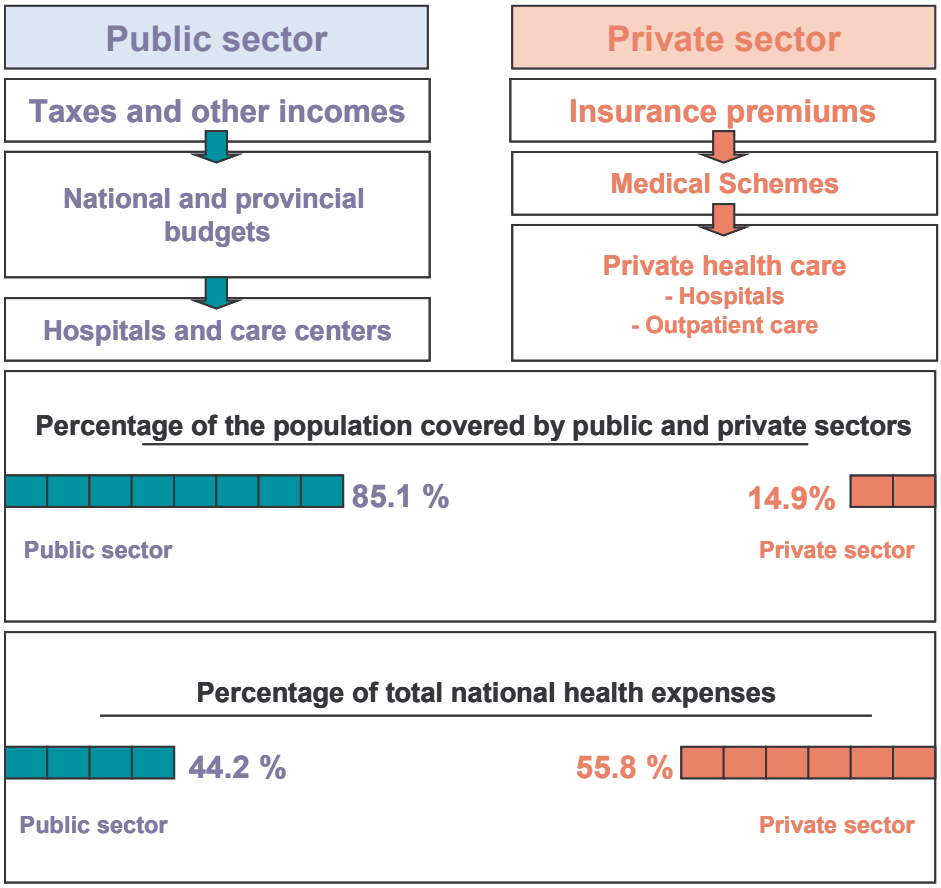
2.2 Organisation and financing of the health care system

This section aims at describing briefly financing, access and supply issues in the South African health care system. The health care system is split into a **public** and a **private** sector (Figure 1). As far as **financing** is concerned, there is no national medical insurance scheme in South Africa.

2.2.1 Sources of financing

The public sector is financed by the State, whether at a national, provincial or local level, through the allocation of funds raised from taxes, licenses or sales of utilities. Public health consumes around 10% of the government's total budget (South African Reserve Bank, 2004:81). Provincial Departments of Health control the largest proportion of public health care finances (82%), while local government spends approximately R2 billion per annum on health services (Blecher and Thomas, 2004). The National Department of Health controls approximately 10% of public health care finances (McIntyre and Doherty, 2004).

Figure 1: A fragmented health care system



The private sector is financed by private intermediaries. Most of those are **Medical Schemes**. A distinction is drawn between so-called open and closed or restricted schemes. Membership of an open scheme is available to any person regardless of employment status, while in closed schemes this is not the case. The latter refers to schemes established exclusively by a particular employer, profession, trade, industry, calling, association or union for its employees or members, including medical schemes for public sector employees. These schemes are fully under the regulatory control of the Act of Medical Schemes and fall under the jurisdiction of the Council of Medical Schemes. Employers may determine whether or not employees are entitled to belong to one or more schemes or whether they have total freedom of choice of scheme. Employers also, within a framework of conditions of service negotiated via a collective bargaining process, determines the level at which medical scheme contributions of employees are subsidised. Thus, employers play an important role in collecting medical scheme contributions and ensuring payment thereof to the relevant medical scheme. Since the early 1990s the membership of open schemes has grown rapidly, while the membership of restricted schemes has declined (Doherty and McLeod, 2002). In 2003, 68.1% of beneficiaries were registered in 49 open schemes, compared to 28.2% registered in 88 closed schemes. The remaining 3.7% of beneficiaries belonged to 12 so-called bargaining council schemes (Council of Medical Schemes, 2004), which represent schemes that are granted certain exemptions from the provisions of the Medical Schemes Act (Doherty and McLeod, 2002).

Another form of cover that exists in South Africa is health insurance offered by insurance companies, which are governed by the Long Term and Short Term Insurance Acts and fall under the jurisdiction of the Financial Services Board. Unlike medical schemes, insurance companies operate on a for-profit basis (Cornell *et al*., 2001). In fact, with the introduction of the new Medical Schemes Act in 1998, a demarcation dispute ensued as to whether certain health-related business of medical schemes was to be classified as insurance business or not. If classified as insurance business, companies could escape the community-rating requirements of the new legislation and continue to practice risk-rating (Pearmain, 2001). Importantly, coverage offered by medical schemes and insurance companies overlap as medical scheme members also own insurance products, although the extent of overlap cannot be estimated due to data limitations (Cornell *et al*., 2001). As explained above, many private firms can also be regarded as private financing intermediaries as they contribute to private insurance schemes on behalf of their employees.

The State contributes 44.2% of expenditures on health. Most of these public health care funds are raised by national taxes (94%), with only 2.7 and 3.3% of funds originated from the own revenue of provincial and local government respectively. The majority of health care resources (around 56%) are controlled by the private sector. Of these resources, 68% originated from medical schemes, while 30% represent out-of-pocket expenditure by households (McIntyre and Doherty, 2004). These figures, however, hide considerable inequalities in terms of per capita expenditure. In the 2002/03 fiscal year, for example, per capita expenditure on health care in the private sector was 7.1 times that in the public sector (Blecher and Thomas, 2004).

2.2.2 Access to health care services

This is the result of huge differences in **access**, with the private sector mainly being used by medical scheme members, which in 2003 represented 14.9% only of the total population, (Health Systems Trust, 2004) and the public sector delivering services to the remaining, bulk of the population (85.1%).

In the public sector, the amount you pay is supposed to depend on how much you earn and on how many dependants you have. Since 1996, free services are available for pregnant women, children under six and for all primary health care services. This policy of free primary health care forms part of a broad range of policies and strategies implemented post-1994 to create a "unified health system capably of providing quality health care for all" (Forman *et al.*, 2004:14). Free services (other than these primary health care services) are intended to be available only to those who cannot afford to pay for health care services, but in practice are rendered to anyone presenting at public facilities (McIntyre *et al.*, 2003). Medical schemes provide various benefit packages, from a basic hospital plan to full medical cover. According to the latest available statistics, a total of 427 different benefit options are offered by medical schemes in South Africa. In 2003, just more than a third of payments for benefits were spent on hospital care (34.3%), which primarily constituted payments to private hospitals. Less than 1% of these payments were made to public hospitals. Furthermore, 22.3% and 19.7% of benefits represented payments for medicines and services provided by medical specialists respectively. Payments to general practitioners

accounted for 7.9% of benefits. A very small share of benefit payments, 1.1% only, represented primary care (Council of Medical Schemes, 2004). In fact, trends in benefit payments suggest that hospital expenditure is crowding out expenditure on primary health care services, which is worrying insofar as it may mean that members of medical schemes increasingly have financed this from out-of-pocket health care expenditure (Doherty and McLeod, 2002). Insurance companies in turn offer six main types of health insurance products, which offer cover for in-hospital events, specified procedures and out-of-hospital medical expenses, ambulance and related emergency services, catastrophic medical events, accidents and disability respectively (Cornell *et al*., 2001). In 2000, the largest share in the health insurance business, in terms of coverage, was made up of insurance against in-hospital events, specified procedures and out-of-hospital medical expenses, representing 27% of beneficiaries, followed by insurance against disability (26.2%), and catastrophic medical events (23.7%)(Office of the Registrar of Medical Schemes).

Since the implementation of the new Medical Schemes Act of 1998 in January 2000, which had, as one of its specific goals, equitable access to health care in the private sector (Forman *et al.*, 2004), the medical schemes industry has been operating in a **community-rating environment**. In other words, the Act "prohibits risk-rating and exclusion from membership (of medical schemes) on the basis of age, gender and state of health" (Harrison, 1998). In addition, the Act prescribes that medical schemes should accept all eligible members, thus making **open enrolment** compulsory (Doherty and McLeod, 2002). The Act presents one of a long list of legislation and regulations passed since 1994 with the goal of transforming the health care system, a system that was described as "highly fragmented, biased towards curative care and the private sector, inefficient and inequitable" in the ANC's National Health Plan (Forman *et al.*, 2004). The Medical Schemes Act of 1998 was amended in 2001 and 2002 as it was perceived to be oriented exclusively to the needs of a for-profit health system that does not serve the needs of the majority of South Africans (Sait, 2001).

A key reform in private health care legislated by the original and amended Medical Scheme Acts include the specifications of a list of prescribed minimum benefits to be rendered by public hospitals or other designated service providers according to specified clinical protocols and criteria. These benefits must be covered by all benefit options offered by medical schemes. Furthermore, monetary limits, levies and co-payments are prohibited for coverage of these minimum benefits, although allowed on top-up benefits by means of a complex set of rules. Benefit conditions are also to be revised biannually with a view to updating the list of prescribed minimum benefits (Harrison, 1998 and 1999; Sait, 2001; Pillay *et al.*, 2002; Forman *et al.*, 2004). According to the Act, the objective of this was two-fold: firstly, to avoid incidents where individuals lose their medical scheme cover in the event of serious illness and the consequent risk of unfunded utilisation of public hospitals, and secondly, to encourage improved efficiency in the allocation of private and public health care resources (Medical Schemes Act, 1999). The focus, initially, was on hospital care as the need for this type of care was considered unpredictable as well as expensive. Prescribed benefits that were not generally previously covered by medical schemes included inpatient psychiatric care and treatment of substance abuse and drug rehabilitation, attempted suicide, HIV-associated disease, sexually transmitted diseases, and infertility, as well as comfort care and pain relief when death is imminent (Pearmain, 2000). In terms of regulations promulgated in November 2002, however, the minimum benefits now also cover ambulatory management, while provision was also made for 25

chronic conditions, including hypertension, asthma, diabetes and hyperlipidaemia, to be covered from January 2004. Surprisingly, however, very few medical schemes have had to expand their benefit structures to comply with these latest regulations, with the majority of schemes maintaining their pre-2000 benefit structures (Doherty and McLeod, 2002). As such, the prescribed minimum benefits means that people with insurance coverage (meaning medical aid membership) are relatively well covered again catastrophic health care expenditure. Yet, three quarters of low-cost options offered by medical schemes to people with lower levels of income rely on monetary limits, levies and co-payments to curb the use of top-up hospital benefits, which may dilute this benefit (Doherty and McLeod, 2002).

Other reforms, amongst others, include regulations that allows public hospitals to provide services to private patients, as well as provisions related to premium penalties for persons joining medical schemes at an advanced age, managed health care, personal medical savings accounts, waiting periods, the financial stability of schemes, administrative requirements, re-insurance practices, and practices of brokers (Harrison, 1998 and 1999; Sait, 2001; Pillay *et al.*, 2002; Forman *et al.*, 2004). It is estimated that the average cost of providing the prescribed minimum benefits amounts to approximately R200 per beneficiary per month (Velzeboer, 2005).

However, the private and public health care sectors do not operate independently and interact in various ways in the provisioning of services. In some arrangements, government financing is used to provide patients unable to fund their own care (in other words public sector patients) with access to services that are privately owned. Two other forms of public-private relationships include the private financing of public care for public sector patients, as well as the private financing of private sector care for private sector patients using public facilities (Goudge, 1999). More recently, public-private partnerships (or so-called PPPs), which include the formalisation of the above types of relationships, have been identified by government as an important component of the broader initiative to enhance public service delivery so as to use available health care resources in an optimal manner. These partnerships can take the form of paying private practitioners to render health care services in public facilities, outsourcing public services to private intermediaries, procuring health care services for public patients in the private sector, or establishing joint ventures between private and public partners. The main objectives of PPPs in the health sector are improved efficiency, improved access to health services, and the generation of additional resources and revenue for the public sector. Specific examples of planned PPPs in Gauteng province include converting wards in an underutilised public hospital and an academic hospital to “private wards”, the public sector leasing beds in an underutilised private hospital, and provisioning of renal dialysis services to public sector clients by the private sector (Moorman, 2001).

2.2.3 Health care supply

As far as health care supply is concerned, public facilities tend to be overused and old whereas private hospitals have proved to be among the best in the world and provide highly specialised high-tech health services. Most health care professionals, except nurses, work in private health care facilities (Van Rensburg and Van Rensburg, 1999; Khosa *et al*.,

2004), a fact that is partly explained by huge differentials in remuneration of health care professionals in the public and private sectors (Bloom and McIntyre, 1998). The divide between the private and public health sectors in terms of supply of health care professionals is striking. The ratio of general practitioners per dependent population in 1999 amounted to 1:530 and 1:6,411 in the private and public sectors respectively. The difference in these ratios was even more pronounced in the case of other groups of health care professionals (Van Rensburg, 2004b). Furthermore, in 2002 some 42.5% of posts in the public health care sector reportedly were vacant (UNDP, 2003b: 31). The continued emigration, moreover, of large numbers of health care professionals from South Africa to developed countries such as the UK, USA, Canada and Australia has exacerbated the shortage of health care professionals (Martineau *et al.*, 2004), which is particularly problematic in public health care facilities in rural areas. This has culminated in the recent introduction of compulsory community service for ten groups of health care professionals, the recruitment of health professionals from outside of South Africa, as well as the more recent introduction of a scarce skills and rural allowance payable to health care personnel in the public sector (Padarath *et al.*, 2004).

2.2.4 Inequalities in health care

Inequalities are often described as a key characteristic of health care and health care infrastructure in South Africa. In particular, how public resources are allocated, and the standard of health care delivered, varies from province to province. With less resources and more poor people, poorer provinces like Limpopo and Mpumalangathe face greater health challenges than wealthier provinces like Gauteng and the Western Cape (Blecher and Thomas, 2004). In addition, inequalities in health care financing and provisioning are equally striking between urban and rural areas, between different health districts, between the private and public sectors, and by race (Bloom and McIntyre, 1998; Makinen *et al.*, 2000; Booysen, 2003; Blecher and Thomas, 2004; McIntyre and Doherty, 2004; Van Rensburg, 2004b).

2.2.5 Toward the implementation of social health insurance

Since the early 1990s, various proposals for the implementation of social health insurance (SHI) have been put forward. The key objectives of these proposals were to improve equity in the health system, to address the cost-spiral in the private health care sector, and to generate additional revenue for the public health care sector. In terms of the contents of the most recent proposal, which differs considerably from earlier proposals, the envisaged social health insurance policy would require all formal sector employees with an income in excess of the income tax threshold to have health insurance (private insurance or at least social health insurance), with only the very poor relying on public facilities. Those insured by SHI would be entitled to public hospital services purchased by a state hospital fund that operates independently from existing private medical schemes (Bloom and McIntyre, 1998; McIntyre *et al.*, 2003; McIntyre and Doherty, 2004).

3 Materials and methods

3.1 The data: World Health Survey 2002

We use the data of the most recent *World Health Survey* (2002). We have two units of observation. Total consumption expenditures, food and out-of-pocket expenditure on health care were collected at the **household level**. Socio-demographic information as well as health service utilization and associated costs are available at the **individual level**. Eligible respondents were age 18 or older. We have a **complex survey design**, with weights, stratification and clustering.

3.2 Methods

The analysis follows the WHO methodology concerning the definition of **poverty** and **catastrophic expenditures** (Xu *et al.*, 2003). In particular, the **poverty line** is defined as the average food expenditure of households whose food share is in the 45^{th} to 55^{th} percentile range. The household's **capacity to pay** is defined as household non subsistence spending. It refers to the effective income remaining after basic subsistence needs have been met. Note that subsistence expenditure is adjusted for the size of the household according to the following household equivalence scale:

$$eqsize_h = hhsize_h^{\beta}$$

Where hhsizeh is the household size and $\beta = 0.56$ (based on estimations across 59 countries, see Xu *et al.*, 2003). **Catastrophic expenditures** occur when the health burden exceeds 40% of the capacity to pay. A non-poor household is **impoverished** by health payments when it becomes poor after paying for health services.

As far as analysis is concerned, survey design is taken into account by employing commands adjusting results for weighting, clustering and stratification. Indeed, standard errors of estimates and point estimates may be biased if weights, clustering and stratification are ignored (for survey analysis and the underlying econometric theory, see Deaton, 1997 or Wooldridge, 2002). Independence tests for categorical data are performed by the Pearson chi-squared statistics which is corrected for the survey design using the second order correction of Rao and Scott (1984).

As far as **econometric methods** are concerned, simple logit regressions are performed in order to identify factors associated with binary variables (insurance membership: insured *versus* non insured, health care use: use *versus* non use). In order to analyze the variables influencing direct out-of-pocket expenditure on health care, a sample selection model will be performed. Indeed, application of OLS to only part of the sample would raise the possibility of sample selection bias (see for example Jones, 2000). The sample selection model assumes that the decision to seek medical care and the choice of how much to spend can be influenced by distinct but correlated observable and non observable factors. The

model will be estimated by the Heckman two-step procedure. The former involves estimating a probit for the probability of non-zero expenditure, using the results to estimate the inverse Mill's ratio (IMR), and then running an ordinary least squares (OLS) regression on the non-zeros with the estimated IMR included to correct for selection bias. Statistical and econometric analyses were performed using stata 8.0.

4 Empirical results

4.1 Description of the population

This section describes the socio-demographic and health characteristics of the sample.

4.1.1 Socio-demographic characteristics

Overall 2602 households were successfully interviewed. In all households (but one), one individual was identified as eligible for the individual questionnaire (age > 18 years).

On average, 3.1 people lived within a household. Large households (i.e. households with more than 5 people) represented 13.4% of all households. 62.1 % of households lived in urban areas. 50.2% were below the poverty line (food share based poverty line defined in the methodology section). Although not directly comparable due to differences in the methods employed in estimating poverty, this figure does closely resemble other recent poverty estimates for South Africa. The UNDP (2003b) in their Human Development Report for South Africa estimate poverty at 48.5% in 2002, whereas Leibbrandt *et al.* (2004) estimate poverty at 58% using data from the 2001 population census. Similar to other sources (Leibbrandt *et al.*, 2004), a larger proportion of poor households (61%) lived in rural areas compared to 39% of more affluent households.

As for the characteristics of the adult sample (18+), the average age was 37.7. 19.5% of individuals were older than 50 years. 52.3% of respondents were female. 21.5% had no formal schooling whereas 12.1% completed college or university or held a post graduate degree. English, Afrikaans and African languages were declared to be the mother languages of respectively 5%, 14.8% and 79.5% of the respondents. The latter results correspond closely to the results of the population census conducted in 2001. According to the census, 52.2% of the South African population is female. In terms of education, 17.9% of persons aged 20 years or over had no education, while 8.4 had completed some tertiary education. As far as home language is concerned, the census found that 8.2% of the population spoke English compared to 13.3 and 73.5% that reported Afrikaans and an African language to be their home language (Statistics South Africa, 2004a). Amongst adult respondents, 43.2% declared to have a job for pay. According to the ILO (2003-2004), 56.7% of the economically active population (aged 15 – 64 years) belong to the

labour force in South Africa, a figure that according to the 2001 population census amounts to 57.7% of those aged 15-65 years (Statistics South Africa, 2004a).

4.1.2 Health status

Health status is assessed through **subjective** and **objective** measures. 7.7% of adults rated their health status as bad or very bad. 20.7% declared to be dissatisfied or very dissatisfied with their health. In addition to self-evaluation, we use the Body Mass Index (BMI) as an objective indicator of health status. 60% had healthy BMI (comprised between 18 & 25), while 8% were underweight, and 32% suffered from obesity. According to the 1998 South African Demographic and Health Survey, 29% percent of men and 56% of women could be classified as obese according to WHO standards (Department of Health *et al.*, 2002). These statistics present stark evidence of growing epidemic of obesity in developing countries (Walker, 1995; Walker *et al.*, 2002; Monteiro *et al.*, 2004; Popkin, 2004), including South Africa (Walker and Sareli, 1997; Walker *et al.*, 2001). Unfortunately, the data does not allow any analysis of health status indicators related to HIV/AIDS in particular as such questions were not included in the survey instrument.

Appendix 1 presents the relationships between health indicators and socio-demographic features. Female gender, poor education, non working status, rural setting, and African origin contribute to poor self-assessed health status in a significant manner. Such trends were to be expected as these characteristics are descriptive of the poor, whom are more likely to have a lower health status (Doherty *et al.*, 2002). Furthermore, the poorest tend to rate their own health as bad more often than the most affluent do. The difference is significant between the first and fifth quintile. Quite similarly, **obesity** is more likely to affect people speaking an African language, individuals living in **rural** areas and those belonging to **poor** households. To the contrary, very few clear associations are found between socio-demographic characteristics and being underweight. However, these results are interesting insofar as Castro-Leal *et al.* (2000) report that in South Africa the incidence of illness in 1994 was significantly greater amongst the richest 20% of the population compared to the poorest 20% (26% *versus* 12%).

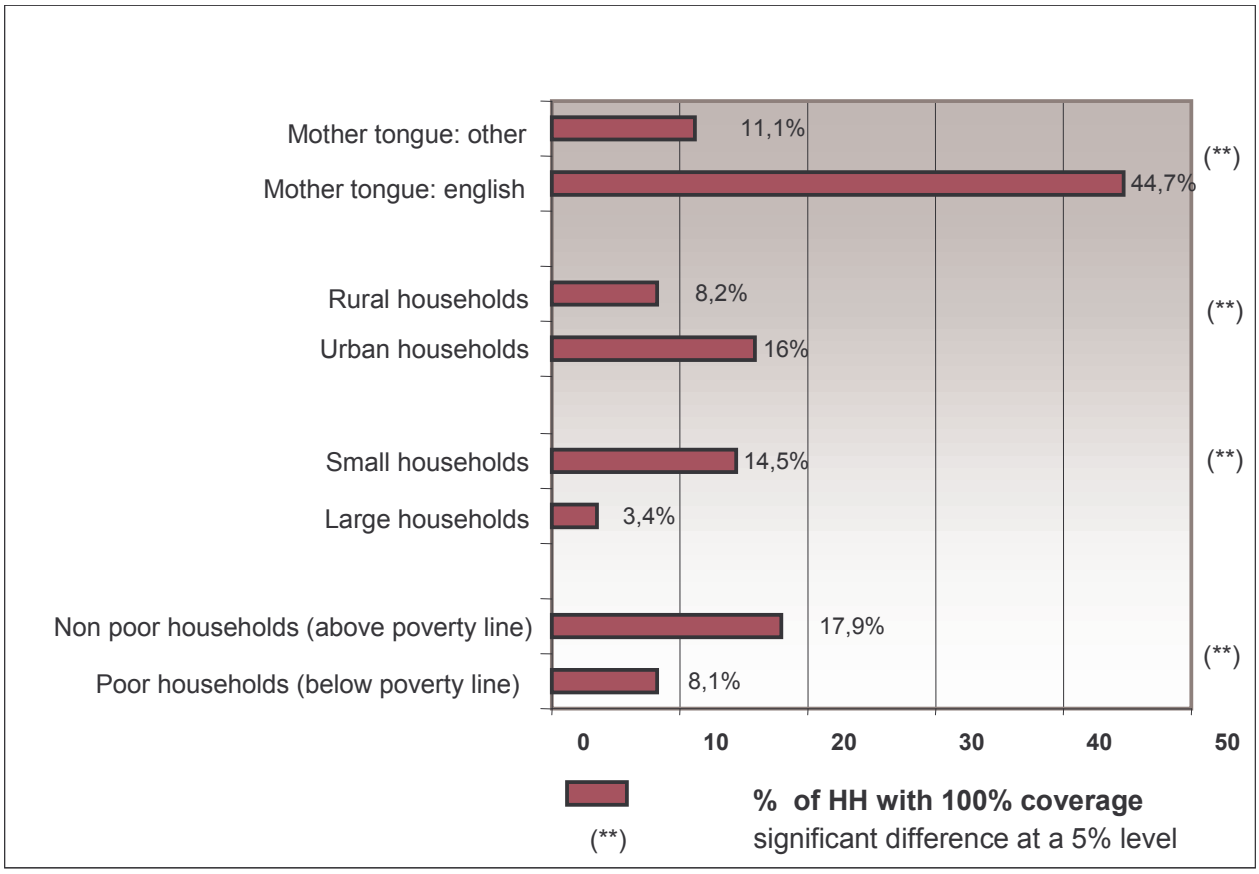
4.2 Health insurance: coverage and its determinants

This section aims at assessing the proportion and characteristics of the population covered by any kind of health insurance plans. Most of those must be medical schemes[3]. We will focus on **household** and individual **coverage**.

[3] A further analysis of the data would be interesting to have a better understanding of the nature of health insurance plans. It could be worth distinguishing between beneficiaries of medical schemes, beneficiaries of health insurance, and beneficiaries of services provided by firms.

The **coverage within households** is evaluated through two different measures. First, we compute the proportion of covered people within a household. Second, we assess the proportion of households with at least one scheme membership. Out of the 2505 respondents in the insurance section of the questionnaire, it turns out that 81% of households do not belong to any health insurance scheme. In other words, 19% of households benefit from health insurance coverage for at least one family member. The proportion of covered members reaches 100% in 13% of households.

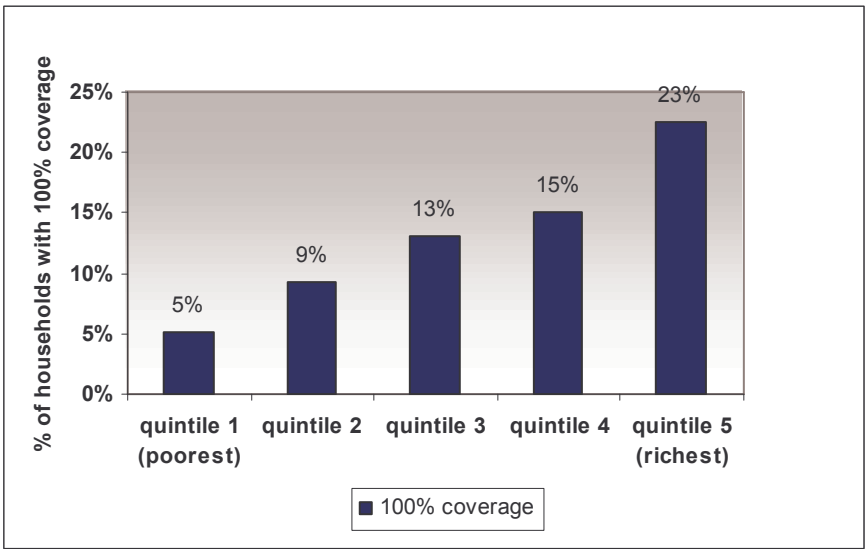
Figure 2: Percentage of households with 100% coverage in population subgroups



Reading note: 44,7% of households whose mother tongue is English benefit from 100% coverage (*versus* 11,1% of households whose mother tongue is non English).

As can been seen in Figure 2, 44.7% of households whose mother tongue is English benefit from scheme membership for all family members (*versus* 11.1% of households whose mother tongue is either Afrikaans or any Asian or African languages). This difference is significant. Moreover rural, large and poor households can rely significantly less on medical coverage than urban, small and non-poor ones. This is expected, given that these households are less likely to include members in formal employment, which represent those likely to have access to insurance. The Figure 3 below shows the proportion of households belonging to each expenditure quintile that are on medical aid. Only 5% of the poorest quintile benefit from insurance coverage. 22% of the richest quintile benefit from insurance coverage for all family members. Similar associations are observed between race, location, family size, poverty and the probability of coverage of at least one household member (Appendix 2 and Appendix 3)

Figure 3: Proportion of households with 100% coverage, by quintiles of equivalent expenditure



Reading note: 5% of the poorest benefit from 100% coverage *versus* 23% of the most affluent.

If we now turn to **individual coverage**, 16.4% of adults benefit from health insurance coverage. This figure is consistent with estimates of coverage reported elsewhere in the literature (Cornell *et al.*, 2001; McIntyre *et al.*, 2003; Harrison, 2004; Health Systems Trust, 2004; McIntyre and Doherty, 2004) and suggests that the proportion of the population relying on the private sector has not increased since the implementation of the Medical Schemes Act. However, large variations are to be found. 47% of those who graduated from university are covered by private insurance *versus* only 6% of those with no formal schooling; 44.5% of people whose mother tongue is English are covered (*versus* 14.4% of other language groups). Again, the results are expected, given that those with less education are less likely to be in formal employment. Complete descriptive results are available in Appendix 4. Everything else being held constant, the probability of belonging to a medical scheme increases with age, education level, when one has a job, in non-poor households, and when English is the mother tongue. Gender, location (whether urban or rural), and health status are not associated with insurance membership when other factors have been controlled for (Appendix 5)

4.3 Utilization of health care services

In this section, we will focus on the demand for health care services. In particular, we will analyze the distribution of health care utilization across expenditure quintiles. Furthermore, we will lay the emphasis upon the relationship between health care use and insurance coverage. More generally, we will try and identify the predictors of health care consumption.

The survey provides detailed information concerning the **need** for and the **utilization** of health care services (outpatient and inpatient care) by the selected individual respondent (age > 18 years) and his/her child.

16.1% of individuals reported to need health care in the 30 days prior to the survey (either for themselves or for their children). This proportion amounted to 34% over the past 12 months. Out of those respondents who reported health needs, 97% actually received health care. Makinen *et al.* (2000) report that 80% or more of ill persons in South Africa in 1993 had accessed health care facilities and it is likely that this considerable increase in access is explained by the introduction in 1996 of free primary health care. This result suggests that care reflects the pattern of needs. However access to care does not necessarily translate into actual delivery of comprehensive care. For example, only 83% (79% in the first income quintile and 89% in the fifth income quintile) of people got all the medicines that were prescribed to them. Out of those who did not get all medicines, 16% could not afford to buy them and 34% could not find them.

In addition to the reporting of health care needs (over the past 30 days and 12 months), the utilization of health care services can be assessed through both outpatient and inpatient care. 24.7% of respondents received outpatient care in the past 12 months. 24.1% of adults received inpatient care in the past 5 years.

A desirable goal of any health system is the "equal treatment of equals" (that is, the lack of differentiation in health care provision between people on the basis of non-health characteristics such as race and class). To this extent, it may be worth evaluating the **distribution of needs and use across individuals ranked by their living standards**. Table 1 presents, for each category of care, the percentage of need or total utilization accounted for by each quintile of equivalized per capita household expenditure. The poorest group required slightly more care than their population shares, though this trend is not significant. Our results do not show any pro-rich bias in the distribution of outpatient or inpatient care. To the contrary, many studies performed across various countries highlight that the better-off get more than a proportionate share of care provided at hospitals (Castro-Leal, 2000; Mahal *et al.*, 2001; Rannan-Eliya, 2001; Sahn and Younger, 2000). On the whole, in our data, there is not much variability across expenditure quintiles concerning the expressed need and use of health care.

Table 1: Quintile shares of health care needs and utilization

Quintile	(1) Care needs (last 30 days)	Care needs (last 12 months)	Outpatient care (last 12 months)	Inpatient care (last 5 years)	(2) Proportion of Household total Expenditures
poorest 20%	25,8	25,1	19,5	22,4	1,3
2nd poorest	19,8	21,3	23,7	20,3	4,1
middle	21,5	19,4	20,0	20,7	7,5
2nd richest	17,9	17,7	20,3	17,3	15,6
richest 20%	15,0	16,4	16,5	19,3	71,5

(1) Among those who needed care in the last 30 days, 25,8% belonged to the first quintile and 15% to the fifth quintile.

(2) The most affluent consume 71,5% of total.

Turning now to the insurance status of people using health care services, Table 2 compares the proportions of the populations belonging to insurance schemes and not belonging to insurance schemes that used health care services. It turns out that people with insurance coverage needed and used health services more than non scheme members. This trend is significant for needs and outpatient care over the past 12 months and remains true across

expenditure quintiles (Appendix 6). Furthermore, the insured were more likely to get all the medicines that were prescribed to them (94% vs 81%; the difference is significant at a 5% level). This result suggests that people on medical aid have greater financial and geographic access to health care. They may be encouraged to use health services more, either by providers themselves or because they have an incentive to use services which they have pre-paid through insurance. Classically, this derives from two unique characteristics of health care markets. On the one hand, information asymmetry between patient and provider can result in supplier-induced demand, while on the other hand, the problems of adverse selection and moral hazard implies that those with access to insurance may also be more likely to actually access health care services (Jack, 1999).

Table 2: Comparison of the proportions of the population with and without health insurance coverage that needed or used care

Population that used health care	Care needs (last 30 days)	Care needs (last 12 months)	Outpatient care (last 12 months)	Inpatient care (last 5 years)
Without insurance coverage	16,03	32,5	22,5	23,4
With insurance coverage	18,11	42,2	29,7	27,9
p	0,46	0,01**	0,03**	0,25

(** significant at a 5% level)

Meaning: 42,2% of covered people used care in the last 12 months *versus* 32,5% of those without health insurance coverage.

In order to evaluate whether these results could be attributable to the fact that insured respondents were also affluent people for example, a logit model was estimated on the various health use variables (Appendix 7). Interestingly, our first results are confirmed after controlling for relevant covariates. The results show that health plan beneficiaries are more likely to need and use health care services *ex ceteris paribus*, which as explained elsewhere derives in part from the unique characteristics of markets for health care. Furthermore, the results confirm that the need for health care and the use thereof do not vary across expenditure quintiles after controlling for gender, age, and health status. There is only one exception: the most affluent needed care significantly less than the very poor. As expected, people with poorer health (both subjective and objective measures) are shown to be more likely to use health care services. Furthermore, the results show that the elderly are more likely to need care or use outpatient services.

Note that insurance coverage is regarded as an exogenous variable in our econometric model. We validated this assumption by estimating a bivariate probit model (results not shown) made up of a utilization and insurance choice equation and checking the correlation between the error terms (Maddala, 1983).

Turning now to an examination of which **sector** people chose to visit when they decided to go to a health care professional, Figure 4 shows that the majority of those with health insurance accessed health care in the private sector (74% for outpatient care and 61% for inpatient care). Havemann and Van der Berg (2003), similarly, report that insured persons in most cases opt for private care when accessing health care facilities. Furthermore, the majority of those without health insurance used the public sector for inpatient (85%) care and to a lesser extent for outpatient care (71%). Interestingly, as much

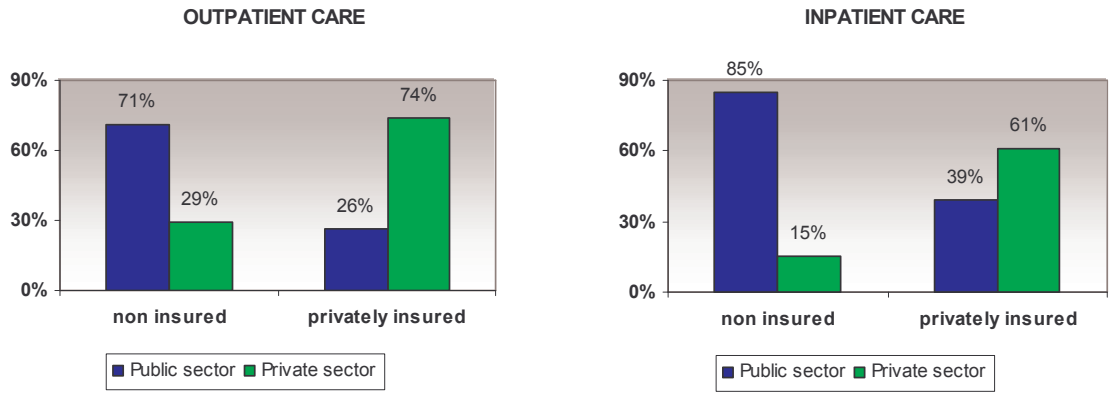
as 29% of the non-insured used the private sector for outpatient care and 15% received inpatient care from a private hospital, thus paying out-of-pocket health care expenditure.

Other studies of health care utilisation in South Africa tell a similar story, reporting that a substantial proportion of people without access to health insurance, including the poor express a preference for services provided by private health care practitioners (Cornell *et al*., 2001; Havemann and Van der Berg, 2004). Simultaneously 26% of insurance beneficiaries used the public sector for outpatient care. 39% of insurance beneficiaries obtained inpatient care from a public hospital. Empirical evidence suggests that the reasons for these phenomena are as follows. In addition to the fact that insurance beneficiaries, as explained elsewhere, can access services included in the prescribed minimum benefits in public hospitals, the cost of which will be covered by insurance, users also site the low cost and accessibility of public health care facilities as important reasons for using public health care services, particularly in remote areas where access to private hospitals are problematic.

On the other hand, users in general cite quality of care as an important reason for preferring to access private health care services rather than public health care services, this despite having to pay more and having to travel quite a distance in some cases to access treatment. Quality of care is perceived as better (worse) in private (public) health care facilities due to shorter waiting times, better staff attitudes and clean facilities (Hirschowitz and De Casto, 1995; Smith *et al*., 1999; Van Rensburg, 2004a).

This information shows that the main source of financing for health care does not completely determine which sector patients use. Appendix 8 shows that, for a given insurance coverage status, similar behaviours are observed between poor and non-poor households as far as the choice of the type of outpatient providers is concerned. However, individual belonging to poor households tend to rely much more on public services as far as inpatient care is concerned, whether they are insured or not. 92% of the poor non-insured and 62% of the poor insured chose to stay at a public hospital. According to McIntyre *et al.* (2003:49), this increasing reliance of low- and middle-income groups on public health care services resulted from 'population growth, cost escalation and risk-rating in the private sector, and dumping of insured patients on the public sector once their benefits had been consumed'. In summary, therefore, these findings suggest that membership of medical insurance and level of income do not entirely determine usage of private providers.

Figure 4: Comparison of the sector used by populations with and without health insurance coverage that used outpatient care in the past year and inpatient care in the past 5 years



Meaning: Out of the non-insured, 71% used the public sector and 29% used the private sector for outpatient care in the past year.

This question of medical consumption raises the crucial issue of health care financing. The survey makes it possible for us to study the contributions of health insurance and out-of-pocket expenditure to total expenditure on health care.

4.4 Health care financing

4.4.1 The contribution of health insurance to health care financing

As could be expected from the low health insurance coverage amongst the population, pre-paid plans only contribute a small share to health care financing (Table 3). Overall, it contributes to the health expenses of 8% of the households. The proportion of households financing health expenses through insurance is smaller in the first quintile (6.1%) and larger in the richest quintile (13.5%). Not surprisingly, the proportion of households financing health expenses through health insurance is higher in the subgroups of health insurance beneficiaries.

So, for example, 34.2% of households with complete insurance coverage financed their health care needs via health insurance compared to 32.9% of households that include at least one member with access to health insurance.

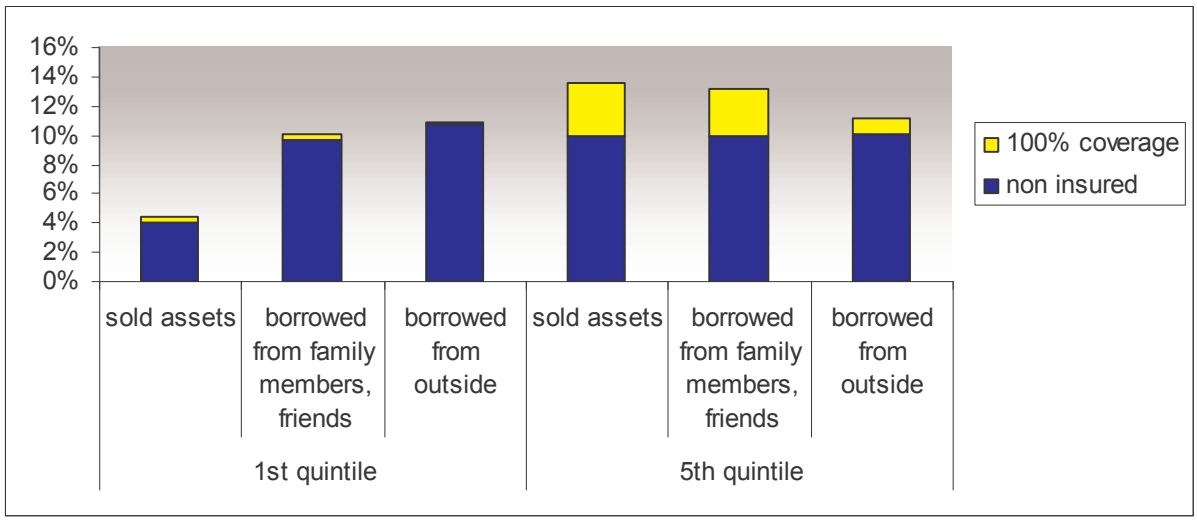
Table 3: Health expenses financing mechanism by income quintile and insurance status

	Overall		Expenditure quintile		Insurance coverage	
	Total obs	Estimate	1st quintile	5th quintile	100% coverage	at least 1 member
Current income	2477	32,5%	36,4%	33,8%	33,7%	33,8%
Savings	2430	16,2%	10,6%	21,4%	23,1%	22,3%
Health insurance	2431	8,0%	6,1%	13,5%	34,2%	32,9%
Sold assets	2427	6,5%	4,4%	13,6%	10,6%	8,9%
Family members, friends	2427	10,2%	10,1%	13,2%	7,0%	7,5%
Borrowed from outside family	2431	10,6%	10,9%	11,2%	3,0%	4,3%
Others	2041	4,7%				

Meaning: 32,5% of households declare to finance health care through current income. In the first expenditure quintile, the proportion of households financing health expenses through current income amounts to 36.4%.

Other financing mechanisms are used to cover out-of-pocket health care expenditure: 16.2% declared to use savings, 6.5% to sell assets, and 10.2% to rely on family members. Note that a bigger proportion of the most affluent households (than of the poorest households) declared to use savings (21,4% *versus* 10,6%) or sell assets (13,6% *versus* 4,4%) in order to finance health care expenses. Furthermore, Table 3 shows that households with insurance coverage are less likely to borrow from family members or friends or outside the family. Further analysis was carried out to investigate whether insured households were protected against borrowing merely because members were rich. Figure 5 clearly demonstrates that insured households were less likely to borrow from family members or from outside irrespective of their income level. The relationship is even more obvious for poor households.

Figure 5: Welfare threatening ways of health care financing by expenditure quintile and insurance status



4.4.2 Out-of-pocket health care expenditure

As explained in the first section of the report, households without insurance coverage incur out-of-pocket health care expenditure when purchasing some public (depending on the type

of care and their income) and most private health services. Even medical scheme members incur out-of-pocket expenditures. This is the case where services received from private institutions are not covered at all, or are incompletely covered by their scheme's benefit package and thus require co-payments from scheme members. In addition, medical scheme members may incur out-of-pocket expenditure when they visit public health care facilities. This section assesses the financial burden on households of direct out-of-pocket payments for health care. Up to now, we have shown that health insurance beneficiaries are more likely to use health care. Another question of interest is whether insurance coverage narrows the financial burden borne by households and protects against catastrophic health expenditures among the subgroup of people who have consumed health care.

a) The financial burden

As can been seen in Appendix 9, 41.6% of households over the past month incurred out-of-pocket health care expenditure. However, the proportion of households faced with positive out-of-pocket payments increased with total consumption expenditures: 14.9% of the poorest had positive health expenditures *versus* 60% of the most affluent. As health care utilization has been shown to be similar across expenditure quintiles (see section 4.3), this result simply originates from the fact that the poorest are more likely to benefit from free of charge health services provided at public health care facilities, while the more affluent will access private health care services, thus resulting in lower out-of-pocket expenditures amongst poorer households. Average out-of-pocket expenditure amounted to R199 (ranging from R28 in the first expenditure quintile to R559 in the fifth expenditure quintile). The average share of health expenditure in total household expenditure was 9.6%. This proportion was stable across quintiles.

b) Equity issues

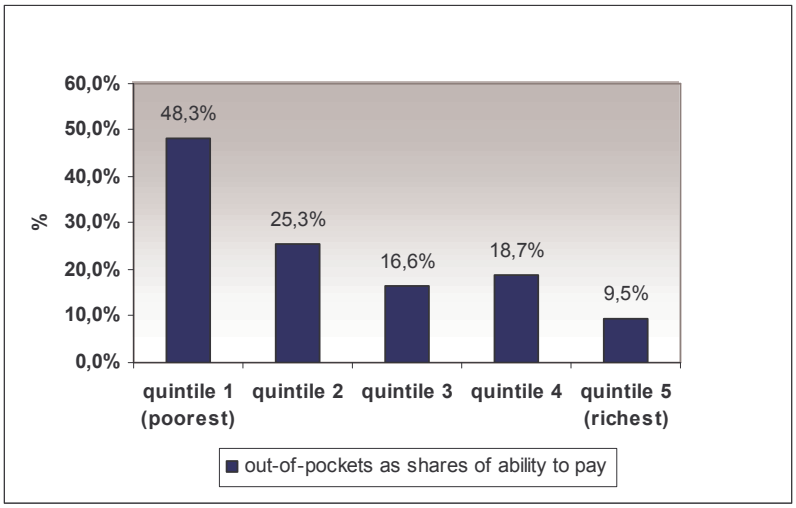
From an equity perspective, it is worth assessing to what extent out-of-pocket payments for health care services are related to household capacity to pay[4]. Do health care payments account for an increasing proportion of capacity to pay as the latter rises (progressive relationship)? Or, is it a regressive relationship in the sense that payments comprise a decreasing share of capacity to pay? Though the policymaker's preferred relationship between health care payments and capacity to pay will vary with his/her conception of fairness, quantification of the relationship is very interesting.

On average, direct **out-of-pocket payments** represented 21.7% of household **capacity to pay**. The distribution of out-of-pocket payments as shares of capacity to pay across expenditure quintiles allows us to assess the progressivity of health payments (Figure 6). For the poorest households, out-of-pocket payments represent almost 50% of the capacity to pay. For the most affluent households, out-of-pocket expenditure claim around 10% of the capacity to pay. The share tends to decrease with total expenditure, revealing a broadly

[4] See definition above in Chapter 3.2.

regressive relationship. Note that such regressive trends have also been depicted for out-of-pocket health care expenditure elsewhere in the literature (Wagstaff *et al.*, 1992, 1999).

Figure 6: Distribution of out-of-pocket health care expenditure as shares of ability to pay by expenditure quintiles

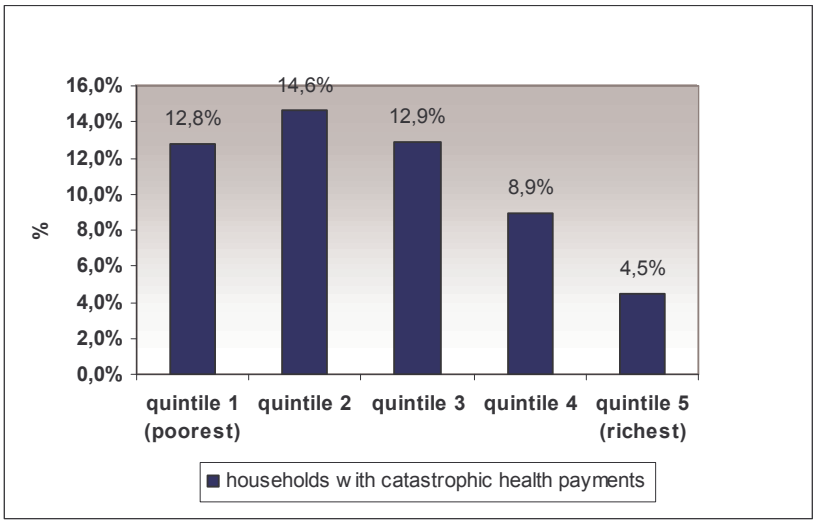


Meaning: oops represented on average respectively 48,3% and 9,5% of household ability to pay in the 1st and 5th expenditure quintile.

One conception of fairness in payments for health care is that households ought not to be required to spend more than a given fraction of their income on health care in any given period. Spending in excess of this threshold is often referred to as **catastrophic expenditure**.[5] We can mention that the extent to which illness shocks really result in catastrophic economic consequences for households depends not only on medical care costs, but obviously also on any effects from reduced labour supply and productivity, and on the extent to which households are able to "smooth" their consumption over several periods by borrowing and lending mechanisms. According to our survey, as much as 10.5% of households were faced with catastrophic payments in the past month, a figure that is considerably higher than the estimated 0.03% of South African households that were faced by catastrophic health care expenditure in 1995 (Xu *et al.*, 2003:13). Around 12% of households are faced with catastrophic expenditures up to the 6th decile. Less than 5% of the better off households experienced catastrophic payments (Figure 7). Out of the households above the poverty line, 7.1% of households were impoverished due to out-of-pocket payments for health care.

[5] See definition of catastrophic expenditure in Chapter 3.2.

Figure 7: Proportion of households facing catastrophic expenditures by expenditure quintiles



Meaning: 12.8% of the poorest were impoverished *versus* 4,5% of the most affluent.

c) Relationship between out-of-pocket payments and insurance coverage

At the individual level, we can study the relationship between out-of-pocket payments related to either inpatient or outpatient care and insurance coverage. Two main questions are of interest. First, is the proportion of people paying out-of-pocket payments different between those who have subscribed any health insurance and those who have not? Second, is the insurance coverage associated with lower or higher out-of-pocket payments among the subgroup of those having positive health expenditures?

Let us begin with descriptive statistics. 85% of insured people incurred positive out-of-pocket payments for outpatient care *versus* 74% of non insured people. The difference is not significant. The proportion of individuals with positive health expenses for inpatient care is similar between the insured (68%) and the non insured (63%). The average out-of-pocket expenditure (computed over those facing positive health expenditures, in the insured and non insured subgroups) amounted to respectively R186 and R124 for outpatient care and R745 and R290 for inpatient care. However, this difference is narrowed if we consider the place of care. In fact, as can been seen in Appendix 10, much larger amounts of money are paid in private settings than in public ones especially for inpatient care. At a given place of care, average out-of-pocket expenditures (among those who incurred out-of-pocket expenditure) do not significantly differ between insured and non insured people.

In order to assess the association between insurance coverage and out-of-pocket expenditure on health care, while controlling for confounding factors, we estimated a sample selection model. Results are available in Appendix 11. Estimations are performed for outpatient health expenditures and inpatient health expenditures separately. The covariates of the expenditure equation include all the covariates of the utilization equation plus the place of care (whether private or public). The results show that the insurance

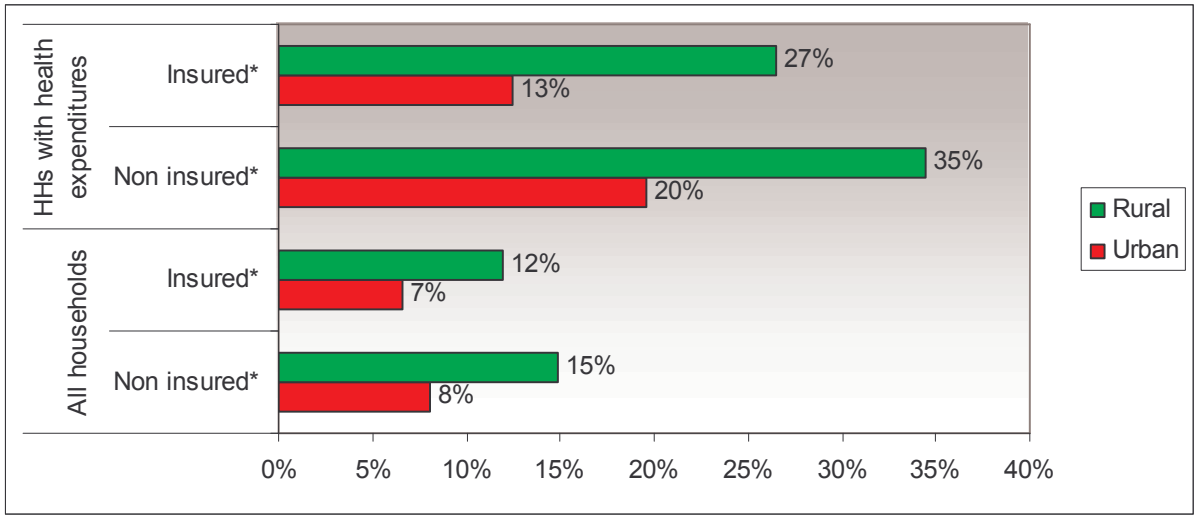
variable is not associated with health care expenditures everything else being held constant. Finally, insurance coverage is significant in explaining positive levels of health consumption (out-of-pocket health care expenditure > 0), but does not affect the average amount of money devoted to health care. Furthermore, the econometric findings confirm that the place of care (in other words public *versus* private health care facility) is the main cost driver of inpatient care.

d) Relationship between insurance coverage and catastrophic health expenditures

Assessing to what extent insurance coverage may protect against catastrophic expenditures, we found that 12% of households without insurance coverage were faced with catastrophic payment in the past month *versus* only 8% of households with at least one member belonging to any insurance scheme. This difference is significant at the 10% level.

Figure 8 shows that this relationship remains true whether the households live in urban or rural areas. If we now consider the income level, we computed the proportion of households being faced with catastrophic health expenditures for each income quintile and according to insurance status. Note that this proportion was computed over all households or over those encountering positive health expenditures. Appendix 12 suggests that the proportion of households being faced with catastrophic health expenditures is lower when the respondent is insured except for the poorest households. This latter result may be explained by the variability in the seriousness of illness and will be clarified by the multivariate approach.

Figure 8: Catastrophic health expenditure by expenditure quintile and location



A logit model was also run to identify the factors associated with catastrophic health care expenditure (Table 4). As suggested by Appendix 12, we took into account the fact that the impact of insurance coverage might differ across income quintiles. We also controlled by the location, housing conditions (based on the access to drinkable water), the health status of the respondent and one more variable expressing the severity of illness for other

household members. We find that insurance protects against catastrophic expenditures in 5th income quintile. This result is significant at a 10% level (p=0.06). It may be explained by two main features: on the one hand the poorest benefit from free of charge medical services at public facilities; on the other hand, low cost benefit packages (that the poorest are more likely to subscribe) do not provide extensive coverage and as a result may not protect against catastrophic expenditures.

Table 4: Logit model for catastrophic health expenditures

	Logit	
	Coef.	P > t
Coverage by insurance scheme in the first quintile	-0,72	0,25
Coverage by insurance scheme in the second quintile	-0,17	0,65
Coverage by insurance scheme in the third quintile	-0,48	0,29
Coverage by insurance scheme in the fourth quintile	0,68	0,08
Coverage by insurance scheme in the fifth quintile	**-1,90**	**0,06**
poorest 20%	*ref*	*ref*
2nd poorest	0,03	0,89
middle	-0,20	0,38
2nd richest	**0,65**	**0,02***
richest 20%	**-0,71**	**0,02***
urban	**-0,30**	**0,05***
At least one household member with poor health conditions	0,30	0,25
Good subjective health of the respondent	-0,66	**0,06**
No access to drinkable water	0,78	**< 0,01***
Constant	-1,66	**< 0,01***

* Significant at the 5% level

Furthermore, everything else being held constant, catastrophic expenditures are less likely to occur when the respondent suffers from poor health conditions.

However, note this logit analysis of the determinants of catastrophic expenditures is not quite satisfactory because the income variables (quintile groups) may be endogenous, to the extent that illness may result in income loss. A further analysis would be necessary to solve this issue.

e) Relationship between insurance coverage and impoverishment

Appendix 13 provides the distribution of impoverishment by gender, education level, age, subjective health status, insurance status of the household head, location, and size of the household. Only two relationships are significant: households living in rural areas and families comprising more than 5 members are more likely to be impoverished by out-of-pocket health care expenditure. The privately insured are less frequently impoverished, though the relationship is not significant.

5 Conclusion

Our results show that health insurance coverage improves access to health care and may protect against catastrophic expenditures, thus contributes to equity of access to health services and the well being of households. In addition, out-of-pocket health care expenditure is broadly regressive.

However, insurance protection is mainly granted to those who can afford to belong to medical schemes, or in other words, the more affluent. Coping strategies of the excluded include selling critical assets, borrowing money and using savings to pay for health services. In many cases these strategies increase poverty and vulnerability.

The question, therefore, is how insurance coverage can be expanded to a larger proportion of the population so as to bring those who have no health protection into the mainstream health services and enhance the well being of people.

In principle, there are two possible alternatives in terms of using health policy reforms to achieve this goal. On the one hand, reforms can be implemented in the private health care sector. On the other hand, social health insurance or more generally social health protection can be implemented to provide coverage to people that normally access public health care services and are currently not insured.

South Africa has in recent times embarked on both these roads and it is worthwhile reflecting on the role of these two types of health care reforms in expanding insurance coverage and thus fighting the impoverishing effects of catastrophic health care expenditure.

As explained elsewhere, the implementation of community-rating, managed care and other regulations in private health care as part of the Medical Schemes Act of 1998 was envisaged to amongst others improve equity in the private health care sector (Forman *et al.*, 2004). However, the implementation of the Act and managed care initiatives has not widened the access to scheme membership. In fact, the percentage of the total population covered by medical schemes have decreased since the late 1990s (in 1998, an estimated 18.6% of the total population was covered by medical schemes, a figure that had decline to 14.9% by 2003) due to substantial, continued increases over time in medical scheme contributions and in co-payments, which is partly driven by high medical inflation and rising administration costs (Cornell *et al.*, 2001; Doherty and McLeod, 2002; McIntyre *et al.*, 2003; Harrison, 2004; Health Systems Trust, 2004; McIntyre and Doherty, 2004). The number of beneficiaries in turn has since 1996 remained at approximately 7 million (Council of Medical Schemes, 2004). Although the industry has seen the development of a range of low-cost benefit options, aiming at attracting clients not currently covered by medical schemes, these options are still considered relatively expensive. In 2001, the majority of low-cost options cost R600 to R800 per month for a family of two adults and two children, which at low income levels remain unaffordable (Ranchod *et al*., 2001). This casts doubt over the ability of these offerings to substantially expand insurance coverage.

Furthermore, the entry of new schemes in the industry is constrained, given the minimum membership requirement of 6000 for a new scheme to be registered (Pearmain, 2000).

Other pending reforms in the private health care sector may however contribute to lowering the cost of private medical care and enhancing coverage. These include limiting the dispensing of medicines by general practitioners to those working in areas not served by a pharmacy and introducing a transparent, regulated pricing system for medicines. These particular reforms are targeted at reducing the cost and over-prescription of medicine and can result in important cost savings, given that medicines represent the largest proportion of expenditure per medical scheme beneficiary (McIntyre and Doherty, 2004). However, concerns remain over the continuing cost spiral in private health care, amongst others due to the adverse effects of the fee-for-service payment system, but also due to the failure of medical schemes to employ mechanisms such as negotiated tariffs, the use of public hospitals, the use of selective networks of contracted providers, and risk-sharing arrangements with providers to control costs. Continued increases in the cost of private insurance will constrain other initiatives aimed at expanding membership of private medical schemes (Doherty and McLeod, 2002).

The introduction of social health insurance (SHI), which is a policy currently pursued in South Africa, stands to substantially expand insurance coverage and therefore perhaps is likely to play a more important role than private sector reforms in improving access to health care and in protecting households from the impoverishing effects of catastrophic health care expenditure. According to the proponents of SHI, insurance coverage of the population will be expanded considerably and is estimated to increase to 36% or even to as much as 50%, depending on the particular SHI proposal (McIntyre *et al.*, 2003; McIntyre and Doherty, 2004).

According to McIntyre and Doherty (2004), SHI (as envisaged in the earlier proposals) can enhance equity in the health care system in three ways. Firstly, the extent of cross-subsidisation in the existing medical schemes environment would be improved as risk pools would be enlarged. In addition, community-rated, income-related contribution rates can ensure cross-subsidisation across income groups, while cross-subsidisation across groups with different health will be achieved insofar as the SHI will cover a mandatory minimum benefit package. Secondly, insurance coverage will be extended to more low- and middle-income individuals, which translate into cross-subsidisation between the current and newly insured. Lastly, the introduction of SHI means that scarce tax resources can be employed to finance the health care needs of the uninsured, poorer population (McIntyre and Doherty, 2004).

However, as McIntyre *et al.* (2003) explains, the proposed SHI policy in its current, revised format need not translate into major equity gains. Firstly, the pool of contributors to SHI is limited because its will only target those formal sector employees with earnings above the tax threshold. Consequently, opportunities for cross-subsidisation between SHI members will be limited. In the second instance, the lack of integration between private insurance schemes and the envisaged SHI means that the capacity of SHI to pool risks is limited, which further limits opportunities for cross-subsidisation. Existing inequalities in access to health care between the public and private sectors are therefore likely to be

reinforced as the public sector will serve low-income, high risk groups, while high-income groups will be encouraged to migrate to private medical schemes. This lack of integration of the SHI with private insurance schemes also translates into fewer opportunities for negotiating cheaper prices as one, powerful group of health care providers (McIntyre *et al.*, 2003). Witter *et al.* (2000), moreover, argue that the establishment of a new insurer (in this case, the so-called state hospital fund) as an independent purchaser creates a new, expensive bureaucracy in the health care system without any clear gain necessarily for patients or providers. In addition, the failure to offer advantages that exceed the current provision of services (potential SHI members already enjoy access to public hospitals) constrains the acceptability of the proposed SHI to employees that are currently not insured (McIntyre *et al.*, 2003).

McIntyre *et al.* (2003) also point out that a number of complementary health sector reforms need to be implemented if SHI is to be successfully implemented. These reforms, amongst others, include (a) improvements in the ability of government to implement, monitor and evaluate health care reforms, (b) adequate fee structures and billing systems in public hospitals, which is needed to offer insurance as an alternative to the risk of incurring costs in public hospitals, and (c) greater autonomy for hospitals, including fee retention, which is crucial to improve the quality of care in public hospitals (McIntyre *et al.*, 2003).

Furthermore, the international experience with SHI in middle- and low-income countries seem to suggest that SHI does not provide significant additional funding to general tax-based funding for financing the health care needs of the majority of the population. In sub-Saharan Africa, for example, SHI has only been implemented in a few countries and in most cases mainly targets civil servants, which translates into relatively small gains in insurance coverage. In low-income countries, moreover, SHI covers only between 1 and 20% of the population. This unsuccessful experience with SHI in low-income countries saw the focus shift to other financing options, including user fees, community financing and official development assistance (Scheil-Adlung, 2004; Witter *et al.*, 2000). Yet, this particular criticism of SHI may not be as relevant in South Africa's case, given that it has a larger economy (and subsequently a larger pool of civil servants and formal sector employees) than most other low- and middle-income countries where SHI has previously been implemented.

Therefore, the main challenge for using social health insurance in achieving these equity gains and in curbing the impoverishing impact of catastrophic health care expenditure may lie in

(a) Revisiting and renegotiating with stakeholders the contents of the SHI policy and its goals and
(b) Implementing those health care reforms necessary to guarantee the success of SHI in South Africa.

At the same time, the failure of regulations implemented in the private health care sector to control costs and expand insurance coverage offered by medical schemes should be investigated so as to determine where the problems lie and if these can be remedied by the implementation of new reforms and/or by appropriate amendments to the current legislation governing private health care.

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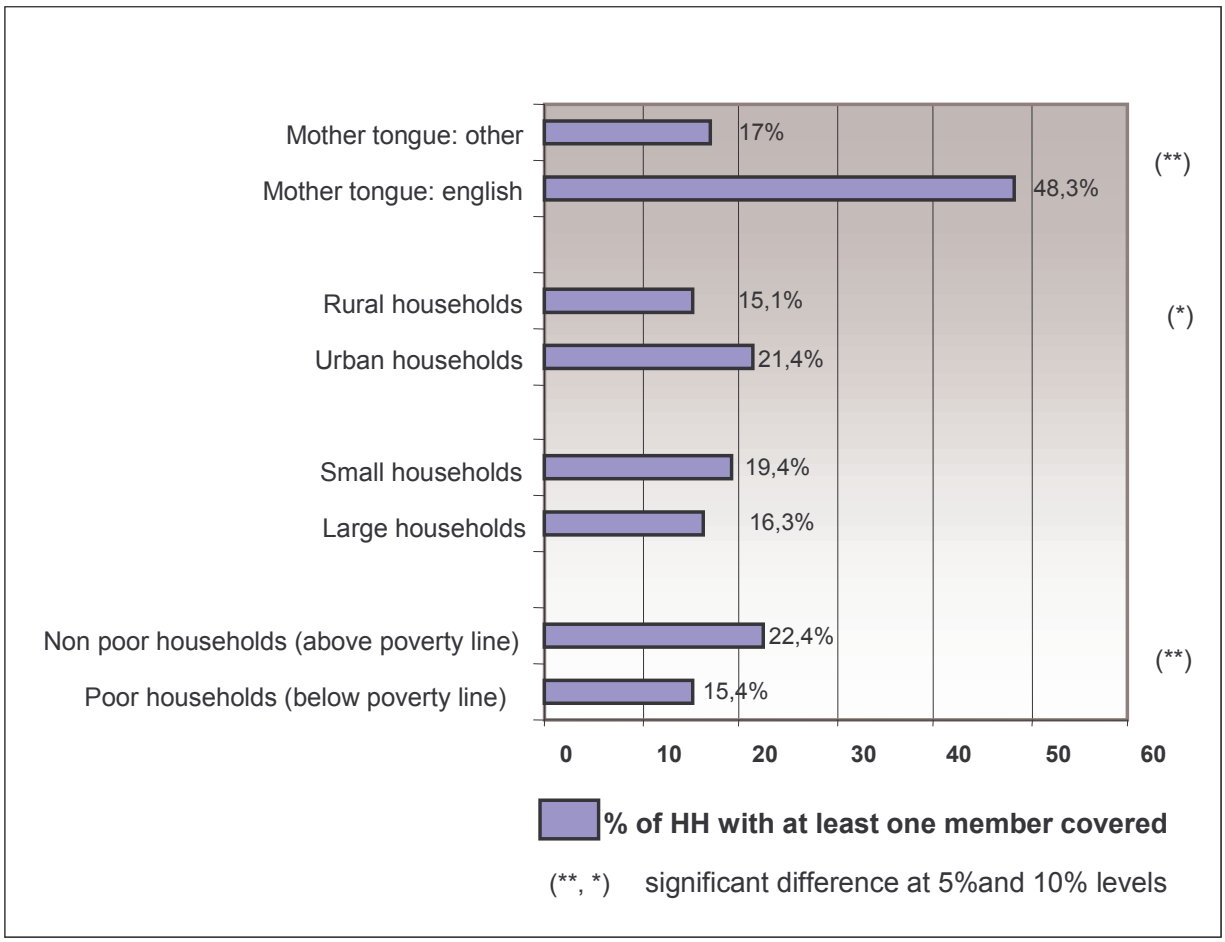
Appendix

Appendix 1: Characteristics of the population 18+ and distribution by health status

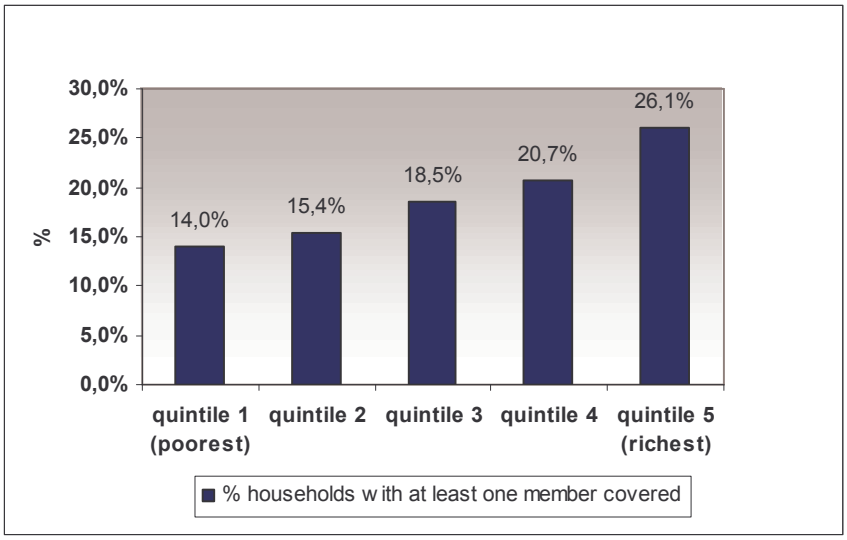
	All individuals 18+			According to health status			
				bmi > 30 (1)	bmi < 18	bad or very bad self-assessement	dissatisfied/ very dissatisfied
	Estimate	Std error	Total obs	Estimate	Estimate	Estimate	Estimate
SOCIO-DEMOGRAPHIC CHARACTERISTICS							
Average **age** (yr)	37,7	0,5	2602				
% senior (>50 yrs)	19,5%	1,1	2602	20,4%	11,4%	42,3%*	23,7%*
Gender			2602				
% female	52,3%	1,5		38,7%*	55,5%	66,3%*	55,1%
% male	47,7%	1,5		61,3%*	44,5%	33,7%*	45,9%
Education level			2574				
%no formal schooling	21,5%	1,3		19,0%	25,0%	38,6%*	25,9%*
%primary school completed	21,1%	1,2		18,0%	17,2%	26,0%*	18,7%
%secondary school completed	23,6%	1,4		27,0%	29,7%	20,0%	21,2%
%high school completed	20,8%	1,2		22,0%	16,4%	12,8%*	22,9%
%college/university or post graduate degree completed	12,1%	1,1		26,0%	11,7%	2,6%*	10,5%
Mother tongue			2418				
% english	5,2%	0,9		3,5%*		0,8%*	4,0%
% afrikaans	14,8%	1,1		11,9%*	16,3%	7,7%*	12,4%
% black languages	79,5%	1,4		84,2%*	78,5%	91,0%*	83,4%
% other	0,5%	0,1		0,3%	0,4%	0,5%	3,2%
Working status							
% working population	43,2%	2,2	2403	40,0%	28,5%*	21,9%*	33.8%*
% not working for pay	56,8%	2,2		60,0%	71,5%*	78,1%*	66.2%*
Location							
% urban				47,1%*	53,7%	45,0%*	58,1%
% rural				52,9%*	46,3%	55,0%*	41,9%
Equivalized per capita household expenditure							
quintile 1				28,0%	25,4%	32,6%	30,7%
quintile 2				23,3%	23,8%	22,8%	20,0%
quintile 3				22,1%	23,5%	15,9%	16,9%
quintile 4				15,5%	10,9%	16,7%	17,8%
quintile 5				0,1%*	16,3%	12,0%	14,5%

(1) This table can be read in the following manner: 38,7% of adults suffering from obsesity are female, 61,3% are male
* means that the difference between male and female is significant

Appendix 2: Percentage of households with at least one member covered, by subgroups



Appendix 3: Percentage of households with at least one member covered, by quintile groups of per capita equivalent expenditures



Appendix 4: Characteristics of covered individuals (univariate analysis)

	% With private insurance	p*
All	16,4	
Female	14,7	0,04*
Male	18,2	
Senior (> 50)	13,1	0,1
< 50	17,1	
Highest education level		
no formal schooling or less than primary school	6,6	0,01*
primary school completed	7,0	
secondary school completed	12,1	
high school completed	23,3	
college/ university or post graduate degree	47,2	
Working	25,3	0,01*
Non	9,1	
Living in urban areas	20,5	0,01*
Living in rural areas	10,3	
Mother tongue: English	44,5	0,01*
Mother tongue: other	14,4	
Poor subjective health	9,3	0,07
Good subjective health	16,7	0,01*
bmi <= 18	6,9	0,01*
bmi > 18	18,6	

* corrected pearson statistics; ** significant at a 5% level

This table can be read in the following manner: 14,7% of female are covered by a private health insurance *versus* 18,2% of male. This difference is significant.

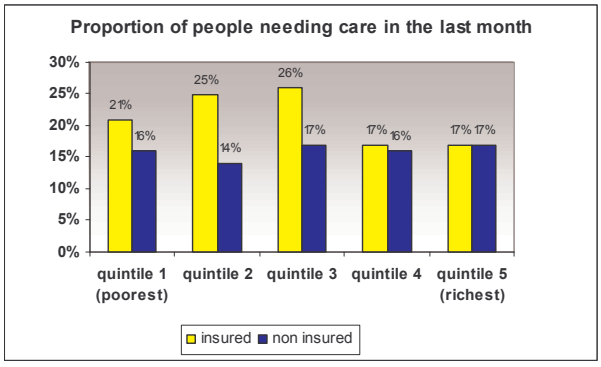
Appendix 5: Characteristics of covered individuals (multivariate analysis)

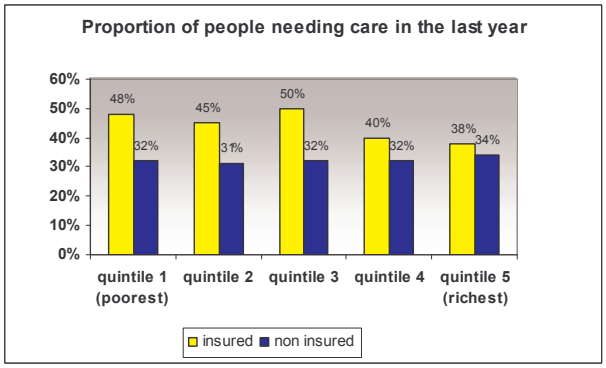
	Simple logit	
	Coef.	P>z
Female	-0,16	0,22
Age > 50	0,45	0,01**
no formal schooling	*ref*	*ref*
primary school completed	0,22	0,41
secondary school completed	1,29	0,01**
high_school completed	1,52	0,01**
university completed	2,65	0,01**
working	1,04	0,01**
english mother tongue	0,49	0,01**
urban	0,12	0,36
belonging to poor household	-0,25	0,05**
poor subjective health*	-0,10	0,73
constant	-3,24	0,01**

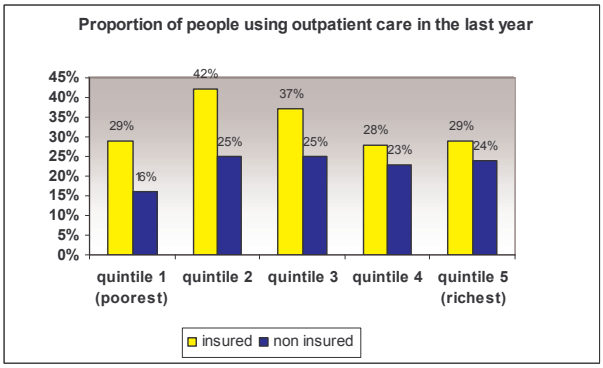
* other health status variables were tested (dissatisfaction, underweight and overweight) and proved to be non significant; ** significant at a 5% level.

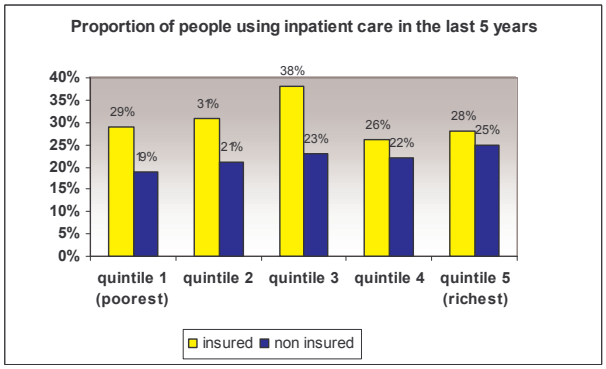
Meaning: everything else being held equal, older and higher educated people, are more likely to belong to any health insurance scheme. To the contrary people belonging to poor household are less likely to benefit from insurance coverage.

Appendix 6: Proportion of individuals needing or using care, by insurance status and income







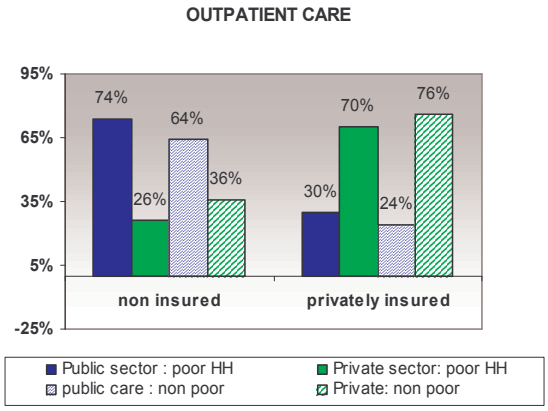


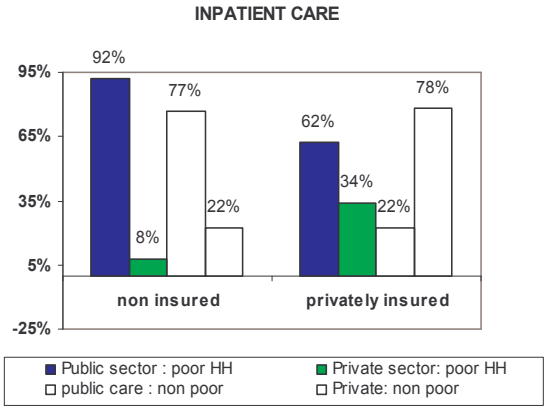
Appendix 7: Identification of factors associated with care needs and use (logit regressions)

	Care needs (last 30 days)		Care needs (last 12 months)		Oupatient care (last 12 months)		Inpatient care (last 5 years)	
	Coef.	P>z	Coef.	P>z	Coef.	P>z	Coef.	P>z
Insurance coverage	0,62	0,01	0,67	0,01	0,55	0,01	0,93	0,01
Female	0,31	0,07	0,41	0,01	0,25	0,15	0,24	0,11
Age > 50	0,48	0,02	0,44	0,01	0,74	0,01	-0,01	0,95
No formal schooling	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*
primary school completed	-0,40	0,14	-0,07	0,74	-0,25	0,34	0,22	0,34
econdary school completed	0,19	0,45	0,25	0,21	-0,04	0,88	0,21	0,37
high_school completed	0,09	0,74	0,01	0,95	-0,31	0,27	0,07	0,79
university completed	0,23	0,46	0,36	0,13	0,26	0,38	0,12	0,67
mother tongue: english	-0,13	0,68	-0,28	0,24	0,00	0,99	0,24	0,37
mother tongue: afrikaan	-0,28	0,20	-0,26	0,11	-0,04	0,84	0,49	0,01
mother tongue: other	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*
working	-0,22	0,22	0,06	0,66	-0,05	0,79	0,05	0,74
urban	-0,22	0,21	0,06	0,69	-0,01	0,96	-0,32	0,04
poorest 20%	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*
2nd poorest	-0,05	0,65	0,00	0,98	0,07	0,54	0,14	0,14
middle	0,09	0,20	0,04	0,53	0,18	0,07	0,06	0,38
2nd richest	-0,01	0,86	0,02	0,75	0,13	0,08	0,04	0,46
richest 20%	-0,14	0,02	-0,04	0,33	0,03	0,54	-0,01	0,75
18 <= bmi < =30	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*	*ref*
bmi <18	-0,79	0,03	-0,33	0,17	-0,57	0,08	0,29	0,24
bmi > 30	0,23	0,18	0,38	0,01	0,47	0,01	0,50	0,01
Subjective health: bad	1,15	0,00	0,85	0,01	0,68	0,05	1,17	0,01
Smoker	0,30	0,12	0,31	0,03	0,18	0,36	0,10	0,53
House with hard floor	-0,33	0,21	-0,23	0,29	0,36	0,24	0,04	0,87
Drinking unsafe water	-0,33	0,37	-0,04	0,88	0,07	0,86	-0,40	0,26
_cons	-1,68	0,01	-1,24	0,01	-2,16	0,01	-2,08	0,01

(colored cells correspond to significant associations at a 5% level)

Appendix 8: Comparison of the sectors used by individuals, with and without insurance coverage, belonging to poor and non poor households, for outpatient and inpatient care

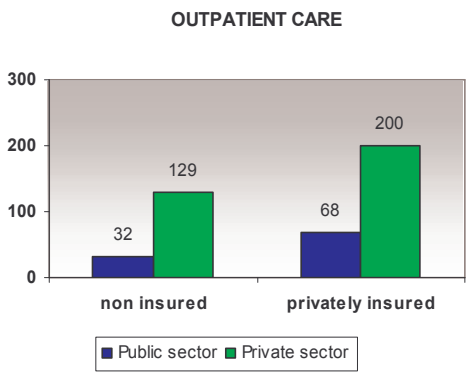


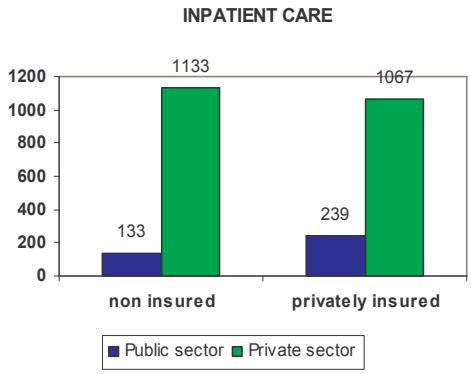


Appendix 9: Household health expenditures

	Obs	**Est**	Std error	**By equivalized expenditure quintile** 1st	2nd	3rd	4th	5th
Average monthly OOP (per household)	2506	**199**	30	28	61	81	286	559
% **OOP** (as a **share of expenditures**)	2305	**9,6%**	1,1	9,5%	9,8%	8,4%	12,1%	8,0%
% **OOP** (as a share of **capacity to pay**)	2220	**21,7%**	3,8	48,3%	25,3%	16,6%	18,7%	9,5%
%of **households with positive OOP**	2506	**41,6%**	2,1	14,9%	33,7%	43,6%	49,0%	60,0%
% of households with oop representing:								
0 - 10% of **capacity to pay**	1558	**70,5%**	1,9	79,7%	69,3%	65,2%	66,9%	74,5%
10 - 20% of **capacity to pay**	208	**10,2%**	0,9	2,4%	6,7%	11,0%	14,6%	13,2%
20 - 40% of **capacity to pay**	212	**8,8%**	0,9	5,0%	9,4%	10,9%	9,6%	7,8%
>40% of **capacity to pay**	243	**10,5%**	1,1	12,8%	14,6%	12,9%	8,9%	4,5%
Average equivalized per capita monthly expenditure	2515	**1410**	143	98	293	544	1148	4982

Appendix 10: Average OOP (if OOP>0) according to insurance status and place of care



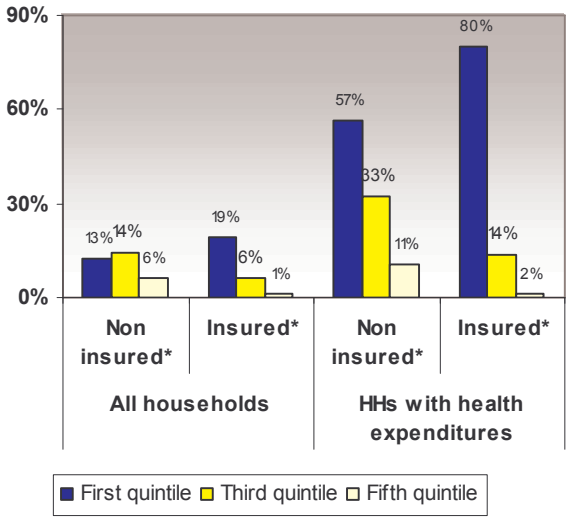


Appendix 11: Sample selection model (outpatient and inpatient health care expenditures)

	Sample-selection model			
	OUTPATIENT equations		INPATIENT equations	
	Participation (probit) *Coef*	Continuous (OLS) *Coef*	Participation (probit) *Coef*	Continuous (OLS) *Coef*
Insurance coverage	4,40 **	0,43	1,94 **	0,70
Female	1,45	0,11	0,08	0,08
Age > 50	4,75 **	0,45	0,17	0,06
No formal schooling	*ref*	*ref*	*ref*	*ref*
primary school completed	-1,32	-0,11	0,07	0,00
secondary school completed	-1,10	-0,09	0,23	-0,08
high_school completed	-1,87	-0,24	-0,08	-0,19
university completed	2,70	0,25	0,55	-0,15
mother tongue: english	0,59	-0,05	1,49	0,26
mother tongue: afrikaan	-0,76	-0,07	0,19	0,17
mother tongue: other	*ref*	*ref*	*ref*	*ref*
working	-0,40	-0,09	0,56	0,01
urban	0,11	-0,02	-0,05	-0,14
poorest 20%	ref	*ref*	*ref*	*ref*
2nd poorest	-0,54	-0,02	0,84	0,03
middle	1,91	0,23	0,85	0,04
2nd richest	2,31	0,25	0,93	0,03
richest 20%	-0,40	0,03	1,00	0,06
18 <= bmi < =30	*ref*	*ref*	*ref*	*ref*
bmi <18	-2,63	-0,28	0,85	0,14
bmi > 30	3,76 **	0,35	0,62 **	0,35
Subjective health: bad	2,92	0,31	1,58 **	0,74
Smoker	1,34	0,13	0,32	0,17
House with hard floor	2,92	0,26	1,01	0,16
Drinking unsafe water	0,06	-0,01	0,97	0,00
rho	0,62	0,01	0,66	0,01
_cons	-22,12 **	-1,43	-3,23 **	-1,54

** significant at a 10% level

Appendix 12: Catastrophic health expenditures by expenditure quintile and insurance status



Appendix 13: Distribution of impoverishment according to household and individual (household head) characteristics

	% impoverished	p*
All	7,1%	
Female	7,2%	0,80
Male	6,8%	
Senior (>50)	5,5%	0,34
<50	7,5%	
Highest education level reached:		
no formal schooling or less than primary school	8,0%	0,65
primary school completed	7,0%	
secondary school completed	6,8%	
high school completed	8,0%	
college/ university or post graduate degree completed	7,6%	
Working	6,0%	0,27
Non working	8,0%	
Living in urban areas	5,5%	0,01
Living in rural areas	10,0%	
Mother tongue: english	5,7%	0,69
Mother tongue: other	7,0%	
poor subjective health	7,1%	0,30
good subjective health	3,7%	
Belonging to a large household	11,6%	0,03*
Belonging to a small household	6,3%	
privately insured	6,1%	0,68
not insured	7,0%	

*corrected pearson statistics, ** significant at a 5% level

Reading note: 11,6% of large households were impoversished vs 6,3% of small households

ESS Papers already published

22.	Waelkens, M-P. ; Soors, W.; Criel, B.	The role of social health protection in reducing poverty: the case of Africa
21.	K. P. Kannan	Social Security, Poverty Reduction and Development [1] (2004)
20.	Clive Bailey	Extending Social Security Coverage in Africa [6] (2004). *Version française.* Extension de la couverture de la sécurité sociale en Afrique[1]
19.	Xenia Scheil-Adlung	Sharpening the Focus on the Poor: Policy Options for Advancing Social Health Protection in Indonesia[1] (2004)
18.	Krishnamurthy, V.; Nair, R.P.	The Welfare Fund for Construction Workers in Tamil Nadu[1] (2003).
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13.	van Ginneken, W.	Extending social security: Policies for developing countries[1] (2003). *Version française:* Etendre la sécurité sociale: politiques pour les pays en développement[1]. *Versión en español:* Extensión de la seguridad social: políticas para los países en desarrollo[1].
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10.	Jütting, J.	Public-private partnerships in the health sector: Experiences from developing countries[1] (2002).
9.	Fall, C.	Extending health insurance in Senegal: Options for statutory schemes and mutual organisations[1] (2002). *Version française*: Etendre l'assurance santé au Sénégal: possibilités à travers les régimes statutaires et les organisations mutualistes[1].
8.	Durán-Valverde, F.	Anti-poverty programmes in Costa Rica: The Non-Contributory Pension Scheme[1] (2002). *Versión en español*: Los programas de asistencia social en Costa Rica: El régimen no contributivo de pensiones[2].
7.	Steinwachs, L.	Extending health protection in Tanzania: Networking between health financing mechanisms[1] (2002).

6.	Schleberger, E.	Namibia's Universal Pension Scheme: Trends and challenges[1] (2002).
5.	Bertranou, F.; Grushka, C.O.	The non-contributory pension programme in Argentina: Assessing the impact on poverty reduction[1] (2002). *Versión en español*: Beneficios sociales y pobreza en Argentina: Estudio del programa de pensiones no contributivas[2].
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2.	Cruz-Saco, M-A.	Labour markets and social security coverage: The Latin American experience[1] (2002).
1.	Kwon, S.	Achieving health insurance for all: Lessons from the Republic of Korea[1] (2002).

[1] *http://www.ilo.org/public/french/protection/socsec/pol/publ/index.htm*
http://www.ilo.org/public/english/protection/socsec/pol/publ/index.htm

[2] ***Pensiones no contributivas y asistenciales: Argentina, Brasil, Chile, Costa Rica y*** *Uruguay*. F.M. Bertranou, C. Solorio, W. van Ginneken (eds.). Santiago, Oficina Internacional del Trabajo, 2002.

[3] ***Discussion Text 929*** de Instituto de Pesquisa Economica Aplicada; December 2002, sur: *http//:www.ipea.gov.br*