

What does the demand for healthcare look like in SA?

1 Introduction

The aim of this research note is to understand what drives the demand for healthcare in South Africa. It is important to understand the current drivers of healthcare demand and the demand for insurance, and what the effect could be on aggregate demand if health insurance is extended to the entire population under a planned national health insurance (NHI) scheme. This research note starts with a brief survey of the economic literature on the demand for healthcare and what the effects are of being insured. It is shown that utilisation increases when services are free (i.e. under an assumption of zero co-payments). This again drives costs under a model of universal coverage with a comprehensive benefit package. We also present an overview of existing data on the demand for healthcare in South Africa, in order to assess the existence of pent-up demand. We show that under a system of universal coverage, a comprehensive benefit package and

zero co-payments there will be an order of magnitude increase in the demand for healthcare services.

2 What do we know about the demand for healthcare

2.1 Key concepts – determinants of healthcare demand

The demand for healthcare differs in important respects from the demand for other products. Economists usually describe the demand for a certain product, e.g. the demand for apples as a function of the price of that product, the price of substitute products, income, taste, etc. The demand for health on the contrary can be described as a 'derived demand'. The health economics literature explains that individuals will attempt to maximise their total utility, of which healthcare is just one aspect. In other words, individuals do not consume healthcare primarily for

the utility gained from the consumption as such, but rather from the perceived benefits in terms of improved healthcare and improved quality of life¹. It is therefore important to understand what drives an individual's demand for healthcare, if it is not determined by the standard determinants of demand. There is a large literature on the factors that determine the decision to obtain healthcare or not, and some of the factors generally listed include:

- 1) Price (official, unofficial, travel cost, lost work);
- 2) Quality;
- 3) Income;
- 4) Social, household, cultural characteristics;
- 5) Knowledge of healthcare available;
- 6) Education (general and health)².

The question that arises from a review of the literature on the demand for healthcare, is what demand side barriers need to be addressed in order to provide universal access, as this is one of the

1. *The development of this theory is associated primarily with the work of Grossmann (see Grossman 1972 & 1999). For recent applications of the Grossman model to the demand for healthcare in South Africa see Swanepoel and Stuart (2006) as well as Havemann and van der Berg (2003).*
2. *Ensor, T. & Cooper, S. (2004). 'Overcoming barriers to health service access: influencing the demand side. Health Policy and Planning 19(2): 69-79. Oxford University Press*

This research note forms part of a series of special National Health Insurance (NHI) notes which can be accessed on the Econex website www.econex.co.za. In the interest of constructively contributing to the NHI debate, the Hospital Association of South Africa (HASA) has commissioned a comprehensive costing and human resource research project with Econex. HASA has given Econex and its partners at Stellenbosch University academic independence with respect to this project. The results of the project will be placed in the public domain in order to foster constructive debate.

goals of the proposed NHI (see Econex NHI Research Note 1). Demand side barriers might include lack of knowledge of providers, distance from providers, cultural preferences, quality issues, etc. Providing insurance to all – as suggested under the NHI proposal – is one way of addressing part of the demand side problem (specifically the cost element).

2.2 The role of insurance

2.2.1 Determinants of healthcare insurance

Given the demand side barriers described above, one can ask what will happen if people are fully insured against healthcare expenditures. Health insurance turns unpredictable health expenditures into predictable insurance payments. However, not everyone can afford to purchase health insurance and various factors that play a role in the decision to purchase health insurance are discussed in the literature. These are e.g. access to healthcare services, quality of services in healthcare centres, healthcare expenditures, households' or individuals' income level, education level, age, family

size, and number of adults in households³. Other factors that could be important would be geographic, such as whether the household is urban or rural, housing conditions, transport, health status, etc. These factors usually mean that not all people will have health insurance (it will be shown below that in South Africa currently only 16% of the population are covered by medical schemes). However, under a NHI, it is envisaged that there will be universal coverage, i.e. all South Africans will have medical insurance. The question that needs to be addressed is how the demand for healthcare will change under a NHI, if the whole population is insured.

2.2.2 Demand for healthcare under universal coverage

One way to answer the question of how the demand for healthcare differs between insured and uninsured people, is by looking at the literature on this aspect. When one considers the determinants of the demand for health insurance (as described in the previous section), then it is clear that people who expect to demand more services have a clear incentive to obtain medical insurance.

One important example of a 'natural experiment' to determine the demand for healthcare when insured, is the 'Rand Health Insurance Experiment' (HIE) which was conducted in the USA between 1971 and 1982⁴. Although this experiment was conducted a few decades ago, the HIE remains an important long-term, experimental study on cost sharing and the results are still referred to in the current literature. This study made a significant contribution to what we know about the demand for healthcare when insured or not. In the Rand experiment families were provided with different levels of insurance in terms of co-insurance rates (percentage paid out-of-pocket), and an upper limit on annual out-of-pocket expenses. Co-insurance rates were either 0, 25%, 50% or 95% and the upper limit on annual out-of-pocket expenses were 5%, 10% or 15% of family income, up to a maximum of \$1000. The study found a positive relationship between the level of co-insurance (free) and doctor visits and hospital admissions and overall expenses. In a later article by Vera-Hernandez (2003)⁵, the Rand dataset was analysed using a panel dataset. The analysis by Vera-Hernandez confirms the earlier findings, i.e. that 'those who enjoy

3. Vera-Hernandez, M. (2003). 'Structural estimation of a principal-agent model: moral hazards in medical insurance'. *RAND Journal of Economics*, vol. 34(4), pp. 670-693.
4. To indicate the size of this experiment, consider the fact that the cost was more than \$80 million at the time (1974). Participants in the study did not pay any insurance premium. RAND recruited 2 750 families encompassing more than 7 700 individuals. Families participated in the experiment for 3-5 years.
5. Vera-Hernandez, M. (2003). 'Structural estimation of a principal-agent model: moral hazards in medical insurance'. *RAND Journal of Economics*, vol. 34(4), pp. 670-693.

About ECONEX

ECONEX is an economics consultancy that offers in-depth economic analysis covering competition economics, international trade, strategic analysis and regulatory work. The company was co-founded by Dr. Nicola Theron and Prof. Rachel Jafta in 2005. Both these economists have a wealth of consulting experience in the fields of competition- and trade economics. They also teach courses in competition economics and international trade at the University of Stellenbosch. Our newest director, Cobus Venter, who joined the company during 2008, is also a consultant economist at the Bureau for Economic Research (BER) in Stellenbosch. For more information on our services, as well as the economists and academic associates working at and with Econex, visit our website at www.econex.co.za.

Table 1: Distribution of Episodes Treated

Copayment	Number of observations (Person-Years)	Admissions	Percentage of Sample Treated
0%	2 955	16.98%	155.2
25%	1 724	13.22%	148.1
50%	550	11.27%	117.1
≥95%	1 551	10.38%	112.0

Table 2: Sample means for annual use of medical services per capita

Plan	Face-to-face visits	Admissions	Inpatient dollars (1984 dollars)	Total expenses (1984 dollars)
0%	4.55	0.128	409	749
25%	3.33	0.105	373	634
50%	3.03	0.092	450	674
≥95%	2.73	0.990	315	518

a zero co-payment rate seek care more often than those who face cost-sharing contracts' (2003:680). In another study Newhouse et al (1993) also looked at other characteristics of participants in the Rand experiment and tried to find differences between users of the free care and other plans, looking at 20 different variables. The only characteristic that was significant was gender.

The results are conclusive on the relationship between healthcare demand and insurance and are shown in the two tables above.

The data in table 1 show how frequency of episodes treated varies with co-payment rates. These results confirm the earlier results reported by Manning et al which are shown in Table 2.

Table 2 reports the findings of Manning et al (based on the same RAND experiment). The data also indicate that there is a higher frequency of face-to-face visits when there is no co-payment (4.55 visits

per capita p.a.) than when there is a 95% co-payment (2.73 visits per capita p.a.). Total expenses are also more, although this is a reflection of the higher frequency. These results from the literature are hardly surprising. However they have important implications for a NHI that could potentially provide cover with zero co-payments. The two tables illustrated that the 0% co-payment options resulted in significantly more face-to-face visits, admissions and total expenses as these people generally seek more care than those facing higher co-payments.

3 Medical scheme coverage in South Africa

This section illustrates that currently the percentage of people in South Africa covered by medical insurance is limited. Between 2000 and 2008 there has been an increase in medical aid membership, as measured by members and beneficiaries. The 2008/ 2009 CMS

Annual Report indicates that there are currently 3.4 million principal members and 4.5 million dependants, resulting in a total number of beneficiaries of just under 7.9 million people. The absolute numbers are lower in the General Household Survey (GHS), i.e. 6.8 million people covered by medical schemes in 2007. The 2007 Labour Force Survey (LFS) reported that there were 8.3 million people who had some form of employer-provided medical benefits. Where the GHS therefore yields a percentage coverage of 14%, both the CMS and LFS report a percentage of around 16% of the population (a total of 49 320 500 people according to Statistics SA Mid-year populations estimates, 2009).

Data from the GHS (2002-2007) indicate that the racial distribution of medical scheme coverage is very skew. While only ±14% of the total population belongs to a medical scheme, the comparable figure is 66.5% for the White population. Apart from race, the usual determinants of medical insurance are also evident

from the surveys mentioned above. If one combines the information from the GHS, LFS and IES then it indicates that households that belong to medical schemes are far more likely to be based in urban areas and to have higher incomes⁶ (only 10% of covered households reside in rural areas (IES 2005)). Only 5% of the insured have a household income of less than R 2 500 per month, while 68% of the uninsured have an income of less than R 2 500 per month (IES 2005).

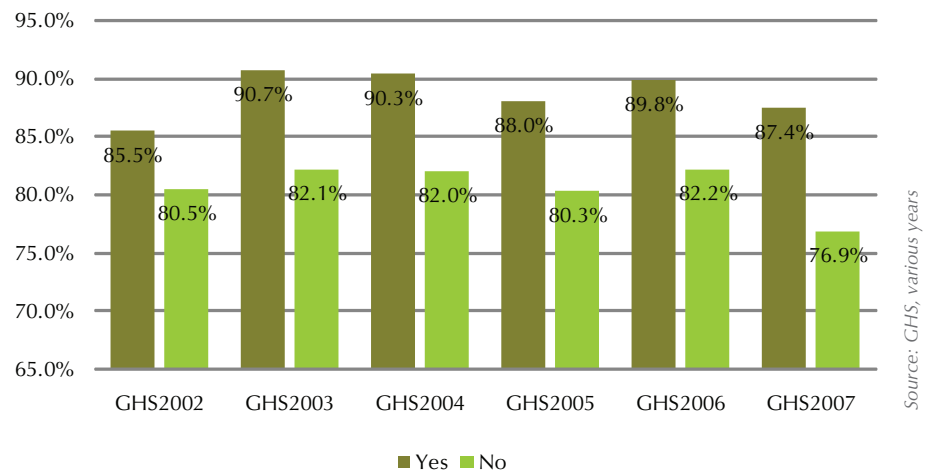
The data therefore indicate that only around 8 million (upper bound) South Africans are covered by medical insurance. The rest of the population has to either pay for care or access the subsidised care provided by the public health sector. The next section will focus in more detail on what we know from the GHS and IES data on the current demand for healthcare in SA.

4 Demand for healthcare under universal coverage

4.1 Current demand patterns

The relevant question that needs to be addressed is what current demand

Figure 1: Percentage of people that consulted a health worker by medical aid coverage (yes or no)



patterns for medical care looks like in SA and how can one expect these to change under a NHI scheme offering universal coverage, no co-insurance for the majority of the population and zero co-payments for all.

One way to answer this question is to look at publicly available data on patterns of demand, such as the GHS surveys. Another way is to look at the effects of a policy changes such as the provision of free healthcare to pregnant women and children under six years old that was implemented in 1994.

4.1.1 Evidence from the data

Figure 1 shows the percentage of people who indicated that they consulted a health worker in the past month, grouped by medical aid cover or not ('yes'/'no').

It seems that there is a difference between the percentage of people that visited a health worker, on the basis of whether they had medical aid cover or not. It is therefore more likely that people will visit a healthcare worker if they are ill and if they have medical insurance. However, in most of the years (the exception is

6. Cenfri/ FinMark Trust (2009) 'Demand-side analysis of medical scheme coverage and access in South Africa. July 2009. Prepared for the Centre for Financial regulation and Inclusion (Cenfri) and FinMark Trust by Eighty20.
7. It is important to also keep in mind that the GHS figures are based on self-reporting of illness or injury and that various income groups might attach different meaning to the word 'illness'. As reported by Burger and Van der Berg (2008): 'Some argue that poor and affluent individuals may not attach the same connotation to the word "illness" and that the poor may only report serious ailments and afflictions as illnesses, while the more affluent may describe a flu or a worrying symptom as an illness. Such systematic differences in the understanding of the term across income groups will have a significant impact on the interpretation of this indicator'.
Source: Burger, R and Van der Berg, S. 2008. How well is the South African public health care system serving its people? 2008 Transformation Audit: Risk and Opportunity. Cape Town: Institute of Justice and Reconciliation.

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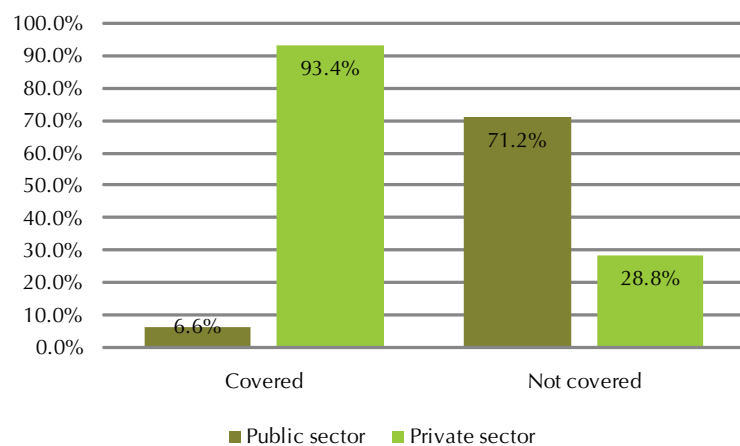
2007) almost 80% of people who were ill did visit a health worker⁷. The next aspect one can analyse is the reasons given for not consulting a health worker by those who chose not to do so. Data from the 2007 GHS show that the main reason for not visiting a healthcare worker was that it was 'not necessary', followed by 'too expensive' and then 'too far'.

The fact that 80% of people stated that they did consult a healthcare worker, does not necessarily imply that there are no issues with access or costs. The interesting observation from the data is that although only 16% of the total population has medical scheme coverage, 28.8% used a private facility (2007 data). This is illustrated in Figure 2 which shows the relative percentages of those who were sick and who consulted a health worker by place of consultation (including public and private hospitals, public and private clinics, private doctors etc). The graph shows that of the people covered by medical schemes, 93.4% used a private facility. But more importantly, of those who do not have medical scheme coverage, 28.8% used a private facility.

The IES (2005) data show that 80% of uninsured people have out-of-pocket (OOP) expenditure on healthcare while only 20% do not have any OOP. Eighty percent of people are therefore paying something for healthcare. The question that needs to be asked is how will the demand for healthcare change if the whole population is covered by a NHI and there are no out of pocket payments. Figure 3 confirms that although the 5th (richest) quintile spend more on private healthcare, the 1st to the 4th quintiles also buy private medical services.

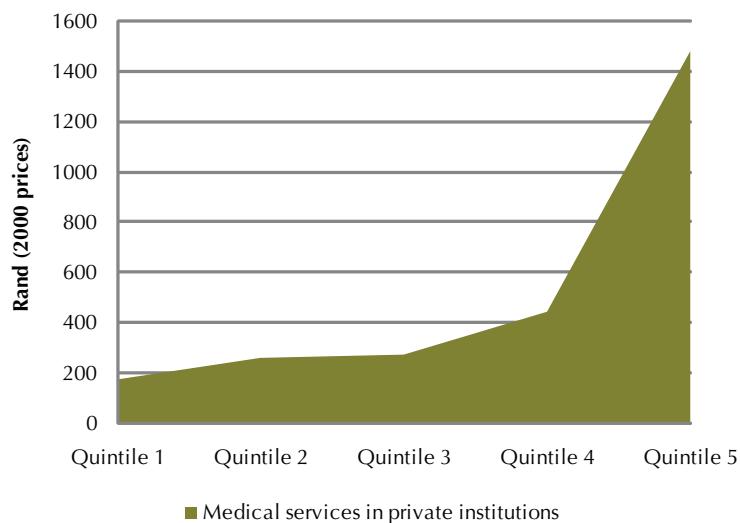
This seems to be a reflection of people's general dissatisfaction with the public sector. A study by Palmer (1999)⁸,

Figure 2: Percentage of people who were sick or injured who consulted a health worker by place of consultation, 2007



Source: GHS 2007

Figure 3: Private medical services bought (by income quintile)



Source: IES 2005, Annual total expenditure on health-related goods and services (2000 prices)

reported the following results from ten Focus Group Discussions (FGDs) conducted between November 1998 and May 1999: 'Dissatisfaction with all public sector funded services, be they publicly run clinics or district surgeons, is a clear theme emerging from all the FGDs'. The reasons for this general dissatisfaction were bad attitudes of nurses, poor drug supplies, unhygienic conditions, etc. Many of the participants indicated that

they would rather remain sick than use a public clinic. The researchers concluded that use of the private sector by low income groups appears to be widespread based on quantitative and qualitative data.

This situation seems to have deteriorated further as noted in more recent studies. 'User satisfaction is lower for the public health facilities than they are for private

8. Palmer N. 1999. Patient choice of primary health care provider. South African Health Review. Durban: Health Systems Trust.

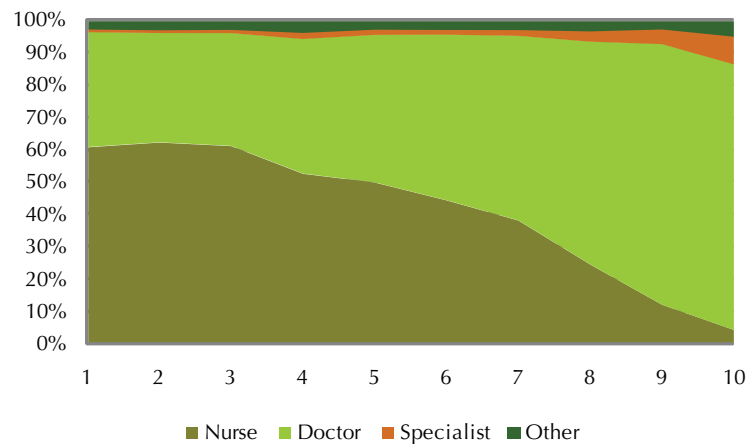
ones, and this gap appears to have widened in recent years. Gilson and McIntyre (2007)⁹ report that according to the 1998 CASE survey most respondents said that key aspects of the quality of care had remained the same or worsened since 1994¹⁰. Burger (2009)¹¹ also report that reasons cited are long waiting lines, rude staff and lack of drugs.

The general picture that emerges is one which shows that people choose to buy some healthcare services from the private sector, even if they are not insured, and that many people currently have out of pocket expenses. The question is what will happen to the utilisation patterns of these people if the majority receive insurance coverage without any payment, combined with the zero out of pocket expenses. Clearly as indicated in the literature – and specifically the RAND HIE discussed above – demand will increase in the form of more visits and higher hospitalisation figures. Given the quadruple burden of disease that South Africa has (see Econex NHI Note 2), one would expect demand to increase when there is universal coverage.

4.1.2 Evidence of pent-up demand

Some more direct evidence on pent-up demand can be obtained from a policy change in healthcare in South Africa and the response to this change. In 1994 a new policy was implemented in South Africa where free healthcare was made available to pregnant women and children under six. This can therefore be considered a ‘natural experiment’ that

Figure 4: Percentage of people who were sick or injured and consulted a health worker by place of consultation and medical scheme coverage, 2007



Source: GHS, 2007

can give some indication of changes in demand when services are free (the same as fully insured or zero co-payments). A study by McCoy¹² collected data from the records of hospitals and clinics in twelve sites in four provinces for the period January 1993 to July 1995 in order to analyse utilisation before and after implementation of this policy. This study found that in general utilisation has increased, e.g. in the Free State visits by pregnant women and children under six rose by 51% and 198% respectively. In the Western Cape it was found that district surgeon utilisation by pregnant women and children under six increased by 659% and 300% respectively. There was also an increase in the number of antenatal visits, with women also starting to attend antenatal care earlier in pregnancy than before the implementation of the policy.

Interestingly this study also reported an increased tendency for patients to use

hospitals rather than clinics. One of the reasons cited was inadequate level of service at clinics due to lack of staff and equipment and that this was prompting patients to bypass clinics and rather visit hospitals. Other reasons cited as barriers to the use of primary healthcare facilities were ‘long queues, the attitude of staff and lack of medicine’¹³.

According to the study’s user interviews, 62% of respondents in the National Household Survey said that the facility they attended was unable to cope with the increased workload due to the introduction of the policy. The majority of the clinical personnel respondents in the study’s health provider survey thought that the policy had increased their workload and had a negative impact on the quality of their work.

Figure 4 illustrates the preference amongst the wealthier deciles to consult a doctor,

9. Gilson, L. and McIntyre, D. 2007. Post-Apartheid Challenges: Household Access and Use of Health Care in South Africa. *International Journal of Health Services*, 37 (4): 673-391.

10. Burger, R and Van der Berg, S. 2008. *How well is the South African public health care system serving its people? 2008 Transformation Audit: Risk and Opportunity*. Cape Town: Institute of Justice and Reconciliation.

11. Burger, R. *How pro-poor is the South African Health System? Health Policy and Planning*, forthcoming.

12. McCoy, D. 1996. *Free Health Care Policies for Pregnant Women and Children Under Six in South Africa: An Impact Assessment*. Health Systems Trust: Durban.

13. *Ibid.*

rather than a nurse (GHS data). Based on this data, one can probably deduce that if price were not an issue at all, the lower income deciles would show the same preference as the higher income groups. There is some evidence for this from the study by Palmer (1999) which indicated that even lower income households would rather pay a private doctor than visit a public clinic.

This study provides some anecdotal evidence from interviews. The decision making process is well summarised in the following comment from one person that was interviewed (Palmer, 1999:98): "If we have money, then we can go to the doctor. If I feel seriously sick on a Thursday (the day of week when the private GP visits town), then I'd go to the doctor if I have money. Otherwise during the week I'd have to go to the clinic". There is therefore clear evidence on pent-up demand both from the GHS and IES data and from the 1994 policy

change which can be used as a 'natural experiment' to understand the increase in utilisation.

5 Conclusions

This research note has shown that the demand for healthcare can be viewed as a derived demand in which many factors play a role. The demand for insurance in turn is determined by factors such as income, household size, level of education, age, etc. The literature shows that the demand for healthcare varies with the level of co-payment and that there is higher utilisation of healthcare when there is comprehensive cover. When examining the South African data there are some clear patterns that show that the uninsured and the lower income groups do pay out of pocket for healthcare and that they also purchase medical services from the private sector.

While 16% of the total population have medical aid coverage, the percentage using private services is almost twice as high (28.8% from Figure 2). If people can afford to, they prefer to see a doctor rather than a nurse, or visit a clinic. This observation is also confirmed by the increase in utilisation which followed the implementation of free healthcare for pregnant women and children under six in 1994.

Given what we know about the quadruple burden of disease in South Africa, and the evidence on pent-up demand, it is clear that providing full insurance coverage to all, with zero out of pocket payments will release a large wave of demand. In later research notes we will provide indications of the potential cost of the NHI. Clearly, any estimation of costs will have to incorporate the significant increases in utilisation that can be expected based on the evidence presented in this research note.