

Estimating the Financial Cost of the NHI Plan

In the previous Econex NHI Notes we dealt with certain of the main issues raised by the ANC NHI proposal. This final note is a culmination of the information gained from the research conducted on aspects such as supply constraints, changes in demand and utilisation, issues of rationing, burden of disease, etc. In this note we calculate the overall cost of implementing a plan with the essential features of the current NHI proposal. It is shown that the resources required for such a plan exceed the available human and physical capacity of our current health system and will put enormous strain on the fiscus.

1 Introduction

In order to be able to estimate the overall cost of a NHI plan for South Africa, it is important to restate the main features of the proposed plan (as set out in NHI Note 1). The essential features are:

- **Universal** coverage of the population, irrespective of contribution.
- **Comprehensive** cover, i.e. almost all medical conditions would be covered.
- Service to be sought from the **provider of choice**.
- No co-payment would be required, i.e. service is **free at the point of delivery**.¹

It will be argued in this research note that this combination of features would lead to a financial cost which is far beyond the country's fiscal resources. In order to illustrate this point, this note starts with a brief overview of alternative ways of estimating possible costs. We then present our own cost estimates based on our demand model developed earlier in this study (and used in NHI Note 3). Finally, we put the various cost scenarios in the correct fiscal context in order to illustrate the enormous burden that such a plan will put on the fiscus.

2 Alternative Ways of Estimating Possible Costs of a NHI plan

There are different ways of arriving at estimates of the potential costs of the NHI, given the assumptions made on the basis of the principles enunciated for the proposed NHI. Three ways of estimating costs can be considered. These are: (1) applying the cost per person, often aggregated over services or components, to the full population (a population based estimate); (2) applying costs derived in an actuarial model to the population to whom insurance is to be extended (actuarial

1. *National Health Insurance: A unified, equitable and integrated national health system that benefits all South Africans. ANC Today. Volume 9, Number 29, 24 – 30 July 2009.*

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.

costing method); and (3) estimating utilisation/demand for different population sub-groups and for different cost components and then aggregating (a demand-based estimate). These will be discussed in more detail below.

2.1 Population-Based Estimates

While the population-based method is fairly simple, it is the least useful of the three methods as it does not consider specific costs, burden of disease or age profiles. This method starts with the determination of an average cost per beneficiary from some other source (e.g. present medical scheme costs per beneficiary or the cost in some other system), and then applies this to the full population to arrive at an estimate of total cost. It is therefore essentially based on medical aid costs, although one can focus on the low income schemes in order to get a better estimate of potential public sector costs.

An alternative approach might be to start with the public sector health budget and calculate a cost per person. This approach also has certain pitfalls: firstly, because a percentage of the uninsured also uses private sector facilities (NHI Note 3); secondly, because aggregate costs do not give an indication of public sector rationing methods such as waiting lines; and thirdly, one cannot assume that the quality of service is the same in the public and private sectors (illustrated by the pent-up demand shown in NHI Note 3).

2.1.1 The Cost of Extending GEMS to the Whole Population

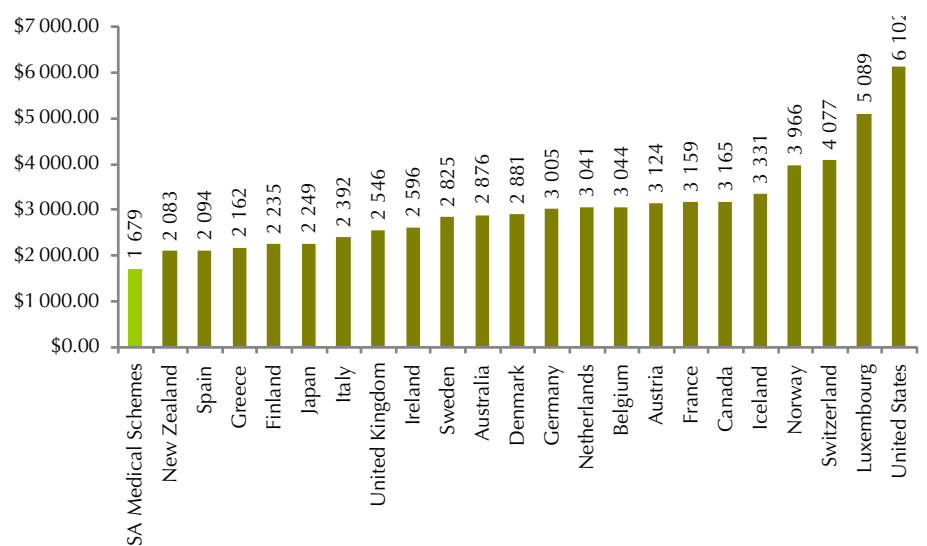
If one assumes that the 'comprehensive care' that is to be provided is less costly than the most generous benefits received in some schemes, yet much more generous than received by most members of GEMS (Government Employees Medical Scheme) or the even more basic schemes, the average cost per medical scheme member may be a good starting point. This was R700 per person per month in 2008. Applying this to the full population, and then adjusting for price increases gives a 2009 cost of such a population-based estimate of R443

billion. This can be considered an upper estimate of the potential cost of the NHI.

2.1.2 Comparable Costs in Developed Countries

An alternative would be to consider the cost per person in insurance-based systems in developed countries. Most such countries offer quite generous benefits, given their greater fiscal resources, but taking three relatively low-cost countries may be a useful benchmark, also for assessing how expensive South African medical schemes² beneficiary and those for the health system of a number of

Figure 1: Cost per South African Medical Schemes Beneficiary vs Developed Country Health Systems (in PPP adjusted US\$)



Source: Adapted from Van den Heever, 2009b

2. South African values have been converted to PPP dollar using an "exchange rate" of \$1= R5,00; PPP is an "exchange rate" that adjusts in part for the differences in purchasing value between countries. Thus it partly compensates for the fact that though South African health providers may be cheaper than their international counterparts, their actual purchasing power is somewhat higher because they face lower price levels for goods and service within the country.

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.

developed countries, most of whom (with the notable exception of the USA) have universal coverage within an SHI³, NHI or NHS⁴. This comparison makes clear that South African medical schemes may be expensive in the context of South Africa's population, but that they provide benefits at a far lower cost than in any developed country. New Zealand, Greece and Spain, the least expensive countries, have health services that cost three-quarters more per person than the average South African medical scheme beneficiary. Only a small part of this difference could be accounted for by the different age structures of the developed country populations. Applying the average cost of these lowest three developed country systems (around \$2,100 per person per year in PPP US\$ values) to the full population gives a total estimated cost for South Africa of R513 billion. This is so exorbitant compared to South African fiscal resources (22% of GDP in 2009) that it can only serve as a benchmark of how high costs may become if the level of benefits is not contained to an appropriate level in a situation of potentially unconstrained demand.

2.1.3 Extending Low Cost Medical Scheme Options to the Whole Population

Yet another population-based estimate can be obtained by looking at typical low cost medical schemes, determining the costs per beneficiary, and applying these to the full population. In a recent report Eighty20⁵ concluded that the average contribution per beneficiary per month in various low or lower cost medical scheme options in 2007 was in the region of R300.⁶ Based on this amount of approximately

R300 per person per month in 2007, R202 billion may be required in 2009 for the NHI to fund this level of benefits, which is far from comprehensive.

This method is useful to establish benchmarks, but not very specific in considering the full factors at work in the health system, in health-seeking behaviour and in the cost of supplying services. Implicitly, it assumes that certain ratios would remain roughly as in the group whose cost structure is being extrapolated from, such as the number of health visits, admissions to hospitals, prescription of medication, unit costs of treatment, and behaviour of both patients and suppliers generally. Even though the low cost medical scheme options could provide some indication of the cost of coverage, this method still relies on medical scheme costs. This is clearly problematic and a more specific method thus needs to be considered, where some of these factors can be modelled explicitly.

2.2 Actuarial Costing Method

The actuarial method of dealing with cost estimates for medical services is based on determining prices for demographic groups (e.g. by age and gender), based on a reference population. This is certainly the preferred method, as prices incorporate both the prevalence of different conditions and the cost of treating each, by gender across the age distribution. If sophisticated data are readily available then this method is very useful. The private medical industry in South Africa capture very detailed data. Actuarial costing is therefore widely used in the medical scheme industry, e.g. for pricing Prescribed Minimum Benefits (PMBs). Costs are typically obtained by

extracting from the reference population (e.g. medical scheme members) the full set of diagnosis-treatment pairs and the costs thereof.⁷

Applying this method to the public population has certain drawbacks as the same level of detailed data is not available and moreover the profile and patterns of disease differ between the insured and the uninsured populations. The implicit assumption of applying medical scheme prices to the public or uninsured population is that the patterns of disease and health-seeking behaviour between the two populations do not differ too greatly. Data on demographics and burden of disease indicate that this assumption is not correct. Actuarial costing based on private sector medical aid rates therefore has a limited function in estimating the costs of providing cover for the uninsured population (it was pointed out in NHI Note 3 that 40 million of the population is uninsured).

2.3 Demand-Based Estimates

Of the three methods generally used, it seems that the most appropriate one to be used for estimating the overall costs would be a demand-based model. This method is more flexible than the population-based estimate, but has greater data requirements. Various means can be used to estimate or assume utilisation rates of certain health services, such as extrapolations or models of health demand from surveys. Then the different cost components can be modelled separately, using whatever information is available to disaggregate costs and applying certain assumptions as to utilisation of each component.

3. *Social Health Insurance.*

4. *National Health Service.*

5. *Eighty20, 2009. "Demand-side analysis of medical scheme coverage and access in South Africa," Report for the Centre for Financial Regulation and Inclusion (Cenfri) and FinMark Trust, July: 13*

6. *Some examples are Discovery Health (Keycare Core option) at R 254 per average beneficiary per month (pbpm), Bonitas Medical Aid (Boncap Option) at R 311 pbpm, GEMS (Sapphire) at R 259 pbpm, GEMS (Beryl) at R 352 pbpm and Momentum Health (Base Network) at R 349 pbpm.*

7. *See IMSA Policy Brief 1 (2009a) for more on the use of this method for determining the costs of a NHI.*

2.3.1 The Calikoglu & Bond Estimates

An example of such an approach is found in the estimates by Calikoglu & Bond (2008), in a presentation to the Cosatu Central Executive Committee.⁸ Calikoglu & Bond start by estimating utilisation rates, using sources that, from

the limited description provided, appear to be analogous to those used to estimate demand/utilisation in our demand analysis (see NHI Note 3), though it appears that they did not use a regression model but simply applied certain ratios to the uninsured population. Using different mixes of assumptions, Calikoglu & Bond then determine the cost of different

scenarios for the different components of total costs. The following table summarises some of their results.

Administrative savings in hospitals and for physicians are assumed to be quite large if private sector prices are used and the authors also provide for large savings in clinical care from bulk expenditure. The total savings provided for range between

Table 1: NHI Costs (before administrative savings) as estimated by Calikoglu & Bond (2008), all in 2006 R-billion

	All private	All Public, based on price ratio	All Public, based on survey	Current Public - Private Mix	Model Specific Rates
Hospitals	113	79	32	46	73
GPs	23	16	12	22	18
Specialists	62	13	43	62	62
Dentists	9	2	1	2	5
Public clinics	1	1	1	9	1
Medicine	55	37	23	35	42
Supplementary & Allied	26	18	11	16	19
Complementary medicine	2	2	1	2	2
Administration	9	6	4	6	6
Total	301	208	129	198	228
Presumed savings in administration and bulk expenditure	81	7	6	33	34
Total cost of NHI	220	198	123	165	194
Presumed substitution from present public health model	46	46	46	46	46
Additional public financing requirement for NHI	174	152	77	119	148
Additional public financing requirement for NHI (at 2009 prices⁹)	222	194	98	152	189

Source: Calikoglu & Bond, 2008

8. Calikoglu, Sule & Bond, Patrick. 2008. "Preliminary costing estimates for National Health Insurance," Document for discussion by Cosatu Central Executive Committee meeting, 8 August 2008. Available at: <http://www.amandlapublishers.co.za/component/rokdownloads/file/42-preliminary-costing-estimates-for-national-health-insurance>.

Although the version dated 8 August 2008 that was initially obtained was marked 'Confidential', it has since been made available on the internet and can thus be regarded as in the public domain. A statement that 'A final document (on costing) will be ready for circulation to the professional community and public by 20 August' of 2008 (Calikoglu & Bond 2009: 1) appears not to have led to the publication of another document, at least not one for public consumption.

9. Assuming CPI of 7.1 for 2008.

3% and 27% of costs. In addition, the assumption is made that only R10.9 billion would be required to continue those health functions that will not be funded from the NHI, i.e. that there would be substitution of R46 billion from the national and provincial public health budget to the NHI. That means that the additional public financing requirement would range between R77 and R174 billion, if the assumptions as spelt out here are used. What appears to be their preferred model would require R148 billion of additional funding (or R189 billion at 2009 prices).

Although one may question some of the assumptions of Calikoglu & Bond, the methodology is quite useful. They could perhaps also have explained better how their model hangs together and how some of the data were obtained.¹⁰ A later version of the paper by Bond and others,¹¹ essentially presents slightly different versions of the same underlying results. In that version, the presumed savings that they argue can be implemented – 49 percent reduction on private sector costs – are even more unlikely, like their assumption that a NHI would dramatically reduce avoidable mortality (e.g. from 151 to 0 per 100,000 from tuberculosis, 134 to 4 from other infectious diseases, and 85 to 1 for respiratory diseases).

2.3.2 McIntyre, Ataguba and Cleary Estimates

Another attempt to use a demand based method, is that of McIntyre, Ataguba and Cleary.¹² Only a very brief document is available, but it appears that unit costs and in some cases aggregate costs for certain services were calculated and applied and costs then phased in over a period. However, a careful examination of their estimates indicate that these can simply be regarded as a costing of public care if the whole population were to be covered by the public sector; there is no real indication that improving service levels or quality was really costed and there was only provision for 'reversing the under-resourcing over the past decade or so in the public sector. Nor do they provide for the 'comprehensive care' the NHI plan presupposes. Perhaps the best way to interpret this costing then is as a low estimate of what a better funded public health service would cost, using existing cost structures in the public sector. They conclude that, "The costs related to people on ART will increase from R7 billion in 2010 to R26 billion in 2020 and for all other NHI services from R70 billion in 2010 to R143 billion in 2020."¹³ The R77 billion in the base year should not be seen as a costing, as phasing in had not yet occurred; approximately R120 billion

in 2013 in 2007 Rand values seems to be the first full operation. Allowing for population growth and adjusting to 2009 Rand values, this may be equivalent to about R131 billion in 2009 terms, still the lowest of all the estimates, particularly as it appears to include the full public health sector costs with the NHI, i.e. it is equivalent to assuming full fiscal substitution. Although the title of their short piece refers to modelling the resource implications of the NHI, it could more properly be seen as an attempt to cost required public sector spending, if those presently covered by private provision were also to be covered by a redefined public sector.

3 Econex Cost Scenarios Based on a 'Bottom Up' Approach

Having considered the various methods and the work done to date, our work focussed on the demand-based model in order to get an estimate from the 'bottom up'. This term simply refers to the fact that instead of working from the higher medical aid costs downward, by adjusting for lower public sector prices, we start with the public or uninsured population. Such a method requires an estimate of various unit costs, and these will be

10. So, for instance, it is said 'the cost of medicines and supplementary and complementary services are interpolated from the ratio of these expenditures to total expenditures on physicians, hospitals, specialists and dentists' (Calikoglu & Bond 2008: 1), but it is not clear why that is the case and how present public sector spending on medicines is dealt with.

11. Bond et al (2010). *Costs/Benefits Estimates for National Health Insurance: A summary analysis submitted to the Congress of SA Trade Unions*. Mimeo. Document presented by Patrick Bond at Idasa Roundtable discussion on NHI, 19 January 2010.

12. McIntyre, Di; Ataguba, John; & Cleary, Sue. 2009. "Brief overview of preliminary modelling of NHI resource implications," SHIELD project, Health Economics Unit, University of Cape Town

13. McIntyre, Di; Ataguba, John; & Cleary, Sue. 2009. "Brief overview of preliminary modelling of NHI resource implications," SHIELD project, Health Economics Unit, University of Cape Town. (p.3)

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explained below. Given the difference in demographic profile and burden of disease between the insured and the uninsured population, one has to focus on utilisation patterns and costs which are specific to the uninsured population.

3.1 Cost Scenarios

Table 2 below compares our own estimates of the costs of healthcare under a full NHI to current spending. It

also contains five alternative scenarios that allow for some cost savings and rationing. The base case is based on simply applying our demand model (set out in NHI Note 3) and assuming unchanged unit costs, but also includes a conservative provision for an additional R8 billion in public health administration costs to administer the NHI. (R8 billion is indeed a very conservative estimate. Industry expert, Alex van den Heever, estimates that administration costs may

be anything between R13 billion and R27 billion.)¹⁴ The largest cost increase compared to the current situation occurs as a result of the strong preference for private hospitals, which would require almost R100 billion more than under the current situation. Unconstrained demand for general practitioners could also add additional costs of R52 billion. These two items constitute a large part of the overall cost increases, offset only marginally by cost decreases in existing

Table 2: Estimated Total Costs of NHI using a Demand-Based Disaggregated Model under Alternative Assumptions, 2008

Costs (in R' million) of:	Current (incl. private spending)	Base case (demand model)	Base case after Savings	After Rationing	After Ratio-ning + Savings	After Severe Rationing	After Severe Rationing + Savings
Private hospitals	(43,021)	142,895	129,534	129,832	117,693	97,612	88,486
Public hospitals	34,191	10,810	10,810	10,810	10,810	10,810	10,810
Inpatients	29,859	9,440	9,440	9,440	9,440	9,440	9,440
Outpatients	4,332	1,370	1,370	1,370	1,370	1,370	1,370
Public clinics	17,483	11,127	11,127	11,127	11,127	11,127	11,127
GPs in their consulting rooms	(33,222)	85,249	61,392	85,249	61,392	47,415	34,146
Specialists in their consulting rooms	(5,435)	18,410	14,547	11,046	8,728	7,364	5,819
Public health services administration	11,159	19,159	13,411	19,159	13,411	19,159	13,411
TOTAL OF THE ABOVE	144,511	287,650	251,632	278,032	233,971	204,296	174,608
TOTAL (in 2009 Rand values)	154,771	308,073	269,497	297,772	250,583	218,801	187,005
TOTAL PUBLIC or NHI SPENDING (i.e. State's responsibility)	62,833	287,650	251,632	278,032	233,971	204,296	174,608

14. Van den Heever, A., 2010. "Strategic Health Reform," presentation at Idasa Roundtable discussion on NHI, 19 January 2010.

Notes:

- Figures in brackets refer to current expenditures not funded by the state.
- The row with 2009 Rand values was calculated applying 7.1% cost rises (from the CPI) to the 2008 figures.
Sources: Own calculations based on various sources. Private sector data were largely taken from the CMS Annual Report¹⁸ and public sector data from the SA Health Review¹⁹. Current data were estimated as follows:
- **Private hospitals:** Visits are Medi-Clinic estimates for all non-ER, non-ambulatory and non-day care admissions, including non-medical scheme members, based on the Private Hospital Review 2009. Hospital unit costs include direct costs, tests, medicine, specialist costs and other costs and were derived from CMS data.
- **Public hospitals:** To obtain a breakdown of all visits hospitals between inpatients and outpatients, a bed occupancy rate of 85% was applied to the 87,000 public hospital beds to estimate hospital admissions (virtually 4.5 million), and this was subtracted from total visits given in the SA Health Review and derived from the District Health Information System to obtain the number of outpatient visits (17.3 million). Total costs were obtained from budget figures. Assuming cost per outpatient visit of R250, cost per inpatient visit was calculated to add up to the actual total costs.
- **GPs in consulting rooms:** Calculated based on GHS data for 2002 to 2007, adjusted by assuming the same undercount as the GHS shows relative to the SA Health Review-DHIS data for public sector primary health visits. Unit costs were taken to be R714 per visit, based on CMS data. These include consulting fee, medicine, and tests.
- **Specialists in consulting rooms:** Calculated using GP visits as estimated above, and assuming that the ratio between visits to specialists and visits to GP as obtained from GHS 2002-7 holds. Unit costs were taken to be R1,-700 per visit, based on CMS data. These include consulting fee, medicine and tests.
- **Public health services administration:** Aggregate cost taken from budget figures. This includes management of public health facilities.

public institutions as a result of the demand shifts. But such demand shifts cannot in practice be accommodated, given constrained real resources (see NHI note 4), nor can the fiscal costs be afforded by government (shown below). Part of this results from having to take responsibility for expenditure formerly funded by medical schemes or individuals, but the major increase results from the pent-up demand for quality health services that the present public sector does not deliver.

What savings could be made? Under an extremely optimistic set of assumptions for cost savings of the different items,¹⁵ total cost savings would be only 12.5%, or R41 billion. Bond et. al., in contrast,

believe that 49% can be saved on the present private sector cost structures.¹⁶ Such cost cuts would clearly not only endanger the survival and the quality of the current private institutions, but would probably also accelerate the flight of medical personnel from the country.

The other four scenarios allow for the effect of rationing, using either a moderate or a severe scenario, and adding the effect of cost savings to each of these rationing scenarios. The moderate rationing assumes low developed country ratios as the norm at which rationing would start applying, and the severe rationing scenario assumes developing country rates. For admission rates, the moderate rationing assumption

is 15,000 per 100,000 population and the severe one 12,000; for primary visits per person, the moderate ceiling is taken to be 5.00 (which does not actually have any influence, as the model projects only 4.08), while it is 3.00 in the severe scenario. Further, under the moderate scenario it is assumed that rationing would imply 40% fewer visits to specialist than predicted by the demand model, and under the severe scenario 60% fewer. The developed country norm of about 12% of costs of NHI spending going to administration and the developing country norm of 18% are way above the administration cost levels assumed.¹⁷

What the scenarios show is that even under the most severe rationing and assuming

15. *Savings assumptions: 10% of direct and other private hospital costs, 25% of medicine costs in private hospitals, 15% of the unit costs of general practitioners, 10% of those of specialists in private practice and in private hospitals, and 30% of all administration costs.*

16. *Bond et al. (2010). Costs/Benefits Estimates for National Health Insurance: A summary analysis submitted to the Congress of SA Trade Unions. Mimeo. Document presented by Patrick Bond at Idasa Roundtable discussion on NHI, 19 January 2010 (p.5).*

17. *Average percentages from various developed and developing countries with national or social health systems. For a complete list of references used, please contact Econex.*

highly unlikely savings ratios, the costs of the NHI would still be of the order of R174 billion. Compared to the actual situation in 2009, the state would have to fund an additional R112 billion, even if these severe savings can be effected, the resource constraints (too few doctors, nurses, specialists, hospitals beds) can be overcome, and the administration put in place to make the system work.

A major conclusion from Table 2 is that costs are dominated by the demand for private hospital and general practitioner services. To the extent that the NHI plan promises free choice of service provider, demand patterns suggest that providing both these services will be the bottlenecks, in terms of both real and fiscal resources.

3.2 The Cost of HIV/Aids

The results presented in Table 2 are base case scenarios using a demand based methodology and adapted for assumptions about savings rates and rationing. Some other likely side effects have not been included e.g. possible price increases in the face of increased demand. The impact of HIV/ Aids is expected to be so large that this has to be included in the final cost estimates. The 2008 UNAIDS report on the global AIDS epidemic²⁰ estimates that 17% (5.7 million people) of the 33 million people in the world currently living with AIDS, live in South Africa. The Global AIDS report²¹ estimates that 1.7 million South Africans

were eligible for antiretroviral therapy (ART) in 2007, but local estimates were much smaller, with only 889,000 reported as needing ART.²² The government's goal, set out in the HIV/AIDS National Strategic Plan (NSP 2007), is to provide ART to 80% of those needing treatment by 2011.²³ The NSP document estimates that costs will increase from R4.97 billion in 2007 to R13.32 billion in 2011, in order to reach the various goals. Should a more modest target be attained and only 60% of those eligible for ART receive it, it will cost the government R4.69 billion in 2007, increasing to R11.26 billion in 2011.

Based on the above, it appears that a figure of around R6 billion per annum at present should be a fairly conservative number, given that public spending to this end was around R1 billion in 2008 and covered only 21% of the affected population.²⁴ This is also approximately in line with the estimates of McIntyre et al. and the NSP (2007) of what is currently spent, but less than what would be required to provide full coverage according to the latter sources.

3.3 Fiscal Substitution

It was reported that Bond *et al* (2008) assume that there will be substitution of 81% from the national and provincial public health budget to the NHI. However, this assumption leaves a public health system denuded of almost all its funds and presumably also its functions. In our estimates, the assumption is made

that the NHIA will make it possible for the budget of the provincial and national Departments of Health to be cut by 71%, thus providing a possible source of funds for the NHI.²⁵ This assumes a slightly larger share of spending to be retained in the public health budget than allowed for by Calikoglu & Bond (2008). This fiscal substitution of R60 billion which will flow from the current public health budget to the funding and administration of the NHI, reduces the remaining financing need for each of the NHI options by this amount. In the cost estimates provided below the R60 billion is therefore subtracted from our different scenarios.

3.4 Comparison of Cost Estimates

We can now compare the various cost estimates with our demand based model. We use four Econex scenarios (Table 2), i.e. (1) the base case after savings; (2) the base case after rationing; (3) the base case after rationing and savings; and (4) the base case after severe rationing. From these estimates we subtract R60 billion (fiscal substitution), but add R 6 billion (cost of HIV/AIDS).

Figure 2 shows that the cost of extending medical aid type levels of cover to the whole population would be massively expensive (exceeding R400 billion). However, this is still lower than the cost of coverage currently in some of the lower cost industrial countries. On the other side of the spectrum is the McIntyre, Ataguba, Cleary estimate, but

18. Council of Medical Schemes. 2009. "Annual Report 2008-2009". Pretoria.

19. Day, C. and Gray, A. 2008. "South African Health Review 2008," Health Systems Trust: Durban.

20. UNAIDS, 2008. "Report on the Global AIDS Epidemic." Available at: <http://www.unaids.org/en/KnowledgeCentre/HIVData/GlobalReport/2008/default.asp>

21. UNAIDS, 2008. "Report on the Global AIDS Epidemic." Available at: <http://www.unaids.org/en/KnowledgeCentre/HIVData/GlobalReport/2008/default.asp>

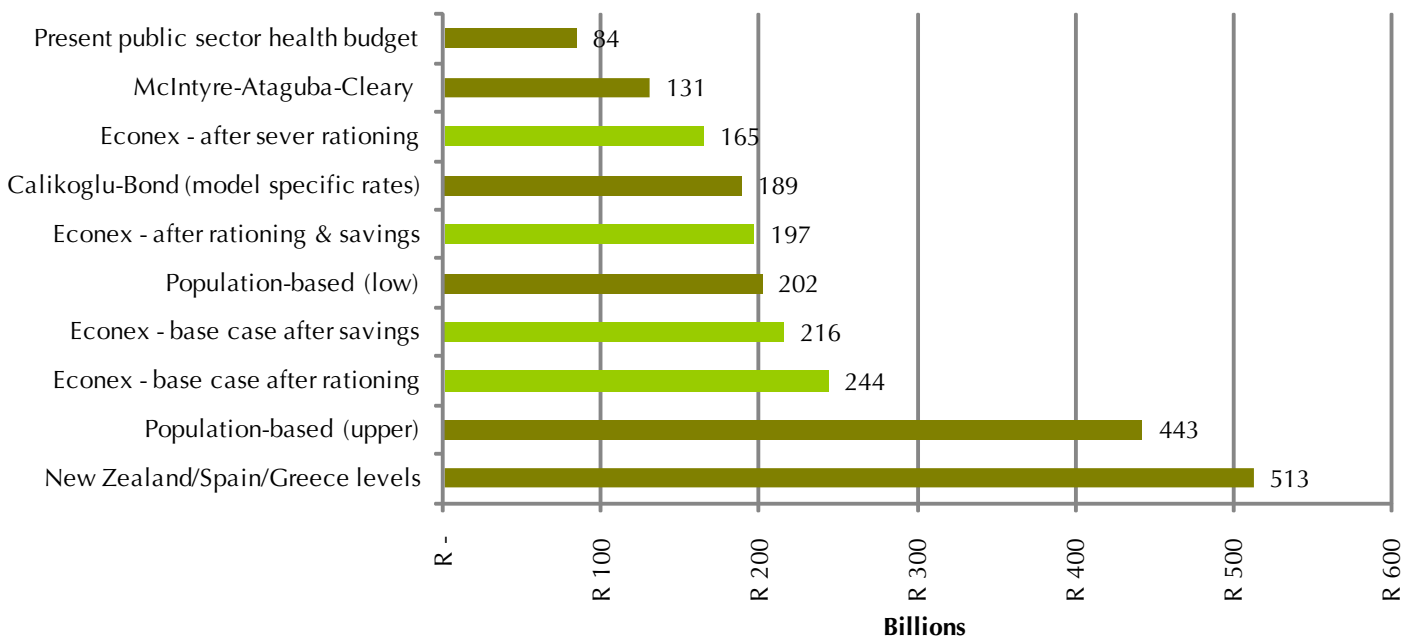
22. Health Systems Trust, 2008. "South African Health Review 2008," Durban. Available at: <http://www.hst.org.za/publications/841>

23. "HIV and AIDS and STI Strategic Plan for South Africa, 2007-2011."

24. Derived from estimates in: DBSA, 2008. "A Roadmap for the Reform of the South African Health System," a process convened and facilitated by the Development Bank of South Africa, November.

25. There are some constitutional issues relating to the relative roles of national and provincial government that may require attention in this regard, but these will be ignored here.

Figure 2: Comparison of Cost Estimates



Source: Econex

as already shown above this should be interpreted as an attempt to cost required public sector spending, if those presently covered by private provision were also to be covered by a redefined public sector. The Calikoglu & Bond estimate is slightly lower than the Econex base case after rationing and savings. It was pointed out above that the severe rationing and savings assumptions are very optimistic, and we would think that the more realistic scenarios would be the base case (after savings) of R216 billion, or the base case (after rationing) of R244 billion. This is also more or less in line with the basic population based model which extends low cost options to the whole population.

These estimates have to be interpreted however as conservative, or lower end estimates as the essential features of the plan such as comprehensive cover and no co-payment essentially rule out limited cover options and rationing.

4 Is This Fiscally Affordable?

From a fiscal perspective, the costs mentioned above are large. The financing requirements should be compared to GDP, to total tax revenue, and also to different tax components to place them in perspective. (In this regard, it is good to remember that the government's tax revenue is likely to fall far short of the budgeted revenues in this fiscal year, given the declines in economic activity experienced this year, though all comparisons are given relative to budgeted tax revenue.)

The vast magnitude of the financing requirement can be easily demonstrated. The base case after savings (R216 billion) is just more (104%) than total personal income tax. It is higher than company taxes and VAT and will add 9 percentage points to health spending as a proportion of GDP. The base case after rationing (R244 billion) is more (118%) than

personal income tax, more than company tax and VAT and will add 10 percentage points to health spending as a proportion of GDP. These are massive numbers and total tax revenue will have to increase by more than a third (between 33% and 37%) in the case of these two scenarios.

5 Conclusion

This note has shown that the proposed NHI in its current form, promising universal coverage, no co-payments, comprehensive cover and provider of choice, will be massively expensive. Various estimates of the overall costs were discussed and we presented estimates based on our own demand model which predicts changes in utilisation patterns of the currently uninsured under a NHI. While the proposed plan promises comprehensive cover and provider of choice, we included assumptions about

Table 3: Additional Financing Requirements under the Four Scenarios as a % of Major Sources of Tax Revenue and of GDP, 2009

Tax source, GDP	Budgeted value	Base case after savings (R216 bn)	After Rationing (R244 bn)	After Rationing and Savings (R197 bn)	After Severe Rationing (R165 bn)
		Expressed as % of tax revenue / GDP			
PIT	R207 bn	104%	118%	95%	80%
Company taxes	R179 bn	121%	136%	110%	92%
VAT	R169 bn	128%	144%	117%	98%
Total Tax Revenue	R659 bn	33%	37%	30%	25%
GDP	R2,374 bn	9%	10%	8%	7%

Source: Econex calculations; Tax Revenue from National Treasury, Budget Review 2009/10; GDP estimate from National Treasury, Medium Term Budget Policy Statement

rationing and savings. However, it must be borne in mind that these should be viewed as conservative cost estimates if one assumes comprehensive cover. Extending insurance cover to the whole population based on current low option scheme rates is also very expensive, and these all represent limited options, as compared to comprehensive cover. Even assuming fiscal substitution of up to R60 billion still implies that on the Econex base case scenario (assuming optimistic savings) the cost of the overall programme will add 9 percentage points to health spending as a percentage of GDP and that total tax revenue will have to increase by a third. It appears that the decisions around coverage and benefits have been

reached in isolation and have not taken into account the fiscal constraints. The most important lesson that can be learnt from this is that there will have to be significant amendments to the proposed NHI in its current form. These should at least entail the following:

- Benefits actually offered would have to be far less than the comprehensive benefits promised.
- Free provider choice would have to be curtailed, at least to prevent doctors and specialists becoming the first point of call for all health visits.

Moreover, even if these changes are introduced and a more realistic plan put

on the table, it is still doubtful whether the funding for even a more modest NHI would be available, unless government concentrates most of its fiscal efforts on meeting health needs, to the neglect of many other social, economic and political needs.

This note dealt with the overall costs, building on the previous notes in this series. Econex will continue to publish Research Notes on the NHI in order to contribute to the research and debate on this important topic.