Leon Louw Speaks

Unit 12, Valle Verde
Bedfordview, Germiston
Johannesburg
Email: izwelamifoundation@gmail.com
+27 82 904 3616
Registration number 2023/726599/08

COST ANALYSIS (NHI-CA)

of

NATIONAL HEALTH INSURANCE (NHI)

in

SOUTH AFRICA

as currently proposed

This Izwe Lami and Freedom Foundation (ILFF)

NHI Cost Analysis

has been prepared by

statistician, Garth Zietsman, with policy expert, Leon Louw,

for the benefit of the government, the healthcare industry, and the general public.

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1 ABSTRACT AND EXECUTIVE SUMMARY

This NHI cost analysis (NHI-CA) shows conclusively that National Health Insurance (NHI) as proposed would be too costly to implement. Full implementation[1], whatever that means, could cost R1tr (one trillion rand).

There is no plausible scenario under which this could happen. It would consume nearly half the annual Budget or a quarter of the entire economy (GDP)[2]. Lower figures that have been published are underestimates.

A payroll tax has been proposed. That amounts to saying that there will never be NHI. Such taxes could raise no more than enough for minor improvements as opposed to anything remotely resembling what has been promised. No systematic study has been done on the damage that substantial additional taxes might inflict, especially on the poor.

South Africa already has universal healthcare in that everyone is entitled to government funded care and services. What is proposed is unclear, undefined and unknowable, including to the current policymakers. What is done in practice under NHI as proposed will be determined arbitrarily by present and future unknowable ministers. In the absence of such determinations, essentially nothing will change. The idea that informs policy for the time being is that unpredictable determinations will transfer some, but not all, private care to a government-funded single funder and supplier resembling, for instance, the discontinued Eskom model.

'NHI' is, of course, a misnomer. The bill does not envisage healthcare insurance, but healthcare delivery and financing. Paradoxically, it proposes the prohibition of insurance. Real insurance would be achieved if unambiguous private healthcare insurance were fully decriminalised. The result would, arguably, be more realistically affordable for government, better quality care for all, especially the poor, and more expeditiously achieved. Under properly defined healthcare *insurance*, the government would require all people who can afford it to insure themselves privately, and subsidise private cover for those who cannot afford it (on a means test).

A definitive proper costing would be possible if the Bill envisaged insurance for specified care and products, or defined which products and services would be funded, and when.

Our NHI-CA is a costing exercise, and not a comprehensive submission. To that end to what end?, we draw attention to the BUSA Submission, with which we are generally in agreement[3].

Until this NHI-CA, there has been no published attempt at a rigorous costing. Many estimates have been suggested, but there has been no rigorous calculation. This is partly because, as explained, no one knows what would constitute “full” or “incremental” implementation. This is a fatal flaw in the concept and the Bill.

The NHI Bill is not substantive law since it does not include what is to be done. That will, as stated, be decided arbitrarily to unspecified and unpredictable extents at unknowable dates, if ever. It is not possible to know from the Bill what would constitute partial, incremental, or full implementation, or, more seriously, what in fact constitutes “healthcare”; what it includes and excludes.

This analysis addresses these and other core concerns. Real world “healthcare” includes everything that ordinary people regard as caring for their health. The cost of comprehensively defined healthcare as understood by civilians would substantially exceed the highest estimates made so far. The Bill does not, for instance, specify which, if any, of the following will be covered: (a) all carers, (b) if not, which carers, (c) only allopathic care, (c) if only allopathic, all or some, (d) if some, which, (e) all or some traditional care (as desired by the vast majority of South Africans), (f) if some, which, (g) all or some complimentary care, (h) if some, which, (i) all or some alternative care, (j) if some, which, (k) all or some self-medication, (l) if some, which, (m) who will be considered healthcare providers, and more. None of this is in the Bill. Arguably, it is not a Bill in the South African jurisprudential sense of the word. It envisages a delegation of legislative functions from the legislature to the executive branch of government.

This is a very serious matter. Whoever voted on the Bill had no way of knowing what they were voting for or against because there is no way of knowing what they were or were not supporting. In its present form, it provides only abstract ideas rather than concrete law. The real, that is substantive, law will not be legislated by parliament, as required by the rule of law and separation of powers, but legislated arbitrarily by future ministers of unknowable identity, ideology or political party.

The Bill contains no clear criteria for decision-making. This lack of clarity means that no one knows what the period of implementation will be, who will be providers, how they will be selected, by which criteria, and by what process they will be fazed-out.

Most seriously and fundamentally, the Bill envisages, or allows for, all funders and all service providers to be eliminated. That’s the underlying purpose. There is an amorphous temporary temptation offered private providers with Fund money.

The Bill envisages a Fund without specifying its purposes, such as what will be funded, or when. It envisages a single-payer system, but does not say when such a system would be introduced. It could be many years or never that the transition to single-payer occurs.

This NHI-CA is not a legal analysis. It is the first and only accurate costing of scenarios and estimates of the kind required for all laws and policies. It is impossible to be more accurate because how it will be implemented not specified. This flaw means that a detailed officially compliant budget cannot be produced by the Health Department.

This cost analysis is the best that can be done when no one knows what will be done under the law. This study addresses the knowledge vacuum by making informed assumptions ('scenarios') derived from what policymakers have said. Policy pronouncements have been so variable and vague as to invite a void-for-vagueness challenge to the Bill. Although this is no legal analysis, it is respectfully suggested that clarity and certainty should be added to the Bill before proceeding with it. Given the wide range of potential costs, it seems, with respect, that it might be irresponsible to proceed with the law in this form.

Whilst there is no choice but to rely on what policymakers have said, uncertainty is compounded by the fact that the best-informed political analysts make it clear that future office-bearers endowed with far-reaching powers could be anyone, regardless of who governs. Should the law endure for decades as envisaged, in reality it might bear no resemblance to the conjectures of current policymakers.

It bears repeating that, in the absence of legal certainty, it is impossible to predict costs to the extent required for responsible governance. This analysis is the best that has been done and that can be done regarding something destined to be the most expensive policy in South African history. It finds that as much as R1tr (one trillion rand) could be required for truly 'full' implementation. Such funds could never be available under any scenario. Accordingly, 'full' NHI can never happen.[4]

It has been said that NHI as envisaged could be funded by increased taxes, especially payroll taxes, and by seizing medical aid and medical insurance tax credits and contributions, in addition to other additional taxes.

As elaborated below, everything spent on one thing is at the expense of countless others. More spent on NHI, for instance, is less available for protection, services, jobs, growth etc. It is easy to say that something can be funded by diverting wealth from elsewhere. It is, however, much more difficult to carry this out, and impossible to predict the unintended consequences.

There is dangerous rhetoric, even amongst seemingly well-informed people, to the effect that the Bill does no more than create a Fund, and that a budget is unnecessary because funding will be determined *ad hoc* by parliament at unspecified and unpredictable times. This misconception has multiple flaws. For instance, it presumes little or no real world NHI implementation or even priority relevance. It misconstrues how government spending is decided. Above all, it envisages, as stated, a fund with no clearly specified purpose or timetable. NHI is a comprehensive *healthcare* policy of which the Fund is a component.

This NHI-CA includes, as all serious costings must, an examination of what must be sacrificed to fund NHI in any of its imagined forms. To the extent that wealth is taken from employees via their employers (payroll etc tax), it will cause more unemployment, reduce incomes, and prevent essential investment and production.

Higher healthcare cost to government necessarily implies less being available for everything else. To the extent the NHI costs are diverted from protection services, for instance, there will be more crime, including rape, murder, heists and so on. The core question to be answered is what must be sacrificed to have, at best, improved healthcare for some and deteriorated healthcare for others. The danger of what is presently envisaged is that it might reduce the quality of health care for all.

The primary motivation for NHI is the desire for universal healthcare. This is anomalous because South Africa already has universal healthcare – everyone is entitled to healthcare from government clinics, hospitals, pharmacies and ambulances. This Bill is therefore not about extending healthcare to people who do not have it, but, at best, raising the quality for some by lowering it for others. In other words, the Bill entails, at best, small gains achieved by imposing substantial sacrifices.

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2 INTRODUCTION

It has long been a policy ambition to have a new redefined version of universal healthcare called National Health Insurance (NHI). There has been a long process leading to the NHI Bill. The original ideas have changed from the idea that South Africa could emulate purist welfare state models with a 100% single buyer-provider approach, or adapt the model to something amorphous that attempts to be more realistic and workable. There is general agreement that the ideal approach would be one that ensures more and better care for those who cannot afford superior private care.

We repeat that South Africa already has 'universal healthcare' in that everyone is entitled to care that is 'free' at the point of delivery of what is considered 'healthcare'. Despite much discourse and lengthy Health Portfolio Committee hearings, it is not entirely clear how the newly formulated NHI would differ from current universal healthcare. For an unknowable period, the NHI Fund will subcontract to private providers until full NHI implementation eliminates them completely. They will operate under what has been called a 'death sentence' where some will be 'executed' incrementally until all have been executed when NHI is 'fully' implemented at ministerial behest.

A feature of the thinking behind NHI is that the quality of care should be the same for all. The aspiration is for the relatively poor quality of government care to which 'the poor' are confined by law[5] to be elevated to the high quality of care enjoyed by 'the rich' at their own expense from private sources. As explained below, comparable care for 'the poor' is prohibited, and NHI as currently envisaged seeks to perpetuate and intensify this prohibition. A high-value palliative for 'the poor' would be to liberate the private healthcare market immediately, that is to allow all cover and services to be freely and competitively offered to all income groups.

Whilst some view the fact the 'the rich' fund themselves as a welcome relief on the demands of government care for 'the poor', others see self-funded private care as allowing for unacceptable inequality.

It has been suggested that what NHI will change is the alleged under-performance of provincial healthcare. The idea that the NHI Bill could centralise provincial care exposes ignorance of Constitutionalised healthcare functions.

There is presumably consensus amongst decent people that, ideally, there would be excellent health care for all. However, nowhere in the world has this been achieved. The best we can

aim for is social, racial and economic justice within which all people enjoy substantially elevated health care quality.

Since equal excellence is obviously unattainable for many years, if ever, a more realistic unspecified in-between mix is now envisaged, the essence of which is to raise the quality of 'poor' care by reducing the quality of 'rich' care. It is not yet known what the *causal nexus* might be between lowering the quality of care for some whilst raising it for others. It is presumed mistakenly that 'heat lost equals heat gained' (to use a physics metaphor). How and why one might lead to the other has been left by the Bill for speculation by future implementers.

To place this in context, it is the equivalent of, for instance, a housing NHI (National Housing Insurance), whereby all housing must be equal, so that the rich may no longer live more comfortably at their own expense than do 'the poor'. 'Savings' by the 'the rich' would be transferred to 'the poor'. A housing application of the NHI concept would be like requiring all, poor and rich alike, to live in identical "RDP" houses.

The same approach could be applied to other essential needs, such universal transport in government buses, universal groceries from government stores, universal security by the prohibition of private security, and so on.

The idea of a single provider neither exists, nor is proposed, in any other context in post-apartheid South Africa. This mindset did, however, characterise apartheid. Under apartheid, there were many nationalised single providers for such services as low-income housing, air transport, public transport, broadcasting, electricity, timber, agricultural marketing, liquor for 'black' people, and much more.

The present government has, most would argue to its credit, terminated most apartheid-era nationalised monopolies, most recently regarding electricity. It would therefore be an anomalous contradiction for it to revert to the apartheid ethos for healthcare.

The apartheid regime had NHI.[6]

It was, of course, NHI of a special kind, namely, racially separated. Instead of aspiring to equal quality across races, it was NHI within each racial grouping. Apart from obnoxious racism, the policy objective was fully-fledged 'NHI'. The process whereby private care became available is described in many papers, theses and articles[7]. It was a long and tortuous process, which included such relics of the era as 'Certificates of Need', which continue to curtail healthcare. Their purpose was, like so much else then and now, to divert resources

from the poor to preferred communities. That such policies persist in post-apartheid South Africa is another of our healthcare anomalies.

One of the challenges facing NHI advocates is standard economic theory according to which there are hard limits to resources and the unavoidable trade-offs that those limits imply. Policies that artificially privilege some needs over others generally result in a net loss of value to society and the economy as a whole. Now that moves to implement an NHI have become more immediate it has become critical for policymakers to think about whether the country can afford NHI and what the real world costs and trade-offs might be. For that to be known, there must be an rigorous estimate, as in this study, of the likely costs.

There has been within government at least one 'slap-dash' early attempt which simplistically presumes overall health spending – public plus private – as the cost of healthcare.

The failure thus far for NHI policymakers to produce a plausible costing model may have many explanations. An obvious one is that it is difficult to cost healthcare, and that quality healthcare is likely to cost at least 50% more than the currently presumed cost of healthcare.[8]

Wikipedia cites a British expert on the cost of ideal medical systems. He concluded that they would cost 1.5 times current public health spending.

This NHI-CA applies the best forecasting methods so as to arrive at accurate cost estimates and survive a reality test.

3 ADOPTED MODEL

This NHI-CA uses the approach detailed in the Appendix. It is more accurate than other approaches because the kind of information required by other methods is extremely difficult or impossible to find, and might not exist. For example, we could not find a complete list of health problems with their relative frequencies for the whole country, let alone different lists for each demographic subgroup.

There is spurious argument that costing healthcare is easy. Medical schemes, insurers, private practitioners do it routinely. This argument misses two core difficulties. Firstly, such 'costing' reveals precisely one of NHI's biggest flaws, namely the huge range of prices for every healthcare product and service, and the absence of a breakdown of government costs per product and service. Secondly, it is oblivious to the core fact that what NHI will cover is unknown and unknowable.

The obvious estimate, which has been promoted by some in government, is current public and non-public health expenditure in South Africa. However, the standard assumption of South Africa's health cost is understated because it includes only the formal government Health Budget and private medical aid spending. It thus excludes many other forms of healthcare and healthcare spending. For example, private self-funded 'out-of-pocket' conventional allopathic healthcare costs are excluded from official estimates. The grossly mistaken notion that the government funds 84% of all care costs and/or beneficiaries is repeated frequently.

A second option would be to examine the health expenditures of other countries that rely on an "NHI" or single payer-provider system. However, all examples require significant qualifications and modifications to increase the presumed degree of similarity between them and the NHI model envisaged for South Africa. Thus the accuracy of a rigorous cost estimate depends on the selection and qualifications of the similar projects abroad.

One of the greatest challenges with finding similar projects to South Africa's envisaged NHI is that nobody in government appears to know how much or what quality of care the NHI aims to provide. Treasury is inappropriately silent on this potentially fatal flaw. The Director-General of the Department of Health, Dr Nicholas Crisp, is reported to have said that South Africans will pay 'whatever it takes'[9]. He is regarded as a leading expert on NHI cost, yet he is not cited as having published a rigorous estimate of what that might be. Honourable Health Minister Phaahla has also not disclosed what NHI as proposed will cost, only that workers will pay additional undisclosed amounts via payroll and other taxes.[10]

This knowledge vacuum exists in part because, as we have stressed repeatedly, the extent of the plan and rate of implementation are unknown and, indeed, unknowable.

The Portfolio Committee on Health Report[11] on the departmental budget and annual performance plan expressed concern that no costing model for the NHI was provided. Health Minister Phaahla told the Committee that the Health Department is currently 11% underfunded – a fact that must be considered in NHI cost estimates. Whatever the cost shortfall of full staffing might be now, the additional staffing requirement for NHI purposes cannot be known because, as already mentioned, the rate and extent of implementation is unknown.

In view of that constraint, we have developed a model that permits cost estimates across the range of plausible NHI aims and scenarios, so that, once NHI implementation is known, a cost can be calculated easily.

We narrowed the range in which a fully implemented NHI could reasonably fall. One of the useful reality checks in this regard is the annual cost to countries with single payer-provider systems.

Nonetheless, even our model underestimates costs to the extent that it does not make provision for (a) the transitional burden of NHI roll-out, (b) the costs or benefits to the country at large, or (c) the possible impact of corruption. These costs are addressed separately below.

The possibility of corruption takes on special relevance with respect to NHI. High rates of corruption, especially associated with government, are well documented and well known. The open-ended and amorphous nature the Bill is a conspicuous red flag. To prevent a large percentage of NHI spending being lost to corruption comprehensive checks and balances should be specified. There should be little or no possibility, contrary to what is currently envisaged, for discretion. Detailed costing and budgeting would minimise the prospect of corruption. Without that, NHI will maximise corruption prospects.

4 TRADITIONAL, ALTERNATIVE, OUT-OF-POCKET ETC CARE AND MEDICINES

A cost analysis is not the place for judgments on healthcare science, beliefs and preferences, or the relative costs and benefits of alternatives, but it is ethically and constitutionally necessary to draw attention to the cost-benefit impacts of discriminatory and arbitrary healthcare policies, especially the impacts on individuals and communities subjected to mainstream judgement.

NHI costs will vary widely according to which discriminatory and arbitrary healthcare approaches are followed. Cost impacts and implications for individuals and communities will be profound.

As mentioned private self-funded 'out-of-pocket' conventional allopathic healthcare is excluded from official estimates of prospective government spending under NHI. If such out-of-pocket costs are excluded from the plan NHI will be neither national (all-inclusive) nor insurance.

There is a persistent claim that state medicine serves 84% of the population and that private medicine serves 16%. Despite the fallacy being obvious and pointed out repeatedly, the grossly mistaken notion that the government funds 84% of all care and/or beneficiaries remains entrenched. There are countless examples of the 84% disinformation drumbeat[12]. It is profoundly false, and should not be condoned.

The myth is based purely on the fact that 16% of the population belong to medical aid schemes. It is falsely presumed that (a) all the rest are cared for by government, and (b) all types of care are provided by the government and/or by medical schemes. A moment's reflection is all that is required for it to be obvious that the 84%-16% meme is nonsense. The persistence of the lie despite constant correction casts suspicion on all who repeat it.

The falsehood excludes types of care not covered by government or medical schemes, private medical insurance, out-of-pocket expenses, personal and over-the-counter care, alternative care and traditional care. Another estimate of the fraction of the population served by standard state medical services is 72%.

However, that is also misleading because, whilst a patient may have been covered by the state for some medical procedures, such as a hip replacement, they might not be covered for countless other treatments or medications, such as physiotherapy, psychology, massage or pain relief. Whilst government might give some kind of medical service to 72% of the population, it provides significantly less than 72% of actual healthcare services and products acquired by the population.

Since many people, even experts, have difficulty grasping this and its implications, we explain it by way of *reductio ad absurdum*. Purely for the sake of analysis, government hospitals and clinics can be imagined to treat only a single condition such as a broken leg. If the government treats 80% of patients with broken legs, it would be erroneous to say that the government treats 80% of all patients or all conditions.

If broken legs are 1% of all conditions, the government would be providing a mere 0.8% of medical care. Equally, if we assume that medical schemes cover only broken arms for 20% of the population, it does not imply that schemes cover 20% of healthcare. The real number for what they cover would be a mere 0.2% of all healthcare needs.

These hypothetical examples make it clear that, contrary to the popular myth, the percentage of patients treated or covered does not equate the percentage of healthcare provided. Whilst no one knows the actual numbers of conditions treated, we do know the government provides a much lower percentage of care than 84% or 72%. The popular myth is conclusively debunked by the mere inclusion of unprovided, over-the-counter, out-of-pocket, personal, alternative and traditional care.

To know what proportion of all healthcare the government provides, it would be necessary to establish the proportion of healthcare needs not addressed by government. That has not been published.[13] Whatever the number might be, it must be deducted from the 84% or 72%.

Important Notes:

1. The NHI Bill is biased against the healthcare practices, preferences and beliefs of most South Africans and most people on earth. It imposes minority beliefs on the majority in conflict with ethical, democratic and constitutional prescripts and values.
2. It is humbly suggested that the Bill should respect and reflect the rights, freedoms and interests of all in the ‘rainbow nation’, regardless of race, ethnicity, gender, values, religions or beliefs generally.

Non-government out-of-pocket care includes most of the following (alphabetical order):

1. **Complementary and Alternative (CAM) Care**, including homeopathy, hypnosis, acupuncture, osteopathy, aromatherapy, chiropractic, herbal medicine, vitamin supplements, naturopathy, reflexology etc.
   Such care amounts to about 1% of overall healthcare or R4.6 billion.[14] This and

other estimates in this section are derived from information in several articles in The South African Health Review 2007.[15]

2. **Faith and Spiritual Healing,** including, for instance, charismatic churches, prayers, prayer meetings, trances, rituals, séances etc.
3. **Other,** including commonplace belief in and adoption, at significant healthcare expense, of exercise, diet, rest, etc.
4. **Over-the-Counter Care and Self-Medication,** essentially everything sold over-the-counter in pharmacies, including in-house clinics, ranging from pain-killers and plasters to flu shots and vaccinations; from skin treatments and supplements to eye drops and pessaries, amongst hundreds of examples of self-medication and self-care by people who treat themselves[16]. About half of all medicines acquired outside the public sector are 'out-of-pocket'. About 78% of these are over-the-counter medicines and 22% for prescribed medicine.
   Even for those in medical schemes, substantial proportions of medication are 'out-of-pocket' and 'over-the-counter'.
5. **Self-funded (out-of-pocket) Allopathic Care,** such as privately funded doctors, dentists, opticians, specialists, physiotherapists, psychologists, psychiatrists, dermatologists, ambulances, emergency flights, private nurses, care-givers, hospice services, house visits etc. Two thirds of out-of-pocket spending involves medical aid extras and 55% of that involves medicine. This amounts to about R57 billion per annum which, unlike the others in this list, is accounted for in the scenario calculations below.
6. **Traditional African** C**are,** such as sangomas, 'witch doctors', diviners, herbalists, confidants, cleansing, exorcism etc. This accounts for about 1,7% of the value of allopathic spending or R8,66 billion. There are more than 190,000 practitioners, and 72% of black South Africans (nearly 36 million people) use traditional medicine on average 4.8 times per year.
7. **Traditional non-African Care,** in term of multiple belief systems, cultures and faiths, such as the Hindu and Muslim faiths, with or without ayurveda, acupuncture, meditation, reiki, halal-haram, jaggery, ghee, astrology, tai chi, oriental medicine, etc. About R0,58 billion is spent on this annually.

Those who hold these divergent forms of healthcare dear are demeaned, dismissed and victimised by the NHI Bill in its present form, despite the fact that these healthcare rights and freedoms are mandated in our Constitution.

Religion is seen by many or most South Africans as a vital part of health care. For instance, regarding the world's and South Africa's biggest religion, Christianity, "If any of you are sick, they should call for the elders of the church, and the elders should pray over them, anointing them with oil in the name of the Lord. Prayer that comes from faith will heal the sick, for the Lord will restore them to health. And if they have sinned, they will be forgiven." (James 5:14-15). Hindu and Muslim faiths have similar imperatives.

As for the second biggest and fastest growing religion, Islam, "knowledge of the cultural and spiritual values of Muslims is critical in providing healthcare services [and] when providing care to Muslim patients, it is important to understand the impact the Islamic faith has on the provision of healthcare." (https://www.ncbi.nlm.nih.gov/books/NBK499933/)

To some extent placebo effects are a scientifically proven and legitimate aspect of all healthcare, including, if not especially, allopathic care. The curative or damaging effects of placebo and nocebo are not yet well understood, and remain the subject of informed research and discourse. These effects nonetheless play an important role in health care.

Against this background is, of course, the extent to which beliefs in alternatives might be counter-productive and inflict harm by inducing patients to avoid proven and effective treatments. Such matters are addressed in other legislation. Unless banned or curtailed by law, NHI is impelled to include all lawful healthcare within its definitions of single funder and provider care.

Rational healthcare policy should not be informed by people ready to pass self-serving judgement on any form of healthcare, allopathic and otherwise. How many of the observed benefits of mainstream allopathic care or alternative care are attributable to or enhanced by placebo is unclear, except where it has been subjected to strictly controlled double-blind, peer reviewed and replicated tests. Placebo effects vary greatly per individual. Alternative care should not be dismissed on the assumption its healing effects are the result of placebo effects. To what extent placebo accounts for allopathic benefits is also, as stated above, unclear, or at least contentious.

It bears repetition that the *vast majority* of South Africans favour and believe in alternatives which are demeaned by implication in the current NHI model.

In 2019 traditional healers addressed the proposed NHI. They believed that all forms of medicine should be included and that, since the NHI did not include them, they were being marginalised and victimised. Their concerns seem unlikely to be acknowledged by NHI, which as envisaged risks forcing users to use allopathic care exclusively. Should this occur marginal users who previously relied on other forms of medicine might feel pressured to adopt allopathic care simply because it is free at the point of delivery. They will be forced to pay out of pocket for alternative care, yet these alternatives tend to be both preferred and cheaper.

According to the Competition Commission's Health Market Enquiry[17], South Africa already provides near universal access to healthcare to its citizens. Users of traditional medicine already do avail themselves of public or non-public allopathic medicine. Free allopathic care is already available to users of traditional medicine, so that, unfortunately, NHI as conceived would not improve healthcare for them. Furthermore, those who have a poor opinion of non-allopathic medicine in general, and traditional medicine in particular, will likely object if forced to subsidise traditional medicine. Taking an holistic view of healthcare is, for the NHI, a two-edged sword.

Beyond narrowly defined 'healthcare', the broader community's interests are that NHI should not be funded at the expense of other services such as infrastructure, water, security, electricity or sanitation.[18] If the total budget is increased to cover NHI, some have warned of aggravated stagnation, unemployment and even a tax revolt.

Many alternative medicine users are wealthier than average, so are likely to either have medical aid/insurance or be part of the 11% of total health spending paid 'out of pocket'[19] i.e. they are an integral part of non-public healthcare users.

When all forms of non-government care are considered honestly and accurately, the government share is probably well below 50% of costs. In other words, NHI is made to appear fair and realistic only by overstating the proportion of people who get healthcare from the state.

For these and related reasons, this analysis recognises that true 'universal care' in a free society covers all options, especially the beliefs and preferences of the vast majority of the population.

5 EXPLANATION OF INDICES AND METHODOLOGY

The two indices of the real relative per capita health spending in public (PubHV) and non-public (PHV) healthcare respectively (discussed below) may be called 'warts-and-all' measures of the range and quality of public and non-public health care, plus its relative costs and constraints, as they exist.

They reflect how the administration is managed and how much it costs, the cost and influence of sundry councils and committees, what range of health problems are prioritised and treated, how well they are treated, the degree of theft in clinics and hospitals, unexpected changes in procurement costs and other difficulties. The established data cover similar projects based on all the realities that go into complex projects, but which are neglected in the technical approach to cost estimates.

Secondly, a great deal of this study was devoted to the question of whether the per capita costs of all aspects of public and non-public health are an appropriate and accurate measure of the relative value or quality of the health care provided by public and non-public health respectively. Relying on the evidence discussed below it is believed that they do.

The first line of evidence is a study done by Innovative Medicine South Africa (IMSA)[20] that compared medical outcomes per unit of cost of public and private hospitals after controlling[21] for factors like age, gender, type and severity of medical problem and how complex the procedure/treatment would be. In other words, they did an apples-to-apples comparison. They found that before adopting controls private hospital costs were about 41% higher than public hospital costs. After implementing the controls, they found that private hospital costs were only 5.3% higher than public hospital costs. The latter figure implies that, in the South African hospital context, the relative cost is virtually a direct estimate of the relative quality of treatment obtained.

This study has been removed from the IMSA website since it refuted the then Health Minister's claim in parliament in 2009 that public hospitals were much more cost-effective than private hospitals – a claim that was aimed at justifying NHI. However, there is supporting evidence from the experience of other countries. Two foreign studies were found at the time – one in Southeast Asia – that both showed essentially no difference in costs between public and private health care when they provide the same service. Montagu *et al* published a meta-analysis[22] of public-private sector medical care efficiency[23] finding no differences in outcome per unit of spending.

We undertook a regression of health outcomes on real health spending per capita (purchasing parity adjusted) across countries, and found a strong linear relationship, further underlining that average costs-per-person-treated is sound measure of quality-of-care.[24]

It is therefore believed that the indices cited above provide a sound and realistic guide to the eventual running costs of NHI as proposed in South Africa.

To provide context for people not inside the industry, a doctor In private practice might see a patient with Key Care medical aid that doesn't cover the doctor's fee. If the doctor asks the patient to pay the difference the medical aid reduces what they refund the doctor accordingly. NHI might use this ploy to conceal and evade real world costs, and impose arbitrarily low fees on private practitioners. Equal and opposite reactions and stratagems from practitioners are predictable.

6 SOME CONSIDERED SCENARIOS.

Now that the necessary information is in place, we can apply it to 5 NHI scenarios.

6.1 Scenario 1 - Universal Inferior Cover

Under this Scenario, where everyone is provided with the quality-of-care equal to the current Public Health Value (with the 11% underfunding corrected) without additional resources, the desired value will be 1.11 times the public health value DV will be 1.11*PubHV = 0.75. In lay language this means that the private sector would have 38.9% of its current quality-of-care. This is then also the proportion of the market who are predicted to move to the NHI. NHI would therefore cover 82.4% of the population and the multiple of the current budget it would need to do so would be 1.3 (the health budget would increase by 30%) or R325 billion.

The entire government budget (if there are no trade-offs with other departments) would increase by 4.3% and NHI would amount to 5.33% of GDP.

The cost to the 61.1% of the private sector looking for workarounds will be an additional 61% or R100 billion or R263.4 billion in total. Total national healthcare spending would therefore be R588.4 billion or 9.65% of GDP. This scenario achieves a minor (11%) improvement in healthcare for most, a very large 61% loss of current healthcare value or increase in health costs for the private sector, at the price of 30% higher public health costs and R588.4 billion in total national health spending (a 13.5% increase).

In other words, the costs or disadvantages if this scenario far exceed the benefits.

6.2 Scenario 2 - The Government Covers All Healthcare

Under this Scenario, the government takes over total health spending as it currently stands (with the 11% underfunding of public health restored) and distributes it evenly. This is the scenario assumed by the government agency that did a crude estimate of NHI costs on the grounds that private spending on healthcare can be easily nationalised. The most likely means of confiscating this spending while maintaining quality-of-care is by offering low fees for the private care practitioners and then deducting from that fee if the practitioner tries to charge more than that fee. I don’t understand this last sentence

This is very unlikely to work as the private sector will rebel in various ways, such as by protest, emigration or leaving medicine altogether. The aimed for UV is 1.11 and the NHI is likely to gain 57.7% of the private sector and end up covering 87.5% of the population. The health budget would increase by 105%, the whole budget by 15% and cost government R512

billion (8.4% of GDP) per year. The current users of public health care would see their quality-of-care noticeably improved (65%). The 15.6% currently receiving private health care and would move to the NHI under this scenario, would see their PvtHV fall to 57.7% of what they currently receive. The other 11.4% - the workaround private sector - would end up paying a total of R182.6 billion per annum. This scenario sees the quality-of-care improve a lot for most and decline 42% for more than half the private sector while health costs increase 61% for the rest, at the cost of doubling the health budget and pushing total national health spending to R694.6 billion (a 34% increase).

6.3 Scenario 3 - Universal High-Quality Care

Under this Scenario the government covers all healthcare at a quality-of-care where the costs of NHI don't exceed the 12% of GDP which is the average of countries with a system like that which is proposed under NHI. This scenario implies a UV of 1.51 and the NHI would gain 79% of the private sector.

The health budget would increase by 193% and the overall national budget by 27.6%. Government health care spending would be R731.7 billion, and the private sector seeking workarounds[25] would spend R90.7 billion on healthcare.

Under this scenario those currently receiving public healthcare would see their quality-of-care improve massively (2.25-fold) while those in the private sector joining the NHI would lose 21% of theirs. Total national health spending would be R822.4 billion (i.e., 58.7% more).

6.4 Scenario 4 - Universal Private High Quality Care

Under this scenario, the government aims to provide a universal high quality care equal to the current Private Health Value per capita. Then the health budget would be 4.06 times its current size, the whole budget would increase by 43.7%, it would cost 16.6% of GDP or R1,0136 trillion per year. Healthcare quality would not change for the 27% private sector and improve 2.86-fold (massively) for the 72% public sector.

This scenario is impossible for South Africa to bear. Total health spending would exceed R1 trillion (R1,014 billion).

Such impossible costs rise to even greater hights when *everything* considered by *everyone* as caring to health.

6.5 Scenario 5 – Government Pro-Poor Bias

Suppose government runs the NHI via private enterprise – as some countries, such as France, Switzerland or Singapore, do. In this scenario everyone would be on a private medical aid or

have a medical insurance policy, and would seek care from a private nurse, doctor, clinic or hospital, but the state would cover the costs for those who can't afford it. As it stands the proposed NHI would cover everyone, including those who currently use the private health care sector i.e., the relatively wealthy.

If instead the NHI pays basic health care premiums only for those who are currently served by public health, then the NHI need not cost the health department any more than it is currently spending. Everyone would be free to take on extra medical cover and the state would be free to increase medical cover, the whole world class private medical industry in South Africa need not be disrupted and no one's medical care would be diminished. The rolling-out costs for the NHI would be lower too.

I

Should government decide to attract investors, the health department budget could receive a huge temporary boost from the sale of public hospitals and clinics.

8 PROBABILITIES

Assigning a probability of adopting each scenario and then weighting this with the associated cost will allow us to estimate the most likely ball-park cost. Based on the above motives the analyst has assigned a probability of 0.15 to scenario 1, 0.8 to scenario 2, 0.05 to scenario 3 and 0 to scenario 4.

The probability weighted scenarios return an expected cost of NHI to the government at an estimated R495 billion per year for normal running costs - almost exactly double the current public health spending. Total national health spending however is estimated to be R685 billion; 32% more.

Our NHI-CA's informed guess for how ambitious the NHI plan will be suggests that the NHI will absorb about 56% of the private industry in South Africa and will therefore lose a similar proportion of the tax collected from that industry. About 25% of private medical spending used to be tax deductible so it will be less than the 27% business tax rate, that is 11.33% of the overall value of private health care or about R57 billion. This lost revenue must be added to and included in estimates. Another R13,3 billion should be added if traditional and complimentary medicine are covered by NHI, bringing the total estimate to R757 billion and the budget estimate to R567 billion per annum.

If all the forms of healthcare mentioned and motivated above are included an accurate costing is impossible because there are no cost estimates for them. It might be inherently impossible to make plausible cost estimates for some of them.

Informed estimates suggest that full inclusion of all forms and definitions of healthcare – government, private, persona, complimentary, traditional, related fields etc – could push NHI through the one trillion rand (R1tr) barrier. In other words, public funded healthcare as understood and practised by all, places it well beyond being considered as a serious idea. The only way to bring such amounts closer to a few hundred billion – still unaffordable albeit at lower levels – is to place arbitrary limits on the meaning of 'healthcare'.

The R1tr number could be higher or lower. Whatever a precise cost might be, it is far in excess of anything that is remotely plausible. For that reason alone, NHI as currently envisaged, should be reconsidered and replaced by the plausible alternative of real 'insurance' where the government funds private healthcare cover for the indigent.

This estimate assumes that the ambitions of the NHI will be achieved. Given the government's ongoing struggles to satisfy its current budget needs, this seems unlikely. How far short of the goal reality will prove to be is impossible to know.

Whatever a precise cost might be, it is far in excess of anything that can be contemplated seriously. For that reason alone, NHI as currently envisaged, should be reconsidered and replaced by the plausible alternative of real ‘insurance’ where the government funds private healthcare cover for the indigent.

It is worth repeating that ‘NHI’ is a misnomer. The bill proposes the prohibition of freely developed and offered insurance cover. Genuine freely competitive private healthcare insurance would arguably be cheaper, of better quality, and more expeditious than NHI promises. To achieve comprehensive private cover, the government could require all people who can afford it to insure themselves, and subsidise private cover premiums for those who cannot afford it (according to a means test).

7 REALITY CHECK

As a reality check on this costing exercise, it should be noted that most countries that have a single payer and provider system (except for two Middle Eastern countries who are very oil rich) spend around 13% of their GDP running the system. Such proportions of GDPs and national Budgets, high as they are, must be seen as underestimates given problems experienced by, say, the NHS in the UK. The NHS is notoriously characterised by long waits for treatment and ambulance workers and staff feeling overworked and underpaid. The countries with such a system (at least in part) are Bahrain, Canada, Cyprus, Denmark, Finland, Iceland, Italy, Japan, Kuwait, Norway, Portugal, South Korea, Spain, Slovenia, Sweden, Taiwan, UAE and UK. If South Africa is serious about an NHI that really does improve healthcare quality for most (or tries to match the NHS) then there is a high probability of the NHI annual budget exceeding R600 billion .

There are a variety of reasons why many of these scenarios might be favoured by decision makers. Different reasons will be favoured by different factions and interest groups within government. Even within an individual decision maker these reasons may pull in different directions.

8.1 Increased Health Budgets Equal Reduced Other Budgets

If the whole budget does not increase (and it seems likely that SA is close to its maximum overall government size) then increases in the health budget to meet NHI costs must result in trade-offs taking funding from other areas like services, policing, education, infrastructure, sanitation, electricity, and social spending. In this case valued programs will be decimated and voters/citizens will be extremely unhappy.

In plain language, resources diverted from policing, for instance, cause more violent crime, and resources diverted from sanitation cause more disease and death.

8.2 Corruption Incentives

The possibility of a new organ of state channelling large sums of money must appeal quite strongly to the sort of people in, or connected with, government who look forward to the prospect of lucrative public tenders, state capture, corruption and related criminal enrichment.

This is particularly true given the discretionary powers regarding huge allocations envisaged for the minister and senior officials. Temptation is reduced by smaller unbundled budgets with effective and inflexible checks and balances.

8.3 Good Faith NHI

The idea of improved health care for the under-privileged appeals to all decent people and genuinely public-spirited policymakers.

The prevailing assumption that better care for some can be achieved by mandating worse care for others is perverse. It is contradicted by theory and observation. The prospect of the privileged few losing benefits and quality-of-care appeals to many who are uninformed. However politicians and others motivating the NHI are part of that privileged group and so may prefer to keep some high-quality private care.

9 IMPACT OF 2024 ELECTION

Ideally, NHI would be considered on its objective merits and demerits. In the real world, politics prevail. The 2024 election means that most of NHI law and policy is likely to be determined by the dynamics of electioneering.

9.1 The cost of putting NHI in place.

It is virtually impossible to estimate the cost of putting the NHI fully into place without knowing the quality-of-care the NHI aims to achieve. A rough guess will be made based on costs so far, the estimated annual costs and what the health department has been spending on primary health care improvements.

Currently about R4.17 billion is spent every year (in today's money) on NHI planning. Records are vague about when planning really got started but it appears 2000 is a reasonable guess. Therefore, planning has been ongoing for 23 years and will go on for at least another 4 years. At R4.17 billion per year that comes to R112.6 billion over all 27 years. Government plans to roll out NHI gradually as financial resources permit so planning is likely to continue for at least another 5-6 years. Planning alone could amount to R137 billion. The health department have allocated R7.2 billion over 3 years for provinces with approved plans for maintenance, refurbishment, upgrades and replacements of primary care facilities. To achieve the estimated goal health care standards of the NHI will require an increase of between 125% and 190% of current resources. Considering that the health department aims to bring primary health care clinics up to ideal status at the rate of 200 per year and that there are still 1100 of them that don't have ideal status, it could cost R13.2 billion to do so. If 2400 or 2.18 times as many enjoy ideal clinic status, then 2.25 times as many as currently exist would cost R64.8 billion or R36 billion more. Bringing primary health care clinics up to NHI ambitions could result in roll out costs of R36-R55 billion.

A reasonable guess would put NHI roll out costs at R192 billion, but with rather low confidence, since it could be slightly less or considerably more.

9.2 The question of corruption when it comes to estimating realistic costs.

It is inevitable that there will be much 'political' entrepreneurial efforts directed at the mindboggling amounts of money that will flow through the NHI. After all funds intended to help deal with the Covid-19 epidemic quickly fell prey to such corruption and crime. Indeed, the fact that very few anti-corruption measures have been proposed for the NHI supports the suspicion that one underlying purpose behind supporting an NHI is to facilitate corruption. The possible extent of this can be estimated by comparing what Eskom cost to run in 1994

and what it costs now. Eskom saw a swing from a 14.7% surplus in 1994 to a 5% loss in 2022 (about 19%) at roughly the same level of power generation. Not all of this difference went into criminal pockets. Much of it is just reduced productivity as a result of dealing with the crime. If the same thing happens with the enormously tempting NHI money flow another R100 billion could easily be added to the cost of NHI. That implies about R615 billion per year in total government costs, or almost R815 billion in total (government plus private) health spending per year.

10 HIDDEN COSTS TO HEALTHCARE AND THE ECONOMY AT LARGE

The problem with measures like an NHI is that they are essentially price controls.[26]

The NHI as proposed amounts to an attempt to lower the price of healthcare below the rate it would be in an economy where people are completely free to make mutually beneficial transactions. Such transactions allow people use their knowledge of their own situation and the trade-offs they prefer. They also permit general knowledge of the availability of, and demand for, limited resources and services. Price controls destroy the information value of prices, and therefore disallow many mutually agreeable and beneficial transactions thereby reducing overall value in unknowable ways and extent. Economists, however, have determined that the value of lost transactions generally far exceed the directly calculable values lost with respect to the activity for which price has been controlled. For example, the petrol price controls during the oil crisis in the late 1970s resulted in a minor loss in petrol sold but very large – around 80% – losses in service time (the only way station owners could compensate for losses) which caused productivity losses throughout the economy.

The NHI is certain to cause similar losses both within healthcare and in the economy in general. Within healthcare the NHI is likely to put pressure on the supply of services. Doctors and nurses are likely to leave or demand greater compensation or cut services in subtle ways, such as cutting the consultation time per person, restricting access to the very best procedures and medicines due to costs, increasing waiting times to get treatment, etc. The artificially low price will increase demand for services that will be in short supply at that price. The result will be a general impression of declining quality-of-care – even when that isn't true. The economy in general will suffer from a multitude of transactions that didn't happen and time wasted waiting for medical care.

11 ALTERNATIVE METHODOLOGIES

There are several methods to estimate the cost of a large project.

11.1 The Typical Approach

One approach is that often taken by a business tendering for a project. Typically, the business's technical experts break down all the processes, materials and manpower (and the number and costs of each) the project requires. They factor in the manner and cost of processes, materials and manpower and then come up with some overall figure. They will be confident in that figure because they really did their homework and paid attention to every detail.

In the case of NHI this process might involve listing every health problem and its relative frequency for every demographic subgroup in every location in the country. It would then list the resources required to deal with each, plus what it would cost initially to put the needed resources in place and maintain them thereafter. Summing it all up would give you the expected cost of NHI. This seems like the ideal method, assuming that the required information at that level of specificity could be found. One could use less specific information – fewer health issues or rougher demographic breakdowns say – and assume that the omitted information has a reliable relationship to the information included.

But there is a major problem with this approach in that it is almost always highly inaccurate. The completed project typically turns out to take far longer and cost far more than estimated. For example, Laurence Summers – elite economist and former president of Harvard – would give tasks to students and ask them to give a worst-case scenario estimate of how long it would take. He noted that if they said it would take an hour it took a day, if they said a day it took a week, if the said a week it would take a month, etc. A very relevant example of the inaccuracy of this approach is the Beveridge Report[27] on which the UK NHS is based. The report had a detailed look at expected medical demand and estimated that the NHS would cost 170 million pounds per year. It turned out that it cost 400 million pounds per annum.

The main reasons for this are as follows.

1. The failure to foresee difficulties adequately, with delays and shortages that appear at every level, many of which are not merely a challenge to predict but are in fact unforeseeable,

   and

2. Discounting the general prevalence of situations determining project outcomes.

11.2 The Ideal Approach

Another approach is to consider the base rates[28] – the completion times and final cost statistics of similar projects. Studies on the accuracy of initial estimates find that the actual expenses etc of similar projects in the past provide a far more realistic and accurate basis for predicting the final cost of a project than do the highly detailed technical analyses of the former method. The statistical approach may even provide something like a 95% confidence interval.

A very pertinent study of accurate forecasting is Philip E Tetlock's Good Judgement Project[29]. This study started as a collaboration with, and funded by, the Aggregative Contingent Estimation (ACE) Program at Intelligence Advanced Research Projects Activity (IARPA-ACE). The program was an attempt to see if political or economic outcomes could be predicted accurately and if so to identify those factors which made the biggest difference. The Tetlock team of volunteers easily beat several other teams (including one of defence analysts with access to classified information) and Tetlock published a book, Superforecasting[30], on their findings. They found that the most important factor in improved forecasting is the use of base rates, that is the general prevalence of factors. Accepting that the most average outcome in similar situations must also be the most likely outcome in a given situation being analysed. Those forecasters that anchored their forecast on the historic frequency of say violent protests to policies, were considerably more accurate in predicting violent protests to new attempts at that policy than forecasters who didn't.

Kahneman and Tversky[31] explain base rates in their research on cognitive biases. They would pose hypothetical problems, such as asking whether an introverted scholarly man is more likely to work as a librarian or a farmer. The vast majority of people consider librarian to be the more likely, but that is wrong. It is wrong because they fail to consider that farmers are far more common than librarians. Although working in a library may be 10 times as congenial than farming to introverted scholars, the relative shortage of library jobs compared to farm jobs is telling. If 50% of librarians but only 5% of farmers are scholarly introverts, then a scholarly introvert is more likely to be a farmer when farmers outnumber librarians by more than 10 to 1. The actual ratio of farmers to librarians in the US is at least 16 to 1 (2,000,000 vs 125,000). 5% of farmers is 100,000 and 50% of librarians is 62,500, so the chance of an introverted scholar being a librarian rather than a farmer is 62,500/(62,500+100,000) = 0.385 i.e., less likely.

The reason the base rate approach works so much better is not only that it takes the general prevalence of events into account but that it also samples the unexpected problems (even the

unknowable ones) that the other method doesn’t and cannot consider. The trick is to specify past projects that are similar enough to be useful and then to find statistics on them

12 THE MODEL

SOUTH AFRICA'S CURRENT GOVERNMENT AND NON-GOVERNMENT COSTS

In some of the scenarios modelled below it is assumed that the NHI will aim to provide a uniform quality of health care to everyone and in others that it will continue to accept the coexistence of inequality in the quality of medical care in the public and non-public sectors.

The best estimates that could be obtained for current public and non-public (private) health spending were R250 billion and R268.24 billion respectively, for a national total of R518.24 billion per annum.

For those unfamiliar with the relevant basic terms, concepts and equations, a glossary follows, with numbers based on 2021 General Household Survey[32].

12.1 Basic Indices Defined

GHCp	proportion of total health care spending spent in the public healthcare sector.
	Value of GHCp is 0.48.
PHCp	proportion total health care spending spent in the non-public healthcare sector. Value of PHCp is 0.52.
ppG	proportion of population served by the public healthcare sector.
	Value of ppG is 0.72.
ppP	proportion of population served by the non-public healthcare sector. 16% with medical aid/insurance and 11% out-of-pocket.[33]
	Value of ppP is 0.27.

GovSnd=GHCp*0.98	proportion of all health spending paid by government.
	Value of GovSnd is 0.47 (See the Schussler note a few paragraphs below)
PubHV=GHCp/ppG	an index of quality of healthcare provided by the public healthcare sector.
	Value of PubHV is 0.67.
PvtHV=PHCp/ppP	index of quality of healthcare provided by the non-public healthcare sector.
	Value of PvtHV is 1.92.
Universal Value (UV)	the fraction of the distance between PvtHV and PubHV values.
	Values of UV range between 0 and 1.
Desired value (DV)	the UV value government wants to target.

The Basic Indices and Equations Worked Out for use in the Scenarios Considered

The first component index is PubHV = GHCp/ppG) = 0.48/0.72=0.67. The late economist, Mike Schussler, discovered that patients pay about 2% of the total medical care costs in the public sector. Normally this 2% patient payment would result in a reduction of the 48% of total health spending covered by government to 46%. It was decided not to try to adjust the 0.48 figure because those fees are still part of the public sector medical costs and therefore don't impact the meaning of the index. The 2% fee will however influence the expected cost of the NHI to the Health Department.

The second component index is PvtHV=PHCp/ppP=0.52/0.27=1.92. (These indices are defined at the top of this section a few lines above.)

The latter is 2.86 times the value of the former.

Where the aim is to provide a uniform value per capita, the desired level of that uniform quality can be placed somewhere on an imaginary line defined by the Public and Private Health Value indices i.e., somewhere on a line between 0.67 and 1.92. All one needs to know is where the desired level of NHI care aims to be relative to the current public and private values, such as at the public care value, halfway between the public and private care values, at the private care value, etc.

UV=(PvtHV – PubHV)*DV +PubHV.

In numbers that is:

UV = (1.92-0.67)*DV + 0.67=1.25*DV + 0.67. UV is defined at the top of this section.

Therefore, if government aims for a quality of care halfway between current public and private health care values then the desired Universal Value = 1.25*0.5 + 0.67 = 1.29.

12.2 Reactive Healthcare Spending

In a News24 interview, Dr Crisp (the main architect of NHI) said that there would be a substantial reduction in the quality of care for those using the private sector under NHI. A pertinent question is, what are non-public healthcare (private) users likely to do when the NHI confronts them with a reduction in the quality of their medical care?

According to a South African Medical Association survey[34] of medical staff, 38% of professionals would emigrate as a result of NHI. If 38% did emigrate current non-public sector users are likely to try to find an equivalent alternative to what they have now (as they have done in education, electricity, housing and security) thereby increasing the price of these

alternatives proportionately i.e. by the proportion of service providers leaving as a fraction of those staying, or 38/(100-38) = 61%, because those staying will have to shoulder the extra burden of those who left, and will be inclined to charge enough to compensate themselves for this extra load.

If these users lose nothing due to a generous NHI, all of them will move to the NHI. If they end up with no more quality or availability of healthcare than the current public sector user, none of them will move.

The proportion of private healthcare users looking for workarounds (instead of moving over to the NHI), will be -

%PvtHV lost=1-UV/PvtHV,

because UV/PvtHV is the healthcare quality they will get as a fraction of healthcare quality they currently enjoy, or alternatively the proportion of healthcare quality they retain with NHI. 1 minus that fraction is the proportion of healthcare they will lose with NHI.

This fraction of private healthcare users will pay then 61% more for the same level of care than they do now. The **extra** non-public (and general) costs will come to:

0.61*(1-UV/PvtHV)*proportion national health spend by private*total national health spend i.e.

Extra reactive private spending=R(0.61*0.52*(1-UV)/1.92)*518.24 billion.

The NHI proportional gain in users from former non-public sector users will therefore be in proportion to the quality-of-care/availability-of-care **not** lost to the non-public sector users, or in equation terms,

(1-%PvtHV lost to non-public sector users)*0.27 (% of population that are non-public sector)[35].

NHI gain = (1-(1-UV/PvtHV)*0.27 = UV/PvtHV*0.27.

These assumed reactions by the non-public sector (called private sector) will be factored into estimates of the cost of NHI under various scenarios below.

12.3 NHI Costs As A Multiple of Current Public Health Spending

The index values do not mean much by themselves but when used to estimate the total running costs of the NHI as a multiple of current public health expenditure, they become very meaningful. Under the scenario that NHI will provide ALL health care, the total cost of that

care will be covered by government. If it won't, the equation below can easily be modified to accommodate that.

The equation that does that is:

> NHI cost as a multiple of current public health expenditure = (fraction of population that will covered by NHI)*(1- fraction of NHI costs to be covered by client fees under NHI)*Universal Value per capita divided by fraction of total health expenditure currently spent in public health *(1- fraction public healthcare costs currently covered by client fees).

In a less verbose form:

NHI cost multiple of current pub health spending =

> (fr pop under NHI)*(1-fr NHI costs in fees)*UV)
> (Fr tot HC spent in Pub Hlth*(1-fr Pub Hlth paid in fees)

or

> NHI cost multiple = ((0.72+(UV/1.92)*0.27)*(1-0.02)*UV/((0.48*(1- 0.02)).

(Note that the fee fraction of public health is currently 2% and NHI is assumed here to charge the same.)

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Authors

Leon Louw created the Free Market Foundation 50 years ago and led it to internationally recognised greatness. He has written dozens of policy submissions and done multiple presentations to organs of state. He has hundreds of published articles and papers, has been a speaker in over 50 countries, and has been a Nobel Peace Prize Nominee. He has addressed UN and US Congressional committees, and shared platforms with many luminaries, including Nobel Laureates. He has been active in many aspects of public life, especially organisations serving the interests of the poor.

Garth Zietsman is a professional statistician with a degree in mathematical statistics and 40 years' experience in applying statistics to multiple fields such as psychometrics, econometrics and medical research. He is known and respected internationally by elite economists and his views on a range of subjects are routinely published in the local media.

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ENDNOTES

[1] 'Full implementation' includes everything that 'ordinary' people regard as healthcare. Official definitions omit much if not most of comprehensively defined healthcare. The concept of 'full' care is explored below. What civilians think of as healthcare covers a wide range of services, beliefs, substances and activities.
[2] Gross domestic product or GDP is the value of all goods and services produced in a country during a specified period, usually one year.
[3] https://www.busa.org.za/business-unity-south-africa-on-national-health-bill-nhi/
[4] 'Full', as explained above and below, would include everything civilians regard as caring for their health.
[5] The law which confine private care and cover to 'the rich' include certificate of need, minimum benefits, and demarcation restrictions.
[6] There were exceptions, such as Chamber of Mines hospitals.
[7] Examples include the following:
ajol-file-journals_76_articles_157784_submission_proof_157784-901-410894-1-10-20170619.pdf.
https://pubmed.ncbi.nlm.nih.gov/3061020/.
https://www.publichealth.columbia.edu/research/others/comparative-health-policy-library/south-africa-summary.
https://www.jstor.org/stable/45089996.
https://en.wikipedia.org/wiki/Healthcare_in_South_Africa.
[8] Britnell, Mark. 2015. *In Search of the Perfect Health System*. London: Palgrae p75.
[9] David Bullard reporting on Dr Crisp during the parliamentary NHI hearing. He further reported that "In a parliamentary portfolio committee meeting on health, the deputy director-general in charge of NHI at the Department of Health, Dr Nicholas Crisp, said, 'government needs to spend as much on healthcare as it decides'."
[10] In economics, when employment-related taxes are indirect, such as payroll taxes, they are nonetheless paid by workers.
[11] Portfolio Committee on Health. May 2023. *Report on the department budget and annual performance plan*.
[12] This is one of literally hundreds. Paradoxically, it was provided to us on the pretext of being a credible source. https://www.news24.com/news24/the-arguments-for-and-against-the-nhi-20190819
[13] Our research did not yield evidence of an empirical source on this.
[14] Specifically, 0.9%.
[15] South African Health Review 2007.
https://www.hst.org.za/publications/South%20African%20Health%20Reviews/SAHR2007.pdf.
[16] This includes, for instance, over-the-counter pharmaceuticals, first aid, skin treatments, pain killers, plasters, antiseptic creams, bandages, splints, etc.
[17] Competition Commission. *Healthcare Inquiry*. compcom.co,za/healthcare-inquiry/.
[18] Competition Commission. *Healthcare Inquiry*. compcom.co,za/healthcare-inquiry/.
[19] Health Econ Policy Law. 2018. *The Incidence of health financing in South Africa*. PubMed 13,1 68-91.
[20] Innovative Medicine South Africa (IMSA). 2009? *Cost effectiveness of public and private hospitals in South Africa*.
[21] Controlling for a variable means that you are statistically matching or equating groups on that variable.
[22] A meta-analysis is an analysis that evaluates the combined findings of multiple independent relevant studies.
[23] Montagu D, Anglemyer A, Tiwari M, Drasser K, Rutherford G, Horvath T, Kennedy G, Bero L, Shah N, Kinlaw H, 2011. *A comparison of health outcomes in public versus private settings in low- and middle-income countries*. iHEA, pre-Congress Symposium on the Private Sector. Toronto.
[24] Purchasing Power Parity or PPP is the means whereby effective costs in different currencies and currencies are compared.
One of the most effective and popular means of establishing PPP is called the Big Mac index. Since McDonalds has universally enforced standardisation, the index makes it easy to determine the real world values of currencies.
[25] A workaround would be efforts to maintain current quality of medical care by using options outside of the official system such as going abroad for medical care or using a black market.
[26] Sowell, Thomas. 1980. *Knowledge and Decisions*. Basic Books, Inc.
[27] The Beveridge Report and the Foundations of the Welfare State. blog.nationalarchives.gov.uk/beveridge-report-foundations-welfare-state/.
[28] Cleopatra Enterprise. *Estimate the cost of your projects by looking into your history*.
costmanagement.en/blog-article/estimate-the-cost-of-your-projects-by-looking-into your-history/.
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