



Benefit Incidence, Financing Incidence and Need of Healthcare Services in South Africa

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In the context of the envisaged implementation of National Health Insurance (NHI) in South Africa by 2025/26,¹ it is necessary to understand how healthcare benefits, healthcare financing and the need for healthcare services are distributed across different parts of the socioeconomic distribution. In this note we determine which part of the socioeconomic distribution benefits from healthcare services, as well as to what extent, by calculating benefit incidence for healthcare in South Africa. The burden of healthcare funding is determined by conducting financing incidence analysis, and we rely on mortality estimates in our measurement of healthcare need. We find that financing incidence is strongly pro-poor, with the two richest quintiles financing the majority of healthcare benefits for all. The poorest three quintiles receive more healthcare benefits than they pay for (in line with principles of equity and social solidarity), but each still receive less than the two richest quintiles. The three poorest quintiles also receive fewer benefits than their need for healthcare services indicate. These results are important to consider in the ongoing debate surrounding the proposed NHI.

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1. Department of Health. 2017. *National Health Insurance for South Africa: Towards universal health coverage. White paper.*

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1 Introduction

It is envisioned that the National Health Insurance (NHI) be implemented in South Africa by 2025/26.² In order to design a system that provides universal access with many services free at the point of delivery, it is important to consider the socio-economic distribution of healthcare benefits, the distribution of healthcare financing, as well as the distribution of the need for healthcare services.

Other authors' earlier analysis of this subject showed that the distribution of healthcare benefits is pro-rich (i.e. more healthcare benefits accrue to the rich than to the poor), financing is progressive (i.e. contributions to healthcare financing make up a larger proportion of overall expenditure amongst the rich than amongst the poor), and the need for healthcare decreases markedly as the population becomes richer.^{3,4}

This research provides an updated analysis of benefit and financing incidence for healthcare in South Africa. In calculating benefit incidence, we use

the National Income Dynamics Study (NIDS) of 2008⁵ which captures healthcare utilisation across different parts of the socioeconomic distribution. The population is ranked according to per capita household expenditure and divided into five equally sized groups (quintiles): the poorest 20% of the population fall into quintile 1, and the wealthiest 20% of the population fall into quintile 5. For the financing incidence, we use the most recent publically available income and expenditure data,⁶ with the analyses presenting results for 2010.

Benefit incidence analysis considers the monetary value of the healthcare benefits that each quintile receives, measured by their utilisation and the associated costs. The analysis is conducted for the public sector (clinics and hospitals), as well as the private sector (general practitioners (GPs), clinics and hospitals (including specialists), and medicines purchased outside of hospitals).

For financing incidence, we determine to what extent different quintiles contribute towards the funding of healthcare through

taxes, medical scheme contributions and out-of-pocket (OOP) payments. Importantly, we do not include corporate income tax (CIT) in the analysis due to the difficulty and uncertainty in determining the correct distribution thereof. This is in line with other studies which consider financing incidence.⁷ The need for healthcare is measured by mortality data reported in NIDS. This is a move towards an objective indication of healthcare need rather than the subjective self-assessed health status (SAH) variable often used in the literature.

The updated results from our analysis show that the overall distribution of benefits is pro-rich, financing incidence is progressive (pro-poor) and need decreases as quintiles become richer. Specifically, our analyses show that while the two richest quintiles receive benefits in excess of their need, they also contribute 87% of total healthcare financing. The poorest three quintiles contribute only 13% of the financing, but receive 44% of benefits. However, this is still less than the 70% of the national healthcare need they comprise.

2. Department of Health. 2017. *National Health Insurance for South Africa: Towards universal health coverage. White paper.*
3. Ataguba, J.E. & McIntyre, D. 2009. *Financing and benefit incidence in the South African health system: Preliminary results. University of Cape Town Health Economics Unit, Working Paper 09-1.*
4. Ataguba, J.E. & McIntyre, D. 2013. *Who benefits from health services in South Africa? Health Economics, Policy and Law, Vol. 8, No.1*
5. Southern Africa Labour and Development Research Unit. *National Income Dynamics Study 2008, Wave 1. Dataset. Available: <https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/451>*
6. *Income and Expenditure Survey (IES) 2010/11. Statistics South Africa (StatsSA). 2012. Statistical release P0100: Income and Expenditure of Households 2010/2011. StatsSA: Pretoria.*
7. See for example Inchauste, G., Lustig, N., Maboshe, M., Purfield, C. and Woolard, I. (2015). *The Distributional Impact of Fiscal Policy in South Africa. World Bank Policy Research Working Paper.*

Public sector healthcare in South Africa is financed predominantly by quintiles 4 and 5, who contributed collectively just over 86% of financing. However, collectively they receive slightly less than 37% of benefits, while quintiles 1 and 2 receive slightly more than 41% of benefits while contributing 6.28% of financing. This is a situation consistent with the principle of social solidarity. However, it cannot be considered a situation that “punishes the poor”, as is put forward in the NHI White Paper of 2015 and of 2017.

These findings have important policy implications. Depending on various national objectives, policies that alter either benefit incidence, financing incidence, or both, may be considered. While it is outside the scope of this research to comment on the appropriate goals and ways to achieve it, these results are important to keep in mind when the NHI is being developed and implemented.

2 Benefit Incidence

2.1 Public sector

To calculate the benefits for the public sector, we use a “top-down” approach (in contrast to the traditional “bottom-up” approach usually used for benefit

incidence analysis). In the top-down approach, we allocate the total amount spent on each service to quintiles according to their share of utilisation of that service.

Based on expenditure data from the District Health Barometer (DHB) 2010/11⁸ and the National Treasury, we find that public benefits overall are pro-poor in the sense that poorer parts of the socio-economic distribution receive more than wealthier parts of the distribution. Quintile 1 receives slightly less than 20% of the benefits, and quintiles 2 to 4 each receive more than 20%. Only 12.72% of the public sector healthcare benefits accrue to the richest quintile.

2.2 Private sector

Using data on claims paid by medical schemes (published by the Council for Medical Schemes (CMS)), as well as estimates of the out-of-pocket expenditure on health from the Income and Expenditure Survey (IES) of 2010/2011, we calculate that private healthcare benefits are strongly pro-rich, with 85% of benefits accruing to the richest 40% of the population.

For the primary healthcare component of private sector care (visits to GPs and private clinics mostly at pharmacies), we

use the traditional bottom-up approach to assess the benefit incidence. For this calculation, we multiply the unit cost of the service by the number of people that use the service (utilisation share) and by the number of times each of those people use the services (utilisation frequency/ rate). We find the distribution of visits to GPs and private clinics at pharmacies (for services like vaccinations) to be pro-rich.

The distribution of private hospital benefits is also pro-rich. In the calculation of hospital benefits, we add the amount medical schemes paid to specialists to the amount paid to private hospitals. We do this to make the hospital cost more comparable to the public sector, where specialist visits are included in expenditure on public hospitals. Expenditure on specialists is not included elsewhere, and is therefore not double-counted. As a result, the expenditure on private hospitals is overstated as not all specialist visits occur in-hospital. We exclude support and allied health professionals (e.g. optometrists) from these calculations since the utilisation of these services are not included in the public data.

We use medical scheme data to calculate total expenditure on medicines (outside hospitals). This expenditure is allocated to

8. Available: <http://www.hst.org.za/district-health-barometer-dhb-2>

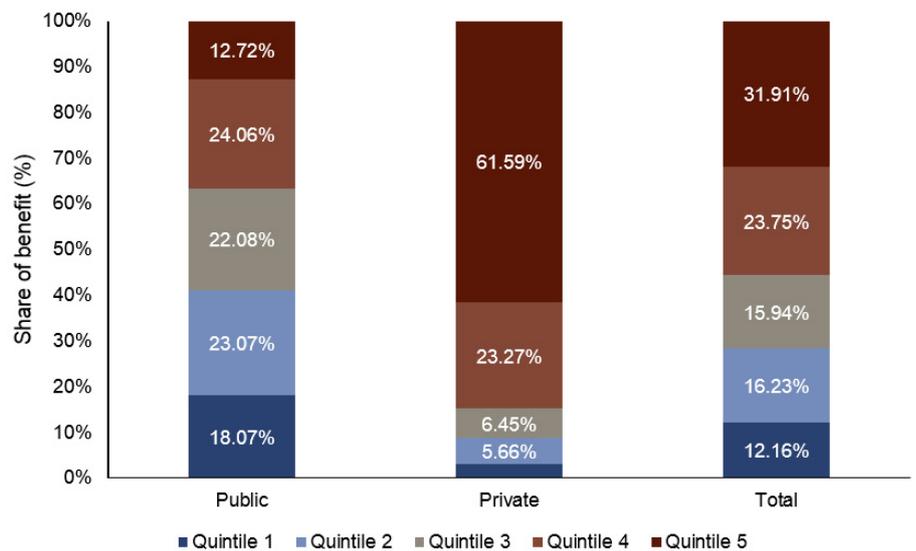
quintiles according to medical scheme membership. We then add expenditure on medicines captured in the Income and Expenditure Survey (IES) data. The result is a pro-rich distribution for the benefit incidence of medicines.

2.3 Total benefit incidence

Considering the combined benefit of public and private healthcare, the distribution is pro-rich. The poorest quintile receives just 12% of all healthcare benefits, while the richest quintile receives 32%. Quintiles 2 and 3 each receive less than 20%, while quintile 4 receives a little more than 20%.

These results, illustrated in Figure 1, represent the extent to which people from different quintiles benefit from total healthcare provision in South Africa. Importantly, the measurement of benefits does not account for differences in the quality of healthcare received at different facilities. The results are driven by the number of people in each quintile who reported seeking healthcare at various facilities. Although it is probable that the costs associated with different facilities reflect differences in quality, this is not explicitly controlled for in the analysis.

Figure 1: Benefit incidence results: public, private and total (2010)



Source: NIDS (2008); CMS (2011/2012); Econex calculations

3 Financing incidence

Healthcare financing is comprised of a share of total taxes, medical scheme premiums and OOP payments. Financing incidence considers each of these, as well as all three categories jointly, as a proportion of overall household expenditure. Each of these categories is discussed below, and quintiles' expenditure shares in each category are presented in Figure 2.

3.1 Taxes

Calculations based on personal income tax, VAT, excise taxes on alcohol and cigarettes, fuel levies, and indirect taxes (including stamp duties, air departure

tax and taxes on property) are included in the analysis. Corporate income tax (CIT) is excluded from the analysis as there is no consensus in the literature regarding the appropriate distribution of CIT across quintiles.

Given the sizeable contribution of CIT to overall tax revenue (19.7% in 2010/11⁹) any assumption regarding the incidence of CIT across the socio-economic distribution has a significant impact on the overall analysis of the progressivity or regressivity of the tax system. We therefore exclude CIT from our tax incidence analysis, in line with literature pertaining to financing incidence.¹⁰ We only consider the proportion (11.4%) of tax revenue spent on

9. National Treasury. 2012. Budget Review 2012. Available: <http://www.treasury.gov.za/documents/national%20budget/2012/review/default.aspx>
10. Inchauste, G., Lustig, N., Maboshe, M., Purfield, C. and Woolard, I. (2015). The Distributional Impact of Fiscal Policy in South Africa. World Bank Policy Research Working Paper.

healthcare in the calculation of total financing incidence.

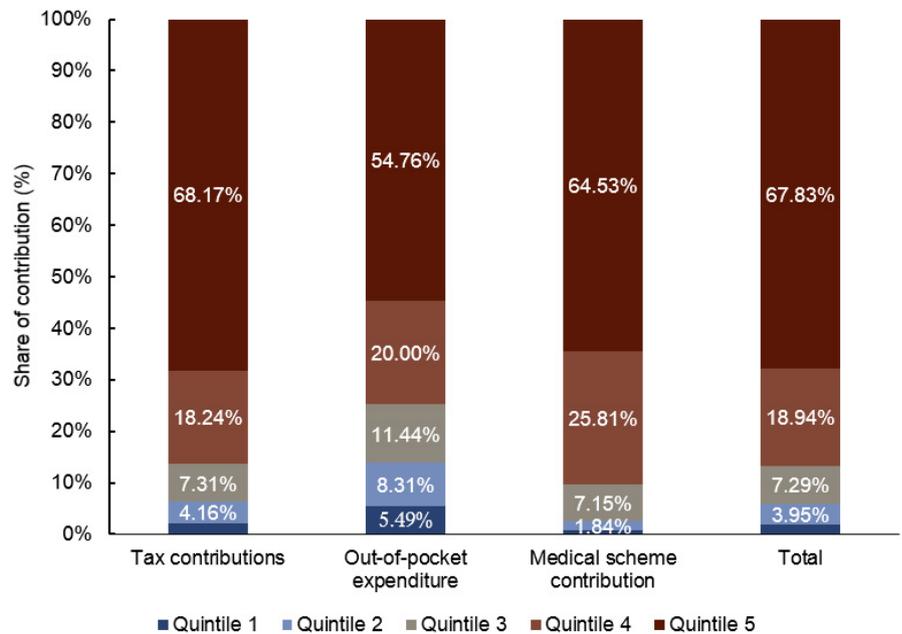
For all five categories of taxes, the richest quintile contributes substantially more than the other quintiles. Figure 2 shows that quintiles 4 and 5 jointly contribute almost 87% of tax revenue, while the shares of quintiles 1, 2 and 3 each fall below 10%.

Comparing tax contributions and public healthcare benefit incidence provides an indication of the progressiveness of the public healthcare system. The first column of Figure 1 indicates that the poorest two quintiles receive more than 40% of public healthcare benefits while tax contributions (which fund public healthcare) from these quintiles jointly comprise less than 7% of overall tax contributions. Public healthcare is therefore pro-poor in the sense that wealthier quintiles bear the majority of the financing burden for public sector healthcare (quintiles 4 and 5 jointly contribute approximately 87% of overall tax). This is in line with principles of social solidarity.

3.2 Medical scheme premiums

The distribution of total medical scheme contributions (as reported in the 2012/13 Annual Report of the Council for Medical Schemes) are distrib-

Figure 2: Healthcare financing incidence by source (2010)



Source: IES (2010/2011); Budget Review (2014); CMS (2012/2013); NIDS (2008); Econex calculations

uted over quintiles according to membership, as recorded in the IES 2010/2011. The analysis takes account of the tax rebate received by medical scheme members. Figure 2 shows that the two richest quintiles contribute 90% of total medical scheme premiums, while the contributions of poorer quintiles are extremely small.

3.3 Out-of-pocket payments

IES 2010/11 is used to calculate OOP expenditure. Figure 2 indicates that the two richest quintiles contribute 75% of total OOP expenditure, with quintiles 1, 2 and 3 contributing 5.49%, 8.31% and 11.44%, respectively.

3.4 Total financing incidence

In this subsection, each quintile's expenditure on tax, medical scheme contributions and OOP payments is expressed as a proportion of total household expenditure (in contrast to the previous subsections, where the expenditure share of each quintile in overall financing is shown). Figure 3 depicts total household expenditure, per quintile, as well as the proportion of total expenditure comprised by tax, medical scheme contributions and OOP payments. Total financing is broadly progressive, with richer quintiles' contributions to healthcare financing

making up a larger proportion of their overall expenditure than it does for poorer quintiles. Figure 3 illustrates each quintile's contributions. Wealthier quintiles contribute a larger proportion of total expenditure to both taxes and medical scheme contributions.

However, in the case of OOP payments, this category of healthcare financing comprises a larger proportion of overall expenditure amongst the poor than it does amongst the rich. Figure 3 shows that OOP payments comprise 2.35%, 1.79% and 1.39% for quintiles 1, 2 and

3, respectively, while for quintiles 4 and 5, OOP payments comprise 1.20% and 0.88% of overall expenditure, respectively. This trend is the opposite of what we observe in the case of tax and medical scheme contributions.

Public healthcare financing (i.e. tax contributions) is both progressive and pro-poor in the sense that for wealthier quintiles tax contributions comprise a larger proportion of overall expenditure, and these quintiles also contribute in excess of their population share. However, for private healthcare access

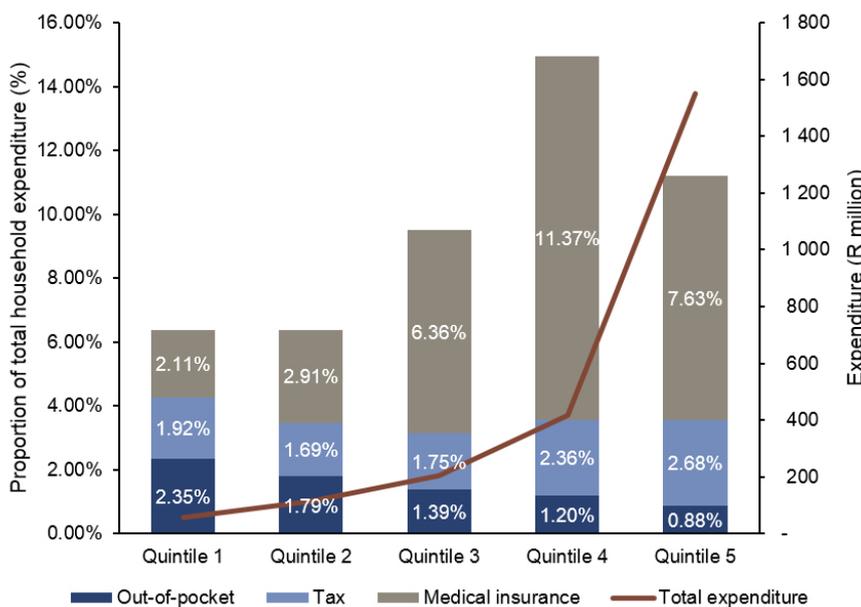
is rationed according to ability to pay. In other words, utilisation of private healthcare services depends on either medical scheme contributions or OOP. Therefore, although medical scheme contributions comprise a larger part of total expenditure amongst richer quintiles, they are not "pro-poor".

4 Need for healthcare

It is widely acknowledged that there is no perfect measure of healthcare need.¹¹ Studies often use self-assessed health (SAH) status and self-reported health conditions as indicators of healthcare need, with survey respondents asked to rate their own health on a scale (in the case of SAH measures) or to report whether they have been diagnosed with certain conditions.¹² These measures are subjective, and relying on those responses to infer healthcare need is problematic.¹³

In an attempt to move towards a more objective measure of need, we make use of the mortality data reported in NIDS. Respondents are asked, "Has any member of this household, who usually lived here for at least four nights a week, died in the

Figure 3: Healthcare financing contribution as proportion of total household expenditure, per quintile (2010)



Source: IES (2010/2011); Budget Review (2014); CMS (2012); NIDS (2008); Econex calculations

11. Salomon, J.A., Nordhagan, S., Oza, S., Murray, C.J. 2009. "Are Americans feeling less healthy? The puzzle of trends in self-rated health." *American Journal of Epidemiology*, Vol.170, No.3: 343-351.; Van Doorslaer, E. & Jones, A.M. 2003. "Inequality in self-reported health: validation of a new approach to measurement." *Journal of health economics*, Vol.22, No. 1: 61-87.
 12. E.g.: Ataguba & MacIntyre (2009; 2013); Moriarty, D.G., Zack, M.M. & Kobau, R. 2003. *The Centers for Disease Control and Prevention's Healthy Days Measures – Population tracking of perceived physical and mental health over time. Health Quality Life Outcomes*. Vol. 1, No. 1.
 13. This is well documented. See, for example, Rossouw, L., d'Uva, T.B. and van Doorslaer, E. "Poor health reporting? Using vignettes to recover the health gradient by wealth". *Tinbergen Institute Discussion Paper*. [online]: <http://papers.tinbergen.nl/17031.pdf>.

last 24 months?”, with the answer “yes” or “no”. It is possible to calculate the incidence of mortality across quintiles, and to observe the distribution of deaths across quintiles. Mortality data is often used as an indicator of healthcare need. Using deaths as an indicator of need for healthcare, the relative need of the quintiles are calculated.

By definition, 20% of the population belongs to each quintile. If need (or deaths) were distributed equally across quintiles, each quintile would have 20% of the national need. However, the NIDS mortality data indicate that the need is higher in the poorer quintiles, with the bottom three quintiles each having more than 20% of the need (24% for quintile 1, 23% for quintile 2 and 23% for quintile 3). Need decreases as quintiles become richer so that the two richest quintiles each have less than 20% of the need, at 19% for quintile 4 and 11% for quintile 5.

The distribution of need as estimated by mortality, is illustrated in Figure 4. This measure of need is an approximation at best. However, its merit lies in the fact that it is objective. Nonetheless, one should be similarly cautious to use it for policy making purposes. Careful statistical analysis should be done to establish the distribution and extent of healthcare need in South Africa.

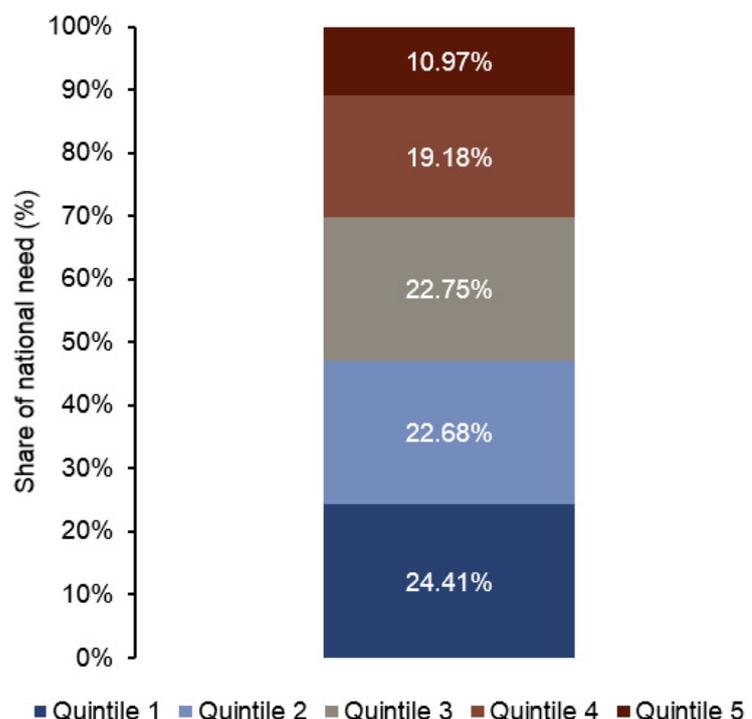
5 Final results and implications

Financing incidence is found to be progressive (pro-poor), with quintiles 4 and 5 contributing almost 87% of all healthcare financing. In contrast, when the benefits received from public and private healthcare are jointly considered, the benefit incidence is pro-rich. The need for healthcare decreases as quintiles get richer. Nonetheless, the two richest quintiles benefit from healthcare services more than indicated by their need, and vice versa for the poorest three quintiles.

Figure 5 shows the combined results of the financing incidence and benefit incidence analyses, as well as healthcare need as approximated by mortality. Wealthier quintiles have the highest healthcare financing incidence (almost 87% between quintiles 4 and 5) and the highest benefit incidence (55.66% of benefits accrue to quintiles 4 and 5).

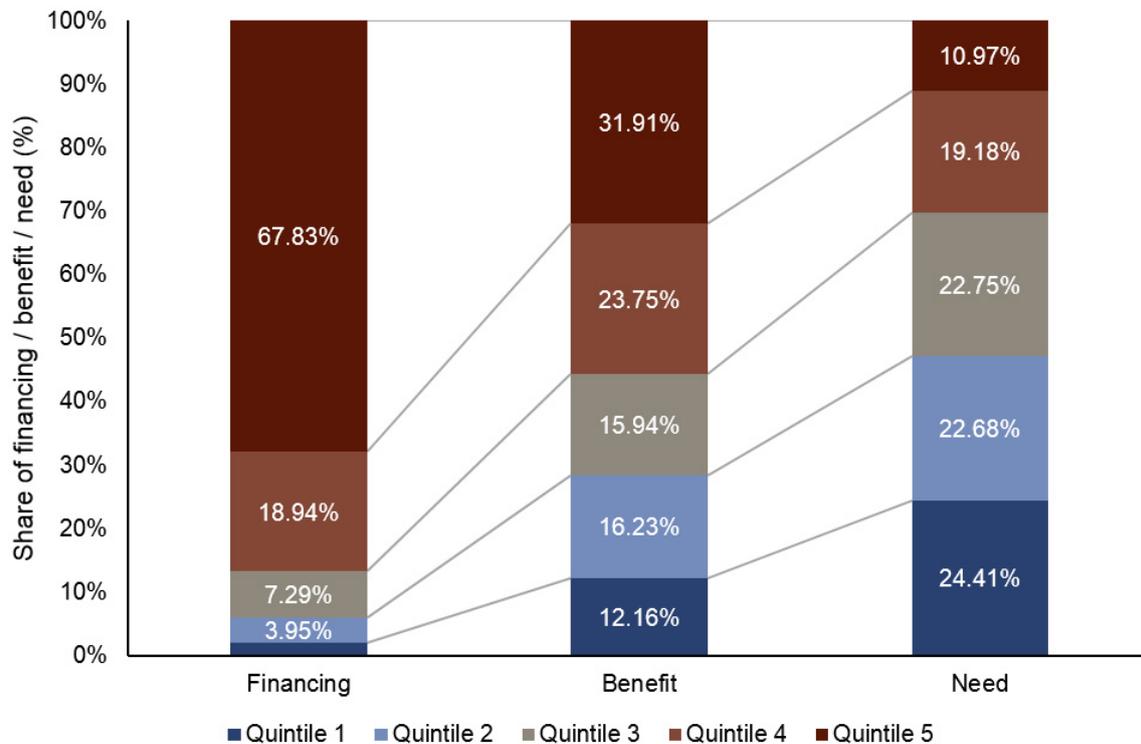
Amongst the poorest three quintiles, benefit incidence is greater than their share in financial contributions. However, the proportion of the benefits they receive (quintile 1 receives 12.16% of overall benefit) is lower than

Figure 4: Proportion of national need, per quintile, based on NIDS (2008)



Source: NIDS (2008); Econex calculations

Figure 5: Total financing incidence, benefit incidence and need for healthcare in South Africa (2010)

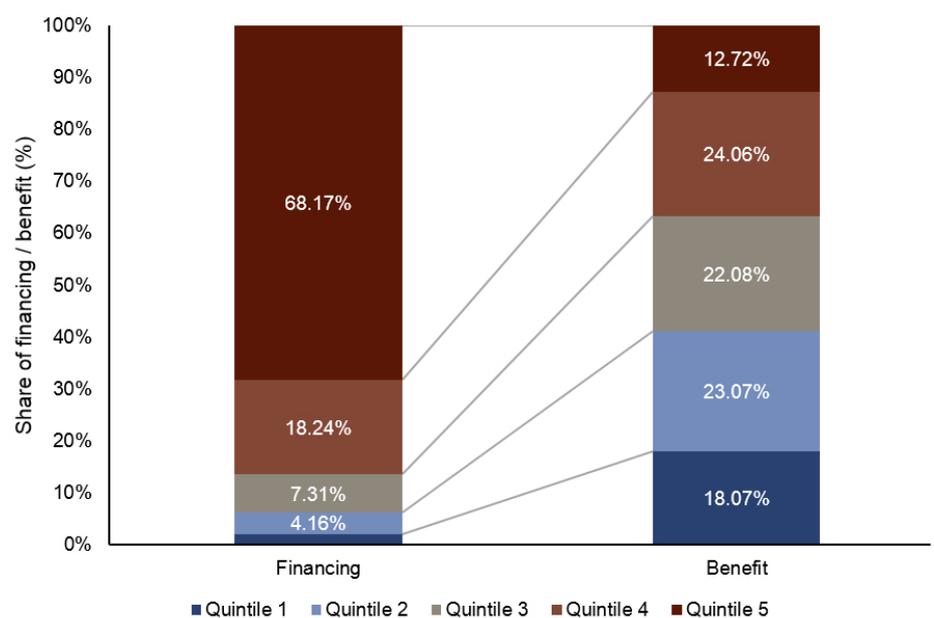


Source: IES (2010/2011); Budget Review (2014); CMS (2012/2013); NIDS (2008); Econex calculations

their proportion of healthcare need (24.41% in quintile 1).

Considering only the public sector, Figure 6 shows that quintile 5 contribute more than two thirds of overall financing, with the wealthiest 40% of the population (quintiles 4 and 5) contributing almost 87% of financing. This is in line with the principle of social solidarity, and by comparison, quintile 4 and 5 receive slightly less than 37% of overall public sector benefits. However, both the 2015 and 2017 versions of the NHI White Paper compare healthcare financing and benefit under a sub-section entitled “Financing systems that punish the poor”.

Figure 6: Financing and benefit incidence for PUBLIC SECTOR healthcare in South Africa (2010)



Source: IES (2010/2011); Budget Review (2014); CMS (2012/2013); NIDS (2008); Econex calculations

This is not the case. Relative to their financial contribution, individuals in poorer parts of the socioeconomic distribution receive a far greater proportion of public healthcare benefits. This is fair. However, it is not true that public healthcare financing “punishes the poor”.

These results follow the same trends as previous studies.¹⁴ Generally, healthcare service delivery is considered equitable if the groups with the greatest need (i.e. those who are the sickest) also receive the most healthcare benefits. Considering the incidence of need, ben-

efit and financing of health services in South Africa as a whole and in relation to each other, has important policy implications. In particular, it is imperative to consider these updated results in the ongoing debate around the implementation of a NHI system.