Equity in financing and use of health care in Ghana, South Africa and Tanzania: implications for paths to universal coverage

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Abstract

Background

Universal coverage of health care is now receiving considerable global and national attention, but debate persists on the best mix of financing mechanisms, especially to protect those outside the formal employment sector. Critical questions are the equity implications of different financing mechanisms, and patterns of service use. We report the first whole system analysis - integrating both public and private sectors - of the equity of health system financing and service use in Ghana, South Africa, and Tanzania.

Methods

Primary and secondary data were used to calculate the progressivity of each health care financing mechanism, catastrophic spending on health care, and the distribution of health care benefits. Qualitative data were collected to inform interpretation.

Findings

Overall health care financing was progressive in all three countries, as were direct taxes. Indirect taxes were regressive in South Africa but progressive in Ghana and Tanzania. Out-of-pocket payments were regressive in all three countries. Health insurance contributions by those outside the formal sector were regressive in both Ghana and Tanzania. The overall distribution of service benefits in all three countries was pro-rich, though the burden of illness was relatively greater for lower income groups. Access to needed, appropriate services was the biggest challenge to universal coverage in all three countries.

Interpretation

Analyses of the equity of financing and service use provide guidance on which financing mechanisms to expand, and especially raise questions over the appropriate financing mechanism for the health care of those outside the formal sector. Addressing physical and financial barriers to service access is critical if universal coverage is to become a reality.

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Introduction

There is a growing focus on the goal of universal coverage in health systems. For example, the World Health Report 2010 on universal coverage of health care[1], and the associated declaration of the World Health Assembly urged member states to 'aim for affordable universal coverage and access for all citizens on the basis of equity and solidarity'[2]. A number of countries have developed recent policy proposals to pursue this goal, such as India[3] and South Africa[4]. The generally accepted core of universal coverage is that the health system should be financed according to ability to pay, and benefits received according to health care need (see Box 1 for details of universal coverage concept). Analytical tools are available to assess health systems relative to these principles, notably in the form of financing incidence analysis (assessing whether health care financing methods are progressive, regressive, or proportional), and benefit incidence analysis (assessing the monetary value of service benefits received by different socio-economic groups). However, debate on the relative merits of different approaches to financing health care has tended to occur in the absence of good evidence on the equity of current arrangements, and even has made generalisations which lack a sufficiently strong evidence base – for example that certain forms of tax financing are regressive in low income countries, and that public services are exploited more by richer groups. As countries plan their paths to universal coverage, and debate grows on the relative merits of financing mechanisms including various types of tax financing, social health insurance, community based insurance, and out-of-pocket payments, it is critical that better evidence be made available on equity implications.

This paper reports the results of a three-country study on the equity of health system financing and service use. The three countries – Ghana, South Africa, and Tanzania – were selected because they are all considering how best to develop their health systems towards universal coverage, and they represent systems at different stages of development (see Box 2 for a brief overview of each country's health system). Ghana began implementing a National Health Insurance Scheme in 2004, with elements covering both the formal and informal sectors. South Africa has just

released a Green Paper on introducing a national health insurance[4]. Tanzania in recent decades has introduced various health insurance arrangements, which it plans to expand. All three countries have highly fragmented health systems with significant private involvement, so in place of the traditional public sector focus alone, this study undertook a whole system analysis, the first such study for African countries. In addition, to make the analyses more useful for policy purposes, we explored the factors influencing financing and benefit incidence.

Key messages
- Decisions on financing mechanisms for universal coverage have important implications for equity of financing and health service use
- Total health care financing was progressive in all three countries
- Out-of-pocket payments were regressive in all three countries, as was voluntary insurance for those outside the formal employment sector in Ghana and Tanzania.
- In contrast to wealthy countries, indirect taxes were progressive in Ghana and Tanzania
- Service benefits were pro-rich in all three countries, including benefits from public services except in Tanzania where the distribution of benefits was relatively even across income groups
- Policy makers should note especially that:
  - Indirect (as well as direct) taxes offer a source of financing that is both more progressive and easier to collect than voluntary insurance.
  - Good physical and financial access to public and not-for-profit health services is critical if benefit incidence is to be made more pro-poor.
  - Segmented financing arrangements, such as private insurance in South Africa, make it difficult to introduce cross-subsidies between rich and poor.

Methods

The data for analysing progressivity of health care financing and catastrophic health care payments were drawn from the most recent national household survey in each country that contained appropriate data (Table 1). Each dataset contains information which can be used to estimate the various forms of tax payments, health insurance contributions and out-of-pocket payments. As household surveys are likely to underestimate these payments (e.g. due to under-reporting of income in

surveys), the revenues estimated from the surveys were triangulated with actual revenue estimates wherever possible. For example, information on actual revenue from personal income tax, corporate income tax, VAT etc. was obtained from tax authorities in each country and any difference between actual revenue and that estimated from the survey was apportioned to households based on their estimated proportional share of contributions to each tax. A similar approach was used for health insurance contributions. The triangulation process does not affect the distribution across socio-economic groups within a particular financing mechanism; it simply ensures that when combining distributions across different financing mechanisms, the weighting of each financing mechanism reflects the actual share of total health care financing of this mechanism.

The only tax for which incidence could not be accurately determined was corporate income tax, given the potential for shifting this tax between shareholders and households. For example, if there is relatively little competition for a company's product, the company can set its price and thereby ensure that consumers bear the burden of the corporate tax. In contrast, if there is strong competition, it is difficult to influence prices and more likely that shareholders will bear the burden of corporate tax. For illustrative purposes, data reported here assume a 50:50 distribution; alternative distributions did not change the overall findings.

Household per adult equivalent consumption expenditure was used as the measure of socio-economic status. Financing concentration curves were compared with the Lorenz curve of household consumption expenditure[5]. The Lorenz curve depicts the distribution of income or consumption expenditure across households, ordered from the poorest household (on the left hand side in Figure 2) to the richest (on the right hand side). If all households had an equal share of income, the Lorenz curve would lie on the 45 degree line (i.e. 1% of households would have 1% of income etc.). The financing concentration curve plots the cumulative percentage share of health care payments for each household using the same ordering as for the Lorenz curve. If the concentration curve lies between the 45 degree line and the Lorenz curve (or above the 45 degree line), i.e. the percentage share of health care payments for poorer

households is greater than their percentage share of income or consumption expenditure and vice versa for richer households, the financing mechanism is regressive (see Box 1). Conversely, if it lies outside the Lorenz curve, it is progressive. The relative progressivity of each health care financing mechanism was also assessed by calculating the Kakwani Index[6], which compares the distribution of health care payments (plotted on the concentration curve) with the distribution of income or consumption expenditure (plotted on the Lorenz curve). A negative (positive) Kakwani index indicates a regressive (progressive) financing mechanism.

Catastrophic spending on health care was calculated as the percentage of household consumption expenditure devoted to out-of-pocket payments on health services. Spending is considered catastrophic if it exceeds the commonly used threshold of 40% or more of non-food household expenditure[5]. The rationale behind this concept is that having to make this level of out-of-pocket payment for health care is likely to translate into households having to sacrifice spending on other basic needs and they may need to go into debt or sell productive assets, jeopardising household livelihoods. The number of individuals who were impoverished by out-of-pocket health care payments was also calculated (i.e. whose household consumption expenditure after making these payments fell below the absolute poverty line of $1·25 per capita per day, in 2005 purchasing power parity terms).

Data on the distribution of health service benefits were drawn from household surveys that we conducted in 2008 (see Table 1 for details), since available national household surveys did not allow for calculation of rates of service utilisation. Utilisation rates were calculated for each category of health service, in both the public and private health sectors, and multiplied by the unit cost of that service to estimate monetary benefits. Concentration curves of the distribution of service benefits were plotted[5]. These curves plot the cumulative percentage share of benefits from the poorest to the richest household. If poorer households receive a greater share of health care benefits than their population share (e.g. if the poorest 5% of households receive more than 5% of benefits), the concentration curve lies

above the 45 degree line and is considered pro-poor (see Box 1). Conversely, a pro-rich distribution is indicated by a concentration curve lying below the 45 degree line.

Qualitative data, to inform the interpretation of the quantitative analyses, were collected through focus group discussions and in-depth interviews (see Table 1). Thematic analysis of qualitative data was undertaken using a framework of core access dimensions: availability, affordability and acceptability[7].

Limitations

There are always some limitations associated with the use of household survey data. The secondary household surveys used in this study (for the financing incidence analysis) are nationally representative surveys with relatively large sample sizes and their data collection methods have been improved in recent years (e.g. through the use of household income and expenditure diaries). Triangulation with other data sources on total health care financing improves the accuracy of financing incidence estimates. The benefit incidence analysis drew on primary household surveys undertaken by the research team. This was unavoidable as comprehensive service utilisation data were not available from secondary surveys. While it was feasible to undertake a national survey in South Africa (due to securing additional funds), the surveys in Ghana and Tanzania were undertaken in six and seven districts respectively. Although sampling methods and survey weighting were used to support extrapolation to the national level, the data cannot be regarded as fully nationally representative.

Role of funding source

The study funders had no role in design, collection, analysis and interpretation of the data, or in writing of the paper. All authors reviewed the final paper and approved submission. The corresponding author had full access to all the study data and had final responsibility for the decision to submit for publication.

Ethical review

Ethical approval was received from ethics committees in the three study countries and from the London School of Hygiene and Tropical Medicine.

Results

Direct taxes were progressive in all three countries. Indirect taxes were regressive in South Africa but progressive in Ghana and Tanzania (Figure 1). Out-of-pocket payments were regressive and overall health care financing was progressive in all three countries.

Figure 2 shows the differences between the countries in the relative progressivity of indirect taxes. All forms of indirect tax (VAT, fuel levies and excise duties) were regressive in South Africa. In contrast, VAT, excise and import duties were all progressive in Tanzania, although VAT was only marginally progressive. In Ghana, while VAT and import duties were progressive, fuel levies were regressive.

The concentration curves for premium contributions by those outside the formal sector to the national health insurance scheme in Ghana and to the community health fund in Tanzania are shown in Figure 3. These payments are regressive in both countries, more so in Tanzania than in Ghana. This contrasts with the progressivity of mandatory contributions by formal sector workers in these two countries (Figure 1) and private voluntary insurance contributions in South Africa (Figure 4).

The proportion of the population incurring catastrophic expenditure due to health care was 2·43% in Ghana, 1·52% in Tanzania, and 0·09% in South Africa (Figure 5). For both Ghana and Tanzania (but not South Africa), the weighted index, which accounts for whether a greater number of poorer households than richer households make catastrophic payments, exceeded the unweighted index, indicating that the burden of catastrophic payments fell more heavily on poorer households. The number of people pushed into poverty by these payments was 350,000 (1·59% of the population) in Ghana, 215,000 (0·045% of the population) in South Africa, and

137,000 (0·37% of the population) in Tanzania. Figure 5 visibly demonstrates that the magnitude of the problem of out-of-pocket payments was greatest in Ghana, then Tanzania, with South Africa having the greatest degree of financial protection.

Figure 6 shows that overall health service benefits were pro-rich in all three countries, with services being most pro-rich in South Africa and only marginally so in Tanzania. While public sector and faith-based organisations' health service benefits in Tanzania were relatively evenly distributed across the population, those from private for-profit services were strongly pro-rich. In Ghana and South Africa, benefits from public sector services were pro-rich and from the private sector even more so.

Box 3 provides an overview of the key access issues that constrained the use of health services, and hence influenced the extent to which different groups were able to benefit from health services. It highlights problems in relation to the availability, affordability and acceptability of services.

Discussion

Equity of financing

Despite very different health care financing arrangements in the three countries (see Box 2), financing was consistently found to be progressive in all three, though there were wide variations in the relative progressivity of different funding sources across countries. While it is perhaps not unexpected that total health care financing was progressive, given that richer groups may be more able to contribute to the cost of their health care, it is notable that all public sources of finance were progressive in all three countries (with the sole exception of indirect taxes in South Africa), in contrast to a common perception that public financing sources can be regressive because richer groups are better able to avoid paying tax.

There are no similar data for other African countries, but data for OECD and for a set of Asian countries are available from two studies[8,9]and are summarized in Table 3 so

they can be compared with our findings. The South African picture of regressive indirect taxes was more in line with that of OECD countries and some middle- and high-income countries in Asia; the Ghanaian and Tanzanian pattern of progressive indirect taxes was more similar to that of low- and middle-income countries in Asia. As economies grow, lower socio-economic groups become able to purchase a wider range of goods and services on which indirect taxes are levied, leading to these taxes becoming regressive. However, it is important to note that for low-income countries that have not yet reached this point, indirect taxes can be a source of non-regressive financing for health care (as is the case in Ghana with the NHI levy which is part of VAT), as well as contributing significantly to the total tax base.

Out-of-pocket payments have been found to be consistently regressive in OECD countries, but 'progressive' in a number of Asian countries since poorer groups are unable to afford to use services. They were regressive in all three African countries included here, most notably in Tanzania and Ghana where out-of-pocket payments are still a large share of total health care expenditure. Levels of catastrophic spending are so much greater in Ghana than the other two countries due to the long history of relatively high user fees at public sector facilities. Ghana has the distinction of being the African country that generated the highest levels of user fee revenue, equivalent to 15% of total government recurrent expenditure in the 1980s[10]. Those who are not yet covered by the NHI continue to bear the consequences of these high user fees. In South Africa, most of these out-of-pocket payments are made as co-payments by those covered by private insurance. While these are richer groups, the payments can none-the-less be catastrophic and should not be ignored. Although all countries have mechanisms for exempting vulnerable groups from user fees at public facilities, our primary household survey data (see Table 1) indicate that some of those eligible for exemptions did not receive them (11% in Tanzania and about a quarter in Ghana and South Africa). A key contributory factor was lack of awareness by patients of their entitlements (see Box 3).

The burden of out-of-pocket payments has encouraged African countries to introduce and expand health insurance coverage through various types of schemes.

Mandatory insurance contributions by the formal sector in Ghana and Tanzania, and private insurance in South Africa, were progressive because the schemes are targeted at workers in the formal sector, the less poor. However, in South Africa, only some formal sector workers belong to private insurance, and more importantly, flat contributions are charged – so while private insurance contributions are progressive if viewed over the entire population, they are regressive when evaluated across only private insurance members.

Voluntary, community-based health insurance is being widely promoted as an important means to financial protection (see for example[11]). However, contributions to community health insurance by those outside the formal sector are regressive in both countries. This is not unexpected since contributions are generally made as flat amounts and members of such schemes are often from poorer groups. In Ghana, contributions are supposed to be related to income, but in reality variations in household income cannot be distinguished. Both countries have policies to exempt the poor from paying a premium, but face difficulties in identifying them.

Equity of use of services
The overall distribution of benefits in all three countries was pro-rich, though the burden of illness was relatively greater for lower income groups[121314]. It was clear that access to needed, appropriate services was the biggest problem in terms of universal coverage in the three African countries. The relatively even distribution of benefits in Tanzania was due to the even distribution of both public sector service and faith-based organizations' benefits and limited service provision by the private for-profit sector. In the two other countries, public services were pro-rich and hence accentuated the expected pro-rich orientation of private for-profit services.

Key factors influencing this picture of benefit incidence, all of which affected poorer groups more severely, were: affordability constraints to accessing public services, particularly the costs of health care and transport to facilities; service availability problems such as frequent drug stock-outs, limited or no diagnostic equipment and

insufficient skilled staff; and service acceptability challenges such as poor staff attitudes and lack of confidence in the skills of health workers (see Box 3).

Overall health system equity

A unique feature of this study is that it undertook a system-wide evaluation of financing and benefit incidence in both the public and private sectors. While financing incidence studies usually cover all funding sources, whether public or private, benefit incidence studies have traditionally focussed only on the benefits from using public sector services. If the public sector alone had been considered, inequities in the distribution of benefits from service use would have appeared to be relatively small. The inclusion of use of private sector services, particularly those provided by the for-profit sector, reveals much wider disparities in the distribution of health service benefits.

In the context of limited human resources in low- and middle-income countries and the drive towards universal coverage, services provided by both the public and private health sectors are of relevance. In order to inform changes relating to how health care funds are generated and pooled as well as how services are purchased, it is important to consider all elements of the current health system through the lens of the principles underpinning universal coverage (i.e. payment according to ability-to-pay and service benefit according to need).

The system-wide analysis presented in this paper highlights that, while there certainly could be changes in financing mechanisms to reduce catastrophic spending and promote more progressive financing, one of the greatest challenges in all three countries is to change the distribution of health service benefits through addressing pervasive access constraints.

Conclusion

As countries plan their paths to universal coverage, it is critical that they understand the equity of current arrangements. While there has been some attention paid to

the equity of public service use, there has been much less attention given to the equity of different ways of financing services.   We add critical information to the universal coverage debate, in four main ways.

Firstly, this is the first time that such data have been presented for African countries.

Secondly, this paper has provided the first analysis of the financing incidence of voluntary schemes covering those outside the formal employment sector. The finding that this type of insurance is regressive raises considerable concerns over recommending it as the first step on a path to universal coverage. In contrast there are other financing mechanisms for covering the informal sector which are not regressive, notably VAT payments in Tanzania and Ghana, and direct taxes. The question of the most equitable and efficient way of providing financial protection for those outside the formal sector is one of the most critical issues facing low-income countries[15].

Thirdly, we show the importance of ensuring physical and financial access to services if universal coverage is to be a reality.

Finally, the South African analysis shows the critical importance of encouraging income and risk cross-subsidies between different population groups. Those with private insurance form a separate pool, which is then not available to cross-subsidize poorer population groups. Countries need to beware of segmenting their population by health financing arrangement. Once embedded in a health system, such segmentation can be very difficult to remove, as indeed South Africa has found. Future research in these three countries should test evolving policies against whether they will improve the equity of financing arrangements and service use. Beyond these countries, similar analyses should be done in other countries in Sub-Saharan Africa, both to inform policies in those countries and to build up a better picture of the equity of health systems arrangements across the continent, and to be able to begin to explore relationships between particular health system arrangements and their equity implications.

Box 1: Glossary of key terms

Universal coverage has two key components:
- "provide all people with access to needed health services (including prevention, promotion, treatment and rehabilitation) of sufficient quality to be effective;
- ensure that the use of these services does not expose the user to financial hardship." [1]

Progressive financing: a financing mechanism whereby higher-income groups contribute a higher percentage of their income than do lower-income groups (represented by a positive Kakwani Index)

Proportional financing: a financing mechanism, whereby everyone contributes the same percentage of income to funding health care, irrespective of income level (represented by a Kakwani Index of zero)

Regressive financing: a financing mechanism whereby lower-income groups contribute a higher percentage of their income than higher-income groups (represented by a negative Kakwani Index)

Pro-poor distribution of service benefits: poorer groups receive a greater share of benefits from using health services than richer groups (represented by a negative concentration Index)

Pro-rich distribution of service benefits: richer groups receive a greater share of benefits from using health services than poorer groups (represented by a positive concentration Index)

Box 2: Brief overview of health systems in Ghana, South Africa and Tanzania

After independence from colonial rule, Ghana's public health system was funded by general tax revenue and external assistance, with no charges at the point of service. In the 1980s, substantial user fees were introduced in public health facilities as part of a structural adjustment programme. These fees (called 'cash and carry' in Ghana) posed a major barrier to health service access and the introduction of a National Health Insurance Scheme (NHIS) in 2004 was seen as a way of providing financial protection for Ghanaians. The NHIS covers people in the formal and informal sectors for a relatively comprehensive range of outpatient and inpatient services at accredited public and private facilities. NHIS coverage was estimated to be about 60% of the population by 2009, although coverage levels are subject to some debate. While formal sector contributions are transferred from social security payroll deductions , those in the informal sector have to pay their district mutual health insurance scheme between US$5 and US$35[a] per person per year according to their socio-economic status. A 2.5% VAT levy is dedicated to the NHIS and accounts for the largest share of NHIS funding. Although all Ghanaians are legally required to belong to the NHIS, membership is effectively 'voluntary' for the informal sector due to the inability to enforce contribution payments by this group. Ghana is currently considering introducing a 'one time payment' to replace the current annual premiums for those outside the formal sector. This could effectively imply tax funding for NHI coverage for this group. Ghana has a per capita GDP of US$ (PPP) 1,511 and total health care expenditure is 7.8% of GDP.

South Africa has a long history of private insurance covering mainly higher income formal sector employees. Enrolment is voluntary (although it is frequently a condition of employment) and on an individual basis. The premiums paid vary widely (from about $480 - $6800 per annum[b]) depending on the benefit option chosen and the number of dependents enrolled. Each private insurance scheme is required to cover a prescribed minimum benefit package, which includes certain chronic diseases and inpatient services. While private insurance accounts for 44% of total health care financing in South Africa, it covers only 16% of the population. The rest of the population is dependent largely on tax funded public sector services, particularly for specialist and inpatient care. While there are no user fees at primary care facilities, there are income-related graduated fees at public hospitals, with some provision for exemption of the poor. Out-of-pocket payments are a relatively small share of total health care funding (13%), and most of this is in the form of co-payments by those with private insurance cover. The South African Department of Health has recently released a Green Paper to introduce a National Health Insurance, which aims at achieving universal coverage. It proposes a publicly-funded system, which will purchase a comprehensive package of services from accredited public and private providers for all citizens. South Africa has a per capita GDP of US$ (PPP) 10,291 and total health care expenditure is 8.3% of GDP.

Tanzania has a similar history to that of Ghana, with free publicly-funded health services after independence and the introduction of user fees in the 1980s, though on a more limited scale than in Ghana. In the last decade, Tanzania has introduced mandatory health insurance schemes for formal sector employees, offering comprehensive health care benefits to their members, the largest being the National Health Insurance Fund (NHIF) covering civil servants. The National Social Security Fund (for private formal sector employees) has also introduced a Social Health Insurance Benefit (NSSF-SHIB). There is a voluntary insurance scheme, the Community Health Fund (CHF), for rural dwellers, with premiums of between $4.2 to $12.7[c] per household per year and offering public primary care to the informal sector. A similar scheme was introduced recently for urban dwellers, termed Tiba kwa Kadi (TIKA)[d].

Combined, these insurance schemes covered around 12% of the population at the time of this study. Given the low level of insurance coverage, out-of-pocket payments remain a major share of health care funding in Tanzania. Considerable attention is now being paid to expanding insurance coverage of the informal sector through the CHF and TIKA. In addition, management of the operation of CHF and TIKA has been assigned to the NHIF, which could open the way for greater integration across insurance schemes. Tanzania has a per capita GDP of US$ (PPP) 1,358 and total health care expenditure is 5.1% of GDP.

[a] The interbank exchange rate at the time (September 2008) was GH¢1.40 to US$1.00
[b] This is at the relevant exchange rate of ZAR 7.5 to US$1
[c] The exchange rate at the time of the study (2008) was Tsh 1178 to US$1. There is a uniform premium within a district, but premium levels vary across districts
[d] The TIKA was only introduced shortly before the study; hence, the focus here is on the CHF

Box 3: Key findings of qualitative research

Availability constraints
- Long distances to health facilities and poor public transport, particularly in rural areas
- Frequent drug stock-outs in public facilities
- Lack of diagnostic equipment in public facilities
- Insufficient skilled staff, especially doctors
- Particularly poor availability of services at primary care facilities, leading to high referral rates with attendant distance and transport problems

Affordability constraints
- Influenced by availability problems (e.g. high transport costs to get to facilities, need to purchase drugs from private pharmacies or informal drug sellers)
- Inability to pay the insurance premiums which would reduce out-of-pocket payments
- Lack of awareness of entitlement to user fee exemptions or subsidised membership of insurance scheme
- In a medical emergency, households may have to borrow or sell assets:

"I went for 6 bags of maize and when I went to replace them after the harvest…he said I should add 3 bags of maize. So I ended up returning 9 bags of maize. At the time I borrowed from him, a bag cost US$ 9, when he came for the 9 bags each maize bag costs US$ 18. His profit was more than US$ 71." (Focus group discussion, Rural Area, Ghana)

Acceptability constraints
- Lack of patient confidence in the expertise of health staff
- Poor staff attitudes discourage use of facilities:

"[I stopped going to antenatal care because] the nurse that was helping us had an attitude, when we asked her something she treated us like children or comics. She was so impatient with us…shouting all the time" (In-depth interview, Urban Area, South Africa)

Table 1: Summary of data sources

Country	Ghana	South Africa	Tanzania
Financing incidence and catastrophic health care payments			
National Survey	Ghana Living Standard Survey round 5 (GLSS-5)	Income and Expenditure Survey (IES)	Household Budget Survey (HBS)
Year of survey	2005/06	2005/06	2000/01*
Households	8,687	21,144	22,178
Distribution of health service benefits			
Sample	6 districts (1 rural & 1 urban in each of the northern, middle and southern belts) #	National (proportionate sample across all 9 South African provinces)	4 rural districts & 3 urban councils #
Year of survey	2008	2008	2008
Households	2,986	4,800	2,234
Qualitative evidence on factors affecting financing and benefit incidence			
Focus groups and interviews	26 FGDs (communities) 29 IDIs (providers)	44 IDIs (patients) 67 IDIs (providers) Observations at 13 facilities	22 FGDs (communities & health managers) 2 IDIs (health managers)

* Adjusted to reflect prices in 2006
# Weighted based on geographic location and insurance status to represent national population
FGDs = focus group discussions; IDIs – in-depth interviews

Table 2: Kakwani Indices for certain OECD and Asian countries

	Direct taxes	Indirect taxes	General taxes	Mandatory insurance	Total public	Private insurance	Direct payments	Total private	Total payments
OECD countries – Wagstaff et al. (1999)									
Denmark (1987)	0·06	-0·11	0·04	-	0·04	0·03	-0·27	-0·24	-0·01
Finland (1990)	0·13	-0·10	0·06	0·09	0·06	0·00	-0·24	-0·24	0·02
France (1989)	-	-	-	0·11	0·11	-0·20	-0·34	-0·31	0·00
Germany (1989)	0·25	-0·09	0·11	-0·10	-0·05	0·12	-0·10	-0·01	-0·05
Ireland (1987)	0·27	N/A	N/A	0·13	N/A	-0·02	-0·15	-0·10	N/A
Italy (1991)	0·16	-0·11	0·03	0·11	0·07	0·17	-0·08	-0·06	0·04
Netherlands (1992)	0·20	-0·09	0·07	-0·13	-0·10	0·08	-0·04	0·04	-0·07
Portugal (1990)	0·22	-0·04	0·06	0·19	0·07	0·14	-0·24	-0·23	-0·05
Spain (1990)	0·21	-0·15	0·05	0·06	0·05	-0·02	-0·18	-0·16	0·00
Sweden (1990)	0·05	-0·08	0·04	0·01	0·01	-	-0·24	-0.24	-0·02
Switzerland (1992)	0·21	-0·07	0·16	0·06	0·14	-0·26	-0·36	-0·30	-0·14
UK (1993)	0·28	-0·15	0·05	0·19	0·08	0·08	-0·22	-0·09	0·05
US (1987)	0·21	-0·07	0·15	0·02	0·11	-0·24	-0·39	-0·32	-0·13
Asian countries – O'Donnell et al. (2008b)									
Bangladesh (1999–2000)	0·55	0·11	-	-	-	-	0·22	-	0·21
China (2000)	0·15	0·04		0·24			−0·02		0·04
Hong Kong SAR (1999–2000)	0·39	0·11	-	-	-	0·04	0·01	-	0·17
Indonesia (2001)	0·20	0·07	-	0·31	-	-	0·18	-	0·17
Japan (1998)	0·10	−0·22	-	−0·04	-	-	−0·27	-	−0·07
Korea Rep. (2000)	0·27	0·04	-	−0·16	-	-	0·01	-	−0·02
Kyrgyz Rep. (2000)	0·24	0·05	-	0·14	-	-	−0·05	-	0·01
Nepal (1995–96)	0·14	0·11	-		-	-	0·05	-	0·06
Philippines (1999)	0·38	0·00	-	0·21		0·12	0·14	-	0·16
Sri Lanka (1996–7)	0·57	−0·01	-	-	-	With direct payments	0·07	-	0·09
Taiwan (2000)	0·26	0·03	-	−0·03	-	0·20	−0·10	-	−0·01
Thailand (2002)	0·51	0·18	-	0·18	-	0·00	0·09	-	0·20

Figure 1: Kakwani Indices for financing sources in Ghana, South Africa and Tanzania
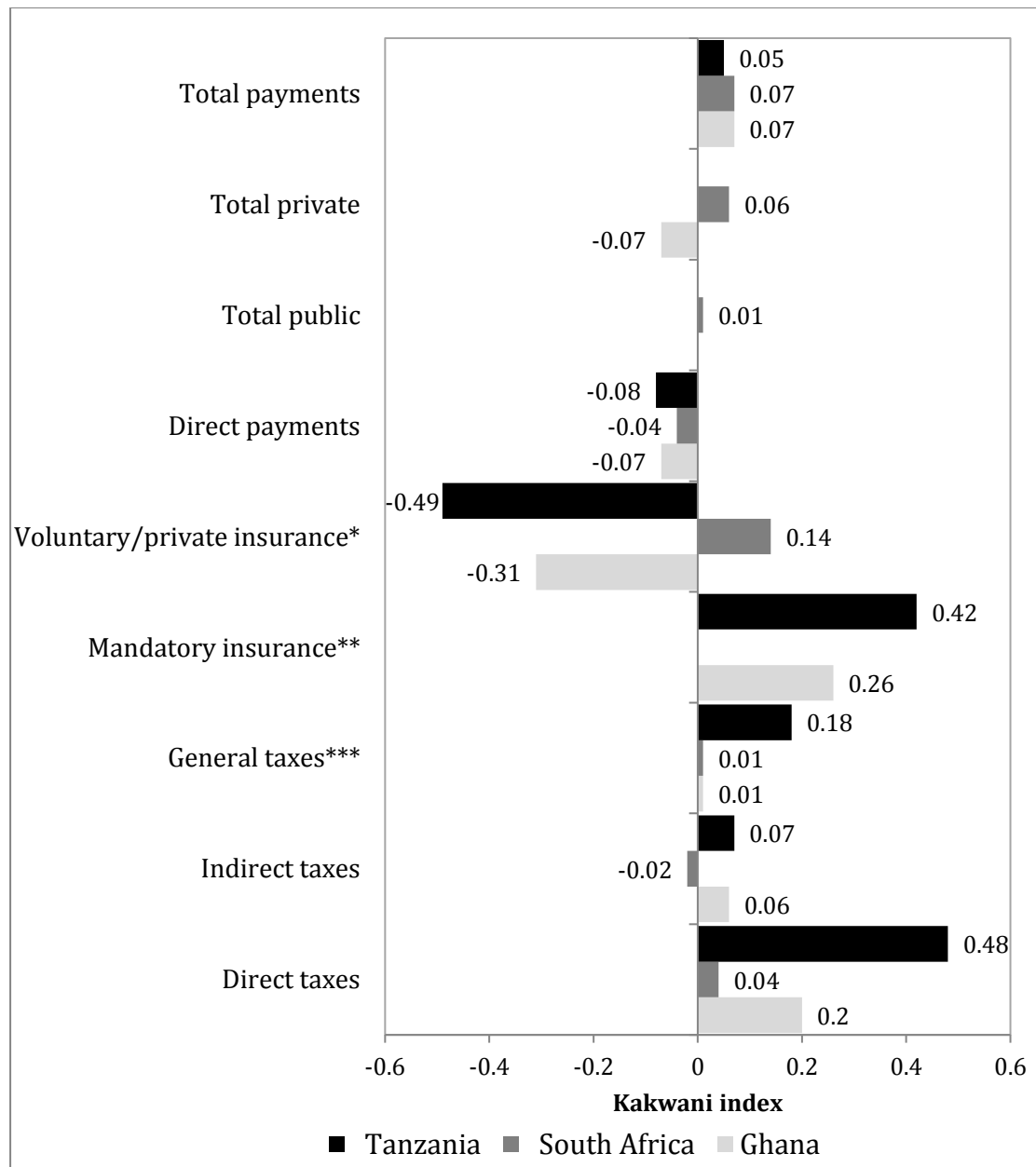
* Contributions by the informal sector in Ghana (although the NHI legislation requires all Ghanaians to join the NHI, membership is effectively voluntary for those outside the formal sector); Contributions to private health insurance schemes in South Africa; Contributions to the Community Health Fund and related schemes in Tanzania
** Mandatory insurance in Ghana only includes the contributions by formal sector employees
*** General taxes refer to the combination of direct and indirect taxes
Note: a negative (positive) index indicates a regressive (progressive) financing mechanism

Figure 2: Lorenz and concentration curves of indirect taxes in Ghana, South Africa and Tanzania

Note: If the concentration curve lies between the 45 degree line and the Lorenz curve (or above the 45 degree line), the financing mechanism is regressive; if it lies outside the Lorenz curve, it is progressive
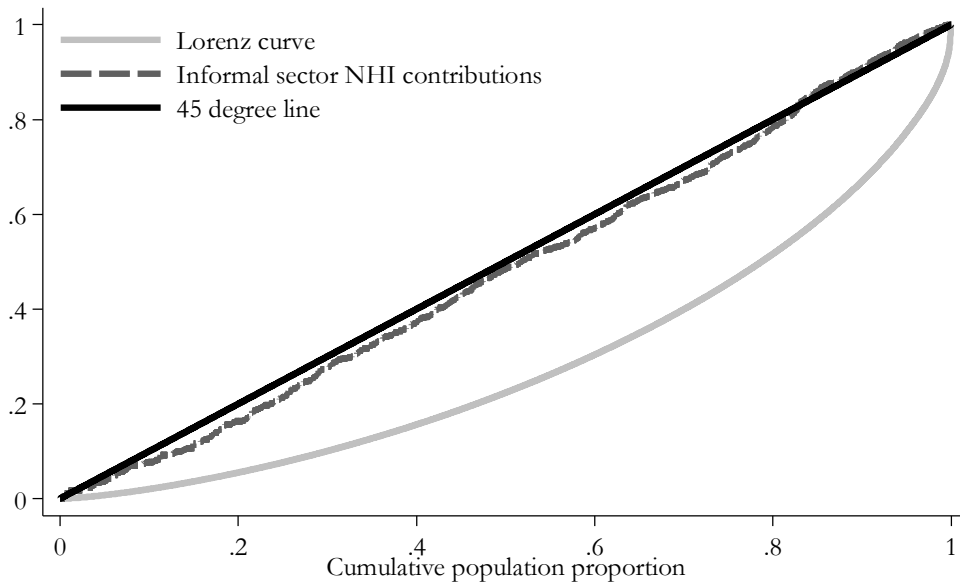
South Africa
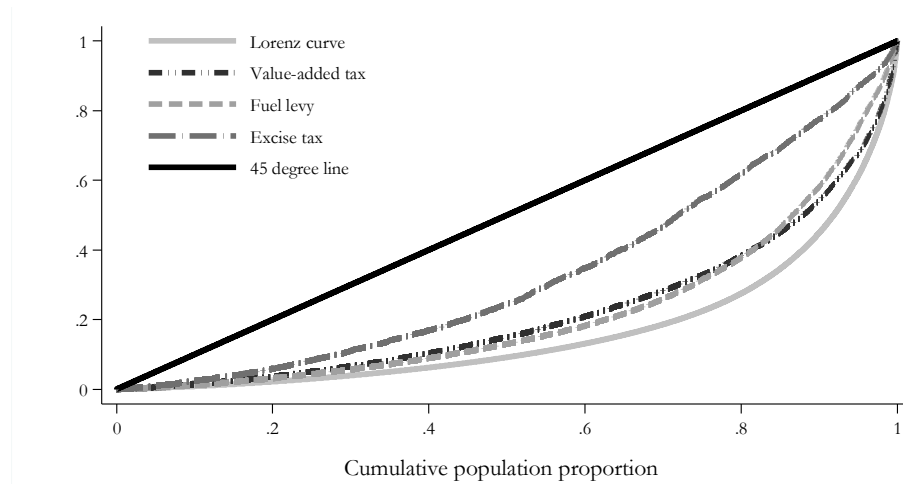
Tanzania
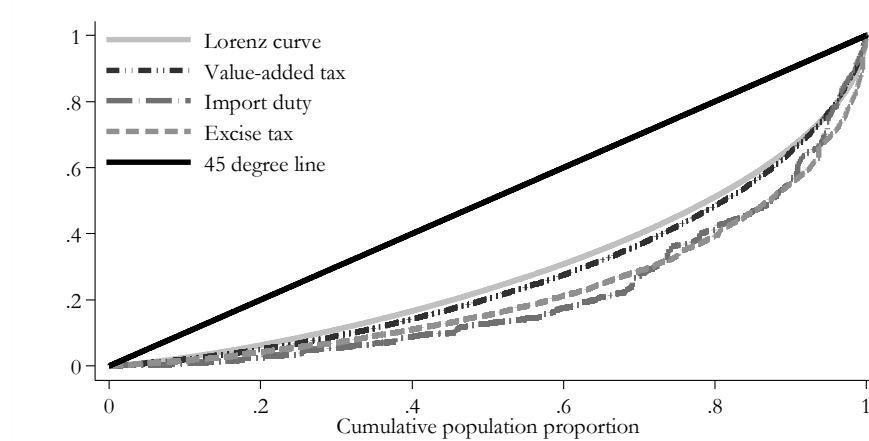
Ghana
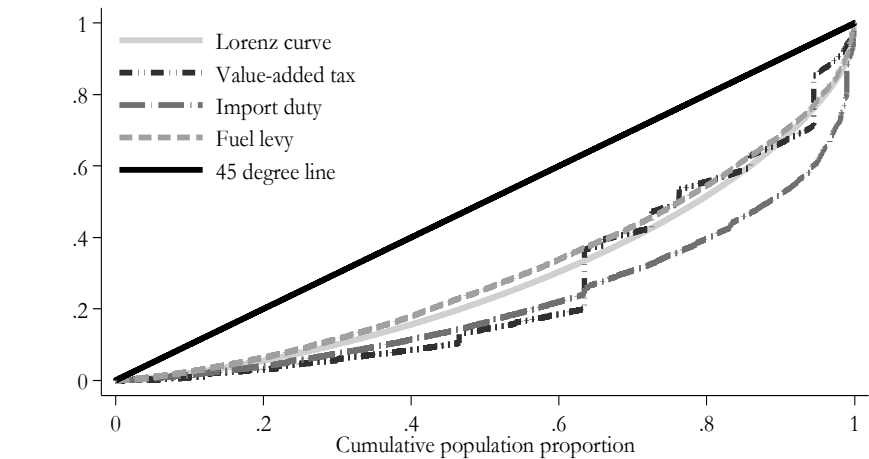
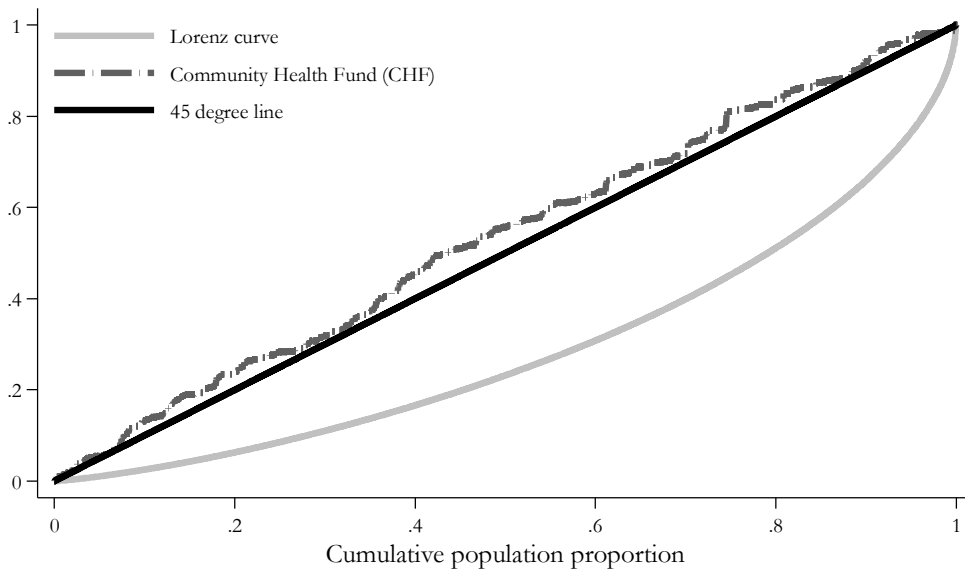**Figure 3: Lorenz and concentration curves of insurance contributions by those outside the formal sector in Ghana and Tanzania**

Ghana

Tanzania

Figure 4: Lorenz and concentration curves of private insurance contributions in South Africa
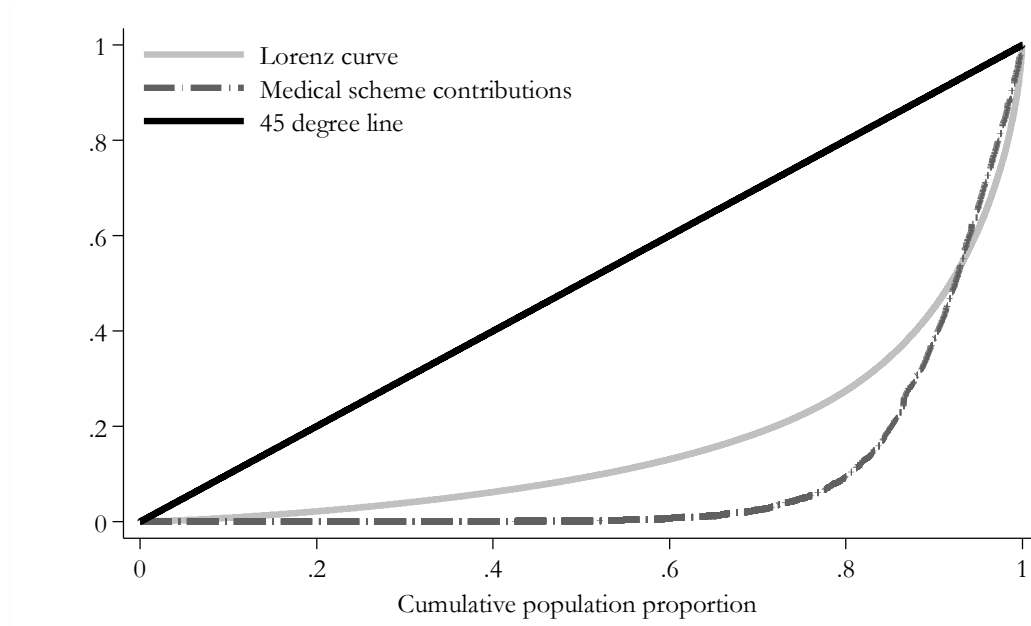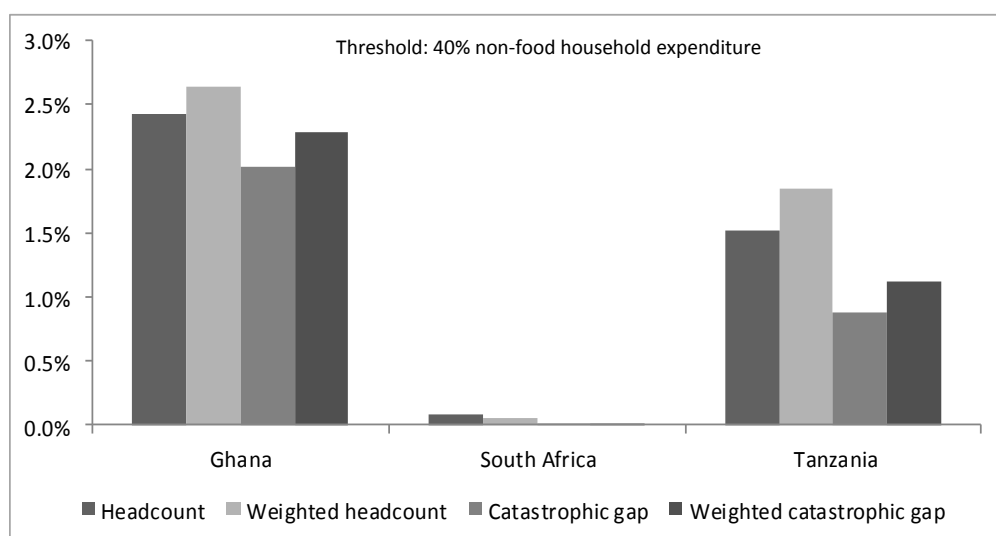
**Figure 5: Catastrophic payments**

Notes

Headcount: the catastrophic payment headcount index (H_{cat}), which is the percentage of households whose out-of-pocket payments for health care as a percentage of household consumption expenditure exceed the threshold

Gap: the catastrophic payment gap index (G_{cat}), which measures the average amount by which out-of-pocket health care payments as a percentage of household consumption expenditure exceed the threshold
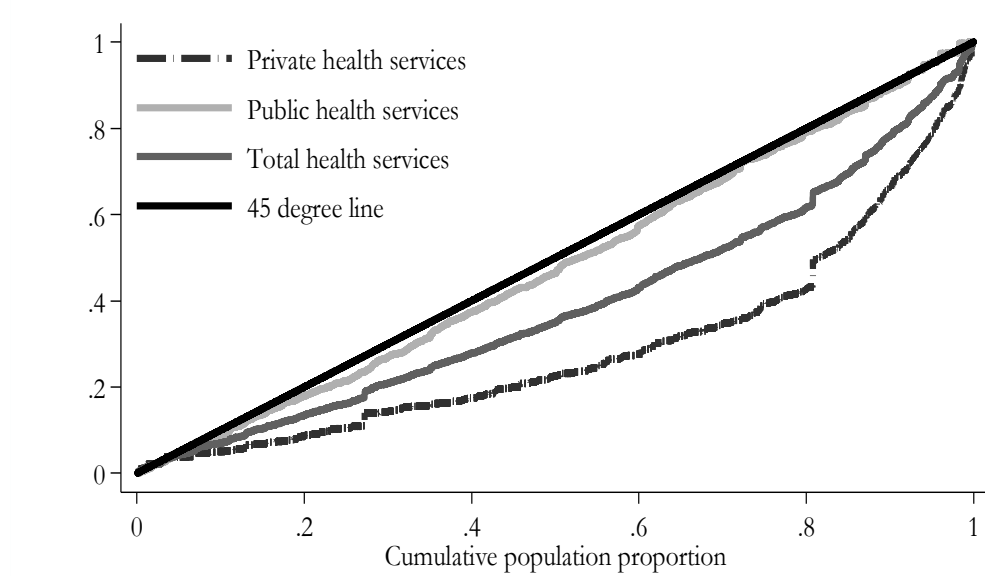
Weighted indices: are weighted according to the individual's rank in the distribution of consumption expenditure; if the weighted index exceeds the unweighted index, the burden of catastrophic payments falls more on poorer households

Figure 6: Concentration curves of health service benefits in Ghana, South Africa and Tanzania
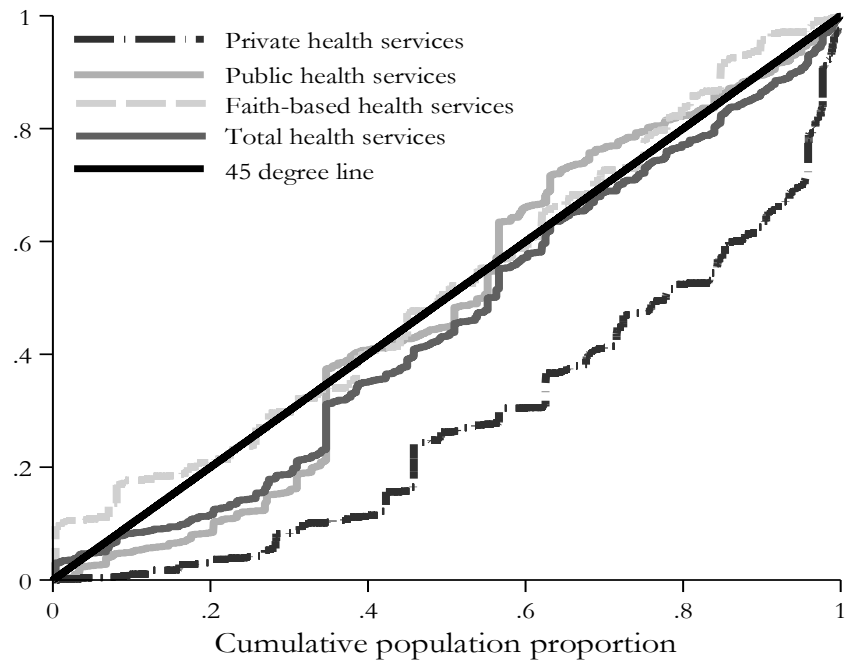
Ghana
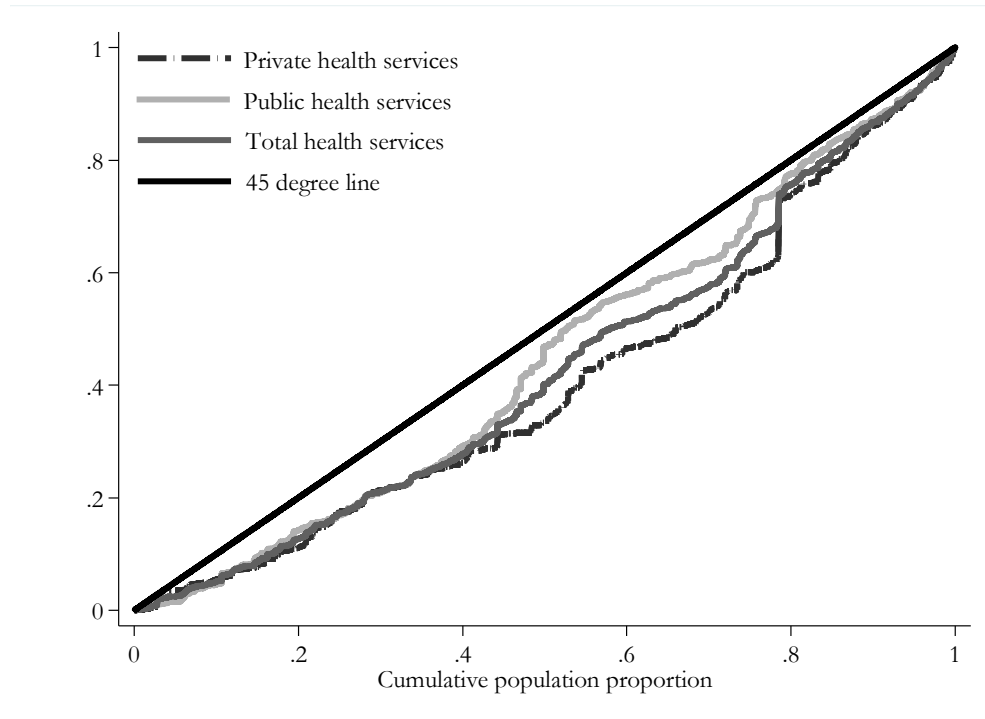
South Africa

Tanzania

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