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# The fiscal incidence of provision of free basic water<sup>1</sup>

SERVAAS VAN DER BERG, ADA JANSEN, COBUS BURGER, ELDRIDGE MOSES AND  
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## ABSTRACT

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A policy of free basic services (water, sanitation and electricity) was introduced by the government in 2000 to provide basic services to households unable to afford these services. The policy allows for six kilolitres of water free monthly to all households, irrespective of household size or demographics. The assumption was that water consumption is relatively insensitive to the tariff structure, thus alternative tariff structures were applied to obtain the same amount of revenue for unchanged consumption. Aggregate costs of water consumption of R3.8 billion in 2006 by households with piped water were relatively small compared to social spending of about R177 billion. In comparison to a fixed price structure, the gains from the actual tariff structure were quite small for most households who benefited. The net gains of the poorest 40% of households of R61 million per year from the IBT plus Free Basic Water was quite small when compared to social spending of R88 billion to their benefit. The analysis illustrates the limitation of redistributive policies at municipal level. Those who gain are more often in the middle of the national income distribution, although they are the poorer members of the urban population.

Keywords: Publicly provided goods, National government expenditure  
JEL codes: H4, H5

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<sup>1</sup> This research was undertaken as part of a study for National Treasury on fiscal. The authors were requested to investigate what evidence exists on the fiscal incidence of free basic municipal services. It turned out that there were no adequate datasets to investigate this issue at present. The report presented here is a first attempt at investigating possible orders of magnitude. The paper is also available on the website of the National Treasury:  
<http://www.treasury.gov.za/publications/other/Fiscal%20Incidence%20Study/default.aspx>

A policy of free basic services (water, sanitation and electricity) was introduced by the government in 2000 to provide basic services to households unable to afford these services. The policy has been implemented differentially, through municipalities. Micro-level data to measure the impact are scarce to come by and national surveys are inaccurate, but a small survey of households in Cape Town offers some possibility for drawing conclusions that may also have relevance for the country as a whole.<sup>2</sup>

The policy allows for six kilolitres of water free monthly to all households, irrespective of household size or demographics. This is based on the World Health Organisation recommendation of 25 litres of water per person per day, for a household of eight people; this means much more free water for smaller households. Each municipality can structure water tariffs to accommodate the free basic component. All households receive the first six kilolitres of water free, but subsequent water consumption is charged at an escalating rate. The Increasing Block Tariff is widely used in developing countries, particularly to care for the objectives of redistribution (cross-subsidisation from rich households to poor households) and water conservation (households consuming much water face a high marginal tariffs to discourage consumption). The IBT system was already in operation when the Free Basic Water policy was introduced. Based on extrapolations to the national level of tariffs applied in the City of Cape Town, an impression can be gained of the fiscal impact of the policy of Free Basic Water. This allows some tentative conclusions on the extent of cross-subsidisation between households.

The assumption was that water consumption is relatively insensitive to the tariff structure (research by Jansen & Schulz 2006 largely confirms this), thus alternative tariff structures were applied to obtain the same amount of revenue for unchanged consumption. On this basis, three tariff structures were compared:

- A structure where every household pays the same fixed tariff (referred to as Fixed Tariff)
- An IBT structure as existed before the introduction of the Free Basic Water policy, i.e. where tariffs reflect an incremental block tariff (referred to as IBT)
- An IBT structure that also incorporates the Free Basic Water component (the actual present structure) (referred to as FBW).

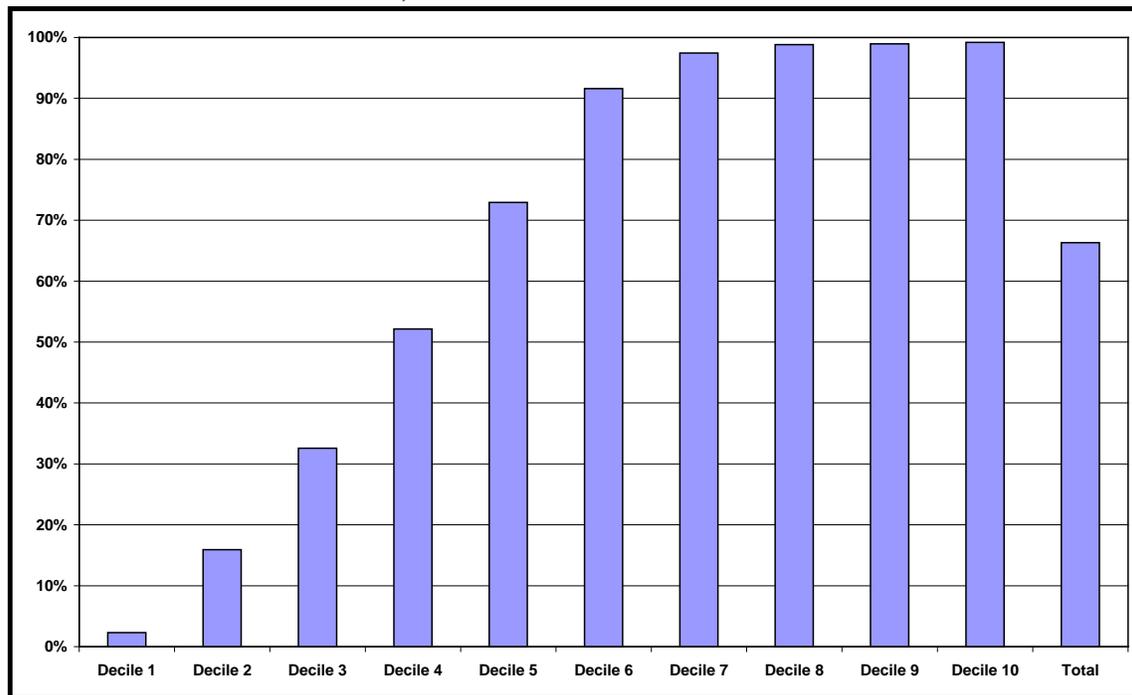
Aggregate costs of water consumption of R3.8 billion in 2006 by households with piped water were relatively small compared to social spending of about R177 billion. In

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<sup>2</sup> Jansen, Ada & Schulz, Carl-Erik. 2006. "Water demand and the urban poor: A study of the factors influencing water consumption among households in Cape Town, South Africa," *South African Journal of Economics*, 74(3): 593-609.

comparison to a fixed price structure, the gains from the actual tariff structure were quite small for most households who benefited. Gains were especially small for the poorest quintile, where fewer than 10% of households had piped water (see Figure 1); though the tariff structure reduced their water costs by 30%, their gain was only R3 million per year, while the second quintile gained R58 million. The third quintile gained most, as more of them had piped water yet generally consumed too little water to be faced with the high tariffs that applied for high water consumption. The only group who lost in net terms was the most affluent decile of the distribution – they paid over R300 million more than they would have had if the tariff had been fixed at the average level. But interestingly, two-thirds of their additional cost, and the same proportion of the gains of other water consumers, came from the Incremental Block Tariff that had existed even *before* the introduction of Free Basic Water. The Free Basic Water policy has thus only had a limited additional redistributive effect.

**Figure 1: Household access to piped water in the house or inside the yard by pre-transfer household income decile, 2006**



The net gains of the poorest 40% of households of R61 million per year from the IBT plus Free Basic Water was quite small when compared social spending of R88 billion to their benefit. Even the third quintile gained only R138 million from the water tariffs. The most affluent decile, in contrast, did have to pay R319 million more for water than they would have had to under a fixed tariff, but this cost was dwarfed by the R81 billion in income taxes they paid.

**Table 1: Estimated annual total costs of piped water across the South African income distribution under alternative tariff structures, 2006, and gains and costs from the Incremental Block Tariff and Free Basic water**

	Annual water costs (in R'm)			Gains (in R'm)			% Gain (FBW vs Fixed Tariff)
	Fixed (Average) Tariff	IBT	IBT + FBW	IBT vs Fixed tariff	IBT vs Free Basic Water	Free Basic Water vs Fixed tariff	
<b>Quintile 1 (poorest)</b>	11	9	8	2	1	3	30%
<b>Quintile 2</b>	193	155	135	38	20	58	30%
<b>Quintile 3</b>	728	638	590	90	48	138	19%
<b>Quintile 4</b>	1 128	1 075	1 043	53	31	84	7%
<b>Decile 9</b>	607	579	572	29	7	36	6%
<b>Decile 10 (richest)</b>	1 060	1 271	1 379	-211	-108	-319	-30%

The above illustrates the limitation of redistributive policies at municipal level. Those who gain are more often in the middle of the national income distribution, although they are the poorer members of the urban population. A similar pattern of benefits probably applies to free basic sanitation and to free basic electricity, although the magnitudes may differ somewhat. Compared to overall social spending, such benefits are also quite small. This again illustrates how powerful a redistributive instrument social spending is.

### **Data requirements**

This attempt to measure the fiscal impact of free basic water would not have been possible without the presence of relatively good micro-data at the household level. Without such data, no proper analysis is possible. Ideally, a nationally representative survey would be required, but respondents' responses to questions on the level of water use in the GHS and other datasets leave the impression that such data are likely to be weak. Thus the best that could realistically be obtained appears to be good microlevel data from some large municipalities on water and electricity consumption of individual households, but this should be supplemented with good GIS information that would allow households to be linked to their neighbourhoods in a way that makes it possible to place them within the national income distribution. It is likely that, with support of municipalities, obtaining such data should not be an impossible task. That would enable analyses similar to the above to be undertaken, but for a sample that better represents the national position, as the sample used here had limitations in this regard.