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Casting some light: how Free Basic Electricity has improved household welfare

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Expanding access to electricity has been a major achievement of post-apartheid South Africa, yet affordability remains a persistent challenge for low-income households. To address this, the government introduced Free Basic Electricity (FBE) in 2003, offering 50 kWh of free electricity per month to indigent households. The study on which this article is based provides the first quantitative analysis of FBE's effects on household welfare since its inception. We find receiving the FBE subsidy is associated with a shift towards clean cooking, investment in essential appliances, and small but significant improvements in literacy, writing, and numeracy. However, the subsidy does not yet reach all its intended beneficiaries: we indicate that institutional weaknesses need to be addressed alongside review of the value of the benefit.

Introduction

South Africa's post-apartheid electrification program is widely recognized as one of the most successful in the world. Between 1996 and 2014, the proportion of households with access to electricity rose from 54% to 86%.¹ However, while the programme successfully connected millions of households to the grid, affordability remained a major barrier for low-income families. Many newly electrified households could not afford to purchase electricity, forcing them to continue to rely on unsafe and unhealthy fuels such as paraffin, wood, and coal. These fuels have been found to have [severe health, environmental and socio-economic impacts](#). Energy poverty in South Africa manifests in the persistent use of unsafe fuels despite having access to electricity.

Free Basic Electricity

In response to this challenge, the Free Basic Electricity (FBE) policy was introduced in 2003 as a measure to alleviate energy poverty. The policy aimed to provide a basic level of free electricity, set at 50 Kilowatt hours (kWh) per month for qualifying households. Policymakers considered this allocation [sufficient to meet essential needs](#), such as lighting, cooking, and powering small appliances. However, in recent years, researchers and policymakers have widely [debated the adequacy of this amount](#).

While FBE was primarily designed to address energy poverty, its broader goal was to allow for the developmental benefits of electrification to be realised in poor households. [A pilot study](#) found that while the overall impact on economic variables like employment, cost of living, and income remained negligible, the grant contributed to improving recipients' quality of life. Households reported, as a result of access to electricity, to be able to use electricity for the whole month, making it easier for scholars to study, and to spend less time and effort collecting fuelwood for cooking.

Providing access to even a small amount of electricity can improve household welfare. Subsidising the electricity of poor households frees up disposable income for essential needs such as food, healthcare, and education. It can reduce dependence on solid fuels and lower indoor air pollution levels, improving respiratory health, particularly for women and children.

¹ The Presidency, *Development Indicators*, 2008 and 2014.

Access to electricity also supports gender equality by reducing the time women spend collecting wood and cooking over open fires, potentially improving their [employment opportunities](#). Additionally, electricity access enhances educational outcomes, allowing children to study at night and providing them with greater exposure to information through television, cell phones, and computers.

Municipalities administer the FBE policy, determining which households qualify for the subsidy. The policy primarily relies on funding from the Local Government Equitable Share (LGES) grant, an unconditional allocation provided for in the annual Division of Revenue Act. The size of this grant depends on the estimated number of indigent households in a municipal area, defined as those with a total income below twice the value of an old-age pension grant. [Approximately 60% of households](#) are estimated to fall below this threshold in South Africa. Treasury allocates a monthly amount of [R107 per household](#) that falls below the affordability threshold to municipalities to enable them to deliver the service. It should be noted that this is not a fully satisfactory measure of indigency, as it fails to take account of household size.

Some municipalities supplement FBE funding using their own revenue, often through [cross-subsidization from high-end customers](#). However, the cost of electricity distribution varies across municipalities, many of which are in severe financial distress and grappling with a [funding crisis](#). This municipal crisis has made the provision of services, including FBE, increasingly challenging. As a result, we see significant gaps in FBE delivery, while municipalities have been accused of [misappropriating the funds](#) set aside for this provision. While National Treasury estimated that the equitable share grant would cover [10.9 million indigent households](#) in 2022, municipalities identified only [2.6 million indigent households and of those only 1.75 million were reported as benefiting from free basic electricity](#).

Despite the substantial cost, approximately R14 billion in 2022, and general acknowledgment of FBE's role in alleviating energy poverty, there has been little quantitative research on its actual impact on household welfare at a national level. It has been argued that the minimum amount of electricity required to ensure that its access results in socio-economic benefits is [350kWh per month](#). This would require the FBE allocation to households to be increased substantially to achieve its objective. Without rigorous evidence, such policy decisions are unlikely to be favourably considered.

How effective is FBE

Although the FBE policy has been in place for more than 20 years this study is the first to systematically examine the relationship between receiving FBE and welfare outcomes for low-income households in South Africa. Using data from the 2019 General Household Survey, we analyse the welfare effects of FBE on households with access to grid electricity. One of the key challenges in this analysis is that FBE is not randomly assigned; it is targeted at indigent households, but not all qualifying households receive it. A simple comparison between recipients and non-recipients would be misleading, as poorer households are more likely to receive FBE.

To address this, we employ [Propensity Score Matching](#) (PSM), a statistical method that mimics the process of random assignment by matching each household receiving FBE with a household of similar characteristics that does not receive FBE. This approach allows us to isolate the effect of free electricity access on key welfare indicators, providing robust evidence for policymakers on the effectiveness of the program.

Table 1 represents the estimation results showing the average treatment effect for the impact of receiving FBE on various socio-economic outcomes. We find that receiving FBE is significantly and positively associated with a shift towards using electricity for cooking. Similar households with access to mains electricity are 2.2% less likely to use solid fuels as their main cooking fuel if they receive the FBE grant, are 3.4% more likely to rely on electricity as their main cooking fuel, and are 1.2% more likely to own an electric stove.

Our results suggest an increase in the use of electricity for lighting as well as investment in appliance ownership because of FBE. Households are 1.1% more likely to use electricity for lighting, 1.9% more likely to own a fridge, and 1.5% more likely to own a TV if they receive FBE, than similar households that do not. The results provide some indication that similar individuals residing in households with access to electricity have slightly better educational outcomes if their

household received the FBE grant. These individuals are significantly more likely to be literate (1.3%), report having no difficulty in reading a book (1.1%), or writing a letter (1.5%). They also report having no difficulty doing simple calculations, such as working out the change required in a purchase (1.3%). We found no significant difference in the years of educational attainment or employment outcomes in households receiving FBE. However, these findings support the claim that for poor households receiving FBE contributes to better lighting that makes it easier to read or study at night.

Table 1: Impact of receiving a free basic electricity grant on socio-economic outcomes.

	2019
Solid cooking fuels	-0.022*** (0.003)
Electricity for cooking	0.034*** (0.004)
Owns an electric stove	0.012*** (0.003)
Uses electricity for lighting	0.011*** (0.001)
Fridge	0.019*** (0.004)
TV	0.015*** (0.004)
Literate	0.013** (0.004)
Read	0.011* (0.005)
Writing	0.015** (0.005)
Calculate	0.013** (0.005)
Highest education level (years)	0.043 (0.045)
No. Observations	52446

Note: ***p<0.01 **p<0.05 *p<0.10. Standard errors in Brackets

Conclusion

Our analysis shows that the FBE subsidy, which costs the government R107 per household per month, leads to measurable improvements in literacy, writing, and numeracy. It also significantly reduces reliance on solid cooking fuels and increases the likelihood of using electricity for cooking, owning an electric stove, and investing in appliances such as fridges and televisions. This study provides evidence that FBE is achieving its intended impacts. However, it does not benefit all its intended beneficiaries, and it is apparent that municipalities vary in their ability and commitment to implementing the FBE policy. The unconditional nature of the FBE subsidy as part of the local government equitable share arguably contributes to this problem. It is essential that these implementation failures should be addressed, alongside the possible consideration of an increase in the monthly amount of electricity provided through the FBE subsidy.

South Africa has substantial export potential that remains underutilized across several global markets. Despite strong trading relationships with countries like China, Germany, and the United States, there are notable gaps between current exports and projected potential. Our recent market analysis using the International Trade Centre's Trade Map reveals key opportunities to diversify export destinations, boost competitiveness, and respond to shifting geopolitical dynamics. This analysis also highlights emerging challenges, including the potential impact of US tariff changes, which could influence trading patterns soon. The findings emphasize the need

to enhanced market intelligence, export support programs, and strategic policy alignment to unlock new markets and consolidate gains in existing ones.