POLICY BRIEF

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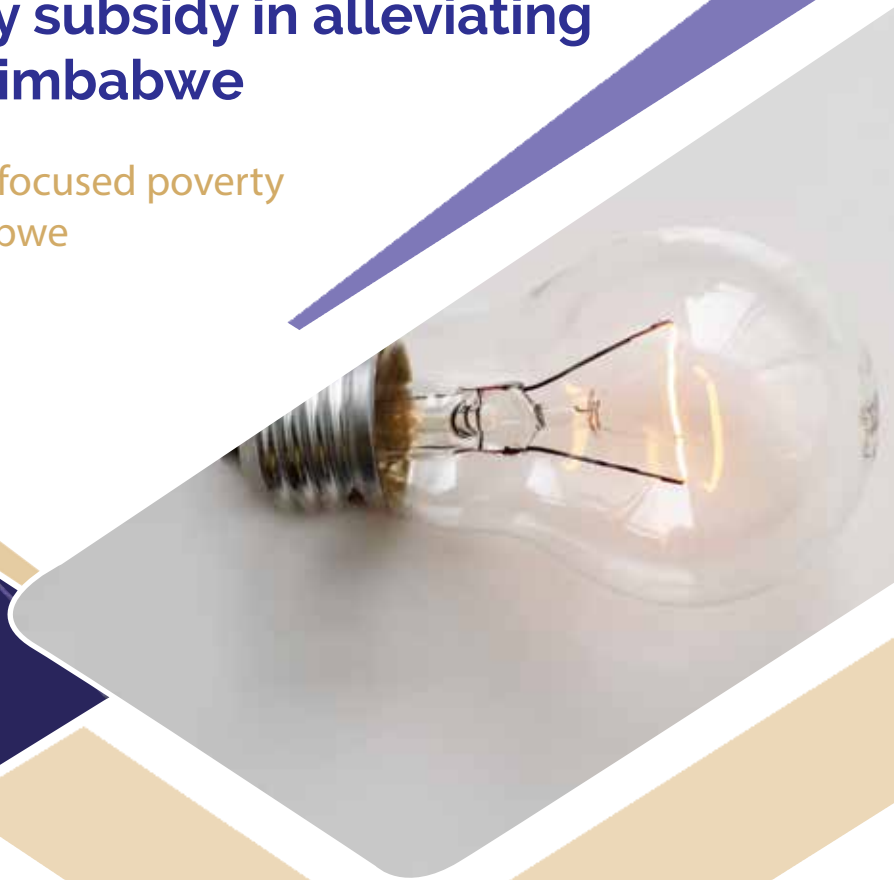
Zimbabwe Economic Policy Analysis and Research Unit

Energy and poverty: the efficacy of electricity subsidy in alleviating poverty in Zimbabwe

Advanced policy-focused poverty analysis in Zimbabwe



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ABSTRACT

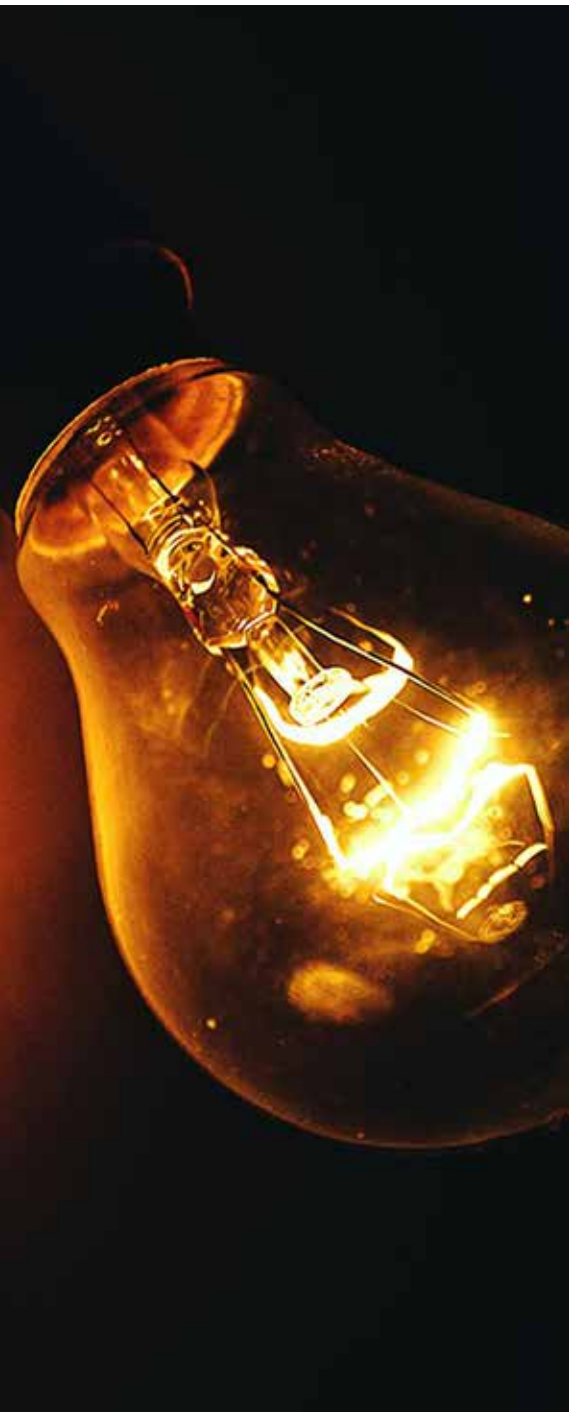
This brief gives an overview of the study on the effectiveness of electricity subsidies in poverty reduction in Zimbabwe. Electricity subsidies constitute a cost to the government and the utility companies providing electricity. If subsidies are not properly designed, they fail to achieve their intended objectives which include among others increasing affordability of and access to electricity among the poor to improve their standard of living and participation in productive economic activities. The current configuration of household electricity subsidies in Zimbabwe is such that subsidies are high, but not properly targeted, resulting in the non-poor benefiting relatively more than the poor. The brief outlines policy reforms based on simulations of possible consumption subsidy models that combine financial, non-financial and supply side subsides in order to enhance benefit incidence, improve subsidy targeting performance and optimise benefits that accrue to the poor.

CONTEXT OF THE STUDY

Electricity in Zimbabwe is heavily subsidized. In 2017 the Zimbabwe Electricity Distribution and Transmission Company sold electricity to households at an average of US 9.96 cents per kWh, which was lower than the estimated efficient cost of supply of US 12.4 cents per kWh[1]. This implied a subsidy of 24.5% per kWh consumed by households. The high proportion of subsidies in Zimbabwe could be indicative of a subsidy design that may be too generous, with low target performance and heavy burden on the fiscus. In Zimbabwe, electricity is subsidised in many forms, including R&D, investment, generation, decommissioning and consumption. Consumption-linked subsidies include reduced rate of import duty for solar components, quantity based increasing block tariff (IBT) schedule tariff subsidy, below-cost grid connection charges to consumers and VAT exemption of domestic electricity consumption. However, the main focus of the study is on household subsidies on electricity consumption from the grid, which is generally considered of high quality and potential for enhancing productive activity. Until June 2020, Zimbabwe has been applying an IBT structure that has three blocks, with household electricity consumption subsidized for most of the electricity consumed, a structure that is less self-sufficient, less redistributive among households, and lacks direct link to the supply-side[2]. Such a scheme results in the government having to subsidize the electricity utility companies in the form of capital injection to cover the losses from subsidies, yet the government is fiscally constrained. It also results in the electricity utility companies underinvesting in electricity generation and grid

[1]Based on data from the World Bank (2020)

[2]In June 2020, Government announced a new tariff schedule with four blocks, with a new block of 201-300kWh that has a relatively lower tariff rate compared to the then existing tariff for consumption to that level, whilst maintaining tariff levels for the next band as before. The third block of the new tariff schedule, however, has a subsidy redistributive effect, allowing the ZESA to charge above efficient cost reflective tariff. Notwithstanding the negative subsidy benefit on the fourth block, which is a result of the fixed exchange rate at the point of this analysis, the subsidy benefit on new tariff schedule remains similar to the old schedule, which is biased toward increased consumption, and does not discourage inefficient consumption.



expansion, which further limits the opportunities for electricity access and connection among the poor and marginalised. Therefore, improving the targeting performance of the subsidies is imperative as it enables the subsidy to benefit the poor who genuinely need the subsidy. It also reduces the cost of providing subsidies and creates fiscal space for government by limiting subsidies to the non-poor.

OBJECTIVES AND METHODS

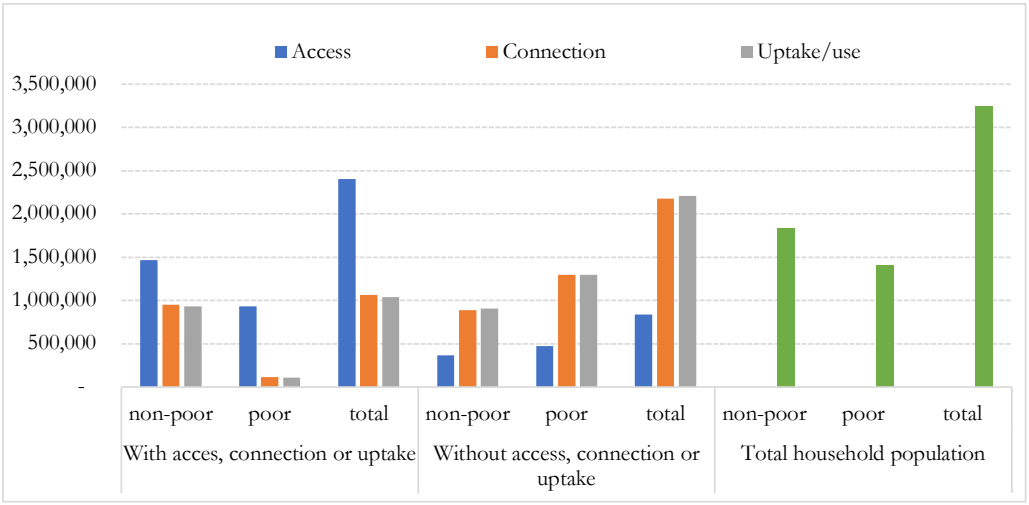
The study set out to investigate the effectiveness of electricity subsidies in poverty alleviation in Zimbabwe through addressing the questions around the quantum and distribution of the subsidies between the poor and non-poor. The study also addresses the questions around the influence of the subsidy design and access features on the targeting performance of the subsidy. In order to understand the targeting performance of electricity subsidies in Zimbabwe, the Poverty, Income, Expenditure and Consumption Survey (PICES) household data was used in undertaking a benefit incidence analysis of the electricity subsidies. Benefit incidence analysis assesses the extent to which subsidies benefit the poor vis-à-vis the non-poor, hence showing the extent to which the subsidy is effective in reducing poverty. It also shows the key drivers of targeting performance in terms of access factors and design factors of the subsidy, hence providing information about potential areas of policy intervention. Policy simulations were also used to compare the potential effects on poverty reduction of different policy interventions on the effectiveness alternative subsidy designs. The subsidies are estimated using the price gap approach which compares the actual price paid for electricity by the households and the price that they would have paid under competitive market conditions. The lower the actual price, the higher the subsidy provided.

FINDINGS OF THE STUDY

Electricity Access, Uptake and Consumption – Insights from PICES Data

Statistics based on the 2017 PICES data, indicate that 74% (2.4 million) of the households have access to the national grid, of which, household connections to the grid are low, at 32% (1.1 million) – see Figure 1. Among the poor, the uptake rate of connections given access is 8%, while it is relatively higher for the non-poor at 52%. Uptake or use of electricity among those with connections is relatively high (97% for the poor and 98% for the non-poor), suggesting that once a household is connected it has a higher propensity to consume electricity.

Figure 1: Electricity access, connection and uptake, 2017 (Number of households)



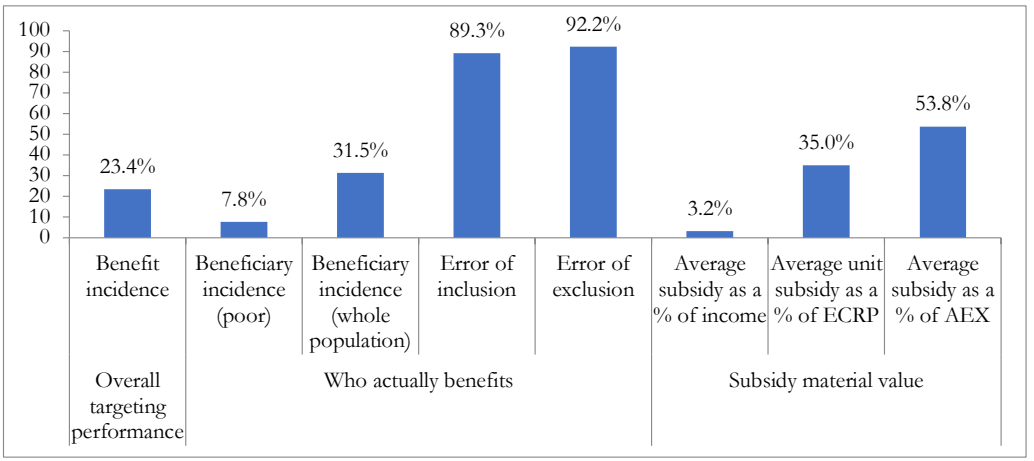
Source: Authors' construction from Zimstat 2017 PICES data

In rural areas, most households do not have any form of electric energy and the most affected are the poor (56% without electric energy from the grid against 38% non-poor). The use of electricity from the national grid is largely for the non-poor in rural areas (14%) than for the poor (3%). Solar home systems are the predominant source of electric energy in rural areas for both the non-poor and the poor, followed by solar lanterns. The main reasons for not having a connection to the national electricity grid differ across location and poverty status including initial costs, distance to national grid (mostly in rural areas) and non-ownership of land and property. Average monthly total expenditure on electricity of US$12.09 for the poor, remains low compared to US$22.73 for the non-poor. Low connection, usage of electricity and limited quantity consumed combine to suppress total value of the subsidy received by the poor households per month, leading to uneven subsidy distribution between the poor (9%) and non-poor (91%).

The Distributional Effects of Current Electricity Subsidies

The paper established that Zimbabwe's 2017 electricity consumption subsidy scheme had low target performance, implying that it is not pro-poor. The high level of exclusion due to low access, uptake and connection rates for poor households against the non-poor contribute to the lack of pro-poorness in the subsidy scheme. Empirical evidence carried here-in, therefore, shows that electricity subsidies in Zimbabwe are less effective in alleviating poverty due to the high level of exclusion of the poor from the subsidy and high inclusion of the non-poor, resulting in low rates of beneficiary incidence on the poor. The richer households consume more electricity and therefore enjoy higher level of electricity subsidies than the poor who do not consume or have low consumption of electricity.

Figure 2: Indicators of subsidy performance for the 2017 IBT schedule



Source: Authors' own calculations from 2017 PICES data set
Notes: ECRP=efficient cost recovery price of electricity per kWh. AEX=average expenditure on electricity

More specifically:

- The targeting performance of the subsidy scheme embedded in the 2017 IBT schedule depicted by a benefit incidence indicator of 23%, implies that with the electricity subsidy in Zimbabwe the poor households are getting only 23% of what they would have received under a universal targeting program that distributes subsidies equally across all households.

- The chance or probability that the poor will benefit from the consumption subsidy delivered through the IBT scheme is 8%, attributed to the high number of poor households who are not consuming electricity.

- By subsidizing all consumption levels, the IBT subsidy scheme perpetuates high errors of inclusion and limits scope for cross subsidisation among households. Errors of inclusion arise because the non-poor benefit from the subsidy even though ideally, they should not benefit because they can afford unsubsidised electricity. The scope for cross subsidisation is limited because both the poor and non-poor are subsidized for all their consumption. Cross subsidisation would occur if part or entire consumption of the non-poor is not subsidised, but actually charged above the cost of supply, such that some of their payment covers the subsidised consumption by the poor. In other countries such as Costa Rica and Nicaragua where IBT systems are almost self-sufficient because the non-poor cross subsidise the poor, hence reducing the subsidy burden on government.

- The error of inclusion, which shows the extent to which the subsidy regime benefits the non-poor, was estimated at 89%, suggesting that almost nine in ten non-poor households benefit from the subsidy. Such a subsidy scheme actually encourages inefficient consumption of electricity among the non-poor, resulting in the crowding out of the poor and increasing inequality among households.

- The error of exclusion of the poor in the subsidy scheme is very high at 92%, implying the subsidy is to a greater extent not helping much reduce poverty since the bulk of the poor are not included by the current subsidy scheme.

Drivers of Poor Target Performance of Electricity Subsidies

Decomposition of the benefit incidence indicator generally shows that the main factor undermining the performance of the subsidy targeting is low rate of electricity usage among the poor households relative to the total population, leading to higher rates of exclusion. The poor have a lower share in most determinants of subsidy performance, indicative of poor performance of subsidies towards poverty alleviation among the poor. For example, the poor have a lower expenditure rate, quantity consumed, share of access, connections and receipt of subsidy compared to the entire population.

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