

Information and Incentives to Decrease Water Waste in Zambia



Sustainable growth requires the management of scarce natural resources, such as water. Although policymakers have put in place pricing structures meant to discourage wasteful water use, a number of barriers may prevent customers from effectively curbing water wastage. Researchers are working with Innovations for Poverty Action and a water company in Zambia to evaluate whether improved information and incentives can help households manage their water usage.

Policy Issue

Sustainable growth requires the management of scarce natural resources. Water management, for example, is a pressing problem, particularly in arid and semi-arid countries like Zambia. To discourage wasteful water usage, many urban utilities have adopted complicated pricing structures, which many customers find difficult to understand. The most common of these is an increasing block tariff, which charges a higher price at higher levels of consumption.

Difficulty understanding the pricing structure itself is only one of the barriers to effectively managing water consumption for poor households. A second barrier managing water consumption is that an individual might find that her own efforts to reduce water usage are only so effective if her family members fail to cut back as well. Families with more internal conflicts may experience this problem more than households that find it easier to cooperate. Finally, a third challenge is whether the customer believes that their monthly bill accurately reflects their household's water use. The incentive to cut back is lost if the customer thinks that water company does not bill accurately. This study aims to provide new evidence on whether better information and incentives can help households reduce their water usage.

Evaluation Context

Researchers are working with the Southern Water and Sewerage Company (SWSC) in Livingstone, Zambia. SWSC serves around 16,000 urban residential customers with metered household water connections. Although households pay for water based on an increasing block tariff, evidence suggests that the pay structure does not curb wastage. A pilot study conducted by the research team found that many SWSC customers do not know how much their water costs, how much they consume, or how their bills are calculated. In particular, most households underestimate the financial benefit of

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reducing water consumption: their average price of water (water bill divided by amount consumed) appears relatively salient, but their actual marginal price of water is in fact higher due to the tariff structure. Furthermore, individuals have a hard time gauging how much water other household members are using and report wasteful water use by other household members.

In addition, many SWSC customers are critical of the water company. There are often water outages due to poor infrastructure, and customers dislike the annual increases in water prices. Customers commonly doubt the accuracy of their bills and sometimes believe that SWSC is overcharging them. If customers do not believe reducing water usage will result in lower bills, they may not be motivated to curb their consumption.

Details of the Intervention

Researchers and Innovations for Poverty Action are conducting a randomized evaluation to assess the impact of improved information and incentives on households' water use and costs. Researchers will randomly assign 1,282 households to one of three groups:

Price information: Households receive accurate information about the price of water. Using easy-to-understand language—specifically, how much it will cost to run the tap for a certain amount of time—households learn the expected price of water in the coming month. Households also receive a printed flyer with this information (330 households).

Lottery and price information: Households receive price information and also learn that lowering their monthly water usage to a set target in the following billing period will automatically enter them into a raffle. Each month, one in every twenty qualifying households will receive prizes of 300 Zambian kwacha (about US\$50). In a randomly assigned one-third of the households told about the lottery, only the husband will be informed about the raffle; for another third, only the wife will be informed; and for the rest of the households, both spouses will be informed (618 households).

Comparison: Households in this group do not receive any new information or incentives (330 households).

In addition, half of the households in all three groups are randomly assigned to receive information about SWSC's credibility. These households will be told that the water company strives to make the water bills as accurate as possible. Households will learn that even during months when the meter is inaccessible or unreadable, the bill is based on an average of previous months' usage and that subsequent bills are adjusted for any over- or under-charges once meter readers are able to get a reading again.

The treatments will help investigate the barriers to household water management described above. First, researchers will evaluate whether receiving simplified information about water pricing helps households curb water usage and lower their bills and whether receiving information about the trustworthiness of the water company makes the pricing information seem more credible to consumers. The lottery will allow researchers to observe whether incentives can encourage customers

to use less water, and the variation in who in the household is informed of the lottery will help clarify the role of household communication in water usage. Second, “lab-in-the-field” and survey-based measures of household communication will further help the researchers evaluate how communication and cooperation influence the efficacy of information and incentives as a way to decrease water usage. Finally, the researchers will analyse whether improving the credibility of the bill affects customer responses to the information and incentives interventions.

Results and Policy Lessons

Results forthcoming.

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