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Case study

Private Financing for Improved Community Water Supply: Case Study in Sri Lanka

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Sourcing water from far afield leads to loss of productive time

Women spend considerable time to collect water

The research question

Can investment needed for piped community water supply be financed through a voluntary private payment scheme in rural Sri Lanka?

Background

Ensuring access to clean water supply is one of the Millennium Development Goals which cannot be achieved without a sustainable financial mechanism. However, despite global commitments, investment in water sector improvements remains below socially optimal level in the developing world. The lack of investment in the water sector, despite a clear economic case for it, is due to a combination of factors including the capital intensive nature of water supply systems, lack of understanding of the full range of benefits associated with adequate and clean supply of water among policy makers and water users and the weak financial position of developing country governments.

Methods

This study employs a choice-based stated preference approach to investigate preferences for shifting from non-piped water sources such as wells and rainwater harvesting to improved piped water supply. We do this to estimate the benefits of improvement of water supply and to explore the potential of private payment schemes to finance the improvement of water supply in the long-term.

We measured benefits associated with quality, reliability and affordability attributes of improved water supply. We surveyed 406 households depending on non-piped water sources in rural Sri Lanka and tested the quality of their current water supply.
In order to elicit preferences for improved water supply and to estimate welfare effects associated with them, we first estimated a standard Multinomial Logit Model (MNL) and a MNL model with interaction effects to investigate whether observed socio-economic characteristics of households are correlated with their choice behavior. We also compared and contrasted these results with those obtained using more advanced modeling techniques for accounting for preference variation such as Latent Class Models (LCM) and the Random Parameter Logit (RPL) model.

Adequate quantity and quality of water is essential for life

Ground water is contaminated with both natural and man-made contaminants

Non-piped sources do not provide reliable supply of water throughout year

Results

The research found that respondents are willing to pay more than the typical monthly service fee in existing piped water supply schemes for being able to sign up for an improved piped water supply. The results also highlight a preference for the introduction of a flexible payment scheme, which allows the spreading of the connection fee over a longer period of time to make it more affordable. The LC and RPL model results provide evidence on substantial variability of preferences for piped water supply, which should be considered in policy design and decisions.Welfare estimations suggest that the improvements in water supply would be feasible, as the estimates are within the World Bank affordability benchmark of 4 % of rural households' income for access to water supply.

Conclusion and Policy Implications

Valuing the quality and access to water is important for public policy making in developing countries because quality of water is generally poor and leads to wide-spread adverse health outcomes, and because the public funding of water sector improvements is insufficient to meet the societal demand.This study provides evidence that people have a strong preference for safe and reliable piped water supply and that the benefits of improved water supply would outweigh the costs of its provision. The evidence suggests that the needed investments could be financed through private payment schemes.

However, as investments in water infrastructure are capital intensive, the role of government as investor in and provider of water supply should not be underestimated even if private financing would become possible. Any policy decisions regarding improvement of water provision should be evaluated in terms of both economic efficiency and social equity.

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