

Municipal water services

Choice modelling and municipal water service delivery

A completed Water Research Commission (WRC) study aimed to demonstrate the usefulness of discrete choice experiment analysis in determining how consumer groups value service delivery.

Background

Technical and cost considerations are inducing greater interest among South Africa's municipal providers of water services to adjust the levels of water services offered to various customer groups. Such adjustments have consumer welfare implications and potential impacts on the demand for water services.

These implications and impacts need to be considered along with the technical and cost consequences.

Motivation for WRC study

Discrete choice experimentation is one form of choice modelling. It utilises a stated preference survey technique to gather data for modelling choice.

The scientific credibility of the discrete choice experiment method of analysis and its appropriateness for application to assess the welfare merit of the levels of water services provided is well established.

Outcomes of consumer survey

By incorporating some consumer satisfaction questions in the survey instrument it was possible to analyse customer ratings and perspectives on the water services that are provided at three selected municipalities: Breede Valley and Knysna in the Western Cape, and Msunduzi in KwaZulu-Natal.

The choice experiment surveys were administered in 2012. The analysis of the customer satisfaction part of the survey

yielded findings that were consistent with assessments reported in the form of Blue and Green Drop certification.

Three water service consumer groups were identified for the purpose of this analysis – high income, low income and business firms. The different water service consumer groups in the different municipalities did not share a common perspective on the way water services were managed.

Majorities in all groups surveyed within the Breede Valley municipality felt the cost recovery tariff structure they faced was fair, whereas in the Msunduzi and Knysna local municipalities the majority of the high income and business firm groups felt the cost recovery tariff they faced was unfair.

Almost 90% of the total respondents surveyed in the Breede Valley were satisfied with the current level of water service provided to them. About two-thirds of the high income respondents in the Msunduzi were dissatisfied with the current level of water service provided to them, but the low income and business groups were mostly satisfied.

Within the Knysna respondents, approximately two-thirds of all groups (business, high income and low income) were satisfied with the current level of water service provided to them.

The analysis of the choices in levels of water service made by the respondent groups in the three municipalities confirmed much that was expected – consumers prefer high pressure, fewer interruptions on water service, higher quality water and lower costs of service.

In most cases the conditional logit model yielded the best predictive fits of the choices of the different categories of

respondent, but in a few the random parameters logit model was the preferred model. There were no cases where the respondents found the choices to be overwhelmingly difficult, and it was deduced that the results were valid.

Welfare calculations

Key features of the welfare calculations undertaken were that:

- Sanitation improvement was the most highly valued improvement among most classes of users within the three municipalities
- There is considerable dispersion in marginal willingness to pay for attribute level improvements between the three municipalities selected for this study
- Business firms typically have higher marginal valuations for water services than either the high or low income groups
- The difference in marginal valuation between the high and low income groups is not pronounced in the three municipalities surveyed.

Conclusion

The study concluded that the discrete choice experiment analysis and survey on which this is based has the potential to yield useful insights into the levels of attributes preferred in the water service mix provided by South African municipalities. Thereby it can inform water service management thinking and policy decision-making on potential implications for water service consumer welfare of technological and cost saving induced changes made to water service provision.

Further reading:

To order the report, *A choice experiment study of user preferences for levels of water service* (**Report No. 2087/3/14**) contact Publications at Tel: (012) 330-0340, Email: orders@wrc.org.za or Visit: www.wrc.org.za to download a free copy.

Also available as part of this study are the reports, *Trends in the growing South African municipal water service delivery problem* (**Report No. 2087/1/P/13**) and *Perspectives on the market processes followed in setting South African water services tariffs* (**Report No. 2087/2/P/13**).