

RESIDENTIAL DEMAND FOR WATER IN THE LOWER HUNTER VALLEY:
ESTIMATES AND POLICY IMPLICATIONS

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By

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ABSTRACT

The nature of pricing and data collection policies adopted by water supply authorities is such that estimation of residential demand for water in Australia has been extremely difficult. Consequently, because there is a lack of information regarding consumer preferences, the confidence with which water supply authorities can proceed with policy change is undermined.

Motivation for the present study arose from the desire to improve the level of knowledge about residential demand for water, especially in view of a proposal by the Hunter District Water Board to change its pricing policy. A single-equation model suitable for evaluating residential water demand was formulated after examination of theoretical, empirical and a priori considerations. This model was estimated using data from the Hunter District Water Board and a household survey. The dependent variable was 'intended water use' which is a proxy for quantity demanded and is based on consumers' willingness-to-pay valuations.

Model estimation established that there is a causal relationship between intended water use and independent variables representing wealth, household size, previous water use, income, water price and connection to sewerage. The price elasticity of demand for water (at the point of means) was estimated to be -0.181 and the income elasticity of demand for water (at the point of means) was estimated to be 0.07 . The absolute value of each of these elasticities was significantly greater than zero and significantly less than unity in the statistical sense.

After a discussion of the study's limitations, three pricing policies were evaluated. The implications of the results concern both consumers and the water supply authority. Consumers appear to have suffered a loss of utility as a result of the introduction of a non-zero marginal price for all water consumed. This follows from the conclusion that water consumption is likely to fall but expenditure on water is likely to rise, other things remaining constant. Despite this, a net social gain may be evident, provided the marginal price for water

approaches the marginal cost of its provision. The water authority is shown to benefit from an increase in revenue but is unlikely to be able to effect substantial reductions in water consumption by increasing the marginal price for water.

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I certify that any help received in preparing this dissertation and all sources used have been acknowledged herein. Furthermore, the substance of this dissertation has not been submitted for any other degree and is not being submitted for any other degree.



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