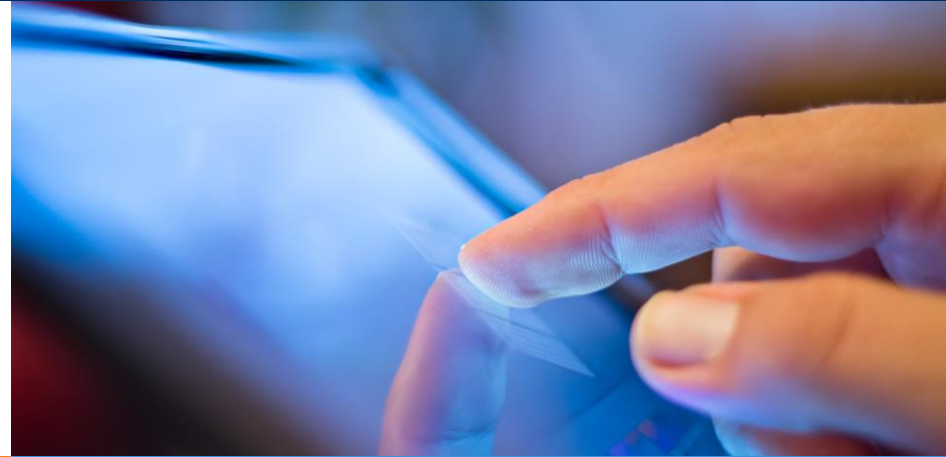




WATER SERVICES
ASSOCIATION OF AUSTRALIA



MARSDEN JACOB ASSOCIATES



WILLINGNESS TO PAY

Principles for a robust study

August 2019



INTRODUCTION

Water utilities have made a significant shift towards placing their customers at the heart of their operations. This is more than just improved customer service – at its core it means engaging with customers to understand their views, priorities and needs and then using these insights to inform decision making.

Unlike competitive industries, our customers cannot demonstrate what they value by voting with their feet and choosing their preferred water provider.

Willingness to pay studies are one of a number of techniques that utilities are increasingly using to understand customer preferences, decide what investments to make and to demonstrate the value of these investments to external stakeholders.

One reason that willingness to pay studies can generate credible values from water utility customers is that when a water utility conducts the study, the participants know that their response could directly impact the bill.

While willingness to pay studies cannot answer all questions, use of the techniques have matured in recent years with many impressive case studies in the water industry. This document is for customer research, regulatory managers or anyone in a water utility considering these studies.

PURPOSE

Purpose of this document

This document provides brief guidance on conducting studies of customer willingness to pay (WTP) in the urban water sector. It:

- lists different types of studies
- provides guidance on the circumstances to which each technique is best-suited
- provides a checklist for conducting a robust study
- lists five common pitfalls to be avoided
- includes top tips from the case studies.

This guidance is an output of a workshop held by the Water Services Association of Australia (WSAA) on 1 May 2019 to discuss case studies of WTP research undertaken in the Australian urban water sector over the past 1-2 years.

The driver for all forms of customer engagement should be to improve business decisions and the delivery of service. However, the use of WTP studies also dovetails well with economic regulation and the price setting process.

Where water businesses are proposing delivering services that go beyond their minimum regulatory obligations (e.g. service or performance standards mandated in their operating or environmental protection licences), regulators are asking water businesses to clearly demonstrate that (1) customers have been consulted about the proposed expenditure and (2) customers have demonstrated that they are willing to pay for the additional or improved services.

When water businesses can show customers are willing to pay for expenditure to achieve standards above minimum regulatory requirements, regulators are providing allowances for expenditure to achieve those standards.

When reviewing minimum regulatory obligations, regulators are looking to water utilities to develop a better understanding of customer preferences for balancing cost and service levels.

WHAT IS WILLINGNESS TO PAY?

About willingness to pay

Willingness to pay (WTP) is the maximum bill *increase* at or below which a consumer would definitely agree to a service *improvement*.

Willingness to accept (WTA) is the maximum bill *decrease* at or below which a consumer would definitely agree to a service *degradation*.

WTP and WTA are useful for showing customer ability and willingness to accept trade offs. WTP and WTA are a measure of economic benefits and can be used to put a dollar value on changes in services.

Estimates of customer WTP and WTA can be used to:

- better understand customers and their preferences for services and service levels
- support benefit-cost analysis of different service options that water businesses are evaluating
- help regulators set financial rewards and penalties for service performance that provide an incentive for businesses to pursue investments in improved service performance where the improvement is valued above cost by customers.



TYPES OF STUDIES

Customer voting/ranking studies

Voting/ranking

- Present multiple options (usually business-as-usual (BAU) and one or more proposals) with specified outcomes at the estimated cost of delivering the outcomes
- Ask participants to vote for their preferred option or, if there are more than two options, rank the options
- The output is the percentage of participants supporting (or allocating each rank position to) each option
- Some studies ask a sequence of such questions to cover a range of topics.

Bill calculators

- Embed multiple voting questions within one larger question
- Customers can change the services and see the impact on their bills.

Key difference

Studies that estimate WTP ask about a range of hypothetical cost levels, as distinct from asking only about feasible, costed options

Studies to estimate WTP/WTA

Contingent valuation

- Asks customers whether they are willing to pay for a specified change in service
- Usually varies the price impact of the changed service across customers, allowing researchers to observe demand for the changed service at different price points
- Output is estimated WTP for the change in service level.

Choice modelling/Conjoint analysis

- Like contingent valuation, except it usually involves asking a sequence of questions. In each question customers choose their preferred option for a 'bundle' of services or service attributes. Different hypothetical bundles are offered in each question.
- Researchers can estimate the WTP for changes in the level of each service or service attribute offered in the survey.

WHEN TO USE EACH TECHNIQUE

There are different ways to estimate WTP/WTA. Some techniques are more suited to answer some questions than others.

While there are no hard-and-fast rules, the table below provides a guide to the circumstances to which each technique is best suited.

Voting/ranking and bill calculator approaches tend to work better later in the process of developing business plans once options have been shortlisted and are unlikely to change.

Contingent valuation and choice modelling are preferred earlier in the process and when the results are needed for benefit-cost analysis, which may be needed in cases where benefits or costs are not widespread.

	Voting/ Ranking/Bill calculator	Contingent valuation	Choice modelling
Phase of the business plan development process	Later	Earlier	Earlier
Number of planning options/potential solutions for each topic	Fewer	Fewer	More
Likelihood you will need to evaluate new or changed options in future	Unlikely	Unlikely	Likely
Distribution of benefits and costs	Benefits and costs are both widespread	Any distribution of benefits and costs	Any distribution of benefits and costs
Time and resources available	Lower	Lower	Higher

CHECKLIST FOR A ROBUST STUDY

Use a choice format

Don't ask open-ended questions about how much respondents would be willing to pay. Australians are used to making decisions about services by choosing from a set or sets of options. Research shows a choice-based approach gives more accurate results.

Quantify all price and service outcomes

Be specific about the price and service outcomes under each option over time. Describe outcomes in the way customers tend to perceive them. This may mean not focusing on the infrastructure that will deliver the outcomes.

Include a business-as-usual option

Explicitly include a business-as-usual option in the set offered to customers. Where relevant, tailor this option to the participant's experienced service levels.

Include degradation options

Where possible, include options with worse service and lower bills as well as options with better service and higher bills.

Emphasise the consequential nature of the study

Remind participants that their responses will influence the service they receive and the bills they pay. If non-bill-payers participate, explain how bill increases will affect them (e.g. through rent). Reminding participants about their budget constraint may also help to allay concerns about hypothetical bias.

Use debriefing questions

After questions about the options, ask follow up questions about whether participants believed the options could be delivered and the results would influence decision making. If participants chose BAU at every opportunity, ask why.

Use a large stratified random sample

To the extent possible, select participants randomly from the relevant customer population. Use quotas for key characteristics of the population, such as age, gender and location. Where possible, avoid indicating the topic in the invitation. Difficult-to-reach customers, including businesses, may require a different mode, such as personal interviews. The sample size needed to provide reasonable certainty about WTP estimates varies with the technique, but survey more than 450 customers, if possible.

CHECKLIST FOR A ROBUST STUDY (2)

Test the instrument using in-depth interviews or focus groups

Check that the instructions are clear and the options are understood and viewed as credible. Check for protest reactions, fatigue and difficulty processing.

Report drop out rates

Report how many respondents drop out before completing the survey. Low drop-out rates mean your survey results are more likely to be representative.

Report variation and uncertainty

Report the statistical confidence intervals around estimates of average WTP or proportion of customer support. Where relevant, report the distribution of WTP over customers.

Do customer segmentation on the results

Look at how results differ across customer segments
See if the results meet your expectations.

Reweight the sample when aggregating

When generalising results to the whole customer base, consider reweighting the sample by characteristics known in the customer base, particularly if the sample was generated through advertising or excluded renters.

Triangulate/validate the results

When drawing conclusions from the results, compare them to the results of past research and any available revealed preference information (e.g. the cost of standalone customer solutions). The WTP study should not be your only source of truth. Ask customers what they think of the results as part of ongoing engagement.

Publish the method and results

Studies are more credible and influential if they are transparently documented. Best-practice customer engagement feeds results.

CHECKLIST FOR A ROBUST STUDY (3)

Additional items for choice modelling and contingent valuation

When using hypothetical options, make them plausible and statistically efficient

Develop hypothetical options (experimental designs) that are plausible to participants and maximise statistical significance of WTP estimates by making use of existing research.

Conduct a pilot

Use pilot data to revise the cost levels to more closely reflect WTP for the best and worst options being offered. In CM studies, use the data to generate better hypothetical options (a more efficient experimental design).

Estimate separate values for WTA and WTP

Where both service improvement and degradation options have been offered, use models that allow WTP and WTA to be different.

FIVE PITFALLS TO AVOID

Not developing enough options

Decision makers are not interested only in whether an option is better than BAU, but also whether it is better than all other possible options.

Not specifying the changes in outcomes

Don't ask how much customers would be willing to pay for an unquantified service improvement. Don't ask about new or upgraded assets without explaining and specifying the customer outcomes.

Recruiting through advertising only

Unless panel and random sampling options are infeasible, don't rely only on advertising, since it will tend to oversample customers with extreme preferences.

Trying to do too much with one study

Trying to address too many research questions with one study can result in confused or uninformed participants. Multiple studies or a sequence of studies may be required when the set of research objectives is large.

Not communicating in ways that customers understand, or want to understand

Don't explain technical detail around things like how recycled water plants work or how stormwater channels will be lined. Make descriptions outcome-focussed and focussed on things that your customers have told you they value most.

TOP TIPS FROM THE CASE STUDIES

Bring in external expertise to design your WTP study. Use a consultancy that specialises in WTP, as opposed to market research or an academic. This helps make the outcomes actionable and the research robust enough to be acceptable to decision-makers.

Use a multi-disciplinary team within the organisation from the start. At a minimum include members from the regulatory, engineering/planning, communications and customer research parts of the business.

Don't underestimate the large amount of internal resources required to carry out these studies. In particular to determine costs for the different service options and impacts on bills.

It is difficult to get business customers involved in the study. Use a provider that specialises in sourcing these types of customers.

Get a decision from your Board (or regulator) up front on what they expect as evidence for decision making, specifically what the decision rule should be for investing. Is it the percentage of customers supportive of the investment? Or is it the willingness to pay? This will influence the technique and design of the study.

Expect minimal direction from the regulators but aim to engage them throughout the process and obtain a clear understanding of their minimum expectations.

There is never a perfect time to carry out a WTP study. You will always be dealing with some uncertainty in the costs. This is why you need many different data sources and research carried out at different stages.

FURTHER INFORMATION

Authors

Dr Ben McNair

Principal Economist

Centre for International Economics

bmcnair@thecie.com.au

Phone: +61 2 6245 7804

Dr Jeremy Cheesman

Director

Marsden Jacob Associates

jcheesman@marsdenjacob.com.au

Phone: +0414 765 739

Other reports and papers

Johnston, R.J., Boyle, K.J., Adamowicz, W., Bennett, J., Brouwer, R., Cameron, T.A., Hanemann, W.M., Hanley, N., Ryan, M., Scarpa, R. and Tourangeau, R., 2017. Contemporary guidance for stated preference studies. *Journal of the Association of Environmental and Resource Economists*, 4(2), pp.319-405.

Baker, R. and Ruting, B., 2014. Environmental policy analysis: A guide to non-market valuation (No. 425-2016-27204).

Thacher, J., Marsee, M., Pitts, H., Hansen, J., Chermak, J. and Thomson, B., 2011. Assessing customer preferences and willingness to pay: A handbook for water utilities. Water Environment Federation. Denver, Colorado.

About the Water Services Association of Australia

The Water Services Association of Australia (WSAA) is the peak body that supports the Australian urban water industry. Our members provide water and sewerage services to over 20 million customers in Australia and New Zealand and many of Australia's largest industrial and commercial enterprises. WSAA facilitates collaboration, knowledge sharing, networking and cooperation within the urban water industry. The collegiate approach of its members has led to industry wide advances to national water issues. WSAA can demonstrate success in standardising industry performance monitoring and benchmarking, as well as many research outcomes of national significance. The Executive of the Association retains strong links with policy makers and legislative bodies and their influencers, to monitor emerging issues of importance. WSAA is regularly consulted and its advice sought by decision makers when developing strategic directions for the water industry. For more information visit www.wsaa.asn.au.

Disclaimer

This document is issued by the Water Services Association of Australia Ltd on the understanding that the Water Services Association of Australia Ltd and individual contributors are not responsible for the results of any action taken on the basis of information in this document, nor for any errors or omissions.

Copyright

This document is protected by copyright. Apart from any use as permitted under the Copyright Act 1968, no part of this document may be reproduced or transmitted in any form or by any means, electronically or mechanical, for any purpose, without the express written permission of the Water Services Association of Australia Ltd. For more information, please contact WSAA on info@wsaa.asn.au.

© Water Services Association of Australia Ltd, 2019

ALL RIGHTS RESERVED