

Assessing Willingness to Pay Using CVM

When is it necessary to assess willingness to pay (WTP)?

1. Service provision models that require a sustainable business model with income generation.
2. Any water system that depends on the collection of O&M funds.

Since there is only one type of water service being proposed the CA method was not used, though other parts of the survey allowed the respondents to express their interest in other products and services (Clausen, 2016). Contingent Valuation Method surveys describe a proposed product or service and ask the respondent to state how much they would be willing to pay for it.

Factors Influencing Willingness to Pay

- Service level and standard
- Perceived benefits
- Level of income
- Price and relative cost
- Time Saved
- Characteristics of existing sources
- Community cohesion
- Perception of ownership and responsibility
- Transparency of financial management
- Institutional framework

(Harvey and Reed, 2003)



Figure 6 (Amadeo) The five determinates of demand

Economic Value

Willingness to Pay

(the determination of the amount an individual is willing to exchange for a product or service)

Direct Valuation
(what is done in practice, observable)

Stated Preference

(what individuals predict as their behavior in a given scenario)

Real

(Scenarios require real payment)

Hypothetical

(choices do not require real payment, unobservable)

Substitute Products (-)

Complimentary Products (+)

Contingent Valuation (CVM)

- Range of Prices
- A single Well Defined Option
- Determines Maximum WTP

Conjoint Analysis (CA)

- Multiple Comprable Choices
- Compares stated preference between options
- Establishes value placed on options

Based on the context CVM was chosen since a single option was being evaluated.

The Methodology:

- Establish clear methodology and goals
- Sample size calculation (this requires pre-assessment and can be done by Key Informant Interviews)
- Creation and Testing of a Tool (translation and testing)
- Determination of Data Collection tools (software/ hardware)
- Training of Surveyors (testing!)
- Data Analysis (if possible real-time)
- Lessons learned & Sharing

The key data collection tool was the use of a household survey designed for this purpose. The survey creation was informed by key informant interviews and tested in another location on a smaller sample size to inform both the survey and gain experience with the tools. To establish WTP using the CVM method, the product or service must be described accurately and in detail for the respondent to make an informed decision. In the case of a water service the attributes of the water, the location, and the service itself must be described to answer key determinates of preference. Once the service or product had been described the respondents were asked:

1. Would you be willing to use the described service?
2. Would you be willing to pay a modest amount?
3. Would you be willing to pay 2, 3, 4, 5 MT for the service?

According to the local authorities there are 2,346 households in the CFM community, and a population of 11,573. This gives an average household size of 4.9 individuals per household. The population is reported as 68% female. The sample size was calculated based on the population.

Tools: A total of 241 valid surveys were collected (4 were invalidated during data cleaning due to data collection errors resulting in missing responses). At a confidence level of 95% a sample size (n) = 240 gave a confidence interval (E) of 6 (+/- 6% points margin of error). The data was collected using the KoboCollect app deployed on Android tablets. The tablets collected the GPS location and beginning and ending time of each survey automatically. The data is saved on the local device until it is connected and then the surveys upload automatically.



Figure 1 Training of the surveyors



Figure 2 Conducting HH surveys

Challenges: During the training and testing of the survey software it was noted that two of the tablets had not updated with the most recent version of the survey. During training several modifications were made to the questionnaire. After the first day of data collection the map generated by the KoboCollect software showed a large gap in the survey coverage resulting from the layout of the community and the random selection of households to survey. It was necessary for a technical support agent to be continuously present in the field to provide support. Technical issues were few, but had to be addressed immediately. The number of surveys completed by each surveyor varied widely largely based on their level of comfort with the technology.

Contingent: Fixed Location Water Vending, Case Study Mocuba, Mozambique



Figure 3 Kobo Collect Map of Survey Responses to Primary Water Source



Figure 4 Kobo Map of Willingness to Pay

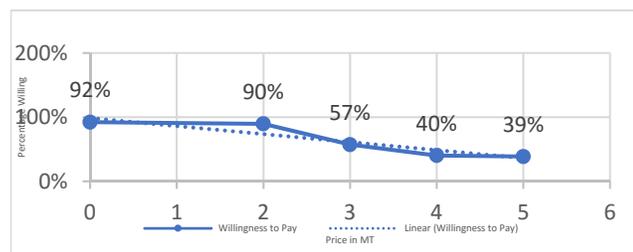


Figure 5 As price increased WTP decreased with the largest drop between 2-3MT.

Findings Mocuba

The surveyed community expressed a strong WTP for the contingent. Previous assessments indicated that many residents were already paying for unsafe water from neighbors or water carriers and that the typical (observed) WTP for 20L was 2MT.

The strong interest in complimentary services and product is expected to drive up the WTP after the launch of the service. Availability of complimentary products and services at the water vending point is likely to be a driver of demand for the proposed fixed point water vending.

Other results of interest from the assessment included the find that when evaluating water quality only a moderate correlation existed between perception of water safety and visible particles and a mild correlation existed with color.

Variable	n	Yes	No
Currently Pay	241	61%	39%
Willing to use	241	92.12%	7.88%
Willing to pay	222	90.97%	1.24%
WTP 2	219	89.63%	1.24%
WTP 3	216	57.26%	32.37%
WTP 4	138	40.25%	17.01%
WTP 5	97	38.59%	1.66%

Conclusions General

CVM can be a useful tool, however a strong body of literature exists that points to the subjectivity of expressed WTP determined by this method. Combining WTP with complimentary products and services and a strong awareness of the substitute offerings is essential to a well-rounded assessment.