

Some Remarks about Using Contingent Valuation

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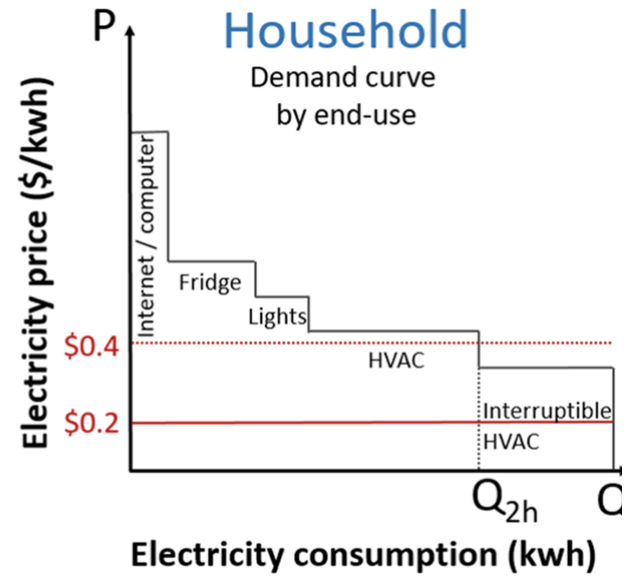
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MTF insights BBL series--Value of reliable electricity supply using contingent valuation method.
World Bank, Washington, DC—25 April 2024

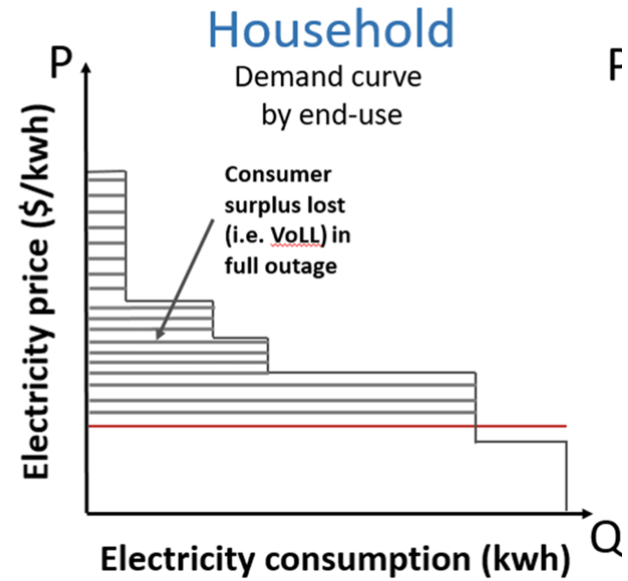
Estimating the Demand for Electricity

$$y_{it} = \alpha + \beta \cdot p_{it} + \gamma \cdot hhinc_{it} + \mathbf{x}_{it} \boldsymbol{\delta} + \varepsilon_{it}$$

- Can infer the Value of Lost Load
- Data from meter readings and other sources
- Exploit variation in price over time/across places
- Interesting in the presence of unusual tariff schemes (e.g., TOU, IBR)
- Works when everyone is already connected—no good with customers who don't have a connection yet



oretical conceptualization of demand curves corresponding to a specific in
entire region that might correspond to different end-consumers of elec



Source: Gorman (2022)

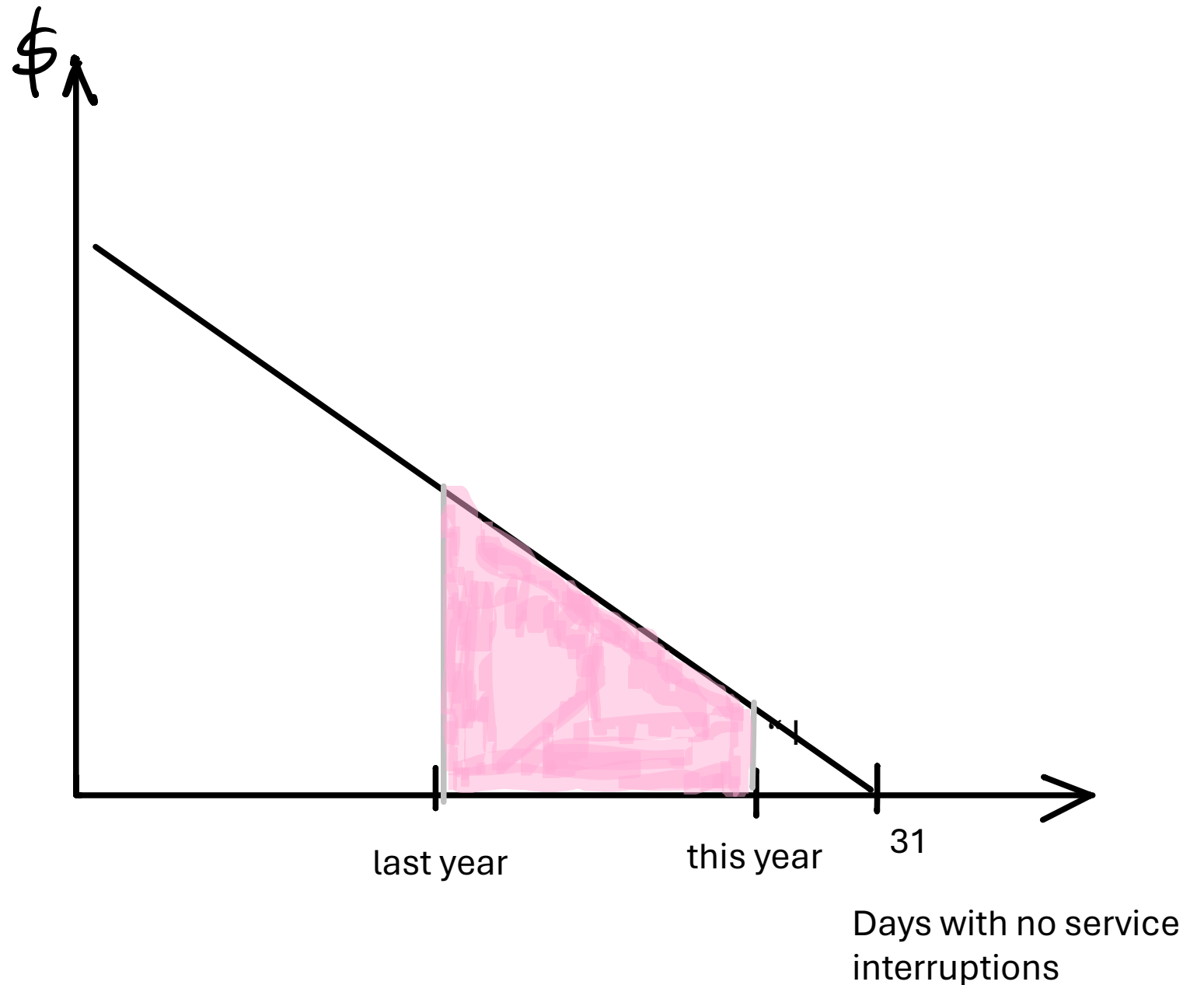
Stated Preferences: Contingent Valuation

- Ask people how much they would be willing to pay for...
 - Connection to the grid
 - Increased reliability of service
 - ...
- “Stated” = there is no observed transaction
- WTP → must keep the quantity of the good to be valued fixed

Nepal paper (Alberini et al., 2020)

* WTP to avoid going back from the present outage situation to the outage situation before the end of load-shedding

* Curve depicts the marginal WTP for days without service interruptions



SP/Contingent Valuation

Pros...

- True experiment
 - Assign treatments (scenarios, proposed cost amounts, etc.) to the respondents completely at random
- Gets people to value goods or policies that don't exist yet (connections to the grid, reliable electricity service)
 - Would be impossible to estimate demand function for such goods

...Cons (or difficulties)

- “...Hypothetical answer”
- Familiarity with the good
- Conveying exactly what we want the respondents to value
 - Respondents may replace the good with one of their own invention
 - Solutions: Quiz the respondents, debriefing questions, exclude low-quality responses
- Strategic responses

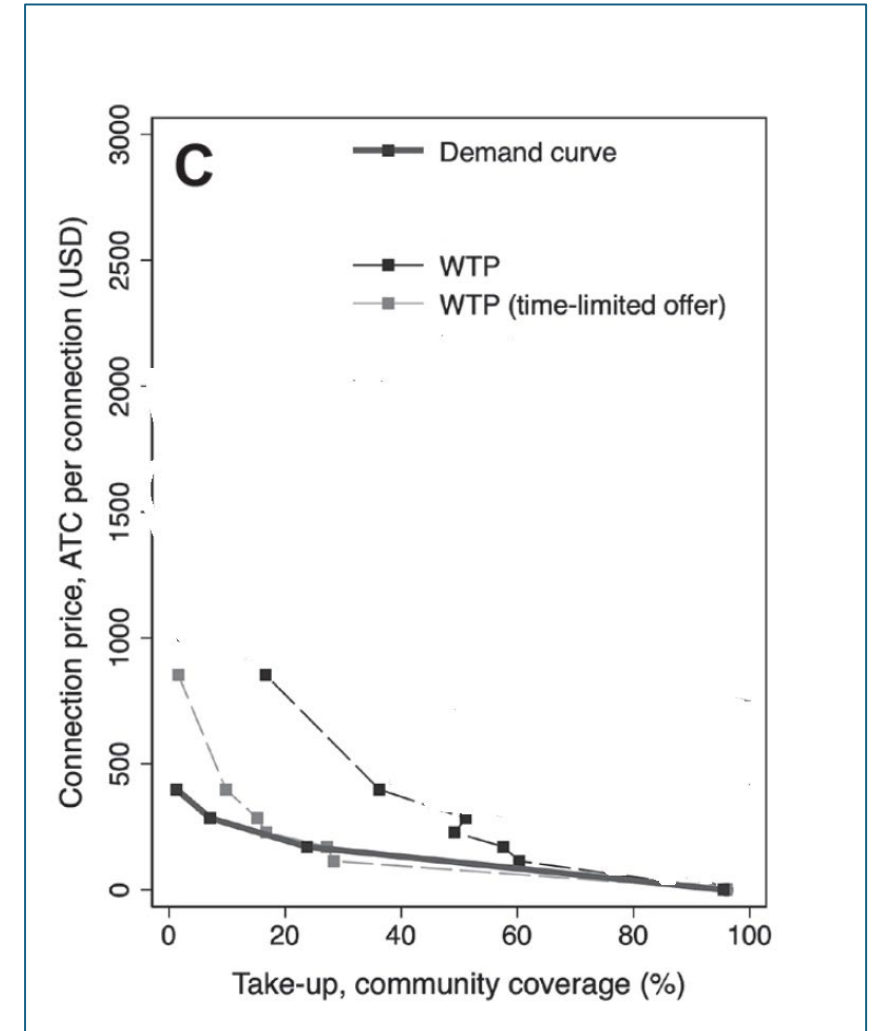
Strategic incentives in Contingent Valuation

- With private goods, like a connection to the electricity grid:
 - Overstate true WTP, in hopes that doing so will increase the likelihood that the good is supplied
 - Understate true WTP out of fear that respondent will have to pay for the good (or in hopes that doing so will increase the likelihood that the good is supplied for free)
- Some of these strategic incentives can be triggered by the WTP elicitation method...
 - Single-bounded v. double-bounded dichotomous choice CV
 - Bidding game
 - Open ended, incl. payment card
- ...or by culture and tradition (e.g., in Nepal)

“...hypothetical answer.”

→ How well does CV predict actual behavior?

- Lee et al. (2020)
 - Randomized Controlled Trial (Kenya, 2014)
 - offer connections at subsidized prices varied across participants
 - Participants were given an 8-week window to accept or decline
 - Low connection rate (lower than predicted by national utility), although 100% if free connection
 - Companion CV surveys
 - In the CV w/ 6-week window, hypothetical takeup tracks well actual takeup



Source: Lee et al. (2020)

“...hypothetical answer.”

→ How well does CV predict actual behavior? (cont'd)

- ...But the World Bank has a very good track record showing that CV responses predict actual behavior well, esp. with water connections
- Griffin et al. (1995) survey and re-survey households in 1988 and 1991, finding that 91% of the households had acted exactly as they had said they would (connect or not connect)

Contingent Valuation and Actual Behavior:
Predicting Connections to New Water Systems in
the State of Kerala, India [Get access >](#)

[Charles C. Griffin](#), [John Briscoe](#), [Bhanwar Singh](#), [Radhika Ramasubban](#), [Ramesh Bhatia](#)

The World Bank Economic Review, Volume 9, Issue 3, September 1995, Pages 373–395,

<https://doi.org/10.1093/wber/9.3.373>

Published: 01 September 1995

Does the existence of private substitutes help?

- Think home solar systems, solar lanterns, etc.
- May cause...
 - people to report lower WTP for grid connection (as we observed in the Nepal study)
 - People to “anchor” on the value or price of the market good although their WTP is higher...
 - ...or be better acquainted with the value they place on electricity, and hence report sharper preferences

Conclusions

- When RCTs are not possible, or there is no variation in prices or policies, SP/CV helps estimating the value that people place on connections to the grid, higher reliability, etc.
- Pros and cons of stated preferences
- Cons can be overcome with careful study design and execution, and careful data analysis and modeling
- Convincing evidence that when a CV survey is designed that mimics actual conditions and constraints, CV tracks well actual takeup

Thank you!
Comments? Questions?
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