Accent PJM economics

COLLABORATIVE ODI RESEARCH:
OVERVIEW OF DESIGN AND ANALYSIS METHODOLOGY

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New design: Compensation-based, linked to impact

Compensation exercise

Which option would you prefer?

Option A

UNEXPECTED water supply interruption (6 hours)

- Your tap water supply stops working without warning
- This is due to a burst pipe in your local area
- It stops for 6 hours, between 06:00 and 12:00 on a Wednesday morning

Compensation paid*: £100

○

Option B

No unexpected water supply interruption

○

* compensation would be paid either by applying a credit to your water bill, or by a sending a cheque to your IF HH household IF NHH organisation, whichever you prefer.

- By varying amounts across the sample, we can measure the distribution of required compensation – a valid and appropriate measure of value.
- Two service issues used as 'pivots', or 'anchors', resulting in two sets of estimates.

Impact exercise

Which of these would have the most impact on your IF HH: household IF NHH: organisation?

PLANNED water supply interruption (24 hours)

- Your water company sends you a notice that in 2 days' time your tap water supply will stop for 24 hours
- This is due to planned maintenance in your local area
- As planned, it then stops from a Wednesday morning to a Thursday morning

Planned, 24 hours

○

Discoloured water (24 hours)

- Your tap water starts running light brown, without warning
- This is due to traces of sediment from pipes being disturbed
- The water is safe to drink, but you shouldn't use a dishwasher or washing machine until the water runs clear again
- This happens for 24 hours from a Wednesday morning

24 hours

○

- By varying combinations of service issues across the sequence of question, and sample, we can measure an index of relative impact
- Currently there are 24 service issues, all linked, either individually or in combination, to anticipated common PCs

Outcomes from both exercises linked together to obtain values per affected household/premises of avoiding each type of issue

Key strengths of new approach

- Questions are much simpler:
  - Only comparing one service issue against another, or whether or not compensation is enough, not complex packages of service levels.
- Questions are much more customer focused:
  - Issues described as they affect the customer, not as they are seen by the company
  - Detailed information shown on the key features of service issues affecting their impact, without the complication of a service level.
- Overcomes problem of 'denominator effect'
  - People are inadequately sensitivity to the scope of service level changes, particularly when packaged into complex combinations of service levels
  - Therefore, there will no longer be:
    - Excessive valuations where service changes are small
    - Implausible relative valuations across service measures
    - Implausible range of valuations across companies for the same service measures
- New approach works much better on a mobile phone.
- Valuation results are flexible – likely to be valid even if PC definitions change
- No service levels needed from companies (at the design stage)

Old approach: Discrete Choice Experiment

Most common method at PR19, and the dominant method at PR14, as recommended by UKWIR (2011). Often consisted of 3 lower level exercises like this plus a package valuation exercise.

Source: Yorkshire Water

Analysis methodology

Analysis steps

1) Derive weights

- Water and wastewater company combination
- Separately, within each water company, and within each wastewater company:
  - Weight households by Age, Sex, SEG, Urban/rural
  - Weight non-households by No. employees size band

2) Impact choice modelling

- Mixed logit models, using survey weights
- Calculation of individual and segment-level odds ratios (relative impact indices)

3) Compensation choice modelling

- Range of modelling options
- Calculation of segment-level mean, median, and other percentiles, of required compensation distribution for both service issues.

4) Combine estimates and aggregate

- Multiply impact index for segment (with base set to compensation service issue) by required compensation statistic for that service issue.
- Use weights to aggregate over segments

5) Map value estimates to ODI rates

- Individual mapping needed for each PC
- Conceptual bases for mapping set out in Stage 1 report for each of the anticipated common PCs
- **BUT:** Task & finish groups to be set up to agree mappings to be used.

Combining estimates: worked example

Service issue	Impact index		Value	
	Base=UnexpInt6	Base=ExtSF	UnexpInt6=£50	ExtSF=£500
Unexpected interruption (6h)	1	0.125	**£50**	£62.5
Unexpected interruption (24h)	2	0.25	£100	£125
External sewer flooding	8	1	£400	**£500**
Internal sewer flooding	40	5	£2,000	£2,500

- Suppose average required compensation is derived to be £50 for Unexpected interruption (6h) and £500 for External sewer flooding
- These two values combine with the estimated relative impacts to create two sets of values, which can together be considered as a range.
- NB: re-basing the impact index keeps relative values constant.

THANK **YOU!**

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