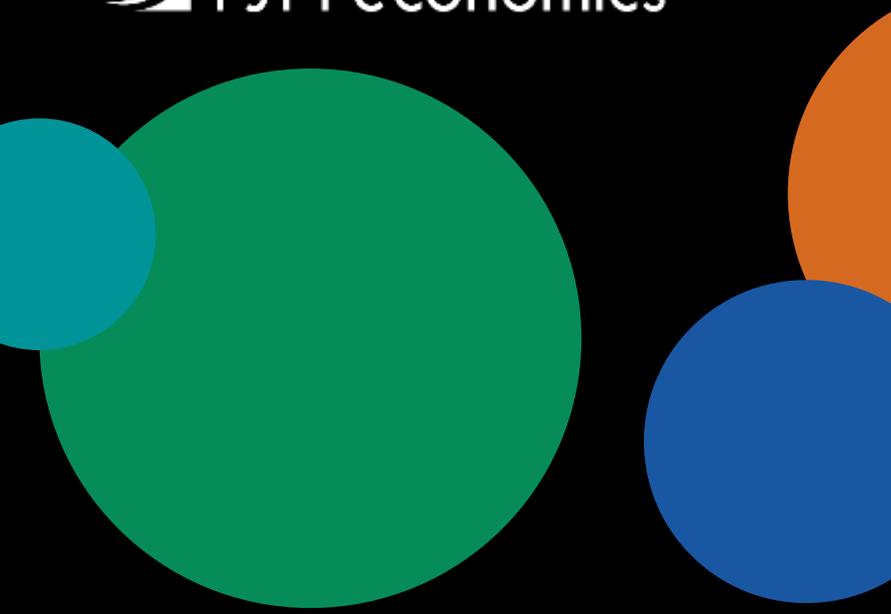


AccentPJM economics

Outcome Delivery Incentive Research

2nd Pilot +3rd Cogs Report

Paul Metcalfe

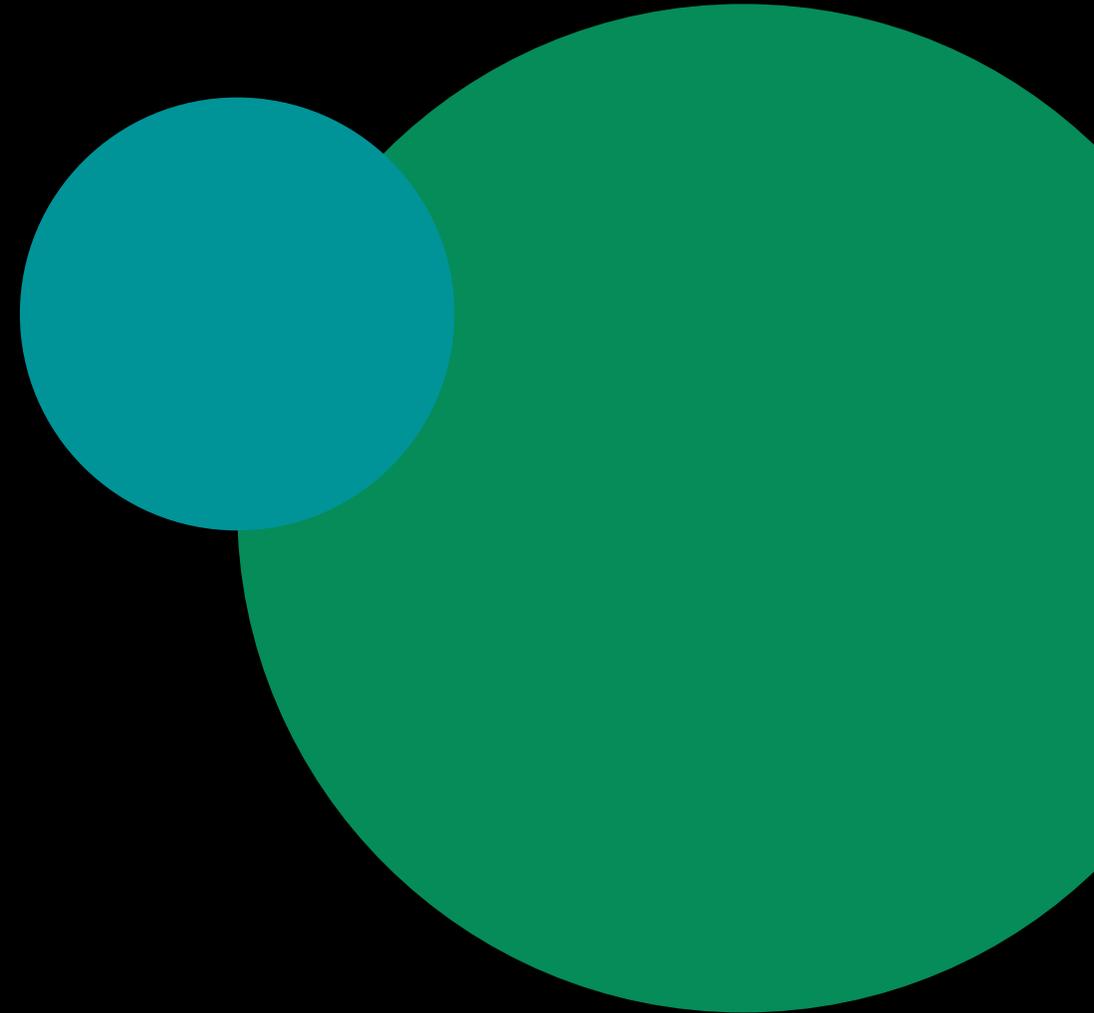
Tel +44 (0)7786 656834

paul@pjmeconomics.co.uk

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Introduction

Background and overview

- Stage 2 of the Collaborative ODI research study consists of the development and testing of the survey instrument, including cognitive depth interviews, and quantitative testing.
- The results from a first pilot survey provided mixed evidence. Whilst there were many supportive findings, three key issues were identified:
 - Compensation levels were not high enough at the upper end to estimate mean and median values for some cases.
 - Some issues regarding the plausibility of even higher levels, when tested qualitatively.
 - Some people perceived link between severity and compensation
 - Relative values of the two ‘pivot’ service issues (External sewer flooding and Unexpected 6h interruption) were very different when derived from Compensation choices than when derived from Impact choices.
- These findings motivated further quant and qual testing on two revised versions of the survey, discussed in this presentation.

Objectives of the 2nd pilot

- To test the stated preference designs from two versions
 - Feedback from participants
 - Diagnostics on choice data
 - Performance of econometric models
 - Consistency of results with expectations
 - Appropriateness of compensation levels used

Objectives of the cognitive depths

- To test changes to the questionnaire since the 2nd round of depth interviews including, in particular, the new SP exercise adopted for Version 2.

Design revisions



Original SP 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 12:00 and 18:00 on a Wednesday afternoon



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 (6 hours)

- Your water company sends you a notice in the post that in 2 days' time your tap water supply will stop for 6 hours
- This is due to planned maintenance in your local area
- As planned, it then stops between 12:00 and 18:00 on a Wednesday afternoon



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



- By varying combinations of service issues across the sequence of question, and sample, we can measure an index of relative impact
- In the 1st pilot there were 25 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

Version 1 – Adaptation of Compensation exercise

a) Choice of service levels

Original service issues

- Unexpected supply interruption (6h)
- Sewer flooding outside your property (1 week)

Why?

- To include one water and one wastewater service issue.

Why not?

- Sewer flooding is a high-impact incident, meaning that required compensation is higher, perhaps stretching into implausibly high numbers, and weakening precision.
- More ambiguity over severity of impact of sewer flooding in comparison to other service issues, particularly given that properties vary substantially across the population. This potentially links perceived impact with level of compensation shown, causing a bias.
- Some participants doubt it could happen to them, if they live at the top of a hill for example.
- Potential for doubt over whether company will know of impact without it being reported.
- No strong reason for requiring one water and one wastewater service issue in the first place.

Proposed new service issues

- Planned supply interruption (6h)
- Boil water notice (48h)

Why?

- Lower impact service issues, hence lower required compensation.
- Both can affect any property equally
- Little room for ambiguity
- Company will definitely know of the issue as they have already sent a notice.

Version 1 – Adaptation of Compensation exercise

b) Introduction and format revision

Original version

Compensation for service issues

The next few questions are about compensation for service issues.

Water and wastewater companies pay their customers compensation in some cases when there are problems with their service. They also invest money to reduce the number of problems that happen in the first place.

The following questions will each present you with a choice between experiencing a service issue and being compensated for it, or not experiencing the issue and not receiving any compensation. The purpose of these questions is to see if the amounts shown are enough to offset the impact on your **[IF HH]** household **[IF NHH]** organisation from the service issue shown.

In each question, the type of service problem and the compensation amount will vary. These amounts do not necessarily reflect current compensation entitlements, and compensation levels will not necessarily be influenced by answers to these questions.

RANDOMISE ORDER OF SERVICE ISSUES SHOWN IN Q30-Q31H.

Q30. Which option would you prefer?

Option A	Option B
<p>UNEXPECTED water supply interruption (6 hours)</p> <ul style="list-style-type: none">Your tap water supply stops working without warningThis is due to a burst pipe in your local areaIt stops for 6 hours, between 12:00 and 18:00 on a Wednesday afternoon  <p>Compensation paid*: £100</p>	<p>No unexpected water supply interruption</p>
<input type="radio"/>	<input type="radio"/>

New version

One-off payments for service issues

The following questions will each present you with a choice between experiencing a service issue and receiving a one-off payment from your water company, or not experiencing the issue and not receiving any payment.

In each question, the type of service issue and the one-off payment amount will vary. The amounts will not necessarily reflect current compensation entitlements and may exceed these levels -substantially in some cases.

The purpose of these questions is to see if the amounts shown are enough to make up for the impact on your **[IF HH]** household **[IF NHH]** organisation from the service issue shown. It is important that you consider each amount at face value, even if it seems higher than you would imagine might be offered.

RANDOMISE ORDER OF SERVICE ISSUES SHOWN IN Q30-Q31H.

Q30. Which option would you prefer?

Option A	Option B
<p>PLANNED water supply interruption (6 hours)</p> <ul style="list-style-type: none">Your water company sends you a notice in the post that in 2 days' time your water supply will stop for 6 hours, affecting all taps, toilets, dishwasher, etc.This is due to planned maintenance in your local areaAs planned, it then stops between 12:00 and 18:00 on a Wednesday afternoon  <p>One-off payment amount*: £200</p>	<p>No planned water supply interruption</p>
<input type="radio"/>	<input type="radio"/>

New version aimed to weaken link between perceived impact and payment amount, and strengthen the plausibility of the scenario

Version 2: Combined format (one SP exercise only)

Service Scenario Choices

You are now going to be shown a series of ten short questions where you will be asked to choose between two different scenarios for your water or wastewater service. **Please read the following instructions carefully.**

Each scenario will show a different type of service issue that could happen to your **IF HH:** household **IF NHH:** premises.

Some of the scenarios would affect your own **IF HH:** property **IF NHH:** premises whereas others would affect your local area. When comparing the impact that each would have, please:

- **do** consider any concerns you may have for the local area or natural environment,
- **don't** consider any impacts on other people outside your **IF HH:** household **IF NHH:** organisation - other people will answer for themselves!

On some of the options you will see an . Please click on this to see some more information about the option.

NEW SCREEN

Additionally, some of these scenarios will involve your water and/or wastewater provider making a one-off payment to your **IF HH:** household **IF NHH:** organisation.

The amounts will not necessarily reflect current compensation entitlements and may exceed these levels – substantially in some cases.

The purpose of these questions is to see if the amounts shown are enough to make up for the impact on your **IF HH:** household **IF NHH:** organisation from the service issue shown. It is important that you consider each amount at face value, even if it seems higher than you would imagine might be offered.

For each question, please state which option you prefer. If neither of the options is appealing, please still choose the better of the two.

Q1. Which option would you prefer? If neither is appealing, please still choose the better of the two.

Option A	Option B
PLANNED water supply interruption (6 hours)	UNEXPECTED water supply interruption (6 hours)
<ul style="list-style-type: none">▶ Your water company sends you a notice in the post that in 2 days' time your water supply will stop for 6 hours, affecting all taps, toilets, dishwasher, etc.▶ This is due to planned maintenance in your local area▶ As planned, it then stops between 12:00 and 18:00 on a Wednesday afternoon   <p>Planned, 6 hours</p>	<ul style="list-style-type: none">▶ Your water supply stops working without warning, affecting taps, toilets, dishwasher, etc.▶ This is due to a burst pipe in your local area▶ It stops for 6 hours, between 12:00 and 18:00 on a Wednesday afternoon   <p>6 hours</p>
One-off payment amount*: £50	One-off payment amount*: £100



IF BILLPAYER OR NHH: * one-off payments would be paid automatically, and within 7 days, by crediting your bank account, if you have a direct debit set up, or by sending you a cheque otherwise
[IF NON-BILLPAYER] * one-off payments would be paid automatically, and within 7 days, by sending a cheque to your household.

Pilot methodology and samples



Survey methodology and samples

The sample contained 402 households and 102 non-households, split between Versions 1 and 2

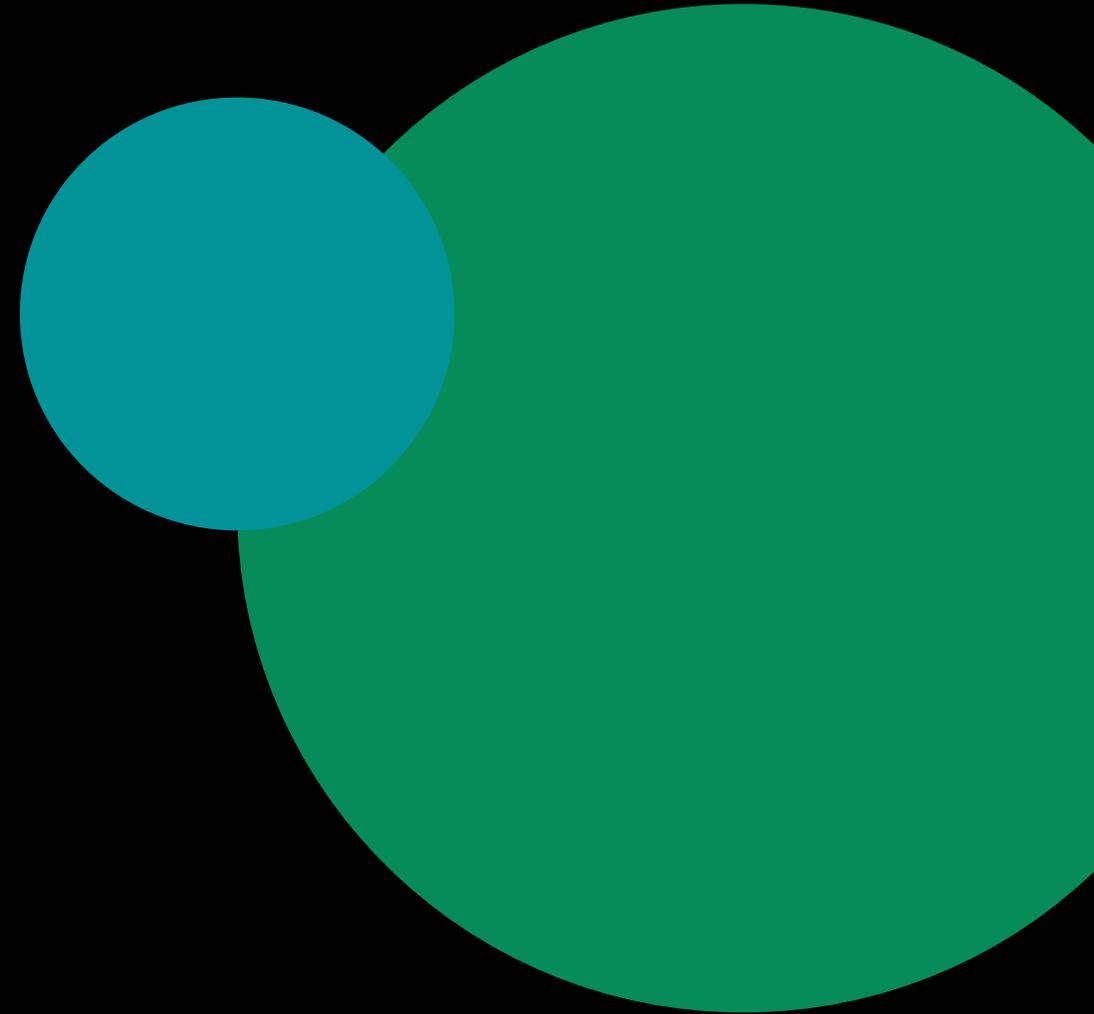
■ HH method:

- The Dynata online panel was used (for Pilot 1, Kantar panel was used)
- Dynata was provided with target numbers of interviews but with no quotas.
- 202 HH completed Version 1; 202 completed Version 2
- The average completion time was 9 minutes (11 minutes for Pilot 1, panel sample)
- Pilot 2 samples were somewhat younger than in Pilot 1, and contained more males than females.

■ NHH method

- **Version 1:**
 - 100 B2B panel interviews
- **Version 2:**
 - 40 B2B panel interviews
 - 10 interviews using a CATI approach (to explore how the more complex second design works in this scenario)

Findings



Summary of Version 1 findings

The results provide strong evidence in support of Version 1 overall, with the key issues identified at pilot stage entirely overcome.

■ Like before:

- Participant feedback remained very good for both the impact and the compensation exercise (see next two slides).
- There were very few instances of non-trading behaviour in the scenario impact exercise.
- The impact rankings derived from the econometric models were highly consistent with prior expectations.
- Also as expected, participants were more likely to take the compensation offered when it was high than when it was low.

■ Plus, new in Pilot 2:

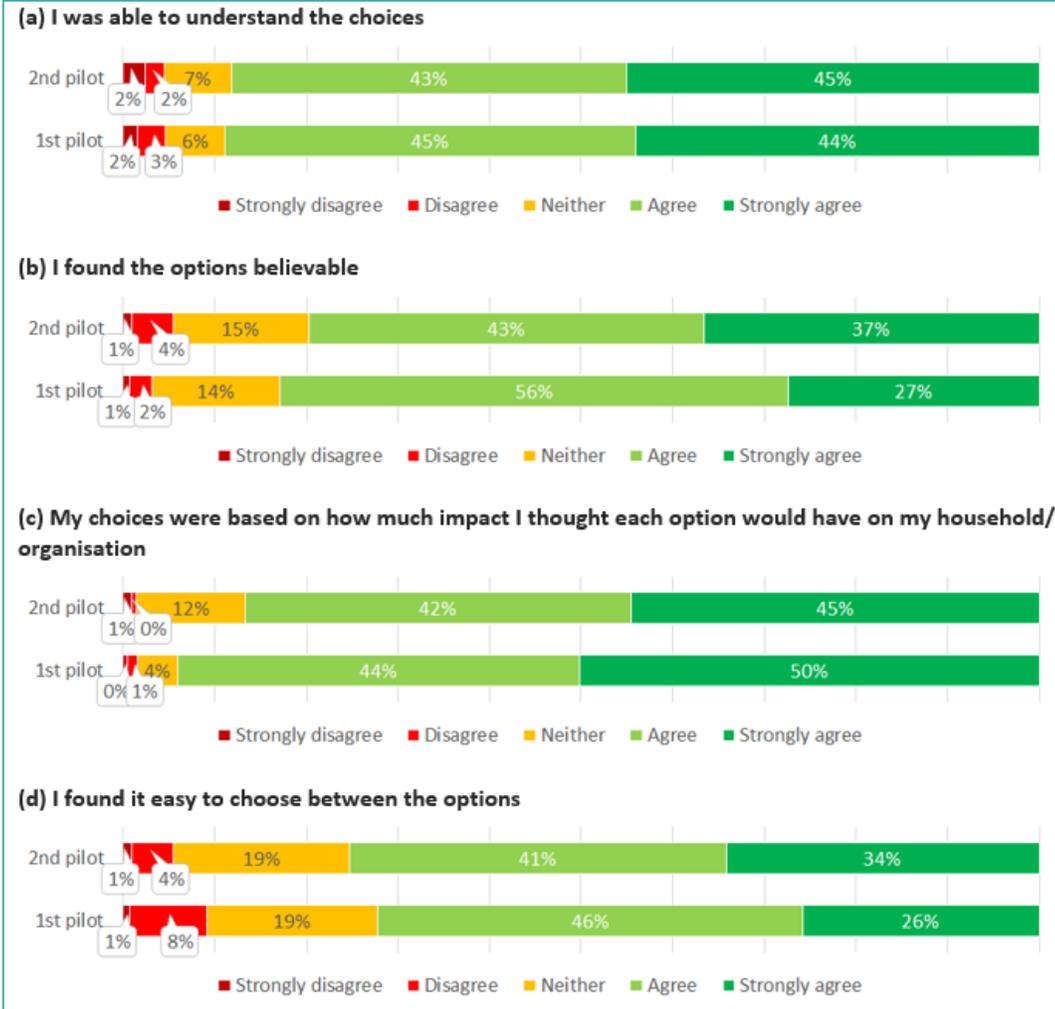
- At the highest compensation levels shown the vast majority of participants now chose to take the compensation offered, meaning that mean and median valuation estimates could be well estimated.
- Estimates of the relative value of the two ‘pivot’ scenarios included in the compensation exercise were now much more closely aligned when obtained from the compensation exercise as when obtained from the impact exercise.

■ However:

- The use of the term ‘one-off payment’ caused some problems (we recommend reverting to ‘compensation’).
- The econometric models of impact choices were less well estimated in terms of goodness-of fit, and participants were quicker through the exercise than last time. This led to much flatter set of impact scores.
- The issue will be resolved for the main stage via:
 - The use of multiple panels, plus PAF, plus quotas
 - A new question asking ‘Why did you choose that option?’ after the first question
 - Sensitivity analysis involving the removal of ‘speeders’

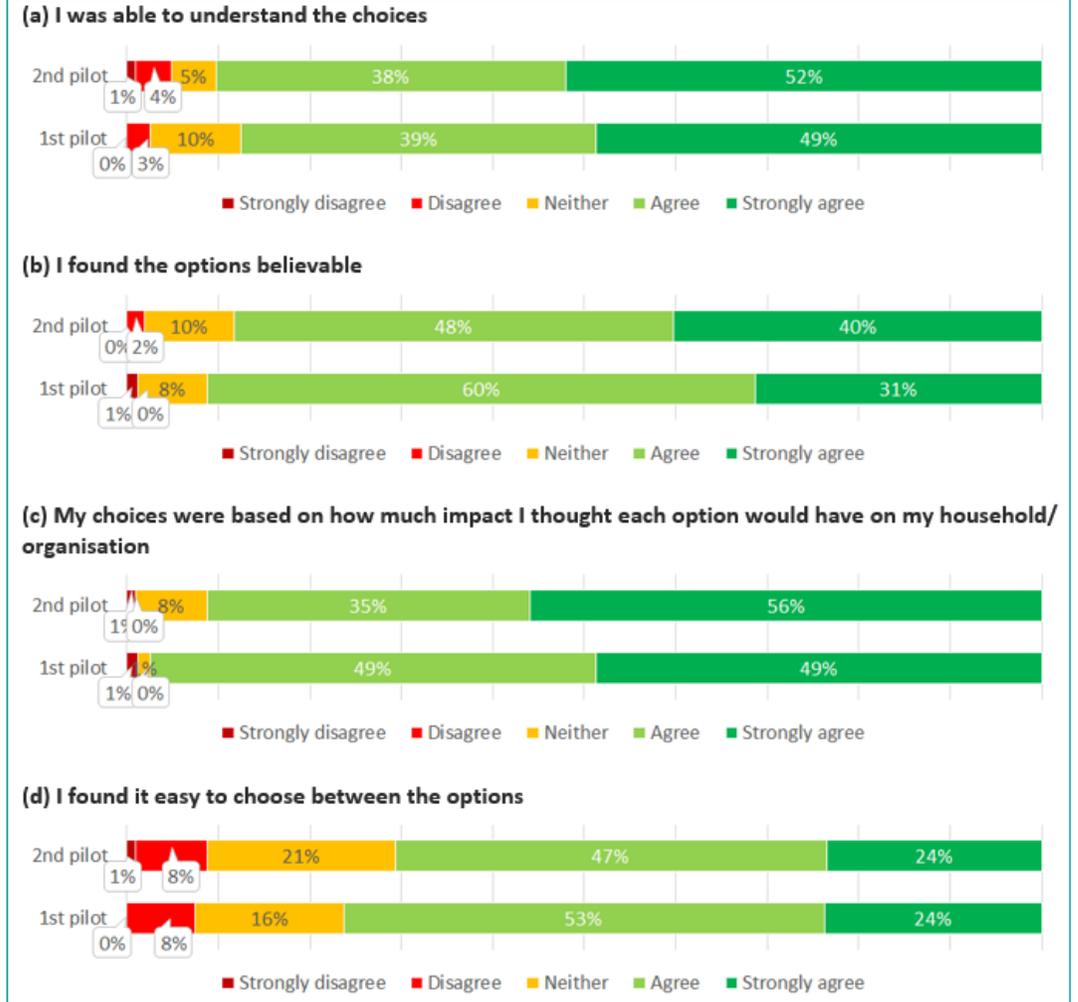
Participant feedback: Impact exercise

HOUSEHOLDS



Base: Pilot 2 = 202; Pilot 1 = 450 (Panel sample)

NON-HOUSEHOLDS

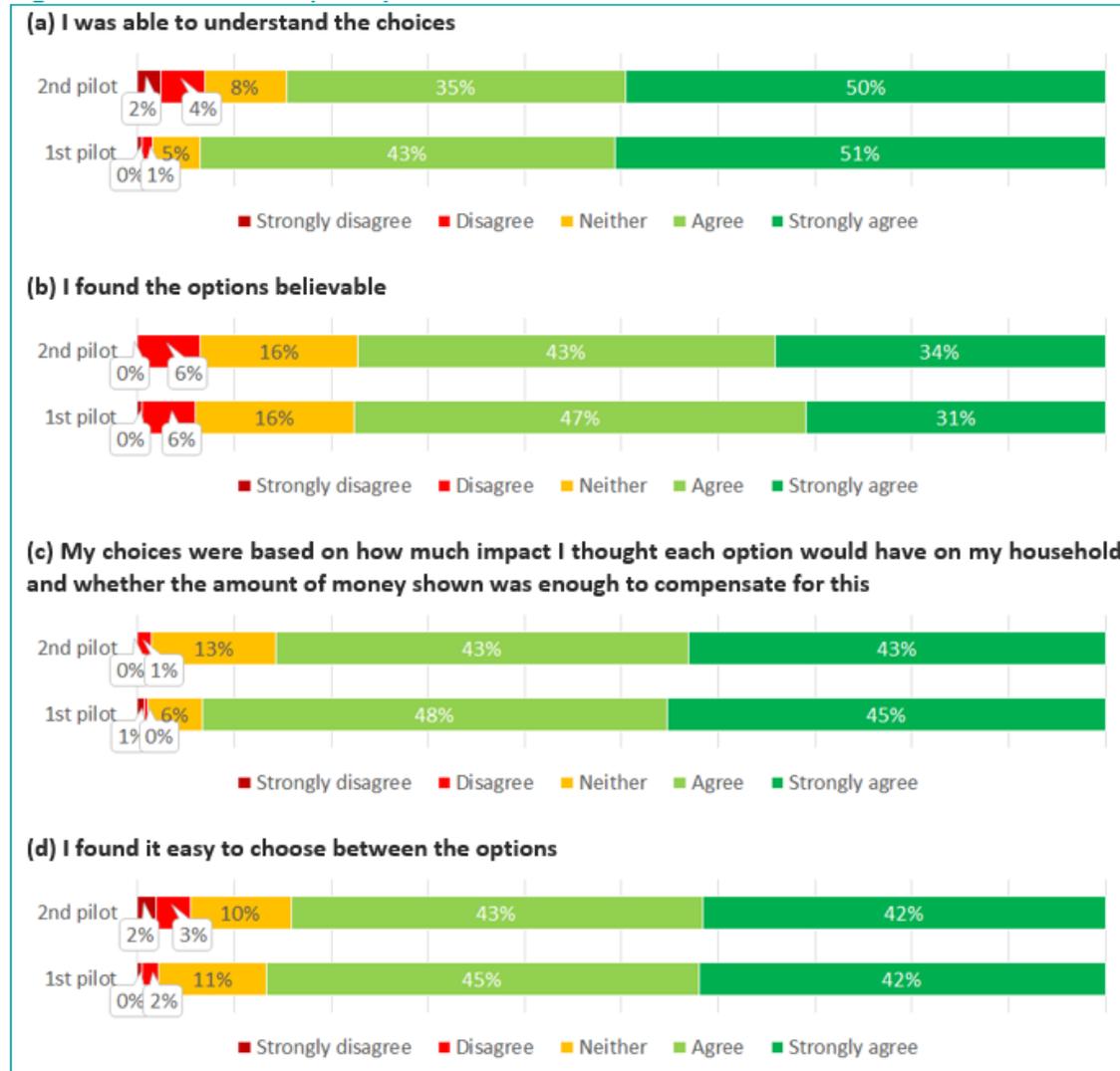


Base: Pilot 2 = 102; Pilot 1 = 80

Feedback from participants remained strong, with very few cases of invalid responses.

Participant feedback: Compensation exercise

HOUSEHOLDS



Base: Pilot 2 = 202; Pilot 1 = 450 (Panel sample)

- Feedback still strong, but more misunderstandings than before.
- Responses to feedback follow-up questions suggest that a small number of participants:
 - viewed the 'one-off payment' as a fee/charge to be paid to the water company
 - misunderstood the 'Boil water notice' questions as offering a choice between being sent vs not being sent a notice
- **Recommendations:**
 - Revert to the term 'compensation' rather than one-off payment
 - Clarify the 'No service issue' option on the choice screen to avoid misinterpretation
 - Retain the feedback questions to allow checking the robustness of key findings to the exclusion of participants who give feedback indicating invalid responses

Impact scores

- Pilot 2 econometric model less well-fitting than Pilot 1
- Impact scores still mainly in line with expectation, but with 3 anomalies (out of 21 tested), most notably ‘Planned water supply interruption (6 hours)’ higher than expected
- Also, impact scores ‘flatter’ than before, with low score for ‘Sewer flooding inside your property (1 month)’
- This appears to be an issue with the particular panel sample obtained (Dynata rather than Kantar; no quotas, younger, more male dominated), leading to many more ‘speeders’:

SP1 median completion times:

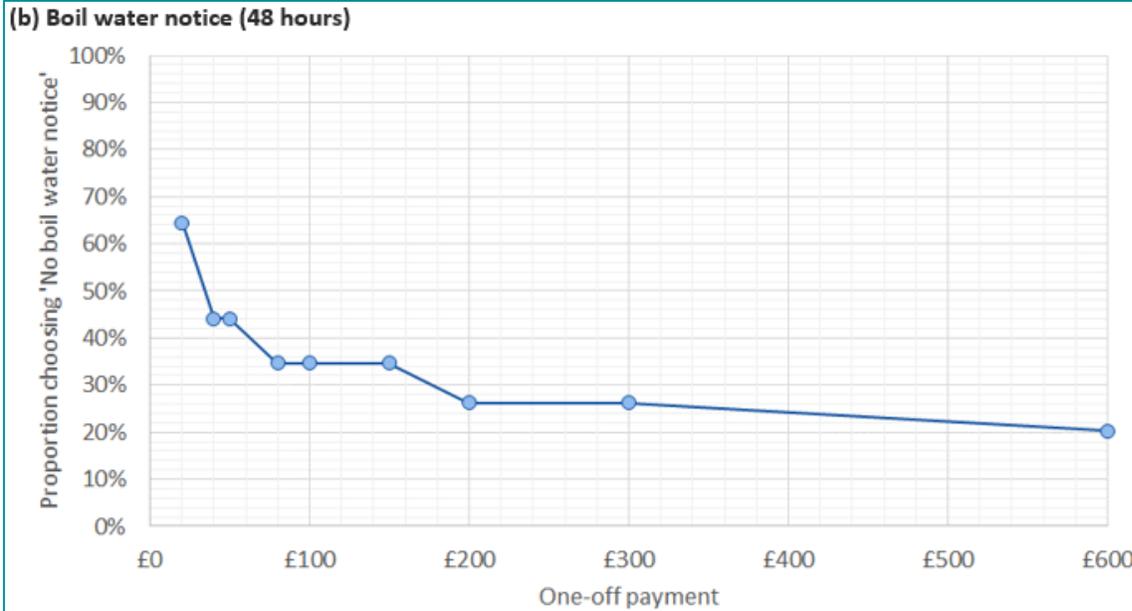
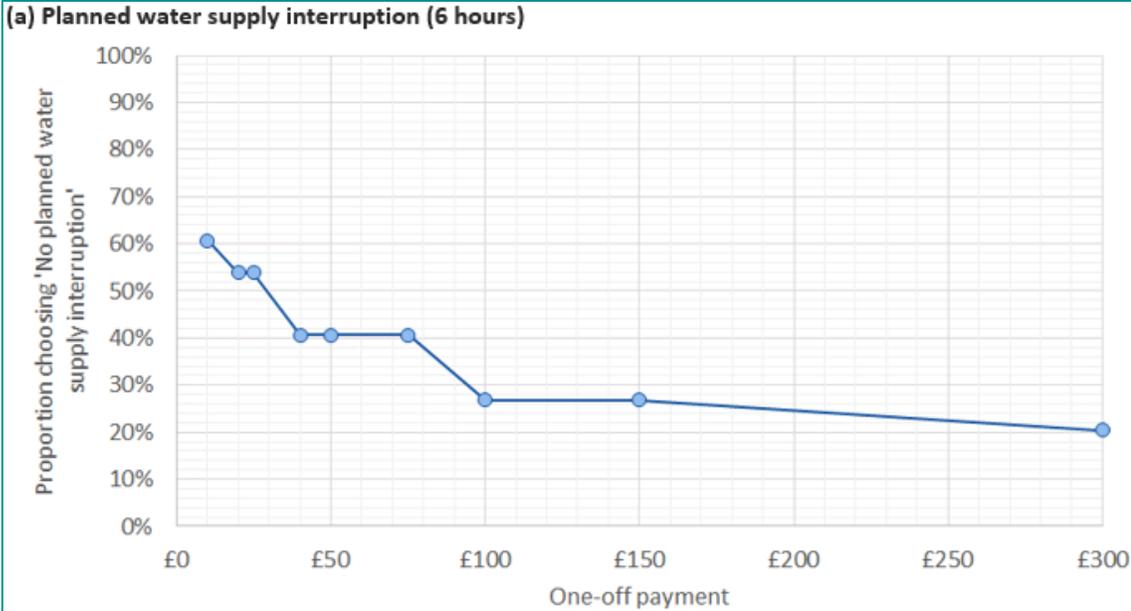
- 2nd pilot = 128 seconds
- 1st pilot (Panel) = 177 seconds
- 1st pilot (PAF) = 250 seconds

- The issue will be resolved for the main stage via:
 - The use of multiple panels, plus PAF, plus quotas
 - A new question asking ‘Why did you choose that option?’
 - Sensitivity analysis involving the removal of ‘speeders’

Household impact scores

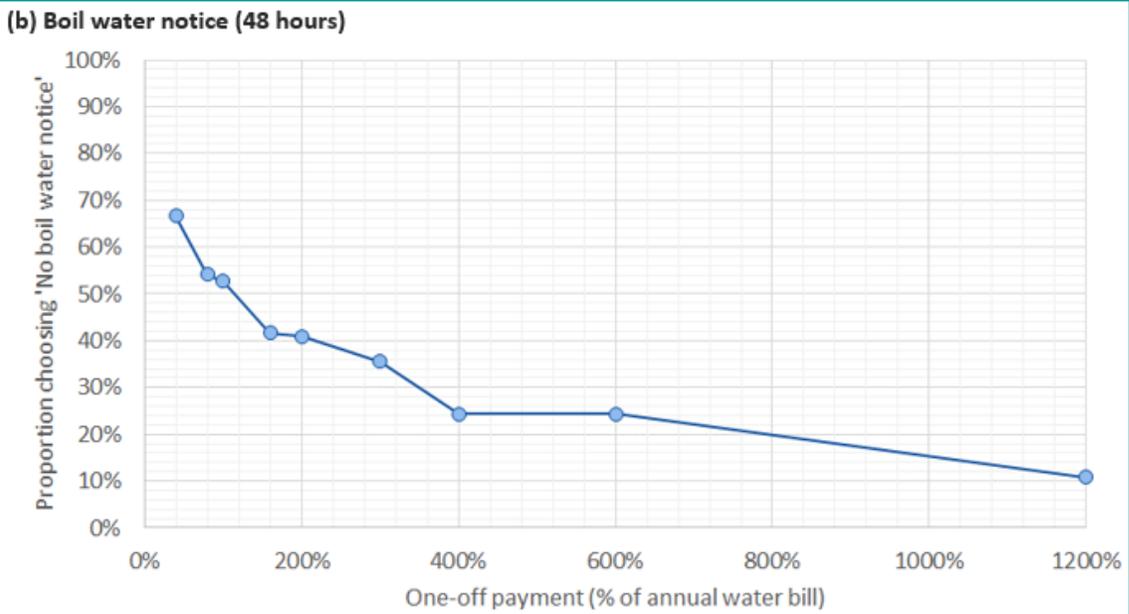
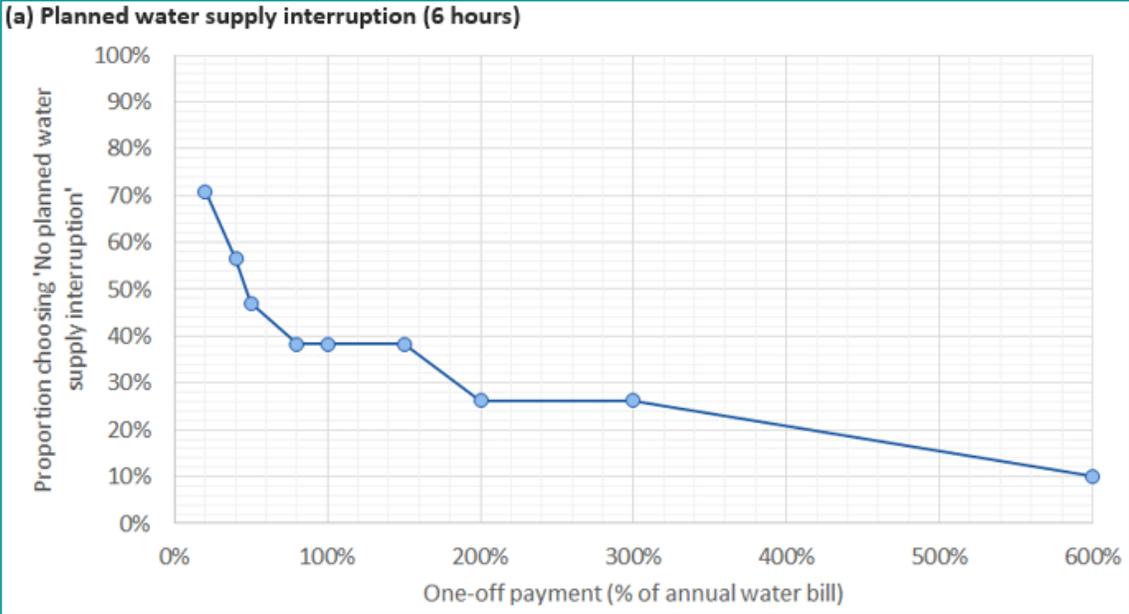


Compensation exercise results: households



Curves are downward sloping, as expected, and are no longer 'too high' at the upper end to reliably estimate mean values. Medians are also now well-estimated.

Compensation exercise results: non-households



Curves are again downward sloping, and are again no longer 'too high' at the upper end to reliably estimate mean values. Medians are also now well-estimated.

Valuations of avoiding service issues

Planned water supply interruption (6 hours)

	HH	NHH
Mean	£85	138% of the annual water and wastewater bill
Mean conf. interval	(£68, £103)	
Median	£29	47% of the annual water and wastewater bill

Boil water notice (48 hours)

	HH	NHH
Mean	£161	274% of the annual water and wastewater bill
Mean conf. interval	(£127, £198)	
Median	£34	115% of the annual water and wastewater bill

Note: The mean is a lower bound Turnbull estimate, as explained in the text. Bootstrap confidence intervals based on 10,000 replications. (Interval not reported for NHH due to convergence issues in non-parametric ML estimation.) The median was estimated by interpolating between the relevant probability estimates.

- Mean values for Boil water notice are approx. twice a Planned interruption.
 - This is similar to the ratio of impact scores found in the 1st pilot, but Planned 6h interruption unexpectedly had a slightly higher impact score than Boil notice in 2nd pilot
 - Mean values are twice as high using Boil water notice than when using Planned 6h interruption as the pivot. This is much closer than the 5-fold difference found in the 1st pilot.
- Median values are much closer together
 - Median valuations are around 50% higher when based on the Boil notice pivot than when based on the Planned 6h interruption pivot.
- Relative values are hence much more aligned across exercises than at 1st pilot.
- This suggests that the issue last time was caused by the use of External sewer flooding as a pivot service issue.

Summary of Version 2 findings

The results suggest that Version 2 is more complex overall, and is unable to measure values.

- Participant feedback was generally good, but not as strong as Version 1
- There were more indications of non-trading behaviour, but still not seemingly a significant problem.
- The impact rankings derived from the econometric models were again highly consistent with prior expectations.
- However:
 - The results suggest that participants were completely insensitive, on average, to the compensation amount shown.
 - This implies that it was impossible to derive valuations from the estimated models.
- We posit two possible explanations for this finding:
 - First, some participants viewed the ‘one-off payment’ as a fee/charge to be paid instead of as compensation.
 - Second, some participants may have focused on the service issues involved in each option ignoring compensation.
- Although it should be possible to improve the survey materials to try and prevent these two issues, without a further pilot, there is no guarantee that the changes would have the desired effect. On this basis, and given the lack of time available in the programme to undertake a third pilot, we have recommended abandoning the SP3 exercise in favour of the first version combining SP1 and SP2, which was found to work effectively.

Cognitive interviews



Objectives, methodology and key findings

Objectives and methodology

- The objectives of this third phase of testing were:
 - to test changes to the questionnaire since the 2nd round of depth interviews including, in particular, the new SP exercise adopted for Version 2.
- 15 interviews were undertaken
 - 6 x Version 1 (HH and NHH)
 - 9 x Version 2 (HH and NHH)
- Interviews were conducted on Zoom, were 45 minutes and participants were paid £30 (£45 for NHH)
 - CATI (NHH) and CAWI (HH) modes were replicated during interview

Key findings

- Version 1:
 - Refinements to SP task instructions have been successful and have added clarity where it was lacking previously.
 - A few minor recommendations have been made to further improve clarity.
- Version 2:
 - The introduction to the SP exercise was considered very wordy (but cannot be reduced without omitting important info)
 - Compensation levels were generally considered credible, although the credibility of the highest payment of £30,000 for an internal sewer flooding incident was questioned in one case.
 - For both households and non-households, decision-making was primarily driven by a desire to avoid or minimise disruption and inconvenience. One-off payments played a relatively minor role.
 - One participant misinterpreted one-off payment as being to rather than from the water company.

Summary of recommendations



Summary of overall key recommendations

- Version 1 should be adopted for the main stage, with linked Impact and Compensation choice exercises
 - Planned 6h supply interruption and Boil water notice should be retained as pivot service issues in the Compensation exercise
 - The term 'Compensation' should be used rather than 'One-off payment'
 - A question should be added after the first Impact choice question asking 'Why did you choose that option?'
 - Analysis of the data should identify 'speeders' as well as other potentially invalid choice responses, and sensitivity test removing them from the sample.
- Given these changes, and a few other minor edits, the survey will be ready for main stage fieldwork, and can be expected to produce a strong evidence base on customer values for water and wastewater services

Thank you

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Registered in London No. 2231083
Accent Marketing & Research Limited
Registered Address: 30 City Road, London, EC1Y 2AB

