

## South Staffs Water

### PR14 Customer Research *Willingness to Pay Results*

*Scott Reid    Amanda Borrmann*

18th June 2013

# Contents

---

- Overview of the survey
- Key findings
  - Service and bill priorities (qualitative questions)
  - WTP per unit of service change
  - WTP for an overall package of service change
- Conclusions

---

PR14 Willingness to Pay Research

# OVERVIEW

# Objectives

---

- To estimate the benefit value to customers - in monetary terms - of the impact of changes in water service levels
- South Staffs will be able to use the values in the IO+ investment planning tool to ensure its future investment is reflective of customer's preferences
  - The IO+ tool compares these benefits with the costs of investments to maintain or improve services to customers
- To build on work the outputs of recent UKWIR studies concerning the application of WTP studies and CBA.

## Service measures included in the survey

---

### Drinking water quality

- Boil water notices
- Discolouration
- Taste & Smell
- Hardness

### Availability & Environment

- Hosepipe bans
- Pollution incidents
- Low flows in rivers & streams

### Supply Reliability

- Internal water flooding
- Leakage
- Unexpected interruptions (3-6 hrs)
- Low pressure

# Survey implementation & sampling

---

- **25 minute survey**
  - Contextual questions on service & bill perceptions & priorities
  - Choice questions for 2 of 3 blocks + and overall service ‘package’
  - Debrief questions on understanding
- **Domestic**
  - 506 responses
  - Computer Aided Personal Interviews (CAPI) - in home interviews
  - All responsible for bill & SSW customer, representative by age, socio-economic group & gender, sample locations based on postcode distribution
- **Non- domestic**
  - 300 responses
  - Computer Aided Telephone Interview (CATI) recruitment followed by an online survey
  - Representative by industry classification and bill was achieved

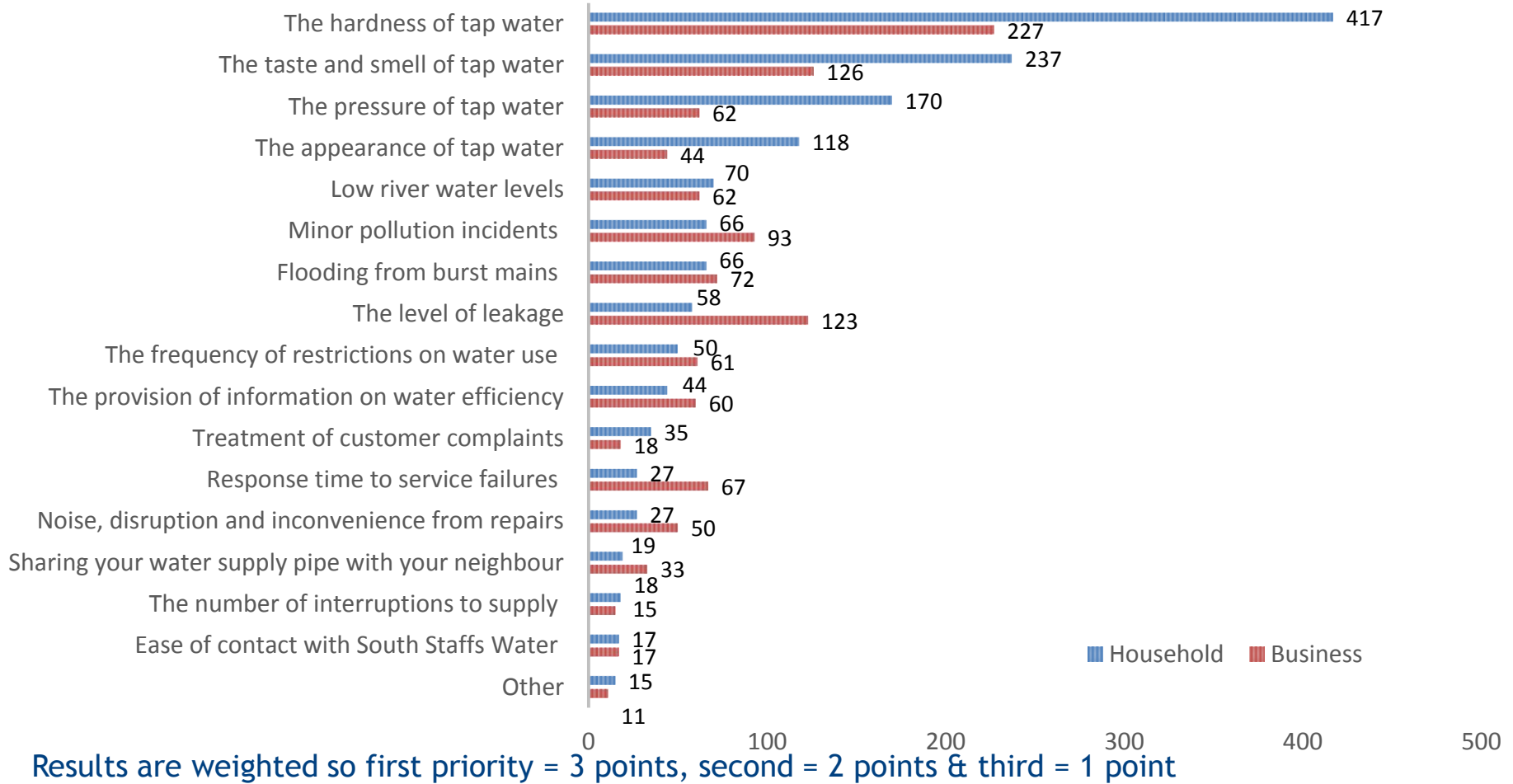
---

PR14 Willingness to Pay Research

# KEY FINDINGS - SERVICE & BILL PRIORITIES

# High level results - Priorities

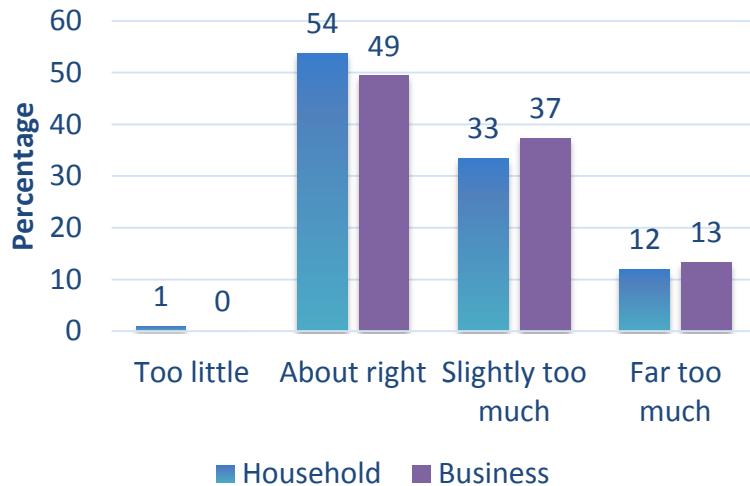
## Q2 If 'needs improvement' indicated - what are priorities?



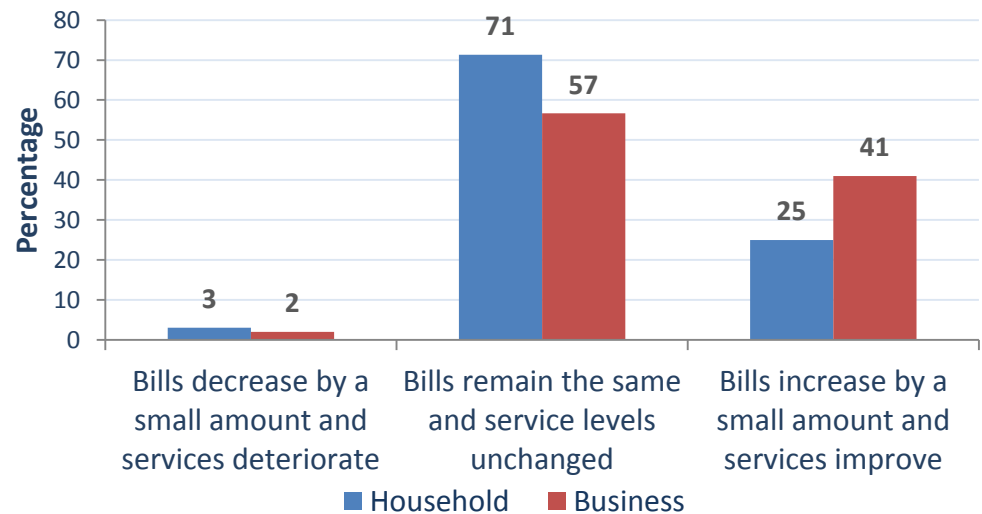


# High level results - Priorities

## Q3 Views on water bills and service (initial views)



Majority think current bill is about right or slightly too much



**BUT** customers do not wish to see a decrease if service is affected

- Question clear that bill changes are in addition to inflation

---

PR14 Willingness to Pay Research

# KEY FINDINGS - WILLINGNESS TO PAY

# What we mean by WTP

---

- WTP is a monetary measure of customer benefit (dis-benefit) experienced from service improvements (deteriorations)
  - WTP measures the value of a specific/defined change in the level of service:
    - ⇒ *The value of the gain or loss experienced by customers expressed in monetary terms (e.g. £/hh/yr)*
  - It is not is an explicit indicator of ‘acceptability’ or ‘affordability’ of changes in customer bills
    - ⇒ *WTP results primarily input to cost-benefit analysis (CBA) to determine ‘value for money’ of investments (benefit vs. cost)*

# Measures of WTP estimated in the study

---

- The survey provides estimates of customer benefits in the following terms:
  - 1) **WTP for unit changes in service:** benefit/dis-benefit associated with a unit change in the level of service

*‘What is the maximum price I would pay for an extra unit of some aspect of service?’*

    - ⇒ Value of an independent change for a given service attribute; e.g. the benefit of reducing properties affected by discoloured water by 1 property
    - ⇒ Unit WTP is estimated from choice exercises where respondents reveal trade-offs between service changes and money

# Measures of WTP estimated in the study

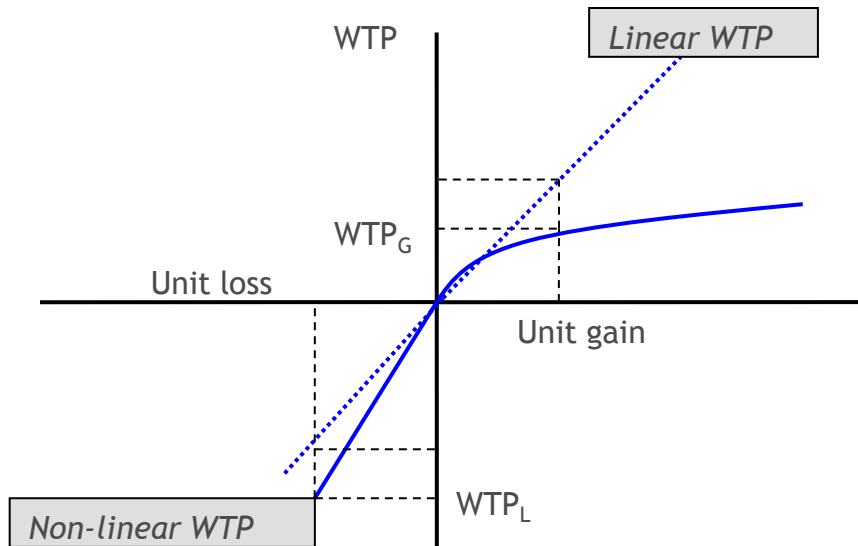
---

2) WTP for an overall package of service change: benefit associated with a specific ‘shift’ in the level of service

*‘What is the most I would spend on a package of service improvements?’*

- ⇒ *In PR14 study this is primarily used to value multiple and simultaneous changes in service for a specified set of service attributes*
- ⇒ *For example, a ‘package’ of improvements that shifts a set of service attributes from the current level to a maximum improvement level*
- ⇒ *Respondents are then offered a choice between this improvement package for a higher bill versus staying with current bills and service*

# Willingness to Pay versus Willingness To Accept Gains - Loss asymmetry



- We tested whether customers' willingness to accept (WTA) values (compensation for receiving a lower level of service) is different from their willingness to pay (WTP) for service improvements - known as gains-loss asymmetry
- Evidence of  $WTA > WTP$  found

- Evidence of mixed views and some reluctance to choose decreases in service

# WTP per unit of service change

## *Explanation of how the values are derived & presented*

---

- **Value of an independent unit change per household/business:**
  - e.g. On average household value is £0.00277 to reduce the risk that one property is issued with a boil water notice
- **Small values but need to aggregate across customer base:**
  - E.g. Reducing the number of properties issued with a boil water notice by 1 = sum of total household value plus total business value
  - Household value =  $£0.00277 \times 535,243$  household customers = £1,483
  - Business value =  $0.00195\% \times £658.06$  average bill  $\times 33,666$  businesses = £432
  - $£1,483 + £432 = £1,915$ . This is the total benefit value per year for reducing the number of properties issued with a boil water notice by 1

# WTP values for unit of service change

## Value for all customers (household and business results)

Service Attribute	Units	Change in Service Level	
		Reduction £	Improvement £
Boil Water Notice	1 property affected	10,320	1,915
Discoloured water	1 property affected	13,490	2,290
Taste and smell	1 property affected	17,610	2,400
Hard water	1 property affected	N/a	8
Low Pressure	1 property affected	20,260	N/a
Interruption	1 property affected	13,830	2,440
<b>Flooding</b>	<b>1 property affected</b>	<b>249,970</b>	<b>44,680</b>

		Reduction £k	Improvement £k
Hosepipe ban	1% change in likelihood	2,447	659
Non-essential use ban	1% change in likelihood	1,072	455
Pollution incident	1% change in likelihood	3,516	789
Low levels and flow	1% change	N/a	325
Leakage	1000 properties supplied	N/a	376

- Values more comparable where same unit is used
- Hard water value is based on the value for moving to soft water of £4,463k
- Pollution value is high



---

PR14 Willingness to Pay Research

# KEY FINDINGS - OVERALL PACKAGE WTP

# Overall package WTP

## Total WTP per Household

Package  
£9.80

Drinking Water  
Quality  
£6.30

Water Availability &  
Environment  
£2.66

Reliability of Water  
Supply  
£0.84

Boil notice  
£0.04  
30 properties

Hard water  
£3.92  
All properties

Pollution  
£1.12  
5% less risk

Hosepipe ban  
£0.68  
2.5% less risk

Leakage  
£0.36  
10MI/d

Low  
pressure  
N/a

Taste & smell  
£0.79  
500 properties

Discoloured water  
£1.55  
1,000 properties

Low water levels /flow  
£0.86  
9.1%

Interruption 3 – 6 hrs  
£0.27  
1160 properties

Internal flooding  
£0.21  
45 Properties

# Overall package WTP

## Total WTP per Business

Package  
5.13%

Drinking Water  
Quality  
1.13%

Water Availability &  
Environment  
2.29%

Reliability of Water  
Supply  
1.71%

Boil notice  
0.01%  
30 properties

Hard water  
0.37%  
All properties

Pollution  
1.01%  
5% less risk

Non-essential use  
ban  
0.56%  
2.5% less risk

Leakage  
0.80%  
10MI/d

Low  
pressure  
N/a

Taste & smell  
0.27%  
500 properties

Discoloured water  
0.49%  
1,000 properties

Low water levels /flow  
0.72%  
9.1%

Interruption 3 – 6 hrs  
0.57%  
1160 properties

Internal flooding  
0.34%  
45 Properties

# Package results & scaling of WTP values

---

- Package effect tests suggest that for ‘large’ improvements across multiple service attributes the use of per unit WTP values will result in over-estimation of benefits
- Package values can be used to reduce the WTP values. These reduced values are known in the industry as scaled values
- Scaled values are only valid if move to maximum improvement level in all service areas
- Scaled unit WTP provides a conservative set of values, but will underestimate benefits of relatively small changes in service for individual service areas

# Impact of Severn Trent Water improvements

---

- Additional question in survey following the package question
- Customers asked about the impact of a rise in the STW part of the bill and whether this would change the amount
- Majority of customers kept the existing WTP amount
  - Households - 28% of those choosing to pay reduced the amount.
  - Businesses - 19% of those choosing to pay reduced the amount.

---

PR14 Willingness to Pay Research

# CONCLUSIONS

## Final comments

---

- **A comprehensive analysis of the main survey data has been undertaken**
  - Estimated models are based on more sophisticated models, are robust and conform with expectations
  - Evidence of gains-loss asymmetry indicates WTA and WTP should be estimated
  - Study suggests customers do not wish to see a reduction in the levels of service but this needs to be confirmed with CBA
- **Valuations consistent with public sources**
  - High degree of confidence around the findings and results
- **Report has been submitted for peer review**

## South Staffs Water

### PR14 Customer Research *Willingness to Pay Results*