

*This is the peer reviewed version of the following article: James. O. and Moseley, A. 2014. 'Does Performance Information about Public Services Affect Citizens' Perceptions, Satisfaction and Voice Behaviour? Field Experiments with Absolute and Relative Performance Information', *Public Administration*, 92(2): 493-511, which has been published in final form at doi: 10.1111/padm.12066. This article may be used for non-commercial purposes in accordance with [Wiley Terms and Conditions for Self-Archiving](#).*

Article published online March 2014; in print June 2014.

<http://onlinelibrary.wiley.com/doi/10.1111/padm.12066/abstract><http://onlinelibrary.wiley.com/doi/10.1111/padm.12066/full>

**Does Performance Information about Public Services Affect Citizens' Perceptions, Satisfaction and Voice Behaviour? Field Experiments with Absolute and Relative Performance Information\***

**Abstract:**

We evaluate a theory of the effects of publishing performance information on citizens' collective voice to local providers about public service performance and the perceptions and attitudes that influence their voice. Field experiments show that information about low absolute and relative performance of local government household waste recycling services lowers citizens' perceptions of performance, and information about high absolute and relative performance raises perceived performance. Relative information makes citizens judge local providers as being more responsible for outcomes in the case of high performance, suggesting that systems for comparative performance reporting increase local accountability for outcomes. Negativity bias is evident with information about low absolute performance reducing citizens' satisfaction but information about high performance not raising satisfaction. Information about low performance did not trigger collective voice protest behaviour as hypothesised, suggesting that providers who need citizens' collective voice the most do not get it.

\* Research part funded by UK Economic and Social Research Council Grant RES 189 25 0027.

## **Does Performance Information about Public Services Affect Citizens' Perceptions, Satisfaction and Voice Behaviour? Field Experiments with Absolute and Relative Performance Information**

Citizen collective 'voice' to public service providers about the performance of public services involves citizens acting together to express their opinion. This voice is recognised as a potential mechanism for improving public services, especially when triggered by perceived low performance and dissatisfaction (Hirschman 1970; Lyons and Lowery 1989; Lyons, Lowery and DeHoog 1992; Dowding and John 2008; 2012; Gofen 2012). Separately, research has mapped the growth of performance information about public services, notably in scorecards, reports and league tables, and their use by public managers and organisations (Smith 1990; 1995; Hood *et al.* 1999; Behn 2003; Heinrich 2003; Propper and Wilson 2003; Bird *et al.* 2005; Van Doren and Van de Walle 2008). The effects of published performance measures on citizens have received relatively little attention until recently (James 2011a; 2011b; Charbonneau and Van Ryzin 2013). This paper brings together these two strands of research to evaluate a performance information theory of citizens' responses to performance information.

The first section sets out the hypothesised effects of published performance information on citizens' voice behaviour and mechanisms that bring about voice, specifically their perceptions of, and attitudes towards, performance. Summary information cues about low performance lower citizens' perceived performance and reduce their satisfaction whilst summary cues about high performance raise perceived performance and satisfaction (James 2011b). However, effects on citizen voice to

providers about service performance have not previously received attention. The performance information theory suggests that lower perceptions of performance and lower satisfaction will trigger citizen voice as a form of protest about the situation. We evaluate the effects of performance information about local household waste recycling services on citizens' perceptions of service performance, their satisfaction with services, and their voice, using a behavioural measure that gives citizens an opportunity to comment to their local provider about service performance.

The effects of both relative and absolute forms of performance information are analysed. Absolute performance information is about aspects of a service delivered by the provider of the service. In contrast, relative performance information is information about the local provider's service compared to the service provided by similar units. Comparison effects influence individuals' assessments of their own and others' performance through provision of a benchmark and evaluative standard (Festinger 1954; Mussweiler 2003; Moore and Klein 2008). Information about relative public service performance influences citizens' perceptions of performance and affects their satisfaction by providing an evaluative standard of how performance compares with other locations. In addition, comparison in which local performance is relatively high or low in an extreme way increases local citizens' belief that the local provider is responsible for these outcomes because the identity of the provider is an important difference between localities. Overall, especially by acting on these perceptions and attitudes, the performance information theory suggests that information about relatively low absolute and/or relative performance will trigger citizen voice to local providers about service performance.

The second section defines two field experiments to evaluate the hypotheses, one for a high performing local government and one for a low performing local government in England for the service of household waste recycling. Experimental designs are relatively uncommon in research on public services but their use is growing (Bozeman and Scott 1992; Boutron *et al.*, 2010; James 2011a; 2011b; Margetts 2011; Charbonneau and Van Ryzin 2013). Each field experiment entails random allocation of relative and absolute information about performance to local citizens to enable the causal effects of the information to be identified. The field experiments offer good external validity by having local citizens take part in the research using information about an important local service in a realistic consultation exercise (Green and Gerber 2003; Harrison and List 2004).

The third section sets out the findings which are of high policy salience as well as theoretical importance with many jurisdictions making routine use of publically reported performance information, often including relative information. These systems are potentially a way of improving public services through increased citizen participation which is generally encouraged by policymakers (Lowndes *et al.* 2001; Duffy *et al.* 2005, Darlow *et al.* 2008). The findings show information effects on citizens' perceptions of performance, citizen satisfaction, and their assessments of local provider responsibility. However, collective voice failed to occur as a behavioural response to low absolute or relative performance information. The implications of these findings are discussed in the conclusion.

## **Section One: The performance information theory**

Citizens get information about service performance from sources including personal experience with services, word of mouth from other citizens, and the media. However, formal systems of published performance produced by auditors, inspectors and other bodies are increasingly evident, providing information about inputs, outputs, outcomes and a range of efficiency and effectiveness measures (Smith 1995; Hood *et al.* 1999; Marshall *et al.* 2003; Moynihan 2006; Van Doren and Van de Walle 2008; James 2011a; 2011b). Many systems now provide absolute or relative or both forms of performance information. The performance information theory of the relationship between information and citizen voice behaviour sets out the effects on citizens of formal performance reporting systems. Service outcomes are of particular importance to citizens, especially when they are themselves direct users of the service (Lyons *et al.* 1992; Dowding and John 2012). Absolute performance information is about specific aspects of service outcomes. In the case analysed here, the absolute information is the proportion of household waste recycled by the provider in the local government area. Relative information is performance of a provider's service compared to other similar units, in this case whether the outcome is relatively high or low when ranked in a league table of the proportion of refuse recycled for all local governments in England. Information could also include comparison with previous performance or projected future performance but these are not the main focus of this article.

Relative comparison benchmarks influence individuals' perceptions of their own and others' attributes and task performance (Festinger 1954; Mussweiler 2003;

Moore and Klein 2008). Relative information provides a benchmark helping people decide what counts as high or low and informs their evaluative judgement about whether performance is acceptable (Slovic *et al.* 2002). Research in related contexts demonstrates the potential relevance of comparison effects. Comparative advertising shifts user attitudes and choice through provision of information about rival products (Grewal *et al.* 1997). Comparison between organisations using rankings affects consumer choice of services, for example in health services (Pope 2009). In the economic theory of voting, local voters form a view about the reasonableness of changes in local taxation by examining local taxation relative to that in other local areas (Besley and Case 1995; Clark and Oswald 1996). Voters use comparisons across nations to assess the economic performance of national governments to separate out effects for which a national government can be held to account from other trends (Kayser and Peress 2012). Previous work on public services has found that extremes of performance have the biggest effect on citizens' perceptions and in their voting (Boyne *et al.* 2009; James 2011a; 2011b). For this reason, this study presents relative information in two local government areas with extreme performance, the first in the top five per cent of all local government providers of recycling services and the second in the bottom five per cent of all local government providers in England.

The performance information theory suggests that this information will have an effect on the behavioural outcome of citizens' individual contribution to collective voice to their local provider when given an opportunity to participate in a consultation about performance. Hirschman made famous the term 'voice', using it to denote efforts to complain about 'an objectionable state of affairs' to management or a higher

government (Hirschman 1970: 3). Individual voice contrasts with collective voice which involves citizens acting together (Dowding and John 2011; 2012). Household waste recycling is an appropriate service for examining performance information effects on voice because it is valued by citizens with 91 per cent of people claiming to recycle and 88 per cent supporting a civic duty to recycle in the UK (DEFRA 2009). The performance measure of proportion of household waste recycled in a locality is consistent with these interests making it a salient measure for citizens (Van Ryzin, Immerwahr and Altman 2008). Recycling services offer fairly limited 'exit' options for the dissatisfied citizen, short of moving house, making voice a more likely response (Hirschman 1970; Dowding and John 2012).

The performance information theory suggests that performance information primarily affects voice behaviour by influencing citizens' perceptions of absolute and relative performance, their satisfaction with services and their view of local responsibility for performance outcomes. The hypotheses are summarised in Figure 1 for the case of information about low absolute and/or relative performance. The theory suggests negativity bias with information about low performance triggering voice as complaint whilst information about high performance makes voice less likely. Voice in other contexts has been found to be primarily motivated by poor performance and dissatisfaction; Hirschman (1970: 4) thought voice would occur in response to a decline in the quality of service in 'absolute' or 'comparative' terms. His insight is read across to suggest that absolute and/or relative information can give citizens information about unacceptable performance. Studies of urban institutions in the US (Lyons *et al.* 1992) and local government and health services in the UK (Dowding and John 2011; 2012) have found citizen dissatisfaction with services



leading to complaint and protest. Poor performing local governments are punished electorally at subsequent elections but no equivalently sized electoral reward has been found for performance above the mid-range of performance (Boyne *et al.* 2009). (James 2011b). Similarly information about a local government's poor previous performance lowers citizens' expectations of its future performance more than information about excellent prior performance raises their expectations (James 2011b).

### Figure 1

The theory posits direct effects of the performance information on citizen voice and on each of the causal mechanisms of citizens' perceptions, satisfaction and judgement of provider responsibility for performance that influence voice. This method is adopted rather than assessing the perceptions and attitudes explicitly as mediators, defined as mechanisms by which causal influences are transmitted. Green, Ha and Bullock (2010) note the difficulty of adequately addressing mediators without their explicit manipulation in experiments which would require a whole research programme of experiments. However, if the mediators suggested by the theory are unaffected by the intervention (in this case the provision of performance information) then they are not likely to be part of the causal mechanism by which the outcome (in this case citizen voice) is produced.

The first way in which performance information affects citizens is through changing their perceptions of performance, and this is necessary in order for the information to feed into subsequent voice. Citizens have been found to change their

policy views in response to receiving factual information in other contexts (Kuklinski *et al.* 2000; Gilens 2001). Citizens and users are well known to have views of public services that often differ from those suggested by auditors and inspectors of services (Parks 1984; Van Ryzin 2008) and the performance systems offer a route for changing these perceptions. Information cues about performance make limited cognitive demands on citizens by offering a simple guide; cues about high performance make citizens' perceptions of local government performance more positive, whilst cues about relatively bad performance have opposite effects (James 2011a; 2011b). The first set of hypotheses focus on information effects on citizens' perceptions of performance.

H1a: Information about low absolute performance will lower perceptions of absolute performance; H1b: information about high absolute performance will raise perceptions of absolute performance

H2a: Information about low relative performance will lower perceptions of relative performance; H2b: information about high relative performance will raise perceptions of relative performance

The effects of performance information on collective voice do not only require changes to citizens' perceptions of performance. The theory also suggests that perceptions of lower performance will lower satisfaction and trigger collective voice as protest to providers, consistent with research suggesting dissatisfaction is a motivator of action (Hirschman 1970; Lyons *et al.* 1992; Dowding and John 2012). At the other end of the scale, perceptions of higher performance will raise satisfaction and reduce voice as collective protest will be reduced. Previous work has shown that

information about low performance lowers citizens' satisfaction and information about high performance raises satisfaction with local governments (James 2011b). The current study separates out absolute and relative performance information effects on satisfaction.

H3a: Information about low absolute performance will decrease satisfaction;

H3b: information about high absolute performance will raise satisfaction

H4a: Information about low relative performance will decrease satisfaction;

H4b: information about high relative performance will raise satisfaction

The theory suggests that relative performance information influences judgements of local provider responsibility for performance outcomes. If the local provider is seen as responsible for the outcomes there is more incentive to raise the issue of a provider's conduct in voice, including where this is motivated by dissatisfaction with the service. Local providers influence recycling outcomes by encouraging local people to participate in the scheme, setting the range of waste materials collected and through the provision of appropriate containers for waste (Folz and Hazlet 1991; Folz 1999). Performance information across different local units offers a benchmark to anchor judgements about local responsibility, with extreme relative performance suggesting to citizens that the provider's conduct is a substantial part of the reason for the extreme performance.

H5a: Perceptions of low relative performance will increase the extent to which a local government provider is held responsible for performance; H5b:

Perceptions of high relative performance will increase the extent to which a local government provider is held responsible for performance.

As well as evaluating hypothesised outcomes for the mechanisms influencing collective voice described above the study evaluates hypotheses about collective voice directly. The voice is assessed by citizens' participation in a consultation about local recycling performance when given an opportunity to do so in the field experiments.

H6a: Perceptions of low absolute performance will increase the likelihood of collective voice about performance; H6b: Perceptions of high absolute performance will decrease the likelihood of collective voice about performance

H7a: Perceptions of low relative performance will increase the likelihood of collective voice about performance; H7b: Perceptions of high relative performance will decrease the likelihood of collective voice about performance

## **Section Two: Method**

One field experiment was conducted in a local government area with low performance in local government provided household waste recycling services and a second, separate, field experiment was conducted in a local government area with high performance. The experiments help provide unbiased estimates of effects through manipulation of performance information as independent variables. Random

allocation allows causal effects of interventions to be assessed, providing high internal validity, ensuring differences between participants are due to chance rather than any systematic selection bias. For example, random allocation to receive or not receive the information about performance in a low performing area overcomes the problem of already dissatisfied citizens systematically self-selecting into seeking out performance information about low performance because they are concerned. This factor would risk an observational study misattributing dissatisfaction to being the result of a citizen having got performance information about low performance when in fact their dissatisfaction pre-existed their receipt of this information. The experimental design with random allocation by the researcher stops pre-existing dissatisfaction systematically affecting which citizens have the performance information. Differences in the mean pre-existing satisfaction scores for the experimental group of citizens receiving the information about performance and the experimental group not receiving the performance information occur only by chance in the random allocation process.

Field experiments differ in type (Harrison and List 2004: 1012) with the four main dimensions of difference being: authenticity of treatment, subjects, context and outcomes (Gerber and Green, 2012: 11). Our experiments contained all four elements of 'fieldness'. The treatment was authentic performance information about real local government units rather than abstract information. This information was publicly available from central government although was not widely publicized. The subject pool was citizens who lived in the area, rather than student participants who differ in age and education (Sears 1986) which may influence their reception of information (although see also Druckman and Kam 2011 for a discussion of the utility of student

subjects in experimental research). The context was a local town centre in the area to which the performance related. The outcome measures of perceptions of performance and attitudes are measures that both local governments and the academic community regularly use and the invitation to be involved in a consultation was similar to approaches typically made by local public bodies in a range of contexts.

The two local governments were selected because they were broadly similar on key characteristics and in institutional form being non metropolitan district local governments, but different in their recycling performance. The characteristics of the experimental groups are summarized in Appendix 1 along with the characteristics of each area and that of England nationally. These comparisons suggest good external validity. The median age of participants in the experiments appears ten years higher than the areas from which they were drawn because the census data includes children in each area who were not participants in the experiments. There is only minor variation on some characteristics across experimental groups as a result of chance in the random allocation and no statistically significant association between these variables and treatment allocation.

Sample size calculations used effect sizes that information about high performance shifted mean citizen perceptions of performance from 3.33 in a control group (standard deviation 0.78) to 3.69 (standard deviation 0.79) in a treatment group, on a 5 point scale (James 2011b: 11). This suggested 82 participants were needed for each type of information with the same not receiving that type for one sided tests (assumed alpha = 0.05, power = 0.9). The implementation of the study exceeded this requirement, with 332 participants in the high performance area (83 in each group and

166 for each type of information) and 292 participants in the low performance area (73 in each group with 146 for each type of information), reflecting greater time constraints in the latter case.

### ***Experimental procedure***

The experiments took place in town centres in the two separate local government areas during July 2010 and followed a standardised protocol for implementation. Potential participants, adults in these locations, were approached and asked if they lived in the local government area. Those who did were asked to participate in a survey about local services and those who agreed to participate were taken to a nearby hall and randomly allocated to one of the four experimental groups. Participants were each given a sealed non-transparent envelope, identical on the outside but containing different information inside. The envelopes were taken sequentially from a pile of pre-randomized envelopes and researchers and participants were blind to treatment allocation. Participants were processed separately to reduce contamination across groups, and all participants completed the experiments.

The experimental treatments were different forms of performance information about the local government ('council' as they are known locally) recycling rate (see Appendix 2). The design is outlined in Table 1. The performance information used both text and graphical representations which help communicate information to non-experts (Fagerlin, Wang and Ubel 2005; Peters *et al.* 2007) and are typical of those found on government websites and in local government newsletters. Treatment group A received absolute performance information only as the percentage of household

waste recycled in their own local area (the rates were 58% in the high performing and 23% in the low performing government). The text stated:

‘Y District Council runs recycling schemes to reuse, recycle and compost household waste (rather than going direct to disposal eg in landfill/ rubbish dumps). Currently, X% of waste is recycled. In other words, X tons out of each 100 tons of waste is recycled. This is based on the most recent information, checked by independent auditors’.

The graphical presentation was a simple bar graph showing the proportion of waste recycled and not recycled in the local government. Treatment group B received relative performance information only, that is, the position of the local government relative to other local governments in England (in the high performer amongst the top 5%, in the low performer in the lowest 5%). The text stated:

‘Y District Council runs recycling schemes to reuse, recycle and compost household waste (rather than going direct to disposal eg in landfill/ rubbish dumps). Currently, Y District Council is ranked in the lowest/ highest 5 per cent of English local council run schemes in a league table based on the proportion of household waste that is recycled. This is based on the most recent information, checked by independent auditors’.

The graph showed the local government’s position (either high or low on the axis) relative to other local governments. Treatment group C received both the relative and the absolute performance information, including both sets of text, and both graphs. Different absolute or relative values might have different effects but, in the English context, 58 per cent is high recycling performance for a local scheme and 23 per cent is low. The top and bottom 5 per cent of relative performance offers symmetric extremes. The control group (D) received information about the existence of the local government’s recycling service only, with no performance information provided (either graphical or textual). The text stated:



‘Y District Council runs recycling schemes to reuse, recycle and compost household waste (rather than going direct to disposal eg in landfill/ rubbish dumps). The percentage of waste that is recycled in Y District Council can be measured. A league table of English council run schemes based on the proportion of household waste that is recycled can be constructed and Y’s position in the table can be shown’.

The reason for including this statement for the control group was to ensure that it was the effect of the performance information itself that was being tested rather than the act of reading and processing information about recycling.

Table 1 Here

### *Outcome measures and survey questions*

The information packages and surveys were given to participants. Part 1 of the survey contained a series of demographic and socio-economic questions to help compare the participants’ characteristics with those of the local population and England more generally (see Appendix 1). Part 2 of the survey provided the treatments, as described above (see also Appendix 2) - information about the performance of the local government or control information. Part 3 contained questions which measured the experimental outcomes of perceptions of absolute and relative performance, satisfaction with the service, and degree of responsibility assigned to the local government provider for performance. The full set of survey questions is contained in an online appendix (available upon request).

For the perceived absolute performance measure, participants were asked “What is the percentage of household waste sent for reuse, recycling and composting in X Council?”, with a blank space for participants to complete their answer. For the

perceived relative performance measure they were asked “How does X Council’s recycling rank compared to other local council schemes in England in terms of the proportion of waste recycled?” Participants were given the option of ticking the percentile that their local provider was in, ranging from “Top 5% (highest ranked)” to “Bottom 5% (lowest ranked)”. To measure satisfaction, participants were asked “How satisfied are you with household waste recycling services in X Council?” A five point scale was provided ranging from “very dissatisfied” to “very satisfied”. To measure assignation of responsibility about recycling performance, the survey next asked respondents “How far is the proportion of waste recycled in this area because of things X Council have or have not done?” Again, a five item scale was provided, ranging from “Not due to the Council at all” to “Completely due to the Council”.

The behavioural measure of collective voice was achieved by offering citizens the opportunity to participate in a consultation about the performance of the service immediately following completion of the survey. Participants were asked: ‘Will you participate in a consultation to give your opinion about the performance of the local household waste recycling scheme provided by X council in which your views will be collated anonymously with those of other local people and given to the local government?’ The consultation was estimated to take 20-30 minutes and participants were told this before agreeing. Participation in the consultation entailed a real time cost to participants and so was a meaningful behavioural outcome, similar to the amount of time a person might expend writing to a public body to raise an issue. Collective voice was measured as whether or not the individual participated in the consultation.

### **Section Three: Research findings**

The analysis established effect sizes of performance information on the outcomes and tested the hypotheses using regression models with separate dummy variables for provision of relative and absolute information to participants. Randomisation in treatment allocation makes controls for observable and unobservable variables unnecessary for unbiased estimates of coefficients on treatments. Interaction terms were included because one group of citizens in each experiment received both absolute and relative performance information, potentially differing from receiving either type on its own. We report the findings about each hypothesis and summarize them in tables 6 and 7. These two tables also provide t tests with p values (for one tailed tests of directional hypotheses) and 95 percent confidence intervals for the effect based on comparison with the no information control group outcomes.

Performance information had substantial effects on citizens' perceptions of both absolute and relative performance (see Table 2). Support was found for H1a, information about absolute low performance lowered perceptions of the percentage of waste recycled. The low performing local government had a 23 percent recycling rate and those receiving this absolute performance information perceived the rate as 7.88 percentage points lower than those with no information, who instead perceived the rate as 38.1 percent. For those receiving both absolute and relative information the effect of absolute information is calculated as the linear combination of the coefficients on receiving absolute information and receiving absolute and relative information. In this case, the effect of absolute information was similarly to lower

perceptions of performance by 6.45 percentage points ( $t = -1.99$ ,  $p = 0.03$ , 95 per cent confidence interval, lower bound = -12.84, upper bound = -0.06).

Support was found for H1b for high absolute performance; providing information of 58 per cent absolute performance raised perceived performance by 6.52 percentage points from the no information perception of 51.1 percent recycled. Providing both absolute and relative information raised the perceived rate by 3.72 percentage points ( $t = 2.50$ ,  $p = 0.07$ , 95 per cent confidence interval, lower bound = -1.20, upper bound = 8.65). The smaller effect size in this case is probably because the recycling rate of 58 percent might not have seemed that high for a performer in the top 5 per cent of all local governments to citizens given both these pieces of information.

Table 2 here

Substantial relative performance information effects were found on citizens' perceptions of relative performance (see Table 2). Relative performance was measured as being in a category from the top (number one) ranked category to the bottom (number twenty) ranked category of providers. H2a for the low performing area was supported. Information that the local government provider was in the bottom (number twenty) category moved citizens' perceptions by 4.71 categories towards the bottom (number twenty) category, compared to those with no information. Without being given any performance information, citizens perceived their local government as being in the 9.56<sup>th</sup> category. Receiving both absolute and relative information similarly moved assessments 4.05 categories towards the bottom ( $t = 4.26$ ,  $p = 0.00$ ,

95 per cent confidence interval, lower bound = 2.18, upper bound = 5.93). Information about low absolute performance also moved citizens' perceptions of relative performance 2.05 categories towards the bottom category compared to those receiving no information (table 2). This finding probably reflects citizens thinking that absolute performance of 23 per cent was likely to be lower than that in most other areas.

In the high performing area, H2b was supported. Those who received relative information that the provider was in the top ranked (number one) category of performers shifted their perception by -2.13 categories, a move towards the top ranked category. Those who received both absolute and relative information experienced a similar effect of -2.29 categories ( $t = -4.96$ ,  $p = 0.00$ , 95 per cent confidence interval lower bound = -3.20, upper bound = -1.38).

Effects of absolute and relative performance on satisfaction were evident in part, as shown by the models in Table 3. In the low performing area, information about low absolute performance lowered satisfaction by 0.26 (on a scale of 1 to 5) compared to those who did not have information and whose satisfaction was 3.23 on this scale. H3a was supported at the 0.1 level. In the high performing area, H3b was not supported, with absolute information bringing about a non-statistically significant small reduction in satisfaction of 0.18 compared to the level of 3.94 for those having no information.

In the low performing area, the effect of having relative information compared to no information was similar to that of having absolute information, lowering

satisfaction by 0.18 compared to having no information. However, H4a was narrowly not supported. The effect of having relative information in the high performer did not support H4b that it would raise satisfaction, with a very small decrease of -0.08.

Table 3 here

Partial support was found for the hypothesised increase in local responsibility for performance from the provision of comparative performance information (on a five point scale from 1, not responsible at all, to 5, completely responsible) for the case of the high performer but not the low performer, as shown in Table 4. Providing information that the provider is in the bottom 5 per cent of all providers did not raise citizens' assessment of local responsibility, contrary to H5a. However, providing information that the provider is in the top 5 percent of all providers raised the allocation of responsibility from having no information by 0.24 on the scale from 1 to 5, lending support to H5b. This effect size is worthy of note and can be expressed as the allocation of responsibility increasing by 6 percentage points on a rescaled version of local provider responsibility ranging from 0 per cent responsible to 100 per cent responsible. Having both relative and absolute information had a weaker effect in the high performer, responsibility rising by just 0.06 ( $t = 0.39$ ,  $p = 0.35$ , 95 percent confidence interval, lower bound = -0.24, upper bound = 0.36). This difference perhaps reflects the 58 percent absolute score not being seen as very high, despite being in the top 5 percent of all local governments, weakening citizens' judgements that there was something particularly successful that the local government provider was doing.

Table 4 here

The effects of performance information on citizens' participation in a consultation about the local government recycling service's performance are reported in figures 2 and 3 using predicted probabilities of participation derived from logit models reported in Table 5 (which shows the coefficients of the models). The effects are not as hypothesized. Neither absolute information (H6a) nor relative information (H7a) boosts collective voice in the low performing area. Instead the probability of participating in the consultation was 0.18 for those who did not receive any information about performance and was very similar (0.19) when relative information was provided. However, when absolute information was provided, either by itself or in combination with relative performance, lower probabilities were observed, suggesting an effect opposite to that in hypothesis H6a. Far from increasing the likelihood of collective voice, the provision of information about absolute performance lowers it to 0.07 where this information alone is provided. The combination of absolute and relative information similarly lowers the probability of engaging in the consultation to a predicted probability of 0.08.

Figures 2 & 3 here

Table 5 here

In the high performing area, there was no support for the hypothesized effects of either absolute (H6b) or relative (H7b) performance information reducing consultation participation. Having absolute information, and absolute information combined with relative information, raised participation to 0.42 and 0.41 respectively

compared to the no information case probability of 0.30, although neither case met conventional levels of statistical significance. Overall, participation in the consultation was higher in the high performing area than the low performing area (a probability of 0.3 compared to 0.18 in the control groups) which probably reflects more favourable general attitudes to the usefulness of engaging in consultation with the provider in the high performing case, an issue to which we return in the conclusion.

Tables 6 & 7 here



#### **Section Four: Conclusion**

The performance information theory receives partial support. Information about low absolute and relative performance lowers citizens' perceptions of absolute and relative aspects of performance respectively, and information about high absolute and relative performance raises these perceptions. This finding is consistent with evidence from survey experiments that provided citizens with comparative information about school performance (Charbonneau and Van Ryzin 2013). Although not all citizens who received information changed their perceptions, consistent with the view that information can sometimes confuse non-expert recipients or meet resistance to its acceptance (Hibbard 2002; James 2011a), systems of published absolute and relative performance measures do have an effect. Future research should consider information about different levels of performance and multi-dimensional information (for example about inputs, processes or outputs and different aspects of a service) which may be more difficult to interpret (Hibbard 2002).

Negativity bias is evident in information effects on citizen satisfaction. Information about low absolute performance, when provided on its own or with relative information, reduces satisfaction in the low performing area experiment but information about high performance in the high performing area experiment does not raise satisfaction. More research on negativity bias within a single integrated experiment would help confirm these results because, despite the areas being closely matched, there could be differences between these experimental contexts other than the performance information that affects these findings. However, the findings suggest that politicians and public managers have good reason to be concerned about information revealing poor performance and there is less reward, in terms of boosting

citizen satisfaction, from releasing information about high performance. Media coverage of performance information accentuates negativity bias by focusing disproportionately on performance problems (James 2004, 413; Dixon *et al.* 2013).

Information about high relative performance raises citizens' assessments of local provider responsibility for recycling outcomes by 6 percentage points (on a scale from 0 percent responsible to 100 percent responsible). This was not evident in the low performing area in part because citizens in all the groups viewed local providers as highly responsible for outcomes, making an increase from this high base level difficult in any case. Comparative performance information systems boost citizens' capacity for holding local providers responsible. These findings are the micro-foundations for comparison benchmark effects that have been identified for local voting on public service performance –where negativity bias was also evident (Boyne *et al.* 2009), in voting on local taxes where citizens compare across jurisdictions (Besley and Case 1995) and voting informed by cross-country comparisons of national economic performance (Kayser and Peress 2012).

Information about low performance did not increase citizen voice, challenging the view of collective voice as triggered by negative changes in perceptions and satisfaction. The lack of voice was found in a context that should have been favourable to voice because there were limited exit options which might otherwise have offered an alternative response to voice (Hirschman 1970: 1-20; Dowding and John 2012: 102-29). The finding is consistent with citizens disengaging from and neglecting poor services (Lowery and Lyons 1989; Lyons, Lowery, and DeHoog 1992), including citizens' 'entrepreneurial exit' to set up their own, alternative,

service providers (Gofen 2012). Local providers needing citizen participation and pressure the most may be the ones least likely to receive it. The lack of voice may reflect scepticism that collective voice will change outcomes. In the current study of recycling, the relatively high performer had previously been relatively high and the relatively low performer had previously been relatively low in the period before the study. Voice may be more likely in a local area where performance had dipped from a historically high level to a low level in which case citizens may have higher expectations of the local provider responding to voice to restore previous performance levels.

Some citizens may be more likely than others to voice in response to information and future research could examine whether individuals who are themselves active recyclers are more likely to voice because they are most concerned about recycling rates. In addition, promoting norms as sets of beliefs about what other people are doing, or what they approve or disapprove of doing, has been shown to be effective in raising individuals' participation in recycling schemes (Schultz 1998; Cotterill *et al.* 2009). Analogous norms for voicing collectively to providers about the running of these schemes could similarly be promoted. Voice can also be directed at other actors in the system of public service accountability as alternatives to the current provider. The more general voice literature has found voice to third parties is important in other contexts, for example when employees voice to trades unions rather than voicing direct to management (Dowding and John 2012: 44). Collective voice through voting against elected incumbents in favour of alternative politicians as a response to service performance has already been identified (Boyne *et al.* 2009). Another route is voice to non-governmental organisations or administrative overseers

of local government such as ombudsmen or other regulators who can take action against poor providers (Hood *et al.* 1999). Future research could vary the audience for collective voice about performance to examine whether this alters citizens' voice in response to information.

## Appendix 1 Characteristics of the experiment participants and broader populations

Indicator *	High performer area	High performer experiment	Low performer area	Low performer experiment	National (England)
Total population	81,849	N=332	165,748	N=292	49,138,831
Percent of Economically active people unemployed (2007)	3%	Total 2%	3%	Total 1%	5%
		A 2%		A 1%	
		B 0%		B 1%	
		C 5%		C 1%	
		D 2%		D 1%	
Median population age in years (KS02)	44	Total 55	37	Total 49	37
		A 50		A 50	
		B 60		B 40	
		C 50		C 50	
		D 60		D 50	
Gender (percent female)	52%	Total 59%	50%	Total 52%	51%
		A 60%		A 50%	
		B 53%		B 58%	
		C 64%		C 48%	
		D 59		D 53%	
Percent of people aged 16-74 who are full time students	5%	Total 3%	5%	Total 5%	7%
		A 0%		A 1%	
		B 2%		B 3%	
		C 5%		C 5%	
		D 5%		D 7%	
Household Tenure (KS18) Owner occupier	75%	Total 69%	75%	Total 65%	68%
		A 72%		A 63%	
		B 64%		B 62%	
		C 66%		C 70%	
		D 75%		D 64%	

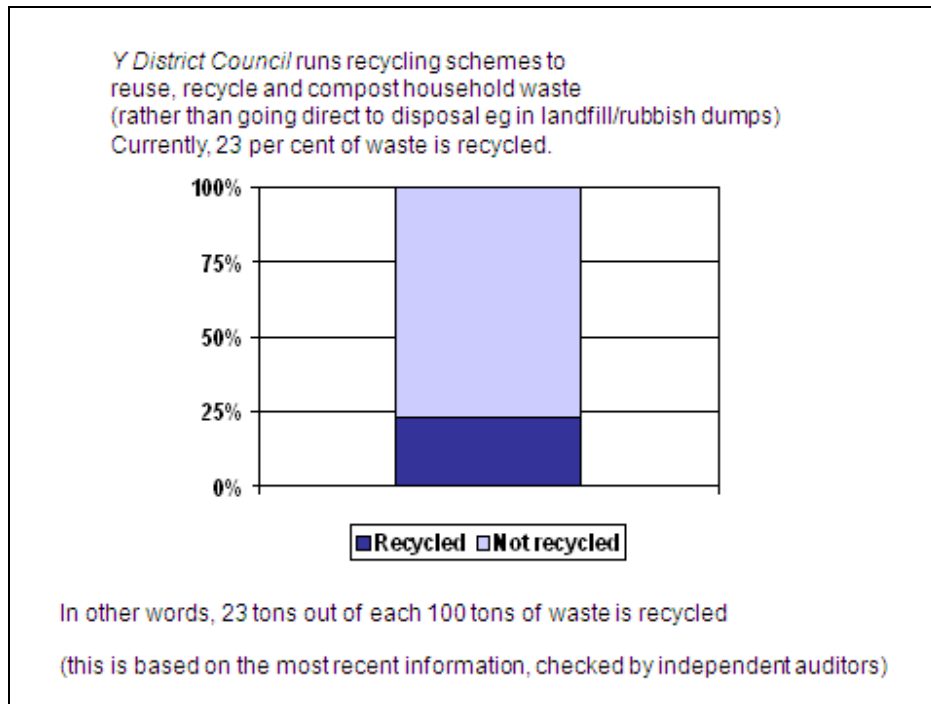
Note: Experimental groups for high and low performer experiments: A = absolute information only; B = relative information only; C = absolute and relative information; D = neither absolute nor relative information. Figures rounded to nearest percentage.

\*Figures for the local areas as a whole and from England are from 2001 Census: Office for National Statistics, Neighbourhood Statistics, Crown Copyright HMSO.

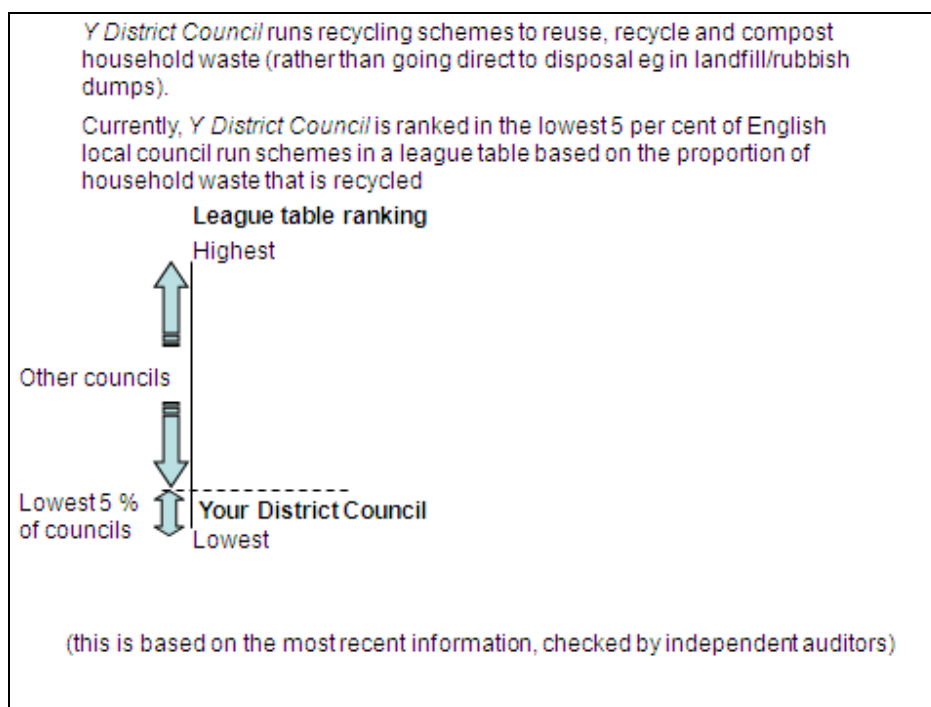
## Appendix 2 Information provided to treatment and control groups

Low performer treatments provided as an example, high performer treatments used the same materials with high performer values substituted

### Treatment Group A: Absolute Performance Information Only



### Treatment Group B: Relative Performance Information Only



**Treatment Group C:** Received both the text and the graphical information given to Groups A and B (as above)

**Control Group D:** Received text below with no performance information

*Y District Council* runs recycling schemes to reuse, recycle and compost household waste (rather than going direct to disposal eg in landfill/rubbish dumps).

The percentage of waste that is recycled in *Y District Council* can be measured. A league table of English council run schemes based on the proportion of household waste that is recycled can be constructed and *Y's* position in the table can be shown.

## References

- Behn, R. 2003. 'Why Measure Performance? Different Purposes Require Different Measures', *Public Administration Review*, 63, 5, 586–606.
- Besley, T. and A. Case. 1995. 'Incumbent Behavior: Vote Seeking, Tax Setting and Yardstick Competition', *American Economic Review*, 85, 1, 25-45.
- Bird S.M., D. Cox, V.T. Farewell, H. Goldstein, T. Holt and P.C. Smith. 2005. 'Performance Indicators: The Good, the Bad and the Ugly', *Journal of the Royal Statistical Society Series A- Statistics in Society*, 168, 1, 1-27.
- Boutron, I., P. John and D.J. Torgerson. 2010. 'Reporting methodological items in randomized experiments in political science', *The Annals of the American Academy of Political and Social Science*, 628, 112-131.
- Boyne, G.A, O. James. P. John and N. Petrovsky. 2009. 'Democracy and government performance: holding incumbents accountable in English local governments', *Journal of Politics*, 71, 4, 1273-1284.
- Bozeman, B. and P. Scott. 1992 'Laboratory experiments in public management and management', *Journal of Public Administration Research and Theory*, 2, 4, 293-313.



Charbonneau, E. and G.G. Van Ryzin. 2013. 'Benchmarks and citizen judgements of local government performance: findings from a survey experiment' *Public Management Review*, Online 23 May 2013 DOI:10.1080/14719037.2013.798027.

Clark, A.E., and A.J. Oswald. 1996. 'Satisfaction and Comparison Income', *Journal of Public Economics*, 61, 359-81.

Cotterill, S., P. John, H. Liu and H. Nomura. 2009. 'Mobilising Citizen Effort to Enhance Environmental Outcomes: A Randomised Controlled Trial of a Door to Door Recycling Campaign', *Journal of Environmental Management*, 91, 2, 403-10.

Darlow, A., M. Hawtin and S. Jassi. 2008. *Reporting Performance Information to Citizens*. London: Communities and Local Government.

Department for Environment, Food and Rural Affairs 2009. *Public Attitudes and Behaviours towards the Environment Tracker Survey*. London: DEFRA.

Dixon, R., C. Arndt, M. Mullers, J. Vakkuri, E. Engblom-Pelkkala and C. Hood. 2013. 'A lever for improvement or a magnet for blame? Press and political responses to international educational rankings in four EU countries', *Public Administration*, Advance access doi: 10.1111/padm.12013.

Dowding, K.M. and P. John. 2008. 'The three exit, three voice and loyalty framework: A test with survey data on local services', *Political Studies* 56, 288-311.

Dowding, K.M. and P. John. 2011. 'Voice and Choice in Healthcare in England: Understanding Citizen Responses to Dissatisfaction', *Public Administration*, 89, 4, 1403-1418.

Dowding, K.M. and P. John. 2012. *Exits, Voices and Social Investments; Citizens Reaction to Public Services*. Cambridge: Cambridge University Press.

Druckman, J. N. and C.D. Kam. 2011. 'Students as Experimental Participants: A Defence of the "Narrow Data Base" ', in J.N. Druckman, D.P. Green, J.H. Kuklinski and A. Lupia (eds), *Cambridge Handbook of Experimental Political Science* Cambridge, Cambridge University Press, pp. 41-57.

Duffy, B., S. Hall and M. Williams. 2005. *Who Do You Believe? Trust in Government Information*. London: MORI

Fagerlin, A., C. Wang, C. and P.A. Ubel. 2005. 'Reducing the influence of anecdotal reasoning on people's healthcare decisions: Is a picture worth a thousand statistics?', *Medical Decision Making*, 25, 398-405.

Festinger, L. 1954. 'A theory of social comparison processes', *Human Relations*, 7, 117-40.

Folz, D.H. 1999. 'Municipal recycling performance: A public sector success story', *Public Administration Review*, 59, 4, 336-345.

Folz, D.H. and J.M. Hazlett. 1991. 'Public participation and recycling performance: Explaining Program Success', *Public Administration Review*, 51, 6, 526-532.

Gerber, A.S. and D.P Green. 2012. *Field Experiments: Design, Analysis and Interpretation*. NY: Norton.

Gilens, M. 2001. 'Political Ignorance and Collective Policy Preferences', *American Political Science Review*, 95, 2, 379-96.

Gofen, A. 2012. 'Entrepreneurial Exit Response to Dissatisfaction with Public Services', *Public Administration*, 90, 4, 1088-1106.

Green, D.P., and A.S. Gerber. 2003. 'The Underprovision of Experiments in Political and Social Science', *Annals of the American Academy of Political and Social Science*, 589, 1, 94-112.

Green, D.P., S.E. Ha and J.G. Bullock. 2010. 'Enough already about "black box" experiments: Studying mediation is more difficult than most scholars suppose', *Annals of the American Academy of Political and Social Science*, 628, 200-08.

Grewal, D., S. Kavanoor, E. Fern, C. Costley, and J. Barnes 1997. 'Comparative versus Noncomparative Advertising: A Meta-analysis,' *Journal of Marketing*, 61, 1-15.

- Harrison, G.W. and J.A. List. 2004. 'Field experiments', *Journal of Economic Literature*, 42, 1009–55.
- Heinrich, C.J. 2003. 'Measuring Public Sector Performance', in B.G. Peters and J. Pierre (eds), *Public Administration*. London: Sage, pp. 25-37.
- Hibbard, J.H., P. Slovic, E. Peters and M.L. Finucane. 2002. 'Strategies for Reporting Health Plan Performance Information to Consumers: Evidence from Controlled Studies', *Health Services Research*, 37, 2, 291-313.
- Hirschman, A.O. 1970. *Exit, Voice and Loyalty: Responses to Decline in Firms, Organizations and States*. Cambridge: Harvard University Press.
- Hood, C.C., C.D. Scott, O. James, G.W. Jones and T. Travers. 1999. *Regulation inside Government*. Oxford: Oxford University Press.
- James, O. 2004. 'The UK Core Executive's Use of Public Service Agreements as a Tool of Governance' *Public Administration* 82, 2, 397-418.
- James, O. 2011a. 'Performance Measures and Democracy: Information Effects on Citizens in Field and Laboratory Experiments', *Journal of Public Administration Research and Theory*, 21, 399-418.
- James, O. 2011b. 'Managing Citizens' Expectations of Public Service Performance: Evidence from Observation and Experimentation in Local Government', *Public Administration*, 89, 4, 1419-35.

Kayser, M.A. and M. Peress. 2012. 'Benchmarking across borders: Electoral accountability and the necessity of comparison', *American Political Science Review* 106, 3, 661-84.

Kuklinski, J., Quirk, P., Jerit, J., Schwieder, D. and Rich, R. 2000. 'Misinformation and the Currency of Democratic Citizenship', *Journal of Politics*, 62, 3, 790–816.

Lowndes, V., L. Pratchett and G. Stoker. 2001. 'Trends in Public Participation: Part 1 – Local Government Perspectives', *Public Administration*, 79, 1, 205-222.

Lyons, W. E., and D. Lowery. 1989. 'Citizen response to dissatisfaction in urban communities: A partial test of a general model', *Journal of Politics*, 51, 841–68.

Lyons, W. E., D. Lowery, and R. H. DeHoog. 1992. *The politics of dissatisfaction: Citizens, services and urban institutions*. London: ME Sharpe.

Margetts, H.Z. 2011. 'Experiments for public management research', *Public Management Review*, 13, 2, 189-208.

Marshall, M.N, P.G. Shekelle, H.T.O. Davies and P.C. Smith. 2003. 'Public Reporting on Quality in the United States and the United Kingdom', *Health Affairs*, 22, 3, 134-48.

Moore, D.A. and W.M.P. Klein. 2008 'Use of absolute and comparative performance feedback in absolute and comparative judgements and decisions', *Organizational Behaviour and Human Decision Processes*, 107, 6074.

Moynihan, D.P. 2006. 'What do we talk about when we talk about performance? Dialogue theory and performance budgeting', *Journal of Public Administration Research and Theory*, 16, 151-68.

Mussweiler, T. 2003. 'Comparison processes in social judgement: mechanisms and consequences', *Psychological Review*, 110, 3, 472-89.

Parks, R. B. 1984. 'Linking objective and subjective measures of performance', *Public Administration Review*, 44, 118-27.

Peters, E., N. Dieckmann, A. Dixon, J.H. Hibbard and C.K. Mertz. 2007. 'Less is more in presenting quality information to consumers', *Medical Care Research and Review*, 64, 169-90.

Pope, D.G. 2009. 'Reacting to rankings: Evidence from "America's best hospitals"', *Journal of Health Economics*, 28, 1154-65.

Propper, C. and D. Wilson. 2003. 'The use and usefulness of performance measures in the public sector', *Oxford Review of Economic Policy*, 19, 2, 250-267.

Schultz, P.W. 1998. 'Changing behaviour with normative feedback interventions: A field experiment on curbside recycling', *Basic and Applied Social Psychology*, 21, 2, 25-36.

Sears, D.O. 1986. 'College sophomores in the laboratory: Influences of a narrow data base on social psychology's view of human nature', *Journal of Personality and Social Psychology*, 51, 3, 515-30.

Smith, P. 1990. 'The use of performance indicators in the public sector', *Journal of the Royal Statistical Society. Series A (Statistics in Society)*, 153, 1, 53-72.

Smith, P. 1995. 'On the Unintended Consequences of Publishing Performance Data in the Public Sector', *International Journal of Public Administration*, 18, 277-310.

Slovic, P., M.L. Finucane, E. Peters and D.G. MacGregor. 2002. 'The affect heuristic' in T. Gilovich, D. Griffin and D. Kahneman (eds), *Heuristics and Biases: The Psychology of Intuitive Judgement*. New York: Cambridge University Press, pp. 397-420.

Van Doren, W. and S. Van de Walle. 2008. 'Publishing Performance Information: An Illusion of Control?' in W. Van Doren and S. Van de Walle (eds), *Performance Information in the Public Sector: How it is Used*. Basingstoke: Palgrave/Macmillan, pp. 211-226.

Van Ryzin, G.G. 2008. 'Citizens' perceptions of road smoothness: evidence from New York with implications for comparative performance measurement', *International Review of Administrative Sciences*, 74, 4, 575-588.

Van Ryzin, G. G., S. Immerwahr and S. Altman. 2008. 'Measuring street cleanliness: A comparison of New York City's scorecard and results from a citizen survey', *Public Administration Review*, 68, 295-303.



## Tables and Figures

FIGURE 1: *Performance information theory's hypothesised effects on citizens' perceptions, attitudes and voice behaviour*

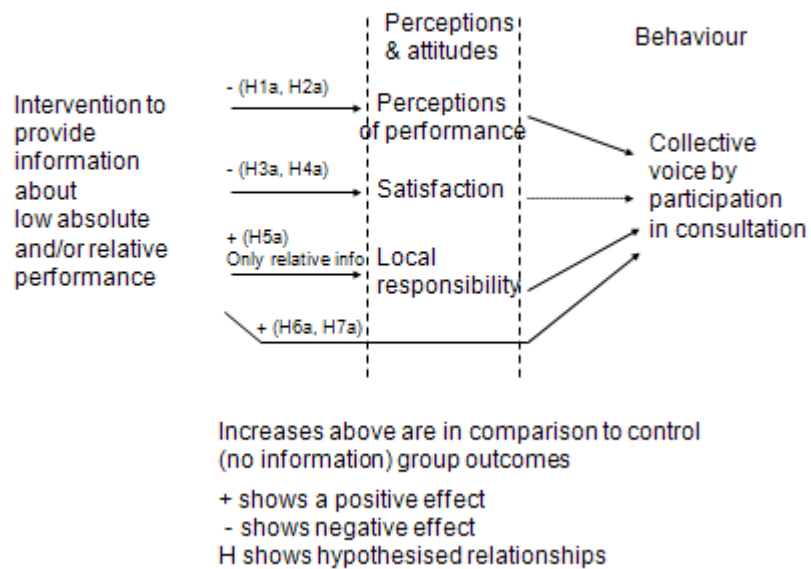


FIGURE 2 *Predicted probabilities of taking part in consultation in a low performing area, according to form of information received (with 95 percent confidence intervals)*

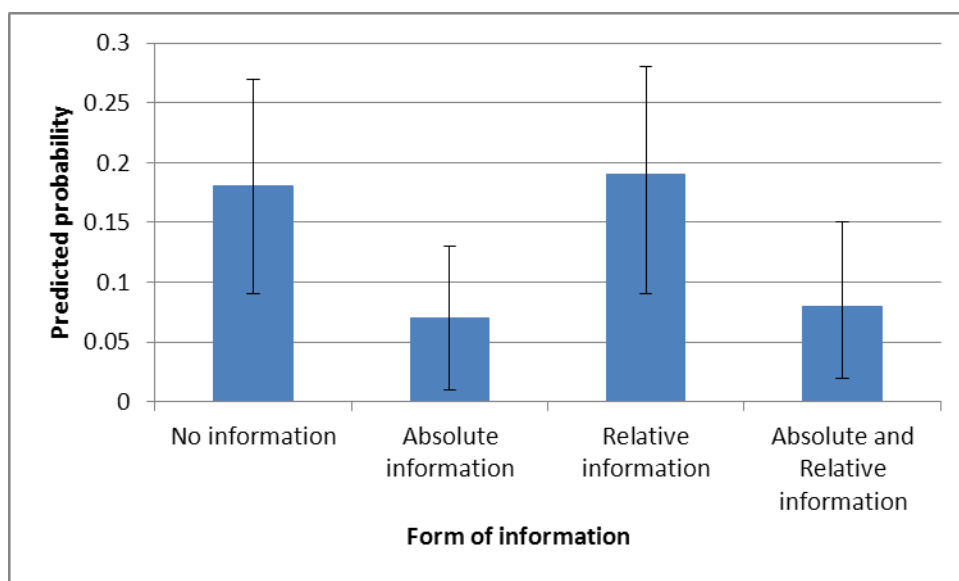


FIGURE 3 *Predicted probabilities of taking part in consultation in a high performing area, according to form of information received (with 95 percent confidence intervals)*

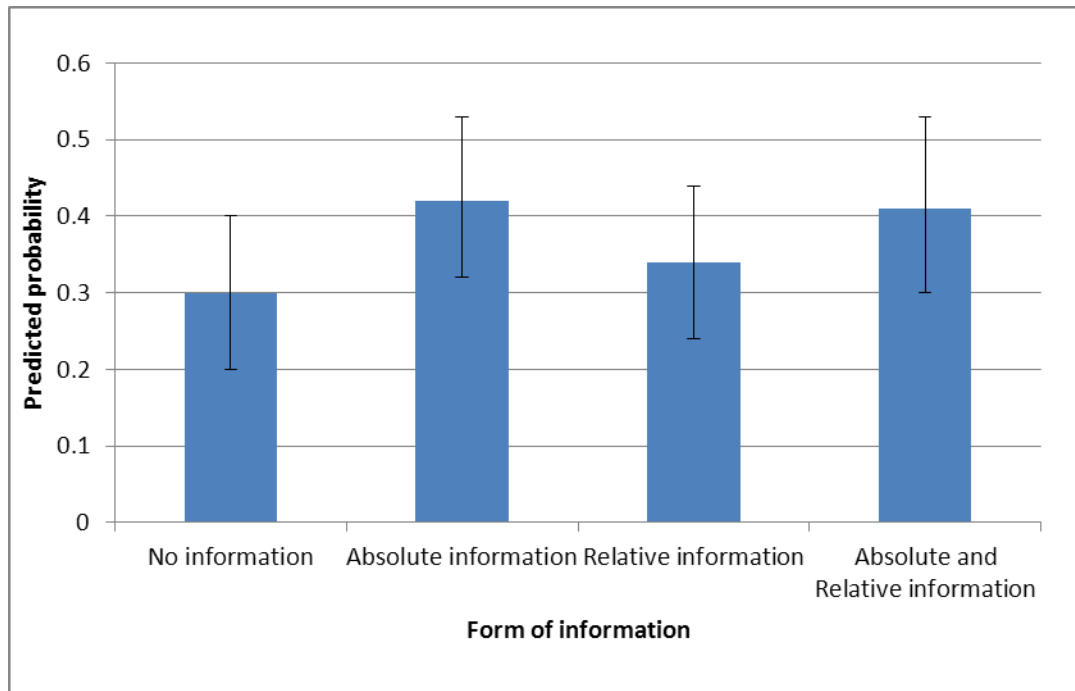


TABLE 1 *Design of experiment conducted in each local government area*

	No absolute information	Absolute information
No relative information	Group D. (control)	Group A.
Relative information	Group B.	Group C.

TABLE 2: *Regressions for effects of absolute and relative performance information on citizens' perceptions of absolute and relative performance in low and high performing areas*

Variables	Perceptions of absolute performance		Perceptions of relative performance (rank first to twentieth†)	
	Low performing area	High performing area	Low performing area	High performing area
Absolute performance information	-7.88** (-2.43)	6.52** (2.60)	2.05** (2.16)	-0.61 (-1.33)
Relative performance information	-3.23 (-1.00)	2.48 (0.99)	4.71*** (4.95)	-2.13*** (-4.62)
Absolute x relative information	1.42 (0.31)	-2.80 (-0.79)	-0.66 (-0.49)	-0.16 (-0.24)
Constant	38.10*** (16.59)	51.10*** (28.86)	9.56*** (14.19)	4.71*** (14.44)
Observations	292	332	292	332
R-squared	0.037	0.028	0.146	0.133

t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

†Twentieth rank indicates lowest relative performance

TABLE 3 *Linear regressions for citizens' satisfaction with services*

Variables	Low performance	High performance
Absolute performance information	-0.26* (-1.41)	-0.18 (-1.22)
Relative performance information	-0.18 (-0.96)	-0.08 (-0.57)
Absolute x relative information	0.07 (0.26)	0.28 (1.32)
Constant	3.23*** (24.73)	3.94*** (37.53)
Observations	292	332
Pseudo R- squared	0.015	0.007

t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

TABLE 4: *Linear regressions for citizens' assessment of local government responsibility for performance*

Variables	Low performance	High performance
Absolute performance information	-0.04 (-0.24)	0.18 (1.17)
Relative performance information	-0.12 (-0.72)	0.24* (1.56)
Absolute x relative information	0.27 (1.13)	-0.18 (-0.83)
Constant	3.33*** (27.55)	3.47*** (31.82)
Observations	292	332
R-squared	0.007	0.010

t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

TABLE 5 *Logit regressions for citizens' participating in a consultation about service performance*

Variables	Low performance	High performance
Absolute performance information	-1.08* (-1.95)	0.53 (1.61)
Relative performance information	0.00 (0.00)	0.17 (0.50)
Absolute x relative information	0.20 (0.26)	-0.22 (-0.47)
Constant	-1.53*** (-5.00)	-0.84*** (-3.52)
Observations	292	332
Pseudo R squared	0.03	0.01

z-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

TABLE 6 *Findings on perceptions, satisfaction and responsibility hypotheses*











Hypothesis	Support	Effect	95% Confidence Interval
<i>Perceptions of performance</i>			
H1a: Information about <b>low absolute</b> performance will <b>lower perceptions</b> of absolute performance		7.88 percentage points lower (t = -2.43, p = 0.01)	-14.27, -1.48
H1b: Information about <b>high absolute</b> performance will <b>raise perceptions</b> of absolute performance		6.52 percentage points higher (t = 2.6, p = 0.01)	1.59, 11.44
H2a: Information about <b>low relative</b> performance will <b>lower perceptions</b> of relative performance		4.71 ranks lower (out of 20 ranks) (t = 4.95, p = 0.00)	2.84, 6.59
H2b: Information about <b>high relative</b> performance will <b>raise perceptions</b> of relative performance		2.13 ranks higher (out of 20 ranks) (t = -4.62, p = 0.00)	-3.04, 1.22
<i>Satisfaction</i>			
H3a: Information about <b>low absolute</b> performance will <b>decrease</b> satisfaction		Reduced satisfaction by 0.26 points (scale of 1-5) (t = -1.41, p = 0.08)	-0.62, 0.10
H3b: Information about <b>high absolute</b> performance will <b>raise</b> satisfaction		Reduced satisfaction by 0.18 points (scale of 1-5) (t = -1.22, p = 0.89)	-0.47, 0.11
H4a: Information about <b>low relative</b> performance will <b>decrease</b> satisfaction		Reduced satisfaction by 0.18 points (scale of 1-5) (t = -0.96, p = 0.17)	-0.54, 0.19
H4b: Information about <b>high relative</b> performance will <b>raise</b> satisfaction		Reduced satisfaction by 0.08 points (scale of 1-5) (t = -0.57, p = 0.71)	-0.38, 0.21
<i>Responsibility</i>			
H5a: Perceptions of <b>low relative</b> performance will <b>increase</b> the extent to which a local government provider is held responsible for performance		Lowered allocation of responsibility to local government by 0.12 points (scale of 1-5) (t=-0.72, p=0.76)	-0.46, 0.21
H5b: Perceptions of <b>high relative</b> performance will <b>increase</b> the extent to which a local government provider is held responsible for performance		Raised allocation of responsibility to local government by 0.24 (scale of 1-5) (t=1.56, p=0.06)	-0.06, 0.54

TABLE 7 Findings on voice hypotheses

<i>Collective Voice</i>	Support	Effect as probability of participating	95% Confidence Interval
H6a: Perceptions of <b>low absolute</b> performance will <b>increase</b> the likelihood of collective voice about performance	✘	Lowered from 0.18 to 0.07	0.01, 0.13
H6b: Perceptions of <b>high absolute</b> performance will <b>decrease</b> the likelihood of collective voice about performance	✘	Raised from 0.30 to 0.42	0.32, 0.53
H7a: Perceptions of <b>low relative</b> performance will <b>increase</b> the likelihood of collective voice about performance	✘	Raised from 0.18 to 0.19	0.09, 0.28
H7b: Perceptions of <b>high relative</b> performance will <b>decrease</b> the likelihood of collective voice about performance	✘	Raised from 0.30 to 0.34	0.24, 0.44