Evaluating the Expectations Disconfirmation and Expectations Anchoring Approaches to Citizen Satisfaction with Local Public Services

Oliver James
University of Exeter

ABSTRACT

Expectations disconfirmation and expectations anchoring are two increasingly influential approaches to understanding individuals' satisfaction and dissatisfaction with public services. This article assesses hypotheses from these approaches for two local public services in England provided by local authorities: overall public services from the authority and household refuse collection services. Consistent with the expectations disconfirmation hypothesis, performance minus expectations is positively related to the predicted probability of satisfaction and negatively related to predicted probability of dissatisfaction for both types of service. However, the relationship is not symmetric between satisfaction and dissatisfaction, the predicted probability of dissatisfaction falls more rapidly than the predicted probability of satisfaction rises as performance increasingly meets expectations. The expectations anchoring hypotheses receive support for dissatisfaction and partial support for satisfaction, with a general expectations relationship evident for overall services but only evident in the case of very high expectations for waste services. The findings suggest that expectations need to be taken into account alongside more conventionally understood factors in using satisfaction surveys as a performance measure, especially if performance is not potentially to be overestimated in areas with low expectations or underestimated in areas with high expectations. Managing expectations, as well as perceived performance, may be an effective strategy for local authorities to raise satisfaction, although this may not be seen as desirable.

This article analyzes the relationship between individual citizens and users' expectations of local public service quality, the performance of services, and satisfaction and dissatisfaction with services. Research on satisfaction, its measurement, and implications is longstanding but has increased in recent decades (T. I. Miller and M. A. Miller 1991; Parks 1983; Stipak 1980; Van Ryzin 2004, 2006). Expectations are extensively researched as an influence on satisfaction with goods and services in the private sector but have been much less analyzed for public services until very recently (Roch and Poister 2006; Van Ryzin

2004, 2006). The role of expectations is potentially important because satisfaction measures are used in evaluating services and informing managerial decision making, including setting budget allocations, changing staff or operating procedures, and altering services. Citizens and users' satisfaction also influences their political "voice," including lobbying and voting behavior, and choice of public services, such as through movement between different local jurisdictions. Dissatisfaction can be a particularly potent driver of voting preference and choice of provider (Dowding and John 1996; James and John 2007; Lyons and Lowery 1989; Lyons, Lowery, and DeHoog 1992; Orbell and Uno 1972; Tiebout 1956).

The expectations approach suggests the possibility that high satisfaction could involve low expectations rather than simply well-performing public services, and low satisfaction could involve not simply poorly performing services but high expectations. The influence of expectations may need to be taken into account as a mitigating factor in assessing a public service by using satisfaction measures. For example, expectations appear potentially relevant in the context of English local government where an apparent puzzle has developed of potentially much broader relevance. An index of aggregate local authority performance in England, based on a basket of mainly managerial performance measures, rose from 100 to 107 between 2001 and 2004, but over the same period, an index of average satisfaction from surveys fell from 100 to 85 (calculated from ODPM 2004 and Best Value performance data). Rising expectations over the period may play a part in this development. In addition, if expectations influence satisfaction, there may be potential for manipulating expectations rather than improving performance in order to improve satisfaction, which may be seen as an undesirable strategy for public organizations to undertake.

The first section of this article sets out the expectations disconfirmation and expectations anchoring approaches to expectations, performance, and satisfaction and dissatisfaction. The task of assessing hypotheses from these approaches is complicated because demographic, socioeconomic, political, and institutional factors influence individuals' satisfaction. The definition of performance is also not straightforward, and differences between subjective citizen or user assessments of performance and "objective" measures of performance gathered by management, auditors, or overseers have been noted (Brown and Coulter 1983; DeHoog, Lowery, and Lyons 1990; Duffy 2000; Lyons, Lowery, and DeHoog 1992; Parks 1983; Stipak 1980; Van Ryzin 2004, 2006). The second section discusses the data and modeling strategy for the analysis of individuals' satisfaction and dissatisfaction with two types of public service in English local government, overall services provided by the authority, and the specific service of household waste collection. The third section presents the results of the analysis based on a data set incorporating a new survey of individuals in England. The modeling uses binary probit for models of satisfaction and dissatisfaction with the two service areas incorporating instrumental variables to model endogenous variables. The fourth section draws conclusions from the analysis and implications for future research on this topic.

EXPECTATIONS AND SATISFACTION

Satisfaction is generally taken to mean an evaluative attitude towards some object or experience. There is a large literature on individuals' satisfaction and dissatisfaction with private goods and services (Anderson 1973; Johnson, Nader, and Fornell 1996; Parasuraman, Zeithaml, and Berry 1988; Westbrook and Reilly 1983). Satisfaction with goods and services provided by public bodies has also emerged as a focus of research and

a major subject of governmental interest in Organization for Economic Cooperation and Development countries (Bouckaert, Van de Walle, and Kampen 2005; Lyons, Lowery, and DeHoog 1992; Van Ryzin 2004, 2006; Van Ryzin et al. 2004). However, most research conducted on satisfaction in the public sector has been undertaken by public bodies themselves and has been directed to informing managerial decisions rather than addressing theoretical questions about expectations. For example, the "Comprehensive Performance Assessment" (CPA) of each local government unit in England run since 2002 has attempted to use satisfaction surveys as part of an analysis of local authority performance. Each local authority is now required by the Office of the Deputy Prime Minister to conduct satisfaction surveys at least once every 3 years. However, although some analysis has been undertaken of deprivation as a negative influence on aggregate satisfaction with a local authority, there has been no systematic examination of relationships between performance, expectations, and satisfaction.

This article analyzes individuals' satisfaction and dissatisfaction with two services provided by English local government: "overall" services provided by a local authority and household refuse collection. The overall services are a composite of services primarily consisting of education, social services, environmental services, waste services, and leisure services. Satisfaction with overall services is important because the local authority unit is the object of comprehensive evaluations by central government bodies including the CPA (Boyne, Day, and Walker 2002; Hood, James, and Scott 2000). The same unit is the focus of local political participation including voting, which has been shown to be influenced by service performance (James and John 2007), and are the object of decisions to exit or enter geographically to receive services (Dowding and John 1996; Orbell and Uno 1972; Tiebout 1956). The analysis of the second service, household waste services, allows comparison between overall services (which itself includes household waste services as a small component part) and a specific service that is less heterogeneous, less complex, and more tangible. The literature on complex services in the private sector suggests that satisfaction with overall services is likely to be influenced by different factors to waste services because the former type of service is a more complicated composite of valued features (Johnson, Nader, and Fornell 1996). By this reasoning, it may be that satisfaction with overall services is influenced more by factors including political orientation or socioeconomic factors than satisfaction with the relatively simple service.

Expectations are defined in social science literatures in different ways but are usually seen as judgments of what individuals or groups think either will or should happen under particular circumstances. There are literatures on the process of expectation formation, the relationship between individual and average expectations, and whether expectations are rational, which is usually taken as meaning consistent with some model of the operation of social processes, especially expectations being consistent on average (Manski 2004). The role of expectations about services has been discussed as a possible influence on satisfaction but there is little systematic empirical work on the topic in the United Kingdom (Crow et al. 2003; Duffy 2000; National Consumer Council 2004; Office of Public Service Reform/MORI 2002; Office of the Deputy Prime Minister 2004; Performance and Innovation Unit 2001). However, more systematic research has recently begun to be produced for local services in the United Sates (Roch and Poister 2006; Van Ryzin et al. 2004, 2006).

There are potentially very many ways of thinking about the relationship between expectations, performance, and satisfaction, but this article concentrates on two influential approaches: expectations disconfirmation and expectations anchoring. Expectations are

simply defined as what individuals think the quality of public services should be given the local taxes paid and broader resource context of their local area. The concept of quality is developed from the idea of what an "excellent" company should be like which has been used in the influential SERVQUAL model of satisfaction with consumer goods and services (Parasuraman, Zeithaml, and Berry 1988). The concept of excellence implies a judgment about what are seen as desirable features of a company or service in a particular context and is particularly useful as a benchmark for comparisons with perceptions of actual service provision. Respondents have sometimes been asked what a "reasonable" level of public services should be, especially in the health sector (Appleby and Alvarez-Rosete 2003). The research developed here asks survey respondents to indicate the proportion of local services that should be of excellent quality in their area, given the local tax and resources available to their local authority to provide them, to establish a subjective standard of the quality that local people think should be provided.

The expectation "confirmation/disconfirmation" approach has been dominant in studies of consumer satisfaction in the private sector (Anderson 1973; Westbrook and Reilly 1983). Although specific applications vary, satisfaction is generally seen as positively related to performance minus expectations, particularly performance as perceived by users. In this way, disappointed people tend to be less satisfied. Different versions of the approach are now beginning to be used in the public sector. The most systematic applications to date in local government have found support for disconfirmation in a survey of New York City residents and also in a subsequent national US study, with performance minus expectations being positively related to satisfaction (Van Ryzin 2004, 2006, 605–8), with similar results for local services in the US state of Georgia (Roch and Poister 2006).

The second approach is expectations anchoring, in which satisfaction is directly influenced by expectations of the quality of services separately from the influence of disconfirmation. Expectations anchoring has been explored as part of analysis of the origins of expectations (Van Raaij 1989). However, in this study, it is used to characterize a relationship in which higher expected quality is negatively related to satisfaction with the services provided. As a variant of this relationship, it is hypothesized that a level of very high expectations is negatively related to satisfaction. Recently, there has been a particular concern in the United Kingdom that "high" expectations are related to low satisfaction with local public services (Office of Public Services Reform/MORI 2002). By using a dummy variable identifying respondents with very high expectations relative to others, the relationship with satisfaction can be assessed. The key hypotheses drawn from the disconfirmation and expectations anchoring approaches, for both overall services and household waste services, are:

H_1 Performance minus expectations is positively related to satisfaction.

H_2 Expectations are negatively related to satisfaction or very high expectations are negatively related to satisfaction.

The approaches are applicable to dissatisfaction with public services with the hypotheses in this context having the sign of the relationships reversed; performance minus expectations is negatively related to dissatisfaction, and expectations or high expectations are positively related to dissatisfaction. The dissatisfaction associated with perceived performance failing to meet expectations can be seen as a form of blame by local citizens directed against their local authority for being substandard. An additional hypothesis examined in the modeling

is that the expectations, satisfaction, and dissatisfaction relationships are symmetric to each other, in the sense of opposite but with the same strength and form of relationship. Examining both satisfaction and dissatisfaction using the same overall framework allows an assessment of whether the relationships are of this kind.

Expectations are distinct theoretically and empirically from other factors influencing satisfaction; the hypotheses are assessed in a framework that simultaneously examines these alternative influences on satisfaction. The performance of services is conventionally taken as a starting point for analysis with better performance suggested as raising satisfaction. However, the distinction between objective measures of performance and subjective or perceived performance by individuals has been noted as important (Stipak 1980). Both objective and subjective measures of performance are incorporated in this analysis. An extensive set of objective measures for overall local authority performance and particular services, including waste, has been developed for English local government units in recent years (Boyne, Day, and Walker 2002; Hood, James, and Scott 2000) and can be used alongside data from a new survey of individuals' perceived performance of services.

There are many factors influencing satisfaction beyond objective and subjective measures of performance. A common finding over the years is that individuals tend to be more satisfied with services that they have had direct experience of using compared to public services in general (see Appleby and Alvarez-Rosete 2003; Goodsell 1990); the level of direct use of services is likely to be an important variable in the context of satisfaction and expectations. The modeling assesses if low users have a different expectations/satisfaction relationship to other users. Expectations disconfirmation may matter less for low users because their lack of use may make their satisfaction less closely related to perceived performance than for heavier users whose attitudes are formed by direct contact. The level of use of local services in general is likely to be more relevant in the context of satisfaction with overall services than for the specific service of household refuse collection which is itself near-universally used even by those who make little use of services in general.

Several further important control variables are suggested by the literature on satisfaction. Socioeconomic disadvantage, for example, as reflected in unemployment, tends to lower satisfaction. Ethnic groups have been found to differ in their satisfaction, for example, non-white Americans tend to be less satisfied with public services than other groups in the United Sates. Factors such as age and gender seem to have ambiguous influences with studies producing conflicting results, but individuals' sense of attachment to their local community and view of the general efficacy of government have both been found to be positively related to satisfaction (Brown and Coulter 1983; DeHoog, Lowery, and Lyons 1990; Duffy 2000; Lyons, Lowery, and DeHoog 1992; Office of the Deputy Prime Minister 2004).

DATA AND MODELLING

The modeling approach relates satisfaction to a set of variables, including the *performance minus expectations* and *expectations* variables, using binary probit models. This approach enables not only the calculation of coefficients for each variable but also an analysis of the relationship between variables and the predicted probability of being satisfied or dissatisfied, which aids straightforward interpretation of the results. Binary scores of "satisfied" or "not satisfied" and of "dissatisfied" or "not dissatisfied" are used in the models rather than the levels of satisfaction. Previous research on local services suggests that the more extreme points on a scale of increasing satisfaction (from very dissatisfied, through neither

satisfied or dissatisfied, to very satisfied) are more likely to be associated with decisions about voting for an incumbent local government or deciding to stay within a jurisdiction than those in the midrange (James and John 2007; Lyons, Lowery, and DeHoog 1992). The extreme points also potentially provide the clearest performance indicators for local units. In contrast, distinctions between the levels of satisfaction are more fine grained and less substantively important in this context, although this of course does not mean that differences in levels are potentially completely unimportant.

The bulk of data used in the modeling were gathered from a new survey of individuals in contact with local authority services in England. Most previous research on satisfaction in this context consists of disparate studies produced for individual local bodies, surveys for the centrally run People's Panel in the late 1990s (Cabinet Office 2000; Office of Public Service Reform 2002), and the 2000/01 and 2003/04 Best Value Performance Information satisfaction surveys run separately by each local government unit (Office of Public Service Reform/MORI 2002; Office of the Deputy Prime Minister 2004). However, the Best Value satisfaction surveys were not conducted using a standard set of methods across local authorities, especially in 2000/01, and they do not include data about individuals on a sufficient range of variables to enable their use for the sort of multivariate analysis conduced here. The survey used in this study consisted of a sample of 9,500 randomly selected from an internet panel of 100,000 people held by the survey firm YouGov.[1] Internet panels are receiving increasing acceptance in the social sciences in a similar way to other survey technologies such as telephone surveys that were once new and now have found to be reasonably cost-effective, valid, and reliable. Significantly for the analysis presented here, the 2005 British Election Survey found little or no difference between results gained from an internet poll and a conventional random probability door-to-door survey (Sanders et al. 2006).

The questions in the survey related to services provided rather than asking respondents to consider their attitudes towards possible alternative service provision. The wording of the key questions relating to satisfaction, expectations, and perceived performance are provided in the Appendix. Conventional five-point scales were adopted, for example, allowing responses from "very dissatisfied" to "very satisfied" in the case of satisfaction, with an additional "do not know" category. Consistent with the theoretical interest in the more extreme satisfaction and dissatisfaction responses, the dependent variables were reduced to sets of binary distinctions (satisfied/not satisfied and dissatisfied/not dissatisfied) for the multivariate analysis.[2]

Expectations about the two services were measured by asking respondents what proportion of services should be of "excellent" quality considering the local Council Tax and other resources available for local services. Perceived performance of quality was measured using the same scale of proportion of excellent services, and the gap between perceived performance and expectations was calculated for the disconfirmation model. The calculation followed a simple "subtractive" method using a range of scores for the

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1   The survey was conducted in Summer 2005; the response rate was 42% giving a useable sample of 4067. The panel was designed to be representative of the broader population; respondents' characteristics are reasonably similar to those of the general population (with Office of National Statistics figures for 2005 in brackets): men 50.3% (48.6%); average age 42.9 years (36.8 years), unemployed 5% (4.8%).

2   In the aggregate response about satisfaction, 37% of respondents were found to be satisfied with overall services and 67% were satisfied with household refuse collection. In the aggregate response about dissatisfaction, 17% were found to be dissatisfied with overall services and 11% were dissatisfied with household refuse collection.

performance and expectations responses from 1 to 5 producing a potential range for the performance minus expectations variable from −4 to 4, as shown in the Appendix.

The objective measures of performance for each of the services were gathered from the CPA of local government, which contains a summary score for services overall, and "Best Value" performance information relating to refuse services. Other variables included in the analysis because of their previously noted influence on satisfaction are "age," "gender," "ethnic group," "membership of local groups," "unemployment" (as a measure of socioeconomic disadvantage), "local Council Tax level," and "voting Conservative" in the local election (a party traditionally less sympathetic to the public sector than the other main local parties). Descriptions of the full set of variables are provided in the Appendix.

The relationship between performance, expectations, and satisfaction involves some potential endogeneity in the variables. Perceived performance, in particular, may be influenced by current satisfaction, and this feature of the system requires modeling explicitly; it seems reasonable that people who are more satisfied may have higher perceptions of performance. This issue is addressed by using instrumental variable estimation with an instrument of the extent to which people are knowledgeable about their local area including the local authority's organization name, structure, and function, and using the other independent variables to lend support to the instrumentation. This choice of instrument is reasonable because it is not clearly correlated with the error term but is correlated with the explanatory variables that are instrumented. The Wald test of exogeneity of the instrumented variables is used, with results reported in tables 1 and 2, and was sufficient to reject the null of no endogeneity for each of the instrumented variables. Expectations are treated as exogenous primarily for theoretical reasons, the expectation stands prior to the satisfaction judgment. This approach is consistent with the dominant approach in the literature (Van Ryzin 2006, 600), and theoretically, the direction of influence of previous satisfaction on expectations of what should be the case is not clear-cut. Although it may seem reasonable for satisfaction to raise expectations because people are of a favorable attitude which makes them have high standards, it could be plausibly argued that high satisfaction might drive low expectations, with the satisfied tending to have lower standards than other people.[3]

RESULTS FROM THE BINARY PROBIT MODELS OF SATISFACTION AND DISSATISFACTION WITH SERVICES[4]

In the models for satisfaction, the disconfirmation hypothesis receives support for both services. The predicted probability of individuals' satisfaction over the range of performance minus expected performance is set out for overall services in figure 1; the coefficients for model 1 associated with this figure are presented in table 1. In figure 1, probability rises as performance expectations are increasingly met and then exceeded, especially rising as expectations are nearly met. A positive relationship with satisfaction

3   In a binary probit model with high expectations as the dependent variable and satisfaction, performance, socioeconomic status, and political attitudes as independent variables, the satisfaction variable was found not to be significant, lending empirical support to the theoretical position.
4   To aid interpretation of the results, the parameter estimates for performance minus expectations are interpreted using graphs of predicted probabilities of satisfaction and dissatisfaction in the figures. For other results related to the main hypotheses, the marginal effect of a change in predicted probability associated with a unit change of the variable (with other variables in the model held at their mean values) is provided. The coefficients (with standard errors) are reported for all variables in tables 1 and 2; a positive coefficient indicates that predicted probability rises as values of the variable increase, a negative coefficient indicates that probability falls.

Figure 1
Probability of Satisfaction with Overall Services
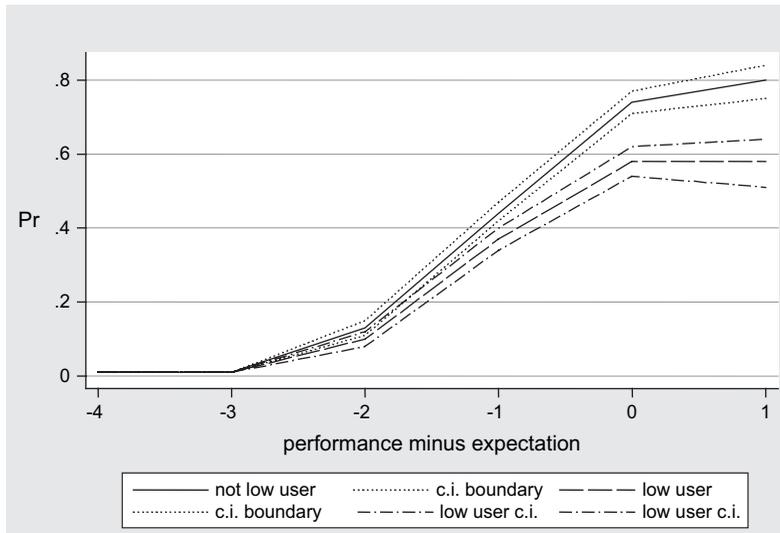
is evident for both low users and those making heavier use of services. However, low use is associated with a lower predicted probability of satisfaction as expectations are increasingly met and exceeded, rising to a maximum of .58 rather than .8 for heavier users.
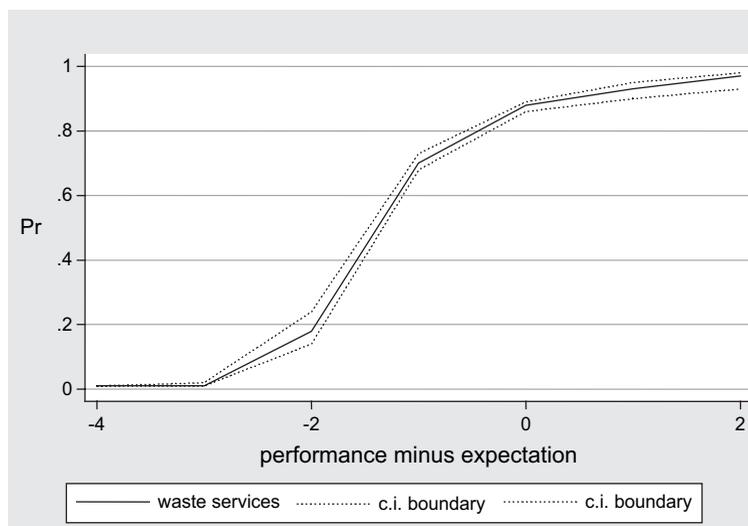
Table 1
Binary Probit of Satisfaction with Services

	Model 1: Overall Services	Model 2: Overall Services	Model 3: Refuse Services	Model 4: Refuse Services
Performance minus expectations	1.654*** (0.057)		1.510*** (0.084)	
Perceived performance		1.649*** (0.057)		1.505*** (0.083)
Expectations	1.555*** (0.0654)		1.442*** (0.073)	
Very high expectations		−0.116** (0.050)		−0.127** (0.058)
Age	−0.001 (0.002)	−0.002 (.002)	0.005*** (0.002)	0.005*** (0.002)
Female	−0.0356 (0.050)	−0.036 (0.051)	0.087* (0.050)	0.090 (0.050)
Ethnicity	−0.024 (0.087)	−0.018 (0.087)	−0.000 (0.085)	−0.000 (0.085)
Objective performance	0.022 (0.028)	0.023 (0.028)	−0.000 (0.003)	−0.000 (0.003)
Council Tax	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Group membership	0.020 (0.013)	0.019 (0.013)	−0.003 (0.014)	−0.003 (0.14)
Unemployed	−0.245* (0.130)	−0.235* (0.129)	0.117 (0.120)	0.109 (0.120)
Low user of range of services	0.163*** (0.052)	−0.155*** (0.052)	−0.042 (0.51)	−0.44 (0.051)
Conservative voter	0.018 (0.056)	0.202 (0.056)	−0.096* (0.057)	−0.097* (0.056)
Constant	−5.560*** (0.404)	−5.931*** (0.376)	−5.209*** (0.422)	−5.428*** (0.447)
Wald exogeneity test	66.96***	65.47***	11.49***	10.90***
Wald χ^2 (11)	964.26***	980.99***	530.31***	499.44***
N	3065	3065	3613	3613

Note: Perceived performance variables modeled as endogenous in each model, standard errors adjusted for clusters of individual survey respondents located in districts (350 districts in models 1 and 2, 403 districts in models 3 and 4).
*$p < .1$, ** $p < .05$, ***$p < .01$.

Figure 2
Probability of Satisfaction with Waste Services

The predicted probability of satisfaction with household waste services is presented in figure 2, associated with model 3 in table 1. In figure 2, probability of satisfaction rises from a very low level for extreme disappointment to .88 where expectations are met, before rising slightly further to .98 where expectations are exceeded. Where expectations are met and exceeded, probability of satisfaction is higher for refuse services than services overall. For example, where expectations are met, the probability for refuse services is .88 but only .74 for overall services (with just .58 for low users). It seems that people may be more difficult to satisfy by meeting their expectations in the context of overall services, perhaps because performance minus expectations are more concrete in the case of a specific service and fewer nonservice factors are influences on satisfaction, although the issue merits further research.

The expectations anchoring hypothesis receives support for overall services as reported for model 1 in table 1. The expectations variable enters twice in this model, on its own and as a negative term in the performance minus expectations variable; the net coefficient of −0.099 is consistent with the anchoring hypothesis.[5] The expectations anchoring model receives further support in model 2; *very high expectations* has a positive coefficient significant at the 5% level. However, based on estimates from the same model, having very high expectations is associated with a lower predicted probability of satisfaction only for those who report their perceived performance as being in the middle of the range of possible values of performance. The predicted probability of being satisfied is .18 for those with very high expectations and .21 for others, both at the midpoint of the perceived performance scale.[6] There is no statistically significant difference in predicted

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5   In an equivalent model entering perceived performance and expectations as separate variables with identical controls, the coefficient is the same −0.099 (0.040) ($p < .05$), confirming the significance of both perceived performance and expectations. The size of the coefficient for perceived performance also indicates that variation in this variable is an important contributory factor to the coefficient for the performance minus expectations variable.

6   The 95% confidence interval bounds are as follows—for high expectations: lower bound = 0.16, upper bound = 0.20; and not very high expectations: lower bound = 0.19, upper bound = 0.23.

Figure 3
Probability of Dissatisfaction with Overall Services
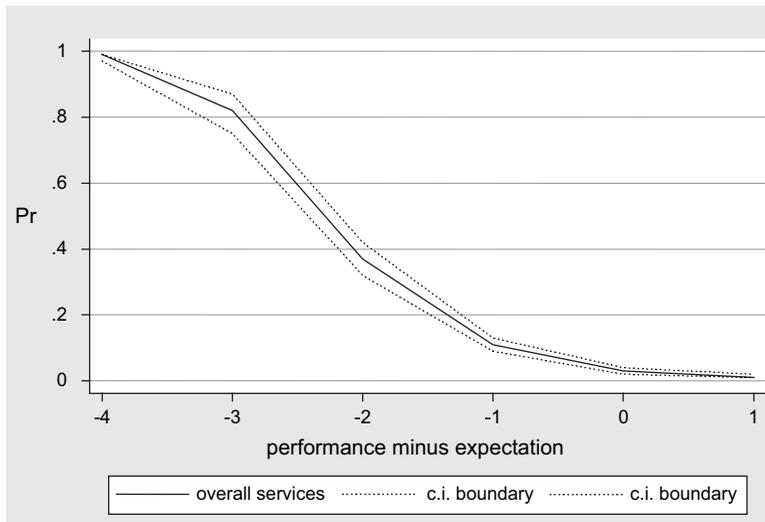
probabilities for those perceiving performance to be extremely good or extremely bad suggesting that, at these extreme values, expectations effects are much less evident.

The results for expectations anchoring for waste services in models 3 and 4 are shown in table 1. The anchoring relationship is significant only for the case of very high expectations in model 4 rather than for expectations in general; analogous to the case of model 1 for overall services, the net coefficient for expectations in the context of waste services is −0.067 (0.056) and is not significant. Interpreting model 4 using marginal effects, having very high expectations is associated with a lowering of the predicted probability of being satisfied of 0.043, significant at the 5% level. The lack of a more general expectations anchoring relationship in this case arises because there are few responses in the lower categories of expectations scores. Further analysis of expectations anchoring in the context of household waste was undertaken though developing models 3 and 4 for a specific aspect of refuse services, cleanliness of the area in the wake of refuse collection. This aspect of the waste service has more cases in the lower categories of the expectations variable. The coefficients are negative and significant for both the expectations variable [−0.170 (0.049), significant at the 1% level] and very high expectations variable [−0.213 (0.056), significant at the 1% level], lending support to the anchoring hypothesis in this context.

Turning to dissatisfaction with services and expectations disconfirmation, for overall services, higher levels of performance minus expectations are associated with lower predicted probabilities of dissatisfaction (see figure 3 and model 5 in table 2). However, as performance minus expectations rises from extreme disappointment, the probability of dissatisfaction declines more rapidly than the probability of satisfaction increases. As performance approaches expectations, the probability of dissatisfaction falls to just .03 where expectations are met. In contrast to satisfaction, the variable for low use of services does not have a significant coefficient in models of dissatisfaction. It is possible that some heavier users are pushed to dissatisfaction by contact with local services that they experience as being very poor which counteracts that general tendency of people who have

Table 2
Binary Probit of Dissatisfaction with Services

	Model 5: Overall Services	Model 6: Overall Services	Model 7: Refuse Services	Model 8: Refuse Services
Performance minus expectations	−1.418*** (0.077)		−1.275*** (0.098)	
Perceived performance		−1.388*** (0.079)		−1.24*** (0.098)
Expectations	−1.137*** (0.085)		−1.069*** (0.083)	
Very high expectations		0.368*** (0.064)		0.351*** (0.064)
Age	0.007*** (0.002)	0.008*** (0.002)	0.002 (0.002)	0.002 (0.002)
Female	−0.169*** (0.065)	−0.167** (0.066)	−0.056 (0.063)	−0.063 (0.064)
Ethnicity	−0.030 (0.097)	−0.047 (0.098)	−0.186* (0.110)	−0.193* (0.110)
Objective performance	0.005 (0.030)	0.003 (0.030)	−0.002 (0.004)	−0.002 (0.004)
Council Tax	0.000 (0.000)	−0.001 (0.000)	0.000 (0.000)	0.000 (0.000)
Group membership	0.000 (0.016)	0.002 (0.016)	−0.029* (0.017)	−0.028 (0.17)
Unemployed	0.140 (0.176)	0.153 (0.176)	0.116 (0.121)	−0.127 (0.124)
Low user of range of services	0.021 (0.062)	−0.046 (0.062)	0.022 (0.062)	0.022 (0.063)
Conservative voter	−0.006 (0.069)	−0.018 (0.069)	0.126 (0.078)	0.124 (0.078)
Constant	2.889*** (0.502)	3.757*** (0.503)	2.653*** (0.624)	3.266*** (0.656)
Wald exogeneity test	25.83***	24.20***	9.99***	8.76***
Wald χ^2 (11)	458.99***	474.72***	207.64***	192.58***
N	3065	3065	3613	3613

Note: Perceived performance variables modeled as endogenous in each model, standard errors adjusted for clusters of individual survey respondents located in districts (350 districts in models 5 and 6, 403 districts in models 7 and 8).
*$p < .1$, **$p < .05$, ***$p < .01$.

more contact with services to report higher levels of satisfaction. This tendency may result in the relationship between levels of use and dissatisfaction being indistinct between categories of low and heavier users.

Expectations disconfirmation is also supported for dissatisfaction with waste services. The predicted probability of dissatisfaction over the range of performance minus expectations is shown in figure 4, derived from model 7 in table 2. Similarly to overall services, the probability falls more quickly than the probability of satisfaction with waste services rise as performance minus expectations increases from extreme disappointment, perhaps for similar reasons to those discussed above. The curves for probability of dissatisfaction with the two services are more similarly shaped to each other than the curves for satisfaction with the two services are similar to each other. This greater similarity could be because negative judgments may be made in a more similar way across the two services than positive judgements, perhaps because they are partly driven by specific undesirable service incidents experienced by citizens that drive dissatisfaction in a similar way, but this issue merits further research.

The expectations anchoring hypotheses receive support for dissatisfaction with overall services. In an analogous way to the models for satisfaction, the expectations variable enters twice in model 5, both on its own and in the performance minus expectations variable, so it is the net expectations coefficient of 0.281 (0.040), significant at the 1% level, which is relevant. The dummy variable very high expectations has a positive significant (at the 1% level) coefficient in model 6, and the marginal effect is to raise the predicted probability of dissatisfaction with overall services by .079 (significant at the 1% level). For waste services, the results for expectations anchoring are similar, with positive

Figure 4
Probability of Dissatisfaction with Waste Services
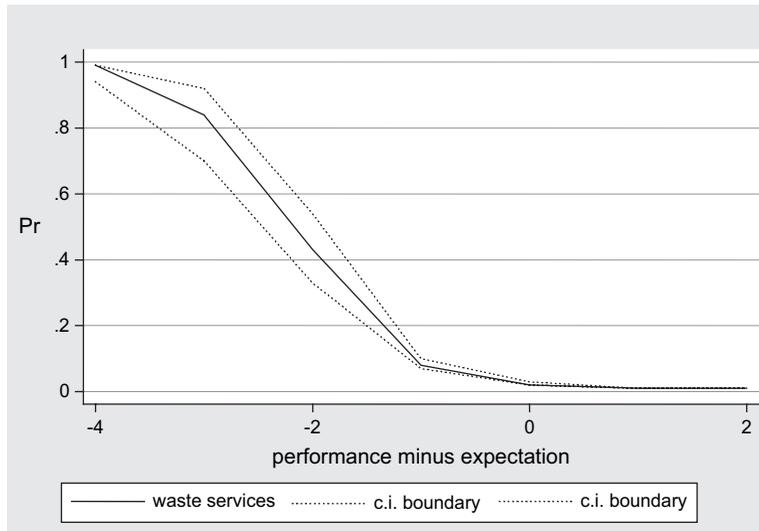
significant coefficients of the expectations variable [a net coefficient of 0.206 (0.055) significant at the 1% level]. Very high expectations in model 8 has a significant (at the 1% level) positive coefficient with a marginal effect of raising predicted probability by .047 (significant at the 1% level).

The findings relating to other factors suggested as influential on satisfaction and dissatisfaction with public services are in large part consistent with previous research. Notably, people who are low users of local authority–provided services have a lower predicted probability of satisfaction with overall services except for values of performance minus expectations showing strong disappointment, as shown in figure 1. The overall marginal effect of being a low user is to lower the predicted probability of satisfaction by .060 (significant at the 1% level). Despite this difference, a broadly similarly positive performance minus expectations relationship with satisfaction is evident for both low users and other users of services. Low level of use of services in general does not appear associated with a higher probability of dissatisfaction with overall services and satisfaction or dissatisfaction in the case of household refuse collection services. In this latter set of results, the level of use of services in general would not be expected to influence the specific service of waste collection, and waste collection is itself near-universally used.

CONCLUSION

Expectations disconfirmation receives support for satisfaction with both overall services and the specific service of household waste collection. The predicted probability of being satisfied rises as expectations of service quality are perceived to be increasingly met and exceeded. The finding that the gap between perceived performance and expectations is positively related to satisfaction is broadly consistent with recent work on local service areas in the United Sates (Roch and Poister 2006; Van Ryzin 2006). Support for expectations

disconfirmation is also apparent in the context of dissatisfaction with both services. However, the dissatisfaction relationship is not fully symmetric to satisfaction; as performance increasingly meets expectations, the predicted probability of dissatisfaction falls more quickly than the predicted probability of satisfaction rises for both services. Where expectations are met, the predicted probability of dissatisfaction is very low compared to the predicted probability of satisfaction. This finding suggests that services increasingly meeting expectations might more readily shift people away from being dissatisfied into one of the higher categories than an equivalent change shifts them from being in a neither satisfied nor dissatisfied (or lower) category to expressing satisfaction.

The hypotheses from the expectations anchoring approach receive support although not universally. Higher levels of expectations are associated with slightly reduced predicted probabilities of being satisfied with overall services but only for people in the midrange of perceived performance scores. The anchoring relationship is evident only for people with very high expectations in the case of waste services. For dissatisfaction, in each case of the two services, expectations anchoring is evident both in general and for the category of very high expectations; increases in these variables raise the predicted probability of dissatisfaction with the services.

The findings lend further support to the long-recognized observation that objective measures often seem not to capture aspects of performance that are related to individual users and citizens' evaluative judgements (Stipak 1980). There is no support for a positive relationship between objective performance and satisfaction or a negative relationship with dissatisfaction. In contrast, variation in perceived performance is a major contribution to the results for expectations disconfirmation and perceived performance has a positive relationship with satisfaction and a negative relationship with dissatisfaction in models where it enters as a separate variable; further research on these relationships is desirable.

The support for expectations anchoring and expectations disconfirmation suggest that local authorities may be able to manage expectations to influence satisfaction. Van Ryzin's (2006, 606) national US study concluded that there would not appear to be a strategic advantage to local authorities in raising citizens' expectations. The findings reported here suggest that local authorities might be able to raise the probability of individuals' satisfaction by lowering expectations, although further work is needed on the origins of expectations and process of expectations formation. A strategy of lowering expectations might be especially attractive to local authorities as a way of avoiding blame, in the sense of avoiding dissatisfaction associated with the disappointment of expected standards of performance not being met. Dissatisfaction of this sort can have particularly detrimental consequences for local political incumbents. Strategies to lower expectations could include explaining to local publics about difficulties in service provision such as problematic socioeconomic conditions or budget and other constrains imposed by outside actors such as central government (Hood 2002; James 2004).

The findings suggest the need for a further note of caution in the interpretation of satisfaction surveys as measures of the performance of local government units. Moving beyond the immediate aims of the research set out here, if the proportion of individuals with high expectations differs across local authority units, it could be that relatively low average satisfaction scores for some units might be the result of them having relatively high proportions of high expectations individuals compared to other units, rather than lower performance. The reverse of this effect might operate in local authorities with relatively high proportions of individuals with low expectations. This latter phenomenon

could be exacerbated if some authorities were to be successful in managing down expectations, and this variation was not measured by oversight bodies. Research to include expectations questions in interunit surveys of satisfaction would be one way of gauging variation in expectations and perhaps facilitating a weighting of satisfaction results according to the level of expectations.

The role of expectations provides a potential insight into the puzzle of how performance may rise on objective measures but measures of satisfaction may not similarly rise, as appears to have happened in English local government in recent years. If expectations were to rise and the value of performance minus expectations were to fall, with other things remaining constant, the models suggest that the probability of satisfaction would be lowered and the probability of dissatisfaction would be raised. There are good reasons to think that such a phenomenon may have occurred in England with substantial increases in local Council Tax in recent years potentially raising expectations of quality. Future studies could examine these relationships over time to extend the cross-sectional findings reported here.

APPENDIX

Table A1
Descriptions of Variables (not all the observations or variables are used in all the models reported in tables 1 and 2)

Variable	Observed Value	Mean	SD	Min	Max
Satisfaction variables					
Satisfaction all	3710	0.37	0.48	0	1
Satisfaction waste	3772	0.68	0.47	0	1
Dissatisfaction all	3710	0.17	0.38	0	1
Dissatisfaction waste	3772	0.11	0.32	0	1
Expectations variables					
Expect all	3713	4.28	0.73	1	5
Expect waste	3753	4.49	0.68	1	5
Very high expectation all	3713	0.42	0.49	0	1
Very high expectation waste	3753	0.59	0.49	0	1
Performance minus expectations variables					
Performance minus expectations all	3678	−1.00	0.99	−4	4
Performance minus expectations waste	3734	−0.69	0.90	−4	4
Perceived performance variables					
Perceived performance all	3704	3.27	0.76	1	5
Perceived performance waste	3753	3.80	0.80	1	5
'Objective' performance variables					
Performance all	3505	2.10	0.91	1	5
Performance waste	4067	89.88	7.68	45	100
Other variables					
Age	4067	42.90	14.45	19	76
Female	4067	0.50	0.50	0	1
Ethnicity	4023	.10	.31	0	1
Council tax	4067	1188.88	117.43	614	1428
Group membership	3823	1.79	1.88	0	16
Unemployed	4027	0.05	0.21	0	1
Conservative	3823	0.28	0.45	0	1
Low user	3823	0.45	0.50	0	1
Knowledge	3695	−0.01	1.13	−4	4

Table A2
Survey Questions for Key Variables

Satisfaction
  How satisfied are you with the performance of your local authority's overall services?
    Very dissatisfied
    Dissatisfied
    Neither satisfied nor dissatisfied
    Satisfied
    Very satisfied
    Do not know
  How satisfied are you with the performance of your local authority's household refuse
      collection services?
    Very dissatisfied
    Dissatisfied
    Neither satisfied nor dissatisfied
    Satisfied
    Very satisfied
    Do not know

Expectations
  Considering the amount of Council Tax and other resources available for local services, do you think
      that the overall services provided by your local authority should be of excellent quality . . .
    All of the time
    Most of the time
    Some of the time
    Rarely
    Never
    Do not know
  Considering the amount of Council Tax and other resources available to your local authority, do you
      think you should have an excellent quality household refuse collection service . . .
    All of the time
    Most of the time
    Some of the time
    Rarely
    Never
    Do not know

Perceived performance
  Thinking about your local authority's overall services, do you think it performs excellently . . .
    All of the time
    Most of the time
    Some of the time
    Rarely
    Never
    Do not know
  Thinking about the household refuse collection service provided by your local authority,
      do you think it performs excellently . . .
    All of the time
    Most of the time
    Some of the time
    Rarely
    Never
    Do not know

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