



Social, cultural and structural influences on household waste recycling: A case study

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Abstract

The household-recycling rate in the Borough of Burnley, England in 2001/2002 was only half the national average of 12%. This research employed both quantitative and qualitative surveys in order to ascertain whether householders' attitudes to recycling were contributory factors to the generally poor recycling performance and to investigate other social, cultural and structural influences. The Borough has a large Asian–British population concentrated in two deprived wards where recycling rates are particularly low, so special attention was given to ascertaining their attitudes towards recycling.

The quantitative survey comprised a postal questionnaire sent to a random sample of 360 households drawn from the electoral register. The qualitative survey consisted of group interviews with the Asian–British population at local community centres and focus groups attended by volunteers from the quantitative study.

The findings suggest that householders are very willing to participate in recycling, as shown by the almost 80% claiming to recycle paper, but that local recycling services are too unreliable and inconvenient to allow them to do so comprehensively. Asian–British attitudes to recycling were found to be no different to those of the wider population, with their low participation being linked to the higher priorities imposed upon them by economic deprivation. The findings are broadly in line with those of the literature in that recycling participation tends to be higher among more affluent and older people, but lower among less affluent and younger households, probably due in part to the availability of both storage space and time, with the implication that the Borough's preponderance of terraced

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housing militates against a high recycling rate. Policy recommendations to local authorities include the provision of bespoke recycling services to suit the variety of residential conditions across the UK, and the provision of regular feedback to householders regarding recycling services and performance.

Further research is needed to identify non-recyclers and to explore how householders' underlying psychological, cultural and social attitudes to recycling impinge upon recycling and participation rates.

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1. Introduction

In 2002/2003, England generated 29.3 Mt or 521 kg per capita of municipal solid waste (MSW), a rise of 1.8% over the preceding year; although the proportion disposed via landfill (75%) was lower than previously (DEFRA, 2004). Household waste represented 25.8 Mt (88%) of MSW, of which only 3.7 Mt (14.5%) was recycled or composted (DEFRA, 2004) despite over two-thirds of the contents of the average dustbin being recyclable or compostable (Waste Watch, 2003). Most (66%) recycled materials were collected from civic amenity ('bring') sites, and the remainder from the 67% of households served by kerbside collection ('collect') schemes (DEFRA, 2004). There was wide variation (0–44%) in household-recycling rates among the 394 local authorities (LAs) in England, where the majority (nearly 70%) failed to recycle or compost more than 15% of MSW (DEFRA, 2004). The UK recycling rate for household waste stood at 15% in 2003 (DEFRA, 2003a); this figure has been growing as a result of initiatives by local authorities such as the establishment of practical recycling schemes. However, it is still inadequate in comparison with other European Union (EU) countries and in terms of reaching the national target of 25% by 2005.

Household recycling is justified by four main points (Waste Watch, 2003):

- It reduces demand for virgin raw materials;
- There are fewer environmental impacts from material extraction, processing and transportation;
- Products made from recyclates rather than virgin materials generally consume less energy in manufacturing;
- Lower down the hierarchy, less waste is disposed of by the more environmentally damaging methods.

Local authorities must develop appropriate waste management strategies if they are to reach their statutory targets. Household recycling requires people willing to recycle and the supporting infrastructure for them to do so. Each local authority has to adapt to its own socio-economic conditions, so it is not possible to develop one recycling system that could be adopted by all. Recycling rates vary greatly across the UK and it is difficult to provide clear reasons for any particular scheme's success or failure without a detailed understanding of the scheme and its characteristics (Noehammer and Byer, 1997).

Recent research on recycling has focused on recycling awareness, participation and behaviour; recycling scheme design; economic incentives to encourage recycling; effective publicity and promotion; cultural factors. A reasonable body of information has been published, but the information is complex, often contradictory and difficult to interpret, giving significant problems to those responsible for developing waste strategies and policies. To illustrate this point, key messages from the literature are reviewed in Sections 1.1–1.4.

1.1. Profiles of non-recyclers and recyclers

The availability of an effective recycling infrastructure that enables householders to recycle their waste is clearly a crucial part of any recycling programme; but so too are the many other factors which motivate householders to make use of that infrastructure. Given that household recycling in the UK is a largely voluntary activity, understanding these other motivational factors is essential if recycling practice is ever to attain its full potential and become a part of everyday household routine—as Price (2001, p. 334) says: “the role of the Local Authority and actions of the householder are paramount to the success of sustainable waste policies”. Perrin and Barton (2001) note that the key link in increasing recycling rates is the householder; Belton et al. (1994) point out that not only is public participation in recycling essential but that there must also be a market for recyclables; some understanding of the public’s attitudes towards buying products made from recycled materials is therefore necessary. Whilst Thomas (2001) agrees that public participation is critical to the success of recycling, she also stresses the importance of how well that participation is performed.

Self-reporting of recycling behaviour tends to be exaggerated. Price (2001) reports that a survey in south Bedfordshire, England revealed that 83% of respondents claimed to be recycling, but studies of actual participation showed that at best only 50% were doing so on a regular basis; with the recycling rate for the area being only 3%, it would appear that participation was indeed very low. When Perrin and Barton (2001) studied participation in a kerbside scheme in Leeds, 98% of people surveyed before the scheme was implemented claimed that they would use it; in the event, only half actually did. Similar results were obtained by Williams and Kelly (2003), where actual participation in a recycling scheme in the Wyre, England was found to be only about half of what had been claimed by the potential users. Nor is the problem restricted to the UK: Chan (1998) studied the psychology of recycling behaviour in Hong Kong and found that whilst there was a high correlation between people’s professed attitude and their intention, the correlation dropped when compared to actual behaviour. These findings imply that figures in surveys for self-reported behaviour need to be treated with caution. The NOP (1999) survey, for example, quotes a figure of about 90% of people claiming to recycle; the figure from Burnley and Parfitt’s (2000) survey is about 80%. With England’s household-recycling rate being just over 12% (DEFRA, 2003a,b) and with households having the opportunity to recycle and compost over two-thirds of domestic waste (Waste Watch, 2003), clearly most people are not recycling comprehensively.

Knowledge of the reasons why people never recycle or, at best, only occasionally would enable scheme administrators to tailor the schemes more towards those householders who do not participate fully. Belton et al. (1994) identified the three main reasons for non-participation in the use of recycling centres in Glasgow to be a perception that the centres

were too far away, apathy and a lack of interest in recycling. Further investigation by Belton et al. (1994) of the first cause (distance) revealed that those giving this reason lived no farther away than the recyclers, implying that one of the other reasons was more likely to be the cause but the respondents felt uncomfortable admitting it. A similar survey of recycling centres by McDonald and Ball (1998) found that the chief reason given by the respondents for not recycling was a lack of local facilities, even though the survey was carried out next to local recycling centres. This lack of awareness fits in with one of the authors' other findings that the public's knowledge of the centres was overwhelmingly due to their visual presence, so only local people could be expected to possess immediate knowledge of the sites. Perrin and Barton's (2001) survey of two kerbside schemes found that the commonest reasons given for not recycling before implementation of the schemes were inconvenience/lack of time, distance to recycling centres and storage/handling problems. Presumably the kerbside schemes would obviate or at least mitigate most of these reasons; but when the authors studied participation levels after implementation it was found that with one of the schemes participation was only half that expected, suggesting that the other previously less important reasons of 'insufficient recyclables', 'too much effort' and 'apathy' had come to the fore. Both McDonald and Ball (1998) and Williams and Kelly (2003) identified a perceived insufficiency of recyclables as being the main reason for non-participation in the kerbside schemes they studied. McDonald and Ball (1998) speculated that the large size of the scheme's bins might have tended to dwarf small amounts of material rendering it insufficient in the eyes of the householder. In this particular case though, the material in question was paper, which could easily have been accumulated in the bin until the householder's threshold for a sufficient load had been exceeded, so perhaps once again there were other less obvious reasons for non-participation. Coggins (1994) notes that the 35% of non-recyclers in a survey in Sheffield cited inconvenience and a lack of facilities as the main barriers to their participation, with 'nothing to recycle' being much less important. A survey into the British public's attitudes to the environment by DEFRA (2002) found that the most likely reason for not recycling was the inadequacy of local facilities, followed by the facilities being too far away and a lack of storage space, a point echoed by over a quarter of respondents in Mee et al.'s (2004) study. The effort involved in recycling was cited by Burnley and Parfitt's (2000) survey as the commonest reason for not recycling, and that access to better facilities would encourage more non-recyclers to participate. An Environment Agency (2002) survey identified a lack of time as the barrier to recycling for 28% of non-recyclers (though other reasons for non-participation were not sought). And three-quarters of people surveyed by MORI (2002) said that they would recycle more if they had access to a kerbside scheme; yet the same survey also found that around a half the people who had access to such a scheme were unaware of it.

Just as understanding people's reasons for not recycling is important to improving participation, so too is the ability to identify any common socio-economic and demographic factors associated with non-recyclers. Socio-demographic characteristics, according to Coggins (1994), are directly implicated in recycling awareness and participation. McDonald and Oates (2003) claim that there is relatively little known about non-recyclers, partly because they are difficult to identify as a single group and also because they may be reluctant to admit to not recycling. Belton et al. (1994) found that non-recyclers tended to be younger people in lower socio-economic groups. People in the 25–44 age-group were cited by Williams

and Kelly (2003) as the lowest recyclers, perhaps due to their familial commitments. Chinese females were found to be less enthusiastic recyclers than males by Chung and Poon (1999, 2001), something the authors attributed to the tendency for women in China to be responsible for household waste disposal and thus having to shoulder the burden of recycling. The same authors also found that, in contrast to Belton et al.'s (1994) finding of lower socio-economic status being linked to non-recycling, in China this group of people recycled most because they were able to benefit financially from selling the recyclables. Various surveys in Britain have concluded that non-recyclers tend to be younger (DEFRA, 2002; Environment Agency, 2002; NOP, 1999), less affluent (NOP, 1999), live in rented accommodation (DEFRA, 2002; Environment Agency, 2002; NOP, 1999) and do not run a car (NOP, 1999). MORI (2002) noted that ethnic minorities tended to recycle less – Coggins (1994) found the same in Luton – but that the tendency could be due more to lower affluence than any racial characteristic. The same survey also made the point that the lower socio-economic groups tended to devote less effort towards recycling simply because they had more pressing needs due to economic and social deprivation.

The profile of recyclers and their reasons for doing so might be expected to be the opposite to those of the non-recyclers. Perrin and Barton (2001) cite environmental concerns as the main reason for participation, with convenience being next in importance. They also state that the more mature, the more affluent, the better-educated and home-owners are more likely to be recyclers. The users of recycling centres in Glasgow were generally older and belonged to higher socio-economic groups according to Belton et al. (1994), but as their surveys were undertaken mainly during weekdays when most younger people might be expected to be at work, etc., this result is not entirely surprising. However, a similar survey by McDonald and Ball (1998) which included evenings and weekends also highlighted a bias towards older, 'economically inactive' people using the recycling centres. In contrast, McDonald and Ball's (1998) study of a kerbside scheme revealed no discernable difference in the age, socio-economic status or household size of the participants. Vencatasawmy et al. (2000) identified the recyclers at 'bring' sites in a small town in northern Sweden as more likely to be married, without children, retired, more affluent, owner occupiers, well educated and concerned for the environment. Tucker et al. (1998) reviewed a range of literature and noted that, whilst the results about socio-economic factors were equivocal, there was a tendency for recyclers to be older, better-off, better educated and living in single-family dwellings without children. (Whilst this latter point about an absence of children implies a less busy lifestyle and therefore more time to recycle, Coggins's (1994) findings in Sheffield were the opposite in that young families there were the most likely recyclers, perhaps because of filial pressure to do so.) Notwithstanding Coggins's (1994) survey, there is no disagreement with these general findings in the British surveys by Burnley and Parfitt (2000), DEFRA (2002), MORI (2002) and NOP (1999), though the MORI survey did note a tendency for recycling to be more the preserve of women because, as Chung and Poon (1999, 2001) found in China, they are more likely to be in charge of domestic waste management.

1.2. Psychological influences on recycling attitude

The profiles just painted of non-recyclers and recyclers are, of course, very broad generalizations: there are many people who do not fit into these convenient pigeon holes and thus

other factors must also be at work in determining the extent of participation in recycling. To investigate the range of influences involved whenever individuals choose to participate or not in recycling, Barr et al. (2003) posited a framework for recycling behaviour based upon three groups of factors: environmental values, situational variables and psychological variables. The first relates to an individual's environmental beliefs and whether or not the activity accords with those beliefs. Factors that enable and facilitate the activity, e.g. scheme design, socio-demographics and prior knowledge and experience of the activity, comprise the second group. The third group is formed from the many psychological factors which influence motivation, including social norms, response efficacy (a belief that the individual can make a difference), self-efficacy (belief in one's ability to succeed), any perceived threat posed by not acting, personal satisfaction, altruism and citizenship. Thus, the basic intention to act stems from an individual's environmental beliefs, but whether or not that behavioural intention proceeds to actual behaviour will depend upon the modifying effects of the situational and psychological factors (though these two groups of factors can also initiate behaviour directly). The authors tested their model on a sample of households in Exeter and found that it was effective in profiling attitudes to recycling, even though very few of the factors were implicated: access to kerbside recycling, general knowledge of local waste services, a large house, convenience, the norm to recycle and concern about waste management issues were the main factors influencing participation (Barr et al., 2003). Barr et al.'s (2003) framework, however, appears to place too much emphasis on environmental values as the main initiators of intention, relegating the situational and psychological factors to "extraneous parts of the framework" (Barr et al., 2003, p. 410). It seems more likely that any of the factors could be responsible for initiating intention, given the right stimulus: as Chung and Poon (1999) in China and Hernández et al. (1999) in Ecuador found, economic incentives to sell recyclables can be a powerful motivator for those on low incomes.

Another attempt at analysing recycling behaviour was undertaken by Chan (1998) in Hong Kong. It was based upon Ajzen's Theory of Planned Behaviour (TPB) (as was Barr et al.'s, 2003), which states that actual behaviour is a result of personal attitude, social norms and 'perceived behavioural control' (PBC), this latter term encompassing many of the situational and psychological factors in Barr et al.'s (2003) model. Chan (1998) found that personal attitude (based upon the individual's perception of the activity being right/wrong, good/bad, useful, desirable, pleasant and interesting) was by far the most important determinant of behaviour, with PBC and social norms much less so. Tonglet et al. (2004) also used the TPB to test recycling intentions and behaviour, but they found that its three components could not adequately explain such behaviour unless the respondents' past experience of recycling and their perception of its morality and consequences (costs/benefits) were also incorporated in the model. Their conclusion was that a pro-recycling attitude is the main contributor to recycling behaviour (Tonglet et al., 2004). Chan (1998) speculated that social norms were not important in recycling behaviour because there is little or no social cost to individuals in not participating; but her study concerned 'bring' site recycling, whereas Barr et al.'s (2003) research, which found that social norms *were* important, involved kerbside recycling, where the visual indication of not participating is much higher. This same point has also been noted by Tucker (1999), who found that for social norms to be influential in recycling behaviour, the visibility of the behaviour had to be high. Normative influences, he went on, also needed to be triggered by a critical mass of participants before they became

operational, and that even then they served mainly to increase the frequency of participation (the evidence) rather than increase the overall amount of materials collected. When Lober (1996) was researching waste minimization, he noted that because the ‘activity’ provided no visual or material evidence, it too was subject to low normative influences.

1.3. Recycling scheme design

A considerable body of relatively recent research on recycling scheme design has shown that:

- There is no single, ideal design for such a scheme and the characteristics and needs of the community should dictate the scheme’s design (Noehammer and Byer, 1997; Williams and Kelly, 2003).
- There are regional and local variations in the quantity and composition of household waste which have a bearing upon the performance of recycling schemes (Price, 2001).
- An integrated view of all waste diversion activities must be taken as the local context is important and that any successful change in the design of one scheme may not necessarily be replicable elsewhere (Tucker et al., 2000).
- Important design variables of a kerbside recycling-scheme are: whether participation is mandatory or voluntary, the range of materials collected, the degree of sorting required, whether the collection container is provided free of charge, the collection frequency, collection day, whether financial incentives are available and the type of publicity and promotion employed in advertising the scheme (Noehammer and Byer, 1997).
- Rigid containers appear to be more convenient and produce higher recovery rates than sacks (Everett and Peirce, 1993) and the introduction of wheeled bins has led to an increase in general waste volumes (Price, 2001).
- Mandatory schemes generally achieve higher participation rates than voluntary ones, though the provision of free containers and degree and costs of enforcement are important factors and *well-designed* voluntary schemes can still achieve comparable results to mandatory ones (Everett and Peirce, 1993; Noehammer and Byer, 1997). However, Jenkins et al. (2003) found no difference in the amount of recyclables collected from mandatory and voluntary schemes in the USA.
- The amount of effort demanded from the householder for recycling will increase with the degree of sorting and preparation of materials prescribed by the scheme, with binary sorting, i.e. separation of recyclables from non-recyclables, being more popular than multi-sorting, i.e. separating different recyclables (Bruvoll et al., 2002; Chung and Poon, 1994; Noehammer and Byer, 1997).
- Reducing the range of recyclables collected can not only lead to greatly reduced costs but also a slight increase in recovery; conversely, an increase in the range can produce lower diversion due to the increased complexity of the scheme to the householder (Thomas, 2001).
- Reducing the collection frequency can reduce costs without necessarily having a huge impact upon recovery (Tucker et al., 2000; Woodard et al., 2001). Like Noehammer and Byer’s (1997) study, Everett and Peirce’s (1993) findings point to a slight gain in recovery when the collection frequency is increased, perhaps because the householder has

an increased opportunity to recycle material that would otherwise have been discarded due to a lack of storage space. More recent research suggests that alternative collections of residual wastes and recyclates appear to increase both recycling and set-out rates (Wilson and Williams, 2005).

- Whether or not the collection day for recyclables and general waste is the same appears, according to Noehammer and Byer (1997), to make no difference to participation rates, though Everett and Peirce's (1993) study detected a small increase in recovery when collection days were dissimilar. It could be argued that same-day collections reduce the burden on the householder for remembering which day to recycle and should, therefore, increase recovery because a missed collection could result in recyclables being discarded with general waste. Alternatively, different-day collections serve to differentiate the two waste streams and help prevent contamination through co-mingling. Either way, though, if the collection authority is operating split-compartment vehicles necessitating same-day collection, the point is academic.

These findings show that there is a clear need for new and existing municipal recycling schemes to learn from previous studies and to be carefully matched to the needs of the local community. Williams (2005) has argued that LAs should be required to produce Municipal Waste Management Strategies via a two-stage process that focuses on *operational issues* based upon the strategic aims already developed and published by central Government and that central government should develop tools to assist local authorities to evaluate and select their strategic waste management options (e.g. decision-making software) and produce implementation plans.

1.4. Economic incentives

Noehammer and Byer (1997) came to no firm conclusion about whether economic incentives affect recycling participation, though they acknowledge that the literature generally links increased participation to paying for disposal. Hong (1999), reporting on the implementation of a unit-pricing system for waste disposal in Korea, found that after adoption of the scheme, waste generation reduced by nearly 18% and recycling – which was provided free of charge – was up by nearly 27%. However, unit pricing often leads to increased fly tipping and illegal burning, and volume-based systems may be less effective at promoting recycling than weight-based ones because of the opportunity to compact all waste into the general waste bin. Chung and Poon (1994) found that in Hong Kong the less well-off were more responsive to charging (and so recycled more) than the better-off who could more easily afford to pay for waste disposal rather than adopt recycling. A similar conclusion was reached by Jenkins et al. (2003) in the USA where they found, perhaps unsurprisingly, that the cost of disposal to affluent people was not a significant determinant of recycling intensity. A contingent-valuation survey by Lake et al. (1996) into how much the residents of an English village were willing to pay for a kerbside scheme yielded a figure of about £ 3/month. This finding has to be treated with caution, however, as it is easy for people to propose some notional payment while not actually parting with any money: had the residents been asked to volunteer both an acceptable fee *and* a cheque for that amount as an advance payment, the result may well have been different.

In the UK, charging for waste disposal by volume has been mooted at least twice as a replacement for flat-rate charging (in the government's consultation paper *Less Waste, More Value* (DEFRA, 1998) and in *Waste Not, Want Not* (Strategy Unit, 2002)). In both cases, though, the idea was dropped for fear of electoral unpopularity and problems with dumping of waste in cheaper areas, fly tipping and backyard burning (ENDS, 1998; Vidal, 2003). A survey conducted by NOP (1999) found that 57% of people in Britain were in favour of charging for waste disposal by volume; yet subsequently only 6% of people in the same survey correctly estimated the costs of waste disposal per household at about £ 50/year, suggesting that 94% of respondents had insufficient information on which to make a reasoned judgement concerning the previous question about charging for disposal. Another survey by Burnley and Parfitt (2000) found that variable charging for waste disposal was unacceptable to two-thirds of people in Britain, and 53% of people thought that it would be unfair to charge in this way; but 71% of people also admitted to not knowing how much of their Council Tax went towards waste disposal.

The issue of pay-as-you-throw (PAYT) charging was investigated more thoroughly by the Environment Agency in their household-waste survey (Environment Agency, 2002). It found that 58% of people in England and Wales were opposed to PAYT and that if such a system were implemented it would result in a recycling participation level only slightly more than that *claimed* from having full access to kerbside recycling without charging. However, as only 9% of respondents admitted to be already using kerbside schemes, even though 58% of English households at the time had access to them (DEFRA, 2003b), these findings must be viewed with some scepticism. Perhaps the most illuminating analysis of PAYT was undertaken by MORI (2002) through a series of focus groups across England. Initial reactions to the subject were unanimous in rejection because of an almost instinctive perception of the charge being in addition to that already paid through the Council Tax. The idea, however, became more acceptable once it was realized that the flat-fee within the Council Tax would be rebated and full recycling services would be implemented in order that everyone had the opportunity to reduce their costs (MORI, 2002). None of the other surveys cited mentioned whether the respondents were given any background information in order that they could make a more informed choice. In another twist to the PAYT debate, Perrin and Barton (2001) found that residents' acceptance of variable charging prior to implementation of a kerbside scheme was far higher than after implementation, a fact the authors attribute to a realization by the participants of the unacceptable amount of effort needed to undertake recycling in order to offset PAYT charges. Despite this general reluctance to embrace PAYT, Price (2001) maintains that it has been successful in raising recycling rates in the USA and Europe, and that PAYT is no different to how other household services like gas and electricity are already charged.

1.5. Publicity and promotion

The implementation of recycling schemes must be accompanied by sufficient publicity and promotion in order to educate the participants (householders) about how and when to use them. Publicity and promotion may make use of various media: adverts in the local press and on radio, leaflets delivered to households, public consultation meetings and personal contact with individual householders. Costs, however, will almost certainly dictate which methods

are employed, with leaflet drops and adverts in the local press being among the cheapest and simplest to administer; but whether their message is even received, let alone understood, is open to argument. [Read \(1999\)](#) notes that despite extensive publicity over many years for a kerbside scheme in Kensington and Chelsea, many residents claimed to have seen none, which, he says, supports the theory that mailshots are often discarded unread as junk mail. When [McDonald and Ball \(1998\)](#) investigated participation in a ‘bring’ scheme in Glasgow and a kerbside scheme in Falkirk, they noted that the promotion of the kerbside scheme by a leafleting campaign to all participating households was judged to have been highly successful on the basis that the scheme performed well and was well understood by the residents. In contrast, adverts in the local press intended to raise awareness of the Glasgow scheme appear to have made little impression on the public and that the visual impact of the sites themselves seemed to have been the best advert. A similar conclusion was reached by [Belton et al. \(1994\)](#) concerning the futility of newspaper adverts for a ‘bring’ scheme in Glasgow—84% of users had learnt of their existence simply by seeing the sites.

Whilst effective publicity and promotion are essential to a new recycling scheme’s performance, so too is the need to reinforce regularly the recycling message to a perhaps jaded public who probably receive little or no tangible reward for their voluntary effort. [Williams and Taylor \(2004a,b\)](#) have highlighted that feedback from user surveys conducted locally has an important role to play in providing practical assistance to the development of improved sustainable waste management strategies. [Perrin and Barton \(2001, p. 73\)](#), commenting on a kerbside scheme in Bradford, point out that the “importance of education, information and feedback to the participants cannot be underestimated” and that a letter sent to all scheme members 3 months after launch informing them of their performance resulted in a number of new participants being recruited and increased recovery from the existing members. In order to stimulate better performance from a flagging kerbside scheme in Kensington and Chelsea, [Read \(1999\)](#) noted that the local council was forced to embark upon a door-to-door promotional campaign because conventional publicity by leaflets and newspaper adverts had failed to make an impression. The recycling roadshow, as it was called, though managing to interview only about 12% of households in 6 months, did succeed in raising the recycling rate from 9% to 11% ([Read, 1999](#)). In a study reported by [Mee et al. \(2004\)](#), Rushcliffe Borough Council in the UK embarked on a major marketing and communications strategy in order to promote its kerbside scheme. A concerted campaign involving mail shots, roadshows, the Internet, questionnaires and focus groups succeeded in raising the recycling rate from below 10% to nearly 50%.

Apart from the publicity and promotion of specific recycling schemes, more general education and information about the broader issues underlying waste management are required in order to apprise the public of the necessity for, and the benefits from, the acceptance of a wider responsibility towards waste disposal. The National Waste Awareness Initiative ([NWAI, 2000](#)), a UK public body tasked with raising awareness of waste management in the population, stated that a key aspect of educating the public on such matters is improving their knowledge of what happens to their waste once it leaves their property. An [NOP \(1999\)](#) survey into what British people think about waste found that only 36% ever considered the subject and only 30% knew that the majority of their waste went to landfill. A similar survey by [Burnley and Parfitt \(2000\)](#) concluded that only 47% of the British public knew the destination of the majority of their waste, with the rest either not knowing (37%) or giving

the wrong answer. However, an [Environment Agency \(2002\)](#) survey found that only 22% of people in England and Wales did not know that their waste went to landfill; but unlike the other surveys, whose questions specified the *majority of waste*, this survey asked simply about *waste*—a less specific and less difficult question which may have accounted for the higher proportion of correct answers. Focus-group research by [MORI \(2002\)](#) concluded that there is a significant information gap concerning the destination of household waste and that the subject is largely considered as ‘out of sight, out of mind’.

1.6. Cultural factors

Cultural factors are important in determining whether people participate in recycling ([Nwai, 2000](#)), with a ‘culture of convenience’ being prevalent throughout UK society; because people feel continually time-starved, recycling goes against the grain by requiring additional effort to sort and store waste in separate containers. Many people perceive domestic tidiness to be more important than recycling when faced with the choice of storing recyclables or discarding them immediately along with the general waste ([MORI, 2002](#)).

Manufacturers have responded to this culture of convenience by supplying disposable goods and others with built-in obsolescence, this latter feature driven on by the frantic pace of technological change, which, ironically, many assume will also provide a solution to the growing mountain of waste ([Nwai, 2000](#)). The [Nwai \(2000\)](#) survey found that many people felt powerless to do anything about waste issues and assumed that if shops were *allowed* to sell over-packaged goods then it must be acceptable to buy them; that their (the public’s) payment of taxes absolved them of the responsibility to cramp their lifestyles by consuming less. This feeling of powerlessness was, however, not shared by respondents to the [MORI \(2002\)](#) survey: it found that recycling was one of the few activities where people felt that as individuals they could make a difference; though an unfortunate corollary was that they also thought that waste minimization was less important than recycling, implying that it was acceptable to continue with unregulated consumption provided that the goods could be recycled once discarded.

1.7. Case study

It is clear from the material reviewed in Sections 1.1–1.6 that despite a considerable body of research, many questions about key social, cultural and structural influences on recycling activities remain, particularly the influence of attitudes on participation; provision and awareness of local waste-related services; socio-demographic, financial and ethnic factors. This study was carried out in the Borough of Burnley, a relatively deprived town (as indicated by the English Indices of Multiple Deprivation (IMD)) in east Lancashire (see [Fig. 1](#)). The IMD combines information relating to income, employment, education, health, skills and training, barriers to housing and services and crime into an overall measure of deprivation. A score is calculated for each area with a low score indicating greater deprivation; according to the 2004 English Indices of Multiple Deprivation, Burnley has an overall rank of 37 out of 354 local authorities ([ODPM, 2004](#)). Burnley has a population of 90,000 people living in forty thousand properties, the majority terraced. In 2001/2002, the Borough recycled 6% of its 30 kt of MSW arisings ([Burnley Borough Council, 2003b](#)).



Fig. 1. Regional household waste recycling rates in England for 2001/2002 (DEFRA, 2003b).

and had just started two pilot kerbside recycling schemes collecting paper, cans, plastics, cardboard and textiles (though not glass or green waste) in plastic sacks on a fortnightly basis. By March 2003 the recycling rate had risen to almost 9% (Burnley Borough Council, 2003a). In May 2003, a new fortnightly scheme was introduced to collect green waste in wheeled bins from 10,000 households in the Borough; by the time of this survey in August 2003, the dry recyclables pilot schemes covered the vast majority (98%) of the Borough's households. The pilot scheme that had collected cans, plastics, cardboard and textiles was replaced in November 2003 with a blue-box scheme collecting just glass and cans from all households in the Borough every 2 weeks.

The study aimed to establish whether:

- householders' attitudes towards recycling influenced participation and hence contributed to Burnley's generally poor recycling performance, compared to national recycling rates;
- other factors, such as provision of recycling facilities, socio-economic status, demography or ethnicity, influenced recycling behaviour, and whether these factors were inter-related;
- the local Council could provide a better waste disposal service for their population.

Attention focused on attitudes to recycling amongst Burnley's ethnic minority population because data from the Borough's Waste Management department indicated that recycling rates were very low in areas with a large ethnic minority population (Burnley Borough Council, 2003a), and this group is over-represented in the Borough compared to national

rates (7.2% versus 4.6% nationally (ONS, 2003)). If poor recycling performance can be attributed to a specific group's behaviour, then measures to change this might address the problem.

2. Experimental methods

2.1. Questionnaires

A self-completion postal questionnaire was administered to 360 households randomly selected from the Borough's electoral register during August 2003. The questionnaire was divided into five sections that requested information regarding general social and environmental attitudes, awareness of current waste disposal options, willingness to participate in a recycling scheme, preferences for that scheme, an evaluation of the Borough's recycling facilities and the householder's current disposal practices and buying habits; a sixth section enquired about socio-economic and demographic details. Respondent behaviour was largely determined using closed questions and simple tick box options. Environmental attitudes were measured using Likert Scales that typically ranged from 1 to 5, with the respondent choosing a number to indicate the degree of, say, agreement/disagreement with a given statement, i.e. 1 = strongly disagree and 5 = strongly agree; this approach was chosen after careful piloting. It was originally planned to send versions in Urdu and Bengali to Asian–British households, but advice from local community workers (Slaughter, 2003) was that this would not be particularly successful as few local Asians could read in their native languages. Participants' responses were coded to allow the data to be stored, retrieved and analysed.

2.2. Interviews

Group interviews were used to access the views of the local Asian–British population. This approach was taken because local community workers (Slaughter, 2003) thought that the questionnaire would produce little response from ethnic minorities due to the 'closed' nature of the local Asian–British communities. Accordingly, group meetings were set up at five community centres; an interpreter was employed where necessary. The interviews were recorded by hand.

Focus groups were assembled by invitation via the postal questionnaire. It was intended that two groups, one for recyclers and one for non-recyclers, would be held in order for the participants "to feel comfortable with each other" (Gibbs, 1997). The proceedings were tape recorded and subsequently transcribed into electronic documents.

3. Results and discussion

3.1. Background

A total of 120 usable questionnaires were returned—a response rate of 33.3%. Based upon socio-economic indicators such as Council Tax banding and property type, a profile of

the sample and the returns indicated that they were generally representative of the Borough as a whole.

3.2. Attitudes towards recycling

The responses to this open question were so varied that they were coded as either a positive or negative attitude towards recycling. Overall, >70% had a positive attitude and only about 3% a negative one, though a quarter of respondents made no comment. Typical positive comments were: “Future depends upon it”, “More needs to be done” and “Good idea if well done”; while negative comments included: “Not important enough to think about”, “We pay taxes, therefore it is the Council’s responsibility”, “Takes too much time” and “Lack of storage space”. Contrary to other surveys where the environment was cited as the most popular reason for recycling, only six people (5%) mentioned it without prompting.

Nearly a third of people reported wanting to recycle a greater range of materials; about a quarter of respondents thought that recycling centres were too far away. This view is unsurprising, as half of the 14 recycling centres in Burnley are concentrated within the town centre, leaving none for virtually all of the western side of the town.

The preferences for kerbside collection, shown in Fig. 2, were generally contrary to those of the schemes in operation at the time of the survey, i.e. they collect a plastic sack fortnightly on a different day to the normal collection, whereas the preferred option is for a wheeled bin to be collected weekly on the same day. This illustrates the importance of thorough public consultation before a scheme is implemented.

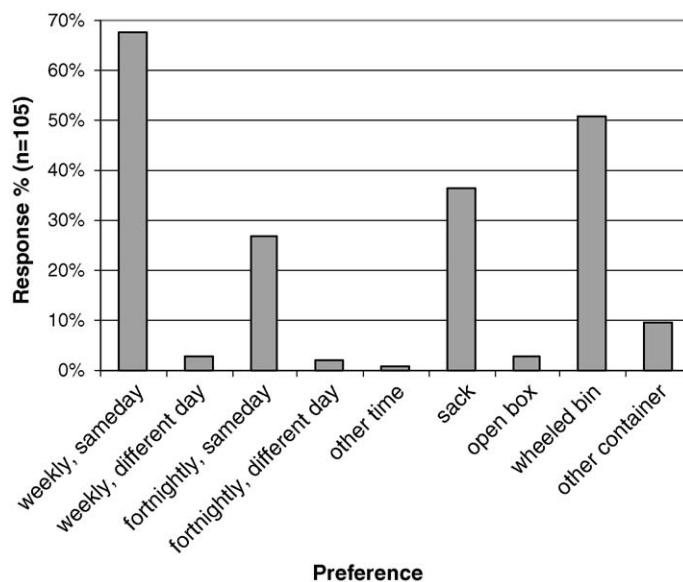


Fig. 2. Preferences for a kerbside-collection scheme in Burnley.

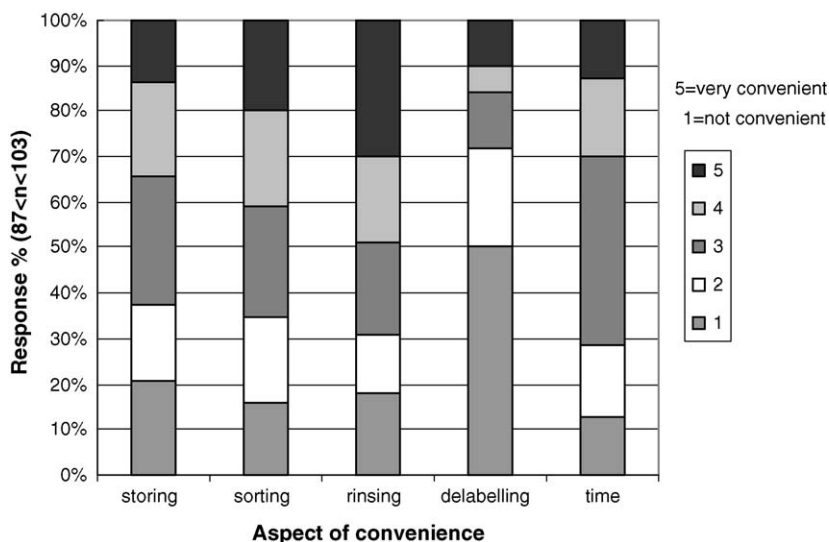


Fig. 3. Ratings of five aspects of recycling convenience in Burnley.

When asked about the convenience of processes involved in recycling household wastes, storing, sorting and rinsing were all rated fairly evenly between inconvenient and convenient (see Fig. 3), although the respondents seemed to be either equivocal or indifferent about the time taken. Removing labels from cans and bottles, on the other hand, was rated as very inconvenient by half the respondents and inconvenient by a further fifth.

3.3. Charging for waste disposal

There was a very strong rejection of the idea of being charged for the disposal of all wastes, but a less pronounced dismissal of a charge for just non-recycled waste (see Fig. 4). No background information was given concerning exactly how the charge would operate, i.e. whether by weight or volume, or how much would be rebated from the Council Tax in return for PAYT charging, so these figures represent ‘knee-jerk’ responses and show that there was significant opposition to charging for a service which has historically been considered as ‘free’ (subsumed within local taxation). Perhaps surprisingly, being rewarded for recycling did not produce such a polarized response, possibly reflecting the affluence of these respondents (for whom a reward would be trivial) or the lower proportion that actually recycles and would therefore benefit.

3.4. Rating services provided by Burnley Council

The respondents were asked to rate aspects of the waste management services provided by the Council using a five-point scale ranging from 1 (very poor) to 5 (very good). The results, summarised in Fig. 5, show that, in general, the public were barely satisfied with the service provision.

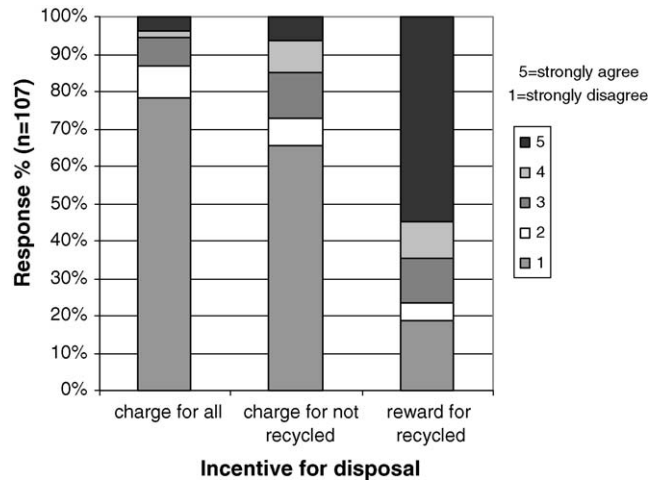


Fig. 4. Ratings of incentives for waste disposal in Burnley.

The provision of replacement recycling bags was rated poorly by over 70% of respondents, a not unexpected finding given that householders were unable to obtain bags from the collection teams but instead had to pick them up from the Cleansing Department in person or order them by phone. A surprising finding was that the collection day (fortnightly on a

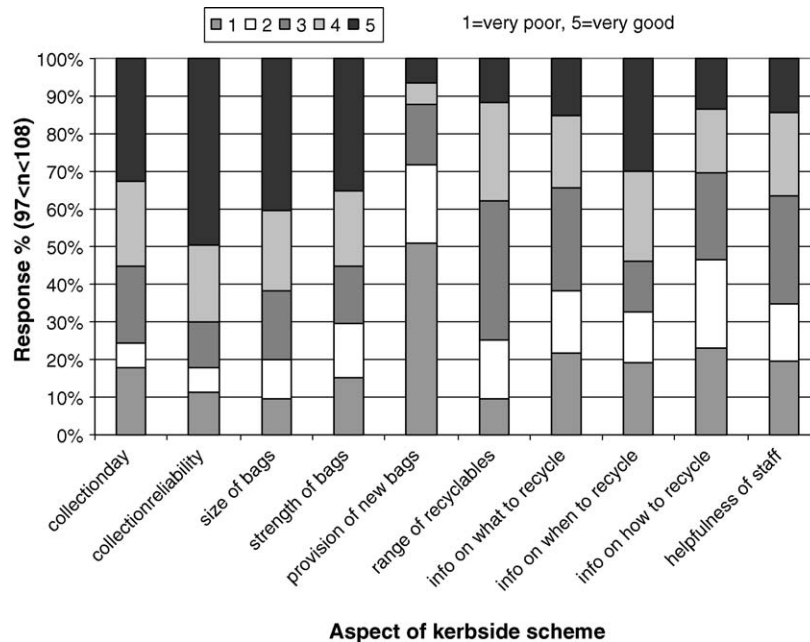


Fig. 5. Ratings of various aspects of Burnley Council's kerbside schemes.

different day to the normal collection) was rated very highly by more than half the respondents, even though nearly 70% expressed a preference for a weekly, same-day collection in a previous question. Just over 70% of people appeared to be satisfied with collection reliability, but nearly half the respondents were dissatisfied with the information provided by the Council on how to participate in the schemes. A leaflet containing information on what, when and how to recycle was delivered to every household in the scheme, but perhaps this illustrates the importance of learning from current best practice and involving the public more in the piloting of publicity and promotion.

3.5. Participation in recycling

Reported involvement in recycling paper, glass, plastic, cans and cardboard was used to estimate three levels of recycling participation: *non-recyclers* (those who recycled no items), *casual recyclers* (those who recycled between 1 and 4 items) and *full recyclers* (those who recycled all five). Over half (55%) the respondents were casual recyclers, less than a third (27.5%) were full recyclers and 17.5% recycled nothing at all.

The kerbside schemes in operation at the time of the survey collected all the items in Fig. 6 except glass, plastic packaging, books and shoes, though the results indicate that some people were disposing of these excluded items via the schemes, perhaps in error or as a hint to the Council that it should be collecting them. The results indicate that a significant number of people – about half – were not recycling as much as they could, particularly glass, plastic bottles and cans. Although there was a marked preference for the kerbside schemes over recycling centres, the recycling of glass (excluded from the schemes) is no

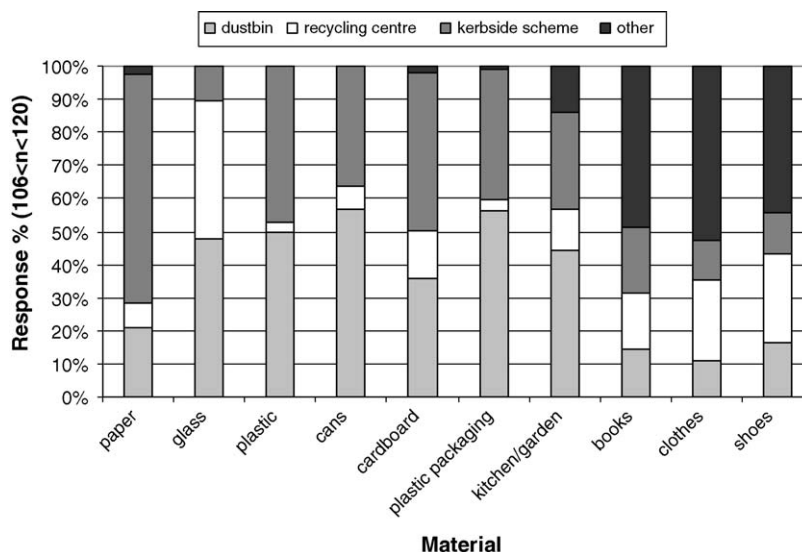


Fig. 6. Current disposal practices for a range of household waste in Burnley.

worse than for some of the kerbside materials, suggesting that the convenience of kerbside recycling is not necessarily a major factor in recycling participation.

Paper was the item most recycled, perhaps because of its long history as an item of charity recycling or simply because, as noted by Perrin and Barton (2001), it is an easy item to recycle as it requires no preparation or bulky storage; it is also associated most in the public's mind with environmental concerns for saving forests (MORI, 2002). The paper collection was also a separate scheme to that of the other recyclables, so its performance, e.g. collection reliability, might be a factor.

A more detailed breakdown of recycling behaviour by casual recyclers is presented in Fig. 7. Paper was by far the most popular material for the lowest participating recyclers, accounting for 80% of single-item households, which may once again demonstrate its ease of recycling; conversely, cans are recycled least, reflecting perhaps, as Perrin and Barton (2001) point out, that these items are often generated during busy periods, e.g. food preparation, and as such are disposed of quickly and conveniently in the kitchen bin. Figures from Burnley Council (2004) tend to support these findings: in 2002/2003, of the roughly 3000 t of materials recycled, nearly 2000 t were paper collected from the paper scheme, while only 341 t were cans, plastics, card and textiles from the other kerbside scheme. This predominance of paper (66%) – or dearth of the other materials – is further illuminated when contrasted with the amount of paper *and* card recycled nationally—31% (DEFRA, 2003b).

Multivariate analysis was performed in order to ascertain any inter-relationships between the responses, e.g. whether there is an association between recycling participation and socio-economic factors. The relevant variables are displayed on bar charts in order to display any associations between them, with the overall proportions in the sample shown as a reference.

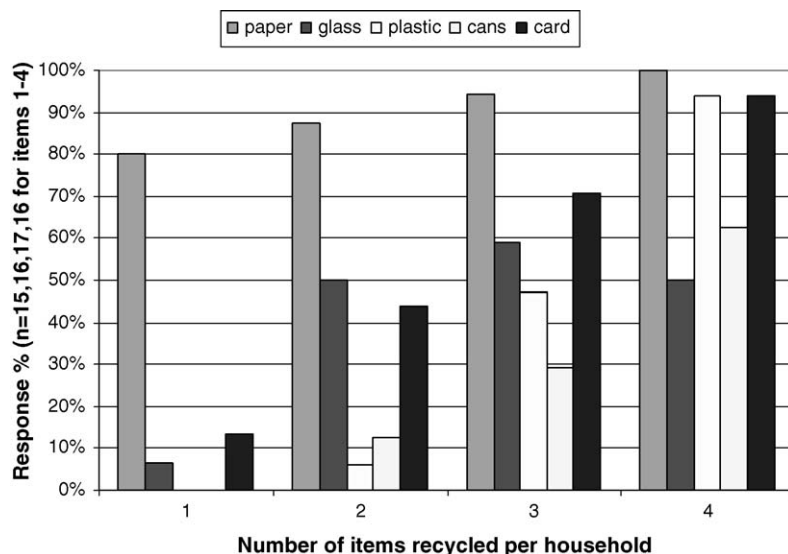


Fig. 7. Materials being recycled by casual recyclers in Burnley.

It should be noted that the use of χ^2 to test for statistical significance is limited by the minimum requirement of at least five expected values per cell in the contingency tables not being met on many occasions despite collapsing cells as recommended by Rees (1995). On these occasions, ascertaining inter-relationships relied solely upon the chart observations.

3.5.1. Recycling participation versus socio-economic and demographic status

From Fig. 8 it can be seen that there is a slight tendency for full recyclers to come from retired households and those in higher Council Tax bands, while non-recyclers tend towards the lower tax bands. By combining tax bands A&B and C–F, χ^2 analysis revealed a probability of about 85% for an association between recycling participation and these two combined tax groups, though this result is not statistically significant at the 95% level. Full recyclers are more likely to live in semi-detached and detached properties (see Fig. 9); households with young childless occupants and families with children are more likely to be non-recyclers. χ^2 analysis indicated an 81% probability for an association between recycling participation and the two household groups comprising: (a) ‘young without children’ & ‘families with children’ and (b) ‘middle-aged without children’ & ‘elderly’. Casual recyclers on the whole tended to conform to the overall sample without any bias either way. These findings concur with those from the literature, i.e. recyclers are more likely to be affluent and retired, while non-recyclers tend to be less affluent, younger or have young children. McDonald and Ball (1998) speculated whether recycling participation was linked to family size on the basis that if recycling propensity were spread evenly throughout the population, larger families might be expected to participate more; however, neither their survey nor this one supports that notion.

3.5.2. Recycling participation versus convenience of recycling

Fig. 10 shows how the respondents rated the convenience of five factors associated with recycling: storing, sorting, rinsing, de-labelling and time taken. The non-recyclers rated storing and sorting waste as fairly inconvenient, much more so than the recyclers, suggesting that they live in smaller properties with less storage space. As 16 of the 21 non-recyclers answered the question about rating the kerbside schemes, it implies that they are lapsed recyclers who became disenchanted with recycling and that issues with storage and sorting may be implicated. The full recyclers tended to give the highest ratings to most of the five convenience factors, implying that their circumstances (e.g. availability of space and time) supported the activity; while the non-recyclers, unsurprisingly, generally gave the poorest ratings. A strange anomaly is that the casual recyclers disliked de-labelling so much more than the rest: perhaps this group tended to recycle more labelled items like cans and jars than other items.

3.5.3. Recycling participation versus incentives for waste disposal

The respondents’ ratings of incentives for waste disposal are shown in Fig. 11. Whilst there is a general dislike of charging for all disposal, the idea becomes more acceptable as recycling participation increases, perhaps because the full recyclers are more affluent and would be more able to afford it. Charging for just non-recycled waste is understandably resented most by the non-recyclers, whose attitude is little changed from that of charging for

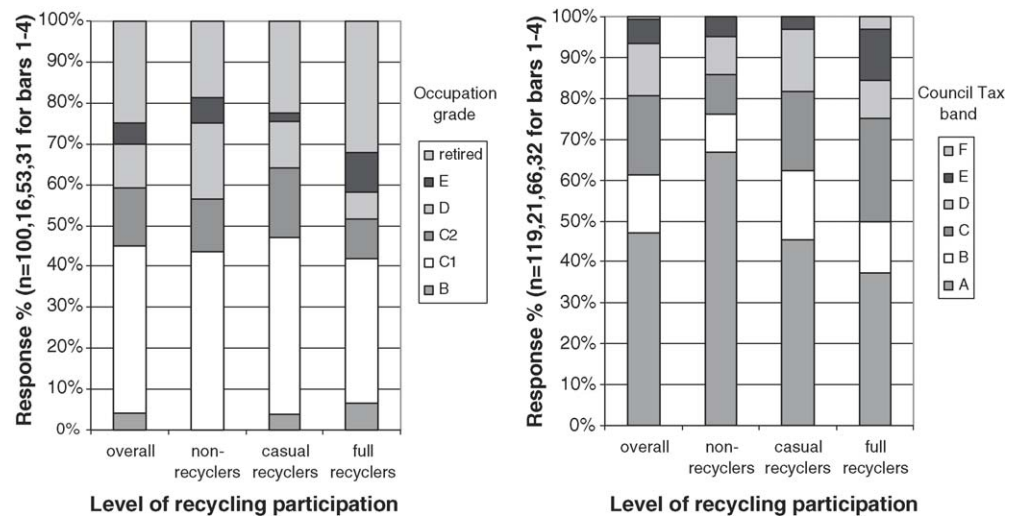


Fig. 8. Recycling participation vs. household occupation (left) and Council Tax (right).

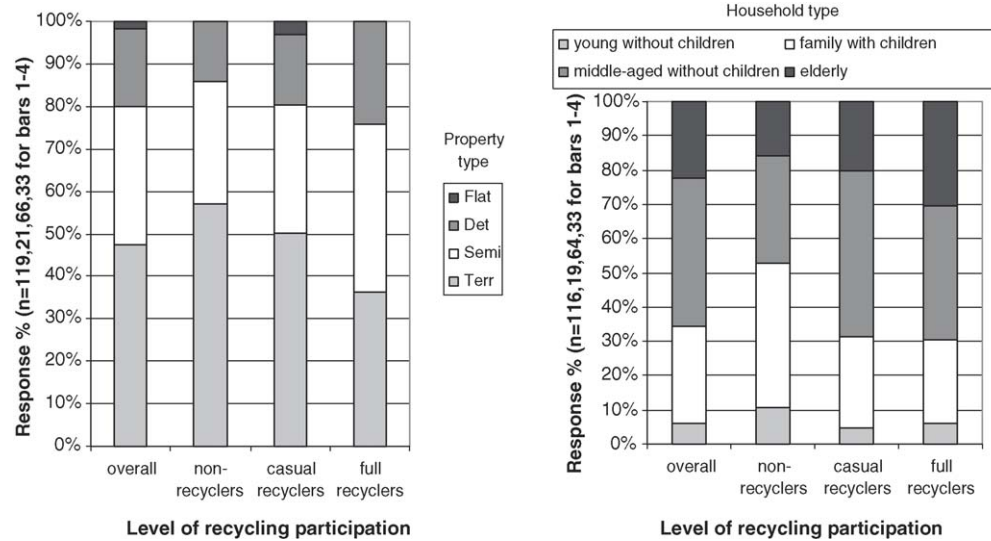


Fig. 9. Recycling participation vs. property type (left) and household type (right).

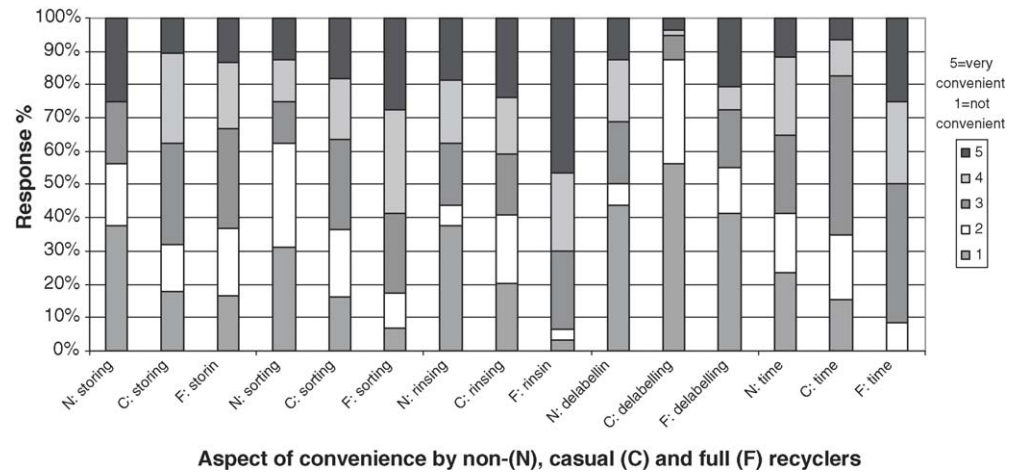


Fig. 10. Rating of five factors of recycling convenience by non- (N), casual (C) and full recyclers (F).

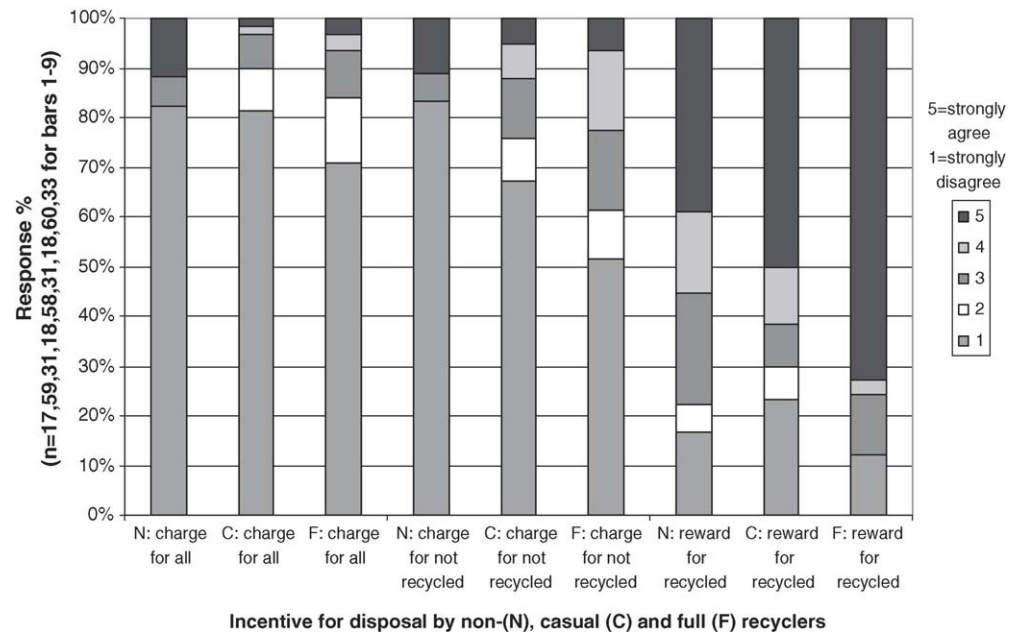


Fig. 11. Rating of three incentives for disposal by non- (N), casual (C) and full recyclers (F).

all waste, probably because they would not be in a position to offset their costs by recycling; conversely, the full recyclers may be least against it because they can reduce their charges the most, although their resistance may have been hardened because they resent the effort involved in order to reduce their costs (Perrin and Barton, 2001). This pattern is repeated concerning a reward for recycling, i.e. the degree of potential benefit corresponds roughly with recycling participation. Applying χ^2 analysis to grouped ratings 1–3, 4 and 5 gave a 73% probability for a correspondence between recycling participation and a reward for recycling.

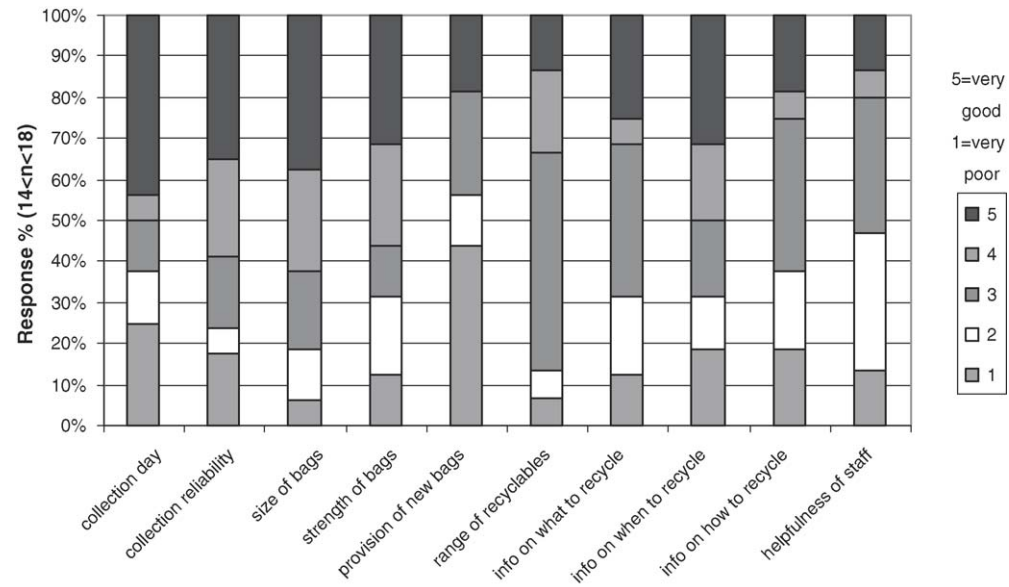
3.5.4. Recycling participation versus rating of kerbside schemes

Figs. 12–14 show the respondents' rating of the kerbside schemes. Despite being non-recyclers, many of that group (76%) completed this part of the questionnaire, suggesting that they have in the past participated in the schemes. As can be seen from the non- and casual recyclers' responses (Figs. 12 and 13), there is not that much difference between the two groups, implying either that other reasons than those shown are responsible for causing the erstwhile recyclers to cease participating or that the casual recyclers may be close to lapsing. The full recyclers (Fig. 14) appear to be much more satisfied with the schemes judging by the greater number of 'very good' and 'good' responses, particularly for the collection reliability, a crucial factor for continued participation.

3.5.5. Recycling participation versus preferences for kerbside schemes

The respondents' preferences for a kerbside collection are shown in Fig. 15. Clearly, a weekly collection on the same day as the normal collection is the most popular choice, particularly among the lower-participating recyclers, reflecting either the most convenient option or perhaps a lack of storage space. The current schemes' collection frequency (fortnightly, different day) is the least favoured. Surprisingly, the full recyclers are much more willing to accept a fortnightly collection even though they would be expected to have most to recycle, so perhaps storage space is a factor here too, i.e. full recyclers live in larger properties with more storage space. Both same-day options overwhelmingly received most support, indicating perhaps that householders do not like the inconvenience of having to resort to easily lost collection schedules simply to dispose of waste. Even though the current container, a plastic sack, is acceptable to nearly 40% of respondents (who may prefer them over wheeled bins because they are more manageable), a wheeled bin appears to be the favourite, particularly for the lower-participating recyclers where the external storage space it offers may be a factor.

From Fig. 16, it can be seen that those who prefer a weekly, same-day collection also have a slight preference for a wheeled bin, whereas a sack is the preferred container for those favouring a fortnightly, same-day collection. A preference for a weekly collection implies a lack of storage space and/or a large volume of recyclables, both conditions being answered by the greater external storage capacity offered by a wheeled bin; conversely, the smaller sack would suit the lower volume of recyclables associated with a preference for a fortnightly collection. It would appear from the data in Fig. 17 that those living in terraced properties prefer sacks, while those in detached properties favour wheeled bins. Many of the terraced properties in Burnley have very small back yards, so a second wheeled bin would probably occupy too much space, unlike at a larger detached property.



Non-recyclers' rating of Council's kerbside schemes

Fig. 12. Non-recyclers' rating of kerbside schemes.

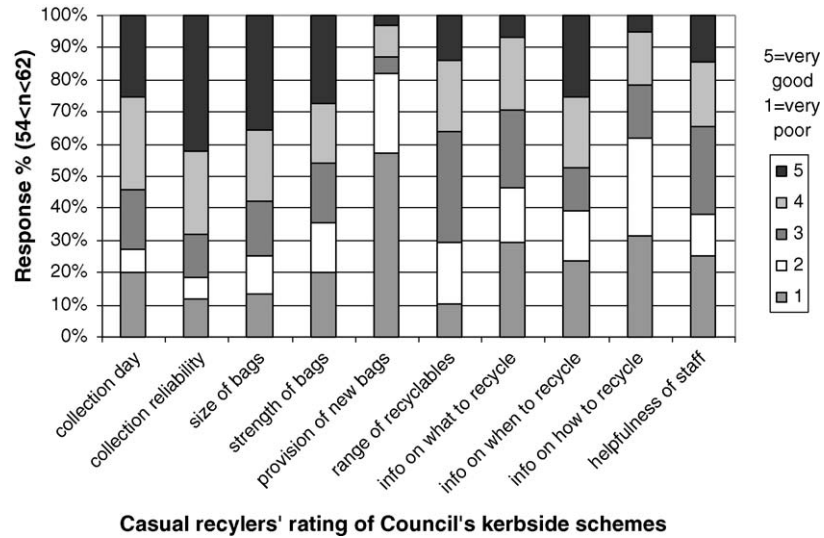


Fig. 13. Casual recyclers' rating of kerbside schemes.

3.5.6. Method of disposal versus Council Tax (CT) band

The method of disposing of four common items (paper, glass, plastic and cans) is shown in Fig. 18. More households from the lowest CT band discard paper in the dustbin, while fewer from the higher bands do so. It appears that the lowest-band households also prefer taking paper to recycling centres rather than the kerbside scheme, but the number of respondents

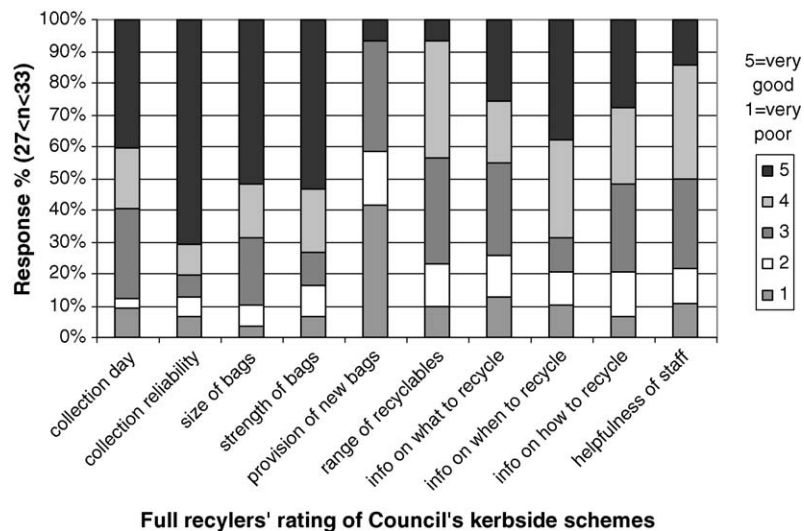


Fig. 14. Full recyclers' rating of kerbside schemes.

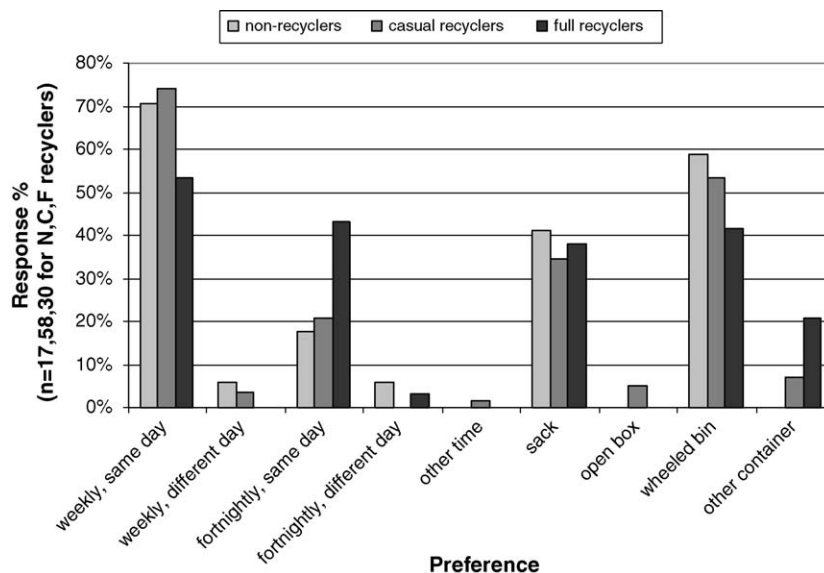


Fig. 15. Preferences for kerbside schemes by non- (N), casual (C) and full recyclers (F).

is small so this finding may not be representative (note also that the apparent preference by bands D and E for taking plastics to a recycling centre is spurious due to the small number of respondents). Generally, the lowest-band households seem to make least use of the kerbside schemes, a finding which tallies with this band being also the lowest recyclers (see Fig. 12).

3.5.7. Recycling participation versus rating of household influence and Council responsibility

Householders' perception of their ability to influence environmental matters is shown in Fig. 19. Although a lot of people appear to be undecided, there is a tendency for full recyclers to believe that they can influence matters most, while non-recyclers perceive themselves as less influential. A similar trend is seen regarding whether respondents hold the Council wholly responsible for waste collection and disposal (Fig. 20), i.e. personal responsibility for waste disposal increases with recycling participation. Taken together, these findings might suggest that people who believe themselves less influential also believe themselves, ipso facto, less responsible.

3.6. Buying habits

Fig. 21 shows that nearly 70% of respondents claimed to buy recycled products, although a large proportion of respondents were undecided as to their quality and cost. Almost 90% of people would pay more for a product that lasted longer, yet over 50% of people would not have an item valued at less than £ 50 repaired: the former appears to reject notions of a 'throw away society', the latter seems to uphold it, thus implying, perhaps, more about repair costs than anything else.

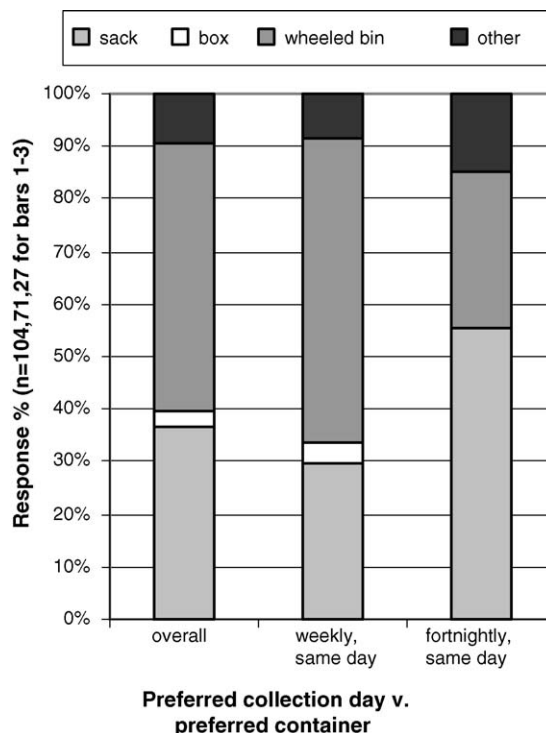


Fig. 16. Preferred collection day against preferred collection container.

3.7. Socio-economic analyses

From Table 1 it can be seen that socio-economic indicators for Council Tax, property type and household type correspond well between the questionnaire returns and the Borough as a whole, lending weight to the representativeness of the questionnaire data. There is a tendency for full recyclers to come from retired households and those in higher Council Tax bands, this latter point reflected in their ownership of semi-detached and detached properties. Conversely, non-recyclers tend towards the lower tax bands and terraced properties, with a disproportionate number from households with children. Although the social-grade data is not unequivocal, there is a trend for recycling participation to increase with household social-grade. These findings concur broadly with those from the literature, i.e. recyclers are more likely to be affluent and retired, while non-recyclers tend to be less affluent and/or have children, reflecting, in part perhaps, the storage space and time available to these households.

3.8. Qualitative analysis

The qualitative research comprised a series of group interviews with a sample of the Asian–British population at local community centres, and focus groups attended by volunteer respondents to the questionnaire.

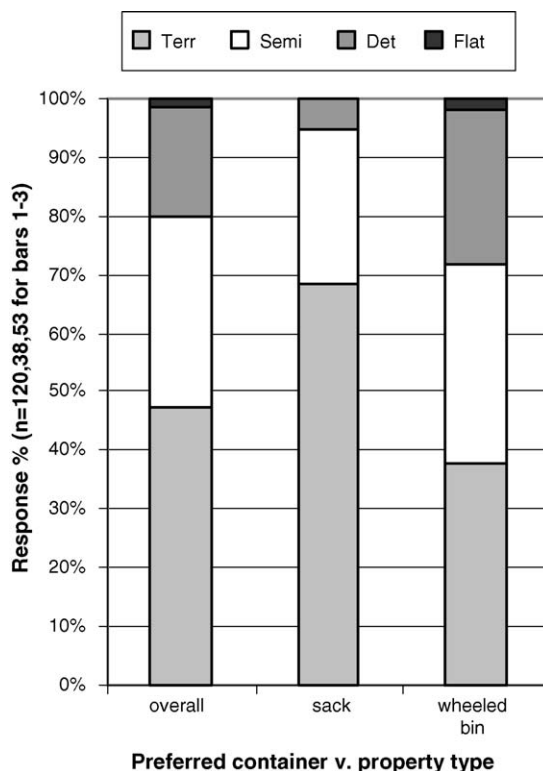


Fig. 17. Preferred container against property type.

3.8.1. Group interviews

Thirty-four respondents, whose ages ranged from early twenties to sixties, participated in the Group interviews. The general consensus was that recycling was a worthwhile activity, but that it does not figure highly in the priorities of the communities because of widespread deprivation in the area, though this view was more prevalent among the older members. Some respondents commented that recycling facilities in the Borough needed much better promotion and many people were unaware of the kerbside schemes running in the area. Those that were, claimed that it was difficult to obtain new bags and that the schemes were unreliable, leading to uncollected rubbish being strewn in the streets. Anecdotal evidence from a local community worker revealed that the collection vehicles often abandoned collections when the narrow streets were clogged with parked cars.

The majority of respondents, like those in the questionnaire, would prefer a weekly, same-day collection of a wheeled bin, though even this option was not ideal due to the very small back yards in most properties—storage was seen as a major barrier to recycling due to the conflicting claims on storage space both inside and outside the home.

The Asian–British diet appears to rely more on fresh food than food from cans and jars, which, coupled with the prevalence of extended families in the area, led some respondents to

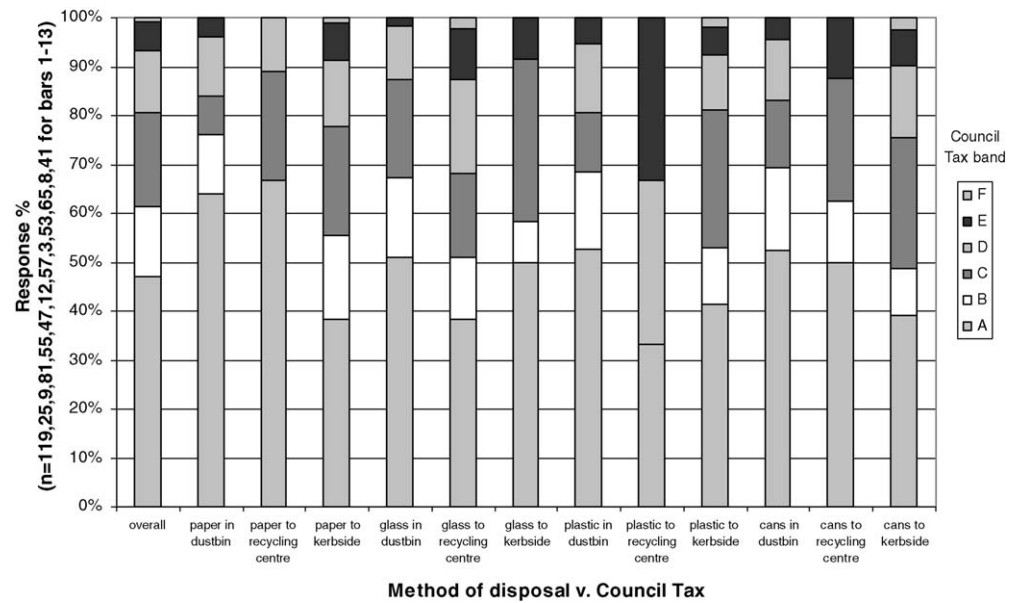


Fig. 18. Method of disposal of paper, glass, plastic and cans against household Council Tax.

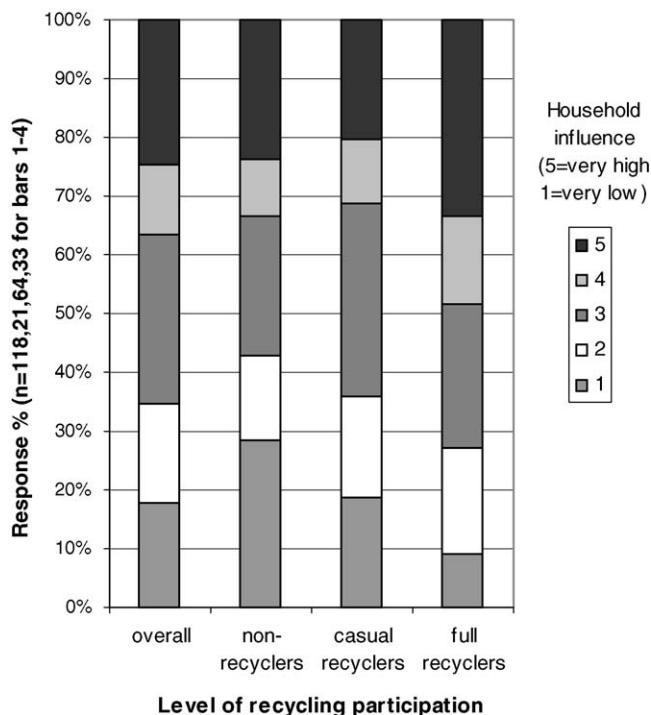


Fig. 19. Rating of household influence in environmental matters against recycling participation.

claim that a wheeled bin for compostables would be of more use than one for dry recyclables. All the respondents were opposed to charging for waste collection, but this attitude softened when the possibility of a reward for recycling was mentioned. One elderly man observed that fly tipping was already a problem in the area and that charging would just make it worse. Many of the women – who did not drive cars – claimed that there were no recycling centres within walking distance, though, in fact, there are four centres all within 1 km of the area at most, and considerably closer for many of the residents.

3.8.2. Focus groups

Respondents to the questionnaire were invited to attend either of two 1-h focus-group sessions held during a weekday in a hired room at a town-centre location. Only six respondents were able to attend, four at the first session and two at the second. Seven basic themes were identified in the two sessions: the respondents' reasons for recycling; where the responsibility for recycling lies; who in the household does the recycling; charging and rewarding for waste disposal; assessment of recycling facilities in the Borough; buying recycled products; feedback from the Council regarding recycling performance.

The respondents generally thought that recycling was beneficial to the environment because it saved the Earth's resources and created less waste for disposal. Landfill sites were seen as 'disgusting' places and a parallel was drawn with sewage on the beach, which,

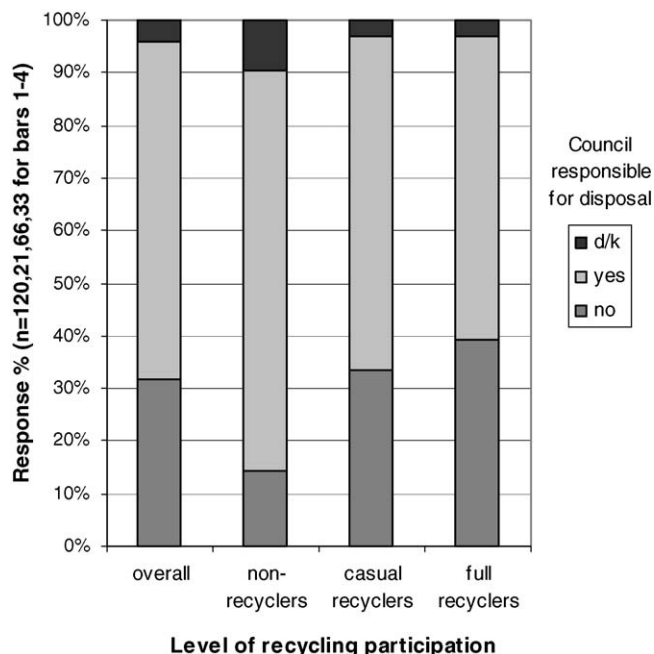


Fig. 20. Perception of Council responsibility for waste disposal against recycling participation.

although unconnected with recycling, underlines the strength of feeling in the matter. This almost visceral aversion to rotting waste is highly significant in that it emphasizes the high priority that householders place upon excluding waste from the home as quickly as possible, a point which respondents to the [MORI \(2002\)](#) survey placed above the desire to recycle. One respondent – a local councillor – emphasized the financial benefit to householders in lower Council Tax bills from the sale of recyclables by the Council.

Responsibility for setting up recycling facilities was seen to rest squarely with the Council, though the respondents accepted that it was their responsibility to make use of them—but only up to a point, with one respondent suggesting that householders should ‘be responsible for making the decision to recycle’. While it was acknowledged that consumers own the rubbish from purchased items – and therefore the responsibility to dispose of it properly – supermarkets and manufactures were seen as equally responsible in ensuring that their products were not packaged excessively. Despite consumers being under no obligation to accept plastic carrier-bags, supermarkets were particularly criticized for handing them out like confetti, and reference was made to stores which either charged for bags or gave a reward for re-using them. Supermarkets, however, were praised for having recycling banks in their car parks.

Household recycling, at least among these respondents, seemed to be driven by the women of the house (and to some extent the children), with the men reluctantly following on behind. (However, both the men and women in the Asian–British group interviews – which were mainly single sex – claimed the credit for being responsible for household

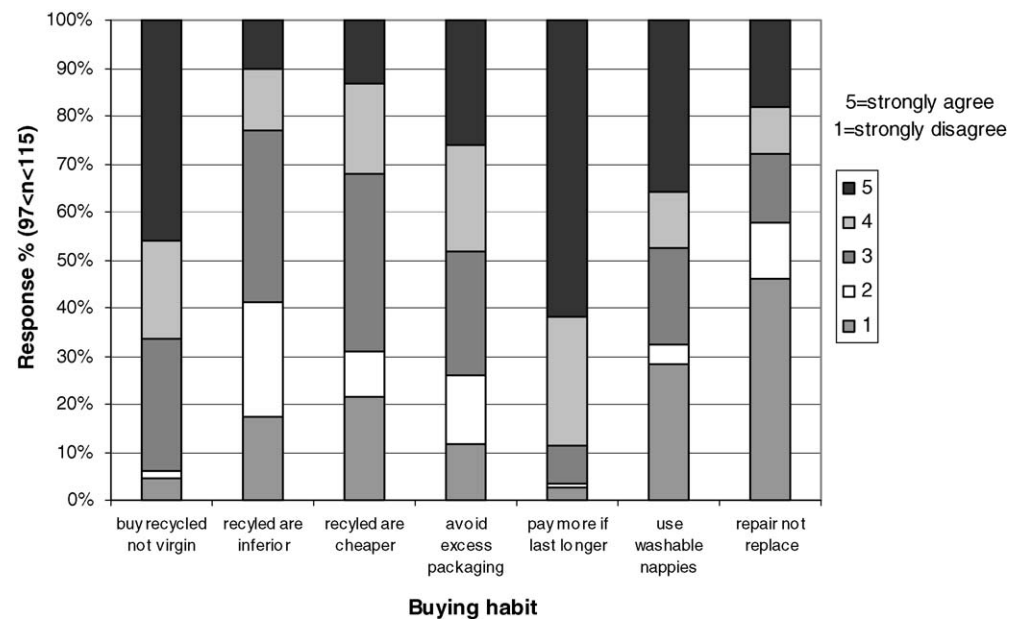


Fig. 21. Rating of various buying habits of respondents.

Table 1

Socio-economic and demographic data for: different categories of recycler, all questionnaire respondents and the borough

	Non-recyclers (%)	Casual recyclers (%)	Full recyclers (%)	Overall (%)	Burnley (%)
Occupational/social grade ^a					
B	0	3.8	6.5	4.0	
C1	43.8	43.4	35.5	41.0	
C2	12.5	17.0	9.7	14.0	
D	18.8	11.3	6.5	11.0	
E	6.3	1.9	9.7	5.0	
Retired	18.8	22.6	32.3	25.0	
Council Tax band ^b					
A	66.7	45.5	37.5	47.1	63.4
B	9.5	16.7	12.5	14.3	10.8
C	9.5	19.7	25.0	19.3	15.2
D	9.5	15.2	9.4	12.6	6.4
E	4.8	3.0	12.5	5.9	3.1
F	0	0	3.1	0.8	0.8
Property type ^c					
Terraced	57.1	50.0	36.4	47.5	51.9
Semi	28.6	30.3	39.4	32.5	27.8
Detached	14.3	16.7	24.2	18.3	12.4
Flat	0	3.0	0	1.7	7.6
Household type ^d					
Non-pensioners without children	42.1	53.1	45.5	49.1	41.5
Non-pensioners with children	42.1	26.6	24.2	28.4	31.2
Pensioners only	15.8	20.3	30.3	22.4	27.3

^a No comparable data available for Burnley.

^b Burnley data from VOA (2003).

^c Burnley data from ONS (2003).

^d Burnley data based upon merged data from ONS (2003).

recycling, suggesting that recycling was perceived as a laudable activity and thus subject to normative influences.) Young adults were thought to be the least likely recyclers.

The prospect of being charged for waste disposal was not explicitly rejected, but most respondents put forward reasons why it would be unfair to *other people*, particularly those with large families and those on low incomes (one respondent linked charging for waste disposal with the Poll Tax debacle in the UK). The necessity of having adequate facilities at home, such as sufficient storage space inside and outside for extra bins, was viewed as a major barrier to an equitable charge/reward scheme because many households would not have the space to be able to take advantage of comprehensive recycling in order to offset charges or earn rewards.

Recycling facilities in the Borough were thought to be adequate, but concern was raised about whether they were sufficient for all sections of society, particularly those without cars or much storage space. (The issue of storage space has surfaced time and again in this and other surveys, and is thus perceived by householders as a major factor governing

the opportunity to participate, although Barr et al. (2003) question its validity as a purely ‘situational variable’ by noting that householders’ allocation of storage space involves a ‘hierarchy of storage priorities’, with the space allocated to recycling being dependent upon attitude as well as room.) The frustration and incredulity felt by the respondents at the difficulty in obtaining replacement recycling bags was palpable: all of them had experienced problems and none of the respondents could understand why such a simple process as replacing a bag had to be so convoluted.

Most of the respondents seemed unaware of the full range of items that could be recycled or of how to recycle less common items like batteries and light bulbs, suggesting that the Council needs to do more to educate the public in this area. When asked to outline their preferred recycling scheme, most respondents opted for wheeled bins over sacks (because of their greater robustness and storage capacity) and a reduced collection of normal waste, but they were concerned whether these options would be acceptable across the Borough.

Respondents’ purchasing habits indicated that they were broadly in favour of buying recycled products, but only so long as quality was not an issue, implying that they perceived recycled products as inferior. Two respondents even had concerns that recycled tissues were unhygienic because they were made from used tissues, indicating that public education is still very deficient here. There was also a perception that recycled products are more expensive (even though everyday ones like tissues and bin bags are not, implying that the respondents do not actually buy them), and a suggestion that an environmental tax should be levied upon virgin products. One of the keenest recyclers in the group, though perhaps the least affluent, claimed always to buy the cheapest product on offer regardless of whether it was recycled or not, implying that recycling participation alone does not necessarily predict consumption behaviour, that consumer choice is still the preserve of the more affluent and that recycled products must always be cheaper if the recycling loop is to be closed.

Receiving feedback from the Council regarding recycling performance was welcomed as a means of encouraging greater participation, but there were concerns that households with less opportunity to recycle might be stigmatized unfairly if the feedback were too precise, e.g. on a street or ward basis.

4. Conclusions

This case study supports the following key findings:

- Householders from the study areas showed overwhelmingly positive attitudes towards recycling schemes; this may suggest that the historically low recycling rates in Burnley are linked more to resource and logistical issues that directly affect participation, such as lack of storage space in older housing stock, socio-economic status and poor service provision (see below), rather than to negative local attitudes.

The results from the postal questionnaire reveal that the respondents claim to be overwhelmingly in favour of recycling, with over 80% of them recycling at least one item of household waste (mainly paper) and over 27% recycling at least five items. Although the quantities being recycled are unclear, figures from Burnley Council suggest that paper accounted for about two-thirds by weight of all materials collected by recycling schemes

in the Borough in 2002/2003. In 2003 the Borough's recycling rate – 10% – was below the national average even though the residents had the opportunity to recycle at least 44% from just paper, glass, plastics, cans and card (the proportion of these materials in the average dustbin).

Although the reasons given in the questionnaire by the recyclers and non-recyclers for their participation/non-participation were blurred, it is clear that convenience and sufficient storage space were major factors. The questionnaire results and multivariate analyses suggest that non-recyclers tend to be from lower socio-economic backgrounds, where the availability of storage space is probably limited by smaller properties, and that the more committed recyclers tended towards ownership of larger properties with more space. These trends suggest that the disproportionately high number of terraced properties in the Borough of Burnley compared to the UK as a whole – indicating its low socio-economic status – will bias it towards non-recyclers and a lower recycling rate. Having the time to recycle was also important: those with more time (retired householders and older ones without children) were more likely to be full recyclers, while those with less time (younger households with children) tended towards lower participation.

- There is extensive dissatisfaction with the services provided by the Council, highlighting the importance of good service provision and effective communication with the local population to participation in recycling activities.

The survey indicated widespread unhappiness with the Council's dry-recyclables kerbside scheme and with its information provision. Over 70% of questionnaire respondents had experienced difficulty in obtaining the required recycling bags, and only 2% expressed a preference for the scheme's fortnightly, different-day collection schedule. Nearly 70% preferred a weekly, same-day collection. The qualitative findings not only verify these results but also convey the depth of dissatisfaction and disappointment felt by respondents in being prevented, by no fault of their own, from participating easily in an activity they deem worthwhile. Questionnaire respondents' preference for a wheeled bin over a plastic bag is less unequivocal than for the collection day, with just over half preferring the bin (though this preference increases for lower-participating recyclers and those with larger properties). Full recyclers were more satisfied with the collection reliability than the casual and non-recyclers, possibly explaining their superior recycling performance. Collection reliability also surfaced in the Asian–British interviews as a source of dissatisfaction with the kerbside schemes.

- The results suggest that the attitudes of the Asian–British population in the Borough were not significantly different to those of the other respondents.

However, the general deprivation in the Asian–British areas imposes higher priorities on the population's resources preventing it from participating more fully in peripheral activities like recycling. More effort needs to be made by local waste managers to engage with the ethnic minority community.

- Factors that could assist local authorities to provide a better waste disposal service for local populations have been identified.

Local authorities need to make their recycling services reliable, convenient and easy to use because the traditional dustbin, a convenient and reliable single point of disposal, is seen by many householders as a better option than recycling. The vast majority will recycle a simple item like paper, but will not tolerate unreliable collections of inappro-

appropriate containers that are difficult to obtain. Though expense is obviously a factor, local authorities such as Burnley should consider more bespoke services offering householders a variety of recycling containers to suit their circumstances, including extending the garden-waste service to the Asian–British population in order to collect kitchen waste. Most householders do not understand why they, rather than the local authority, should separate their waste. Local authorities should explain the recycling process and the benefit of uncontaminated recyclates as well as providing regular publicity about waste-related services and regular feedback on recycling performance.

Whilst this research has ascertained that householders broadly support recycling if the service is reliable, convenient and easy to use, it is still not clear whether service provision is the only reason for the Borough's poor performance, or whether householders' deeper psychological, cultural and social attitudes to recycling are also implicated. More research is also required in identifying non-recyclers and their reasons for being so. As long as recycling remains a voluntary activity with no cost to those who opt out, Councils like Burnley facing statutory recycling targets need to encourage far more people to participate fully.

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