Recycling and the Domestic Division of Labour: Is Green pink or blue?

Caroline J. Oates
Sheffield University Management School
9 Mappin Street
Sheffield
S1 4DT
Tel: +44 (0)114 222 3448
Fax: +44 (0)114 222 3438
c.j.oates@shef.ac.uk

Seonaidh McDonald
Aberdeen Business School
The Robert Gordon University
Kaim House
Garthdee Road
Aberdeen
AB10 7QE
Tel: +44 (0)1224 263896
Fax: +44(0)1224 263870
s.mcdonald@rgu.ac.uk

Abstract
Domestic or household recycling has a crucial role to play in meeting EU targets for overall recycling rates. However, researchers have yet to agree on the characteristics of the domestic recycler and how recycling is actually carried out in the home. In this paper, recycling is investigated within the context of domestic labour in an attempt to understand how it fits in with or overrides traditional divisions. This brings an important new perspective to the recycling debate and at the same time updates the domestic division of labour literature to include green activities. It is suggested that recycling contradicts prevailing trends towards decreasing time spent on household chores, but that, like domestic labour, it is initiated and largely sustained by women alone or together with a partner. In this sense, recycling follows a similar pattern to more established household chores.

Keywords: domestic division of labour, gender, recycling

Introduction

The division of domestic labour has been studied for several decades, informed by debates from the 1960s and 1970s about the role of women within the family (Silva, 2002; Duncan et al., 2003). The focus of such research has varied, including the amount of time spent on household tasks (Sullivan, 1997), the gendered allocation of these tasks (Nordenmark and Nyman, 2003), the changing nature of domestic technology (Gray, 1992), and the impact of paid work outside the home (Windebank, 2001). Since the 1980s, changes have been recorded both in the activities that men and women do in the home, and the amount of time spent on these activities (Sullivan, 2000). The traditional model of a distinctly separate division of labour between husbands and wives has moved towards a more egalitarian arrangement, especially where both partners work full time outside the home (Pilcher, 2000). This trend is also evident in other aspects of the household e.g. family decision-making (Belch and Willis, 2002). However, this is not to suggest that housework and childcare are now shared equally within the household - in heterosexual relationships, women continue to take more responsibility than their male partners for such tasks (Sullivan, 1997; Press and Townsley, 1998).

The nature of domestic labour has undergone many changes over the last fifty years. The development of technology has clearly had an impact (Silva, 2000), as has women's increasing employment outside the home (Breen and Cooke, 2003) but there are other factors that have affected the range of activities undertaken in the household. One of these is the necessity of dealing with an ever-growing amount of domestic waste derived from increasing reliance on products such as packaged convenience foods and take-away meals (Cohen, 1998; Bianchi et al., 2000). For example, UK sales of chilled ready-meals in 1999 showed a 75% increase on 1993 figures (Cox, Mowatt and Prevezer, 2003). Although these products do allow consumers to do less in the home, they create much more packaging waste than traditional forms of food (Withers, 2004). Direct mail too is a problem, contributing to 78,000 tonnes of landfill waste every year (Crush, 2003). Overall, household

rubbish in the UK is increasing by about 3% per year (Withers, 2004). A socially acceptable way of dealing with such waste is to recycle it, an activity strongly endorsed by policy makers mindful of imminent EU regulations which state that 25% of household waste in the UK should be recycled or composted by 2005 (Department for the Environment, Transport and the Regions, 2000). Therefore, there is a real need to increase levels of household participation in recycling, yet the dynamics of domestic behaviour around recycling are not fully understood.

In this paper we attempt to contribute to the understanding of household recycling by placing the debate within the domestic division of labour literature. We ask whether recycling can be better understood by researching it as a domestic task and equally, whether the study of recycling adds to our understanding of how labour is divided and managed in the home. We will therefore begin this paper with a review of the domestic division of labour and recycling literatures. This will allow us to outline the approaches taken by these different fields and highlight the lack of consideration of recycling as a domestic task in both literatures.

Building on this work, we then present the results of an exploratory study which takes the first steps towards examining recycling in the context of the household domestic division of labour. We will present data which were gathered as part of a wider study examining the participants and non-participants of a paper recycling scheme in Sheffield, a large city in the north of England, UK. Using a postal questionnaire, we asked scheme participants to identify the person(s) responsible for both starting and maintaining recycling in their household.

Theories and trends in the domestic division of labour

Theoretical perspectives on the gendered divisions of household labour can be categorised into three main areas: time availability; relative resources; and the gender perspective (Bianchi et al., 2000). The first argues that labour is rationally divided according to the availability of household members and the amount of work to be done. The second position suggests that the allocation of household labour depends on the resources each partner brings to the relationship. These first two perspectives have been criticised by feminist researchers who argue that divisions of labour are concerned less with rational allocation and available time and more with 'doing gender'. Thus, the third position focuses on housework as symbolic of gender relations – 'wives and husbands display their "proper" gender roles through the amount and type of housework they perform' (Bianchi et al., 2000, p. 194). In other words, housework can be viewed as an enactment of gender.

Recent research on the domestic division of labour has suggested that a number of changes are taking place which are indeed related to gender. Looking at domestic work as a whole, women spend about seven hours more per week on single domestic activities and two hours more in combined domestic activities than men. These overall figures cover many household activities, which can be grouped into seven categories: cooking,

cleaning/clothes care, child care, shopping, gardening, odd jobs/DIY and domestic travel (Sullivan, 1997). Within these categories, certain trends are evident. Principally, the amount of time spent on doing housework is decreasing. Sullivan (2000) found that between 1975 and 1997, the number of minutes spent per day by women on cooking and cleaning reduced from 208 to 130 minutes for those in professional/technical households, and from 213 to 135 minutes in manual/clerical households. There are variations within these figures according to the employment status of the women's partners, but the clear trend is for women to spend less time on these activities. Men, however, have increased the time they allocate to cooking and cleaning. During the same time, men in professional/technical households devoted ten more minutes per day (from 21 to 31) whilst men in manual/clerical households increased their minutes from 16 to 31. Thus, men have significantly increased their time whilst women have decreased theirs. Overall, though, the amount of time spent on cooking and cleaning in both kinds of households has declined, from 229 minutes per day in 1975 to 160 minutes in 1997.

Possible explanations for the decrease in time spent on housework centre on women's increasing employment outside the home. Silva (2002) pointed out that women who work full time spend less time doing housework than women who do not work outside the home, and Silver (1987) added that they might buy in the domestic labour of others or turn to state provision to provide services. Statistics show that household expenditure on domestic services in the UK has risen by more than 90% in the period 1963 to 1998 (Office for National Statistics, 2003). Other researchers have also noted the propensity for consuming services such as restaurant meals, take-aways and cleaning (Cohen, 1998; Bianchi et al., 2000). Gregson and Lowe (1994) documented this trend a few years ago, particularly in terms of paying for cleaning and childcare. They also found that it is women who take responsibility for the hiring and management of such additional labour. Windebank (2001), however, suggested that only a minority of respondents in her study of French and English families reported paying a third person to undertake domestic tasks. Other household tasks can be outsourced using technology, for example shopping on-line and having the goods delivered.

The difficulties involved in trying to uncover who actually carries out housework are complicated by the notion of sharing. In terms of gender divisions of domestic tasks, it is clear that certain activities can be viewed as primarily related to men or women, but the latter often comment that tasks are shared equally between themselves and a male partner. Frequently, however, women maintain overall responsibility for a task, and the man 'helps' (Gray, 1992; Windebank, 2001). Patterns change as families move through the life cycle - couples may start off genuinely sharing chores, but when children arrive tasks often get reallocated (Nordenmark and Nyman, 2003).

Various researchers have used different methods to discover how respondents might categorise household activities in this gendered way and to overcome the difficulty of the division of labour being embedded in the 'unconscious' of many households (Gray, 1992, p. 43). Gray (1992)

addressed this problem by using a colour coded scheme, whereby women were requested to imagine varying tasks or equipment (e.g. cooker, dish washer, iron, video recorder) as either pink (female) or blue (male). This device allowed Gray's interviewees to consider the gendered division of labour for themselves and to discuss their behaviour with the researcher. Gray's findings showed how many activities were strongly associated with gender and indeed sometimes whole rooms were seen as particularly pink (e.g. kitchen) or blue (e.g. garage).

Windebank (2001) produced findings using a scoring system out of five, with a score of one indicating a task done by fathers only and a score of five indicating a task done by mothers only. This study used seven categories of everyday, routine, domestic labour (prepare evening meal, household shop, wash dishes, iron, wash clothes, vacuum, dust/clean) plus childcare as a separate activity. No single activity scored less than three, suggesting that on average no routine domestic task was more likely to be carried out wholly or mainly by the father.

When additional tasks are taken into account as well as the mundane, everyday types of tasks listed above, findings support those of both Gray (1992) and Windebank (2001). Nordenmark and Nyman (2003), in their qualitative research with Swedish families, reported that when couples were asked about housework generally, they identified separate activities associated with either the man or the woman of the house. For example, 'big' jobs, which were often external and episodic (cutting the lawn, shovelling snow, and maintaining the car) tended to be the responsibility of the man, whereas 'smaller' internal, repetitive jobs (cooking, laundry, and vacuuming) were routinely carried out by women. Men assisted with these internal tasks, or performed them on special occasions (e.g. cooking dinner for friends).

Recycling and the domestic division of labour

Recycling entails a series of tasks carried out within the household. Although these tasks vary according to the material being processed, they can all be described as mundane, unskilled and repetitive. For example, dealing with glass or plastic bottles to take to a bottle bank involves rinsing them out, which is akin to washing dishes; contributing to a kerbside paper scheme entails gathering paper up from around the house, taking it out to the paper bin and putting the bin out for collection, which is not unlike the routines we have for general domestic waste. In other words, although recycling tasks are a new addition to the work we do in the home, they have many precedents and parallels in our established domestic routines.

Even though it is obvious to point out that recycling is a domestic chore, it has seldom been studied as such. In the waste management literature recycling is conceptualised as a conscious green act and is often researched using quantitative methods. Researchers have unsuccessfully tried to predict recycling behaviour from pro-environmental attitudes and behaviours (National Consumer Council, 1997). They have attempted to influence participation (number of households using a scheme) and diversion rates

(amount of waste diverted from the municipal waste stream) through information campaigns (Spaccarelli et al., 1989), recycling commitments (Bryce et al., 1997), feedback (Schultz, 1999), monetary and non-monetary incentives (Jacobs and Bailey, 1982; Hamad et al., 1977) and a range of other techniques. The success of these recycling initiatives has been mixed (Needleman and Geller, 1992; Porter et al., 1995).

Other researchers, using qualitative methods, have found different results. This approach has revealed that recyclers themselves conceive of recycling primarily in terms of a series of day-to-day tasks which they have incorporated into their household routines (McDonald, 1996). When asked to describe how they recycle, householders often struggle to articulate the minutiae of such a trivial part of their lives (Oates and McDonald, 2002). They typically comment that, “it just gets done”, or describe it as, “automatic” (Oates and McDonald, 2002). People who have established a recycling system or routine do not perceive recycling tasks as a separate or additional part of their domestic labour (Oates and McDonald, 2002).

Just as the waste management literature has been silent on the domestic nature of recycling, the domestic division of labour literature has failed to incorporate recycling tasks into the commentaries on household work. Together these omissions mean that aspects of recycling have not been considered. Two important functions of this study are firstly to highlight this situation and secondly to bring together the concerns of these separate literatures. Having ascertained that recycling was a new and different part of the domestic routine, yet embedded within more familiar chores, we now seek to discover how this work might be divided amongst the household.

Challenges to the domestic division of labour literature

From the review above, we draw the conclusion that domestic labour is made up of several different kinds of household tasks for which women, on the whole, still take responsibility (Press and Townsley, 1998). It is also evident that time spent on such tasks is decreasing, possibly due to the use of external services, the popularity of convenience foods and developments in technology. Prevailing trends, therefore, imply an overall reduction in housework with increased outsourcing to a third party (Cohen, 1998).

However, the addition of recycling to the household routine requires householders to undertake extra activities and spend more time on domestic chores. Recycling tasks are also unlikely to be undertaken by someone paid to reduce the domestic labour in the household. Further, the domestic tasks which are associated with recycling do not lend themselves to technological solutions or other bought-in shortcuts. In other words, not only can recycling be seen to oppose the cultural trend of reduction in household work (Sullivan, 2000), but this anomaly is unlikely to be mitigated by any of the currently established solutions.

There are other ways in which recycling sits uneasily with concepts in the extant domestic division of labour literature. Consider, for example, a family

who has an established recycling routine. They might buy their milk in plastic bottles which they can wash out, store and then take to the bottle banks at their local supermarket as part of their weekly shop. This pattern of activities affects decisions associated with many aspects of the domestic sphere and at the very least falls across the cleaning, shopping and domestic travel categories, which have previously been identified by studies on domestic labour (Sullivan, 1997). This example illustrates the complexity of household recycling.

As pointed out above recycling tasks are becoming a common part of the domestic labour in many households, but there are a number of ways in which they differ from other chores. Unlike other tasks, recycling is not carried out for the direct benefit of the people in the household. This means that, apart from fulfilling altruistic goals, recycling has no immediate effect on the household. This in turn means that there is little or no feedback or positive reinforcement from other members of the household as to either the quality or quantity of the contributions (although domestic work can often go largely unnoticed by the family [Gray, 1992]). Increased time and effort with little effect or feedback is a difficult balance to sustain over time.

Also problematic is the fact that recycling does not necessarily demand a specific routine. Domestic tasks such as laundry require organization to ensure a constant supply of clean clothes (Gray, 1992), however recycling does not acquire any urgency if it is not carried out regularly (unless storage is an issue). Successful recyclers often subsume recycling into other routines (such as a weekly shop) and this may be one of the important benefits offered by a household collection system (Perrin and Barton, 2001; Tucker et al., 2001).

Studying recycling as a domestic task offers some important challenges to the domestic division of labour literature. It seems to run counter to a number of current trends in household work, sits across several traditional categories and differs significantly from many existing tasks. Understanding domestic recycling and other green household activities is likely to be increasingly important in the study of domestic divisions of labour in the future.

Gender and recycling

Although recycling has not been studied as part of a household routine, recycling researchers have examined the question of gender and recycling. In the waste management literature there is a number of studies which have investigated the link between environmental values and a variety of socio-demographic variables, including gender (see Barr, 2002, pp. 23-34 for a summary). A small number of writers concentrate on the relationships between gender and actual environmental actions. This work has established that women are more likely to take part in conservation activities (Hill et al., 1979; Schahn and Holzer, 1990), buy environmentally friendly products (Baldassare and Katz, 1992; Witherspoon and Martin, 1992; Mainieri et al., 1997), recycle (Arcury et al., 1987; Granzin and Olsen, 1991) and campaign on environmental issues (Steel, 1996). In contrast, a National Consumer

Council (1997) survey found that regular recyclers are more likely to be male. There is no clear reason why such studies have reached different conclusions, however all of these results should be weighed against others, who found no such correlations (Gamba and Oskamp, 1984; Blocker and Eckberg, 1997; Daneshvary et al., 1998; Corral-Verdugo, 2003).

Overall then, scholars are no closer to discovering who does the recycling work within individual households. If the method used by Gray (1992) to distinguish household technologies was applied to various green activities in the household, would they be seen as pink or blue? The domestic division of labour literature discussed above would suggest that recycling tasks, as they are small, internal, repetitive and pervade many aspects of the domestic sphere, may fall to the women of the household. If this were true it would explain the tendency for demographic studies to report women as more likely to be recyclers than men. More importantly however, it would explain why there are many studies which have not shown conclusive results. When these studies ask individuals, male or female, whether they recycle, it may be that some are answering not on their own behalf, but on behalf of their household. Our study reframes recycling participation in terms of a household, rather than an individual task. Given what has been established about comparable domestic tasks, we ask;

- Is there one recycler per household?
- and if so, is that person female?

Method

Near the end of 1997 Sheffield City Council launched a pilot scheme to collect paper from households for recycling. The pilot took place in an area which included a mixture of public and private housing stock in order to test the scheme with a variety of household types. The householders were supplied with information about the scheme and given the chance to opt out. Following this information campaign, over 6000 households were issued with a 140 litre blue wheelie bin to collect their paper waste. These bins were stored outside and wheeled to the kerbside for emptying by the Council once every eight weeks. For more information about Sheffield and the background of the blue bin scheme, see McDonald and Oates (2003).

With access to the Council's database, it was possible for us to identify every household that had accepted a blue bin. In order to discover who carries out recycling in the household, we designed a short questionnaire which contained a mixture of open and closed questions, aimed at finding out who initiated the household recycling and how many people took part in recycling as well as their ages and genders. The questionnaire was tested and reviewed by five individuals with expertise in questionnaire design and a further five members of the public. None of the pilot questionnaires are included in the results presented here.

The sample size was determined by a combination of consideration of the likely final sample size and budget. The questionnaire was sent to a quarter of all households participating in the blue bin trial by selecting every fourth

address on the Council database. This ensured that the households selected were spread across all the streets in the pilot area. In November 2000, some 3 years after the launch of the pilot scheme, 1532 questionnaires were sent out together with a cover letter and a postage-paid return envelope.

We stress that the aim of this study was not to determine *how* or *why* recycling took place in households, nor how or why recycling had developed over time, but simply *who* started the recycling and who did most of it. A quantitative approach via a postal questionnaire was therefore selected as the most appropriate method. The questionnaire proved an efficient way to elicit answers to our very specific questions from as many people in the pilot area as possible (Robson, 2002). A total of 469 useable replies were received, giving a 31% response rate. This is an excellent rate of return for a postal survey of this type (Sekaran, 2000). The replies have been analysed using a combination of descriptive statistics and content analysis (Easterby-Smith et al., 1991).

The sample

The distribution of households that returned questionnaires can be seen in Figure 1. We compared these figures with the national distribution of household sizes to determine whether the questionnaires had been returned by a representative sample of households. As can be seen from Figure 1, for the majority of household sizes, the sample was comparable. The sample however over-represented two person households and under-represented one person households compared with 2001 census data (Office for National Statistics, 2001).

Figure 1 about here

Given the aim of our study, it was important to see whether our reduced number of single households was male or female in similar proportions to the UK population. Of the 81 single households in our sample, 55 (11.7% of total number of households) were female and 26 (5.5%) were male. By comparison, 16.45% of households nationally are lone females, whilst 13.74% are lone males
(Office for National Statistics, 2001). Therefore, we had a higher proportion of returns from lone female households and fewer responses from lone male households than might be found on average (see Figure 2).

Figure 2 about here

Results

Figure 3 illustrates the number of households where the person who started the recycling is male, female, someone outside of the household (such as a relative or neighbour) and where this role is spread across more than one person. The percentages shown are calculated using the total number of households (469) and will not add up to 100 as some respondents did not reply to this question.

Figure 3 about here

Our data show that females are much more likely to be both recycling initiators and sustainers than males. There was a high number of joint decisions to start recycling and an even higher amount of joint recycling activity in our sample. Households were classified as having joint recyclers where more than one name was entered for this question, indicating joint responsibility rather than helping, which we asked about separately. Out of the total number of households who stated that they carried out recycling jointly, 79% of the recycling is shared between one adult female and one adult male, regardless of household size or composition.

To get a clearer picture of the proportion of people initiating or sustaining recycling alone when there are a number of people in the household, single households can be removed from this analysis. The results show a similar pattern (see Figure 4). The percentages shown are calculated using the total number of households with more than one person (388) and will not add up to 100 as some people did not reply to this question.

Figure 4 about here

In the multiple households, there were 216 households who identified one person as the recycling initiator (56%). Of these households, 75% of the initiators were female and the remaining 25% were male.

In the multiple households, there were only 179 households who identified one person as the main recycler (46%). Of these households, 75% of the sustainers were female and 25% were male.

Figure 5 summarises the most common patterns of recycling involvement within the multiple households. By far the most common combinations found in our data were either a female initiator and female sustainer, or a joint initiator and a joint sustainer. Our data show a noticeable reduction in numbers for the next most popular scenario, which is a female initiator and joint sustainers.

Figure 5 about here

Discussion

There is a clear gender difference in our data, as the domestic division of labour literature might predict. However there is also a significant amount of joint activity which was not anticipated. This significantly weakens our suggestion that there is one recycler per household. What is clear is that men are more likely to participate in recycling as part of a joint initiative and activity than they are to do it alone. Figure 5 also shows that unless the recycling is initiated by a male member of the household, the main recycler will be female or recycling will be undertaken jointly.

Our data further reveal that it is much more likely that the person(s) who initiated the activity will become the sustainer(s) – whether that is one or more people – than the role changing hands once the recycling has started. Of the 388 households where there is more than one person (and the recycling role therefore has the potential to change hands), 237 households show the person (or partnership) who started the recycling going on to be the main recycler(s). This gives a figure of 61% of continuity of recycling responsibility within the households in our sample. Where there is a change, Figure 5 shows that it is much more likely to be from a single initiator to jointly sustaining recycling than the other way around.

As discussed above, the division of labour literature would lead us to expect significantly more gendered roles once children are present in a household (Gray, 1992; Nordenmark and Nyman, 2003). An analysis of our data does seem to support this, as there appear to be more joint initiators and sustainers in two-adult households than there are in households which include children. However since we did not ask our respondents to declare the relationships between the various members of their households, we cannot infer household types from our results. This pattern could be investigated through further study.

Our results suggest that recycling is not as clearly gendered as we would have expected from the literature. This may explain the failure of socio-demographics to pick up clear trends when focusing on individuals, as discussed above. However our data show that recycling is certainly pink in more households than it is blue. Despite the discussed differences between recycling and other household tasks, our findings show that more women begin and carry out recycling in the household, either alone or aided by a partner. This suggests that green activities are following a similar pattern to more established household chores, where women take responsibility for such tasks (Sullivan, 2000). This is an important finding given the reported changes in the domestic division of labour over the past few decades. As green activities are relatively new additions to household labour, a more egalitarian adoption of recycling tasks might have been expected, but our data show that this is not the case.

Conclusions

The findings of this study inform debates about both waste management and the domestic division of labour. Our contribution has been in two parts: the first is a theoretical contribution to the reconceptualising of recycling as a domestic chore and the bringing together of the two different literatures that this implies. The second contribution has been in terms of a first empirical venture into this intersection using survey methods to find out whether domestic recycling tasks are evenly distributed amongst the members of recycling households.

In terms of extending what is known about recycling practices, the results of this survey show only limited support to the notion of one recycler per household. However, where there is a single person in the household with the

main responsibility for starting and carrying out recycling, then that person is more likely to be female. Our data also show that whoever initially champions recycling in the household is most likely to become the person who is responsible for the day-to-day work of recycling. These findings have been drawn from data relating to households with more than one person and are therefore not affected by the under-representation of single households in our sample.

Despite the fact that recycling is materially different from other household tasks and has not previously been studied as part of the domestic division of labour, our results offer little challenge to what is already known about the division of household labour between the genders. The patterns of recycling initiation and maintenance that we have uncovered here are in line with existing knowledge about other forms of household work. Green tasks, like similar chores, are it seems more likely to be pink than blue.

Perhaps the most interesting finding of the survey is the high proportion of households where recycling is reported to be carried out jointly. Given the design of the research instrument used, it is difficult to know how to interpret these statements. The term 'joint' could have a whole range of meanings from an occasional contribution to an equally shared task. This issue is one which is recognised within the domestic division of labour literature, where questions have been raised about the declaration of shared tasks (Gray, 1992; Press and Townsley, 1998). There is a related problem raised by the waste management literature where studies have shown the propensity of individuals to exaggerate the amount of recycling they undertake (Perrin and Barton, 2000; Glenn, 1987; Barker et al., 1994). Before we dismiss the notion of a single recycler per household, further study will be needed to unpack the meaning of the term 'joint'.

Further research

As we have already noted, our study can only tell us about the ages and genders of the households that we have surveyed and their different contributions to domestic recycling. In order to develop this further, we would need to carry out further research which allowed us to find out the relationships between the members of each household. It might be that different patterns of domestic labour are to be found amongst heterosexual couples, homosexual couples, adults sharing, or households which comprise two or more generations of the same family, for example. It is also possible that other factors such as ethnicity, family background and employment or other responsibilities will effect how recycling is incorporated into the domestic division of labour.

Given the number of different kinds of household tasks that is implied by the term 'recycling' it is possible that rather than conceptualising it as a single task, it should be considered as a heterogeneous group of tasks. Exploring household recycling behaviour at a micro level would not only throw light on the issue of 'joint' recycling but would also further our understanding about the

divisions of labour employed across these different tasks. It may be that these divisions of labour are in fact gendered at a much more micro level.

Both of these areas for further research would benefit from an in-depth study of recycling which is contextualised within the domestic division of labour. We believe that this calls for an extensive, qualitative study of recycling and non-recycling households. As well as giving a richer and more detailed picture to flesh out the results featured here, qualitative research would also allow a better understanding of how and why households establish different divisions of labour for recycling tasks.

Acknowledgements
We are grateful to the Nuffield Foundation for their funding for this project, and the contributions of their anonymous reviewers. We would also like to thank Wilma Machray and Gill Musson for their helpful comments on earlier drafts.

Reference List

Arcury, T.A., Scollay, S.J., and Johnson, T.P. (1987) 'Sex Differences in Environmental Concern: The Case of Acid Rain', *Sex Roles* 16: 463-472.

Baldassare, M. and Katz, C. (1992) 'The Personal Threat of Environmental Problems as Predictor of Environmental Practices', *Environment and Behaviour* 24(5): 602-616.

Barker, K., Fong, L., Grossman, S., Quin, C. and Reid, R. (1994) 'Comparison of Self-Reported Recycling Attitudes and Behaviours with Actual Behaviour', *Psychological Reports* 75: 571-577.

Barr, S. (2002) *Household Waste in Social Perspective: Values, attitudes, situation and behaviour*. Aldershot: Ashgate.

Belch, M.A. and Willis, L.A. (2002) 'Family Decision at the Turn of the Century: Has the Changing Structure of Households Impacted the Family Decision-Making Process?', *Journal of Consumer Behaviour* 2(2): 111-24.

Bianchi, S.M., Milkie, M.A., Sayer, L.C. and Robinson, J.P. (2000) 'Is Anyone Doing the Housework? Trends in the Gender Division of Household Labour', *Social Forces* 79(1): 191-228.

Blocker, T.J. and Eckberg, D.L. (1997) 'Gender and Environmentalism: Results from the 1993 General Social Survey', *Social Science Quarterly* 78(4): 841-858.

Breen, R. and Cooke, L.P. (2003) 'The Persistence of the Gendered Division of Domestic Labour', *Working Paper No. 2003-01*, Dept of Sociology, University of Oxford, January.

Bryce, W.J., Day, R. and Olney, T.J. (1997) 'Commitment Approach to Motivating Community Recycling: New Zealand Curbside Trial', *The Journal of Consumer Affairs* 31(1): 27-52.

Cohen, P.N. (1998) 'Replacing Housework in the Service Economy: Gender, Class and Race-Ethnicity in Service Spending', *Gender and Society* 12(2): 219-31.

Corral-Verdugo, V. (2003) 'Situational and Personal Determinants of Waste Control Practices in Northern Mexico: A study of reuse and recycling behaviours', *Resources, Conservation and Recycling* 39: 265-281.

Cox, H., Mowatt, S. and Prevezer, M. (2003) 'New Product Development and Product Supply within a Network Setting: The Chilled Ready-meal Industry in the UK', *Industry and Innovation* 10(2): 197-217.

Crush, P. (2003) 'Making mail green', *Marketing Direct* October: 37-8.

Department for the Environment, Transport and the Regions (2000) *Waste Management Strategy 2000 for England and Wales. Part 1.* London: HMSO.

Daneshvary, N., Daneshvary, R. and Schwer, R.K. (1998) 'Solid-waste Recycling Behaviour and Support for Curbside Textile Recycling', *Environment and Behaviour* 30(2): 144-161.

Duncan, S., Edwards, R., Reynolds, T. and Alldred, P. (2003) 'Motherhood, Paid Work and Partnering: Values and Theories', *Work, Employment and Society* 17(2): 309-30.

Easterby-Smith, M., Thorpe, R. and Lowe, A. (1991) *Management Research*. London: Sage.

Gamba, R.J. and Oskamp, S. (1994) 'Factors Influencing Community Residents' Participation in Commingled Curbside Recycling Programs', *Environment and Behaviour* 26(5): 587-612.

Glenn, J. (1987) 'Do People Tell the Truth about Recycling?', *Biocycle* 28(9): 56-57.

Granzin, K.L. and Olsen, J.E. (1991) 'Characterizing Participants in Activities Protecting the Environment: A Focus on Donating, Recycling and Conservation Behaviours', *Journal of Public Policy and Marketing* 10(2): 1-27.

Gray, A. (1992) *Video Playtime. The Gendering of a Leisure Technology.* London: Routledge.

Gregson, N. and Lowe, M. (1994) *Servicing the Middle Classes: Waged Domestic Labour in Britain in the 1980s and 1990s*. London: Routledge.

Hamad, C.D., Cooper, D. and Semb, G. (1977) 'Resource Recovery: Use of a Group Contingency to Increase Paper Recycling in an Elementary School'*, Journal of Applied Psychology* 62 (6): 768-772.

Hill, C.T., Rugin, Z., Peplau, L.A. and Willard, S.G. (1979) 'The Volunteer Couple: Sex Differences, Couple Commitment and Participation in Research on Interpersonal Relationships', *Social Psychology Quarterly* 42(Dec): 415-420.

Jacobs, H.E. and Bailey, J.S. (1982) 'Evaluating Participation in a Residential Recycling Program', *Journal of Environmental Systems* 12(2): 141-152.

McDonald, S. (1996) 'The Management of Post-consumer Plastics Waste Recycling in the UK'. Unpublished PhD thesis, University of Stirling.

McDonald, S. and Oates, C.J. (2003) 'Reasons for Non-Participation in a Kerbside Recycling Scheme', *Resources, Conservation and Recycling* 39(4): 369-385.

Mainieri, T., Barnett, E.G., Valdero, T.R., Unipan, J.B. and Oskamp, S. (1997) 'Green Buying: The Influence of Environmental Concern on Consumer Behaviour', *Journal of Social Psychology* 137: 189-204.

National Consumer Council (1997) *Consumers and the Environment: Can consumers save the planet?* London: NCC.

Needleman, L.D. and Geller, E.S. (1992) 'Comparing Interventions to Motivate Work-site Collection of Home-Generated Recyclables', *American Journal of Community Psychology* 20(6): 775-785.

Nordenmark, M. and Nyman, C. (2003) 'Fair or Unfair? Perceived Fairness of Household Division of Labour and Gender Equality among Women and Men', *European Journal of Women's Studies* 10(2): 181-209.

Oates, C.J. and McDonald, S. (2002) 'What can marketing do for recycling?', *Proceedings of the Academy of Marketing Conference* Nottingham: AoM:1-16.

Office for National Statistics (2001) *Census 2001: National Report for England and Wales.* London: HMSO.

Office for National Statistics (2003) *Family Spending – A Report on the 2002-03 Expenditure and Food Survey*. London: HMSO.

Perrin, D. and Barton, J. (2000) 'If only households recycled what and when they said they would!', *ISWA World Congress* 3-7 July: 255-63.

Perrin, D. and Barton, J. (2001) 'Issues Associated with Transforming Household Attitudes and Opinions into Materials Recovery: A Review of Two Kerbside Recycling Schemes', *Resources, Conservation and Recycling* 33: 61-74.

Pilcher, J. (2000) ''Domestic Divisions of Labour in the Twentieth Century: Change Slow a-coming', *Work, Employment and Society* 14(4): 771-80.

Porter, B.E., Leeming, F.C. and Dwyer, W.O. (1995) 'Solid Waste Recovery: A Review of Behavioural Programs to Increase Recycling', *Environment and Behaviour* 27(2): 122-152.

Press, J.E. and Townsley, E. (1998) 'Wives' and Husbands' Housework Reporting: Gender, Class, and Social Desirability', *Gender and Society* 12(2): 188-218.

Robson, C. (2002) *Real World Research: A Resource for Social Scientists and Practitioner-Researchers*. Oxford: Blackwell.

Schahn, J. and Holzer, E. (1990) 'Studies of Individual Environmental Concern: The Role of Knowledge, Gender and Background Variables', *Environment and Behaviour* 22(6): 767-786.

Schultz, P.W. (1999) 'Changing Behaviour with Normative Feedback Interventions: A Field Experiment on Curbside Recycling', *Basic and Applied Social Psychology* 21(1): 25-36.

Sekaran, U. (2000) *Research Methods for Business. A Skill Building Approach.* New York: Wiley.

Silva, E.B. (2000) 'The Cook, the Cooker and the Gendering of the Kitchen', *Sociological Review* 48(4): 612-28.

Silva, E.B. (2002) 'Time and Emotion in Studies of Household Technologies', *Work, Employment and Society* 16(2): 329-40.

Silver, H. (1987) 'Only So Many Hours in a Day: Time Constraints, Labour Pools and Demand for Consumer Services', *The Service Industries Journal* 7(4): 26-45.

Spaccarelli, S., Zolik, E. and Jason, L.A. (1989) 'Effects of Verbal Prompting and Block Characteristics on Participation in Curbside Newspaper Recycling', *Journal of Environmental Systems* 19(1): 45-57.

Steel, B.S. (1996) 'Thinking Globally and Acting Locally?: Environmental Attitudes, Behaviour and Activism', *Journal of Environmental Management* 47: 27-36.

Sullivan, O. (1997) 'Time Waits for no (Wo)Man: An Investigation of the Gendered Experience of Domestic Time', *Sociology* 31(2): 221-39.

Sullivan, O. (2000) 'The division of domestic labour: twenty years of change?', *Sociology* 34(3): 437-56.

Tucker, P., Grayson, J. and Speirs, D. (2001) 'Integrated Effects of a Reduction in Collection Frequency for a Kerbside Newspaper Recycling Scheme', *Resources, Conservation and Recycling* 31(2): 149-170.

Windebank, J. (2001) 'Dual-earner Couples in Britain and France: Gender Divisions of Domestic Labour and Parenting Work in Different Welfare States', *Work, Employment and Society* 15(2): 269-90.

Withers, J. (2004) 'Down in the Dumps', *Observer Magazine* 25th January: 24-37.

Witherspoon, S. and Martin, J. (1992) 'What do we Mean by Green?', in R. Jowell, L. Brook, G. Prior, and B. Taylor (eds.), *British Social Attitudes: The 9th Report*. Dartmouth: Aldershot.

Biographies

Caroline Oates is a Lecturer in Marketing at Sheffield University Management School. Her main research interests are environmental marketing and marketing to children. She has published work in Journal of Marketing Management, Journal of Marketing Communications, Journal of Consumer Behaviour and Resources, Conservation and Recycling. She has recently published a book on *Advertising to Children on TV* with Barrie Gunter and Mark Blades.

Seonaidh McDonald is a Senior Research Fellow at Aberdeen Business School, The Robert Gordon University. Her primary field of research is waste management and the recycling of domestic waste. Her other research interests include research methods and organisational innovation, learning and change. She has published in Journal of Management Studies, Organization, Qualitative Research and Resources, Conservation and Recycling.

They have collaborated in the past on projects concerning public participation in recycling schemes, sustainable consumption, marketing sustainability and environmental information on household products. Their current research includes a study of *Trade-offs in decision making for sustainable technologies* for the Economic and Social Research Council with colleagues from Leeds University School of Earth and Environment.

Number in household	Frequency	Percentage	National Averages (%)
unknown	3	0.6	
1	81	17.3	31
2	216	46.1	34
3	83	17.7	16
4	66	14.1	13
5	18	3.8	4
6	2	0.4	2

Figure 1. Household sizes returned in the survey compared with census data

1 Person Households	Survey	% of households	Census	% of 1 person households in survey	% of 1 person households in census
Male	26	5.54	13.74	32.10	45.51
Female	55	11.73	16.45	67.90	54.49
Total	81	17.27	30.19	100	100

Figure 2. Comparison of 1 person households in survey with census data by gender

	Recycling Initiator	Recycling Sustainer
Female	211 (45%)	187 (40%)
Joint	120 (26%)	179 (38%)
Male	76 (16%)	68 (15%)
External	13 (3%)	2 (0.5%)

Figure 3. Recycling initiators and sustainers in all households

	Recycling Initiator	Recycling Sustainer
Female	162 (42%)	135 (35%)
Joint	120 (31%)	179 (46%)
Male	54 (14%)	44 (11%)
External	5 (1%)	0 (0%)

Figure 4. Recycling initiator and sustainers in households with more than 1 person

Initiator	Sustainer	Frequency
female	female	110
joint	joint	99
female	joint	47
male	male	31
male	joint	21
joint	female	15

Figure 5. The most common combinations of initiator and sustainer in households with more than 1 person