



The English Plastic Bag Charge

Changes in Attitudes and Behaviour

Research Team:

Wouter Poortinga

Elena Sautkina

Gregory O. Thomas

Emily Wolstenholme



Contact Details:

The report may be cited as: Poortinga, W. Sautkina, E. Thomas, G.O. and Wolstenholme, E. (2016). The English plastic bag charge: Changes in attitudes and behaviour. Cardiff: Welsh School of Architecture/School of Psychology, Cardiff University.

First published in September 2016 by the Welsh School of Architecture/School of Psychology, Cardiff University.

Welsh School of Architecture

Cardiff University, Bute Building, King Edward VII
Avenue, Cardiff, CF10 3NB, Wales, United Kingdom

School of Psychology

Cardiff University, Tower Building, 70 Park Place,
Cardiff, CF10 3AT, Wales, United Kingdom

Email: poortingaW@cardiff.ac.uk | sautkinaE@cardiff.ac.uk | thomasG37@cardiff.ac.uk | wolstenholmeE@cardiff.ac.uk

Twitter: [@wouterpoortinga](https://twitter.com/wouterpoortinga) | [@ltsGregThomas](https://twitter.com/ltsGregThomas) | [@elena_sautkina](https://twitter.com/elena_sautkina)

Acknowledgements

This research was funded by the Economic and Social Research Council (ESRC), grant reference number ES/M00385X/1.

We would like to thank the members of the advisory panel, John Thøgersen, Bas Verplanken, Joanne Amesbury, Ceris Price, Andy Cummins, Tricia Scott, Roisin Jones, Joseph Lovell, Rachel Longley, Lee Davies, Robert John Owen, Jeanie Gray and Jemma Bere, for their insights and advice.

We are indebted to Lorraine Whitmarsh and Nick Nash for their help and advice throughout the project.

We also would like to thank Ipsos MORI, in particular Matthew Evans, Tim Silman, and Amy Wheeler, for conducting the longitudinal survey; and the online participants for providing their views. We are grateful to the participants of the diary-interview study for sparing their valuable time filling out the diaries and taking part in the interviews.

Thanks go to Hazel Thornton for helping in the supermarket observation study.

The supermarket observation study was made possible by the Cardiff Undergraduate Research Opportunities Programme (CUROP).

Executive Summary	4
Introduction	7
Background.....	7
Aim of the research	7
Methodology	8
The longitudinal survey	8
The diary-interview study	10
The supermarket observation study	11
Research Findings: The Longitudinal Survey	12
Shopping behaviour	12
Use of single-use plastic bags	12
Use of own shopping bags	13
Number of Bags for Life owned	15
Support for a plastic bag charge	15
Perceived outcomes of the plastic bag charge	16
Change in support for other environmental policies	17
Research Findings: The Diary-Interview Study	18
The process of behaviour change	18
Attitudes towards the English plastic bag charge	20
Attitudes towards plastic bag provision	21
Attitudes towards other environmental policies	22
Research Findings: The Supermarket Observation Study	24
Observed bag use	24
Gender differences in bag use	25
Age differences in bag use	25
Bag use in different supermarkets	26
Conclusions	27
References	29
Appendix A: Survey findings	30
Appendix B: Demographic Information for the Diary-Interview Study	39
Appendix C: The Diary Questionnaire	40
Appendix D: Interview Topic Guide	42
Appendix E: Supermarket Observation Sheet	43

Executive Summary

This report presents the results of an ESRC-funded research project that examined the behavioural and attitudinal impacts of the English plastic bag charge that was introduced in October 2015. The project

used a mixed-methods longitudinal approach, and included a national survey, a diary-interview study, and supermarket observation study. The key results for the three elements are summarised below:

The longitudinal survey

- The longitudinal survey was developed to examine changes in behaviours and attitudes following the introduction of the English plastic bag charge.
- A representative sample of the public in England, Wales, and Scotland were surveyed one month before (n=3,066), and then one month (n=2,005) and six months (n=1,230) after the introduction of the English plastic bag charge.
- We find an immediate change in bag use after the charge was implemented. Whereas before the charge about 1 in 4 respondents from England “Often/Always” took single-use plastic bags doing their main and top-up food shop, this fell to around 1 in 10 respondents one month after the charge was introduced.
- In contrast, before the charge 70% of respondents from England “Often/Always” took their own shopping bags, which increased to 83% of respondents one month after the charge, and to 93% of respondents six months after the charge was introduced.
- The analyses indicate that the introduction of the plastic bag charge led to a substantial increase in people taking their own bags, independent of age, gender, or income. Although some differences remained between different groups, similar increases were observed for all groups considered.
- A small majority (52%) already supported a 5p plastic bag charge before one was introduced in England. Support for a charge further increased to 60% one month after, and to 62% six months after the English charge was introduced. An increase in support was observed for both men and women, as well as for different age and income groups.
- Support for a 5p plastic bag charge also increased in Wales and Scotland over the same period, with similar levels of support observed in Scotland as in England (61%), and very high levels of support in Wales (80%).
- Not only did people become more supportive of a plastic bag charge after its introduction, they also became more supportive of other charges to reduce waste. In particular, those who changed their opinion about the plastic bag charge also changed their opinion about other charges.
- Respondents from all three UK countries see plastic bag charge as a highly effective policy to reduce plastic bag use. Before the introduction of the English plastic bag charge, 76% of respondents from England agreed that it would encourage people to use fewer plastic bags. This increased to 80% six months after the charge was introduced.
- Respondents from England became far less sceptical about the charge after it was introduced. Before its introduction, two thirds of respondents from England (65%) thought that stores would use the charge to make more money. This decreased to 47% one month after the charge, and to 39% six months after the charge was introduced.
- No evidence was found to suggest that the bag charge led to any changes in shopping behaviour.
- There is evidence of Bags for Life accumulating in people’s homes, with people in Wales having the largest numbers of Bags for Life at home.

The diary-interview study

- The diary-interview study aimed to provide an in-depth account of the process of behaviour and attitude change. Semi-structured diaries were followed by semi-structured one-hour interviews before (n=57 and n=52, respectively) and after (n=45 and n=43, respectively) the plastic bag charge was introduced in England. The three samples in England, Wales and Scotland were balanced in terms of age, gender, socio-economic profile, urban/rural location, and were geographically varied.
- The English plastic bag charge was highly effective at reducing the strength and automaticity of habitual use of single-use plastic bags, and replacing it with a planned and more conscious use of Bags for Life. People changed their behaviour for both financial and environmental reasons.
- There was a high level of awareness in England of the plastic bag charge coming into effect, and participants adapted easily and quickly to the charge. Support for the charge was already high before its introduction, and increased after the charge came into effect, most likely due to the understanding of its environmental benefits. A majority of participants in the three countries supported a 'blanket', exemption-free plastic bag charge.
- After the introduction of the charge in England, people experienced more encouragement from supermarkets to reuse bags. They also saw less need for both single-use plastic bags and plastic Bags for Life to be provided in supermarkets. This was corroborated by the interviews conducted in Wales and Scotland.
- Most participants stopped using single-use plastic bags as bin liners after the plastic bag charge was introduced in England. However, in Wales and Scotland a small number of people continued to use both single-use plastic bags and Bags for Life as bin liners.
- After the introduction of the charge in England, there was an increased awareness of the environmental impact of household plastic waste, and interview participants became more supportive of hypothetical charges to reduce waste. Support for a hypothetical rise in fuel duties was lower due to its feared impact on families' budgets, a lack of suitable alternatives to driving, and a need to develop the use of renewable energy sources.

The supermarket observation study

- We observed supermarket shoppers in England and Wales in July 2015 (n=819 and n=818, respectively) and in July 2016 (n=984 and n=1,143, respectively), exiting four supermarkets in both Cardiff and in Bristol.
- In England, over half of all shoppers (57%) were seen using single-use plastic bags before the charge was introduced. This fell to just 21% after the charge was introduced.
- In England, about 29% of all shoppers were seen using Bags for Life before the charge was introduced. This doubled to 58% after the charge was introduced.
- After the English plastic bag charge was introduced, bag use in England matched observed bag use in Wales, where a bag charge was already in place for several years.
- In England, no substantial changes were seen in the number of shoppers using personal bags (e.g., rucksacks), and no changes in the proportion of people carrying items loose without a bag, suggesting that single-use plastic bags have been replaced by Bags for Life.

Conclusions

Overall, the research has shown that the English plastic bag charge has made a strong and positive impact on people's behaviours and attitudes.

The research found that the charge was effective at breaking old habits, and that it became more popular as people adapted to the policy. Evidence was also found that the charge increased environmental awareness and the acceptability of other environmental policies.

The success of the plastic bag charge in effectively changing plastic bag use and increasing support for other charges to reduce waste suggests that similar policies could also be successfully implemented, such as a deposit return scheme on plastic bottles or a charge on disposable coffee cups.

Introduction

Background

Since their introduction in the early 1980s, plastic carrier bags have quickly become a common feature of shopping in the UK. In 2014, approximately 8.5 billion plastic bags were used by consumers in 2014, which accounted for around 58,000 tonnes of plastic (WRAP, 2015). Plastic bags present a serious and lasting environmental challenge. Plastic bags are typically made from high-density polyethylene, a material sourced from fossil fuels which can negatively contribute to climate change (Edwards & Fry, 2011). Once disposed, plastic bags may also cause harm to wildlife. Animals may ingest plastic bags, become entangled in them, or be poisoned by contaminants within, or growing on, discarded plastic bags (BIO Intelligence Service, 2011).

Many national and local governments across the world have introduced different policies to reduce plastic bag use, including bans and mandatory charges (Clapp & Swanston, 2009). Mandatory bag charges have been shown to be highly effective and popular among the general public (Convery et al., 2007; Poortinga et al., 2013; Thomas et al., 2016).

Aim of the research

In this report we outline the results of an ESRC-funded research project (ES/M00385X/1) examining the behavioural and attitudinal changes following the English Plastic Bag Charge. The project used a mixed-methods, longitudinal approach, including (1) a longitudinal survey; 2) a longitudinal diary-interview study; and 3) a longitudinal supermarket observation study. The main aim of this report is to present the key findings of these three elements of the project.

The longitudinal survey followed a nationally-representative sample over three waves to examine

The environment is a devolved policy area within the UK, and the devolved governments have introduced charges at different times over the past five years. Wales was the first UK country to introduce a 5 pence single-use carrier bag charge in October 2011, followed by Northern Ireland in April 2013, and Scotland in October 2014. England introduced a 5 pence charge for single-use plastic carrier bags sold by large retailers on the 5th of October 2015.

The effects brought about by the plastic bag charges have been impressive and consistent. The total number of single-use carrier bags consumed in Wales, Northern Ireland and Scotland have all fallen by around 80% (WRAP, 2014; WRAP, 2015; Zero Waste Scotland, 2015). While the English charge has a number of exemptions, it is estimated that the use of single-use plastic bags dropped by 85% in the first six months following its introduction (Defra, 2016).

changes in shopping behaviour and plastic bag use, as well as in environmental attitudes. The diary-interview study aimed to provide an in-depth understanding of the process of behaviour and attitude change using a large and diverse sample of participants. The observation study was conducted across four supermarket branches in both England and Wales to objectively assess changes in customers' bag use before and after the introduction of the English plastic bag charge.

For details of these exemptions, see:

¹ www.gov.uk/government/publications/single-use-plastic-carrier-bags-why-were-introducing-the-charge/carrier-bags-why-theres-a-5p-charge

Methodology

The longitudinal survey

The longitudinal survey was developed to examine changes in environmental behaviours and attitudes following the introduction of the English plastic bag charge in October 2015. The survey was conducted over three waves: the first in August 2015, before the introduction of the charge; the second in November 2015, directly following the introduction of the charge; and the third in April 2016, six months after the introduction of the charge. The study was approved by the Welsh School of Architecture Research Ethics Committee at Cardiff University (EC1507.239).

The survey was conducted using the Ipsos Access Panel, supplemented with an external panel in Wales to ensure a sample large enough to represent the Welsh population. A sample was reserved from the panel to ensure that it was representative and panel members were not overburdened by other survey requests during the three fieldwork periods.

Panelists were recruited using an email invitation including a link to the online questionnaire. The email contained information about the survey length, and incentive points which could be exchanged for vouchers. Participants completing the survey at Wave 1 were invited to complete Wave 2 of the survey, and those completing Wave 2 were invited to complete Wave 3. In order to encourage participants to complete additional waves, participants received more points for completing Waves 2 and 3. There was some drop-out between Wave 1 and 2 (35%), and between Wave 2 and 3 (39%), due to respondents leaving the panel and non-response. Table 1 shows the weighted sample sizes for the three waves in England, Wales, and Scotland.

Table 1: Sample sizes for the longitudinal survey (n).

	Wave 1, August 2015	Wave 2, November 2015	Wave 3, April 2016
England	1,802	1,191	728
Wales	664	422	271
Scotland	600	392	231
Total:	3,066	2,005	1,230

Quotas were set at Wave 1 to ensure that the sample was representative of the English, Scottish, and Welsh populations in terms of gender, age, and working status. Quotas were also set for regions in England to ensure a sufficient geographical spread. The quota for working status was based on data from Eurostat 2013, and the other quotas on data from Eurostat 2012. All waves were weighted so that they were representative of the three countries.

The questionnaire was developed by the Cardiff University research team, with consultation and feedback from researchers at Ipsos MORI. The

questionnaire included questions on shopping behaviour, current bag use, views on the plastic bag charge, information on the plastic bag charge (Wave 1 only), awareness of the plastic bag charge (Wave 2 only), and socio-demographics.

The full questionnaire is available from the authors upon request. Here we report results relating to shopping behaviour, current bag use, and views on the plastic bag charge, with detailed responses to key questions given in Appendix A.

² Dates for fieldwork Wave 1: 27 August 2015 to 7 September 2015; Wave 2: 13 November 2015 to 23 November 2015; Wave 3: 7 April 2016 to 18 April 2016.

Box A: Definitions and examples of different types of bags shown in the survey.**Single-use plastic bags**

These are bags provided at the till of stores and shops which are made mostly or completely of plastic film, and are not specifically made for multiple usage.

**Bags for life**

These are reusable shopping bags that are purchased by shoppers, and are designed to be re-used several times. They are often made from a thick plastic that is more durable than single-use plastic bags, or from fabric such as canvas, or woven synthetic fibres.

**Personal bags and containers**

These are bags and containers which are designed for multiple use and different purposes, and include items such as rucksacks, crates, personal trolleys, etc.



The diary-interview study

The longitudinal diary-interview study (Zimmerman & Wieder 1977) was conducted to gain a deeper understanding of the process of change in environmental behaviours and attitudes. Diaries were conducted to obtain a detailed account of people’s everyday behaviours, and used as a basis for the follow-up in-depth interviews that focused on behaviours and attitudes. The study was timed one month before and repeated one month after the introduction of the English plastic bag charge. The study was approved

by the Welsh School of Architecture Research Ethics Committee at Cardiff University (EC1507.243).

Study participants lived in geographically diverse locations across England, Scotland and Wales. They were selected to be broadly representative in terms of gender, age, socio-economic status, and urban/rural location (see Appendix B). Table 2 shows the sample sizes for the two waves of the diary-interview study.

Table 2: Sample sizes of the diary-interview study (n).

	Wave 1, September 2015		Wave 2, November 2015	
	Diaries	Interviews	Diaries	Interviews
England	19	18	14	14
Wales	20	18	16	16
Scotland	18	16	15	13
Total:	57	52	45	43

Participants were selected via a recruitment company. Participants received an invitation letter and an information sheet explaining the aims of the research, the procedure, and the incentive scheme. At Wave 1, participants who completed the diary were invited to take part in the interview. Participants who completed the diary and interview at Wave 1 were then invited to take part in the diary and interview at Wave 2. A progressive incentive scheme encouraged participants to complete all four stages of the study. Participant drop-out rates between Wave 1 and Wave 2 were 17-26% for the diaries, and 11-22% for the interviews.

Participants were asked to keep a diary for ten consecutive days. The diaries comprised two distinct elements: (1) a structured diary recording everyday bag use, shopping and environmental behaviours (e.g. shops visited, number and type of bags used, home recycling and energy-saving behaviours, etc.), and (2) a semi-structured account recording personal observations and reflections on these behaviours. Diaries were completed electronically, using the Bristol Online Survey platform, and took on average 10-15 minutes to complete.

Semi-structured interviews were conducted by three authors [ES, EW, GT] over the telephone, and lasted between 45 and 75 minutes. The interviews were digitally recorded, transcribed verbatim, and subsequently analysed thematically using the NVivo10 software package. The thematic codes were generated by one author [ES], checked and discussed with another author [EW], and subsequently agreed by the whole team. Interviews allowed to explore in-depth the process of behaviour and attitude change, and included questions on shopping and bag use behaviours, attitudes to the plastic bag charge, environmental behaviours and attitudes, and socio-demographics.

The details of the online diary questionnaire and the interview topic guide for the core questions covered in this report are presented in Appendices C and D, respectively.

³ Dates for fieldwork Wave 1: 4 September 2015 to 13 November 2015 (Diaries), 14 September 2015 to 28 September 2015 (Interviews); Wave 2: 13 November 2015 to 22 November 2015 (Diaries), 23 November 2015 to 4 December (Interviews).

The supermarket observation study

The observation study was conducted across four supermarket branches in both England and Wales to objectively assess changes in shoppers' bag use before and after the introduction of the English plastic bag charge. Observations were made in July 2015, when only the Welsh bag charge was in place, and in July 2016, after the English bag charge was introduced. The study was approved by the Welsh School of Architecture Research Ethics Committee at Cardiff University (EC1506.237).

The study was conducted in Cardiff, Wales and Bristol, England: two cities that are located near each other and of similar population size. Observations took place at four different types of supermarkets:

1. Local supermarket, located in the middle of a city centre.
2. Megastore 1, located on the edge of a city centre.
3. Megastore 2, located on the edge of a city centre.
4. Premium supermarket, located on the edge of a city centre.

The supermarkets represent a mix of sizes, locations, and number of premium items sold, all of which may influence bag use. Observations were carried out by a pair of trained researchers who visited each supermarket for one hour at three different times: a weekday morning (10:30 to 11:30am), a weekday afternoon (4:30 to 5:30pm), and on a Saturday (either 11:00 to 12:00pm or 1:00 to 2:00pm). The total number of shoppers observed is shown in Table 3.

Table 3: Number of shoppers observed at supermarkets in Wales and England in 2015 and 2016 (n).

	Wales		England	
	2015	2016	2015	2016
Local supermarket	192	279	203	236
Megastore 1	209	357	200	239
Megastore 2	210	270	208	260
Premium supermarket	207	237	208	249
Total	818	1,143	819	984

The researchers would identify shoppers leaving the supermarkets, and independently record the person's approximate age, gender, and record the number and type of bags used. This included single-use plastic bags, plastic Bags for Life, canvas/tote Bags for Life, and other types of personal bags used to carry

shopping from the store. Observations were conducted on public space outside of the supermarkets. After recording the details, the researchers would compare observations and resolve any disagreement in recording. A copy of the supermarket observation sheet can be found in Appendix E.

⁴ Dates for fieldwork Wave 1: 25 June to 25 July 2015; Wave 2: 22 June to 23 July 2016.

Research Findings: The Longitudinal Survey

Shopping behaviour

It has been suggested that introducing a bag charge could change people’s shopping routines. For example, a bag charge may decrease the frequency of shopping trips to avoid paying additional costs for bags, or people may shop at smaller/independent stores to avoid the bag charge. We asked people about their shopping practices to see if any effects could be observed.

- We first asked people how often they went shopping for food. Before the charge came into effect, the majority of people in England went food shopping either 2-3 times a week (37%) or once a week (37%). Six months after the charge was introduced, there was no change in the frequency of these food shopping trips (37% and 38%, respectively), and figures were similar in Wales and Scotland.
- We then asked people whether over the last month they had bought most of their food in one main shopping trip, in several ‘top-up’ shopping trips, or in a combination of the two. Before the charge was introduced, 54% of people in England did a mixture of trips, while 33% had bought most of their food in one main shopping trip. After the charge, the proportions were almost identical: 54% did a mixture of a main and ‘top-up’ trips, and 35% did main shopping trips only. The figures were similar in Wales and Scotland.

- People indicated which type of shops they used at least once a month for their main food shops. The most popular destination was large supermarket stores, used by 81% of respondents in England before the charge was introduced, and by 83% six months after the introduction of the charge. The figures were similar in Wales and Scotland.
- The proportion of people doing their main shopping in small/independent stores (likely to be exempt from the English bag charge) also did not change: 9% of respondents from England visited small/independent stores at least once a month before the charge. This remained stable at 8% six months after the charge was introduced.
- Top-up food shops to small/independent stores were more frequent, but did not change over time. Before the charge, 26% of the respondents from England visited small/independent stores at least once a month for a top-up shop. This remained stable at 24% six months after the charge was introduced. Again, the figures were similar in Wales and Scotland.

Overall, there are no indications that shopping practices were affected by the bag charge. Respondents in England showed no change in shopping behaviour, and there were no major differences at any time point with Wales and Scotland.

Use of single-use plastic bags

Respondents were asked how often they take a single-use plastic bag from the till when doing their main and top-up food shops.

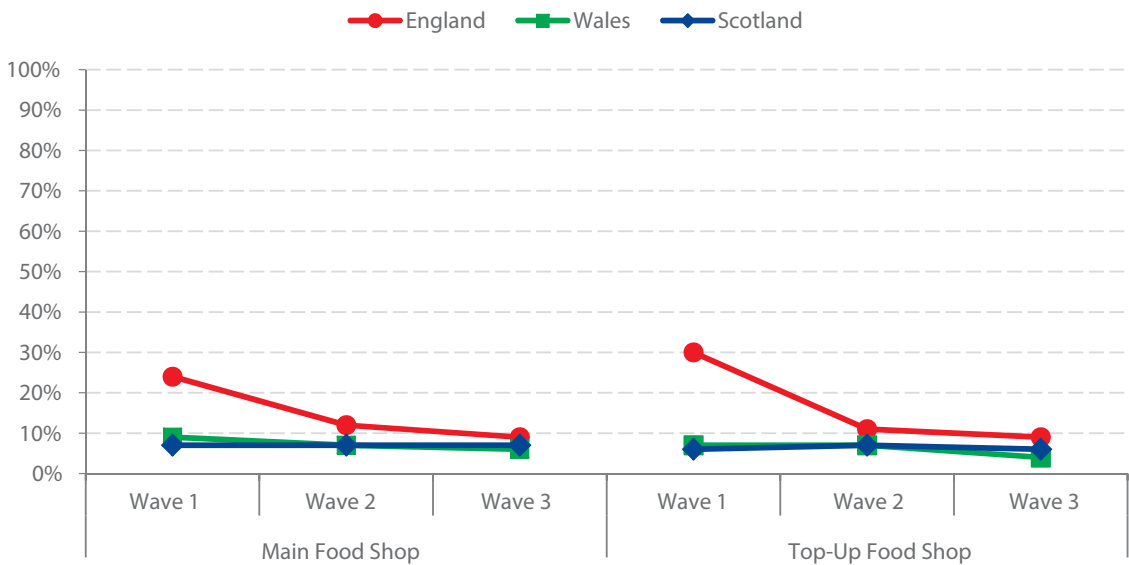


Figure 1: Proportion of respondents who “Often” or “Always” take single-use plastic bags from the till when doing their main and top-up food shops.

- Before the charge was introduced, 24% of respondents in England said they “Often/Always” take single-use plastic bags when doing their main food shop. This fell to 12% one month after, and to 9% six months after the charge was introduced. The latter figure is comparable to Wales and Scotland, where 6-7% of respondents “Often/Always” take single-use plastic bags when doing their main food shop.
- Prior to the introduction of the charge, 30% of respondents from England said they “Often/Always” take single-use plastic bags when doing their top-up food shop. This fell to 11% one month after, and to 9% six months after the charge was introduced. Six months after the charge, the England figures were comparable to Wales and Scotland, where around 4-6% of respondents “Often/Always” take a single-use plastic bags when doing their top-up food shop.
- Before the charge, 44% of respondents aged 18-24 “Often/Always” took single-use bags during their main food shop, compared to 17% of those aged 65 or over. This fell to 13% and 3% respectively six months after the introduction of the charge. All age groups reduced their single-use plastic bag usage, although younger people remained more likely to use them.
- Single-use plastic bag use decreased among all income groups. For those earning less than £15k per year, plastic bag use dropped from 29% one month before to 11% six months after the introduction of the plastic bag use. For those earning more than £45k per year, plastic bag use dropped from 22% one month before to 11% six months after the introduction of the plastic bag charge.

We subsequently examined changes in single-use plastic bag use according to gender, age, and income. Analyses were conducted for England only.

- Before the charge, 26% of men and 24% of women “Often/Always” took single-use plastic bags during their main food shop. This fell to 9% of men and 8% of women six months after the introduction of the charge. A similar pattern was found for top-up food shops.

Results indicate that the plastic bag charge led to a substantial reduction in single-use plastic bag use among both men and women, as well as among different age and income groups. Although younger people remained more likely to use single-use bags, the charge changed behaviour across all groups considered.

Use of own shopping bags

Respondents were asked how often they usually take their own shopping bags to a variety of different stores. Here we present the results relating to main and top-up food shops.

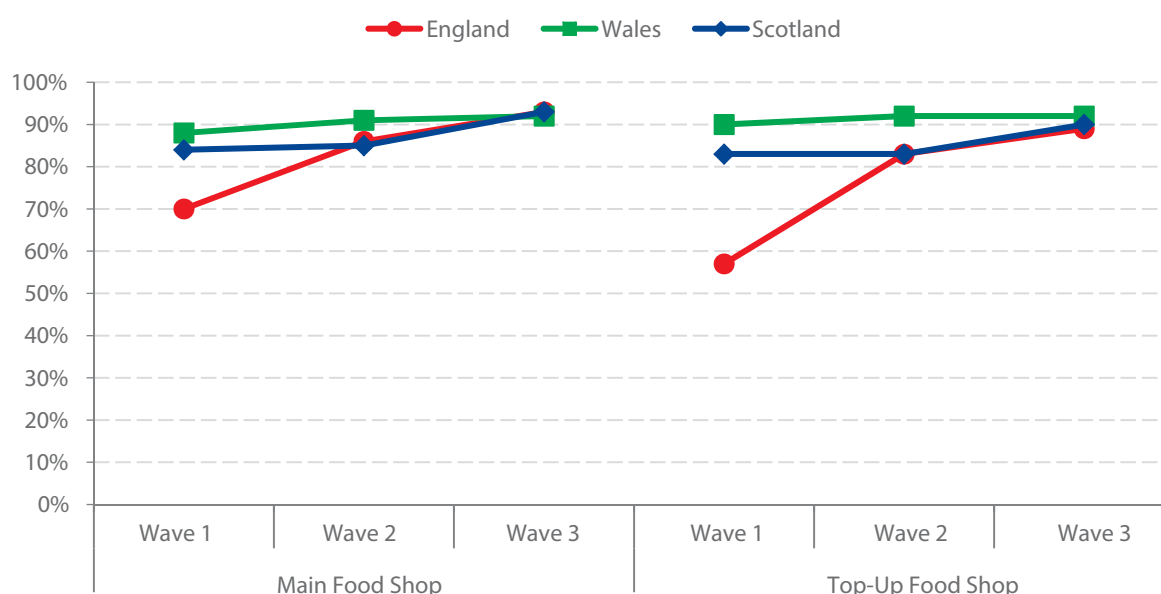


Figure 2: Proportion of respondents who “Often” or “Always” take their own shopping bags when doing their main and top-up food shops.

The English Plastic Bag Charge

Changes in Attitudes and Behaviour

- In England, the proportion of respondents “Often/Always” taking their own shopping bags when doing their main food shop increased from 70% one month before to 93% six months after the charge was introduced. The latter figure is similar to own bag use in Wales and Scotland, where 92-93% of respondents “Often/Always” take their own shopping bags when doing their main food shop.
- The increase in own bag use was even bigger for top-up food shops: the proportion of respondents from England “Often/Always” taking their own shopping bags when doing their top-up food shop increased from 57% before to 89% six months after the charge was introduced.
- We also asked respondents whether they took their own bags on their most recent food shopping trips, with very similar results; before the charge 73% said they did so for a main food shop, rising to 91% six months after the introduction of the plastic bag charge.

We then asked how often people took their own bags when going to different types of stores.

- The proportion of respondents from England “Often/Always” taking their own shopping bags when going to clothes stores increased from 11% one month before to 49% six months after the introduction of the plastic bag charge.
- The proportion of respondents in England “Often/Always” taking their own shopping bags when going to a beauty/healthcare store increased from 15% before to 55% of respondents six months after the introduction of the plastic bag charge.
- In England, use of own bags was lower for visits to electrical/electronic, entertainment, or DIY/hardware stores. The proportion of respondents “Often/Always” taking their own shopping bags increased from between 6-10% before to around 30-36% six months after the introduction of the charge for these stores.

Results show that own bag use for food shopping was already high in England before the charge was introduced. However, the introduction of the charge appears to have increased the use of own bags to even higher levels. Shopping trips to other stores had relatively low rates of own bag use prior to the charge, but also show clear increases.

We subsequently examined changes in own bag use according to gender, age, and income. Analyses were conducted for England only.

- Before the charge, 65% of men and 74% of women “Often/Always” took their own bags when doing their main food shop. This increased to 92% of men and 95% of women six months after the charge was introduced.
- A similar pattern was found for top-up food shops: before the charge, 54% of men and 59% of women “Often/Always” took their own bags. This increased to 87% of men and 90% of women six months after the charge was introduced.
- Older people were more likely to take their own bags before the charge: 80% of those aged 65 and over “Often/Always” took their own bags when doing their main food shop, compared to 44% of those aged 18-24. Six months after the charge was introduced, this increased to 95% and 82% respectively.
- Own bag use increased across all income groups: before the charge 65% of respondents earning less than £15k and 69% of people earning £45k or more “Often/Always” take their bags when doing their main food shop. Six months after the introduction of the charge, own bag use had risen to 89% for those earning under £15k and to 93% for those earning more £45k or more.

The analyses indicate that the introduction of the plastic bag charge led to a substantial increase in people taking their own bags, independent of age, gender, or annual income. Although some differences remained between different groups, increases were observed for all groups considered.

Number of Bags for Life owned

We asked respondents to estimate the number of Bags for Life they currently have at home. The mean estimated number of bags people have at home is shown below.

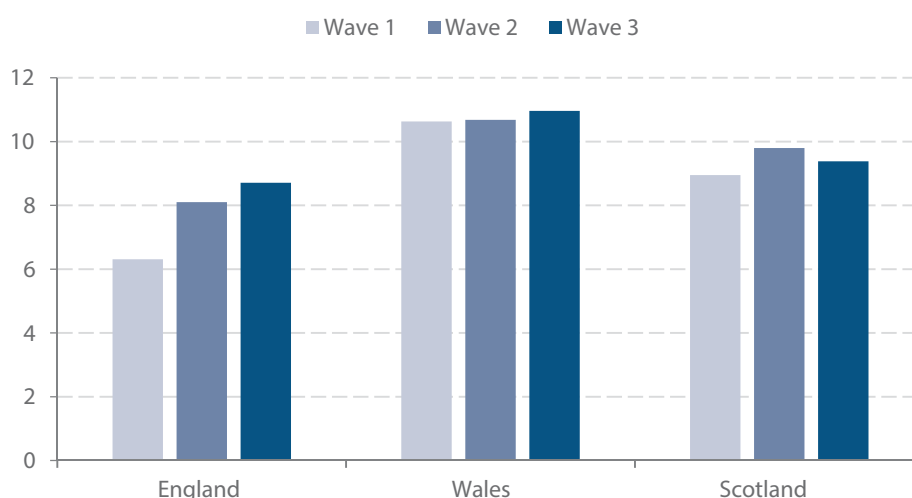


Figure 3: Estimated number of Bags for Life at home

- In England, the average number of Bags for Life people had at home increased from 6.3 one month before, to 8.7 six months after the introduction of the English charge.
- In Wales, the mean number of Bags for Life people had at home increased from 10.6 to 11.0 over the same period.
- In Scotland, the mean number of Bags for Life people had at home increased from 9.0 to 9.4.
- Before the charge, almost 1 in 10 respondents in England (9%) reported having no Bags for Life at home. This decreased to 3% reporting no Bags for life at home after the charge was introduced, comparable with Wales (2%) and Scotland (3%).

Support for a plastic bag charge

We asked all respondents to indicate to what extent they support or oppose a 5p charge to customers for each single-use plastic bag used.

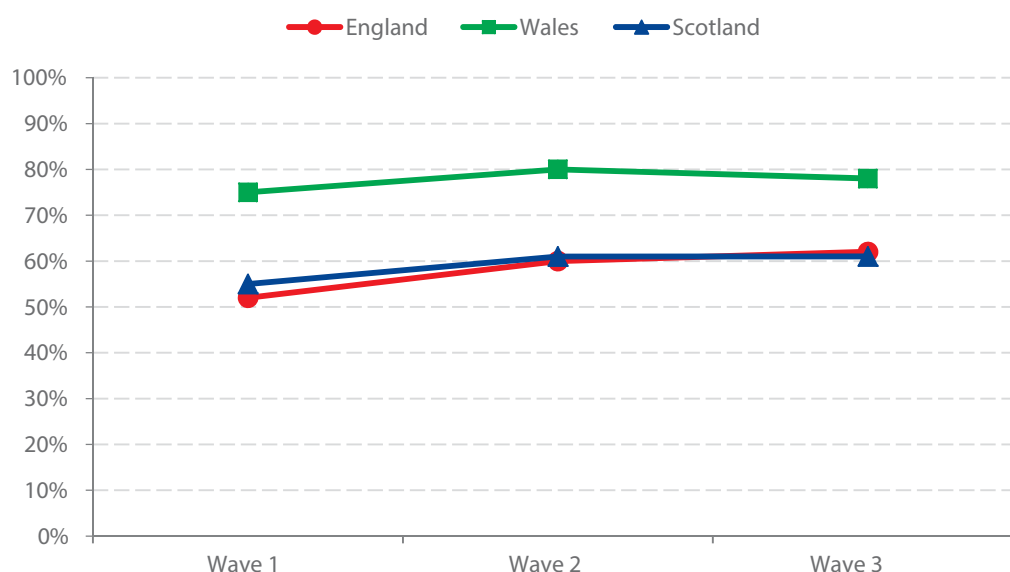


Figure 4: Proportion of people supporting a 5p charge to the customer for each single-use plastic bag used.

The English Plastic Bag Charge

Changes in Attitudes and Behaviour

- Before the English charge was introduced, 52% of respondents from England supported a 5p charge on single-use plastic bags. This increased to 60% supporting a 5p charge one month after, and then to 62% six months after the plastic bag charge was introduced.
- Support for a 5p charge on single-use plastic bags was considerably higher in Wales, and increased from 75% to 80% over the period of the study.
- In Scotland, support for a 5p charge on single-use plastic bags increased from 55% to 61% over the period of the study.

We then examined how support for a 5p charge changed over time according to gender, age and income. Analyses were conducted for England only.

- Both men and women increased their support for a 5p charge on single-use plastic bags, from 51% of men and 53% of women before the charge, to 63% of both men and women supporting the charge six months after it was introduced.

Perceived outcomes of the plastic bag charge

Respondents of the longitudinal survey were asked to indicate to what extent they agreed or disagreed with a number of statements on possible outcomes from a 5p charge for each single-use plastic bag. Here we describe changes in agreement for three statements: 1) People will be encouraged to use fewer plastic bags; 2) People will be encouraged to use Bags for Life /their own bags, and 3) Stores will use the charge to make more money.

- People were very positive about the effectiveness of a 5p plastic bag charge. Before the introduction of the English plastic bag charge, 76% of respondents from England agreed that it will encourage people to use fewer plastic bags. This increased slightly to 80% six months after the charge was introduced.
- In England, agreement that the charge would increase use of own shopping bags increased from 79% one month before to 86% six months after charge was introduced.
- Respondents from England became far less sceptical after the plastic bag charge was introduced. Before the introduction of the charge, two thirds of

- Support for a 5p charge increased across all age groups. Respondents aged 18-24 increased their support from 38% to 53%, while respondents aged 65 or over increased their support from 65% to 71%.
- Support for a 5p charge increased across all income groups. Those earning less than £15k per year increased their support from 49% to 57%, and those earning £45k or more increased their support from 58% before to 69% six months after the charge was introduced.

The study showed a clear trend of increasing public support for a 5p charge. In England, support increased from 52% to 62%, and there is evidence that support increased equally among men and women, as well as among different age and income groups. Support also increased in Wales and Scotland over the period of the study, which may be due to the media attention surrounding the introduction of the English charge in October 2015.

respondents in England (65%) thought that stores would use the charge to make more money. This decreased to 47% one month after the charge, and to 39% six months after the charge was introduced.

Respondents generally had positive views about the outcomes of a plastic bag charge. Before the charge was introduced in England, a clear majority already thought that it would help to discourage plastic bag use and encourage own bag use. Agreement that the charge would encourage sustainable bag use further increased after the charge was introduced.

However, there was some scepticism about how the proceeds of the charge would be used. Before the charge was introduced in England, a clear majority (65%) thought that stores would use the charge to make more money. Suspicion decreased significantly after the introduction of the charge, with scepticism of stores using the charge to make money ultimately falling to 39%.

Change in support for other environmental policies

To test the idea that experience with one policy may change people's views on other similar policies (also known as 'policy spillover'), respondents were asked to indicate the extent to which they supported or opposed three hypothetical but realistic environmental policies that involve charging. The three policies included were:

1. An additional 5p charge on each plastic water bottle purchased;
 2. An additional 5p charge on products with a lot of plastic packaging;
 3. An increase in taxes charged on petrol and diesel.
- Support for a 5p charge on water bottles increased over the period of the study. In England, support for a 5p charge increased from 33% one month before to 39% six months after the charge was introduced. Similar increases in support were found in Wales (from 44% to 50%) and in Scotland (from 25% to 34%).
 - Support for a 5p charge on products with excess packaging also increased. In England, support for a 5p charge on products with a lot of plastic packaging increased from 33% one month before to 39% six months after the charge was introduced. Similar increases were found in Wales (from 41% to 48%) and in Scotland (from 25% to 34%).
 - Support for an increase in taxes charged on petrol and diesel was considerably lower, and did not change substantially over the course of the study. In England, support for the policy increased from 11% one month before to 15% six months after the charge was introduced. In Wales, no change in support was found (support remained static at 10%). In Scotland, support for an increase in taxes charged on petrol and diesel increased minimally from 8% to 10%.

We then examined whether a change in support for a 5p bag charge was associated with any changes in support for the three other policies, using the England sample only.

- Overall, 38% of respondents increased their support for a 5p bag charge six months after experiencing the introduction of the bag charge, while only 13% reduced their support.
- Among those who increased their support for a 5p bag charge, 38% then also increased their support for a hypothetical 5p charge on water bottles, compared to a smaller proportion reducing support for a 5p charge on water bottles (16%).
- It was found that among people in England who increased their support for the bag charge, 38% then also increased their support for a 5p charge on excessive packaging, a larger proportion than those who decreased their support for a 5p charge on excessive packaging (19%).
- However, among those who increased their support for a 5p bag charge, 26% then also increased their support for higher fuel duties, only a little more than those who decreased support for higher fuel duties (17%).

The study found evidence for policy spillover. Not only did support for a 5p plastic bag charge increase after the introduction of the English charge, support for other environmental policies involving charging increased as well. Greater support for the other policies was mainly found among those who increased their support for a 5p plastic bag charge. This policy spillover effect was found for charges on plastic bottles and excessive packaging, but not for higher fuel duties, suggesting some limitation on this effect.

Research Findings: The Diary-Interview Study

The diary-interview study aimed to provide an in-depth account of the process of behaviour and attitude change. The diaries focused mainly on shopping and bag use behaviours, while the interviews looked at both behaviours and attitudes. Here the main emphasis is made on the findings for England after the plastic bag charge was introduced. In order to corroborate the

evidence and reinforce the case for changes following the English plastic bag charge, comparisons are made with the diaries and interviews that were conducted in England before the charge was introduced, as well as with the diaries and interviews that were conducted in Wales and Scotland, where charges were already in place.

The process of behaviour change

The English plastic bag charge was very effective at reducing the strength and automaticity of habitual use of single-use plastic bags. The charge has played the role of a 'thought-trigger' against the enactment of the behaviour. The old single-use plastic bag habit was replaced by a new habit of personal bag use, not only because of financial reasons but also environmental ones. Furthermore, reusable bags were perceived as more practical than single-use bags. A small minority of participants purchased single-use plastic bags on rare occasions, when they forgot to bring their own bags to the supermarket.

- The diary findings show that the number of shopping trips in which participants from England bought new single-use plastic bags decreased by 42% from one month before to one month after the introduction of the English plastic bag charge. However, the number of shopping trips in which they bought new Bags for Life only increased by 15%. The number of shopping trips in which participants used their personal bags increased by 25%. For Scotland and Wales, changes in these numbers between Wave 1 and 2 were minimal (in the range of 1-5%).
- The diary findings suggest a substantial decrease in the number of single-use plastic bags bought in supermarkets, from 2.6 bags per person in the 10-day period before the introduction of the English plastic bag charge to 0.1 bags per person in the 10-day period after the introduction. The number of Bags for Life bought during the two 10-day periods increased from 0.1 to 0.4 bags per person.
- Wales had the largest number of Bags for Life bought during the diary periods (2.2 at Wave 1 and 2.3 at Wave 2). In Scotland, participants bought on average 1.2 Bags for Life per person during the two 10-day diary periods.

- Interview findings show that in England, before the plastic bag charge was introduced, single-use plastic bag use was habitual and forgetful:

“ I do intend to, a lot of the time, bring a couple of Bags for Life that we have, but it's just so ingrained to grab these plastic bags when you get to the shop.
(Interview, Male, England, Wave 1)

- Soon after the charge was introduced in England, the old habit of single-use plastic bags use was disrupted, and a new habit of using personal bags was developed:

“ [We bought] very few, very few [single-use bags]. Just, we're getting into the habit now of taking our own bags with us.
(Interview, Male, England, Wave 2)

- Interview findings for Wales and Scotland similarly show that a bag re-use habit was developed as a result of the plastic bag charges that were introduced in these countries:

“ Well, now I always try and buy these so called Bags for Life. They last for longer. Because you've got to pay for each bag in Scotland, so I always try and have them in the car.
(Interview, Male, Scotland, Wave 1)

- Interview findings show that the English plastic bag charge has disrupted the automaticity of single-use plastic bags use:

“ It [the bag charge] makes people think about what they're doing, and stops them from being lazy. It makes people think ahead and plan, and not just take things for granted.
(Interview, Female, England, Wave 2)

“ I think it makes me aware of the fact that I’m paying for something that I’m only going to use for a few minutes.
(Interview, Male, England, Wave 2)

- Similarly, interviewees in Scotland and Wales emphasised that the plastic bag charge has made them more aware and ‘made them think’ about the waste they produce:

“ I think it’s a really good idea, it makes you so much more mindful of, you know, the need to take your own bags.
(Interview, Female, Wales, Wave 1)

“ Well it just makes you think, I suppose, a bit more about your waste.
(Interview, Male, Scotland, Wave 1)

- Diary findings show that, after the plastic bag charge was introduced in England, the main reason for buying single-use plastic bags was forgetting to bring one’s own bags to the shop. Participants from Wales and Scotland were buying single-use plastic bags for the same reason:

“ I bought a single-use bag because I forgot to bring my own, and needed to carry the purchases back to the car.
(Diary, Male, England, Wave 2)

“ I only had one bag for life in the car, so had to buy an extra bag to carry all the shopping.
(Diary, Female, England, Wave 2)

- Diary findings suggest that participants from the three countries had several reasons for buying Bags for Life. Bags for Life were perceived to be of a better quality (in particular having a better quality-price ratio) and easier to reuse. Other reasons included forgetting to bring one’s own bags to the shop, or not having brought enough bags to carry purchases:

“ I bought a bag for life because they are sturdier and only five pence more.
(Diary, Female, England, Wave 2)

“ I forgot my bags. Only bought two.
(Diary, Male, England, Wave 2)

“ I don’t like buying the thin [single-use] plastic bags, they cannot be reused. I reuse Bags for Life for other shopping trips.
(Diary, Female, Wales, Wave 2)

- Most of the interviewees in the three countries reused own bags for both environmental reasons and in order to avoid the charge, with some participants mentioning both environmental and financial reasons. A few interviewees mentioned the ability to use non-shopping bags (e.g., handbags) for shopping purposes:

“ I use Bags for Life to avoid paying the 5p charge.
(Diary, Male, England, Wave 2)

“ It makes people think about recycling and reusing bags, it’s not so much about the cost of the bags, because it’s minimal, but it’s enough to get people thinking, you know, ‘Why am I spending?’, and maybe not being so wasteful with them, you know? It is a bit frightening when you consider all the waste and where it goes.
(Interview, Female, England, Wave 2)

“ As I was carrying my purse in it [handbag] anyway, so I brought it unintentionally. It’s a convenient bag to use every day anyway.
(Diary, Female, England, Wave 2)

“ [I bring my own bags] as it is 5p every time you use a bag in Scotland, and the aim is to recycle.
(Diary, Male, Scotland, Wave 1)

- In order to sustain a new habit of own bag use, and to help remember to bring their own bags to the supermarket or other shops, study participants adopted new behavioural routines, such as keeping bags in the boot of the car or in their handbag, to help sustain the new habit of own bag reuse:

“ We remembered! We usually forget, so have left a couple of bags in the car, so we always have some on us!
(Diary, Male, England, Wave 2)

The English Plastic Bag Charge

Changes in Attitudes and Behaviour

“ I either have the heavy duty ones in the boot of the car, or if I buy something on a whim, I have one of those little fold up ones that goes in my handbag.

(Interview, Female, England, Wave 2)

Attitudes towards the English plastic bag charge

In England there was a high level of support for the plastic bag charge, and an understanding of its environmental benefits. There was a high level of awareness of the plastic bag charge coming into effect, and results indicate that participants adapted easily and rapidly to the charge. A majority of participants in England supported an exemption-free plastic bag charge.

- People were prepared for the introduction of the plastic bag charge in October 2015:

“ I've heard about it from the internet and the news. I think it's good.

(Interview, Male, England, Wave 1)

“ We acquired one or two more Bags for Life prior to the charge coming in, in readiness.

(Interview, Male, England, Wave 2)

- Results indicate that adaptation to the charge was easy and rapid:

“ It's very easy to carry them [own shopping bags].

(Diary, Female, England, Wave 2)

“ I think it's [the introduction of the charge] gone reasonably smoothly, really.

(Interview, Male, England, Wave 2)

- Interview findings for Scotland and Wales equally show that it was easy to get used to the charges in those countries:

“ Quick, oh yeah, I mean these things [getting used to the charge] they happen overnight.

(Interview, Female, Scotland, Wave 1)

“ I found it [getting used to the charge] easy.

(Interview, Female, Wales, Wave 1)

- Findings show that there was a high level of support for the bag charge because it was seen as an effective policy to reduce plastic bag waste and raise environmental awareness:

“ If I didn't keep them in the car, I'd have to keep buying them and buying them and buying them again because I'd forget the bags and that's just silly.

(Interview, Male, Wales, Wave 1)

“ I'm glad there's a charge on plastic bags because we need to do something. I would hope that it is going to make a difference to landfill and to the way people think in general about the things that they dispose of.

(Interview, Female, England, Wave 2)

“ I think it's a good thing and it's kind of a small step to making people more aware environmentally of the situation.

(Interview, Female, England, Wave 2)

- Support for plastic bag charges was equally high in Wales and Scotland, where it was also perceived as an effective policy to reduce plastic bag use:

“ I think it's generally a good thing, I think it's hard to discourage people from doing something like that without putting a monetary thing on it, I don't think you can say, 'stop doing it, it's bad for the environment', and people will, but I think getting through people's kind of pockets is probably an effective way. And the statistics seem to be showing that it is working, so as I said if it stops people from using it, I can't see it as a, sort of a bad thing.

(Interview, Female, Scotland, Wave 1).

“ Well, I think it's good, I mean, the less plastic bags that end up in landfill and in the oceans and in the rivers is massively important, you know, and everyone needs to make a small change in their kind of behaviour in order to facilitate that.

(Interview, Male, Wales, Wave 1).

- Interview findings show that study participants in England, as well as in Wales and Scotland, were in favour of a 'blanket', exemption-free charge:

“ Having exemptions is confusing and misleading.

(Interview, Female, England, Wave 2)

“ I think if you're going to charge, really you should put it across the board.

(Interview, Male, England, Wave 2)

“ Um, well no, I don't think that's fair at all, a plastic bag is a plastic bag, you know, it's like saying if I go to Asda and buy a bottle of wine I've got to pay for it, but if I go to a small shop it's going to be free. A bag's a bag, no matter where you buy it, you should have to pay for it.
(Interview, Male, Wales, Wave 1)

Attitudes towards plastic bag provision

After the plastic bag charge was introduced in England, participants came to see the provision of plastic bags (both single-use and plastic Bags for Life) in supermarkets as less important. They also perceived a greater encouragement to use personal bags after the charge was introduced. These findings were corroborated by the interviews conducted in Wales and Scotland. Most participants stopped the use of single-use plastic bags as bin liners after the plastic bag charge was introduced in England. However, the interviews from Wales and Scotland suggest that a small number of people continued to use single-use plastic bags and Bags for Life as bin liners.

- There was a significant shift in the perceived need of plastic bags provision in supermarkets after the English plastic bag charge was introduced. A number of participants suggested that single-use plastic bags no longer needed to be provided in supermarkets:

“ I don't think it's essential to have plastic bags in supermarkets, I think it's a luxury.
(Interview, Female, England, Wave 2)

“ I think it's just not necessary to have these [single-use plastic] bags anymore because people are remembering to bring reusable ones.
(Interview, Male, England, Wave 2)

- Similarly, in Wales and Scotland, where bag charges were already in place, participants said that plastic bags of any kind were no longer needed, and could be replaced by heavy-duty Bags for Life in order to encourage bag reuse:

“ They could get rid of all plastic bags as far as I'm concerned, it's not at all important to me. People would have to get the hessian bags and take them back and forward, if a supermarket said 'there's no more bags here, you have to bring your own bag.' They do it on the continent so why can't we do it? It doesn't bother me, as I said, if I didn't want to get a bag, I'll just put it straight in the boot and carry the products back in and out from the car.
(Interview, Male, Wales, Wave 1)

- Interview findings show that, before the plastic bag charge was introduced in England, bag reuse was insufficiently encouraged due to the higher visibility of single-use plastic bags as compared to Bags for Life, and the fact that single-use bags were free of charge:

“ The single-use bags are so readily available on the supermarket end, they're kind of more visible and just free compared to the other bags that it's just more tempting to go for them, and also I think possibly often the Bags for Life are quite superficial and just not attractive enough to spend money on [laughs].
(Interview, Female, England, Wave 1)

“ Nowadays people just rely on shops to give you bags.
(Interview, Male, England, Wave 1)

- After the plastic bag charge was introduced in England, there was an increase in perceived encouragement to reuse bags as compared to the previous situation. This encouragement consisted of supermarkets promoting Bags for Life purchase, or not having single-use plastic bags on display:

“ No thin [single-use] plastic bags on the check-out.
(Diary, Male, England, Wave 2)

“ No suggestion from cashier to buy single-use bags.
(Diary, Female, England, Wave 2)

“ I think they do try and sell you the Bags for Life.
(Interview, Female, England, Wave 2)

The English Plastic Bag Charge

Changes in Attitudes and Behaviour

- The English plastic bag charge led to changes in other social practices. While before the introduction of the charge many participants reported using single-use plastic bags as bin liners, this practice was disrupted after the charge was introduced. Some expressed regret that they could no longer use free single-use plastic bags as bin liners, but generally accepted that they now had to purchase bin liners. Some who had already bought a large number of Bags for Life since the introduction of the charge said that they were planning to reuse them for shopping rather than as bin liners:

“ Just because I had a supply of them [single-use bags] and they act as quite an efficient bin liner, but when they run out, I'll buy something different.
(Interview, Female, England, Wave 2)

Attitudes towards other environmental policies

Following the introduction of the plastic bag charge in England, there was an increased awareness about the environmental impact of plastic waste, and a greater support for policies aiming to reduce this type of waste. With that, we found low levels of support for a rise in fuel duties, due to its feared impact on families' budget, a lack of suitable alternatives to driving, and a need to develop the use of renewable energy sources.

- The English plastic bag charge was found to have acted as a catalyst to raise awareness about the problem of household plastic waste, and to have increased the perceived necessity to tackle this problem:

“ As far as the packaging goes on, I think it's ludicrous. If you go into Tesco or Sainsbury's or wherever, and you want to buy four apples and they come in a foam type dish, and then that's wrapped in plastic, and then that goes into a plastic carrier bag, I think that needs to be addressed. I don't think there's any need for all that plastic.
(Interview, Female, England, Wave 2)

“ I'm very aware of the amount of plastic bottles.
(Interview, Male, England, Wave 2)

“ Interviewee: I don't use the Bags for Life for bin liners, no. Interviewer: And what are you planning to do with those 50 bags now? Interviewee: [Laughs] I'm not really sure to be honest, I'm just trying to make sure that I take them with me when I go shopping now.
(Interview, Male, England, Wave 2)

- Findings for Scotland and Wales show that a small number of diary participants reuse both single-use plastic bags and Bags for Life as bin liners:

“ They [Bags for Life] are stronger than the thin 5p bags, and I reuse them for house waste.
(Diary, Male, Scotland, Wave 1).

“ Interviewer: Do you ever reuse plastic bags? Interviewee: Sometimes. Like I said, they make good bin liners. Interviewer: Is that what you use them for? Interviewee: Generally, yes.
(Interview, Male, Wales, Wave 2)

- As a results of an increased awareness, more interviewees came to support the idea of introducing policies to address plastic packaging waste, such as a deposit scheme on plastic bottles or a 5p charge on individually wrapped fruit or vegetables:

“ I really think that along with carrier bags, the issue of other plastic going to waste should be looked at.
(Interview, Female, England, Wave 2)

“ It reminds me of my childhood when we used to bring bottles to the shop and get money for them.
(Interview, Female, England, Wave 2)

- In Wales and Scotland participants were equally in favour of the policies to address plastic packaging waste:

“ Yeah, that's a good idea, I've worked in Germany, and I know we used to put a deposit on our beer bottles and take them back and it's a good, it's a great idea, we've had that in Scotland, have you heard of Irn-Bru?
Well they, it's been a great tradition in Scotland for I don't know, maybe 100 years, at the moment you get 30p back on a glass bottle.
(Interview, Male, Scotland, Wave 1)

“ Yes, yes, absolutely, because it’s only until I come home and I put the plastics that I unwrap into the bin, you realise how much plastics are sort of wasted.
(Interview, Female, Wales, Wave 1)

- Support for a fuel duties rise was low in all three UK countries both before and after the English plastic bag charge was introduced. The main reasons why this hypothetical charge was met with little enthusiasm were a lack of suitable alternative to driving, the impact it would have families’ budgets, and a perceived need to promote renewable energy as opposed to broadening taxes:

“ Because the cost of driving and the cost of having a car is already so high and plus it wouldn’t apply to everyone would it, because not everyone’s a driver as such [...] People who drive maybe have to do so for work, etc., or you know, maybe they’re disabled or something, so it’s not really their fault that they have to buy so much of this, whereas everyone makes the conscious decision to buy a plastic bag.
(Interview, Female, England, Wave 1)

“ I think instead of just putting charges on things, they should be looking more into utilising renewable sources of energy, cleaner cars.
(Interview, Male, England, Wave 2)

“ I don’t think anybody wants to pay more for fuel, do they? I mean, you know, it impacts onto so many different things. On, you know, people who drive a lot of miles for work, it impacts on prices of goods. I’m not in favour of it.
(Interview, Male, Wales, Wave 1)

Research Findings: The Supermarket Observation Study

Observed bag use

We counted the number and type of bags used by shoppers when exiting four different supermarkets in Cardiff and Bristol in July 2015 and July 2016, respectively. Here we look at the mix of bags shoppers used, including single-use plastic bags, Bags for Life,

miscellaneous personal bags (e.g. rucksacks), and carrying items loose without a bag. The proportion of observed shoppers using various types of bags over time are shown below.

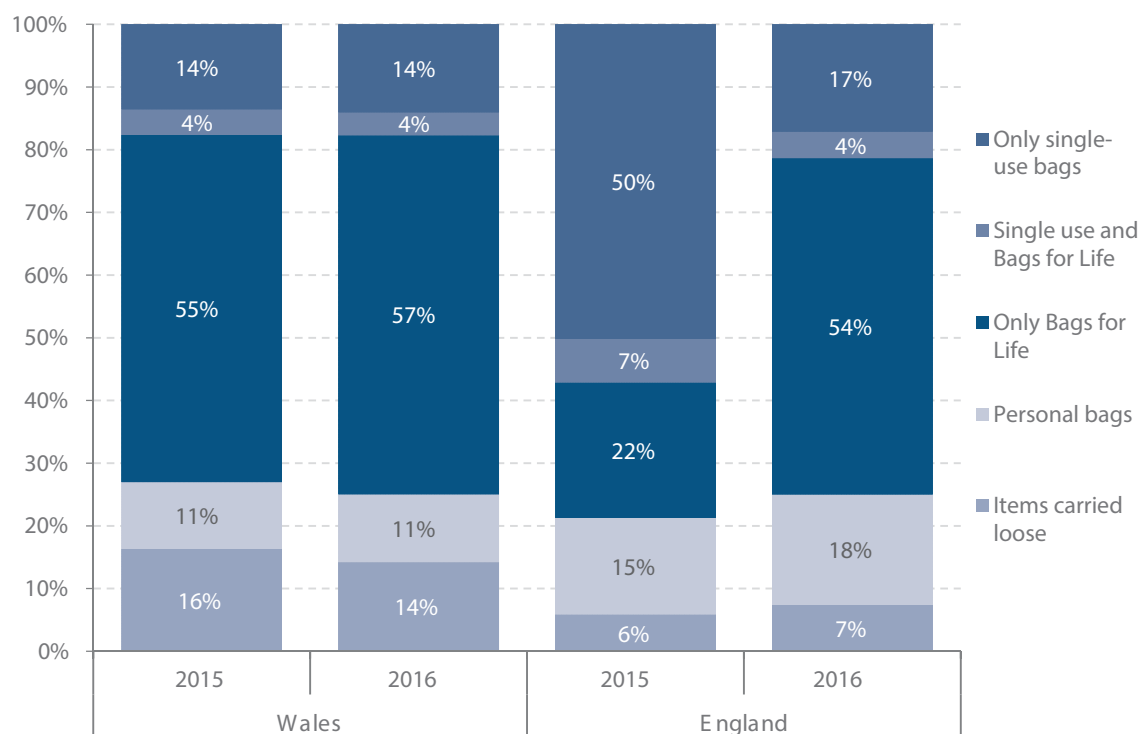


Figure 5: Proportion of shoppers observed using different types of bags in England and Wales in 2015 and 2016.

- In England, half of all shoppers (50%) used only single-use plastic bags before the charge was introduced. This fell to just 17% after the charge was introduced.
- In 2016, after the charge was introduced in England, a majority of shoppers (54%) used only Bags for Life, a notable increase from 22% in 2015.
- The bag charge in England does not appear to have significantly changed the number of shoppers using their own bags or carrying items without a bag.
- In Wales, there was very little change in bag use between 2015 and 2016, with a majority of shoppers using only Bags for Life (55%-57%), and a minority using only single-use plastic bags (14%).

The English plastic bag charge appears to have had a clear effect on bag use in supermarkets. After the charge was introduced, shoppers in England were far less likely to use only single-use plastic bags, and were far more likely to use only Bags for Life. However, the use of miscellaneous personal bags (such as rucksacks) and the number of shoppers carrying items loose without a bag hardly changed. This suggests that Bags for Life have replaced single-use plastic bags.

Gender differences in bag use

We analysed bag use according to gender. In particular, we made comparisons in the use of single-use plastic bags and Bags for Life.

- In England, use of single-use plastic bags decreased from 53% to 23% among men, and from 55% to 20% among women.
- In England, use of Bags for Life increased from 16% to 45% among men, and from 34% to 64% among women.
- In Wales, the pattern of single-use plastic bag use remained stable over time: 17% of men and women used single-use plastic bags in 2015, and 19% of men and 17% of women used them in 2016.

- In Wales, the use of Bags for Life similarly remained stable over time: 51% of men and 61% of women used Bags for Life in 2015, and 54% of men and 64% of women in 2016.

Results show that the English plastic bag charge decreased single-use plastic bag use among both men and women. While men were generally less likely to use Bags for Life than women, the plastic bag charge increased the use of Bags for Life equally for both men and women.

Age differences in bag use

We further analysed bag use according to the estimated age of shoppers. Three broad age categories were used: 18 to 44; 45 to 64; and 65 and over.

- In Wales, there was very little change in plastic bag use across the different age groups. However, small increases in the use of Bags for Life were observed for shoppers estimated to be aged 18-44 (from 52% to 54%), those estimated to be aged 45-64 (from 62% to 64%), and those estimated to be aged 65 and over (from 60% to 65%).
- In England, single-use plastic bag use decreased across the different age groups. The biggest reduction (from 63% to 27%) was observed for shoppers estimated to be aged 18-44, with a slightly smaller reduction for those estimated to be aged 45-64 (from 49% to 19%). Shoppers estimated to be 65 or over saw a reduction from 38% to 11%.

- In England, the use of Bags for Life increased among the different age groups. The proportion of shoppers using Bags for Life increased from 15% to 47% for those estimated to be aged 18-44, and from 37% to 64% for those estimated to be aged 45-64. Shoppers estimated to be 65 or over saw an increase from 37% to 71%.

Results show that, while younger shoppers remained more likely to use single-use plastic bags, the charge decreased single-use plastic bag use equally across the three age groups. Furthermore, while younger shoppers remained less likely to use Bags for Life, the results show that the plastic bag charge increased the use of Bags for Life equally across the three age groups.

Bag use in different supermarkets

The observations took place at four different supermarkets in both Wales and England. Here we analyse bag use according to the four supermarkets.

- Before the charge was introduced in England, single-use plastic bag use was higher at the local supermarket and Megastore 1 (both 60%) than at the premium supermarket and Megastore 2 (both 50%). However, single-use plastic bag use decreased at all four supermarkets observed in England. The largest reductions were seen at the two megastores (to 23% and 13%, respectively), with notable reductions also observed at the local supermarket and premium supermarket (to 30% and 19%, respectively).
- The use of Bags for Life increased at all four supermarkets observed in England, most notably at Megastore 1 (from 35% to 68%) and Megastore 2 (from 23% to 59%). The use of Bags for Life also increased at the local supermarket (from 15% to 38%) and premium supermarket (from 37% to 64%).

- The local supermarket had the highest level of single-use plastic bag use and the lowest level of Bag for Life use among all of the supermarkets. This is perhaps due to the smaller size of the shop located within a central city location, making it more suited for small top-up shopping trips.
- The largest changes in bag use were seen at the two megastores. This may be due to larger shopping trips typically taking place in larger supermarkets, which requires more bags and more incentive to take own shopping bags to avoid the charge.

Results show that the plastic bag charge decreased single-use plastic bag use across all four supermarkets observed in England. While slightly greater changes were observed at the larger supermarkets, the profile of the supermarket does not appear to have been a major factor in the observed changes in bag use.

Conclusions

In this project we examined changes in people's behaviours and attitudes following the introduction of the English plastic bag charge. We examined the process of behaviour and attitude change through a mixed-method, longitudinal research project conducted in three UK countries (England, Scotland and Wales). This project provides an evaluation of the impacts of the plastic bag charge, with valuable insights for academics, policy makers, and practitioners.

The evidence from the survey, diary-interview and observation studies shows that the use of single-use plastic bags has decreased dramatically in England following the introduction of the charge, with the most significant changes happening within the first month. The formerly habitual use of single-use plastic bags was replaced by an intentional, planned and more waste-conscious use of Bags for Life. This behaviour change was rapid and natural, with the advantages of Bags for Life seen as an additional encouragement for using them instead of single-use plastic bags.

The plastic bag charge was found to be universally effective. It changed behaviours and attitudes among both men and women, as well as across locations and different age and income groups. Additional comparisons with Wales and Scotland, where charges have been in place for several years, indicate that the observed changes are likely to endure. Single-use plastic bag use was still low in Wales five years after the Welsh charge was introduced.

Public acceptability of new policies is often a major point of concern. In the case of the English plastic bag charge, it was clear that people were ready and prepared for its introduction. A majority already supported the charge before it was introduced, and support further increased after its implementation, regardless of gender, age, and income.

One major reason as to why people are supportive of the charge, is because it is seen as a highly effective policy to encourage own bag use, reduce waste, and

raise environmental awareness. While there was some initial scepticism about how the proceeds of the charge would be used, that quickly dissipated after the introduction of the charge.

People may have become more positive about the charge because it has been easy for them to adapt to it. People rapidly found new routines, such as keeping shopping bags in the boot of the car, to help remember themselves to bring their own bags to the supermarket. The findings show that attitudes towards the exemptions to the English plastic bag charge were generally negative. The exemptions were seen as confusing and misleading. People in England, as well as in Wales and Scotland, were more in favour of a 'blanket' exemption-free charge across all UK countries.

Another important conclusion relates to what we have called 'policy spillover'. Not only did people become more supportive of a plastic bag charge after they experienced it, they also became more supportive of other charges to reduce waste. Survey and interview findings show that, following the introduction of the plastic bag charge, support for hypothetical charges on water bottles and excessive packaging increased across the UK. In particular, those who changed their opinion about the plastic bag charge, also changed their opinion about other charges. Our findings suggest that this is due to the English plastic bag charge having raised awareness of the impacts of plastic waste and litter.

By combining several different approaches, this research project has provided a robust and comprehensive evaluation of the behavioural and attitudinal impacts of the English plastic bag charge. It is important to continue conducting academically robust, in-depth evaluations that allow learning about what made a policy work or not (Pawson & Tilley, 1997). The combination of a survey, diary-interview, and observation work used in this project could act as a model for evaluations of future behaviour change policies.

The English Plastic Bag Charge

Changes in Attitudes and Behaviour

The research has highlighted a number of points that require further attention from policy-makers and academics:

- The research found evidence that single-use plastic bags were predominantly replaced by Bags for Life, and that Bags for Life are accumulating in people's homes. In particular in Wales, where a charge was introduced five years ago, people have a large number of Bags for Life at home. This suggests that more Bags for Life are bought than needed. Additional research should examine how often Bags for Life are reused, in order to assess the environmental impact of this replacement, as well as how reuse of Bags for Life can be improved.
- A small part of the population are still persistently purchasing single-use plastic bags, despite the UK charges. Additional research is needed to explore their motivations, and find out how a more sustainable use of shopping bags can be encouraged among this group.

- While the research found evidence that the effects of a plastic bag charge are long lasting (the Welsh charge remained effective and popular five years after its introduction), experience in other countries has shown that ongoing monitoring is needed to allow timely adjustments to the policy.

Overall, the research has shown that the English plastic bag charge has made a strong and positive impact on people's behaviours and attitudes. Its achievement of effectively changing plastic bag use and increasing support for other charges to reduce waste, suggests that other similar policies could be successfully implemented, such as a deposit return scheme on plastic bottles or a charge on disposable coffee cups.

References

- BIO Intelligence Service (2011). Assessment of impacts of options to reduce the use of single-use plastic carrier bags. Final report prepared for the European Commission – DG Environment. Paris: BIO Intelligence Service.
- Clapp, J., & Swanston, L. (2009). Doing away with plastic shopping bags: international patterns of norm emergence and policy implementation. *Environmental Politics*, 18, 315-332.
- Convery, F., McDonnell, S., & Ferreira, S. (2007). The most popular tax in Europe? Lessons from the Irish plastic bags levy. *Environment and Resource Economics*, 38, 1-11.
- Defra (2016). Single-use plastic carrier bags charge: data in England for 2015 to 2016. 30 July 2016. London: Department for Environment Food and Rural Affairs.
- Edwards, C., & Fry, J. M. (2011). Life cycle assessment of supermarket carrier bags: a review of the bags available in 2006. Report SC030148. Bristol: Environment Agency.
- Pawson, R., & Tilley, N. (1997). *Realistic Evaluation*. London: Sage.
- Poortinga, W., Whitmarsh, L., & Suffolk, C. (2013). The introduction of a single-use carrier bag charge in Wales: Attitude change and behavioural spillover effects. *Journal of Environmental Psychology*, 36, 240-247.
- WRAP (2014). WRAP publishes new carrier bag use figures. 15th July 2014. Banbury: Waste and Resources Action Plan. [available at: <http://www.wrap.org.uk/content/wrap-publishes-new-carrier-bag-use-figures-0>].
- WRAP (2015). WRAP announces new carrier bag figures. 24th July 2015. Banbury: Waste and Resources Action Plan. [available at: http://www.wrap.org.uk/2015_carrier_bag_figures].
- Thomas, G. O., Poortinga, W., & Sautkina, E. (2016). The Welsh single-use carrier bag charge and behavioural spillover. *Journal of Environmental Psychology*, 47, 126-135.
- Zero Waste Scotland (2015). Carrier bag charge 'One year on'. Stirling: Zero Waste Scotland.
- Zimmerman, D., & Wieder, D. (1977). The diary: the diary interview method. *Urban Life*, 5, 479-498.

Appendix A: Survey findings

Q1: How often, if at all, do you usually go to a store to do your food shopping?

		England	Wales	Scotland
Wave 1	Every day or almost every day (6 or 7 times a week)	3%	3%	2%
	Most days (4 or 5 times a week)	8%	11%	11%
	About 2 to 3 times a week	37%	36%	32%
	About once a week	37%	40%	38%
	About once a fortnight	7%	4%	6%
	About once a month	3%	2%	2%
	Less than monthly	5%	5%	7%
	Don't know	0%	0%	2%
Wave 2	Every day or almost every day (6 or 7 times a week)	4%	3%	1%
	Most days (4 or 5 times a week)	8%	7%	14%
	About 2 to 3 times a week	40%	37%	32%
	About once a week	36%	41%	38%
	About once a fortnight	6%	6%	4%
	About once a month	2%	1%	1%
	Less than monthly	4%	4%	9%
	Don't know	0%	0%	0%
Wave 3	Every day or almost every day (6 or 7 times a week)	2%	2%	1%
	Most days (4 or 5 times a week)	8%	8%	9%
	About 2 to 3 times a week	37%	35%	38%
	About once a week	38%	44%	37%
	About once a fortnight	8%	4%	4%
	About once a month	3%	2%	2%
	Less than monthly	4%	4%	8%
	Don't know	0%	1%	1%

Q2: Which of the following statements best describes your food shopping trips over the last month?

		England	Wales	Scotland
Wave 1	I bought most of my food in one main shopping trip	33%	35%	31%
	I bought some food in a main shopping trip, and some in "top-up" shopping trips	54%	50%	50%
Wave 2	I bought most of my food in "top-up" shopping trips	13%	14%	19%
	I bought most of my food in one main shopping trip	36%	36%	37%
	I bought some food in a main shopping trip, and some in "top-up" shopping trips	51%	49%	44%
Wave 3	I bought most of my food in "top-up" shopping trips	13%	15%	18%
	I bought most of my food in one main shopping trip	35%	38%	36%
	I bought some food in a main shopping trip, and some in "top-up" shopping trips	54%	48%	49%
	I bought most of my food in "top-up" shopping trips	11%	14%	14%

Q3a: Which of the following do you use at least once a month for your main food shopping trip?

		England	Wales	Scotland
Large supermarket/superstore	Wave 1	81%	84%	79%
	Wave 2	82%	86%	78%
	Wave 3	83%	82%	74%
Smaller supermarket from a chain	Wave 1	18%	21%	19%
	Wave 2	20%	20%	19%
	Wave 3	19%	20%	17%
A small local/independent store	Wave 1	9%	8%	7%
	Wave 2	5%	7%	5%
	Wave 3	8%	7%	4%
An internet site for online delivery	Wave 1	13%	13%	10%
	Wave 2	12%	15%	12%
	Wave 3	13%	14%	12%
Order online and then collecting in store	Wave 1	1%	0%	0%
	Wave 2	1%	0%	0%
	Wave 3	1%	0%	1%
None of these	Wave 1	4%	3%	8%
	Wave 2	3%	3%	8%
	Wave 3	3%	2%	8%

The English Plastic Bag Charge

Changes in Attitudes and Behaviour

Q3b: Which of the following do you use at least once a month for your top-up food shopping trip?

		England	Wales	Scotland
Large supermarket/superstore	Wave 1	54%	55%	56%
	Wave 2	56%	57%	52%
	Wave 3	58%	56%	53%
Smaller supermarket from a chain	Wave 1	53%	46%	47%
	Wave 2	54%	46%	46%
	Wave 3	53%	47%	47%
A small local/independent store	Wave 1	26%	27%	22%
	Wave 2	22%	25%	20%
	Wave 3	24%	25%	17%
An internet site for online delivery	Wave 1	4%	2%	3%
	Wave 2	4%	3%	2%
	Wave 3	4%	3%	4%
Order online and then collecting in store	Wave 1	1%	0%	0%
	Wave 2	1%	0%	0%
	Wave 3	1%	0%	0%
None of these	Wave 1	6%	7%	9%
	Wave 2	5%	6%	12%
	Wave 3	5%	5%	9%

Q5: The last time you went to the following stores, did you take your own shopping bag(s)?

		Q6.1 Main food shop			Q6.2 Top-up food shop		
		England	Wales	Scotland	England	Wales	Scotland
Wave 1	Yes	73%	90%	87%	61%	90%	87%
	No	23%	7%	7%	38%	9%	9%
	Never used this store/Not applicable	4%	3%	7%	1%	1%	4%
Wave 2	Yes	89%	90%	86%	86%	92%	86%
	No	6%	7%	7%	12%	6%	10%
	Never used this store/Not applicable	4%	3%	7%	2%	1%	5%
Wave 3	Yes	91%	90%	88%	89%	91%	87%
	No	5%	7%	8%	9%	8%	10%
	Never used this store/Not applicable	5%	3%	4%	2%	1%	3%

Q6: How often, if at all, do you usually take your own shopping bag(s) to each of the following stores?

		Q6.1 Main food shop			Q6.2 Top-up food shop		
		England	Wales	Scotland	England	Wales	Scotland
Wave 1	Never	16%	6%	9%	15%	2%	7%
	Hardly ever	7%	2%	2%	11%	3%	3%
	Sometimes	8%	3%	3%	17%	5%	7%
	Often	14%	6%	8%	22%	17%	15%
	Always	56%	82%	76%	35%	73%	68%

		Q6.1 Main Food shop			Q6.2 Top-up Food shop		
		England	Wales	Scotland	England	Wales	Scotland
Wave 2	Don't know	0%	0%	1%	0%	0%	0%
	Never	7%	3%	9%	5%	1%	8%
	Hardly ever	2%	4%	1%	3%	3%	2%
	Sometimes	4%	2%	6%	9%	3%	7%
	Often	12%	6%	8%	22%	18%	13%
	Always	74%	85%	77%	61%	74%	70%
Wave 3	Don't know	0%	0%	0%	0%	0%	0%
	Never	2%	2%	3%	2%	1%	4%
	Hardly ever	1%	2%	3%	2%	3%	3%
	Sometimes	4%	3%	1%	7%	4%	3%
	Often	11%	6%	12%	21%	15%	18%
	Always	82%	86%	81%	68%	77%	72%
		Don't know	0%	0%	0%	0%	0%
		Q6.3 Clothes shop			Q6.4 Beauty/Health shop		
		England	Wales	Scotland	England	Wales	Scotland
Wave 1	Never	61%	26%	33%	62%	37%	40%
	Hardly ever	17%	11%	7%	12%	9%	8%
	Sometimes	11%	8%	13%	10%	6%	9%
	Often	5%	12%	13%	8%	10%	14%
	Always	6%	42%	34%	7%	38%	30%
	Don't know	1%	1%	0%	0%	0%	0%
Wave 2	Never	36%	20%	33%	43%	31%	42%
	Hardly ever	16%	15%	9%	13%	11%	6%
	Sometimes	12%	9%	12%	8%	7%	9%
	Often	14%	11%	12%	12%	9%	10%
	Always	20%	46%	33%	23%	41%	32%
	Don't know	2%	0%	1%	1%	0%	0%
Wave 3	Never	24%	16%	18%	22%	17%	14%
	Hardly ever	14%	13%	11%	10%	9%	16%
	Sometimes	12%	13%	11%	12%	7%	11%
	Often	17%	12%	18%	18%	10%	18%
	Always	32%	46%	40%	37%	56%	41%
	Don't know	1%	0%	1%	1%	1%	1%

The English Plastic Bag Charge

Changes in Attitudes and Behaviour

		Q6.5 Electrical shop			Q6.6 Entertainment shop		
		England	Wales	Scotland	England	Wales	Scotland
Wave 1	Never	76%	52%	56%	76%	55%	59%
	Hardly ever	12%	12%	11%	10%	9%	7%
	Sometimes	4%	6%	11%	5%	5%	9%
	Often	2%	5%	4%	3%	7%	5%
	Always	4%	22%	18%	4%	22%	20%
	Don't know	1%	2%	0%	1%	1%	0%
Wave 2	Never	61%	48%	54%	65%	51%	58%
	Hardly ever	14%	12%	10%	11%	11%	7%
	Sometimes	7%	5%	10%	6%	6%	7%
	Often	4%	7%	4%	5%	6%	4%
	Don't know	2%	0%	1%	1%	0%	1%
Wave 3	Never	38%	32%	28%	36%	26%	23%
	Hardly ever	18%	11%	15%	16%	15%	20%
	Sometimes	11%	9%	16%	10%	12%	11%
	Often	9%	7%	6%	11%	5%	8%
	Always	21%	39%	32%	25%	41%	38%
	Don't know	3%	2%	3%	2%	0%	1%

		Q6.7 DIY shop		
		England	Wales	Scotland
Wave 1	Never	71%	44%	50%
	Hardly ever	12%	12%	8%
	Sometimes	7%	6%	13%
	Often	4%	7%	7%
	Always	6%	29%	22%
	Don't know	1%	2%	0%
Wave 2	Never	56%	44%	45%
	Hardly ever	13%	13%	8%
	Sometimes	7%	6%	11%
	Often	6%	8%	7%
	Always	15%	30%	28%
	Don't know	2%	0%	1%
Wave 3	Never	34%	30%	26%
	Hardly ever	16%	14%	11%
	Sometimes	12%	9%	16%
	Often	11%	8%	12%
	Always	25%	38%	34%
	Don't know	2%	1%	1%

Q8: How often, if at all, do you take a single-use plastic bag from the till when doing your main food shop?

		Q8 Main food shop			Q10 Top-Up food shop		
		England	Wales	Scotland	England	Wales	Scotland
Wave 1	Never	20%	41%	48%	16%	48%	48%
	Hardly ever	33%	37%	36%	24%	32%	32%
	Sometimes	23%	12%	10%	30%	13%	13%
	Often	10%	4%	2%	17%	4%	2%
	Always	14%	5%	5%	13%	3%	4%
	Don't know	1%	1%	0%	1%	1%	0%
Wave 2	Never	37%	42%	46%	39%	45%	53%
	Hardly ever	37%	40%	37%	32%	36%	30%
	Sometimes	13%	11%	8%	18%	11%	10%
	Often	6%	4%	3%	7%	4%	3%
	Always	6%	3%	4%	4%	3%	4%
	Don't know	1%	0%	1%	1%	1%	1%
Wave 3	Never	41%	47%	47%	40%	47%	48%
	Hardly ever	38%	38%	37%	36%	38%	34%
	Sometimes	12%	8%	8%	14%	10%	11%
	Often	5%	3%	4%	6%	3%	4%
	Always	4%	3%	3%	3%	1%	2%
	Don't know	0%	1%	1%	0%	1%	0%

Q13: Approximately how many “Bags for life” do you have at home?

(For convenience, figures grouped into categories)

		England	Wales	Scotland
Wave 1	0 Bags for life	9%	2%	1%
	1 to 5 Bags for life	44%	22%	35%
	6 to 10 Bags for life	36%	44%	35%
	11 to 20 Bags for life	9%	27%	25%
	20+ Bags for life	1%	5%	4%
Wave 2	0 Bags for life	3%	1%	0%
	1 to 5 Bags for life	36%	21%	31%
	6 to 10 Bags for life	44%	48%	43%
	11 to 20 Bags for life	14%	23%	22%
	20+ Bags for life	3%	6%	4%
Wave 3	0 Bags for life	3%	2%	3%
	1 to 5 Bags for life	32%	22%	33%
	6 to 10 Bags for life	43%	47%	38%
	11 to 20 Bags for life	18%	22%	20%
	20+ Bags for life	4%	7%	6%

The English Plastic Bag Charge

Changes in Attitudes and Behaviour

Q14: To what extent do you support or oppose a 5p charge to the customer for each single-use plastic bag used?

		England	Wales	Scotland
Wave 1	Strongly support	26%	53%	34%
	Tend to support	26%	22%	21%
	Neither support nor oppose	16%	9%	20%
	Tend to oppose	13%	7%	10%
	Strongly oppose	17%	8%	13%
	Don't know	1%	1%	2%
Wave 2	Strongly support	37%	62%	37%
	Tend to support	23%	18%	24%
	Neither support nor oppose	16%	9%	20%
	Tend to oppose	11%	4%	11%
	Strongly oppose	13%	7%	7%
	Don't know	1%	1%	1%
Wave 3	Strongly support	39%	58%	40%
	Tend to support	23%	20%	21%
	Neither support nor oppose	14%	12%	20%
	Tend to oppose	10%	5%	10%
	Strongly oppose	12%	5%	9%
	Don't know	1%	0%	0%

Q16: What do you think are likely outcomes of a 5p charge for each single-use plastic bag?

		Q16.1 People will be encouraged to use fewer plastic bags			Q16.2 People will be encouraged to use Bags for Life/their own bags		
		England	Wales	Scotland	England	Wales	Scotland
Wave 1	Strongly agree	33%	50%	43%	39%	60%	44%
	Tend to agree	43%	33%	32%	40%	32%	38%
	Neither agree nor disagree	13%	10%	14%	14%	5%	10%
	Tend to disagree	6%	3%	5%	4%	2%	3%
	Strongly disagree	4%	3%	4%	2%	1%	4%
	Don't know	1%	1%	2%	1%	0%	2%
Wave 2	Strongly agree	36%	52%	45%	43%	56%	48%
	Tend to agree	44%	37%	35%	43%	36%	39%
	Neither agree nor disagree	11%	4%	11%	10%	4%	9%
	Tend to disagree	5%	3%	5%	2%	2%	1%
	Strongly disagree	3%	2%	1%	1%	1%	1%
	Don't know	1%	1%	3%	1%	1%	1%
Wave 3	Strongly agree	36%	54%	38%	46%	58%	41%
	Tend to agree	44%	33%	38%	40%	36%	42%
	Neither agree nor disagree	12%	6%	16%	10%	3%	12%
	Tend to disagree	4%	3%	6%	3%	0%	2%
	Strongly disagree	3%	2%	1%	1%	2%	0%
	Don't know	1%	1%	2%	0%	1%	2%

		Q16.3 Stores will use the charge to make more money		
		England	Wales	Scotland
Wave 1	Strongly agree	30%	10%	21%
	Tend to agree	35%	19%	25%
	Neither agree nor disagree	20%	32%	26%
	Tend to disagree	7%	21%	11%
	Strongly disagree	3%	13%	9%
	Don't know	5%	6%	8%
Wave 2	Strongly agree	20%	9%	13%
	Tend to agree	27%	16%	20%
	Neither agree nor disagree	28%	32%	33%
	Tend to disagree	13%	20%	20%
	Strongly disagree	7%	17%	7%
	Don't know	6%	6%	8%
Wave 3	Strongly agree	15%	9%	15%
	Tend to agree	24%	17%	23%
	Neither agree nor disagree	33%	31%	29%
	Tend to disagree	15%	24%	16%
	Strongly disagree	7%	13%	8%
	Don't know	5%	6%	10%

Q21/22/23: To what extent would you support or oppose...

		Q21: ... an additional charge of 5p for plastic bottles			Q22: ... an additional charge of 5p for products with a lot of plastic packaging		
		England	Wales	Scotland	England	Wales	Scotland
Wave 1	Strongly support	16%	23%	13%	13%	20%	12%
	Tend to support	17%	21%	12%	20%	21%	13%
	Neither support nor oppose	22%	18%	20%	20%	18%	16%
	Tend to oppose	19%	15%	20%	18%	17%	22%
	Strongly oppose	23%	20%	33%	26%	22%	35%
	Don't know	3%	2%	3%	2%	1%	3%
Wave 2	Strongly support	17%	22%	15%	15%	18%	12%
	Tend to support	17%	20%	14%	19%	22%	17%
	Neither support nor oppose	21%	22%	24%	16%	16%	20%
	Tend to oppose	18%	17%	19%	20%	19%	20%
	Strongly oppose	25%	15%	25%	28%	19%	29%
	Don't know	2%	4%	4%	2%	5%	3%
Wave 3	Strongly support	20%	25%	18%	18%	21%	17%
	Tend to support	19%	25%	16%	21%	27%	17%
	Neither support nor oppose	23%	17%	17%	16%	15%	17%

The English Plastic Bag Charge

Changes in Attitudes and Behaviour

	Q21: ... an additional charge of 5p for plastic bottles			Q22: ... an additional charge of 5p for products with a lot of plastic packaging		
Tend to oppose	15%	14%	20%	18%	18%	21%
Strongly oppose	22%	16%	24%	25%	16%	25%
Don't know	2%	3%	5%	2%	4%	3%

		Q23: ... an increase in taxes charged on petrol and diesel		
		England	Wales	Scotland
Wave 1	Strongly support	4%	4%	3%
	Tend to support	7%	6%	5%
	Neither support nor oppose	16%	16%	14%
	Tend to oppose	20%	28%	19%
	Strongly oppose	51%	45%	54%
	Don't know	2%	1%	6%
Wave 2	Strongly support	5%	5%	5%
	Tend to support	8%	7%	7%
	Neither support nor oppose	15%	17%	14%
	Tend to oppose	22%	26%	23%
	Strongly oppose	48%	42%	48%
	Don't know	2%	3%	3%
Wave 3	Strongly support	5%	5%	4%
	Tend to support	10%	5%	6%
	Neither support nor oppose	15%	15%	20%
	Tend to oppose	21%	30%	24%
	Strongly oppose	47%	42%	42%
	Don't know	2%	3%	4%

Appendix B: Demographic information for the Diary-Interview Study

	Diaries wave 1			Interviews wave 1			Diaries wave 2			Interviews wave 2		
	England	Scotland	Wales	England	Scotland	Wales	England	Scotland	Wales	England	Scotland	Wales
N	19	18	20	18	16	18	14	15	16	14	13	16
Age												
18-25	4	4	4	4	4	4	2	4	4	2	3	4
26- 35	4	5	5	3	4	4	4	3	4	3	3	4
36- 45	4	3	4	4	3	3	3	3	3	3	3	3
46- 54	3	3	3	2	3	3	2	3	1	2	2	1
55-64	4	3	4	5	2	4	3	2	4	4	2	4
65+	0	0	0	0	0	0	0	0	0	0	0	0
Sex												
Male	7	9	9	7	8	7	6	8	6	6	7	6
Female	12	9	11	11	8	11	8	7	10	8	6	10
SEG												
A	0	0	0	0	0	0	0	0	0	0	0	0
B	2	4	5	2	4	5	1	4	5	1	4	5
C1	5	6	6	5	5	6	2	5	6	2	5	6
C2	5	5	2	5	5	1	5	5	0	5	3	0
D	5	3	5	4	2	5	5	1	4	4	1	4
E	2	0	2	2	0	1	1	0	1	2	0	1
Location												
Urban	12	9	12	11	8	11	8	7	11	8	7	11
Rural	7	9	8	7	8	7	6	8	5	6	6	5

Geographical locations of the sample:

England: North, Midlands, South, South-West
Scotland: East, North, West
Wales: Mid Wales, South-East, South-West.

Appendix C: The Diary Questionnaire

Q1: Single-use bag use

Q1.1. Did you buy any single-use (thin) plastic bags provided at the till?

☐

Yes

☐

No

Q1.2. How many single-use (thin) plastic bags did you buy?

Q1.3. You said that you bought single-use (thin) plastic bags at the till today.
Please tell us about it:

Why you bought single-use bag(s) today?
Did the cashier propose you to buy single-use bags?
Were single-use bags easily available at the till?
Was there anything else that you noticed?

Q1.4. You said that you did not buy single-use (thin) plastic bags at the till today.
Please tell us about it:

Why you did not buy single-use bags?
Did the cashier propose you to buy single-use bags?
Were single-use bags easily available at the till?
Was there anything else that you noticed?

Q2: Bag for Life use

Q2.1. Did you buy any bags for life in store today?

☐

Yes

☐

No

Q2.2. You said that you bought bags for life in store today. How many bags for life did you buy in store today?

Q2.3. Please tell us about it:

Why you bought bags for life today?
Was it easy or difficult to buy them?
Did anything encourage you to buy bags for life?
Was there anything else that you noticed?

Q2.4. You said that you did not buy bags for life in store today.
Please tell us about it:

Why you did not buy bags for life today?
Was it easy or difficult to buy one?
Did anything encourage you to do so, or stop you from buying them?
Was there anything else that you noticed?

Q3: Own bags use

Q3.1. Did you bring with you any own bags/containers to pack your food shopping today?

☐

Yes

☐

No

Q3.2. You said that you brought your own bags/containers to pack your food shopping today.
Please tell us about it:

Why you brought your own bags/containers to pack your shopping?

Did you plan on bringing these?

Was it easy or difficult to bring your own bags?

Did anything encourage you to do so, or stop you from it?

Q3.3. You said that you did not bring your own bags/containers to pack your food shopping today.
Please tell us a few things:

Why you did not bring your own bags/containers to pack your shopping today?

Did anything stop you from it?

Was there anything else that you noticed?

Appendix D: Interview topic guide

- What type of bags do you use to pack your shopping in supermarkets?
- Where do you store bags/containers that you take with you when you go food shopping?
- In your opinion, how important it is to have plastic bags available in supermarkets?
- Do you re-use plastic bags bought in supermarkets for non-shopping purposes?
- Do you know what the plastic bag charge is? [WAVE 1 ONLY]
- What do you think about the 5p plastic bag charge?
- Do you know that the 5p plastic bag charge is going to be introduced in England in October 2015? [WAVE 1 ONLY]
- What do you think are the main purposes of the plastic bag charge?
- Do you think the introduction of the 5p plastic bag charge will affect you, or not? In what respects? [ENGLAND ONLY]
- Did the introduction of the plastic bag charge in your country affect you? [WALES, SCOTLAND WAVE 1 AND ENGLAND WAVE 2 ONLY]
- Do you think bag re-use is sufficiently encouraged in your country? Should anything change in this respect?
- The English plastic bag charge has a number of exemptions [interviewer lists exemptions]. Do you find it right or not?
- How do you think PBC compares to other charges: 1) fuel duties rise, 2) charge on individually wrapped vegetables/fruit, or 3) deposit on plastic bottles? Would you be in favour of these charges?

Appendix E: Supermarket observation sheet

[illegible]

