Project #1

Gender differences in surveys for market definition and merger analysis

Oxera[1]

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Executive summary

Objectives of this study

The OECD has launched a gender-inclusive competition policy initiative aimed at exploring whether applying a gender lens can help deliver a more effective competition policy. In this context, the OECD has commissioned Oxera to assess the gender differences in surveys carried out for the purpose of market definition and merger analysis, and draw out the implications for competition analysis.

There is increasing awareness of a 'gender data gap' in a range of academic, business and policy areas. The problem arises where policy or business decisions are made based on data that has been collected only on men, or on analyses of data in the aggregate without accounting for differences between people (e.g. men and women).

In competition policy, surveys and other analyses that feed into the delineation of the relevant market or a merger analysis are typically analysed in aggregate, thereby overlooking potentially significant differences by gender.[2] If there are differences by gender in these surveys—even if only in a small proportion of cases—this would be an important insight for competition authorities and practitioners and would suggest the need for a change in approach.

For our analysis, we have relied on consumer surveys previously undertaken by Oxera and by a number of national competition authorities (NCAs). Oxera has carried out a large number of consumer surveys over the last ten years in a range of merger and antitrust cases, covering diverse products, and a number of these have been included in this study. We have been able to complement this with a number of surveys carried out by, or for, competition authorities. We want to thank the Netherlands Authority for Consumers and Markets (ACM), the UK Competition and Markets Authority (CMA), the UK Financial Conduct Authority, the Canadian Competition Bureau, and the Federal Telecommunications Institute of Mexico for their contributions to this study. All survey data that is not in the public domain was delivered to us fully anonymised, and we present the results of our analysis in aggregate and anonymised.

Analytical framework

Oxera hopes to contribute to the debate around gender-inclusive competition policy by addressing two questions in this report:

- are there significant differences by gender in consumer behaviour?

- if there are differences, what are the implications for market outcomes and competition policy, and in particular market definition and merger analysis?

To answer the first question we assess whether there are statistically significant differences by gender in the key metrics of interest by comparing the proportion of male and female

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[2] The term gender can be used to describe the characteristics of women and men that are socially constructed, while sex refers to those characteristics that are biologically determined. These two terms have often been used interchangeably and treated as binary (i.e. either male or female). As we analyse past surveys, we are limited to the binary gender categories used in those surveys.

respondents who chose a particular answer. Typically, the key metrics of interest are consumer responses to price changes and consumer diversion to substitutes. To isolate the effect of gender, we construct a model where we control for other key variables that could influence the responses. If the analysis shows that there are differences between men and women in terms of consumer behaviour, the next step is to understand what the implications are for market definition and merger effects. Differences in consumer behaviour is not a sufficient condition for defining separate markets or concluding that there is greater harm to one group than to the other. Instead, whether there are separate markets or different effects for men and women depends on one of two factors:

- the ability to differentiate between the two groups;

or, where differentiation is not possible,

- the size of the different groups.

If suppliers can apply different prices or differentiate products based on gender, the competition authority should consider assessing competition effects by gender as well. This may lead to a different outcome from the assessment of effects in aggregate—for example, separate markets based on gender (in line with the general principle of price discrimination markets for different consumer groups) or different theories of harm based on gender. If suppliers are not able to differentiate based on gender, the competition authority should still assess whether one group is large enough to protect the other against any adverse competitive effects.

The results of our analysis of past surveys show that there are indeed significant differences in the consumer behaviour of men and women in a wide variety of sectors.

Sports channels case study

Oxera was asked to survey consumers interested in watching live TV football matches. The survey questions centred on consumer behaviour and the level of substitutability between broadcasters, in order to understand the level of competition in the market.

During the original analysis, we found that there was no meaningful competition in the market for football broadcasting rights in the country in which the survey was conducted.

Analysing the survey data separately by gender reveals statistically significant differences in some of the data points that were used to inform the conclusions on limited competition, harm from high prices and harm from limited product access.

In redoing the analysis by gender, it is important to ensure that any differences in the results are being driven by gender as such, and not by other characteristics of the respondents. In particular, we find that age is of significant influence on the number of games a respondents indicated to be interested in watching. Although age is not correlated with gender in the national population, we do find such correlation between gender and age among football fans. Indeed, we note that female fans are significantly younger than male fans, with an average age of 40–50 for women compared to 50–60 for men. This suggests that there are significant differences in consumer behaviour for male and female respondents, and that although they are not necessarily due to gender, they may be indirectly linked to being a male or a female football fan.

Nonetheless, the overall competition assessment does not change when looking at men and women separately. This is because, for a number of survey questions, the responses from men and women both support the conclusion of consumer harm and differ only in the underlying degree of, for instance, perceived value for money.

Supermarkets case study

Oxera advised parties involved in the acquisition of a number of stores from one supermarket chain ('retailer A') by another ('retailer B'). To inform the merger review proceedings, we designed a consumer survey to assess the closeness of competition of the merging parties' stores. Based on the results of the survey, diversion ratios were calculated. In this case the survey assessed 'forced' diversion—i.e. diversion to another store following a store closure. For this report, we assess whether there is a difference in willingness to switch to another store based on gender. We subsequently assess whether, if these gender differences had been taken into account, there would have been a different conclusion regarding the market definition or the merger effects.

We found that for eight out of nine stores, male respondents were more likely to consider the other merging party's stores as a substitute than female respondents. We also found significant differences in products purchased by men and women. These gender differences could have had implications for the effects of the proposed merger. Specifically, differences in the diversion ratios mean that the incentive for the merging parties to make post-merger changes to prices and/or product offerings is likely to differ when considering their male and female customers separately. The potential for post-merger price increases depends on either of two factors: 1) the size of the different groups, and 2) the ability to differentiate prices and product offerings by gender.

We constructed an illustrative price rise (IPR)—using the diversion ratios and a 20% margin assumption—in order to assess the incentives of the merging parties to raise prices. This analysis shows that the merging parties would have an incentive to raise prices above 10% in one store when it comes to women's diversion ratios and in three stores when it comes to men's diversion ratio. In this case, it would have been worthwhile to investigate whether, post-merger, the parties would have an incentive to increase the price of male-targeted products by calculating the male IPRs (using each store's own margins).

If the merging parties are not able to differentiate based on a customer's gender, whether there is incentive to raise prices depends on the size of the two groups. If purchases by female customers represent a sufficiently large share of the retailer's profits, they may constrain the retailers in their ability to raise prices profitably. We conclude that if the parties are unable to price-discriminate based on a customer's gender, male customers would be protected by the female customers' propensity to switch to other stores, as the aggregate diversion ratio is sufficiently high to uphold price competition.

Healthcare insurance case study

A proposed merger in the healthcare sector was notified to a European NCA. As part of the investigation, two consumer surveys were conducted by an external research company to shed light on the switching rates of consumers and different subgroups of consumers. The NCA concluded that the merger did not have significant negative competitive effects on the healthcare insurance provider market.

Based on the raw survey data, Oxera assessed whether there are different switching rates between male and female respondents, correcting for other characteristics of the respondents. Although our analysis does not find that there are significant differences in switching between male and female respondents in the specific merger, we find that gender does seem to play a role in the wider market context. Gender significantly influences the probability of switching insurance provider when respondents are faced with no contract between the insurance provider and the preferred independent treatment centre.

To understand the implications for competition analysis and theories of harm in a market such as this one, it would be informative to assess whether there are differences by gender, and if so, whether this has an impact on the bargaining position of the insurance provider due to the size of the switching group, or due to the ability to differentiate by gender.

Package beach holidays case study

A tour operator notified a European NCA of its acquisition of another tour operator. The parties' activities overlapped in the market for beach holidays, and in particular, package trips. The NCA conducted a market investigation in order to assess any anti-competitive effects on the market for beach holidays resulting from the deal. As part of its investigation, the NCA commissioned a consumer survey from an external research company. From the survey, the NCA concluded that package trip providers experience stronger competitive pressure from other package trip providers compared to providers of separate components of the holiday package, although providers of separate components were found to exert competitive pressure as well.

When assessing the survey data by gender, Oxera finds that the degree of substitutability between package holidays and separate components is significantly different for men and women. Of those respondents who had booked a package trip, female respondents are on average 15.6 percentage points less likely to look for a cheaper option using separate components, when controlling for several demographics and individual preferences on product attributes. This is indicative of a lower degree of substitutability between package components and separate components for women compared to men.

The differences in the degree of substitutability might provide an incentive for package holiday providers to differentiate based on gender. Using transaction-level data, tour operators may have information on which types of package trip are predominantly booked by women (or men). The merged parties might be able to increase the price of packages that target female customers. As women are less likely to look for a cheaper option consisting of separate components, this could potentially harm this consumer group.

Switching case studies across a range of sectors and countries

Based on four sets of surveys carried out by various public bodies, we assess whether there are differences in switching behaviour by gender in the following sectors and countries.

The Canadian Competition Bureau conducted a survey to provide a basic understanding of Canadian consumers' behaviour around switching and/or renegotiating their service contracts in six sectors, including cell phones, internet, cable television, banking, home insurance and car insurance. Oxera's analysis of the responses by men and women, controlling for age, occupation and annual household income, found that male respondents are 2% more likely to switch service providers than female respondents.

The Mexican Federal Institute of Telecommunications conducted a consumer survey aimed at understanding switching behaviour and prior search patterns when making subscription decisions. Oxera's analysis of the survey data shows that there are few differences between the behaviour of men and women with respect to switching behaviour in the telecoms sector. For both men and women, we see very low switching rates and there are no statistically significant differences across the two groups.

The CMA investigated the retail banking market with the aim of understanding how consumers view and use their personal current accounts. The CMA carried out a survey to assess whether there were any features of this market preventing, restricting or distorting competition. Oxera's analysis is based on the CMA's cross-tabulations, which are available in the public domain. The descriptive analysis shows that a larger proportion of male respondents reported having switched bank compared to female respondents in the three years preceding the survey.

The CMA investigated the energy market in the UK, with a view to understanding how consumers behave and any potential competition issues. Oxera's analysis is based on the CMA's cross-tabulations, which are available in the public domain. The analyses performed on the CMA surveys—albeit only descriptive—show an overall higher rate of switching among male respondents.

If the lower levels of switching in female respondents is due to different preferences for substitutes, this suggests that the relevant market may be different for men and women. If, instead, the difference in switching behaviour is due to differences in price sensitivity, this suggests that merger effects might harm women more than men. These findings suggest that women may suffer more harm in the case of price increases. As such, it is advisable to take these differences into consideration and assess how they may affect consumer welfare.

Implications for competition policy

Overall, our analysis of past surveys shows that there tend to be significant differences by gender in terms of substitution preferences and switching behaviour. This could have implications for market definition and the analysis of merger effects. As explored in each of the case studies, the scope for harm will be influenced by two factors: the size of the different groups, and the ability to differentiate between the two groups. In a number of sectors there may be at least some scope to differentiate product offerings or prices based on gender and we would

advise that competition authorities explore this possibility. If it is found that companies can apply different prices or substantially differentiate their product offerings based on gender, the competition authority should consider assessing market definition or competition effects by gender.

The 'toothless fallacy' (discussed in section 2.) is a useful reminder that not all differences between consumer groups necessarily give rise to separate markets. However, there are many ways in which suppliers can target specific customer groups, including by gender, such that competitive effects and harm may differ between groups. That is why gender is an additional relevant feature of the market that is worth exploring in competition cases.

We also identify a number of implications for survey design. It is crucial to ask respondents with which gender they identify themselves. Furthermore, to avoid that differences in response are attributed only to gender differences, the survey should contain questions on demographic and other consumer characteristics. The econometric approach followed in this report can then be applied to test for the relative contributions of each of these characteristics, and isolate the effect of gender.

A suggested area for further investigation is whether differences in consumer behaviour across men and women are more or less pronounced when looking at revealed preferences as opposed to stated preferences. A general issue with consumer surveys is that stated preferences may not reflect actual behaviour. This discrepancy may be more pronounced in one gender than the other. In one survey we found that a larger proportion of women said 'I don't know' or 'I don't remember' to each question where this answer was possible, compared to men. Considering both revealed preferences and stated preferences can provide a fuller picture (we note that datasets on revealed preferences such as scanner data and internal sales ledgers may not always record gender information, although big datasets in online markets typically do).

1. Introduction: objective and context

1.1. The OECD initiative

The OECD has launched a gender-inclusive competition policy initiative aimed at exploring whether applying a gender lens can help deliver a more effective competition policy (See Box 1.1). The OECD is looking for original applied research that will feed into practical guidance for competition authorities. As part of this initiative, the OECD has commissioned Oxera to assess the gender differences in surveys carried out for the purpose of market definition and merger analysis, and to draw out the implications for competition analysis.[3]

Box 1.1.The OECD's initiative on gender-inclusive competition policy

The fight for gender equality is one of the defining challenges of our age. While progress has been made in many areas, the relationship between gender and competition policy remains largely unexplored. Competition policy usually thinks in terms of consumers and firms, government and regulators. Traditionally, consumers have been considered only by their willingness to pay, their (rational) preferences, their ability to substitute between products offered by firms. Meanwhile, firms are treated as entities that are defined by the profit-maximising objectives of their owners, and only rarely seen as collections of people. Competition policy is therefore largely gender blind and prides itself on its objectivity. However, in 2018, the OECD began to explore whether a gender lens might in fact help deliver a more effective competition policy by identifying additional relevant features of the market, and of the behaviour of consumers and firms, as well as whether a more effective competition policy can help address gender inequality. The OECD Gender Inclusive Competition Policy project has been launched with the support of the Canadian Government and in particular the Canadian Competition Bureau to develop guidance for competition agencies in this area.

Source: OECD website, 'Gender inclusive competition policy', https://www.oecd.org/competition/gender-inclusive-competition-policy.htm.

More generally, this report has been commissioned to raise awareness of the importance of gender-based differences in consumer behaviour and the need to take such differences into account. In a recent interview (April 2021), the EU Competition Commissioner Margrethe Vestager expressed her commitment to a gender-inclusive competition policy and her interest in the outcome of this research project.[4]

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[3] World Health Organization (WHO) refers to gender as the characteristics of women and men that are socially constructed, while sex refers to those characteristics that are biologically determined. These two terms have often been used interchangeably and treated as binary (i.e. either male or female). As we analyse past surveys, we are limited to the binary gender categories used in those surveys. See the WHO website, 'Gender and health', https://www.who.int/health-topics/gender#tab=tab_1.

[4] Competition Policy International (2021), 'CPT talks … with Margrethe Vestager; 20 April. https://www.competitionpolicyinternational.com/cpi-talks-with-margrethe-vestager-2/. Commissioner Vestager notes that: 'So, when designing or interpreting market investigations we need to consider whether gender or other factors affect prices and consumer purchasing decisions. The aim is to try to understand how gender or other aspects of identity influence demand substitutability. In some circumstances, these preferences may be strong enough to require the definition of a separate market for gendered products. We know that men and women have different preferences, price-sensitivities and propensities to switch products. This means that depending on gender, certain products could be either complementary or

1.2. **Gender differences in surveys**

There is increasing awareness of a 'gender data gap' in a range of academic, business and policy areas. For example, in her book *Invisible Women* (2019), Caroline Criado Perez demonstrates the problems that arise when policy or business decisions are made based on data that has been collected only on men, or on analyses of data in the aggregate without accounting for differences between men and women.[5] Competition policy is potentially one such area—hence the OECD initiative and this Oxera report.

In competition policy, surveys and other analyses that feed into the delineation of the relevant market or a merger analysis are typically analysed in the aggregate, thereby overlooking potentially significant differences by gender. If there are significant differences by gender in these surveys—even if only in a small proportion of cases—this would be an important insight for competition authorities and practitioners, and would require a change in approach.

For this study, we have re-analysed previously undertaken consumer surveys to assess the results by gender separately. In this way, we can assess whether respondents of different genders have different preferences or a different likelihood of switching between products.

However, not all past surveys have asked about gender, which exacerbates the identified gender data gap. This is in itself a lesson for competition policy and it would be good practice to ask for gender as part of the demographic characteristics of survey respondents.[6]

Specifically, the terms 'gender' and 'sex' have often been used interchangeably, with past surveys often offering a binary option: respondents could record their gender as either male or female. Given that we have re-analysed past surveys, we are limited to the gender categories used in the surveys. Hence, in this study we use a binary approach. Well-designed surveys may allow for more than two gender categories, and the analysis carried out in this report could apply to those multiple categories as well.

If (some of) the surveys show significant differences in consumer behaviour between men and women, it raises a question about what this means for competition cases, and in particular market definition and merger analysis.

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substitutable. By ensuring that we are not biased in our surveys or market investigations, we not only ensure that we define markets correctly but also draw the right conclusions about competition in those markets, including market power and effect on competition.'

[5] Criado Perez, C. (2019), *Invisible Women: Exposing Data Bias in a World Designed for Men,* London.

[6] See also section 8.6 for further recommendations on survey design.

1.3. **Oxera's study**

Oxera hopes to contribute to the debate around gender-inclusive competition policy by addressing two questions in this report, as follows.

- Are there significant differences by gender in consumer behaviour?

- If there are differences, what are the implications for competition policy?

This report offers a practical toolkit for how to answer these two questions.
With regard to the first question, we have developed a model that competition authorities can use in their analysis of survey data to test whether there are gender differences in competition cases (and correcting for any other demographic features that may influence such differences). For the second question, we provide practical considerations on the possible implications for the competition assessment. For instance, differences in the preferences of men and women may result in them being differently affected by post-merger changes to prices or product offerings (e.g. closures of local transport or hospital services).[7]

1.4. **Approach to this report**

For our analysis we have relied on consumer surveys previously undertaken by Oxera and by a number of NCAs.

Oxera has carried out a large number of consumer surveys over the last ten years, covering diverse products such as pay-TV, local bus services, petrol stations, healthcare, package holidays and supermarkets, across multiple jurisdictions. We reviewed these past surveys to select a number of them for the current study, subject to 1) the survey containing a question about the gender of the respondent; and 2) any confidentiality/privacy concerns. We are grateful to our clients for the selected surveys for agreeing to our use of these surveys for the current study.

Furthermore, we are grateful for being able to complement our own surveys with a number of surveys carried out by, or for, several competition authorities. We want to thank the Netherlands Authority for Consumers and Markets (ACM), the UK Competition and Markets Authority (CMA), the UK Financial Conduct Authority, the Canadian Competition Bureau, and the Federal Telecommunications Institute of Mexico for their contributions to this report. All survey data that is not in the public domain was delivered to us fully anonymised.

These surveys provide us with information relating to a wide range of products and services, including, importantly, many products that are not obviously targeted at men or women, and where significant differences in substitution behaviour can be overlooked. We have included four of these surveys as individual case studies in this report. We have also included four additional surveys as part of our case study on switching behaviour. All surveys were conducted between

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[7] A parallel study carried out as part the OECD initiative that covers a similar theme is that by Pinheiro, L., Faye, A., Ginn, M., Lehmann, J. and Posch, J. (2021), 'Gender considerations in the analysis of market definition and competitive effects: Practical framework and illustrative example', report for the OECD.

2012 and 2020. Except where the results are in the public domain, we present the results of our analysis in aggregate and anonymised.

We also thank the OECD staff and various discussants and participants in the OECD workshop in spring 2021 for their helpful comments and suggestions on our study. Oxera is responsible for the contents of this report.

1.5. **Structure of the report**

The remainder of this report is structured as follows.

- Section 2. begins by setting out the framework that we have used for the analysis and which can serve as a toolkit for authorities.

- Sections 3. to 6. assess the role of gender in the markets for football subscriptions, supermarkets, healthcare clinics and package holidays based on past surveys carried out in these markets, and the implications for the competition assessment.

- Section 7. assesses the role of gender in switching behaviour for a number of survey case studies across various sectors and countries.

- Section 8. concludes and sets out the implications of our findings for survey design and competition analysis.

2. The analytical framework

How can competition authorities take gender differences into account when investigating competition cases? There are a number of steps to be taken to assess the presence and relevance of gender differences in market definition and merger analysis. The first stage is to understand gender-based differences that are relevant for market definition and switching. The second stage is to assess the implications of these differences for competition analysis, where a number of factors need to be taken into consideration. We set these out in more detail below. Consumer surveys are a commonly used tool in competition cases, in particular to inform the analysis of market definition and merger effects. Such surveys provide evidence on consumers' 'stated preferences' (as opposed to their 'revealed preferences' which can be observed from their actual behaviour). The potential pitfalls and shortcomings of surveys are well known, and robust survey design is essential for generating reliable results. The CMA has issued a detailed guidance document on good practice in survey design and presentation.[8] Our findings and recommendations on how to account for gender differences in surveys are complementary to this existing guidance on good practice.

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[8] Competition and Markets Authority (2018), 'Good practice in the design and presentation of customer survey evidence in merger cases—revised', May.

2.1. Stage 1: are there differences in survey responses between men and women?

In this sub-section we set out the methodology for robustly assessing whether there are gender differences in consumer survey data. In sections 3. to 6. , we apply this methodology to a range of past consumer surveys.

The first question is whether there is a difference between the behaviour of men and women that could inform the market analysis. In particular, we are interested in the following aspects of consumer behaviour:

- price sensitivity;

- preferences for substitutes;

- willingness to switch.

Using the consumer survey response data, competition authorities can answer questions relating to these aspects, as set out in Table 2.1.

Table 2.1   Relevant questions to identify differences in consumer behaviour across gender

In terms of the product dimension, are there differences in what men and women consider to be substitutes?
What product attributes do men and women value most?
Is there a difference in frequency of buying the relevant product and the volume bought by male and female respondents?
Will male and female respondents stop buying at different price levels?
How aware are respondents of prices?
Are there differences in respondents' switching levels?

Source: Oxera.

For each of the surveys included in our report, we re-run the survey analysis, but this time controlling for differences in responses by gender and, in particular, evaluating whether an assessment by gender would have resulted in a different outcome for the market definition or the merger effects. Typically, the key metrics of interest are consumer responses to price changes and consumer diversion between substitutes.

The first step is to assess whether there are significant differences by gender in the key metric of interest by comparing the proportion of male and female respondents who chose a particular answer. If there are significant differences in the responses of male and female respondents, it is important to understand what is driving these differences. In particular, we are interested to know to what extent it is gender or other variables that influence the difference in responses. Other variables—such as the respondent's age, employment status, income, level of education, preferences, and familiarity with the product—may also explain differences in the key metric of interest. For example, differences in male and female respondents' preferred

retail bank might be better explained by age if the women in the sample are on average older than the men.

To this end, we construct a model that predicts the probability of a consumer giving a particular response, taking into account the respondent's gender and other key variables. We undertake a logistic regression analysis to understand whether the gender of the respondent, after controlling for other variables, significantly affects the likelihood of their giving a particular response. These other variables have been chosen on the basis that they are likely to influence the respondent's answer to the question of interest. The outcome of the regression analysis shows which variables significantly affect the probability of the respondent choosing a particular response.

Here, it is important to note that other variables that influence the respondent's answer may in fact be closely linked with gender. For example, price sensitivity could be explained by income, which may be higher for male respondents than for female respondents. To verify whether there is such a correlation, we compare the answers of female and male respondents across each of these variables, and test whether they are, on average, significantly different from one another. In order to test whether the average value of each variable of interest is statistically different between the genders, we have computed the two-tailed p-values, which indicate the probability associated with a zero difference in the average value of the two groups.

If there are no statistically significant differences by gender when considering other key variables, this would suggest that the other variables that may affect the choice are unlikely to be correlated with gender in the particular sample.

Where we do not see statistically significant differences by gender in responses to survey questions of interest, but notice that there are differences by gender when considering other key variables, we should still assess whether these other factors are linked to gender. For example, income may be the most important explanatory variable in price sensitivity, while income in turn may on average be significantly different for male and female respondents. This suggests that, due to correlation between gender and other variables that are found to affect the key metric, one should consider this indicative of differences in patterns of consumer behaviour between men and women.

2.2. Stage 2: what are the implications for competition policy?

If there is a difference between men and women in terms of consumer behaviour, why would this matter for competition cases?

As regards market definition, in some markets products are clearly targeted at men or women (e.g. razors, deodorants and clothes), such that the product dimension of the relevant markets can reflect gender differences. Likewise, it is well established that in addition to the product and geographic dimensions there can be different markets depending on consumer type—e.g. business and leisure travellers.[9] In the same way that consumer type can affect market definition,

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[9] See Niels, G., Jenkins, H., and Kavanagh, J. (2016), *Economics for Competition Lawyers*, second edition, Oxford University Press, section 2.2, listing the seven possible dimensions of market definition.

gender could in principle be a possible distinguishing factor. Thus, there could be different markets for the same product depending on whether the consumers are men or women.

Men and women may also have different preferences for switching between products, and may therefore be differently affected by post-merger changes to prices or product offerings (e.g. closures of local transport or hospital services). Take the hypothetical example of a merger that has a neutral effect on gender A but a price-increasing effect on gender B. This could be the case if, for gender B, the merging party is the closest substitute while for gender A there is a third party that is the closest substitute. Or, if gender B has a lower tendency to switch to another supplier, a price increase for gender B post-merger would be more profitable for the merged parties.

What determines whether there are separate markets for men and women? There may be separate markets if the preferences and switching behaviour of male and female consumers are different to such an extent that the competitive dynamics that men and women experience are very different. However, differences in consumer behaviour are not a sufficient condition for separate markets.

In this context, it is relevant to test for the 'toothless fallacy' from the *United Brands* case of 1978.[10] In this case, bananas were deemed a separate market because babies and elderly people could not switch to other fruit. However, because it is not possible to discriminate between the 'toothless' group and the other group, the real question is whether there are enough people who can and do switch to exert a sufficient constraint on banana prices.

The implications of the outcome of the competition analysis depend on three main factors: the ability of firms to differentiate between consumer groups, the relative size of these groups, and the extent of switching after a price increase.

For instance, firms may be able to sufficiently differentiate the product offering so that switching behaviour between male- and female-targeted products is limited. This was found to be the case in the merger between Sara Lee and Unilever (2010), where deodorants for men and deodorants for women were considered to be separate relevant product markets.[11] In such cases, competition between the two different products is limited or non-existent.

In the case of one combined relevant market, the competition authority can still consider the two different groups (men and women) and the effect of the merger or conduct on those separate groups.

If firms can differentiate between men and women in their prices—for instance, in some insurance markets, where the insurer may charge a different premium for men and for women—a competition authority could consider whether there are in fact two separate markets, or at least assess the effects of the merger or conduct on men and women separately. This would mean

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[10] Case 27/76 *United Brands v Commission* [1978] ECR 207; [1978] 1 CMLR 429

[11] European Commission (2010), Case No COMP/M.5658 – UNILEVER/SARA LEE, 17 November.

conducting the SSNIP and critical loss analysis for each group to see whether the firm(s) under investigation can increase the price profitably.[12]

If firms cannot product- or price-differentiate between male and female consumers, then the price-insensitive group—e.g. men—may be protected by the price-sensitive group—e.g. women. In this scenario, women may be protecting men from price increases. The extent to which this protection exists depends on two factors: 1) the size of both groups, and 2) the level of switching by the price-sensitive group after a price increase.

First, the larger a group of consumers, the more weight it should get in the overall assessment of the merger or conduct. If, for instance—sticking with the example above—the group of women buying the product is bigger (or they buy a higher volume) than the group of men, the purchasing decision of women will have more impact on the sales and profit of the firm in question, and therefore women will exert sufficient constraint on the firm to prevent it from raising its prices.

Here, one should keep in mind that there may be a difference in the proportion of men and women in the total population—which is roughly 50–50—and in the consumer sample of the specific product. It might be that a certain product is bought more by women than by men. When testing and correcting for representativeness of the survey sample, it makes most sense to adhere to the distribution in the consumer sample, rather than the total population.

Second, there is the level of switching, especially by the price-sensitive group, after a price increase. The level of switching can be informed by the consumer survey. By considering the level of switching after a price increase of 5–10%[13] and combining that with the size of this group, compared to the non-price-sensitive group, the competition authority can determine whether a price increase for all consumers would be profitable. If the price increase would be unprofitable due to the loss of price-sensitive consumers, the price-sensitive group would protect the price-insensitive group.

In all, these potential differences by gender are worth exploring in specific competition cases, and they may have an impact on the market definition or the analysis of theories of harm and competitive effects.

3. Case study: sports channels

3.1. Background to the survey

In the context of a competition case in the EU related to the rights to broadcast football matches in a European country, Oxera was instructed by a corporate client to survey consumers interested in watching live TV football matches. The aim of the survey was to understand the impact on consumer welfare of the noticeable inflation of the price of the broadcasting rights at

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[12] SSNIP stands for small but significant and non-transitory increase in price. The hypothetical monopolist test or SSNIP test is the most commonly used framework for market definition. It considers substitutability between products (and geographic areas) following a 5–10% price increase.

[13] Here we take the 5–10% from the SSNIP test in the context of determining the relevant market. If the case at hand is a merger, the competition authority could use the percentage of the price increase that, for instance, followed from a merger simulation model.

the time. The survey questions centred on consumer behaviour and the level of substitutability between broadcasters, in order to understand the level of competition in the market.

In this country, two different broadcasters owned the rights to broadcast matches, which were sold to consumers via add-ons to their traditional TV subscription package. These two broadcasters together only broadcast a small proportion of the matches being played on any given match day, such that football fans who subscribed to both services might still be unable to watch their team play. While one of the broadcasters was broadcasting multiple games per match day (henceforth referred to as the 'larger broadcaster'), the other was only broadcasting one game per round (henceforth referred to as the 'smaller broadcaster').

One thousand individuals were surveyed as part of this study. They were asked questions about their viewing habits, preferences and perceptions around the pricing of the football TV packages available in the country. The sampling method defined quotas on gender, age, social grade and TV provider to be representative of the country's population. It is interesting to note that the original survey data was weighted on gender in order to be more representative of the country's football fans (i.e. a lower weight was given to female respondents).[14] The analysis was conducted on the weighted data, although the conclusions were robust to using non-weighted data as well.

The analysis of the survey data supported the conclusion that there was no meaningful competition in the market for football broadcasting rights in the country. Consequently, the lack of competition led to two different types of harm to football fans—harm from high prices for subscription packages, and harm from limited access to the number of games that subscribers wanted to watch. The conclusions regarding lack of competition and the two strands of harm to fans were based on specific findings derived from the survey data.

3.2. The role of gender in football subscription behaviour

In order to assess whether the conclusions about lack of competition and consumer harm are still valid when assessing each gender separately, we replicate the same analysis that was used to evaluate the competitive landscape. To ensure that any differences in the results are being driven by gender, and not by other characteristics, we check whether there are any statistically significant differences between men and women in the other characteristics that were captured by the survey.

The survey consisted of 1,000 respondents, of whom 464 were women. As shown in Table 3.1, men and women in the sample do not exhibit statistically significant differences in potentially important characteristics such as their income segment (which could have an effect on perception of price, and difficulties in paying for subscriptions) or in their regional distribution (inhabitants of certain regions may be more interested in football due to the success of their local club). However, we find that men in the sample are on average older than women (which may

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[14] The original survey results were weighted to be representative of the football-viewing population of the country in terms of gender, age and social grade. The gender adjustment, for example, reduces the importance of female respondents from 46% of the sample in the original unweighted data, to 35% in the weighted sample.

have an effect on the time available to watch football matches). The same conclusions apply when we analyse the difference between men and women in the sub-samples of current subscribers, past subscribers and non-subscribers. We present the results for these sub-samples in Appendix A1.

Table 3.1   Gender differences in personal characteristics (on average)

Personal characteristics	Male	Female	Difference
Number of respondents	536	464	-
Age	50–60 years	40–50 years	Significant at 1% level
Income segment	Lower middle class	Lower middle class	No difference
Region	N/A	N/A	No difference
Role in decision making[1]	> 60% are sole decision-makers	< 50% are sole decision-makers	Significant at 1% level

Note: [1] The survey question was formulated as: 'Which of the following best describes your role in making the decision about which television service you get, or the channels you receive, in your household?'. The four possible responses were: i) 'Personally responsible for the decision'; ii) 'Jointly responsible for the decision'; iii) 'Not at all responsible for the decision'; iv) 'Don't know'.

Source: Oxera analysis.

There is also a difference in the proportion of male and female respondents reporting to be the sole decision-maker in the household regarding football TV subscriptions. Given that we are interested in differences between men and women—which may be blurred when looking at joint decision making—we restrict our analysis to respondents who are sole decision-makers. This is likely to provide a better reflection of gender differences for competition assessment purposes.

In Table 3.2 below, we present our analysis of the main data points that informed the conclusion of lack of meaningful competition in the market for football subscription packages. These findings highlight the lack of competitive pressure that one broadcaster applied on the other. Due to the low number of matches shown by both broadcasters combined, they were often seen as complementary services, rather than competing offers, to fans who were interested in watching a larger number of matches.

Comparing the ranges for male and female respondents, a lower proportion of female than male subscribers[15] indicated that they were interested in watching all, or specific, matches. We also found that a lower proportion of female respondents wanted to watch at least one match on both channels and that a lower proportion of female subscribers were subscribing to both services simultaneously. For both male and female respondents, less than 10% would switch to another broadcaster if subscription prices would increase more than 10% per month.

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[15] This difference was statistically significant at the 10% level.

When we control for other personal characteristics like age and income segment using a logit regression model, the first two sets of results in Table 3.2 are no longer statistically significant, meaning that there is no discernible difference between male and female respondents. We present the regression results in Table A1.6 and Table A1.5. Here, we note that the older respondents are more likely to want to watch at least one game from each of the two broadcasters. We interpret this result as age being a proxy for leisure time. Older respondents are likely to have more time and are therefore more likely to want to watch more matches.

Table 3.2   Evidence on lack of competition

Evidence	Male	Female	Difference
More than 60% of subscribers were interested in watching all, or specific, first division matches[1]	75.1%	67.9%	Significant at 10% level
More than 60% of subscribers wanted to watch at least one game from each of the two broadcasters	68.2%	56.9%	Significant at 5% level
More than 50% of subscribers watched at least one game shown by each broadcaster per week	60.2%	52.8%	No difference
More than 33% of subscribers were subscribing to both broadcasters	42.2%	33.0%	Significant at 10% level
More than 50% of subscribers to the smaller broadcaster also subscribed to the larger broadcaster	57.5%	53.7%	No difference
More than 50% of subscribers to the larger broadcaster also subscribed to the smaller broadcaster	61.3%	46.2%	Significant at 5% level
Less than 10% would switch to another provider if prices increased markedly[2]	11.6%	11.0%	No difference

Note: The aggregate findings reported in the first columns include responses from all respondents, including those that are joint decision-makers. [1] The specific question asked was: 'Now thinking about the first division league, which of these apply to you? Please select ALL that apply. I am interested in watching: i) some of my own team's games; ii) all of my own team's games; iii) some big games; iv) specific big games; v) all big games; vi) any first division league game; vii) first division league highlights; viii) I am not interested in watching first division league games on TV; ix) none of the statements apply'. Any respondent who answered with options ii), iv) or v) was considered as wanting to watch all or specific matches. [2] Respondents were asked what their reaction would be if the price of the subscription to their current service increased by a double-digit percentage per month. The possible responses were: i) 'increase the amount I spend to cover the subscription increase'; ii) 'cancel my current subscription package without replacement'; iii) 'cancel my current subscription package and watch somewhere else (e.g. a bar, at a friend's house, online sources)'; iv) 'switch to the alternative service'; v) 'reduce expenditure elsewhere in order to cover the extra cost'; vi) 'change my channel mix to ensure I could keep the sports package'; vii) 'don't know'.

Source: Oxera analysis.

Table 3.3 below shows our findings on differences in responses by men and women to questions that informed the analysis of whether there was harm from high prices. Our findings indicate that the majority of potential subscribers (i.e. individuals interested in subscribing) of both genders considered that the packages were too expensive. When asking past subscribers, we found that a larger proportion of male respondents reported the packages as being too expensive. This could suggest that a larger proportion of male past subscribers do not hold a subscription due to high prices.

Similar to the effect highlighted for the first set of results in Table 3.2, once we control for age and income segment using a logit regression model, the gender effect is no longer statistically significant. The regression results are presented in Table A1.8.

Of the past subscribers, women were more likely to report having faced difficulties in paying for their subscription. This is particularly interesting given that there was no significant difference in the average income reported by the two groups. This could suggest a higher level of awareness of total household spending among female subscribers compared to male subscribers. For those respondents who indicated that they had had difficulties in paying, there was no difference in the proportion of men and women reporting that they had cut back on spending on other products.

Table 3.3   Evidence on subscriber harm due to high prices

Evidence	Male	Female	Difference
More than 75% of those considering subscribing said that packages were currently too expensive	79.3%	85.7%	No difference
More than 70% of past subscribers said that packages were currently too expensive	75.5%	57.1%	Significant at 5% level
More than 30% of current subscribers had difficulties in paying for their subscription[1]	28.3%	45.0%	Significant at 1% level
More than 60% of subscribers facing payment difficulties cut back on spending on other products[2]	67.3%	59.2%	No difference

Note: The aggregate findings reported in the first columns include responses from all respondents, including those who are joint decision-makers. [1] For survey respondents with sports channel subscriptions, a question was asked about whether they had any financial difficulties paying for their subscription services. The following options were available: i) 'No difficulties being able to afford our TV subscription package in the last five years'; ii) 'one or two difficulties being able to afford our TV subscription package in the last five years'; iii) 'more frequent difficulties being able to afford our TV subscription package in the last five years'; iv) 'Don't know'. If respondents answered with either option ii) or iii), we consider that they faced financial difficulties paying for their subscription. [2] If according to the previous question a respondent was deemed to have faced financial difficulties in paying for their subscription, a follow-up question was asked regarding any changes in consumption habits that were made as a response. Twelve options were presented, which can be grouped into reducing expenses on communication items (TV, phone, broadband); reducing expenses on other services or goods; or seeking alternative sources of funds like borrowing money or selling items. The 60% figure presented in the table refers to consumers who cut back on other (non-communication) items to help pay for the more expensive sports package.

Source: Oxera analysis.

In Table 3.4 below, we present the analysis of the factors determining harm from limited access. As set out in the original analysis, the harm to football fans stems from the inability to watch all the matches that interested them. In this regard, there does not appear to be a significant gender-based difference, as the responses in the table show that both men and women would have liked to watch more matches. Where responses between men and women did differ was in their preferences for watching football. Male fans were likely to watch the first division football matches more regularly than female fans.

Table 3.4   Evidence on subscriber harm due to limited access

Evidence	Male	Female	Difference
More than 80% of first division football fans followed it regularly on TV, significantly more than the next most popular competition	88.1%	78.2%	Significant at 1% level
More than half of subscribers liked to watch more than two games per week, making the smaller broadcast package insufficient	56.1%	53.2%	No difference
More than 40% of fans who subscribed to both packages would still have liked to watch games that were not available	39.7%	58.3%	No difference
More than 25% of past and potential subscribers would consider subscribing if more games were shown	26.9%	22.5%	No difference
Almost half of non-subscribing first division football fans had considered subscribing, or had previously subscribed to, football packages	50.3%	44.1%	No difference

Note: The precise estimates for each data point have been omitted in line with confidentiality obligations. We have instead presented indicative ranges for each data point.

Source: Oxera analysis.

3.3. Implications for competition analysis

As shown in the previous section, analysing the survey data separately by gender revealed statistically significant differences in some of the data points that were used to inform the conclusions on limited competition, harm from high prices and harm from limited product access. An important follow-up question relates to the implications for competition assessment of these gender-based differences, and whether the overall conclusions of the investigation would change.

Table 3.2 (lack of competition) and Table 3.4 (harm from limited access) Table 3.3 revealed statistically significant differences between men and women in terms of the number of matches watched, and their interest in following first division football. Watching fewer games each week means that the two subscription packages could be seen more as substitutes than as complements, and that the potential harm from the limited number of games shown by both broadcasters is smaller. However, despite these differences between men and women, the high proportion of female respondents indicating that they wanted to watch at least one game shown by each of the two broadcasters is still suggestive of complementarity between the two broadcasters and inadequate product offerings that fail to satisfy consumer demand.

Table 3.3 highlights statistically significant differences in responses related to the prices of the subscription packages. These findings show that, for a number of questions, there are significant differences by gender. While 75.5% of men who were past subscribers said that packages are currently too expensive, only 57.1% of women who were past subscribers said this. On the other hand, while 28.3% of men who are current subscribers reported difficulties in paying for their subscription, 45.0% of women reported this. Although this suggests that there is harm from high

subscription prices for both men and women, the degree of harm might be different for men and women.

Lastly, we note that differences across gender are not discernible when controlling for age and income. In particular, we find that age is of significant influence on whether a respondent[16] indicated that they were interested in watching all, or specific, matches, and on whether they wanted to watch at least one match on both channels. Although age is not correlated with gender in the national population, we do find such correlation between gender and age among football fans. Indeed, we note that female fans are significantly younger than male fans, with an average age of 40–50 for women compared to 50–60 for men. This suggests that there are significant differences in consumer behaviour for male and female respondents, and that although they are not necessarily due to gender, they may be indirectly linked to being a male or a female football fan.

Based on these results, we conclude that there are significant differences in responses to a large number of questions. In some cases, there is more than a 15 -percentage-point difference between the proportion of men and women giving a particular response. Nonetheless, the overall competition assessment does not change when looking at men and women separately. This is due to the fact that the survey responses for both genders are still suggestive of the various theories of harm, even when assessed separately. For example, although the differences between men and women in reporting difficulties in paying for a subscription are significant at the 1% level, both results indicate consumer harm from high prices.

It may therefore be more informative to analyse the results by gender separately in cases where the results for the full sample are closer to the threshold. For example, in a case where just over half of the full sample gave a particular response, this could mean that the minority of women gave that particular response, while the majority of men did so. This suggests that assessing the evidence separately for men and women in such cases, could lead to a different conclusion around the theory of harm depending on which group is being considered.

4. Case study: supermarkets

4.1. Background to the survey

Oxera advised the parties in a merger involving the acquisition of a number of stores from one supermarket chain ('retailer A') by another ('retailer B'). To inform the merger review proceedings, we designed a consumer survey to assess the closeness of competition of the merging parties' stores. In addition, the competition authority in question considered the closeness of competition between retailer A and retailer C—the latter being a supermarket chain that is a member of the same consumer co-operative as retailer B.

The analysis was performed for nine stores: four each belonging to retailers A and B, and an additional store belonging to retailer C.

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[16] This difference was statistically significant at the 10% level.

- Stores 1–4 were owned by retailer A.

- Stores 5–8 were owned by retailer B.

- Store 9 was owned by retailer C.

The main aim of the survey was to assess the closeness of competition between each of the nine stores and other supermarkets and convenience stores in the surrounding areas. The surveys were carried out in person at each of the nine stores; customers exiting the stores were asked what they would have done if the supermarket at which they had just purchased items was closed for three months. Possible responses were: visit another grocery store, visit a specialist retailer (e.g. butcher or bakery), or would not have purchased these items.

Based on the results from the survey, diversion ratios were calculated. Diversion ratios are commonly used in merger analysis, as they capture the closeness of competition between merging parties. Specifically, they assess what proportion of customers of one of the merging parties would be willing to switch to the other merging party's product in the event of a price increase or closure. If these diversion ratios are sufficiently large—i.e. enough of the customers exhibit a willingness to switch to the other merging party—then it is assumed that the merging parties are close competitors of one another and, as such, a merger between the parties might result in a harmful lessening of competition. In this case, the survey assessed 'forced' diversion, i.e. diversion following a store closure (see Box 4.1 for more information on the relevance of 'forced' diversion).

Box 4.1 'Forced' diversion ratios

Diversion ratios measure the proportion of sales captured by other stores when the prices at the surveyed store increase. They are used in competition cases to analyse the unilateral effects of mergers, and to find the closest substitutes as part of market definition. In general, higher diversion ratios between merging stores imply more intense competition between the stores pre-merger, and hence a higher predicted post-merger price increase. The diversion ratio performed in this analysis is the 'forced diversion ratio', rather than the 'price diversion ratio'. In this case, customers were asked what they would do if the focal store was closed (not if prices increased). The reason for using forced diversion as a proxy for diversion following a price increase can differ between cases, but one reason is to ensure a sufficient sample size of switchers that can be used to estimate the diversion ratio.

Source: Oxera (2009), 'Diversion ratios: why does it matter where customers go if a shop is closed?', Agenda, February.

Next, an illustrative price rise (IPR)[17] was constructed using the expenditure-weighted diversion ratios and the store-specific margins, in order to assess the incentives of the merging parties to raise the prices of both products.[18]

Consistent with the competition authority's approach in previous merger cases, we tested whether the stores raised competition concerns using the IPR. Stores with an incentive to raise prices above 10% as a result of the merger were classified as having failed the test. Stores that were found not to have an incentive to raise prices by 5% or more as a result of the merger would not raise competition concerns and therefore passed the test. The analysis showed that three out of nine stores were in the first group, while the other six stores were in the second group. These results are set out in Table 4.1.

Table 4.1   Illustrative price rise of the nine stores

	IPR	Test
Store 1	20%	Failed
Store 2	11%	Failed
Store 3	2%	Passed
Store 4	4%	Passed
Store 5	3%	Passed
Store 6	0%	Passed
Store 7	11%	Failed
Store 8	4%	Passed
Store 9	3%	Passed

Source: Oxera analysis, based on survey data and margin data from the retailers.

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[17] The IPR is a price-rise test based on a model of two single-product firms that produce differentiated goods, relying on a number of restrictive assumptions. Based on the idea that, before the merger, two competing companies exert a 'pricing externality' on each other, and that the merged entity will internalise this effect, it captures the effects of the merger on the incentive to raise prices. See Oxera (2013), 'Soaps, groceries and app stores: extending merger price-rise analysis', *Agenda*, May, https://www.oxera.com/wp-content/uploads/2018/03/Extending-merger-price-rise-analysis.pdf.

[18] The following formula was used, where D_{12} refers to the diversion from site 1 to site 2 (expressed as a percentage of total diversion—i.e. D_{12} is the diversion ratio); and vice versa for D_{21}. M_1 and M_2 reflect the margins at site 1 and site 2, respectively:

$$\frac{D_{21}D_{12}M_1 + D_{12}M_2(1 - M_2)}{(1 - M_1)(1 - M_2) - D_{21}D_{12}}$$

4.2. **The role of gender in supermarkets**

The results described above were estimated for the entirety of the sample, and did not distinguish between male and female shoppers. We have revisited the data in order to assess whether the conclusions around the closeness of competition between the various stores are different when each gender is assessed separately. We conduct the same competitive analysis as was run in the initial survey—computing diversion ratios. This time we separate the sample into male and female respondents and assess the diversion ratios for each group. Specifically, we assess whether there is a difference in willingness to switch to another store based on gender. In addition, we analyse whether there is evidence that men and women have different price sensitivity, and/or different preferences for substitutes. We subsequently assess whether, if these differences had been taken into account, there would have been a different conclusion regarding the market definition or the merger effects.

4.2.1. *Store level diversion ratios by gender*

In the survey, respondents at each store were asked to indicate what they would do if the focal store they visited was closed.[19] In order to compute the diversion ratios, the same assumptions have been made as in the original analysis.[20]

Next, using the total value amount that respondents had reported spending in the focal store, **expenditure-weighted** diversion ratios have been calculated. These are defined as the **proportion of value** that would have been captured by each of the different stores listed by respondents in the case where the focal store was closed.

To assess the closeness of competition, the diversion ratio of interest is the sum of diversion ratios to one of the merging party stores. Table 4.2 below, shows the proportion of value spent, in aggregate and seperated by gender, that would have been spent in a store operated by the other merging party if the focal store was closed. We note that there are no local areas where all three retailers overlap.

Overall, for eight out of nine stores the proportion of value diverting to a store of the other merging party was higher for male than for female respondents. This means that for male respondents, the other merging party's stores are more likely to be considered a substitute than for female respondents. The largest difference between male and female customers can be observed for customers surveyed at store 2, owned by retailer A. Here, on aggregate, around 32 of the total amount spent by these customers would instead be spent in a store owned by the

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[19] The survey wording was: QB12: 'If, before you set out to come to this store today, you were told that the store was closed for refurbishment for a few months, what would you have done instead?'. Respondents were given the option to indicate whether they would have visited another supermarket store to buy their items, and if so, which; whether they would have visited a specialist retailer such as a butcher or grocer; or whether they would have simply not bought the items. QB13: 'And which store would you have gone to?'.

[20] First, only those respondents who indicated that they would have gone to a store of a different brand, or who would not have bought the items, were considered. As a result, the customers who said that they would have gone to a same-brand store were excluded from the database. Second, where customers mentioned multiple stores and at least one was a merging party fascia, on a cautious basis, the respondent was assumed to divert to the merging party fascia.

other merging party. When looking at gender separately, the proportion of diverted value spent is 20 percentage points higher for men than for women (46% for men versus 26% for women).

Table 4.2   Proportion of value diverted to the merging party store

	Women	Men	Aggregate
Store 1 (owned by retailer A) to retailer B stores	56.3%	62.9%	59.3%
Store 2 (owned by retailer A) to retailer B stores	26.5%	45.7%	32.0%
Store 3 (owned by retailer A) to retailer B stores	0.0%	8.0%	3.2%
Store 3 (owned by retailer A) to retailer C stores	4.1%	0%	2.4%
Store 4 (owned by retailer A) to retailer C stores	14.6%	4.3%	12.5%
Store 5 (owned by retailer B) to retailer A stores	6.0%	10.8%	7.4%
Store 6 (owned by retailer B) to retailer A stores	0.0%	0.0%	0.0%
Store 7 (owned by retailer B) to retailer A stores	20.7%	38.6%	26.0%
Store 8 (owned by retailer B) to retailer A stores	13.0%	18.5%	14.5%
Store 9 (owned by retailer C) to retailer A stores	6.4%	17.2%	10.0%
Average	**16.4%**	**22.9%**	**18.6%**

Note: In line with the original analysis, for each focal store, expenditure-weighted diversions have been calculated based on those customers who named a merging party store. Where customers mentioned multiple stores and at least one was a merging party store, on a cautious basis, the respondent was assumed to divert to the merging party store. The customer base excludes own-store diversion and 'don't know' answers. The sample is composed of 787 individuals: 537 female and 250 male.

Source: Oxera analysis, based on survey data.

In addition to the expenditure-weighted diversion ratios, we have calculated the customer diversion ratios. These represent the proportion of diverting customers who chose to switch to the store of the other merging party if the focal store was closed, not weighted by expenditure. These diversion ratios are similar to the expenditure-weighted diversion results. A full table of results is shown in Table A2.1.

4.2.2. *Understanding the differences: considering other characteristics*

While in the analysis above there appear to be differences in the diversion ratios by gender, it is important to understand what is driving this difference. Is it actually gender that is driving the difference in behaviour, or could it be another characteristic, such as how the respondent travelled to the store in question?

To this end, we have constructed a model that predicts the probability of a consumer diverting to a store of the other merging party, which takes into account the respondent's gender and other variables of interest. These other variables of interest have been chosen on the basis that they are likely to influence the respondent's choice. Specifically, we have identified a number of explanatory variables:

- the **amount spent** by the respondent;[21]

- whether the respondent made an **impulse purchase**;[22]

- the **employment status** of the respondent;[23]

- the method of **transport** used by the respondent, specifically whether they walked to the store;[24]

- the primary reason for visiting the store, specifically whether the respondent visited the store to buy food, fuel or alcohol/tobacco.[25]

As shown in Table 4.3 for each variable we compared the answers of female and male respondents, and have tested whether they are, on average, significantly different from one another. For example, we tested whether there is a significant difference in the proportion of females and males who said they walked to the store.

In order to test whether the average response of men and women to the questions listed above differs significantly, we computed the two-tailed p-values, which indicate the probability associated with a zero difference in the average value of the two groups. As an example, the two-tailed p-value of the variable 'Divert to merging party' indicates a 0.45% probability that the average values of female and male respondents are actually drawn from the same distribution.

On the other hand, the average amount spent for men (£19.90) and women (£20.36) does not differ with statistical significance, as expressed by the high p-value shown in the table below, which indicates a very high probability of there being no difference in the average response of male and female respondents.

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[21] Using survey questions QB3a: 'How much did you spend in total for fuel and store items here today?' and QB3b: 'How much did you spend here today?'.

[22] Using survey question QB6: 'Which of these descriptions best describes your shopping at this store today?', deemed to be an impulse purchase if the respondent answered either 'a top-up purchase of groceries' or 'to buy something to eat or drink straight away (e.g. chocolate bar, snacks)'.

[23] Using survey question QD4: *Working status,* a respondent was considered unemployed if they answered 'Not working (less than 8 hours a week)' or 'Student'.

[24] Using survey question QB10: 'How did you come to the store (e.g., car, walk, bicycle)?'.

[25] Using survey question QB4: 'What was your primary reason for coming here today?'.

Table 4.3   Average response to questions and statistical difference between men and women

Variable	Mean male	Mean female	Two-tailed p-value
Divert to the other merging party's store	23.6%	15.3%	0.0045***
Amount spent (£)	19.90	20.36	0.7478
Impulse purchase	61.2%	61.6%	0.9064
Unemployed	50.0%	54.4%	0.2527
Walking	25.6%	27.9%	0.4941
Came to buy fuel	3.2%	2.2%	0.4237
Came to buy food	85.2%	84.0%	0.6626
Came to buy tobacco/alcohol	4.4%	3.5%	0.5572

Note: *** statistically significant at 1%, The sample is composed of 787 individuals: 537 female and 250 male. The customer base excludes own-store diversion and 'don't know' answers.

Source: Oxera analysis, based on survey data.

The results shown in the table indicate that the only variable for which the difference between female and male respondents is statistically significant is the propensity to divert to the store of the other merging party. The table shows that, on average, across all nine stores, around 15% of female respondents would go to the store of the other merging party, while around 23% of male respondents would go to the store of the other merging party.[26]

For the remaining variables, the two-tailed p-values indicate that there is no significant difference between male and female behaviour, suggesting that being part of one or another group does not affect behaviour.

There are no statistically significant differences between the two genders when considering the characteristics of respondents. This would not only suggest that gender is an important factor that affects the probability of visiting a merging party store, but also that the characteristics that may affect the choice of supermarket are unlikely to be correlated with gender in this particular sample.

In order to explore this further, we have undertaken a logistic regression analysis. This can be used to explain to what extent the gender of the respondent, after controlling for the variables listed in Table 4.3 above, affects the likelihood of diverting to the store of the other merging party if the focal store was closed.

The results of the logistic regression show that, compared to the male respondents, being female decreases the probability that a respondent chooses to divert to a merging party store. This is shown by the negative coefficient (-0.547) on the female variable and is in line with the descriptive statistics shown in Table 4.3 above.

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[26] Notice that the variable here measures the probability of going to a merging party store, and it is <u>not</u> expenditure-weighted.

The following table shows the estimated coefficients associated with the **dependent variable** (probability of diverting to the merging party) and the **independent variables** (gender, amount spent, and the other control variables) resulting from the logistic regression performed. These coefficients represent the effect that each independent variable has on the propensity to divert to a merging party store, all else equal.

The table also shows the two-tailed p-value and the 95% confidence interval associated with each variable. The two-tailed p-value has a similar interpretation as before, representing the probability that a specific parameter is zero, and therefore that it is not having an impact on our dependent variable. Finally, the *95% confidence interval* gives lower-bound and upper-bound values that contain the true value of the coefficient with a probability of 95%.

Table 4.4   Logistic regression

Divert to merging party	Coefficient	Two-tailed p-value
Female	-0.547	0.005***
Amount spent	-0.008	0.153
Impulse purchase	-0.245	0.214
Unemployed	0.183	0.338
Walking	-0.522	0.025**
Came to buy fuel	-0.651	0.418
Came to buy food	0.114	0.718
Came to buy tobacco/alcohol	-1.172	0.141
Constant	-0.894	0.018**

*Note: *** and ** denote statistical significance at 1% and 5% respectively. The sample is composed of 787 individuals: 537 female and 250 male.*

Source: Oxera analysis, based on survey data.

Lastly, for robustness we have performed a test on the parameter associated with the gender variable, in order to be sure that its value is statistically different from zero. With the same logic as before, this test produces a *p-value* indicating the probability that the variable of interest—in our case 'female'—has no effect on the dependent variable. The result shows that this probability is 0.0046 (less than 1%).[27]

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[27] The test performed here checks the probability of obtaining the chi-square statistic given that the null hypothesis is true—i.e. whether the p-value is lower compared to a critical value. We can conclude that the model is statistically significant because the p-value is less than 0.01.

4.3. Implications for competition analysis

The expenditure-weighted diversion ratios (presented in Table 4.2 above) show that for all but two of the focal stores,[28] men are more likely to divert to another merging party store in the case of a store closure than women are. As shown by our regression analysis, this is true even after controlling for demographics and purchase-specific characteristics. This suggests that gender affects a consumer's choice of supermarket.

These gender differences could have implications for the effects of the proposed merger. Specifically, differences in the diversion ratios mean that the incentive for the merging parties to make post-merger changes to prices and/or product offerings is likely to differ when considering their male and female customers separately.

For example, in this instance, given that, on average, male diversion ratios are higher than female diversion ratios, this means that, pre-merger, the parties would have competed more closely for male customers than for female ones. This is because male respondents had a higher propensity to switch to a store belonging to the other merging party store. However, post-merger, the two parties have no further incentive to compete against each other by reducing their prices or improving their services/offering. As a result, in theory at least, male customers are more likely to suffer harm, as they are less inclined to switch to a store that is not owned by the merging parties than female customers.

However, as discussed in section 2, the potential for post-merger price increases depends on two factors: 1) the size of the different groups, and 2) the ability to differentiate.

If the merging parties are not able to differentiate based on a customer's gender, whether there is incentive to raise prices depends on the size of the two groups. If purchases by female customers represent a sufficiently large share of the retailer's profits, they may constrain the retailers in their ability to raise prices profitably.

In this case, there were over twice as many women in the survey sample as men. As can been seen in Table 4.5, women account for most of the amount spent by diverting customers. If the sample is representative of the total population of customers (as opposed to the population as a whole), these results indicate that female customers represent the majority of revenues for the retailers in question.[29]

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[28] There was one store (store 6) for which neither men nor women were found to divert to another merging party store.

[29] It is worth noting that there was no quota sampling of men and women. This means that, in theory, the sample should reflect the proportion of male and female customers. To ensure that the data was robust, covered a number of time slots were covered: weekday mornings and lunchtimes, weekday afternoons and evenings, and weekends. This suggests that oversampling of one gender is unlikely. On the other hand, it is possible that one gender may be more open to answering surveys than another, which would affect the gender split in the sample.

Table 4.5   Amount diverted by gender for each store

Amount spent (£)	Female	Male	Total
Store 1	536	444	980
Store 2	1,448	590	2,037
Store 3	1,360	925	2,284
Store 4	927	235	1,162
Store 5	1,268	544	1,812
Store 6	935	426	1,361
Store 7	1,261	533	1,794
Store 8	2,040	713	2,753
Store 9	1,194	579	1,772

Note: This represents the amount diverted: the customer base for each store does not include those who did not say where they would have gone if the focal store was closed.

Source: Oxera analysis, based on survey data.

We conclude that if the parties are unable to price-discriminate based on a customer's gender, male customers would be protected by the female customers' propensity to switch to other stores, as the aggregate diversion ratio is sufficiently high to uphold price competition.

While supermarkets may be unable to overtly price-discriminate by charging men and women different prices for the same products, they may be able to apply different pricing levels to products targeted at male and female customers.[30] Take, for example, health and beauty products such as deodorants, for which there are likely to be two separate product markets based on gender: deodorants for men and those for women.[31]

Using this example, as there would be less competition for male customers post-merger, the stores might be able to raise the prices of men's deodorants. On the other hand, the prices of women's deodorants might remain stable, as the competitive landscape for female customers is unchanged as a result of the merger.

The survey sheds light on the different types of items bought by respondents. The Table 4.6 below shows differences in male and female purchasing behaviour. In particular, we find that a larger proportion of women buy groceries (e.g. vegetables, milk, eggs, bread, savoury snacks, canned food, fruits) and non-food household items (e.g. kitchen towel, cleaning sprays, health and beauty products) than men, while a larger proportion of men buy alcohol. These findings illustrate how retailers may be able to differentiate their offering based on gender, which suggests that the merger will result in more harm for male consumers who keep shopping at the merged entity's stores.

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[30] Pinheiro, L., Faye, A.C., Ginn, M., Lehmann, Y.-C. and Posch, J. (2021), 'Gender considerations in the analysis of market definition and competitive effects: practical framework and illustrative example'

[31] European Commission (2010), Case No COMP/M.5658 – UNILEVER/SARA LEE, 17 November.

Table 4.6   Item bought by the respondents

Items	Mean female	Mean male	Two-tailed p-value
Alcohol	13.2%	19.3%	0.0129**
Impulse purchase	19.1%	18.7%	0.8673
Frozen food	17.6%	14.6%	0.2322
Groceries	91.2%	84.2%	0.0011***
Newspapers and magazines	13.4%	14.2%	0.706
Non-food	30.2%	21.8%	0.0062***
Ready to eat	11.8%	11.1%	0.7289
Tobacco	6.1%	5.1%	0.5277
Other	3.5%	3.5%	0.9942

Note: *** and ** denote statistical significance at 1% and 5% respectively. The sample is composed of 787 individuals: 537 female and 250 male.

Source: Oxera analysis, based on survey data.

However, whether the male diversion ratio is actually high enough to make it profitable for the merged entity to raise prices of products for men needs to be considered further. In the results shown in Table 4.2, the average proportion of male consumers diverting to a store of the other merging party is 23%, which leaves 77% of male respondents on average who would stop buying the products or divert to a non-merging-party store. This proportion might be sufficiently large to constrain upward price effects post-merger.

For this research, we limit our analysis to survey data and do not rely on the merging parties' data on price–cost margins. We therefore cannot recalculate the original IPR for each gender separately, and instead we evaluate the implications for competition policy through an alternative assessment. In past supermarket cases,[32] a symmetric price rise for isoelastic demand has been used to inform the unilateral effects assessment:

$$\frac{m * D}{(1 - m - D)}$$

This assumes that the merging products/firms are symmetric, in the sense that they have identical margins (m) and diversion ratios (D).

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[32] Competition Commission (2005), 'Somerfield plc and Wm Morrison Supermarkets plc: A Report on the Acquisition by Somerfield plc of 115 Stores from Wm Morrison Supermarkets plc', September; Office of Fair Trading (2008), 'Anticipated Acquisition by Co-operative Group Limited of Somerfield Limited', 20 October.

Assuming a 20% margin[33] for all nine stores, we can calculate the symmetric IPRs for men and women separately, as set out in Table 4.7 below.[34]

Table 4.7   Symmetric IPR by gender and on aggregate

	Symmetric IPR female	Symmetric IPR male	Aggregate symmetric IPR
Store 1	47.5%	73.6%	57.3%
Store 2	9.88%	26.6%	13.3%
Store 3	1.07%	2.2%	1.5%
Store 4	4.46%	1.1%	3.7%
Store 5	1.62%	3.1%	2.0%
Store 6	0.00%	0.0%	0.0%
Store 7	6.99%	18.7%	9.6%
Store 8	3.89%	6.0%	4.4%
Store 9	1.75%	5.5%	2.8%
Average	**8.57%**	**15.2%**	**10.5%**

Source: Oxera analysis, based on survey data.

These results show that the merging parties would have an incentive to raise prices above 10% in store 1 when it comes to women's diversion ratios and in stores 1, 2 and 7 when it comes to men's diversion ratios.

The results of this survey demonstrate why it is important for competition authorities to consider the gender-specific effects of mergers. We find significant differences in the diversion ratios of male and female respondents. In this case, it would have been worthwhile to investigate whether, post-merger, the parties would have had an incentive to increase the price of male-targeted products by calculating the male IPRs (using each store's own margins).

Following these findings, it would be advisable for a competition authority to investigate whether the retailers would be able to differentiate their offering based on gender. If it is found that the stores could apply different prices based on gender, a competition authority should consider assessing merger effects by gender. This might lead to a different merger assessment outcome than if the competition authority were to assess merger effects using aggregate diversion ratios. If the retailers are not able to differentiate based on gender, the competition authority should assess whether one group is large enough to protect the other against adverse competitive effects.

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[33] The average margin for a set of Central European countries in 2012–14 was around 19%. See Špička, J. (2016), 'Market concentration and profitability of the grocery retailers in Central Europe', *Central European Business Review.*

[34] In the original analysis, the relevant market authority would have been able to assess the IPRs for men and women separately using each store's own margin.

5. Case study: healthcare insurance

5.1. Background to the survey

A proposed merger in the healthcare sector was notified to a European national competition authority (NCA). The parties were both active as independent treatment centres. Independent treatment centres specialise in particular fields of healthcare, so their workflow is often less complex and more plannable than that of hospitals, which provide many different healthcare specialties as well as intensive care. Following this notification, the NCA conducted a market investigation to assess the competitive effects resulting from the merger in various product markets. In particular, the market for specialised medical healthcare (such as dermatology, orthopaedics and ophthalmology), where the merger would take place, and the market for healthcare insurance.

The NCA included healthcare insurance in its investigation owing to the potential effects on that market resulting from the merger. Specifically, coverage of treatment from certain healthcare providers (both hospitals and independent treatment centres) is negotiated between the insurance provider and the respective healthcare provider. With the proposed merger, the bargaining position of the insurance provider when negotiating contracts on prices and volume of healthcare with the merged parties might be weakened.

As part of the investigation, the NCA commissioned two consumer surveys by an external research company to assess the competitive effect of the merger in both markets. We have received data from the survey of healthcare insurance consumers, where the focus is on switching rates of consumers between insurance providers. This survey considered two main aspects:

- the degree to which consumers switched healthcare insurance provider when treatment at the preferred healthcare provider was not covered;[35]

- the importance of the product attributes of healthcare insurance,[36] in particular the importance of coverage provided by the insurance company for treatment at an independent treatment centre.[37]

The former was used to obtain data on the switching rates of consumers, and the latter was used to construct different subgroups within the sample to obtain additional switching rates.

The survey covered more than 1,500 respondents, who were at least 18 years old. Within the analysis, different weights were used for different groups of consumers to adjust for over- or

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[35] The healthcare provider of preference can be either a hospital or an independent treatment centre.

[36] Product attributes for healthcare insurance are, for example, the premium value. Section 5.2 elaborates on these attributes in more detail.

[37] As opposed to treatment at a local, regional or academic hospital.

under-representativeness of the sample relative to the national population.[38] Within the sample, we observe some differences for certain demographics and other personal characteristics by gender.[39] Section 5.2.1 looks at these demographics and any differences by gender in more detail.

Alongside these characteristics, respondents were asked questions about their preferences for attributes of healthcare insurance (e.g. premium value or whether the insurance company's name was familiar to the consumer) and their behaviour when purchasing healthcare insurance. Around half of the sample indicated that they regarded the fact that the insurance provider had a contract with the preferred independent treatment centre as being 'important' or 'very important'. However, all seven other attributes were described as 'important' or 'very important' more often compared to the importance of coverage by the preferred independent treatment centre.[40]

The NCA concluded that the merger did not have significant negative competitive effects on the insurance provider market. The increase of rates of switching insurance policy where there was no longer a contractual agreement between the merged entity and the insurance provider was limited. Consequently, the NCA considered it implausible for the merger to have a significant effect on the risk of the insurance providers losing customers due to not having a contract with the merged parties.

Although weights were used to correctly represent the population within the sample, switching rates were obtained for the entire sample (and sub-samples) without distinguishing between male and female respondents. We have reviewed the data in order to assess the role of gender and the implications for the competition analysis.

In the merger analysis by the NCA, switching rates were determined to assess the competitive effects resulting from the merger. To determine switching rates specifically for the parties (independent treatment centre A and independent treatment centre B),[41] the following questions were asked in the NCA survey:

i.   If your healthcare insurance provider did not have a contractual agreement with independent treatment centre A, what would you have done?

ii. If your healthcare insurance provider did not have a contractual agreement with independent treatment centre B, what would you have done?

In addition to the party-specific switching rates, we also reviewed the following questions to provide insights into the switching rates for the healthcare insurance market in a wider context:

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[38] For example, in the sample, males are over-represented compared to the proportion of males in the population. To correct for this, males are weighted less compared to females in the analysis, such that males are accurately represented in the sample.

[39] See Appendix A3 for figures on the distribution of each demographic within each group: males and females.

[40] The other attributes were: 'premium value', 'coverage of treatment', 'coverage of treatment by local or regional hospitals', 'coverage of treatment by academic hospitals', 'familiarity with the insurance provider', 'previous experiences with insurance provider are good' and 'current satisfaction with insurance provider'.

[41] Due to anonymisation, we refer to the parties as 'A' and 'B'.

iii. If your healthcare insurance provider did not have a contractual agreement with the hospital of your preference, what would you have done?

iv. If your healthcare insurance provider did not have a contractual agreement with the independent treatment centre of your preference, what would you have done?

All respondents received both questions, with the three possible answers being:

- nothing, keep the same policy at the same healthcare insurance provider;

- different policy at the same healthcare insurance provider;

- different policy at a different healthcare insurance provider.

Whenever the respondent indicated that they would switch to another insurance provider, this was considered a switch. Changes of insurance policy within the same insurance provider were not considered a switch.

Based on these four questions, three switching rates were calculated:

1. the switching rate for either of the two parties (A or B) was obtained by determining those respondents who said that they would switch to another healthcare insurance provider for either question (i) or (ii) or both;[42]

2. the switching rate for the hospital of preference was based on the responses to question (iii);

3. the switching rate for the independent treatment centre of preference was based on responses to question (iv).

5.2. The role of gender in healthcare insurance

We have replicated these switching rates to look at differences (if any) between male and female respondents. Table 5.1 shows the switching rates obtained from the responses to questions (i) to (iv), in aggregate and by gender.[43]

There is no statistically significant difference between male and female respondents in the switching rate when the insurance provider does not have a contractual agreement with either of the merging parties. Looking at the switching rates in the wider market context, there is no statistically significant difference in switching rates between men and women when the insurance provider has no contractual agreement with a hospital of preference. However, women are significantly more likely to switch than men are when the insurance provider does not have a contractual agreement with their preferred independent treatment clinic.

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[42] Respondents who indicated that they would switch to another provider for either question (i), (ii) or both.

[43] These switching rates are obtained without the weights used by the NCA to correct for over- or under-representativeness of the sample to the population. For the results of the switching rates using the weights, see Table A3.2.

Table 5.1   Switching rates of male and female respondents

Switching rate	Women	Men	p-value
1. Either of the two parties (A or B)	14.9%	13.7%	0.5269
2. Hospital of preference	37.7%	35.4%	0.3467
3. Independent treatment clinic of preference	23.2%	18.6%	0.0235**

Note: *, **, *** are statistically significant at 10%, 5% and 1%, respectively. No weights for representativeness of the sample to the population were used. Switching rates with regard to 'Either of the two parties (A or B)' were obtained by combining responses to questions (i) and (ii). Whenever a respondent answered that they would switch insurance provider if either treatment for independent centre A or independent centre B was not covered, this was considered a switch for either of the two parties. A switch for hospital or independent treatment centre was counted whenever a respondent said that they would have switched to a different policy at a different insurance provider for questions (iii) or (iv) respectively.

Source: Oxera analysis of data received from NCA.

A t-test on the switching rates by gender shows that there appear to be significant differences by gender at a 5% significance level (p-value 0.0235) only when there is no contract with the independent treatment centre of preference. In particular, the switching rate in the sample for women is higher than that for men. Nevertheless, in order to robustly assess whether any of these differences by gender are significant, we need to conduct additional analysis.

5.2.1. *Drivers of switching*

To determine any significant differences in switching rates by gender, we need to recognise that differences in the switching behaviour between males and females, either party-specific or in general, might be explained by factors other than gender. As a result, the switching rates based on gender might be biased. In order to isolate the effect of gender, we need to consider the other factors that could influence the decision to switch insurance provider when the insurance provider has no contractual agreement with the preferred healthcare provider.[44]

Accordingly, we assess the effect of being male or female on switching by performing a logistic regression, where the dependent variable is the probability of switching for a respondent. A respondent is considered to switch whenever they indicate that they would switch to another insurance provider. This probability of switching also depends on a range of control factors for the respondent to ensure that the effect attributed to gender is not due to other factors.

Our model determines the probability of switching (with a value from 0 to 1) dependent on multiple variables. In particular, we are interested in the effect of the respondent being female on the probability of switching. To test this, a dummy variable (*female*) is included, which equals 1 whenever the respondent is female and zero if the respondent is male. The dummy variable captures the effect (if any) of gender on the probability of switching insurance provider when the respondent is faced with no contractual agreement between the insurance provider and a specific healthcare provider. A full overview of the explanatory variables can be found in Appendix A3. Accordingly, three different dependent variables (and thus three regressions) are used, similar to the switching rates set out in section 5.1:

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[44] Either a hospital, independent treatment centre, party A or party B.

1. the probability of switching when the insurance provider has no contract with independent treatment centre A or B (questions (i) and (ii));

2. the probability of switching when the insurance provider has no contract with the hospital of preference (question (iii));

3. the probability of switching when the insurance provider has no contract with the healthcare provider of preference (question (iv)).

Alongside gender, we take account of the responses to the following survey questions when assessing switching behaviour:

- age;

- completed level of education;

- level of income;

- time since latest renewal of healthcare insurance;

- awareness of contractual agreement between current health insurance provider and healthcare provider of preference;[45]

- type of policy;

- most recent specialised medical healthcare received.

Responses to these questions are expected to affect switching behaviour. In particular, the amount of time since the respondent last renewed their insurance policy could affect switching behaviour. Someone who recently renewed their insurance policy might perceive switching as easier compared with someone who has not changed their insurance policy for more than a decade.

As the respondent is required to assess whether they would switch in a hypothetical situation where there is no contractual agreement between the insurance provider and the healthcare provider, awareness of whether there is currently a contractual agreement in place when selecting a healthcare insurance provider is likely to affect switching behaviour.

How recently the respondent received specialised healthcare can also influence switching behaviour. If a respondent has recently received specialised healthcare, they are more likely to have aligned their healthcare insurance coverage with their preferred treatment.

The survey also asked about individual preferences in relation to different product attributes. In particular, respondents were asked to indicate the importance of a number of product attributes

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[45] Respondents were asked whether they were aware of the fact that the insurance provider had a contractual agreement with the healthcare provider of preference when purchasing their healthcare insurance in 2018. Possible answers: 'Yes', 'No, I did not check this', 'No, I do not have a specific healthcare provider of preference', and 'I do not remember'.

when choosing their current insurance provider.[46] Considering that the switching behaviour is assessed in the context of the insurance provider having no contract with a healthcare provider (questions (i), (ii), (iii) and (iv)), individual preferences on the coverage of treatment by the preferred healthcare provider could potentially affect the choice to switch. Therefore, the following preferences relating to product attributes[47] are included in the regressions:

- the coverage of treatment by local or regional hospitals;

- the coverage of treatment by academic hospitals;

- the coverage of treatment by an independent treatment centre.

Using these preferences, we created a variable for each attribute equalling 1 whenever the respondent answered 'important' or 'very important', and zero otherwise, in line with original analysis.[48] We include these variables in the logistic regression on the probability of switching.

5.2.2. *Probability of switching insurance provider*

Table 5.2 shows the results of the logistic regressions relating to switching rates in Table 5.1.

Table 5.2   Results of logistic regressions on switching rates including control variables

Dependent variable: probability of switching when the insurance provider has:	No contract with either independent treatment centre A or B (model 1)	No contract with hospital of preference (model 2)	No contract with independent treatment centre of preference (model 3)
Female	0.033	0.093	0.298**
Awareness	0.111	0.896***	0.465***
Importance of coverage of treatment by a local or regional hospital	-0.592**	0.459**	-0.209
Importance of coverage of treatment by an academic hospital	0.502**	0.241	0.220
Importance of coverage of treatment by an independent treatment centre	0.881***	-0.011	0.662***
Constant	-3.940***	-1.235*	-2.048**
Age	Yes	Yes	Yes
Completed level of education	Yes	Yes	Yes
Income segment	Yes	Yes	Yes

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[46] The range of possible answers was: 'very important', 'important', 'I do not remember', 'unimportant', and 'very unimportant'.

[47] See footnote 40 for the other attributes asked for in the survey.

[48] This includes those who answered 'I do not remember' for these preferences.

Dependent variable: probability of switching when the insurance provider has:	No contract with either independent treatment centre A or B (model 1)	No contract with hospital of preference (model 2)	No contract with independent treatment centre of preference (model 3)
Time since latest renewal	Yes	Yes	Yes
Type of policy	Yes	Yes	Yes
Latest medical treatment received	Yes	Yes	Yes
Current health status	Yes	Yes	Yes
Observations	1,548	1,548	1,548

*Note: *, **, *** are statistically significant at 10%, 5% and 1%, respectively. Respondents indicated whether they would switch when faced with no contract between the insurance provider and a certain healthcare provider. Whenever the respondent indicated that they would switch policy and provider, it was considered a switch. A switch of policy at the same insurance provider was not considered a switch. Whenever a variable row contains 'Yes', this means that dummy variables are included. For some dummy variables, we observe significant coefficients as well. These coefficients are not reported, since the focus of this research is on differences in gender.*

Source: Oxera analysis of data received from NCA.

In models 1 and 2, we do not observe a statistically significant coefficient for the *female* variable at a 10% level. This suggests that there is no significant effect of gender on the probability of switching when the insurance provider does not have a contract with either of the parties, nor when the insurance provider does not have a contract with the respondent's hospital of preference. Looking at the model of switching rates when faced with no contract between the insurance provider and the independent treatment centre of preference (model 3), we observe a positive significant effect for the *female* variable at a 5% significance level. In particular, a marginal effects analysis shows that the probability of switching when the respondent is faced with no contractual agreement between the insurance provider and the treatment centre of preference increases on average by 4.5 percentage points for female respondents, compared to male respondents.[49] In other words, when faced with no contract between the healthcare provider and the independent treatment centre of preference, women are on average 4.5 percentage points more likely to switch to another healthcare insurance provider, compared to men.

We observe that a number of other variables have a significant impact on these switching rates.[50] For example, a respondent who considers coverage of treatment from a local or regional hospital an important factor in their choice of insurance provider is more likely to switch when their insurance provider does not have a contractual agreement with the hospital of preference, at a 5% significance level. By contrast, for model 1, this effect is negative and a respondent who considers coverage of treatment by a local or regional hospital important is less likely to switch when the insurance provider has no contractual agreement with independent treatment centres A or B, at a 5% level. The preference for coverage of treatment by the independent treatment centre also significantly and positively affects the probability of switching to another insurance provider.

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[49] This represents the average marginal effect of gender, which is obtained by taking the difference between the average predicted probability of switching for women and the average predicted probability of switching for men.

[50] These effects are under the assumption that all else is held equal, *ceteris paribus*.

Awareness of whether there is a contractual agreement between the preferred healthcare provider and the insurance provider has an impact on the probability of switching positively and significantly (at 1% significance level) compared to the respondent not being aware. In particular, switching is more likely to happen when a consumer is aware of a contractual agreement. Respondents who consider treatment by an independent treatment centre as 'important' or 'very important' are more likely to switch if the insurance provider has no contract with their preferred independent treatment centre.

As a sensitivity, we performed a similar logistic regression for each of the probabilities of switching set out above, but this time including only gender.

Table 5.3 below presents the results for this alternative regression for all three models. Similar to the findings of the full model specification, the coefficient for the *female* variable is not significant in the case where the insurance provider has no contract with independent treatment centre A or B, nor when the insurance provider has no contract with the hospital of preference.

The *female* variable still has a significant positive effect on the probability of switching when the insurance provider has no contract between the insurance provider and the preferred independent treatment centre. Specifically, in this model specification, a marginal effects analysis shows that women are on average 4.7 percentage points more likely to switch than men are.[51] This sensitivity check suggests that the finding of the effect of the *female* variable on switching rates is robust.

Table 5.3   Results of logistic regression on switching rates excluding control variables

Dependent variable: probability of switching when the insurance provider has:	No contract with either independent treatment centre A or B	No contract with hospital of preference	No contract with independent treatment centre of preference
Female	0.092	0.099	0.284**
Constant	-1.837***	-0.602***	-1.479***
Observations	1,548	1,548	1,548

*Note: **, *** are statistically significant at 5% and 1%, respectively. Respondents indicated whether they would switch when faced with no contract between the insurance provider and a certain healthcare provider. Whenever the respondent indicated that they would switch policy and provider, it was considered a switch.*

Source: Oxera analysis of data received from NCA.

5.2.3. *Correlation between gender and other variables*

Since we observe that some preferences and demographics have a significant effect on switching rates in all model specifications (see table 5.2), it is important to understand to what

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[51] See footnote 49.

extent some of these may be correlated with gender. Therefore, we assess whether these differences are significantly different from zero by performing a t-test.[52]

Table 5.4 below shows the average responses by gender for each of the demographics and individual preferences for product attributes included in the model specifications and whether the differences between them are significant (as demonstrated by the p-value).

As the table shows, there are some significant statistical differences within the sample between genders. In particular, male respondents are on average older, are in a higher income segment, and are more aware of whether their treatment is covered by their current insurance than female respondents. On the other hand, female respondents have, on average, completed higher levels of education and have renewed their insurance policy more recently than male respondents.

Finally, female respondents value the coverage of treatment by a local/regional or academic hospital more, compared to male respondents. Looking at models 1 and 2 in Table 5.2, we observe that the importance of local/regional treatment coverage positively and significantly affects the respective probabilities of switching. Although we do not observe a significant effect for the *female* variable for these models, the effect of gender in models 1 and 2 is possibly captured by the coefficient for coverage of local/regional treatment, as women consider this product attribute to be more important, compared to men.

Table 5.4   Statistical differences between male and female respondents for personal characteristics

Personal characteristics	Women		Men		p-value
	Numerical average	*Average*	*Numerical average*	*Average*	
Age	3.96	35–44 years	4.17	45–54 years	0.0079***
Completed level of education	1.97	Mid	1.90	Mid	0.0498**
Income segment	1.23	Below average	1.67	Below average	0.0000***
Current health status (self-assessed)	3.62	Reasonable	3.61	Reasonable	0.8124
Awareness of insurance provider having contract with healthcare provider of preference	1.50	Yes, aware	1.62	Yes, aware	0.0148**
Time since latest renewed insurance policy	2.41	3–4 years	2.63	3–4 years	0.0206**
Type of policy	1.28	Non-contracted care policy	1.39	Non-contracted care policy	0.0801*

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[52] We note that the NCA's research also looked at several demographics to assess the representativeness of the sample and used weights to correct for representativeness of the sample to the entire population.

Personal characteristics	Women		Men		p-value
	Numerical average	*Average*	*Numerical average*	*Average*	
Latest medical treatment received	2.47	In 2016	2.47	In 2016	0.9757
Importance of coverage of treatment by a local or regional hospital	0.84	Yes	0.80	Yes	0.0467**
Importance of coverage of treatment by an academic hospital	0.69	Yes	0.63	Yes	0.0208**
Importance of coverage of treatment by an independent treatment centre	0.51	Yes	0.51	Yes	0.9257

*Note: *, **, *** are statistically significant at 10%, 5% and 1%, respectively. Most variables mentioned in the table consisted of categories. Age: six categories, with a range of ten years for each category. Completed level of education: 'low', 'mid' and 'high'. Income segment: 'below average income', 'average income', 'above average income' and 'unknown', where average income is estimated to be around €35,500–€42,399. Current health status consisted of five categories: 'very bad', 'bad', 'reasonable', 'good' and 'very good'. Latest renewal categorises the time since the latest new health insurance (e.g. '1–2 years ago' and '3–4 years ago'). Latest medical treatment received: 'I do not remember', 'in 2018', 'in 2017', 'in 2016', 'prior to 2016' and 'never'. A numerical value was assigned to each category (e.g. for completed education: low = 1, mid = 2 and high = 3) to assess statistical difference. Respondents who answered 'Unknown' or 'I don't remember' were treated as a separate category for each of the demographics, with the assigned numerical value being zero. The numerical average is based on numerical values assigned to the various categories of the variable.*

Source: Oxera analysis of data received from NCA.

We note that some respondents answered 'I don't remember' or 'unknown', which might drive the differences found between men and women. In particular, we observe that women answer this more often in the sample, compared to men, for most of the questions (see Table A3.3). Therefore, we have also performed the t-test, excluding answers such as 'I don't know' or 'I don't remember' for the demographics.[53]

Table 5.5 shows the results of the t-test for these specific demographics. Looking at awareness and type of policy, we now observe no significant differences by gender, whereas we still observe that female respondents (on average) had renewed their insurance more recently than male respondents.

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[53] This concerns the variables: income segment, awareness of insurance provider having a contractual agreement with the healthcare provider of preference, time of last renewed insurance policy, type of insurance policy, and time since latest medical treatment received.

Table 5.5   Statistical differences between male and female respondents for personal characteristics excluding 'I don't know' and 'I don't remember' answers

Personal characteristics	Women		Men		P-value
	Numerical average	*Average*	*Numerical average*	*Average*	
Income segment	1.73	Below average	2.01	Average	0.000***
Awareness of insurance provider having contract with healthcare provider of preference	1.75	Yes, aware	1.77	Yes, aware	0.701
Time since latest renewed insurance policy	3.12	5-6 years	3.33	5–6 years	0.020**
Type of policy	1.96	Contracted care policy	1.94	Contracted care policy	0.760
Latest medical treatment received	2.65	In 2017	2.70	In 2017	0.525

Note: Variables mentioned in the table consisted of categories, similarly to table 5.4. Mean shown is based on numerical values corresponding with the respective value of the variable.

Source: Oxera analysis of data received from NCA.

5.3. Implications for competition analysis

Although the model does not find that there are significant differences in switching between male and female respondents in the specific merger case, gender does seem to play a role in the wider market context. Of the three variables of interest, we find that gender significantly influences the probability of switching insurance provider when respondents are faced with no contract between the insurance provider and the preferred independent treatment centre. In effect, if a respondent is female this increases the probability of switching by 4.5 percentage points when controlling for other variables.

This suggests that the role of gender in switching could have implications for the assessment of merger effects in other competition cases. In particular, in the case of another merger between two independent treatment centres, it would be advisable to undertake a similar analysis to the one above, to verify whether there are differences in switching behaviour depending on gender. Indeed, a high switching rate among female respondents—when faced with no contractual agreement between the insurance provider and the independent treatment centre—might reduce the negotiating power of the insurance provider in relation to the independent treatment centre. For example, as women are more likely to switch to another insurance provider, those providers face a bigger risk of losing customers if they do not negotiate a contract with the merged entity. Lack of an outside option (in this case, to opt out of a contractual agreement) weakens their bargaining position and may lead to insurance providers paying more for the treatment. If passed on, this would lead to a higher premium paid by consumers for the insurance product.

Nevertheless, these potential post-merger effects on consumers are dependent on both 1) the size of the different gender groups, and 2) the ability of the insurance provider to differentiate by gender.

If the group of customers at the insurance provider is predominantly composed of the non-switching group (in this case men), the insurance provider has an incentive (i.e. opting out of a contractual agreement) to maintain its bargaining position vis-à-vis the merged independent treatment centres. If the customer base is predominantly made up of the switching group (in this case women), opting out of a contractual agreement with the preferred independent treatment centre results in a high risk of losing customers to another insurance provider. Even if a proportion of customers would switch insurance provider, a (potentially) substantial proportion of the customer base (which is assumed to be mostly male customers) would not switch.

Within the sample used for this analysis, we observe only slightly more men (52%) than women (48%). However, the NCA corrected this distribution of gender, among other demographic factors, to correctly represent the population. This correction resulted in the proportion of men being 49%, and 51% for women.

Even if the size of the switching group is small enough for the insurance provider to maintain its bargaining power, consumers may suffer harm if it is possible to differentiate between gender. For example, if the treatment negotiated within the contract is different for male and female customers, the insurer will have less bargaining power in negotiating the elements for the switching group. In this case, given that female customers are more likely to switch away if treatment by the preferred treatment centre is not covered, insurers risk losing those customers if they do not have a contractual agreement with the independent treatment centres. This weakens their bargaining position for contractual agreements on the treatment of women.

The results demonstrate that there are differences by gender when it comes to switching behaviour in the market for healthcare insurance. This suggests that it would be important for competition authorities to assess whether the competitive effects resulting from the merger affect men and women differently. To understand the implications for competition analysis, it should be assessed whether there are differences by gender, and if so, whether this has an impact on the bargaining position of the insurance provider due to the size of the switching group, or due to the ability to differentiate between genders.

6. Case study: Package beach holidays

6.1. Background to the survey

A tour operator notified a European national competition authority (NCA) of its intended acquisition of another tour operator. The parties' activities overlapped in the market for beach holidays, and in particular, package trips.[54] A package trip is a holiday where the tour operator provides a complete trip including accommodation, flights and other components, such as travel from the airport to the hotel. Following this notification, the NCA conducted a market investigation

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[54] This is for short- or medium-haul beach holiday destinations, with a maximum flight time of six hours.

in order to assess any anti-competitive effects on the market for beach holidays resulting from the possible acquisition.

As part of this investigation, the NCA commissioned a consumer survey that was conducted by an external research company. The aim of the survey was to determine the substitutability between package trips and booking separate components of the trip. The survey captured approximately 820 consumers, and examined specific choices they made when booking a beach holiday.[55]

Respondents were asked what type of service they would choose when booking a beach holiday: separate components or a package trip.[56] Those respondents who never booked package trips were screened out after this question. Those indicating that they only booked package trips or those who booked both package trips and holidays involving separate components were asked additional questions concerning their preferences when booking either type of holiday. These included factors such as the price and ease of booking.

In order to assess the competitive effects resulting from the acquisition, the NCA determined the degree of substitutability between package trips and holidays with separate components.

To determine the substitutability between package trips and separate components, the following questions from the survey are important:

   i. When you booked a package trip for a beach holiday in the last two year, did you look for a similar, but cheaper trip consisting of separate components?

   ii. Imagine you are booking a package trip, what would you do next?[57]

The first question focuses on the past behaviour of the respondent (what did the respondent do as part of their process in booking a package trip), while the second question focuses on the hypothetical situation (what would a respondent do if it they were to book a package trip).

From the survey, the NCA concluded that package trip providers experience stronger competitive pressure from other package trip providers compared to providers of separate components, although providers of separate components exert competitive pressure as well. The NCA found that 38% of the respondents considered package trips and separate components to be alternatives and actively compared them. Moreover, of those respondents who said that they had booked package trips in the previous year, more than a third said that

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[55] Respondents were instructed to assume a situation in which the COVID-19 crisis is over and does not play a role anymore.

[56] Respondents were first informed of the type of beach holiday referred to in the survey: beach holidays with a maximum flight time of six hours. For this, some destinations were stated in the survey as examples. This was followed by the question: 'If you were to book this type of beach holiday, what would you choose?'. With the possible answers: 'Only package trips'; 'Only separate components'; 'Sometimes package trips, sometimes separate components'; and 'I don't know'.

[57] Four types of answer were possible: 'Look for a better offer for a package trip at another tour operator'; 'Look for separate components to book a cheaper trip'; 'No further actions'; and 'I don't know'. Respondents were allowed to give multiple answers. Moreover, for this question the respondents were instructed to assume that the crisis resulting from the COVID-19 pandemic was over.

they looked for a cheaper alternative using separate components. Even though a larger proportion (67%) said that they had looked at a cheaper offer from another package trip provider, 30% had also looked at separate components.

Oxera has received data from the survey for those respondents who said that they only booked package trips, those who booked both package trips and separate components, and those who responded 'I don't know'. This includes data from approximately 640 consumers. We reviewed the data from the survey with a focus on differences in gender and the competition implications of these differences.

6.2. The role of gender in booking package beach holidays

We have (in part) replicated the NCA's analysis, but this time looking separately at responses by men and women. In this case study, we focus on the degree of substitutability and differences by gender based on questions (i) and (ii) described in section 6.

Table 6.1 shows the distribution of answers for question (i) by gender, which is based on what respondents actually did in the past. As the table shows, on average, more men checked for a cheaper trip consisting of separate components for the package trip booked in the last two years compared to women. We performed a t-test by gender on a dummy variable equalling 1 whenever the respondent answered 'yes', and zero otherwise, in order to check whether these differences are significant. We observe a significant difference by gender (p-value 0.0014) at a 1% significance level. Thus, on average, men more often look for a cheaper trip consisting of separate components compared to women. This suggests that men are more likely to consider separate components to be substitutes to package trips compared to women.

Table 6.1   Proportions of responses to question (i) by gender

When you booked a package trip for a beach holiday in the last two years, did you look for a similar, but cheaper trip consisting of separate components?	Women	Men
Yes	26.97%	44.72%
No	66.85%	47.97%
I don't know	6.18%	7.32%

Note: The proportions for aggregate, female and male are obtained by taking the total sample, only females in the sample, and only males, respectively. Respondents who answered a prior question saying that they had only booked a trip with separate components in the last two years or no trip at all, were not asked question (i) and are not considered part of the sample. The total number of respondents who were asked this question is around 300.

Source: Oxera analysis of data received from NCA.

Table 6.2 below shows the distribution of answers for question (ii) by gender, which is based on a hypothetical situation. On average, more women indicated that they would look for a better offer at another package provider than men would, while men indicated that they would look for a better offer via separate components more often compared to women. A larger proportion of men compared to women said that they would not look for a cheaper alternative at all. For

question (ii), we also performed a t-test to assess any significant differences by gender. However, none of the differences between men and women are significant.

Table 6.2   Proportions on aggregate, male and female sample on question (ii)

Imagine you are booking a package trip, what would you do next?	Women	Men	p-value
Look at other package provider for better offer	68.38%	65.20%	0.3978
Look for better offer using separate components	27.84%	32.97%	0.1612
Don't look for better offer	14.59%	16.85%	0.4362
I don't know	3.78%	4.03%	0.8738

Note: The proportions for aggregate, female and male are obtained by taking the total sample, only females in the sample, and only males, respectively. Respondents were allowed to give multiple answers to this question. Therefore, percentages within a sample might not add up to 100%.

Source: Oxera analysis of data received from NCA.

6.2.1. *Drivers of booking package trips*

While in the analysis above there appear to be some differences in the degree of substitutability between package holidays and separate components by gender, it is important to understand what is driving this difference. Is it actually gender that is driving the difference in behaviour, or could it be another background characteristic, such as age or level of education?

As stated above, the answers to questions (i) or (ii) are likely to depend on factors other than gender alone. Therefore, within each model specification, we include other explanatory variables alongside the variable for gender. In particular, in addition to the dummy variable for gender, equalling 1 whenever the respondent is female and zero otherwise, we include dummy variables representing age ranges and highest completed level of education.[58]

The model specification also includes variables related to the respondents' general perception of the difference in price between package trips and separate components (*price perception*).[59] The dummy variable equals 1 when a respondent has said that they perceive package trips to be more expensive (either 'much more expensive' or 'somewhat more expensive'), and zero otherwise.[60]

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[58] Where we distinguish between the four groups: 'elementary education', 'secondary education', 'vocational education' and 'higher education.'

[59] Respondents were asked whether they considered package trips to be more or less expensive compared to separate components. Possible answers were: 'much more expensive'; 'somewhat more expensive'; 'equally expensive'; 'somewhat cheaper'; 'much cheaper'; and 'I don't know'.

[60] This includes those respondents answering 'I don't know'. For these, the dummy variable perception is equal to zero.

The importance of specific product attributes asked about in the survey might further explain the degree of substitutability. Possible attributes, for both package trips and separate components, were:[61]

- ease of searching for and booking holiday;

- less time-consuming to search and book;

- lower price;

- better service by the package provider;

- better care while on holiday;

- better offer of destinations;

- better offer of accommodation;

- better time of flights;

- better offer of airlines;

- protection in case of bankruptcy;

- other…[62]

For each of these attributes, we created a dummy variable equalling 1 whenever the respondent had chosen the respective product attribute as being the reason for choosing a package trip, and zero otherwise.

6.2.2. *Probability of comparing package trips and separate components*

In order to isolate the effect of gender and assess whether the effect is significant, we created two separate models by performing a logistic regression. In the first one, the dependent variable is the probability of looking for a cheaper option for the package trip booked in the last two years (question (i)). In the second model, the dependent variable is the probability of looking for another offer via separate components if you are booking a package trip (question (ii)).

In particular, the dependent variable for question (i) is a dummy variable with value 1 whenever the respondent said that they had looked for a similar, but cheaper trip consisting of separate components, and zero otherwise. The respondents who were not asked question (i) were excluded from the regression.

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[61] This question was asked twice: 'Whenever you book a beach holiday using package trips [separate components], what was the reason for choosing a package trip [separate components] instead of separate components [package trip]?'. For each question, they were allowed a maximum of five reasons. Respondents could also answer 'No reason'.

[62] Respondents indicating this were allowed to respond using an open answer.

For question (ii), a similar approach was taken, where the dependent variable of the logistic regression is also a dummy variable with value 1 whenever the respondent answered 'look for a better offer using separate components', and zero otherwise.

By including dummy variables for price perception, preferences for product attributes of package trips, and demographics, we try to isolate the effect of gender on the probability of looking for a better offer using separate components. Those respondents who gave another reason ('other…' where the follow-up answer was open and could differ substantially), we collate to a single dummy variable.[63]

Table 6.3 below shows the results of the logistic regressions for questions (i) and (ii), where we included control variables. In case the respondent had booked a package trip in the last two years (question (i)) we observe a significant negative effect of gender (*female*) on the probability of looking for a cheaper option using separate components at a 1% significance level. Taking into account several demographics and preferences for product attributes, women are on average 15.6 percentage points less likely to look for a cheaper option using separate components compared to men.[64] This suggests that women have a lower degree of substitutability between package components and separate components compared to men.

The regression results also show that the price attribute of package trips (*lower price*)[65] positively affects the probability at a 10% significance level. This suggests that if the respondent indicated that (one of) the most important reason(s) for booking a package trip was the lower price, they are more likely to look for a cheaper option using separate components. In effect, if the respondent considers the lower price of a package trip to be one of the most important reasons for booking a package trip, it would make sense to compare the price of a package trip with the price of a similar trip using separate components, to make sure that they had found a lower price by booking a package trip.

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[63] A dummy variable was created for this particular attribute, where it equals 1 whenever the respondent answered giving another reason, and zero otherwise.

[64] This represents the average marginal effect of gender, which is obtained by taking the difference between the average predicted probability of looking for a cheaper option using separate components for women and the average predicted probability of looking for a cheaper option using separate components for men.

[65] Compared to the price of a similar package trip.

Table 6.3 Results of logistic regressions on questions (i) and (ii)

Dependent variable: Probability of looking for a cheaper option using separate components	When you booked a package trip in the last two years Question (i)	Imagine you are booking a package trip Question (ii)
Female	-0.764***	-0.192
Price perception	0.169	0.360*
Ease of searching and booking a holiday	-0.067	-0.590***
Less time-consuming to search and book	-0.271	0.151
Lower price	0.590**	0.451**
Better service	0.028	-0.122
Better care while on holiday	-0.526	-0.182
Better offer of destinations	-	-
Better offer of accommodation	-0.508	0.274
Better time of flight	0.579	-0.022
Better offer of airlines	0.379	0.322
Protected from bankruptcy	0.013	-0.133
Other, …	-1.353	0.092
Constant	0.359	-0.366
Age	Yes	Yes
Completed education	Yes	Yes
Observations	297	635

*Note: *, **, *** are statistically significant at 10%, 5% and 1%, respectively. 'Better offer of destinations' was omitted from both models due to collinearity. Whenever a variable row contains 'Yes', this means that dummy variables are included. For some dummy variables, we observe significant coefficients as well. These coefficients are not reported, since the focus of this research is on differences in gender.*

Source: Oxera analysis of data received from NCA.

When considering the hypothetical situation of booking a package trip (question (ii)), the probability of looking for a cheaper option using separate components is not significantly affected by gender. A possible reason might be that there is a difference between stated preference (i.e. the hypothetical question) and the revealed preference (which is the actual action taken if the respondent had booked a package trip in the last two years) that drives these results. We observe that a person's perception of the price of package trips compared to a trip involving separate components also positively affects the probability of looking for a cheaper option using separate components for question (ii). Specifically, those respondents who perceive package trips as being more expensive than trips involving separate components are more likely to look for a cheaper option using separate components.

Moreover, we observe that the ease of booking a package trip negatively affects the probability of looking for a cheaper option using separate components. This suggests that if the respondent indicated that (one of) the most important reason(s) for booking a package trip was the 'ease of

searching for and booking holiday', they are less likely to look for a cheaper option using separate components.

Additionally, we performed another logistic regression in which we only used gender (*female*) as the independent variable and included a constant as a cross-check. Table 6.4 shows the results for these model specifications. Again, we only observe a significant and negative effect of the *female* variable on the probability of looking for a cheaper option using separate components when a package trip was booked in the last two years by the respondent (question (i)). A marginal effects analysis based on this coefficient shows that the women in the sample are on average 17.1 percentage points less likely to look for a cheaper option consisting of separate components compared to the males.[66] Considering that we find a significant result for question (i), regardless of whether we control for other explanatory factors, this indicates that the effect is robust. In contrast, for question (ii), we do not observe any significant effect of gender.

Table 6.4   Results of logistic regression without additional control variables

Dependent variable: Probability of looking for a cheaper option consisting of separate components	When you booked a package trip in the last two years Question (i)	Imagine you are booking package trip Question (ii)
Female	-0.784***	-0.243
Constant	-0.212	-0.710***
Observations	301	643

*Note: *** denotes statistical significance at 1% level.*

Source: Oxera analysis of data received from NCA.

6.2.3. *Preferences for product attributes by gender*

Since we observe significant effects of preferences for product attributes on the degree of substitutability, we consider whether these variables are correlated with gender. Specifically, if men value certain attributes significantly more compared to women, the observed difference on the probability of looking for a cheaper option using separate components by gender might also be driven by the differences in preferences for these attributes by gender, rather than gender alone. We assess whether there is a difference by gender in the preference for these attributes when booking a package trip using a t-test (see Table 6.5).

We observe a significant difference in preferences for a number of product attributes. In particular, the attribute 'less time-consuming to search and book', is stated significantly more often as the reason for booking a package trip by women than men. On the other hand, 'lower price', 'better care while on holiday' and 'better offer of destinations' are stated significantly more often as the reason for booking a package trip by men than women.

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[66] See footnote 64.

Given that men have stated more often that the lower price is the reason for booking a package trip, and that our regression results show that *lower price* increases the probability of looking for a cheaper option when thinking about booking a package trip, this suggests that the increase in probability of looking for a cheaper trip consisting of separate components due to the importance of lower price is more likely to be observed in men than in women.

Table 6.5   Statistical differences between male and female respondents for product attributes when booking a package trip

Product attributes	Proportion women	Proportion men	Two-tailed p-value
Ease of searching for and booking holiday	72.7%	68.9%	0.2894
Less time-consuming to search and book	47.6%	37.4%	0.0098*
Lower price	28.9%	43.2%	0.0002*
Better service	18.4%	20.9%	0.4291
Better care while on the holiday	22.7%	29.7%	0.0456*
Better offer of destinations	0.0%	0.0%	.
Better offer of accommodation	7.6%	14.7%	0.0038*
Better time of flights	12.7%	19.0%	0.0276
Better airlines offered	6.5%	8.4%	0.3514
Protection in case of bankruptcy	5.9%	5.5%	0.8084
Other, …	2.7%	1.5%	0.2886
No reason	28.7%	28.5%	0.7436

*Note: * denotes statistical significance at 10%. The proportions for aggregate, female and male are obtained as percentages of the total sample, the females in the sample, and males in the sample, respectively. No respondents indicated the 'better offer of destinations' to be of importance, resulting in 0% proportions.*

Source: Oxera analysis of data received from NCA.

Respondents were also asked to indicate their preferences for product attributes when booking separate components. Since we observed significant differences in preferences for package trip product attributes, it would be interesting to understand whether these differences are present when considering separate components. Therefore, we performed a similar t-test on the product attributes asked for when booking a holiday using separate components (see Table 6.6). Here, we observe that a significantly larger proportion of men mention 'less time-consuming to search and book' as the reason for booking separate components, compared to women. We find that a larger proportion of men state 'ease of searching for and booking holiday' as a reason for booking separate components, compared to women. Moreover, a significantly larger proportion of men stated 'better service' when booking separate components, compared to women.

In contrast, whereas we observe a significant difference by gender for the product attribute 'lower price' when booking a package trip (see Table 6.5), which also significantly affects the probability of looking for a cheaper option using separate components in both regressions including control variables, we do not observe a significant difference by gender for this attribute in relation to booking separate components.

Table 6.6   Statistical differences between male and female respondents for product attributes when booking separate components

Product attributes	Proportion female	Proportion male	Two-tailed p-value
Ease of searching and booking holiday	11.9%	20.5%	0.0028***
Less time-consuming to search and book	6.8%	12.5%	0.0133**
Lower price	46.2%	46.9%	0.8665
Better service	8.1%	12.5%	0.0690*
Better care while on holiday	8.6%	13.2%	0.0645
Better offer of destinations	0.0%	0.0%	-
Better offer of accommodation	24.1%	24.5%	0.8867
Better time of flights	25.9%	27.8%	0.5927
Better airlines offered	24.9%	22.3%	0.4589
Other, …	10.8%	7.7%	0.1828
No reason	8.9%	11.0%	0.3836

*Note: *, **, *** are statistically significant at 10%, 5% and 1%, respectively. The proportions for aggregate, female and male are obtained as percentages of the total sample, the females in the sample, and males in the sample, respectively. No respondents indicated the 'better offer of destinations' to be of importance, resulting in 0% proportions.*

Source: Oxera analysis of data received from NCA.

Since we observe different preferences for these product attributes when booking either a package trip or separate components, these differences in preferences partly explain the differences in switching behaviour between men and women.

Overall, these results suggest that women are significantly less likely to look for a cheaper option using separate components compared to men, while a priori, there is no difference by gender in the intention to compare package holidays to separate components. In fact, when respondents are asked whether they would look for a cheaper option using separate components if they were to book a beach holiday, there is no significant difference by gender. Although our research does not allow us to test this hypothesis, one possible explanation for these findings may relate to the relative preference for time savings as opposed to money savings. Women's ability to look for alternative options may be limited due to time constraints as a result of the gender divide in unpaid labour/caring duties.

6.3. **Implications for competition analysis**

The results of our analysis suggest that the degree of substitutability between package holidays and separate components is different for men and women. Of those respondents who had booked a package trip, females are on average 15.6 percentage points less likely to look for a cheaper option using separate components, when controlling for several demographics and individual preferences on product attributes. If these control variables are excluded, we still observe a decrease in the likelihood of looking for a cheaper option using separate components for women of 17.1 percentage points, compared to men. The results also suggest that men more often consider the price attribute of a package trip to be one of the most important reasons for booking a package trip, compared to women. If men value the price to be of more importance, it makes sense that men also are more likely to look for a cheaper option using separate components.

The effect of gender could have implications for the competitive effects and the potential harm of a merger for the different consumer groups. To assess the competitive effect of these differences by gender, two aspects are important: 1) the ability to discriminate by gender, and 2) the differences in size of the groups by gender.

The differences in the degree of substitutability might provide an incentive for package holiday providers to differentiate based on gender. The merged parties might be able to increase the price of packages that target female customers. As women are less likely to look for a cheaper option consisting of separate components, this could potentially harm this consumer group. For example, using transaction-level data, tour operators may have information on which types of package trips are predominantly booked by women (or men). If certain types of package trip (e.g. beach holiday, ski holiday or city trip) or certain features of the package trip (e.g. all-inclusive, five-star ratings) are more often booked by women, this might provide the tour operator with the opportunity to increase the price for these specific package trips and increase its profits.

If it is not possible for package providers to differentiate based on gender, the size of the two groups should be taken into account. If the group that regards separate components as a substitute for package holidays is a small group relative to the package provider's customer base, the provider might be able to profitably increase its prices. Indeed, the more important female customers are to the package provider's revenue, the more incentive the parties would have following the merger to increase prices of package trips. If a tour operator were to increase the price of a specific package trip, the demand would decrease only slightly, as most customers in this group (in this example, predominantly women) would on average be less likely to switch. With the higher price and (possibly) a smaller decrease in demand, this could increase profits for the tour operator and thus incentivise it to increase its prices.

It is would be important for market authorities to assess substitutability both in aggregate and by gender. Differences in consumer behaviour, and in particular the extent to which men and women consider separate component and package holidays to be substitutes, could lead to different competitive effects for the two groups. This could affect both male and female consumers, depending on the size of the group that does not compare prices of separate components, or women only, if package providers are able to raise the prices of package trips

targeted at women. It is therefore important to assess the distribution of gender in the package provider's customer base, as well as the provider's ability to price-differentiate based on gender.

7. Case studies of switching behaviour across a number of sectors And Countries

In this section of the report, we focus specifically on the switching behaviour of men and women. In particular, we assess whether there are differences in the frequency at which men and women switch, the savings achieved by switching, and the barriers to switching.
Based on four sets of surveys, we assess whether there are differences in switching behaviour by gender in the following sectors and countries:

- cell phones, Internet, cable television, banking, home insurance and car insurance in Canada;

- Internet, television, landline phones and mobile phones in Mexico;

- retail banking in the UK.

- energy in the UK.

For the first two of these four sets of surveys, we have received the underlying survey data. However, for the two sets of surveys from the UK, we have only used publicly available, aggregate survey findings.

7.1. Services contracts in Canada

Between March and August 2020, the Canadian Competition Bureau conducted a survey to provide a basic understanding of Canadian consumers' behaviours around switching and/or renegotiating their service contracts in six sectors, including cell phones, Internet, cable television, banking, home insurance and car insurance.

The research sought to understand:

- the degree to which consumers switch or renegotiate their service contracts;

- the reported benefits and perceived benefits of switching or renegotiating;

- the barriers, perceived or real, to switching.

The survey covers 4,000 Canadians over 18 years old, randomly sampled online and on a fully anonymous basis. Following a split sample design, respondents were selected each week to answer questions in one of six service categories until the quota was met. This approach generated between 600 and 700 responses for each of the six service categories, totalling 4,000 responses across all categories.

This research has not yet been published, but the Canadian Competition Bureau has provided us with the survey data for the purposes of conducting this analysis.[67] Below, we will present the results of our analysis on an aggregate level.

7.1.1. *Role of gender in switching across service sectors*

The survey contained the following questions on the switching and renegotiation activities of consumers for each of the six sectors. Binary answers (i.e. 'Yes' or 'No') were required for these questions.

On switching:

- Have you switched [insert service name] provider in the past 12 months?

On renegotiation:

- Have you renegotiated with your [insert service name] provider in the past 12 months?

In addition to the questions on switching and renegotiation, the survey had questions related to the potential reasons why consumers have not switched.[68]

- Why haven't you switched your [insert service name] provider in the past 12 months?

The responses received were classified into one of the following ten categories:

1. No reason to switch/I am satisfied (general)

2. I am satisfied with the product quality/service (general)

3. I am satisfied with the cost/currently getting a good deal

4. Too much hassle to switch/making changes takes too much effort

5. I am receiving good customer service/satisfied with the staff

6. I am a loyal customer/value the relationship

7. I have no option / they are the only provider available

8. I am in a contract

9. Other

10. DK/NA

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[67] More details about the survey and research undertaken by the Canadian Competition Bureau can be found on the Bureau's website, see https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04570.html, accessed 26 August 2021.

[68] Canadian Competition Bureau (2019), 'Competition Bureau Market Study: Consumer Switching in Broadband Providers – Final Report', 23 May.

With the exception of 'DK/NA' (Don't know / Not applicable) and 'Other', the remaining eight responses can be categorised into four broad categories.

- **satisfied**—this includes response 1, 2, 3, 5 and 6;

- **no other options**—this includes response 7;

- **too much effort**—this includes response 4;

- **in contract**—this includes response 8.

Figure 7.1 below presents the proportion of switching for the two gender groups over the past 12 months by sector. It shows that male respondents are more likely to switch across the selected sectors relative to female respondents, with the exception of banking services. The overall switching across all services is 8% for female and 10% for male.

While Internet services recorded the highest percentage of switching, at 9% for female and 15% for male, banking services sees the lowest percentage of switching, at 7% for female and 4% for male. The differences in male and female switching behaviour ranges from 0 percentage points to 6 percentage points across all six sectors.

Figure 7.1 Percentage switching over the past 12 months in banking, cable television, car insurance, cell phones, home insurance and Internet, by gender
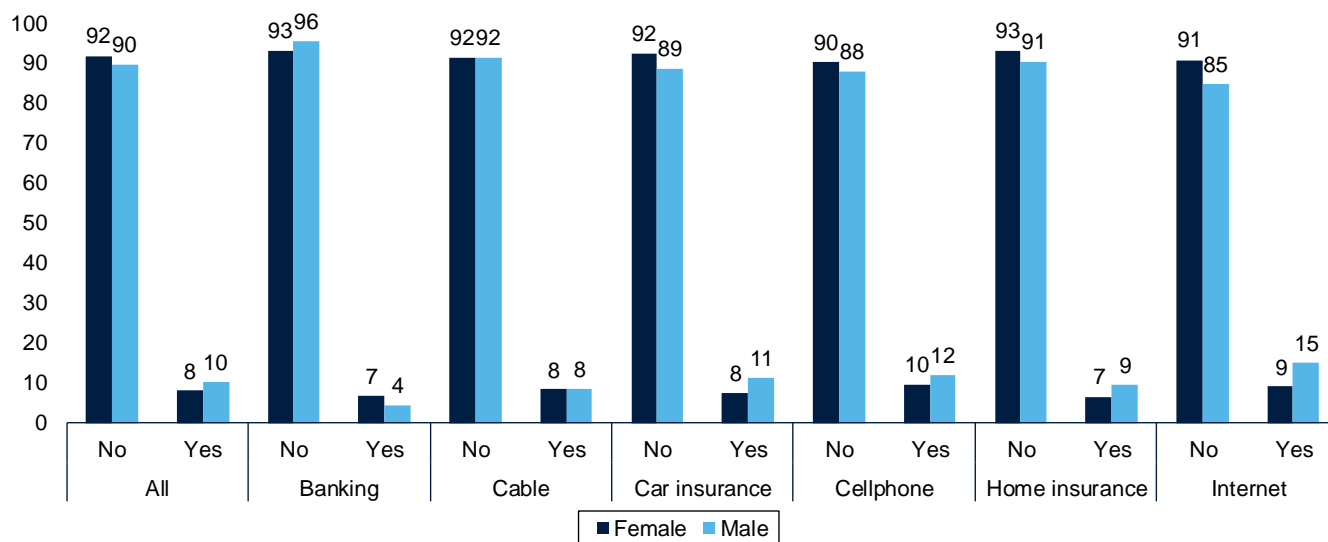
Source: Oxera analysis using data from Canadian Competition Bureau.

Table 7.1 below presents the results of the t-test on the differences in average switching rates of men and women by service sector and as a whole. We assign value '1' to individuals who responded 'Yes' to the question on switching behaviour, and value '0' to those who responded 'No'. The null hypothesis is the that difference in average switching rate of men and women is equal to zero.

The table shows that the difference in average switching rates of male and female respondents is only statistically significant for Internet services, and across all services, meaning the null hypothesis is rejected for these sectors. In other words, compared to females, males are more

likely to switch Internet service providers, and all services providers (when survey responses from all six sectors are aggregated). The lack of statistical significance for the other sectors is likely to be due to the small sample size.

Table 7.1   Differences in average switching rates of men and women

Sector	Average switching rate women	Average switching rate men	Two-tailed p-value
All sectors	0.080	0.101	0.021*
Banking	0.068	0.044	0.177
Cable television	0.083	0.084	0.980
Car insurance	0.075	0.111	0.112
Cell phone	0.096	0.119	0.343
Home insurance	0.066	0.094	0.184
Internet	0.091	0.151	0.018*

*Note: * p-value of less than or equal to 0.05, indicating a statistically significant difference.*

Source: Oxera analysis using data from Canadian Competition Bureau.

To investigate the differences in average switching rates for men and women across sectors, we also perform t-tests on the reasons for not switching. Similar to the t-test on the differences in switching, we assign value '1' to individuals if they chose that particular reason for not switching, and value '0' to those who did not choose that reason. The results of these tests are presented in Table 7.2.

Table 7.2   Welch two-sample t-test on the reasons for not switching, across all sectors

Reason for not switching	Mean female	Mean male	Two-tailed p-value
Satisfied	0.717	0.677	0.021*
In contract	0.024	0.032	0.200
No other options	0.039	0.053	0.063*
Too much effort	0.069	0.079	0.275

*Note: * p-value of less than or equal to 0.05, indicating statistically significant difference.*
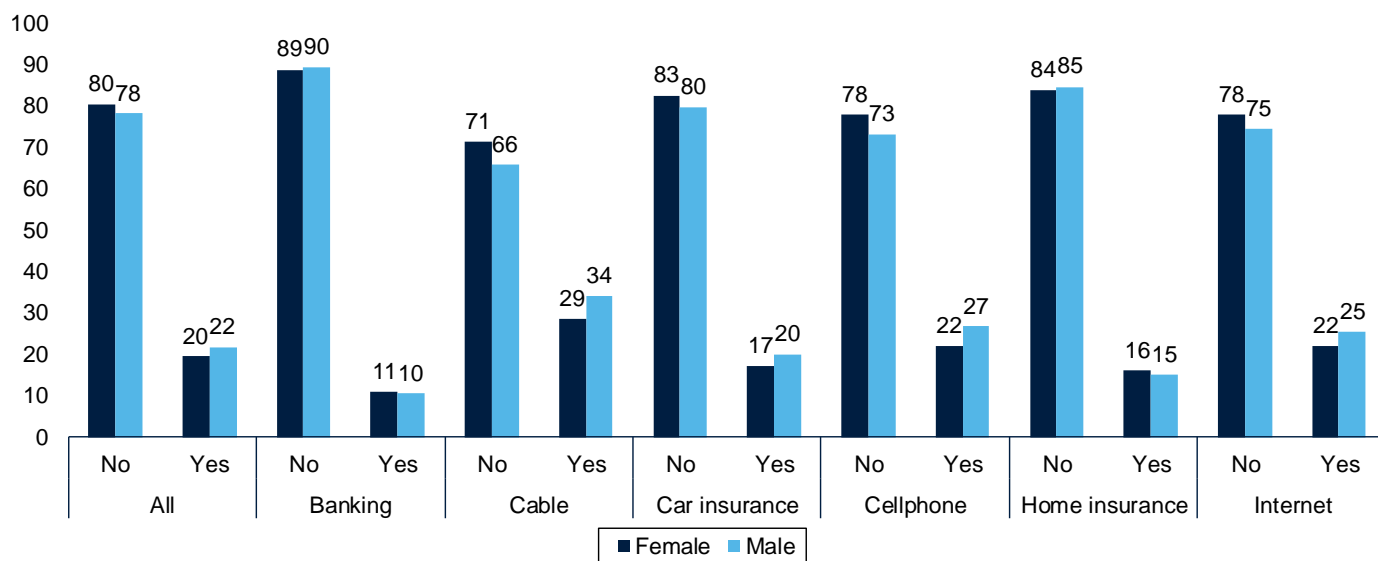
Source: Oxera analysis using data from Canadian Competition Bureau.

The results above show that, compared to men who did not switch service provider, women who did not switch are generally more satisfied with their existing providers. Moreover, men who did not switch are more likely to consider 'no other options' as the reason for not switching.

Figure 7.2 presents the percentage of renegotiation over the past 12 months, by sector and gender. The percentages of renegotiations are significantly higher than those of switching, with an overall renegotiation at 20% for women and 22% for men.

Similar to switching behaviours, men are, on average, more likely to renegotiate their contract with the service provider. The differences in male and female renegotiation rates range from 0 percentage points to 5 percentage points across all six service categories. However, these differences are not statistically significant in any individual sector or across all sectors, as set out in Table 7.3.

Figure 7.2 Percentage renegotiation over the past 12 months in banking, cable television, car insurance, cell phones, home insurance and Internet, by gender

Source: Oxera analysis using data from Canadian Competition Bureau.

Table 7.3 Welch two-sample t-test on the differences in mean renegotiation of male and female

Sector	Mean female	Mean male	Two-tailed p-value
All sectors	0.195	0.217	0.102
Banking	0.110	0.104	0.804
Cable television	0.285	0.342	0.138
Car insurance	0.173	0.201	0.384
Cell phone	0.220	0.268	0.179
Home insurance	0.161	0.152	0.762
Internet	0.221	0.254	0.343

Note: * p-value of less than or equal to 0.05, indicating statistically significant difference.

Source: Oxera analysis using data from Canadian Competition Bureau.

The switching and renegotiation rates presented in Figure 7.1 and Figure 7.2 above resulted in varied levels of monetary savings across sectors and gender. The respondents were asked the following questions on the estimated level of monetary saving from switching or renegotiation.

On switching:

- How much money do you estimate you are saving every month as a result of switching your [insert service name] provider?
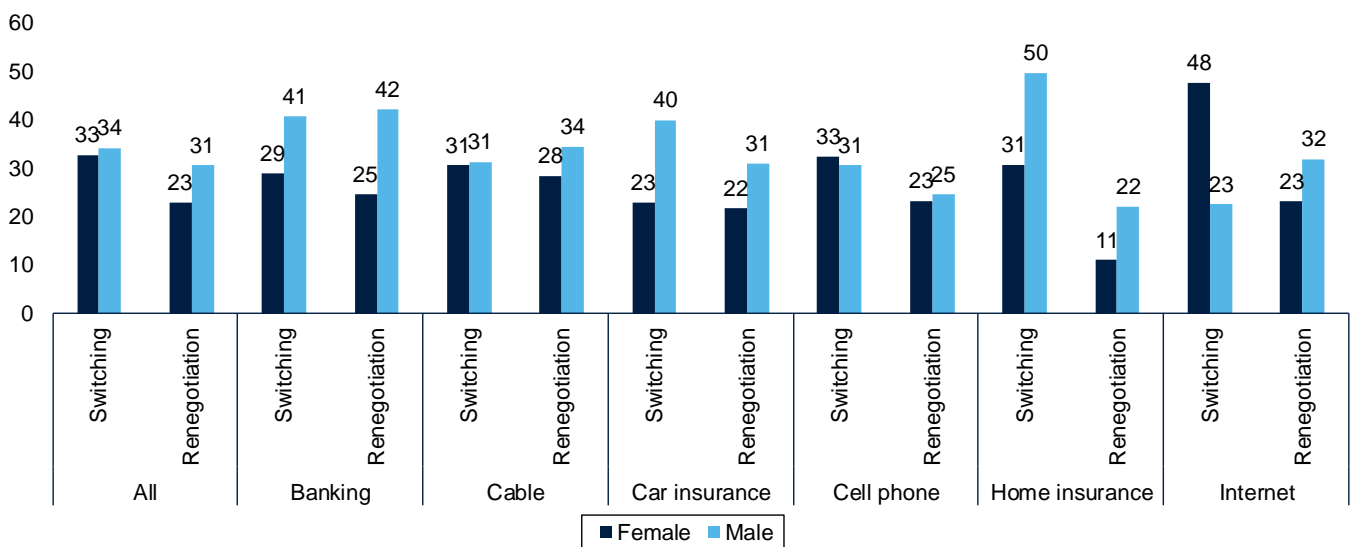
On renegotiation:

- How much money do you estimate you are saving every month as a result of renegotiating with your [insert service name] provider?

On average, and across all services, men report having saved more than women for both switching and renegotiation, with a notable exception for Internet services, where, on average, women who switched reported more than double the amount saved compared to men (CAD 48 versus CAD 23).

The results on monetary savings differ significantly across male and female respondents. While the survey data is not sufficient for more detailed analysis of these differences, it is possible that the following reasons might have contributed towards these differences.

- Male respondents might have had more expensive services contracts in the first place, therefore be able to achieve bigger savings

- Male respondents might have greater tendency to overestimate the savings they achieved

- Female respondents might have weaker negotiating power compared to male respondents, leading to fewer savings for women even in the event of successful switching and renegotiation.

Figure 7.3 Average monetary saving of switching and renegotiation in banking, cable television, car insurance, cell phones, home insurance and internet, by gender (CAD)

Source: Oxera analysis using data from Canadian Competition Bureau.

7.1.2. *Impact of gender differences on switching and renegotiation behaviours*

To understand the impact of gender differences on switching and renegotiation behaviours of consumers and their reported achieved savings, we control for the differences in characteristics between male and female groups that might not directly result from gender differences. Considering the data points available in the survey, we select age, occupation and household income as our control variables, due to their non-negligible variabilities across gender groups.

More specifically, we observe that male respondents are statistically significantly younger, more likely to be full-time employed and more likely to have higher annual household income, compared to female respondents. It is possible that some of the observed differences in switching and renegotiation behaviours of male and female respondents can be explained by these variabilities.

Table 7.4 sets out the t-test results on the mean age across sectors. It can be seen that there are significant differences in the average age of male and female respondents when looking across all sectors, as well as when looking only at car insurance, cell phones and internet.

Table 7.4   Welch two-sample t-test on mean age

Sector	Mean female	Mean male	Two-tailed p-value
All sectors	60.4	56.9	0.000*
Banking	59.3	56.7	0.238
Cable television	63.0	61.8	0.514
Car insurance	60.2	56.9	0.092*
Cell phones	58.2	52.1	0.002*
Home insurance	61.1	62.0	0.696
Internet	61.0	51.6	0.000*

*Note: * p-value of less than or equal to 0.05, indicating statistically significant difference.*

Source: Oxera analysis using data from Canadian Competition Bureau.

Differences in occupation and income across gender groups for all service categories can be found in Table A5.1 and table A5.2.

These tables show that, on average, male respondents are more likely to be full-time employed compared to female respondents, except for respondents using banking services. It can also be seen that female respondents earn, on average, CAD60k less compared to male respondents when considering all service sectors.

Table 7.5 presents the results of a logistic regression on the probability of switching, using data across all sectors. The results show that, without any control variables on age, occupation and annual household income, male respondents are 2.1 percentage points more likely to switch service providers, compared to female respondents. The gender difference is statistically significant at 5% significance level.

After controlling for age, occupation and annual household income, male respondents are 1.97 percentage points more likely to switch service providers, compared to female respondents. Notably, we find that controlling for age and occupation helps to explain some variabilities between the switching behaviours of male and female respondents.

Table 7.5   Results of logistic regression on switching rates across all sectors, with and without control variables

Dependent variables	Without control variables	With control variables
(Intercept)	-2.442***	-2.074***
Male	0.256**	0.241**
Age		-0.005*
Occupation (default = Full-time employed)		
Homemaker		0.330
Part time		-0.161
Retired		-0.490***
Self employed		-0.076
Student		0.044
Unemployed		0.004
Unspecified		0.704**
Annual household income (default = 60k to 100k)		
Under 60k		0.137
Over 100k		0.036

*Note: *, **, *** are statistical significance at 10%, 5% and 1%, respectively. All dependent variables are dummy variables, except for age. The default for gender is female, for occupation is full-time employed, and for annual household income is 60k to 100k.*

Source: Oxera analysis using data from Canadian Competition Bureau.

We also performed the same logistic regression for each of the six service sectors individually, but did not find the gender variable to be statistically significant at 10% significance level. This finding might be caused by the limited sample size for individual sectors.

7.2. Telecoms services in Mexico

The Mexican Federal Institute of Telecommunications (known by its Spanish-language acronym IFT) conducts regular surveys and studies on the telecoms market in Mexico, as the entity responsible for regulating the industry and protecting consumers. One of its recent surveys, the Tercera Encuesta 2018, included a set of behavioural economics questions aimed at understanding switching behaviour and prior search patterns when making subscription decisions.[69]

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[69] Instituto Federal de Telecomunicaciones (2018), 'Tercera Encuesta 2018 – Usuarios de Servicios de Telecomunicaciones', Apartado 1, http://www.ift.org.mx/usuarios-y-audiencias/tercera-encuesta-2018-usuarios-de-servicios-de-telecomunicaciones, last accessed on 16 April 2021.

Four telecoms products were included in this survey: Internet, television, landline phones and mobile phones. IFT kindly shared the underlying data from the Tercera Encuesta 2018 with us. The high-level results and conclusions from the survey are available in the public domain, although the underlying respondent data was provided to us directly for the purposes of conducting this analysis. To preserve the confidentiality of the data and the privacy of the respondents, we present only the aggregate (anonymised) results of our analysis.

In our analysis of the survey response data, we have focused on three questions:

- the percentage of respondents who have recently switched providers;[70]

- the share of respondents who reported having looked for better alternatives and 'shopped around' prior to subscribing with a provider;[71]

- for those who did not 'shop around', what was the reason for this?[72]

For all three questions, we have assessed whether there is a statistically significant difference between men and women. For each of these questions, the respondents were asked to report their behaviour in the recent past.

Our analysis of the survey data shows that there are differences between the behaviour of men and women with respect to their prior search behaviour in a number of segments. In the case of landline phones, women are significantly less likely to perform prior search or comparison of providers, for reasons that could be considered to be related to inertia.

In the case of mobile phone subscriptions, men are significantly more likely to have spent time searching for providers before signing with their current provider. These gender-based differences remain statistically significant when we control for factors that differ between genders in the survey samples (i.e. socio-economic grade, education or employment). With respect to switching behaviour, we see very low switching rates among both men and women and across all four products, and there are no statistically significant differences across the two groups.

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[70] The original survey question was *'Dígame por favor, en los últimos 12 meses ¿ha cambiado de proveedor?'*. Translated to English, the question reads 'Can you please tell me if, over the last 12 months, you have changed your service provider?'. Respondents were expected to provide a binary yes/no answer.

[71] The original survey question was *'Antes de contratar al proveedor que actualmente le da el servicio, ¿se buscó otros proveedores a fin de comparar lo que le ofrecían?'*. Translated to English, the question reads 'Before you signed with your current service provider, did you search for other providers in order to compare their offer?'. Respondents were expected to provide a binary yes/no answer.

[72] The original survey question, given as a follow-up to the question of whether they had searched for better deals, was *'¿Por qué no se buscó otros proveedores?'*. Translated to English, the question reads 'Why did you not search for other providers?'. Respondents were presented with the following options (translated to English): i) 'I like this provider / it is the best / I am satisfied'; ii) 'Previously it was the only one available / it is the only one available'; iii) 'I have always had this provider'; iv) 'It was recommended to me'; v) 'I don't care / it does not interest me'; vi) 'It is the best-known provider / a lot of people have this provider / it is the most common one to have'; vii) 'They came to my house and offered me the service / I was offered the service'; viii) 'I do not have time'; ix) 'Because of the price / this one is the cheapest one / promotions'; x) 'Other reasons'.

Table 7.6   Switching and prior search behaviour

Product survey	Switching		Prior search		No prior search due to inertia[1]	
	Male	Female	Male	Female	Male	Female
Internet (2,726 respondents)	4.9%	4.7%	25.8%	25.1%	38.0%	38.2%
Television (3,557 respondents)	4.5%	3.7%	24.2%	23.6%	40.9%	39.0%
Landline phones (2,812 respondents)	5.5%	5.7%	37.0%	35.4%	20.5%**	24.2%**
Mobile phones (2,814 respondents)	13.5%	11.9%	49.5%***	39.8%***	35.2%	35.1%

*Note: **, *** denote statistical significance at the 5% level and the 1% level, respectively. [1] We have defined complacency-related reasons for not switching as being any of the following responses: 'I have always had this provider'; 'I don't care / it does not interest me'; 'They came to my house and offered me the service / I was offered the service'; and 'I do not have time'. All possible responses to this question are outlined in footnote 72.*

Source: Oxera analysis.

7.3. Retail banking in the UK

In 2015, the Competition and Markets Authority (CMA) investigated the retail banking market with the aim of understanding how consumers view and use their personal current accounts (PCAs), in order to assess whether there were any features of this market preventing, restricting or distorting competition.[73] This included commissioning a survey designed to be representative of all PCA holders. The sample is composed of 4,447 respondents in total, of which 48% are female and 52% are male.

Our analysis is based on the CMA's cross-tabulations, which are available in the public domain.[74] Since no individual-level data was available, the findings reported below represent aggregate responses of male and female survey respondents. Therefore, it has not been possible to test whether there is a statistically significant difference between the responses of male and female respondents.

7.3.1. *Profiles of the respondents*

This section describes the customer profile of those interviewed in the survey, distinguishing the main characteristics by gender. Additional figures are reported in Appendix A6.

- The majority of the respondents are over 45-56% of male and 58% of female respondents, as displayed in Figure A6.1.

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[73] Competition and Markets Authority (2016), 'Retail banking market investigation', Final report, 9 August, https://www.gov.uk/cma-cases/review-of-banking-for-small-and-medium-sized-businesses-smes-in-the-uk#final-report.

[74] Competition and Markets Authority, 'Revised GfK data tables', https://assets.digital.cabinet-office.gov.uk/media/5583ec7740f0b615b6000006/Revised_GfK_data_tables2.xlsx.

- Although female respondents tend to have a higher education level—64% of female respondents have a degree or A-level education versus 62% of male respondents—a smaller percentage of them are employed and the reported income is notably lower.

- Specifically, 60% of female respondents are in full- or part-time employment versus 67% of male respondents. Only 29% of female respondents have an income higher than £24,000, while the proportion of male respondents with an income higher than this figure is around 51%. Moreover, 37% of the women earn less than £12,000, versus 20% of the men. Figure 7.4 shows the gender distribution across the income groups.

Figure 7.4 Income level of the respondents, distinguished by gender
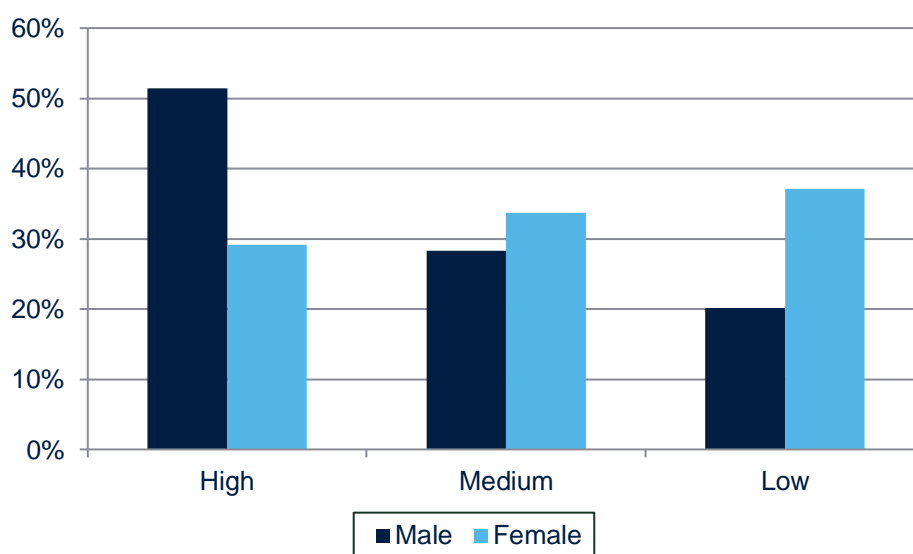
Note: The percentage values are computed using the sum of valid answers as a base, therefore the 'Don't know' and 'Refused' answers are not considered in the basis. High income = £24,000 or more, medium income = £12,000 to £23,999, and low income = less than £12,000.

Source: Oxera, based on CMA data.

As far as the use of the Internet is concerned, the survey data reports that the vast majority of the respondents have access to the Internet[75] and confidence in using it for searching purposes.[76]

Table 7.7 below represents the percentage of male and female respondents using different channels for accessing their main current account, over the total male and female respondents, respectively. Based on these aggregate findings, it appears that a larger proportion of men use Internet banking, apps, and branches compared with women. A larger proportion of women appear to use branches as their only channel to access their current account. As we do not have access to individual-level data, it is not possible to assess whether these differences are statistically significant.

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[75] 92% of male and 88% of female respondents, see Figure A6.4.

[76] 90% of male and 85% of female respondents, see Figure A6.5.

**Table 7.7   Differences in use of banking services across gender**

	Women	Men
Uses Internet banking	63.6%	68.5%
Uses app	34.6%	39.2%
Uses telephone banking	32.1%	32.1%
Uses branches	91.1%	92.0%
Uses Internet banking or app only	3.4%	3.4%
Uses branches only	27.1%	23.3%

Source: Oxera analysis, based on CMA data.

In terms of satisfaction, the survey shows an overall similar level of satisfaction among respondents, regardless of gender, as shown in Figure 7.5.

This suggests that if there are any differences in switching behaviour, these are unlikely to be linked with the level of satisfaction. According to the survey, 91.6% of female and 90.5% of male respondents define themselves as being satisfied overall with their main account, while 3.4% and 4.1%, respectively, are dissatisfied.

Figure 7.5 Level of satisfaction
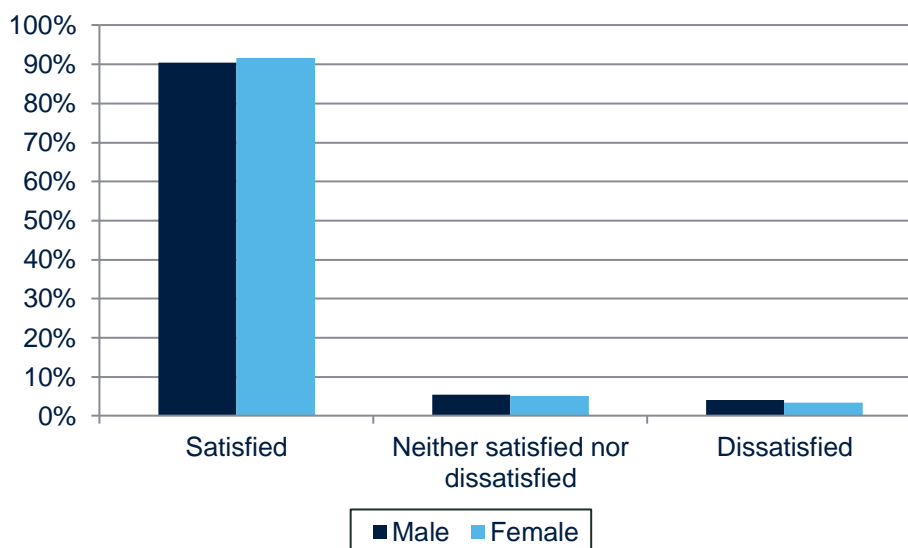
Source: Oxera, based on CMA data.

7.3.2. *Impact of gender differences on switching*

There are two types of switching behaviour within the current account market: switching product within the same bank and switching between banks. In its report, the CMA has defined 'switching' as switching between banks only. In addition, people who look around at other offers but either decide not to switch or have not yet switched, are considered to be 'looking around separately' rather than 'switching'. By looking at the level of switching behaviour in PCAs compared to other markets, the CMA found that PCA switching is at a relatively low level: the great majority of the respondents have neither looked around nor switched in the last few years, and more people were looking around than were actually switching.

When asked about their activity in the last three years or year preceding the survey, a larger proportion of male respondents reported having switched compared to female respondents, as shown in Figure 7.6. While 9.1% of male respondents (compared to 7.2% of female) actually switched bank within the three years preceding the survey, it is interesting to note that the percentage of women who neither switched nor looked around is 68.8%, while only 62.5% of men answered in the same way. Similar results are obtained when considering activity in the year preceding the survey (see Figure A6.6).

Figure 7.6 Switching and looking around behaviour in banking in the three preceding years
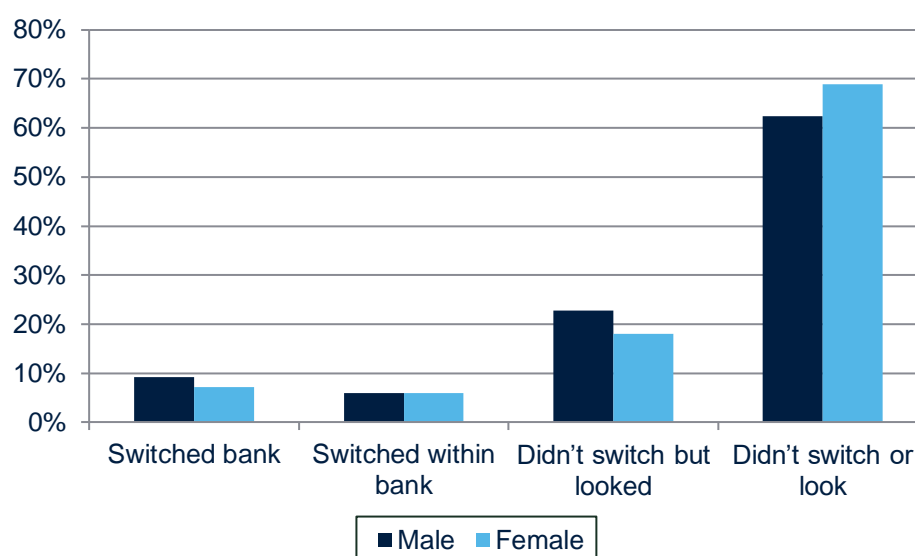
Source: Oxera, based on CMA data. It is worth noting that the difference in switching rates is unlikely to be explained by the level of satisfaction, as the difference in satisfaction with their PCA appears to be minor between the two gender groups.

This finding for the retail banking market is consistent with results in other markets in the UK. When respondents were asked about their switching behaviour in other markets,[77] a larger proportion of male respondents said that they had switched in more than one market, while a larger proportion of female respondents reported not switching in any market (see Figure 7.7).

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[77] The questionnaire asked whether the respondent had changed supplier—within the last three years— in any of the following markets: mobile phone network provider; Internet provider; car insurance; energy supplier; mortgage; saving accounts or cash ISAs.

Figure 7.7 Switching behaviour of the survey respondents in other markets
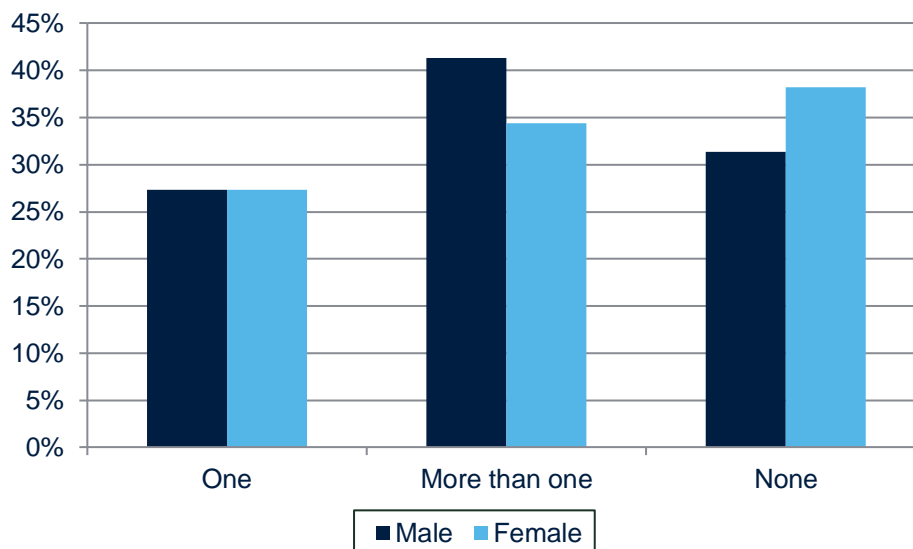
Source: Oxera, based on CMA data.

Moreover, the analysis performed by the CMA shows that engagement is lower in the less advantaged groups (defined as those with low income or no qualifications), among which the percentages of not switching or looking around responses are significantly higher. It is worth noting that there is a higher percentage of women in these groups.[78]

7.4. Energy consumption in the UK

In 2014, the CMA investigated the energy market in the UK, with a view to understanding how consumers behave and any potential competition issues.[79] The investigation included a survey aimed to represent all households in the UK with either an electricity or a gas contract, or both.[80] The sample is 7,000 interviews, composed of 48% men and 52% women.

Our analysis is based on the CMA's cross-tabulations, which are available in the public domain.[81] Because no individual level data was available, the findings reported below represent aggregate responses of male and female survey respondents. Therefore, it has not been possible to test whether there is a statistically significant difference between the responses of male and female respondents.

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[78] The percentage of respondents with no qualification in similar between the two groups (around 10%), but the female group presents a higher percentage of low-income respondents, as highlighted in the previous section.

[79] Competition and Markets Authority (2016), 'Energy market investigation', Final report, 24 June, https://www.gov.uk/cma-cases/energy-market-investigation#final-report.

[80] With the following exclusions: those where decisions about energy supplier were made by a landlord; and holiday homes and other non-primary residences.

[81] Competition and Markets Authority, 'GfK customer survey tables', https://assets.digital.cabinet-office.gov.uk/media/54ee3fade5274a1452000003/GfK_customer_survey_tables.xlsx.

7.4.1. *Profiles of the respondents*

The profiles of the respondents are as follows:

- as in the retail banking survey, the majority of respondents are aged over 45—in particular, 65% of men and 63% of women;

- the women respondents have on average completed less education and have lower income compared to the men in the sample;

- 42% of respondents in the female group have no education or education to 0-level, versus 32% in the male group.[82]

Figure 7.8 displays the income level in the two groups, showing that the female respondents are in most cases in the lowest income category. 45% of the female group earn less than £18,000 versus 27% of the male respondents. Similarly, the proportion of male respondents in the highest income category is much higher than the proportion of female (43% versus 27%).

Figure 7.8 Income level of the respondents, distinguished by gender
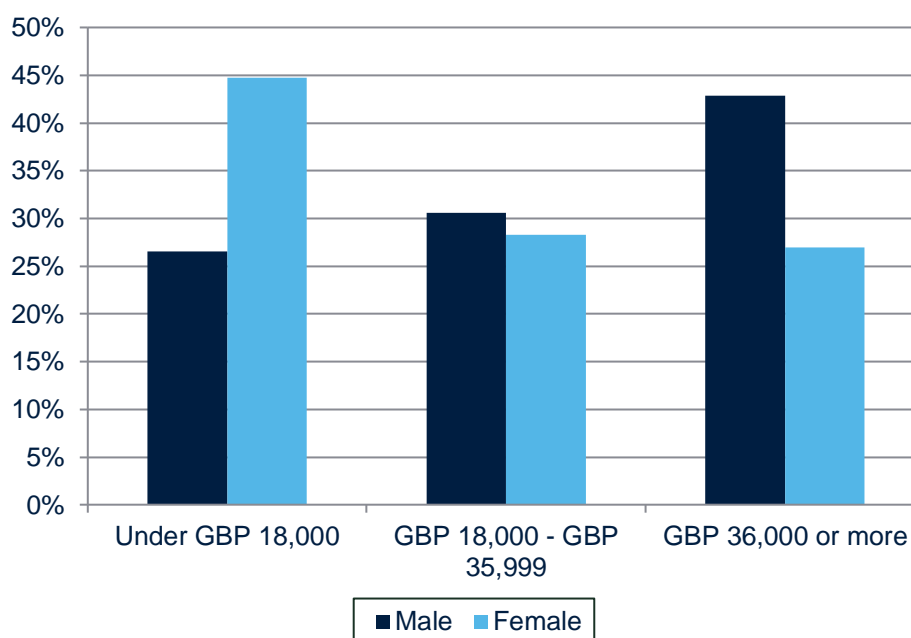
Note: The percentage values are computed excluding 'Don't know' and 'Refused' answers from the base.

Source: Oxera, based on CMA data.

In terms of satisfaction, there seems to be only a minor difference between the two groups, as shown in Figure A7.3.

Finally, it is worth underlining that, although there is only a slightly higher percentage of male respondents who have Internet access (84% of male versus 81% of female respondents), 74%

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[82] See Figure A7.2.

of male respondents (versus only 66% of female) are confident in searching online, which is likely to affect the propensity to look around and eventually switch.[83]

7.4.2. *Impact of gender differences on switching and shopping around*

The survey showed an overall relatively low level of engagement in the energy market. In order to understand how consumers decided whether to switch gas or electricity supplier, the questionnaire covered three aspects of the switching process: 'consider switching', 'shop around', and 'switch'.

When taking gender into account, and considering male and female respondents as two different groups, the difference in switching behaviour appears to be small.

Table 7.8 shows the behaviour of the two groups in the three above-mentioned aspects of the switching process in the three years preceding the survey. A larger proportion of male respondents reported that they had switched, shopped around, or considered switching, compared to female respondents.

Table 7.8   Respondents' behaviour in the preceding three years

	Female	Male
Not considered switching	34.7%	32.0%
Considered switching	7.8%	9.7%
Shopped around but didn't switch	11.3%	13.5%
Switched	25.1%	28.3%

Note: The remaining either switched more than three years earlier or did not answer.

Source: Oxera, based on CMA data.

When considering behaviour in the year preceding the survey, there is a greater difference between the two groups. The percentage of respondents in the male group who switched supplier, or at least shopped around, is again higher than the percentage in the female group.[84]

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[83] See Figure A7.4.

[84] 15% versus 11% switched, while 32% versus 24% just shopped around.

Figure 7.9 Switching and shopping around behaviour in the preceding year
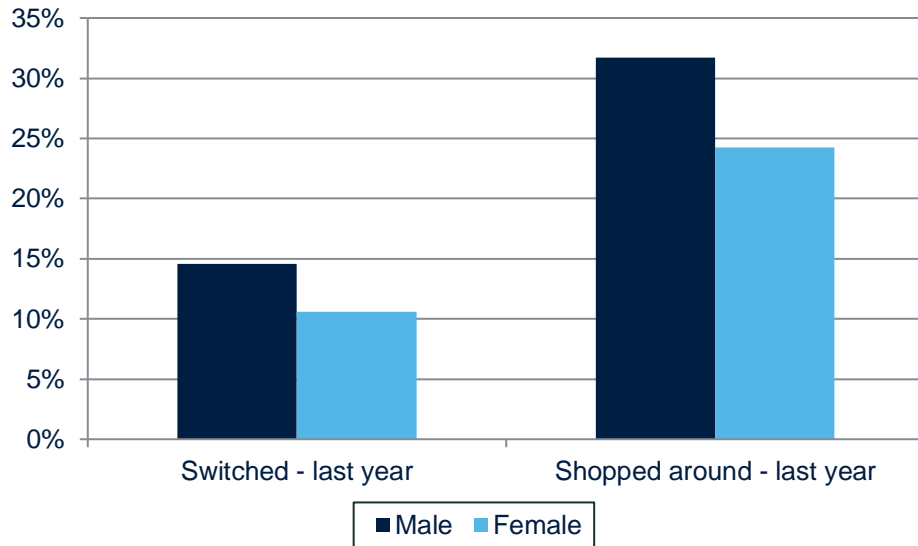
Source: Oxera, based on CMA data.

In addition, respondents were asked about their switching behaviour in other markets.[85] As can be seen in Figure 7.10, among the respondents in this survey, a larger proportion of men have switched provider in more than one sector, compared to women. A larger proportion of female respondents have not switched provider in any sector, compared to men.

Figure 7.10 Switching behaviour of the survey respondents in other markets
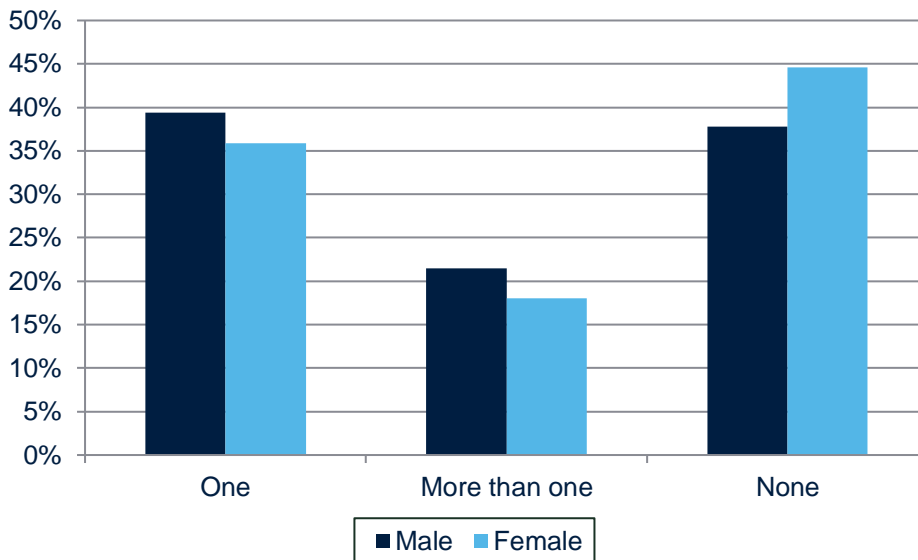
Note: The remaining responses are either 'Don't know' or missing values.

Source: Oxera, based on CMA data.

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[85] The survey asked whether the respondent had changed supplier—within the last three years—in any of the following markets: mobile phone network provider; car insurance; current account; and mortgage.

To conclude, it is worth noting that the analyses performed on the CMA surveys—albeit only descriptive—show an overall higher rate of switching in the male group, both in the target market and in different markets that the respondents were asked about.

7.5. Implications of differences in switching behaviour across gender for competition policy

In the case studies above, there appear to be differences in switching behaviour across male and female respondents.

- In Canadian services, we find statistically significant differences in mean switching of male and female respondents when survey responses from all six service are aggregated (cell phones, Internet, television, banking, home insurance and car insurance), with men having higher average switching rates.

- In the Mexican telecoms sector, we do not find significant differences in switching behaviour across male and female respondents. However, in the case of mobile phone subscriptions, men are significantly more likely to have spent time searching for providers before signing with their current provider.

- In UK retail banking, a larger proportion of male respondents reported having switched bank compared to female respondents in the three years preceding the survey. This is despite both groups reporting very similar levels of satisfaction with their personal current account.

- In the UK energy sector, a larger proportion of male respondents reported having switched, shopped around for, or considered switching service provider, compared to female respondents.

Where possible, we have tested whether these differences in behaviour are due to gender or are better explained by other variables. Indeed, we find that when accounting for other differences in respondents' characteristics, some of the differences in switching rates are explained by those factors. In particular, in Canada, we note that across all sectors, once we account for other variables, we find no probability that switching is lower if the respondent is female. However, even when controlling for other factors that might influence switching behaviour, we find that the women in the sample on average save significantly less compared to the men when switching or renegotiating their contract.

These findings suggest that there are differences in switching behaviour across male and female consumers, which may lead to different competitive effects for the two customer groups.

The differences in switching behaviour might be due to a number of factors. The first option is that the men and women in the sample have different preferences for substitutes. In this case, we assume that the prices of the various services are the same, but that men display higher levels of switching because they have a stronger preference for an alternative service. Indeed, this would explain why both men and women display very similar levels of satisfaction with their service, as survey data from UK retail bank and energy services showed.

The second option is that the differences are due to differences in price sensitivity. In this case, the higher switching levels for men are driven by the potential to achieve savings by switching to an alternative service provider.

A third option is that the differences in switching behaviour are due to behavioural biases. Women may suffer more from inertia or status quo bias— a tendency to prefer things to stay the same by doing nothing or by sticking with a decision made previously[86]—compared to men. However, survey data in Mexico showed that only in the case of landline phone services did women display higher levels of inertia, while in mobile phone and television services we did not find a discernible difference.

It is important to understand the nature of the differences in switching as the competitive effects will differ. If the lower levels of switching in female respondents is due to different preferences for substitutes, this suggests that the relevant market may be different for men and women. If, instead, the difference in switching behaviour is due to differences in price sensitivity, this suggests that merger effects might harm women more than men. This will depend on whether the provider is able to price-differentiate between men and women, or, if this is not possible, whether the proportion of women in the providers' customer base is sufficiently large to make a price increase profitable. When the lower levels of switching in women versus men is due to inertia, these differences will not affect market definition or merger effects.

However, in any of these cases, whether due to differences in price sensitivity, product preferences or biases, the lower switching rate of female respondents suggests that women may suffer more harm in the case of price increases. As such, we recommend that competition authorities take these differences into consideration and assess how they may affect consumer welfare.

8. Conclusions and areas for further consideration

In this report, we have focused on the following two questions.

- Are there significant differences by gender in consumer behaviour?

- If there are differences, what are the implications for competition policy?

We have addressed these questions by re-analysing consumer surveys that have been used in competition cases in different jurisdictions.

The results indicate that in several cases there are significant differences in the consumer behaviour of men and women. In particular, we find that there tend to be significant differences in male and female preferences for substitute products and in their switching behaviour.

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[86] Samuelson, W. and Zeckhauser, R.J. (1988), 'Status quo bias in decision making', *Journal of Risk and Uncertainty*, **1**, pp. 7–59.

8.1. **Differences in substitutability**

The analysis of the survey results by gender suggests that for a wide variety of products and services, the degree of substitutability is significantly different for men and women.

Our analysis of the sports channels survey shows that a lower proportion of female subscribers indicated that they were interested in watching all, or specific, matches compared to male subscribers. We also found that a lower proportion of female respondents wanted to watch at least one match on both channels and that fewer female subscribers were subscribing to both broadcasters simultaneously. However, despite these differences between men and women, the high proportion of female respondents indicating that they wanted to watch at least one match shown by each of the two broadcasters is still suggestive of complementarity rather than substitutability of the two broadcasters.

Our analysis of the survey of supermarket customers shows that for all but two of the focal stores, men are more likely to divert to another merging party store in the case of a store closure than women are. As shown by our regression analysis, this is true even after controlling for demographics and purchase-specific characteristics. This suggests that men and women have different views on which supermarkets are close substitutes.

The results of our package holiday survey analysis suggests that the degree of substitutability between package holidays and separate components is different for men and women. Of those respondents who had booked a package trip, women are on average 15.6 percentage points less likely to look for a cheaper option using separate components, when controlling for several demographics and individual preferences on product attributes. This is indicative of a lower degree of substitutability between package components and separate components for women compared to for men.

Our analysis of the healthcare insurance survey suggests that gender significantly influences the probability of switching insurance provider when respondents are faced with no contract between the healthcare insurance provider and the preferred independent treatment centre. Women are 4.5 percentage points more likely to switch insurance provider if the insurer does not have a contract with the preferred independent treatment centre.

8.2. **Differences in price sensitivity**

In this report, we have not found any conclusive evidence of differences in price sensitivity.

The analysis of the sports channels survey suggests that the majority of men and women interested in subscribing to a TV football package considered that the packages were too expensive. When asking past subscribers, we found that a larger proportion of male respondents reported the package as currently too expensive. On the other hand, a larger proportion of female respondents currently subscribed reported having difficulties in paying for their subscription. These findings do not provide evidence of either men or women being more price-sensitive when it comes to TV football packages.

Moreover, while we find that lower price is more likely to be cited by men as the most important reason for booking a package holiday compared to women, there is no difference by gender when it comes to the importance of price for booking a trip consisting of separate components.

8.3. Differences in switching behaviour

In a variety of sectors, we find that a larger proportion of men have switched provider in recent years compared with women.

In a number of service sectors in Canada, we find that men are significantly more likely to switch provider than women. In UK retail banking, a larger proportion of male respondents reported having switched bank compared to female respondents in the three years preceding the survey. This is despite both groups reporting very similar levels of satisfaction with their personal current account. In the UK energy sector, a larger proportion of male respondents reported having switched, shopped around for, or considered switching, service provider compared to female respondents. However, in the case of services in the Mexican telecoms sector, we have not found any significant differences in the likelihood of men and women switching provider.

8.4. Differences in characteristics and preferences across gender

Our assessment also indicates that there may be notable differences in the profiles of the two consumer groups that need to be considered when interpreting the results. In some cases, it may be precisely these (non-gender) characteristics that are driving the variation in consumer behaviour. For example, we note that in the case of football subscriptions, female football fans were significantly younger than the male fans, and that there is a positive relationship with age and the desire to watch at least two games a week. Indeed, this means that the female fans were less inclined to watch more than one match a week.

8.5. Implications for competition policy

Gender differences such as those identified in this study could have implications for market definition and the analysis of merger effects.

The most extreme case is one in which the differences result in two different markets: one for male consumers and one for female consumers. This may be the case if the preferences and switching behaviour of male and female consumers differ to such an extent that the competitive dynamics that men and women experience are very different. However, differences in consumer behaviour is not a sufficient condition for defining separate markets. One should also consider the ability to price-discriminate or differentiate between men and women, and the relative size of both groups.

As an example, differences in the diversion ratios between men and women mean that the incentive for merging parties to make post-merger changes to prices and/or product offerings is likely to differ when considering their male and female customers separately.

In any of these cases, the scope for harm will be influenced by two factors: 1) the size of the different groups, and 2) the ability to differentiate between the two groups. Our review has been limited to the survey data, and is therefore not able to offer evidence regarding these two factors

in the specific markets that we analysed. However, in a number of sectors there may be at least some scope to differentiate product offerings or prices based on gender and we would advise that competition authorities explore this possibility. In particular, in digital markets where more and more data is being collected such a consideration may be relevant. Collecting personal data and tracking consumer behaviour may enable firms to understand differences in preferences, price sensitivity and switching behaviour differences for different genders and adapt their product and price offerings accordingly.

If it is found that companies can apply different prices or substantially differentiate their product offering based on gender, the competition authority should consider assessing market definition or competition effects by gender. This may lead to a different merger assessment outcome than when assessing merger effects in aggregate. If the companies are not able to differentiate based on gender, the competition authority should still assess whether one group is large enough to protect the other against any adverse competitive effects.

8.6. **Implications for survey design**

In this report, we have reviewed several consumer surveys that provide insight into a number of crucial considerations when allowing for gender differences in designing consumer surveys. We hope that competition authorities can benefit from these insights (set out below) when either designing or commissioning future consumer surveys.

- First, surveys should include a question on gender. Through our research, we realised that in a relatively large number of surveys, respondents were in fact not even asked about their gender (or gender was not recorded by the surveyor in a face-to-face survey). Without such a question, it is impossible to assess whether there are differences by gender.

- In line with the principles of equality and inclusivity, it is important to ask about gender in a non-binary way. Any sensitivities around gender can be addressed by giving various options in the responses beyond 'male' and 'female' (e.g. 'other' and 'prefer not to say'). An alternative approach would be to first ask about the sex of the respondent, followed by a question about whether the gender they identify with is the same as their sex registered at birth.[87]

- To ensure that differences between female and male respondents are not incorrectly attributed to gender, it is important to ask questions about other relevant characteristics of respondents. The exact characteristics to ask about might differ by case (for instance, mode of transport to the respective shop may not be relevant in all circumstances), but there are a few characteristics that are relevant to add in all cases. These are demographic questions about age, employment status, marital and family status, and education level.

- In order to assess the impact of gender differences, it is necessary to be able to assess price sensitivity and the likelihood of switching for both groups separately. Furthermore, as described above, the relative size of the groups matters. Hence, it might be worth

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[87] See Office for National Statistics (2021), 'Sex and gender identity question development for Census 2021'.

asking a broad question upfront on whether respondents have purchased the product(s) in question. Those who have not can be screened out of the survey and this will enable the competition authority to get an understanding of how the distribution of the (final) respondents relates to the overall consumer base of the product(s) under investigation.

8.7. Areas for further consideration: revealed versus stated preferences by gender, firms' ability to differentiate by gender

A suggested area for further investigation is whether differences in consumer behaviour across men and women are more or less pronounced when looking at revealed preferences. A general issue with consumer surveys is the potential discrepancy between stated preferences and revealed preferences. Respondents may state that they do A, but in reality they do B. This discrepancy may be more pronounced in one gender compared with the other.

For example, in our analysis of the responses to the survey on healthcare insurance, we noted that a larger proportion of women said 'I don't know' or 'I don't remember' to each question where this answer was possible, compared to men. Looking at revealed preferences may help account for such missing data points.

In addition, the differences observed in male and female respondents may depend on the formulation of the question. Surveys can contain questions about past behaviour, or ask the respondent to answer a question about a hypothetical situation. A respondent's ability to answer that question as closely aligned with reality could potentially differ by gender.

Our beach package holidays case study underlines the effect of survey design on survey results. When considering past behaviour, we find significant differences between men and women when it comes to comparing package trips and separate components. On the other hand, when considering the hypothetical situation of booking a package trip, the probability of looking for a cheaper option using separate components is not significantly affected by gender. A possible reason might be that there is a difference between the stated preference (i.e. the hypothetical question) and the revealed preference (which is the actual action taken if the respondent had booked a package trip in previous years) driving these results. Indeed, the finding that a question about actual, past behaviour generates different results from a hypothetical situation underlines how considering both revealed preferences and stated preferences can provide a fuller picture.

On the question of revealed versus stated preferences we also note the following. Survey analysis allows testing for gender differences—provided that questions about gender are asked, as we noted above. Analysis of revealed preferences from datasets will not always allow such testing for gender differences. Many types of dataset may not record gender information—for example, scanner data in supermarkets or internal sales records held by companies. Yet other types of dataset do record such information, in particular in online markets where extensive information if often gathered on the characteristics of consumers, including their gender.

Lastly, we consider the extent to which firms are able to differentiate by gender to be another important area for further the research. Although our analysis finds that there are significant differences in consumer behaviour between men and women, whether these differences have implications for competition policy often depends on a firm's ability to differentiate by gender.

The degree to which a firm is able to differentiate is likely to depend on the extent to which its product attributes, product marketing and product sales channel(s) are targeted at a specific gender.[88] Relevant product attributes might include colour, specific features, size, or other characteristics such as risk. Marketing efforts targeting one gender group might take the form of variations in packaging or product descriptions, or in the placement of advertisements (e.g. types of website, print and digital media, geographic locations).

Firms might also target a particular gender group through different product sales and distribution channels, including, the geographic location of stores, or where the product or its different variants are positioned within stores; and how the products are sold.

All of these forms of differentiation may have an impact on the analysis of competitive effects. The 'toothless fallacy' (discussed in section 2.) is a useful reminder that not all differences between consumer groups necessarily give rise to separate markets. However, there are many ways in which suppliers can target specific customer groups, including by gender, such that competitive effects and harm may differ between groups. That is why gender is an additional relevant feature of the market that is worth exploring in competition cases.

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[88] The other study on gender and market definition carried out for this OECD initiative covers this topic. See Pinheiro, L., Faye, A., Ginn, M., Lehmann, J. and Posch, J. (2021), 'Gender considerations in the analysis of market definition and competitive effects: Practical framework and illustrative example', report for the OECD.

A1 Sports channels

Table A1.1 Gender differences in personal characteristics (on average), for current subscribers only

Personal characteristics	Male	Female	Difference
Age	50–60 years	40–50 years	Significant at 1% level
Income segment	Lower middle class	Lower middle class	No difference
Region	NA	NA	No difference
Role in decision making[1]	> 60% are sole decision-makers	<50% are sole decision-makers	Significant at 1% level

Note: Total sample size is 519. [1] The survey question was formulated as: 'Which of the following best describes your role in making the decision about which television service you get, or the channels you receive, in your household?'. The four possible responses were: i) 'Personally responsible for the decision'; ii) 'Jointly responsible for the decision'; iii) 'Not at all responsible for the decision'; iv) 'Don't know'.

Source: Oxera analysis.

Table A1.2 Gender differences in personal characteristics (on average), for past subscribers only

Personal characteristics	Male	Female	Difference
Age	40–50 years	30–40 years	Significant at 1% level
Income segment	Lower middle class	Skilled working class	No difference
Region	NA	NA	No difference
Role in decision making[1]	> 60% are sole decision-makers	50–60% are sole decision-makers	No difference

Note: Total sample size is 122. [1] The survey question was formulated as: 'Which of the following best describes your role in making the decision about which television service you get, or the channels you receive, in your household?'. The four possible responses were: i) 'Personally responsible for the decision'; ii) 'Jointly responsible for the decision'; iii) 'Not at all responsible for the decision'; iv) 'Don't know'.

Source: Oxera analysis.

Table A1.3 Gender differences in personal characteristics (on average), for non-subscribers only

Personal characteristics	Male	Female	Difference
Age	50–60 years	40–50 years	Significant at 1% level
Income segment	Lower middle class	Lower middle class	No difference
Region	NA	NA	No difference
Role in decision making[1]	> 50% are sole decision-makers	< 50% are sole decision-makers	Significant at 5% level

Note: Total sample size is 359. This is limited to people who currently do not subscribe to either broadcaster, and who have never had a subscription in the past. [1] The survey question was formulated as: 'Which of the following best describes your role in making the decision about which television service you get, or the channels you receive, in your household?'. The four possible responses were: i) 'Personally responsible for the decision'; ii) 'Jointly responsible for the decision'; iii) 'Not at all responsible for the decision'; iv) 'Don't know'.

Source: Oxera analysis.

Table A1.4 Logit regression for subscribers interested in watching all, or specific, first division matches

	Estimates
Gender	-0.447
	(0.282)
Age	-0.010
	(0.009)
Income segment	-0.108
	(0.119)
Constant	1.873***
	(0.545)
Observations	282
Pseudo R-squared	0.012

*Note: Regression results relate to the first set of results presented in Table 3.2. Robust standard errors are presented in parentheses. * denotes statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level.*

Source: Oxera analysis.

Table A1.5 Logit regression for subscribers interested in watching all, or specific, first division matches

	Estimates
Gender	-0.447
	(0.282)
Age	-0.010
	(0.009)
Income segment	-0.108
	(0.119)
Constant	1.873***
	(0.545)
Observations	282
Pseudo R-squared	0.012

Note: Regression results relate to the first set of results presented in Table 3.2. Robust standard errors are presented in parentheses. * denotes statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Source: Oxera analysis.

Table A1.6 Logit regression for subscribers interested in watching all, or specific, first division matches

	Estimates
Gender	-0.447
	(0.282)
Age	-0.010
	(0.009)
Income segment	-0.108
	(0.119)
Constant	1.873***
	(0.545)
Observations	282
Pseudo R-squared	0.012

Note: Regression results relate to the first set of results presented in Table 3.2. Robust standard errors are presented in parentheses. * denotes statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Source: Oxera analysis.

Table A1.7 Logit regression for subscribers interested in watching at least one game broadcast by each service

	Estimates
Gender	-0.280
	(0.269)
Age	0.017**
	(0.008)
Income segment	-0.160
	(0.114)
Constant	0.536
	(0.670)
Observations	282
Pseudo R-squared	0.027

*Note: Regression results relate to the second set of results presented in Table 3.2. Robust standard errors are presented in parentheses. * denotes statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level.*

Source: Oxera analysis.

Table A1.8 Logit regression for past subscribers stating that packages were too expensive

	Estimates
Gender	-0.441
	(0.571)
Age	0.0394*
	(0.021)
Income segment	0.081
	(0.239)
Constant	-0.941
	(1.099)
Observations	77
Pseudo R-squared	0.068

*Note: Regression results relate to the second set of results presented in Table 3.3. Robust standard errors are presented in parenthesis. * denotes statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level.*

Source: Oxera analysis.

A2   Supermarkets

Table A2.1 Proportion of customers diverted to the merging party fascia

	Female	Male	Aggregate
Store 1 to retailer C stores	46.3%	53.9%	49.3%
Store 2 to retailer C stores	24.2%	54.6%	34.3%
Store 3 to retailer C stores	2.0%	3.1%	2.5%
Store 4 to retailer C stores	17.2%	12.5%	15.2%
Store 5 to retailer A stores	15.8%	19.2%	16.1%
Store 6 to retailer A stores	0.0%	0.0%	0.0%
Store 7 to retailer A stores	21.6%	29.7%	24.3%
Store 8 to retailer A stores	10.3%	14.3%	11.5%
Store 9 to retailer A stores	5.5%	17.4%	8.3%
Average	**15.9%**	**22.7%**	**17.9%**

Source: Oxera analysis, based on survey data.

A3 Healthcare markets

Figure A3.1   Distribution of age of respondents by gender
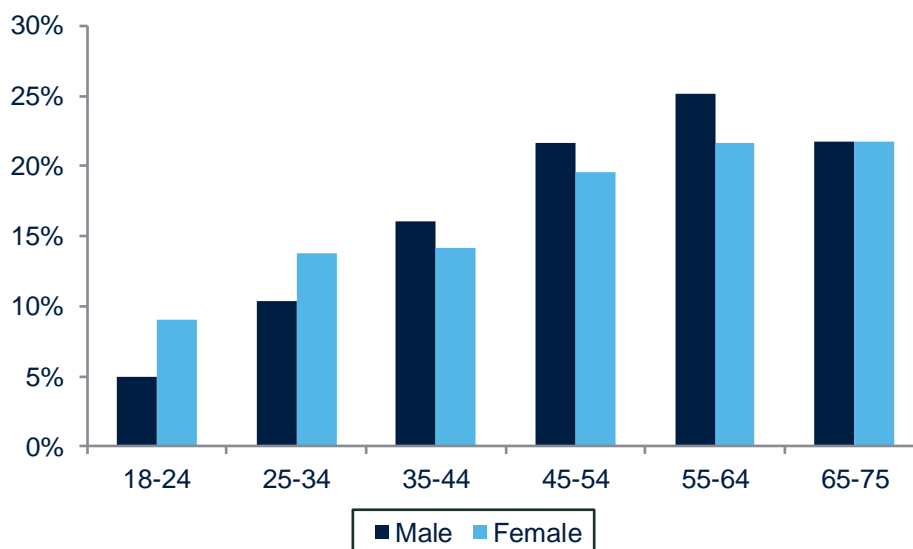
Note: Respondents were asked about their age and the range within which it falls. The distribution of age ranges is distinguished by gender. Proportions for male (female) are obtained by using the number of male (female) respondents within a range as a percentage of the total number of males (females) in the sample. No weights are used to allow for representativeness of the sample to the population.

Source: Oxera analysis of data received from NCA.

Figure A3.2   Distribution of completed level of education by gender
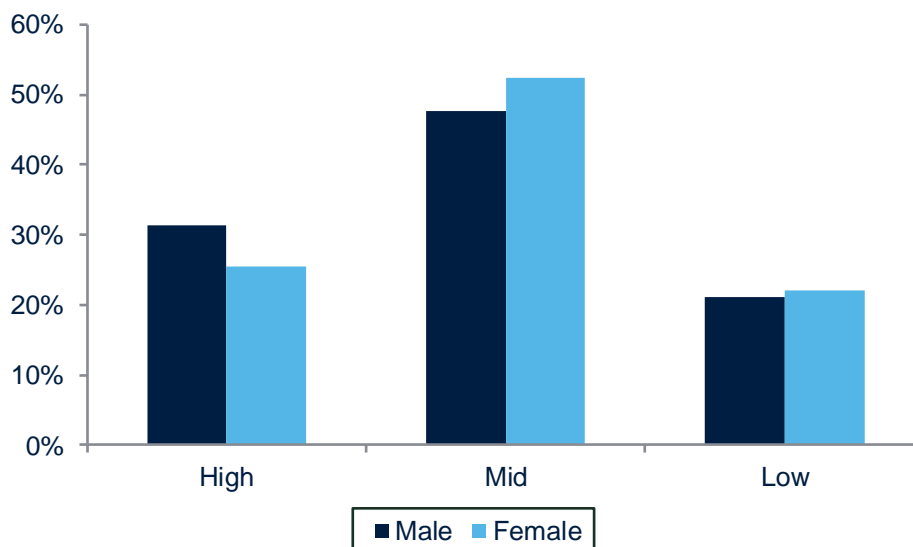
Note: Completed level of education was categorised in the survey data as 'high', 'mid' and 'low'. Proportions for male (female) are obtained by using the number of male (female) respondents within a group as a percentage of the total number of males (females) in the sample. No weights are used to allow for representativeness of the sample to the population.

Source: Oxera analysis of data received from NCA.

Figure A3.3   Distribution of income segment by gender
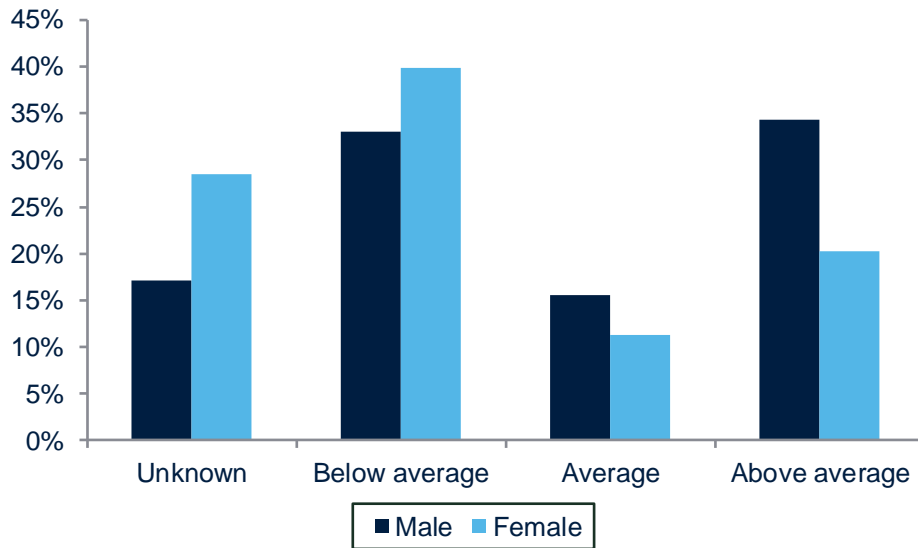
Note: There were four different groups: 'unknown', 'below average', 'average' and 'above average', where 'average' was defined to be between €35,000 and €42,400. Proportions for male (female) are obtained by using the number of male (female) respondents within a group as a percentage of the total number of males (females) in the sample. No weights are used to allow for representativeness of the sample to the population.

Source: Oxera analysis of data received from NCA.

Figure A3.4   Distribution of current (self-assessed) health status by gender
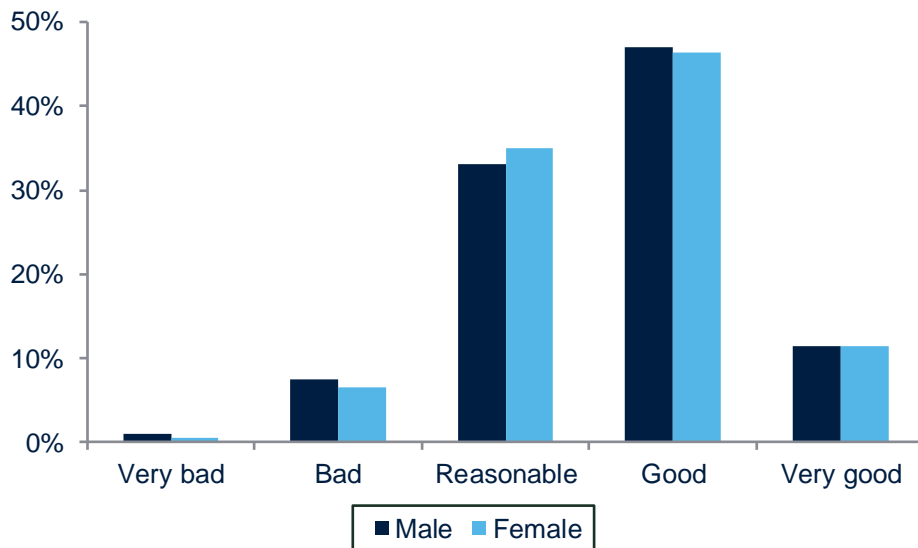
Note: There were five possible answers, creating five different groups: 'very bad', 'bad', 'reasonable', 'good' and 'very good'. Proportions for male (female) are obtained by using the number of male (female) respondents within a group as a percentage of the total number of males (females) in the sample. No weights are used to allow for representativeness of the sample to the population.

Source: Oxera analysis of data received from NCA.

Figure A3.5   Distribution of type of policy by gender
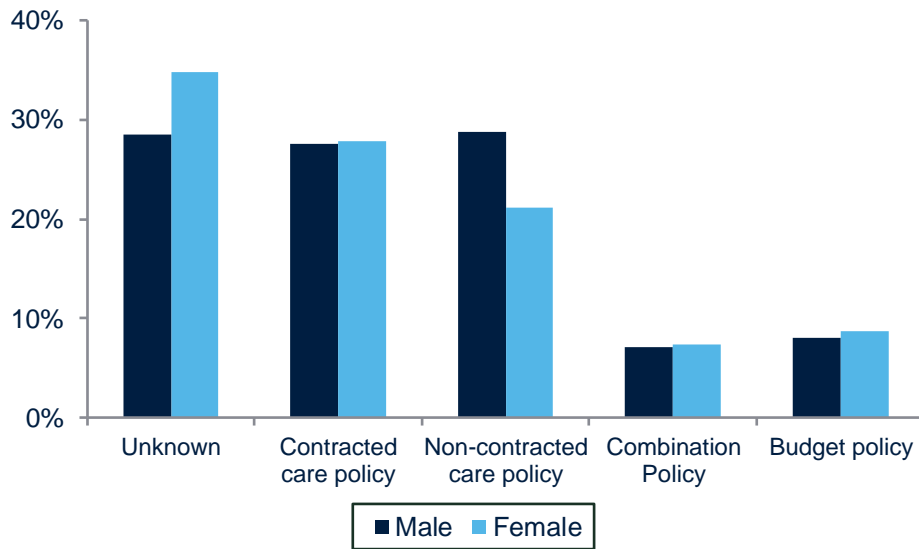
Note: There were five possible answers, creating five different groups: 'Unknown', 'Contracted care policy', 'Non-contracted care policy', 'Combination policy' and 'Budget policy'. 'Combination policy' is a combination of contracted care policy and non-contracted care policy. Proportions for male (female) are obtained by using the number of male (female) respondents within a group as a percentage of the total number of males (females) in the sample. No weights are used to allow for representativeness of the sample to the population.

Source: Oxera analysis of data received from NCA.

Figure A3.6   Distribution of time since latest new insurance policy by gender
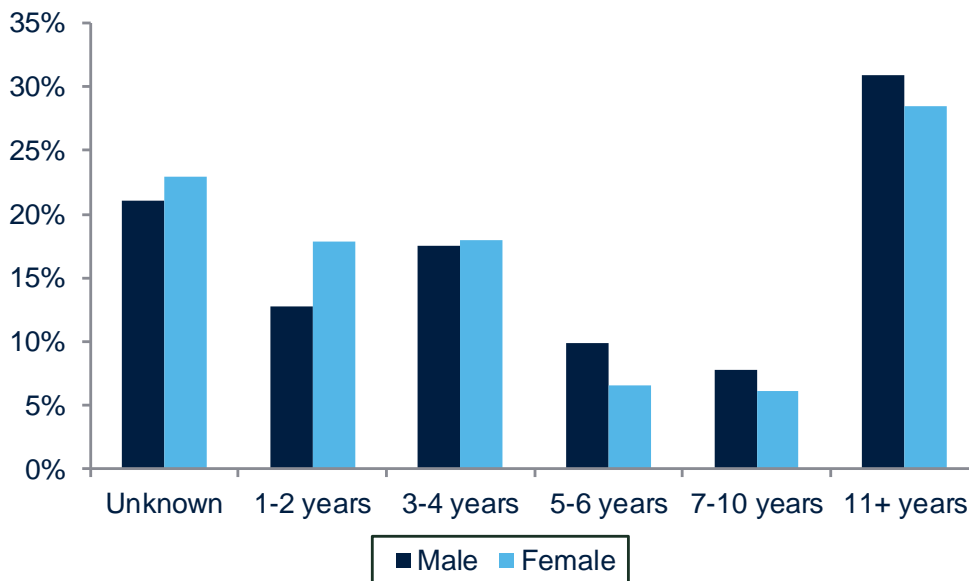
Note: Respondents were asked when they had last renewed their healthcare insurance policy. There were six possible answers, creating six different groups: 'Unknown', '1–2 years', '3–4 years', '5–6 years', '7–10 years' and '11+ years'. Proportions for male (female) are obtained by using the number of male (female) respondents within a group as a percentage of the total number of males (females) in the sample. No weights are used to allow for representativeness of the sample to the population.

Source: Oxera analysis of data received from NCA.

Table A3.1 Explanatory variables used in logistic regressions

Control variable	Description of variable(s) used in logistic regressions
Age	Dummy variables equalling 1 whenever the respondent said they were within a certain age range, and zero otherwise [0;1].[89]
Completed level of education	Dummy variables equalling 1 whenever the respondent said their income was in a specific income bracket, and two for another income bracket [1;2].[90]
Level of income	Dummy variables equalling 1 whenever the respondent has answered to be within a certain time of latest renewed insurance policy, and zero otherwise [0;1].[91]
Time since latest renewal of healthcare insurance	Dummy variables equalling 1 whenever the respondent said they had renewed their healthcare insurance policy within a certain time period, and zero otherwise [0;1].[92]
Awareness of contractual agreement with healthcare provider of preference	A dummy variable equalling 1 whenever the respondent said they were aware of a contractual agreement between the preferred healthcare provider and the current healthcare insurance provider, and zero otherwise [0;1].
Type of policy	Dummy variables equalling 1 whenever the respondent said they had a certain type of policy, and zero otherwise [0;1].[93]
Latest medical treatment received	Dummy variables equalling 1 whenever the respondent said they had received medical treatment within a certain time period, and zero otherwise [0;1].[94]
Current (self-assessed) health status	Dummy variables equalling 1 whenever the respondent indicated a particular health status, and zero otherwise [0;1].[95]
Coverage of treatment by local or regional hospital	Dummy variables equalling 1 whenever the respondent regarded coverage of treatment by a local or regional hospital as 'very important' or 'important', and zero otherwise [0;1].
Coverage of treatment by academic hospital	Dummy variables equalling 1 whenever the respondent regarded coverage of treatment by an academic hospital as 'very important' or 'important', and zero otherwise [0;1].
Coverage of treatment by independent treatment centre	Dummy variables equalling 1 whenever the respondent regarded coverage of treatment by an independent treatment centre as 'very important' or 'important', and zero otherwise [0;1].

Note: All variables used in the regression alongside gender. Whenever a variable consisted of T categories (categorical variable), we created T-1 dummy variables [0;1] to include in the model specifications.

Source: Oxera analysis.

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[89] This results in five dummy variables: one for each age group except 18–24 years. This is considered the base.

[90] This results in two dummy variables: one for 'mid' and one for 'low'. 'High' is considered the base.

[91] This results in three dummy variables: 'below average', 'average' and 'above average'. 'Unknown' was considered the base.

[92] This results in five dummy variables: one for each range except 'unknown', which is considered the base.

[93] This results in four dummy variables: 'contracted care policy', 'non-contracted care policy', 'combination policy' and 'budget policy'. 'Unknown' was considered the base.

[94] This results in five dummy variables: 'in 2017', 'in 2016', 'prior to 2016', 'never' and 'I do not remember'. 'In 2018' was considered the base.

[95] This results in four dummy variables: 'bad', 'reasonable', 'good', and 'very good'. 'Very bad' was considered the base.

Table A3.2 Switching rates on aggregate, male and female sample corrected for representativeness of the total population

Switching rate	Aggregate	Female	Male
Either of the two parties (A or B) (i and ii)	15.04%	15.65%	14.42%
Hospital of preference (iii)	36.33%	38.32%	34.29%
Independent treatment clinic of preference (iv)	21.40%	24.40%	18.31%

Note: Weights for representativeness of the sample were used. A switch for independent treatment centre A or independent treatment centre B was whenever a respondent indicated that they had purchased a different policy at a different insurance provider for questions (i) or (ii) respectively. Whenever a respondent said they had switched insurance provider for either question ((i) or (ii)), this was considered a switch for either of the two parties. A switch for hospital or independent treatment centre was whenever a respondent said they had switched to a different policy at a different insurance provider for questions (iii) or (iv) respectively.

Source: Oxera analysis of data received from NCA.

Table A3.3 Proportions by male, female and on aggregate of 'I don't know' and 'I don't remember' responses

Variable	Answer	Male	Female	Aggregate
Income segment	'Unknown'	17.08%	28.51%	22.55%
Awareness of contractual agreement	'I do not remember'	8.54%	14.19%	11.24%
Time of latest renewed insurance policy	'I do not remember'[1]	21.04%	22.97%	21.96%
Type of policy	'I do not remember'	28.47%	34.73%	31.46%
Latest medical treatment received	'I do not remember'	8.42%	6.76%	7.62%

Note: Proportions are based on the total number of male, female and aggregate respondents respectively. [1] Also includes those respondents for whom this variable was missing.

Source: Oxera analysis of data received from NCA.

A4   Package beach holidays

Figure A4.1   Distribution of age by gender
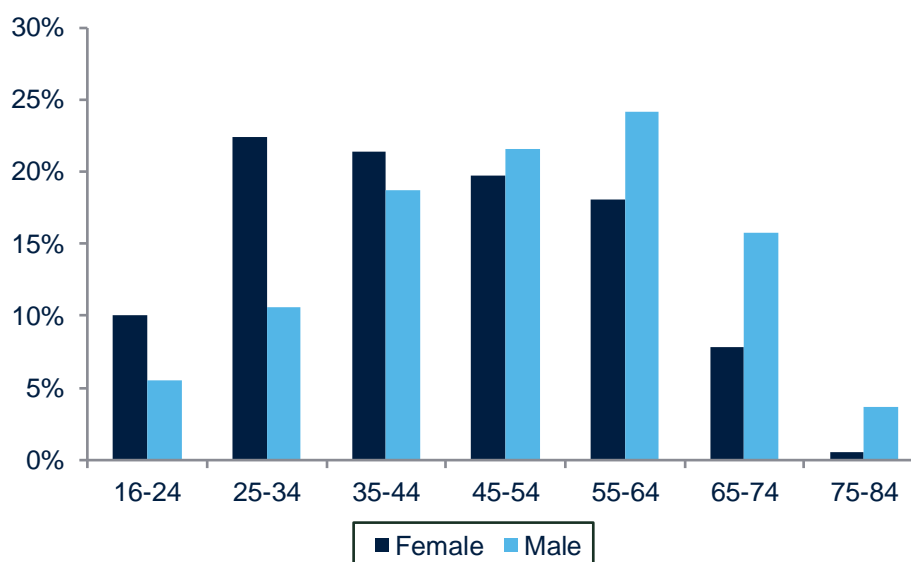
Note: Distribution of age ranges, distinguished by gender. Respondents were asked about their age and the range within which it falls. Proportions for male (female) are obtained by using the number of male (female) respondents within a range as a percentage of the total number of male (female) respondents in the sample.

Source: Oxera analysis of data received from NCA.

Figure A4.2   Distribution of highest completed level of education by gender
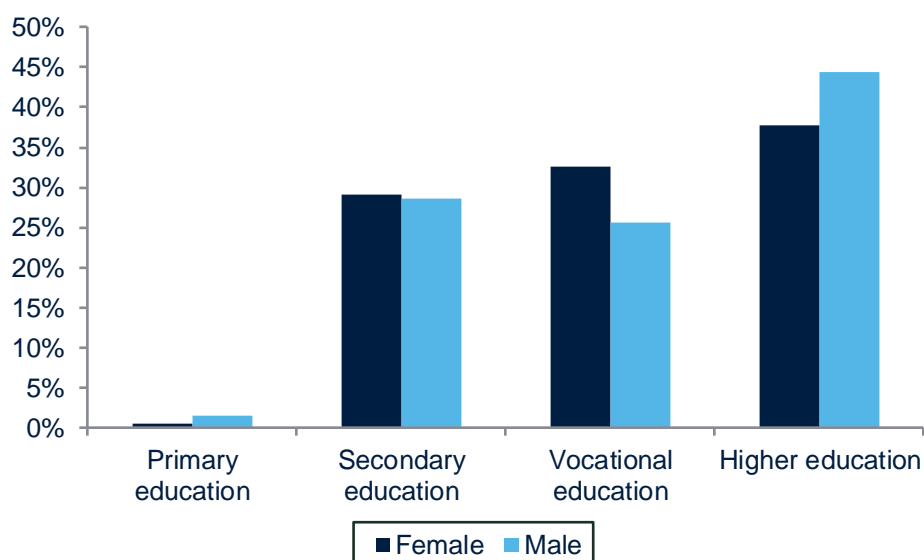
Note: Respondents were asked to state their highest completed level of education. Using these answers, a categorical variable was constructed consisting of four categories: 'Primary education', Secondary education', 'Vocational education' and 'Higher education'. Higher education meant having a bachelor's and/or master's degree and/or a postdoctorate/PhD.

Source: Oxera analysis of data received from NCA.

A5 Service contract Canada

Table A5.1 Welch two-sample t-test on occupation

Sector	Mean Female	Mean Male	Two-tailed p-value
Full-time employed			
All sectors	0.331	0.422	0.000*
Banking	0.374	0.399	0.506
Cable television	0.319	0.406	0.020*
Car insurance	0.351	0.436	0.026*
Cell phone	0.298	0.403	0.005*
Home insurance	0.332	0.484	0.000*
Internet	0.323	0.417	0.012*
Self-employed			
All sectors	0.071	0.105	0.000*
Banking	0.062	0.097	0.099*
Cable television	0.040	0.097	0.005*
Car insurance	0.069	0.117	0.033*
Cell phone	0.076	0.104	0.215
Home insurance	0.082	0.103	0.348
Internet	0.107	0.112	0.811

*Note: * p-value of less than or equal to 0.05, indicating statistically significant difference. For occupation, we assign value '1' to individuals who identified themselves as part of the stated category (e.g. 'Full-time employed' for occupation), and value '0' to others. The null hypothesis is that true difference in means between male and female is equal to 0.*

*Source: Oxera analysis using data from Canadian Competition Bureau.*

Table A5.2 Welch two-sample t-test on annual household income

Sector	Mean Female	Mean Male	Two-tailed p-value
Under 60k			
All sectors	0.361	0.312	0.001*
Banking	0.409	0.327	0.029*
Cable television	0.351	0.319	0.397
Car insurance	0.320	0.310	0.787
Cell phone	0.398	0.333	0.086*
Home insurance	0.326	0.255	0.045*
Internet	0.361	0.331	0.433
60k to 100k			
All sectors	0.181	0.202	0.086*
Banking	0.162	0.202	0.176
Cable television	0.158	0.187	0.327
Car insurance	0.229	0.213	0.635
Cell phone	0.173	0.220	0.125
Home insurance	0.201	0.226	0.430
Internet	0.176	0.175	0.973
Over 100k			
All sectors	0.194	0.279	0.000*
Banking	0.156	0.240	0.007*
Cable television	0.187	0.290	0.002*
Car insurance	0.201	0.307	0.002*
Cell phone	0.196	0.201	0.864
Home insurance	0.223	0.361	0.000*
Internet	0.213	0.290	0.023*

*Note: * p-value of less than or equal to 0.05, indicating statistically significant difference. For incomes that are categorical variables in the survey, we assign value '1' to individuals who identified themselves as part of the stated category (e.g. 'Full-time employed' for occupation), and value '0' to others. The null hypothesis is that true difference in means between male and female is equal to 0.*

Source: Oxera analysis using data from Canadian Competition Bureau.

A6   UK retail banking

Figure A6.1   Age
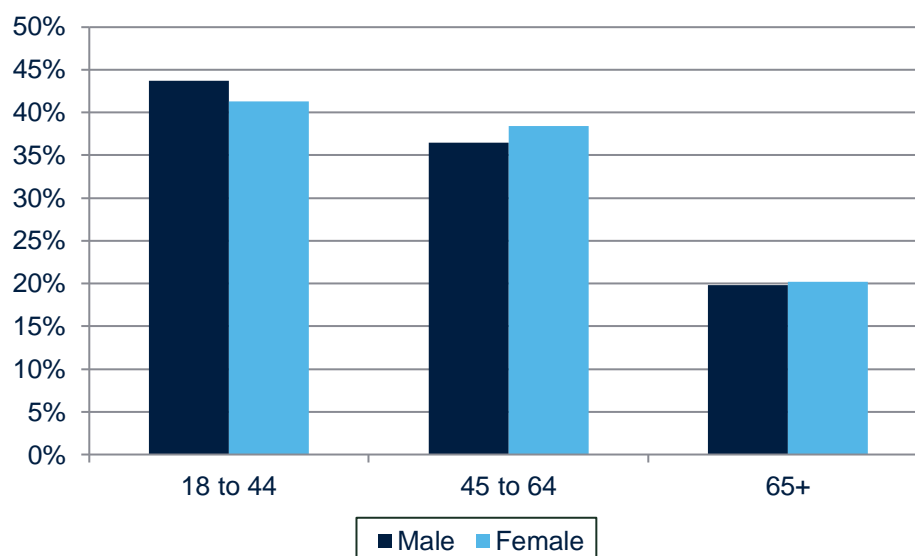
Source: Oxera, based on CMA data.
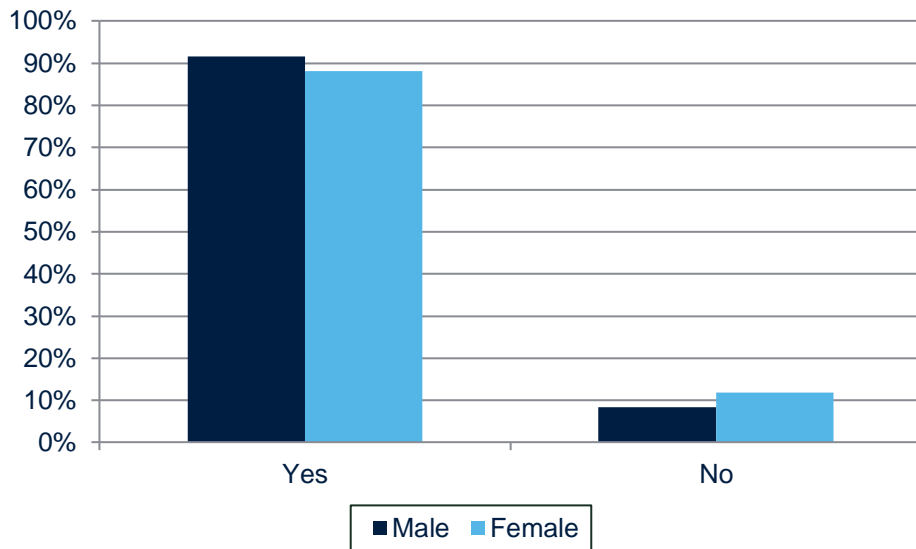
Figure A6.2   Education
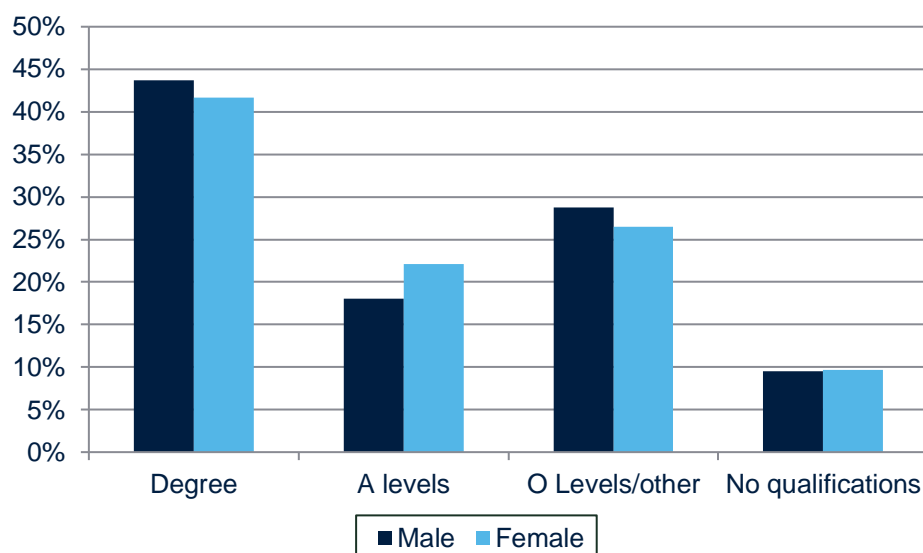
Source: Oxera, based on CMA data.

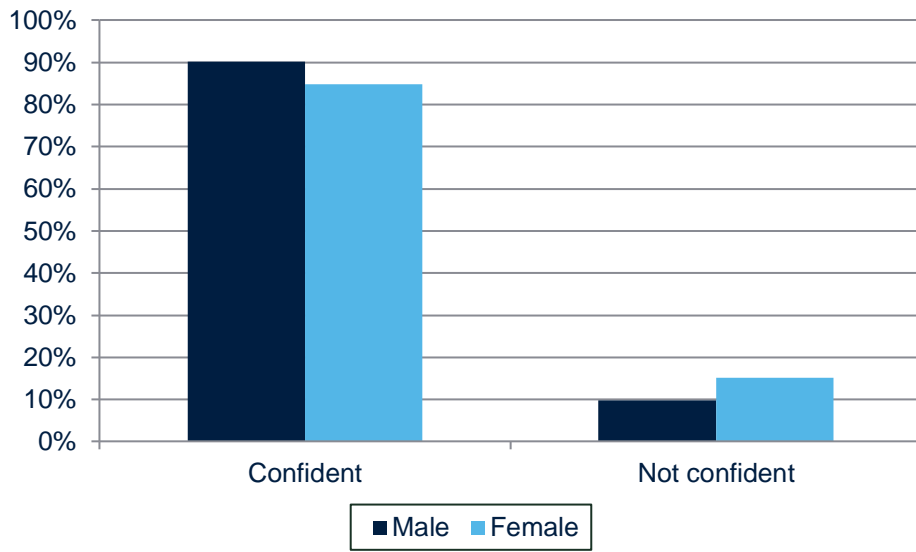**Figure A6.3   Working status**
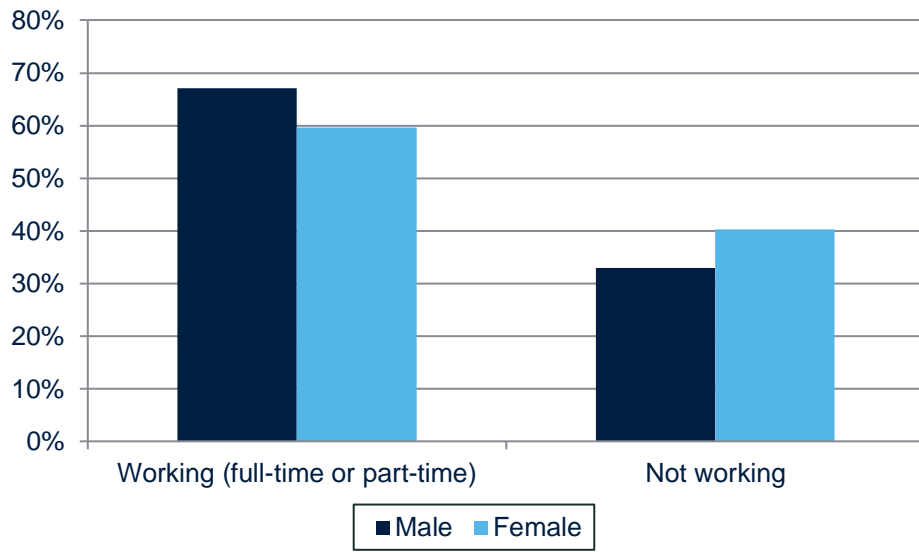
Source: Oxera, based on CMA data.

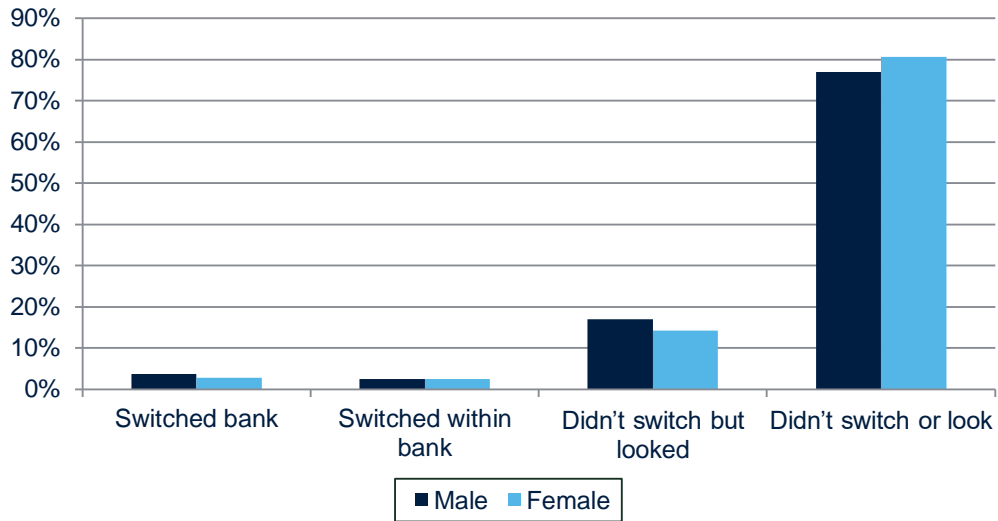**Figure A6.4   Internet access**

Source: Oxera, based on CMA data.

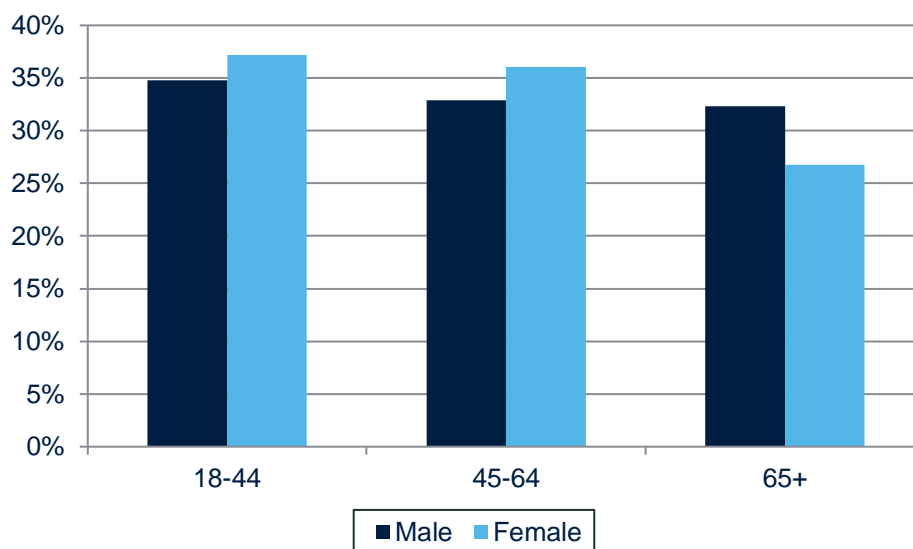**Figure A6.5   Confidence in searching online**

Source: Oxera, based on CMA data.

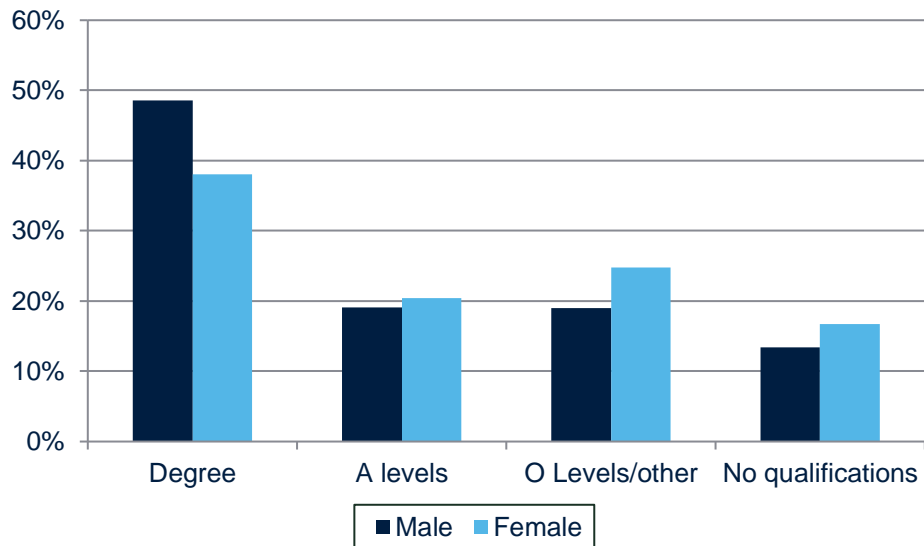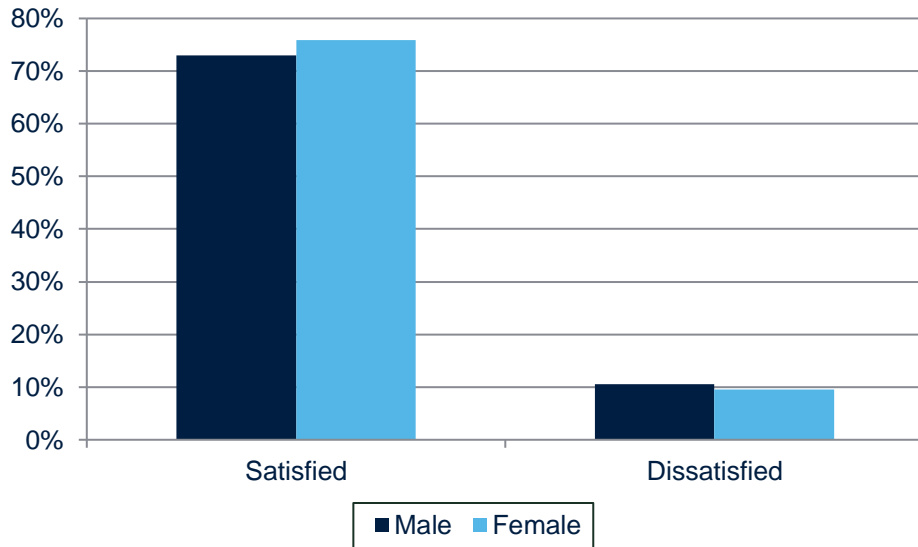**Figure A6.6   Switching and looking around behaviour in the preceding year**

Source: Oxera, based on CMA data.

A7 Energy consumption

Figure A7.1 Age
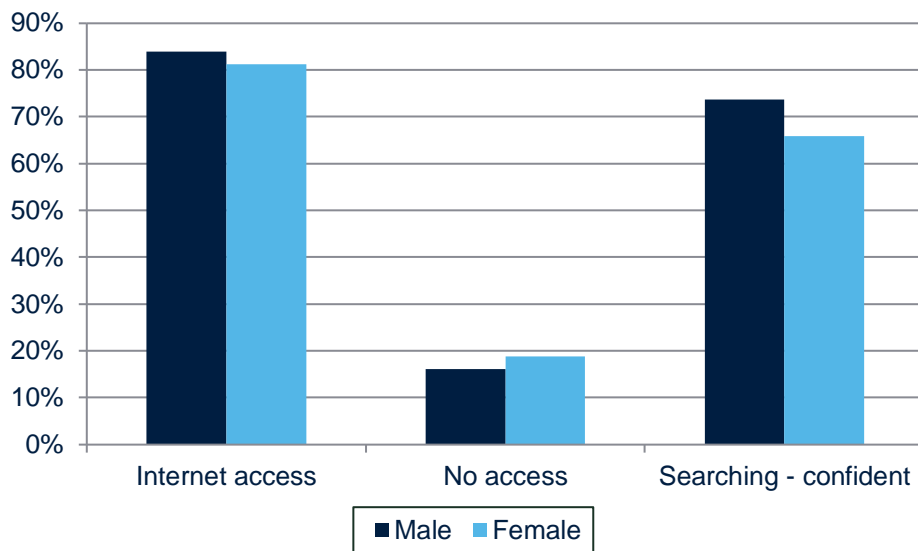

Source: Oxera, based on CMA data.

Figure A7.2 Education

Source: Oxera, based on CMA data.

Figure A7.3   Level of satisfaction
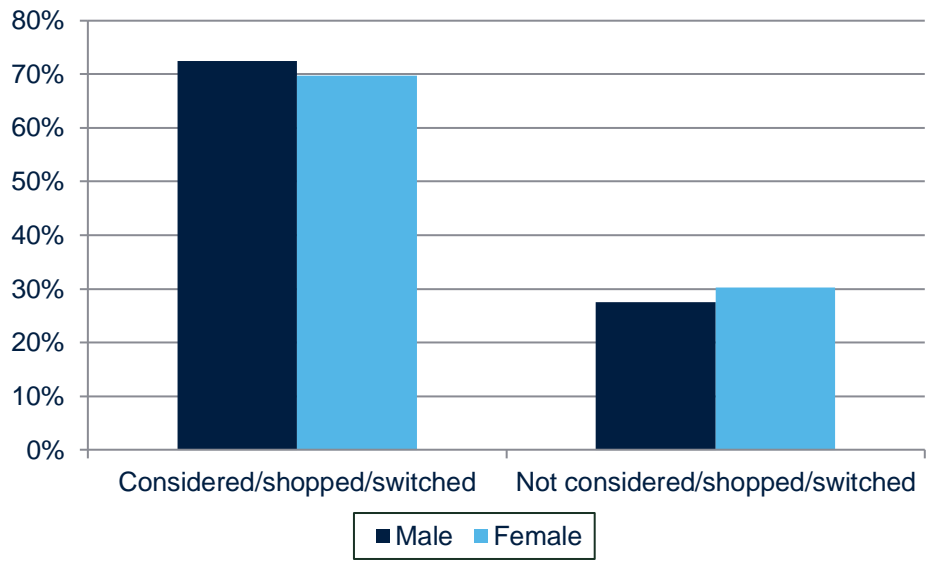

Source: Oxera, based on CMA data.

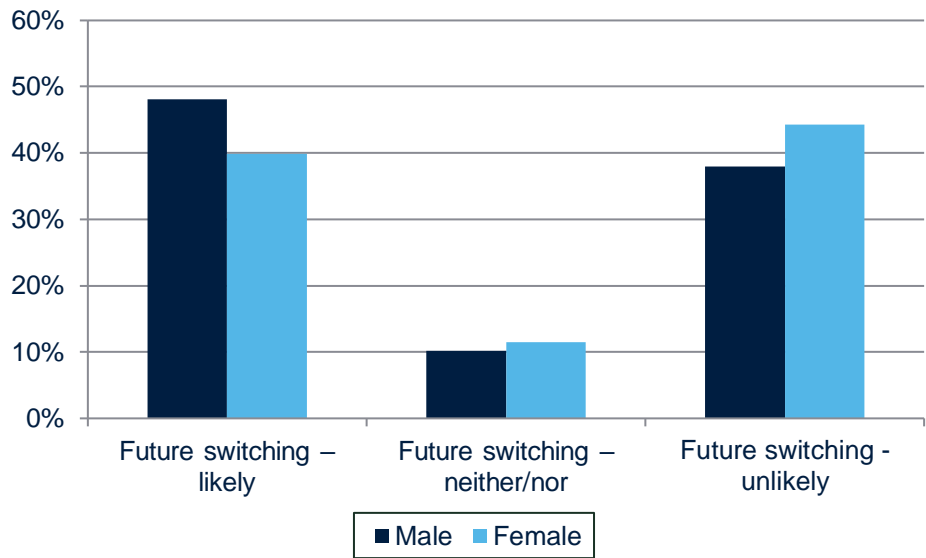**Figure A7.4   Internet access and confidence**

Source: Oxera, based on CMA data.

Figure A7.5   Consider switching

Source: Oxera, based on CMA data.

Figure A7.6   Future switching

Source: Oxera, based on CMA data.