Anticipated merger between J Sainsbury PLC and Asda Group Ltd

Appendices and Glossary

Appendices

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Appendix A: Terms of reference and conduct of the inquiry

Terms of reference

1. In exercise of its duty under section 33(1) of the Enterprise Act 2002 (the Act) the Competition and Markets Authority (CMA) believes that it is or may be the case that:

    (a) arrangements are in progress or in contemplation which, if carried into effect, will result in the creation of a relevant merger situation, in that:

      (i) enterprises carried on by J Sainsbury Plc will cease to be distinct from enterprises carried on by Asda Group Ltd and Walmart Inc.; and

      (ii) the condition specified in section 23(1)(b) of the Act is satisfied; and

    (b) the creation of that situation may be expected to result in a substantial lessening of competition within a market or markets in the United Kingdom for goods or services, including in the retail supply of groceries in-store within local areas around each store operated by J Sainsbury Plc and Asda Group Ltd and at a national level.

2. Therefore, in exercise of its duty under section 33(1) of the Act, the CMA hereby makes a reference to its chair for the constitution of a group under Schedule 4 to the Enterprise and Regulatory Reform Act 2013 in order that the group may investigate and report, within a period ending on 5 March 2019, on the following questions in accordance with section 36(1) of the Act:

    (a) whether arrangements are in progress or contemplation which, if carried into effect, will result in the creation of a relevant merger situation; and

    (b) if so, whether the creation of that situation may be expected to result, in a substantial lessening of competition within any market or markets in the United Kingdom for goods or services.

Sheldon Mills
Senior Director
Competition and Markets Authority
19 September 2018

Conduct of the inquiry

3. On 19 September 2018 the CMA referred the anticipated merger between J Sainsbury Plc and Asda Group Ltd (part of Walmart Inc) for an in-depth phase 2 investigation under its fast track procedure at the request of the Parties.

4. We published the biographies of the members of the inquiry group conducting the phase 2 inquiry on the inquiry webpage on 19 September 2018 and the administrative timetable for the inquiry was published on the inquiry webpage on 27 September 2018. Revised versions of the administrative timetable were published on the inquiry webpage on 13 December 2018 and 11 February 2019.

5. We invited a wide range of interested parties to comment on the Merger. These included customers, grocery retailers, general merchandise retailers, fuel retailers, grocery suppliers, consumer groups and trade bodies. We issued detailed questionnaires to these various parties and a number of them provided us with further information at hearings and in response to written requests. We held a hearing in Scotland with Consumer Council Northern Ireland, Food and Drinks Federation, National Farmers Union, National Farmers Union Scotland and Which?. A transcript of this hearing and summaries of third party hearings have been published on the inquiry webpage. Evidence submitted during phase 1 was also considered in phase 2.

6. We also commissioned three surveys. We commissioned:

    (a) Kantar Public to conduct an exit survey of the Parties' customers at a sample of the Parties' Large and Medium stores;

    (b) GfK to conduct a survey of a sample of the Parties' online shoppers; and

    (c) DJS to conduct an exit survey of the Parties' customers at a sample of the Parties' PFSs.

    Copies of the research companies' reports of the survey methodologies and the findings, including the questionnaires used, are published on the inquiry webpage alongside this document.

7. We received written evidence from the Parties in the form of submissions and responses to information requests. The Parties initial submission was published on the inquiry webpage on 16 October 2018.

8.   On 16 October 2018, we published an Issues statement on the inquiry webpage setting out the areas of concern on which the inquiry would focus. The Parties' response and third parties' responses to our issues statement have been published on the inquiry webpage.

9.   Members of the inquiry group, accompanied by CMA staff, visited Asda's headquarters in Leeds on 30 October 2018 and Sainsbury's headquarters in London on 1 November 2018.

10.   During our inquiry, we sent the Parties a number of working papers for comment. We also provided the Parties and third parties with extracts from our working papers for comments on accuracy and confidentiality. The Parties were also sent an annotated issues statement, which outlined our thinking prior to their respective hearings.

11.   On 12 December 2018, under section 120 of the Act, the Parties' lodged a notice of application for review with the Competition Appeal Tribunal (CAT) against certain procedural decisions made by the CMA and a hearing, listed by the CAT, took place on 14 December 2018. The CAT published its judgment on 18 January 2019.

12.   We held separate hearings with the Parties on 19 December 2018.

13.   On 11 February 2019, we issued a notice of extension due to the scope and complexity of the investigation, the need to consider issues raised by the main parties and third parties and the need to reach a fully reasoned provisional decision. We also considered the need to allow sufficient time to take full account of comments that will be received in response to the provisional findings and then provide a fully reasoned decision within the statutory time frame. This changed the statutory deadline to 30 April 2019.

14.   A non-confidential version of our provisional findings report has been published on the inquiry webpage. As we have provisionally concluded that the anticipated merger between J Sainsbury Plc and Asda Group Ltd has resulted, or may be expected to result, in an SLC within any market or markets in the UK for goods or services, a notice of possible remedies has also been published on the inquiry webpage. Interested parties are invited to comment on both of these documents.

15.   We would like to thank all those who have assisted in our inquiry so far.

Appendix B: Assessment of survey evidence

Introduction

1.   In this appendix we assess the three surveys commissioned by the CMA in the course of our inquiry. We also discuss the surveys commissioned by the Parties in connection with the Merger, provided to the CMA as part of the Parties' submissions.

In-store groceries

2.   In this section we provide an assessment of the robustness of the CMA store exit survey, which we conducted to provide evidence on the theories of harm relating to the retail supply of in-store groceries. Within this, we cover the Parties' substantive comments on this survey and our responses to these.

3.   The Parties also commissioned surveys of their own, both before our inquiry began, and in the course of the inquiry to mitigate issues they considered to be present in our survey. Our assessments of these surveys are set out in Chapter 8, but a description of the surveys and some of the differences compared to our survey are set out in this appendix.

CMA store exit survey

Overview

4.   We commissioned market research agency Kantar Public to conduct an exit survey with the Parties' customers at a sample of 100 of their Large and Medium stores (CMA store exit survey); the agency's report of the survey methodology and findings (Kantar Report), including the questionnaire used, is published on the case page alongside our provisional findings.[1]

5.   The survey was conducted in two stages. We first selected a sample of 80 of the Parties' stores that were predominantly in relatively more concentrated overlap areas, but also included a few stores to test the filters that were used to define catchments and types of overlap at the time the sample was designed and selected (**initial sample**).[2] An additional sample of 20 stores

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[1] Sainsbury's/Asda merger inquiry webpage.
[2] The filters used to identify areas for sampling were based on the filtering methodology used by the CMA (and its predecessors) in past grocery retail cases at phase 1 to filter out local areas that were unlikely to raise competition concerns. This filtering methodology relied on a fascia counting exercise, with local areas excluded from further assessment where the Merger resulted in a reduction of fascia of 5-to-4 or better within the geographic catchment of the focal store (ie a 5/10 minute-drive in urban/rural areas for Medium stores, and a

was selected and surveyed at a slightly later date and this comprised stores that were predominantly in less concentrated areas[3] and non-overlap areas, but also included a few stores where the Parties were the only two brands within that store's catchment from within the group comprising Asda, Co-op, M&S, Morrisons, Sainsbury's, Tesco and Waitrose (**additional sample**). The same questionnaire was used at all 100 stores surveyed. More details of the sample design and methodology are available in the Kantar Report.

6.   Whilst our earlier analysis used the initial sample only, these provisional findings use the full sample of 100 stores (**full sample**) as the basis of analysis, unless specified otherwise.

7.   For this survey, we considered the appropriateness of weighting results based on two distinct features. First, the survey fieldwork took place on each day of the week and at different times of the day. Kantar Public analysed data provided by the Parties on numbers of customers (till transactions) in the surveyed stores to assess the extent to which the pattern of achieved interviews at each store was in line with these flows (for example, by comparing the proportion of interviews conducted on Saturdays with the proportion of till receipts on Saturdays). Survey responses could have been weighted to bring these proportions into line (we refer to this subsequently as design-weighting). Second, as part of their interview, customers were asked how much they had just spent in the supermarket. We could, therefore, have weighted individual survey responses by the reported amount spent (we refer to this subsequently as spend-weighting).

8.   The CMA often weights respondents according to the amount they have spent; this may be considered conceptually appropriate as it gives more weight to customers who have spent more and are, therefore, considered more valuable in revenue terms to the Parties. The purpose of weighting is to reduce error of survey estimates. However, while weighting aims to reduce bias, it usually increases sampling error. As a result, an assessment needs to be made of the overall effect of any weighting.

10/15-minute drive-time in urban/rural areas for Large stores). For the purposes of the filtering exercise used to identify stores for the CMA store exit survey, the following brands were included in the fascia count: Asda, Co-op, M&S, Morrisons, Sainsbury's, Tesco and Waitrose. Each part of the sample described in this footnote included an equal number of Sainsbury's and Asda stores. In our initial sample, there were 74 stores in 3-to-2 or 4-to-3 overlap areas. Amongst the remaining six stores sampled, two were in 5-to-4 overlap areas where the Merger Party was the closest supermarket (amongst the brands listed above), two were those unique 2-to-1 overlap areas where the Merger Party was furthest away within the catchment, and two were in the unique non-overlap area where the Merger Party was the closest supermarket outside the catchment (amongst the brands listed above, and where fewer than three non-Merger Party brands were inside the catchment).
[3] ie 5-to-4 or less concentrated.

9.   Kantar Public conducted analysis of the survey results to determine whether design-weighting and/or spend-weighting was desirable. The aggregate survey results, particularly for the diversion questions, were not found to be strongly associated with the timing of the interviews (by time of day, or day of the week), nor did they vary significantly depending on whether or not they were spend-weighted.[4] This indicated that weighting has relatively little impact on estimates. Overall, this means that weighting may increase overall error (increase sampling error without materially reducing bias). The Kantar Report presents findings from the CMA store exit survey without design weights, but they generally present spend-weighted results for the diversion analysis. For the purposes of our own analysis presented here we have used unweighted data from the CMA store exit survey throughout.

The Parties' comments on the CMA store exit survey and our responses

10.   We have engaged with the Parties and invited their comments on various aspects of the CMA store exit survey, including as follows:

   (a) On our proposed survey methodology, initial sample of stores and draft questionnaire; this engagement took place in July/August 2018, ahead of the phase 2 inquiry and our decision to conduct a survey;

   (b) On our proposed additional sample of stores; this engagement also took place ahead of the start of the phase 2 inquiry, in August/September 2018;

   (c) In November 2018 the Parties were sent, alongside the earlier analysis we submitted, Kantar Public's outputs for the CMA store exit survey and associated documentation. These included the slide pack from Kantar Public's presentation to the Inquiry Group (on which their published report is closely based); the final questionnaire; survey dataset; unweighted and spend-weighted table sets; and the analysis specification. Amongst their responses, the Parties submitted comments specifically on the CMA store exit survey.

11.   The Parties made a number of representations at each of these stages of engagement. We considered all submissions received and a number of the changes that we made to our approach reflected, at least in part, the Parties' submissions. We address the Parties' comments under the broad sub-headings below, rather than by the date on which they were submitted. Where the Parties have made substantively similar points at successive stages of our

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[4] We also find the in-store grocery GUPPIs at the national level remain the same (to one decimal place) whether we use unweighted or spend-weighted diversion ratios.

engagement with them, we address the point only once, in relation to when it was most recently made.

Survey methodology – mode

12. The Parties submitted that there is a potentially significant framing bias against online diversion where the chosen approach is an exit survey of in-store customers. They said that the CMA did not accept the possibility of such a bias and did not conduct surveys using alternative modes (such as telephone or online) in order to test and control for this bias.

13. In response to these submissions, we note that:

   (a) We consider that a face-to-face store exit survey is the most appropriate mode for collecting in-store customers' next best alternatives and that our survey is not likely to have created a framing bias against the online channel. We discuss this in more detail below, in relation to the population of interest; the sampling unit; customer recall; and our questionnaire.

   (b) We are interested in the next-best alternatives for the Parties' in-store customers. The diversion questions are designed to ascertain what this would have been for the shop that a customer has just done in-store. In this way, the shopping trip is fresh in their mind and they should be able to readily recall what they have just bought in terms of the contents and size of their basket. By contrast, a survey conducted online or by telephone, even if restricted to customers who have shopped in-store in the last few weeks, does not have this advantage, and especially so for customers who shop frequently and/or use a variety of brands or channels.

   (c) We do not consider that an online survey is appropriate in this instance (even one where all the sample have recently shopped in-store and where a similar questionnaire is used). It would be likely to create its own bias towards online alternatives, as the respondent group would, by definition, all be online users.[5] By contrast, conducting an exit survey enabled us to survey a random and representative sample of the population of interest, namely in-store customers, including those who do not have access to, or do not use, the internet. Also, an online survey that is based on customer lists, as were the Parties' own surveys (discussed further below), has limited coverage as it can only survey Sainsbury's customers who hold a

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[5] In this context, we use the term 'online users' to mean that someone is online in the sense that they use the internet, whether or not they are users of the online channel for grocery shopping.

Nectar Card. We also consider that Nectar Card customers, as loyalty-card holders, may not be representative of shoppers as a whole.

(d) We also consider that a telephone survey is unlikely to have been appropriate in this case. A telephone survey based on customer lists would similarly be restricted to Sainsbury's Nectar Card customers for whom telephone numbers are held. A telephone survey that instead used a random calling methodology across UK households would, in terms of the population of interest alone, be an inefficient method of surveying a random and representative sample of customers who had recently shopped at a Sainsbury's or Asda supermarket.

(e) As discussed in more detail under the section on Online Delivered Groceries below, a store exit survey naturally samples customer visits to a store (the sampling unit of most relevance here), whereas an online or telephone survey gives an equal chance of selection to any customer, regardless of how frequently they shop at the Parties' stores.

(f) Notwithstanding the above, we designed our questionnaire to mitigate any bias that might exist against the online channel, by including questions on online shopping ahead of the questions on diversion (ie those questions asking what the respondent have done had prices at the surveyed store increased, or the store had been closed) and randomising the order of the response options at the first diversion question such that 'I would have shopped online' was the first-listed option on the show-card for 50% of respondents. In light of this, our view is that if there is any bias in terms of diversion channel, the CMA store exit survey may have actually over-stated diversion to the online channel, rather than the other way around.

Survey methodology – sample of stores

14. The Parties submitted that the focus of the CMA's sample on areas where the Parties overlap and which are relatively more concentrated was a limitation. Specifically, the Parties submitted that the fact that the initial CMA sample of 80 stores focuses almost exclusively on overlap areas and, within these, on stores in 4-to-3 and 3-to-2 overlaps as defined by the CMA's precedent fascia count methodology[6] meant that the sample ignored 35% of the Parties' stores in areas where the Merger results in a fascia reduction of 5-to-4 or greater. Further, they said that focusing on these areas can only provide information about the constraints within the 4-to-3 and 3-to-2 areas – and even then, only provided that these locations accurately reflect the true density of competition

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[6] See footnote 2 of this Appendix.

faced by the Parties. In addition, the Parties submitted that such a sample risks overstating the Parties' constraint on each other relative to their true constraint.

15.   In response to these submissions, we note that:

(a)   The extent of the Parties' estates and the number of Large and Medium stores that overlapped across the UK meant that it was not feasible to conduct a robust survey at all stores in 4-to-3 and 3-to-2 areas; in all overlap areas; or, at the extreme, at all the Parties' Large and Medium stores.[7]

(b)   The Parties raised this point when we first engaged with them on our proposed survey methodology and initial sample of 80 stores. We subsequently added an additional 20 stores to provide more variation. We have used data from the full sample of 100 stores for our analysis in our provisional findings.

(c)   One of our priorities in our overall sampling design was to achieve a sufficient sample size at each of the 100 stores surveyed that would provide robust, direct estimates of diversion at these stores; this was achieved, and exceeded, at all surveyed stores. Had we surveyed more, or indeed all, stores, this would not have been feasible within the constraints of a phase 2 merger inquiry and we would not have been able to obtain robust survey estimates of diversion at the local (store) level. We note that a survey of 100 stores is already a significant undertaking in the context of the time and resource restrictions of a phase 2 merger investigation and the sample used here is the largest the CMA has ever used in an exit survey.

(d)   While the fascia counting exercise used to select areas to be surveyed and to define overlaps as 4-to-3s, 3-to-2s etc counted for these purposes only seven brands (Asda, Co-op, M&S, Morrisons, Sainsbury's, Tesco and Waitrose) based on the CMA's precedent approach in past grocery retail cases, we note that each of the surveyed areas may additionally include stores of other brands (including, for example, Aldi, Lidl and Iceland),[8] which have been given a specific weighting in our WSS model. As such, many of the surveyed areas contain more variation when

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[7] Using the store datafile and the definitions for overlap areas that were in use at the time that stores were sampled for the CMA store exit survey, as are described elsewhere in these findings and in the Kantar Report.
[8] For example, Aldi, Lidl, or both fascia were present in the catchment for most stores in our sample.

considering the full range of competitors in the local area than their categorisation as 4-to-3 or 3-to-2 areas would suggest.[9]

(e) Notwithstanding the above, we agree with the Parties that the CMA store exit survey has primarily focused on surveying overlapping and concentrated areas. We consider that care should be taken in analysing and interpreting survey findings in such circumstances. We agree that a simple extrapolation of the survey findings across the Parties' whole estates would not be appropriate and our analysis has sought to avoid such a simplistic approach; our methodology is described in full at Chapter 8 and Appendix E.

(f) Additionally, recognising at the outset this potential limitation of our survey sample, we conducted analysis that compared in charts the frequency with which stores of each brand appear in various types of overlap (competitive through to concentrated areas) for surveyed stores relative to all stores in overlap areas.[10] We also performed diagnostic checks on our analysis, including a comparison of the weights derived from the CMA store exit survey with weights from the entry-exit analysis. These analyses are presented at Chapter 8 and in Appendix E.

(g) In summary, while recognising that our sample for the CMA store exit survey was, by design, not representative across the Parties' entire estates of Large and Medium stores and that results need to be analysed and interpreted appropriately, we consider that this is not a material limitation for our in-store analysis.

Survey methodology – sample size at store level

16. The Parties submitted that there is significant 'noise'[11] in the CMA store exit survey data which creates uncertainty as to the robustness of the results. One of the comments the Parties make in this respect is that the CMA store exit survey had a minimum of only 150 respondents at each of the stores surveyed. The Parties' new exit survey (discussed further below) targeted a minimum of 250 responses per surveyed store, which they submit allows for more robust estimates of diversions.

17. In response to these submissions, we note that:

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[9] We have also taken a different view of the treatment of Medium stores and catchment areas and this will have contributed to this effect.
[10] This analysis was conducted using the updated definitions for catchments and overlaps, as this is what is relevant for the use and interpretation of the survey findings in this report, whereas the sample was selected based on the definitions in use at the time we designed the CMA store exit survey.
[11] The Parties submission also refers to 'volatility', 'uncertainty' and 'variance'.

(a) We carefully considered the analytical needs of our inquiry when designing our survey, including the required minimum number of responses at store level. All estimates from sample surveys are subject to variance due to sampling error and, other things being equal, we agree that a bigger sample size will lead to some gain through greater precision. However, in the case of the CMA store exit survey, we consider that the minimum of 150 responses per store we specified is sufficient to provide robust results (and this was actually exceeded in all 100 stores, with the median number being just over 200).

(b) Much of the Parties' submission about 'noise' in the CMA store exit survey data relies on comparisons with results from their own new exit survey and new online survey; as discussed later in this appendix, we consider these surveys to have limitations that make the results not comparable with those from the CMA's store exit survey.

Questionnaire

18. In their most recent submission on the CMA store exit survey, the Parties suggested that the following aspects of our questionnaire could have resulted in a substantial bias of diversions downwards for brands such as Aldi and Lidl, and upwards for the so-called 'Big 4 retailers:

(a) Bias towards the Parties because of the use of an unprompted competitor/brand list. The Parties stated that this is particularly important given the amount of media coverage that the Merger received in newspapers and other media in the weeks leading up to the CMA store exit survey. They said that, in this context, it was expected that non-prompted responses were likely to simply reflect those brands that were most recently recalled, and therefore for the survey to become more of a 'brand recognition'/'brand recall' test, rather than providing a genuine insight as to which store exactly the customers would switch; and

(b) Concerns regarding the frequency with which customers shopped and the fact that the CMA store exit survey did not ask questions regarding the frequency of a customer's visits. They say that they understand the CMA store exit survey did not interview the same customer multiple times. Given the CMA store exit survey took place over a time period of up to two to three weeks, this means that customers who visited multiple times during the same period were given the identical weight as a customer who visited once. However, if one was to weight by spend, it is clear that they should get a significantly greater weight.

19. In response to these submissions, we note that:

(a) We had carefully considered, in conjunction with the experienced Kantar Public research team, the use of prompted versus unprompted brand lists when designing our questionnaire. We remain of the view that unprompted brand lists (ie seen only by the interviewer on their tablet) produced robust results in this survey and will have been no more likely, and probably less likely, to result in any bias than a prompted list. In the context of surveying supermarket customers, and using a face-to-face approach in the local area, we considered in advance that respondents would generally be readily able to name their next-best alternative without needing to see a list and Kantar Public subsequently told us that their experience during the fieldwork showed that this was indeed the case.[12] This suggests that most supermarket shoppers know what their next-best options are and would be unlikely to be influenced by media attention. In this context, the Parties' concerns about brand recognition and media attention are unlikely to be well-founded.

(b) Our methodology for the CMA store exit survey (as described in the Kantar Report) sampled, by design, customer visits to the stores in our sample. In this way, a customer who shops more frequently will have had a greater probability of selection than one who shops only infrequently. Our sampling method therefore results in a sample of customers who are already, implicitly, 'frequency-weighted'. The fact that interviewers were instructed not to interview customers more than once has almost no bearing on this; given the thousands of customers shopping at each surveyed store during the fieldwork period, the number of customers that would have been approached for interviewing more than once would have been negligible. Additionally, the Parties have not explained why they consider this aspect of our questionnaire design would contribute to a bias of diversions downwards for brands such as Aldi and Lidl.

The Parties' additional comments on our draft questionnaire

20. In addition to the Parties' comments addressed above, the Parties additionally submitted the following points:

(a) First, that the screening questions, as initially drafted, would bias the sample of customers towards those who bought large baskets, by screening out (i) customers who only bought grocery items typically associated with a small basket (such as a treat, or something to eat or drink straight way); and (ii) customers who spent less than a certain amount (at that point, undetermined). We addressed this in the final

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[12] See the Kantar Report, page 11.

survey design by dropping the requirement in (i) and setting the threshold in (ii) at £5, which mitigated the Parties' concerns (that were mainly around higher thresholds), and which our analysis of the Parties' store-level data on the distribution of customer spend indicated was an appropriate cut-off for our purposes.

(b) Second, that our proposed hypothetical 5% price increase question would be difficult for respondents to comprehend, as well as potentially causing commercial harm to the Parties (by suggesting that a price rise at their store was possible). The purpose of the 5% price rise question was to ascertain which customers would be price marginal in the event of a small increase in price and, in this context, we consider that the binary response options we used were appropriate. However, we addressed the Parties' concerns by amending the wording of the question to make it easier for customers to understand, and our own observation of interviews and feedback received from Kantar Public have not suggested that the final version of the question[13] caused any widespread cognitive problems for respondents. We also reassured customers at the end of the diversion questions that the scenarios discussed (ie store closure, website closure or a 5% price rise) were indeed hypothetical.

Summary of our assessment of the CMA store exit survey

21.   We specifically designed the CMA store exit survey with the purposes of our inquiry in mind. It was conducted to a high degree of rigour, with attention given to all aspects of the multi-stage sample design; the questionnaire structure and content; the achieved sample at store level; coding, weighting and analysis; as well as the use and interpretation of the findings.

22.   We worked closely with an experienced research team, comprising both the Kantar Public executive team and consultants they used specifically for this project, who, between them, had considerable expertise in sample and questionnaire design, weighting and merger analysis. At every stage, quality was prioritised. We put in place additional quality assurance checks with the agency; in particular, Kantar Public ensured that all the interviewers were experienced and thoroughly briefed, and that fieldwork was supervised and monitored to a level over-and-above what would normally be carried out by an agency. The CMA also conducted survey monitoring visits at a number of stores. Any quality issues that were identified by Kantar Public or ourselves were addressed quickly and remedied effectively; where needed, this included

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[13] Q24. Now imagine that, before deciding to come here today, you knew that this [Sainsbury's/Asda] store had increased its prices by 5%. This would mean that the items you have bought today would have cost you an extra £[5% OF AMOUNT FROM Q2]. Would you still have done your shopping here today or not?

re-briefing of all interviewers, or, occasionally, removing individual interviewers from the project altogether and replacing shifts/deleting interviews from the dataset.

23. We recognise that our sample for the CMA store exit survey was, by design, not representative across the Parties' entire estates of Large and Medium stores and that the results need to be analysed and interpreted appropriately. As discussed above and in the main body of these findings, we have conducted appropriate analysis and our choice of sample is not a material limitation for our in-store assessment.

24. Overall, we consider that the CMA store exit survey was carried out to a high degree of quality, is fit for our purposes and that, when analysed and interpreted appropriately, the results are robust and may be given a corresponding amount of evidential weight in our inquiry.

The Parties' surveys

Background

25. The Parties commissioned a number of surveys of their in-store customers in connection with the Merger. These included three surveys that were conducted prior to notification of the Merger to the CMA and two further surveys that were conducted after our phase 2 inquiry began, the results from which were included in their responses to our earlier analysis. All these surveys are described in the following paragraphs.

Surveys conducted pre-notification of the Merger

Sainsbury's store exit survey

26. Sainsbury's commissioned ABA Market Research (**ABA**) to conduct a face-to-face exit survey at 14 of its Large stores. Sainsbury's submitted that: 'the store list was selected from areas where the fascia density based on the old CMA methodology was '4 to 3' or '3 to 2' and where there was at least one Aldi or Lidl store within 10 or 15 minutes' drive time from the surveyed location'. Fieldwork took place between 6 and 22 July 2017 with customers who had just done their grocery shopping at the store. The survey aimed to achieve at least 150 responses at each store. It was completed by a total of 2,024 respondents.

Asda store exit survey

27.   Asda commissioned ABA to conduct a face-to-face exit survey at 13 of its Large stores in areas where Asda competes with Sainsbury's within a 15 minutes' drive time. The stores were paired with the closest Large store of Sainsbury's. There were 13 surveyed locations for Asda as one store overlapped with two of the previously surveyed Sainsbury's stores. The fieldwork ran between 2 and 12 February 2018. The survey targeted customers who had just done their grocery shopping at the store. The survey aimed to achieve over 150 responses at each store. It was completed by a total of 2,764 respondents.

Sainsbury's online survey of Nectar Card customers

28.   Sainsbury's commissioned an online survey of Nectar Card customers who shopped at the same 14 stores as had been included in their exit survey. Additionally, it expanded this online survey to include Nectar Card customers who shopped at an additional 11 Large stores with similar characteristics. The survey was issued to 97,696 customers who had shopped in one of these stores in the last two weeks. The online survey was completed by a total of 4,647 respondents. Invitations were sent to the target sample via email and responses were collected between 3 and 10 July 2017.

Surveys submitted during the course of our phase 2 inquiry

*The Parties' new store exit survey (**new exit survey**)*

29.   The Parties' new exit survey surveyed 20 Sainsbury's and 20 Asda stores that were a sub-sample of our initial sample of 80 stores for the CMA store exit survey. The Parties stated that the sample was selected randomly after applying filters to reduce noise in the data that may occur from selecting stores with very different characteristics. They selected from:

(a) areas in CMA's larger categories of 'Other UK' and 'London';

(b) stores in urban areas, as there were only a few stores in rural areas in the CMA's sample;

(c) areas where Aldi and/or Lidl are present to test the constraint from Aldi and Lidl;

(d) areas from the CMA's 4-to-3 and 3-to-2 areas based on the historic fascia count methodology; and

(e) areas that were not previously surveyed by the Parties.

30. The questionnaire was based on the one used for our survey, but with a number of modifications, including the following:[14]

    (a) use of prompted competitor brand and store lists, including brand logos;

    (b) addition of the word 'discounter' alongside supermarket as a diversion option;

    (c) asking whether the main purpose of the shopping trip was to purchase grocery products or non-grocery products;

    (d) specifying that it was just grocery shopping the customer was to think about diverting, and also when thinking about the relative spend at their next-best alternative;

    (e) adding a question on frequency of shopping;

    (f) removing the £5 minimum spend threshold for eligibility (based on the questionnaire script submitted, the Parties appear to have done this, however their submission does not mention it); and

    (g) addition of attributes of choice at the prompted choice question.

    *The Parties' new online survey (**new online survey**)*

31. The Parties' new online survey was sent to Nectar Card customers who had visited one of the 50 Sainsbury's stores contained in the CMA's store exit survey sample over the last four weeks.[15] The Parties submitted that the purpose of the new online survey was to achieve a greater number of responses, therefore providing more robust estimates on diversions. Furthermore, they submitted that the format allows for the assessment of the framing bias from which the exit surveys suffer with respect to the diversion to alternative shopping channels.

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[14] The changes were typically to wording that we had already considered carefully, in the context of the analytical needs of our inquiry, in some cases rejecting the Parties' previous submissions on our draft questionnaire where we considered them to be less suitable for our purposes. For example, we decided not to include the word 'discounter' alongside 'supermarket' in the text of the relevant response option for Q12/13 (and Q18/19), as we considered that it may have created a bias towards brands such as Aldi and Lidl being named as next-best alternatives.
[15] Dates were not stated in the Parties' submission.

Online delivered groceries

CMA Survey of Online Shoppers

Overview

32.   We commissioned the market research agency, GfK, to conduct a survey of the Parties' online shoppers (**CMA online survey)**. The survey was conducted online with emails containing a link to the survey questionnaire being sent to 250,000 of each of the Parties' customers who had shopped with them online in the week of 29 September to 5 October 2018 (the reference week). A total of 33,631 questionnaires were completed; 31,404 by customers who had ordered online for their shopping to be delivered and 2,227 by customers who had used the Parties' click and collect services. The agency's report of the survey methodology and findings (**GfK Report**), including the questionnaire used, is published on the case page alongside our provisional findings.[16]

The Parties' comments on the CMA online survey and our responses

33.   We engaged with the Parties and invited their comments on various aspects of the CMA online survey, as follows:

   (a)   We sent the Parties our proposed survey methodology and draft questionnaire in September 2018;

   (b)   In November 2018 the Parties were sent, alongside our earlier analysis, GfK's outputs for the CMA online survey. These included: the slide pack from GfK's presentation to the Inquiry Group; the final questionnaire; survey dataset; unweighted and spend-weighted table sets; and the analysis specification.

34.   We address the Parties' comments under the broad sub-headings below, rather than by the date on which they were submitted.

   Selection of a single week for the survey reference period

35.   The Parties expressed concern about the CMA's use of a single reference week. They initially cited the risk that the chosen week may not be representative compared to the full year. The Parties subsequently submitted that it was not representative because it was based on customers who

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ordered within a specific week and included a much higher proportion of heavy online shoppers than what would be expected from the Parties' ordinary course of trading.

36. We agree that the week in question was not representative of the Parties' full year of customers; it was not intended to be so. Instead, a single reference week was chosen in order that the survey would closely represent a random and representative sample of customer orders.

37. This is best explained by considering the effect of our survey design on heavy and light online shoppers and, for illustrative purposes, to think of all customers who order groceries online from, say, Asda on a weekly basis, and those customers who have only made such an order once over the past year. If we were to draw a random sample of customers who have shopped online at any time during the year, then all these customers have an equal chance of being selected. Such a sampling approach will generate a sample, as the Parties' analysis shows, in which the majority of customers are infrequent users of the Party's online delivered grocery services. Such a sample would be representative of all customers who have shopped with the Party online over the past year.

38. This was not the intended aim of the CMA online survey. Under our design, only those customers who have shopped during the survey reference week will be selected in the sample. A light (once per year) online shopper, following the same illustrative example as above, will therefore have approximately a 1 in 52 chance of being in the sample, while a heavy (weekly) shopper will always be in the sample (unless, contrary to their usual practice, they happened not to have placed an order in the survey reference week). The chance of each customer being selected in our sample is therefore closely proportional to the frequency with which each customer places orders online from the Party.

39. The statistical and analytical properties of such a sample design enable an interpretation of survey results which is aligned with the needs of our assessment of the Merger. By choosing a representative sample of customers who ordered online with the Party in a given week we have also, by design, chosen a sample that can be conceptualised in units of customer-orders; in other words, our survey is based on a representative sample of customer-orders. We can therefore use our survey results to say, for example, that 40%

of Asda online delivered grocery orders are to customers who buy all, or nearly all, their groceries online.[17]

40.   Such a statement would not be possible if we had taken a representative sample of Asda's full year set of customers, as such a sample would be dominated by the large proportion of customers who make only infrequent purchases. To draw inferences about impacts of the Merger would then require weighting customer responses to reflect their frequency of purchases or their overall spend online with the Party. In effect, what would be required would be to weight survey responses to put them on the same conceptual basis as the CMA online survey already does by design.

41.   The conceptual difference between the two types of sample described, one that is representative of customers over the period of a year regardless of frequency of shopping, and one that is representative of customer orders, translates into a profound difference to most estimates of consumer behaviour in online delivered groceries. The Parties repeatedly confound the two, submitting that the CMA online survey is inconsistent with evidence from other sources.

42.   One implication of our design is that we draw all our evidence from customers who have shopped online using the Parties' websites during a single week. It is therefore important that this week is not unusual as compared to other individual weeks. The reference week for the CMA online survey was 29 September to 5 October 2018. The main reason for choosing this week was a practical one; it minimised the time between the reference week and the start of the survey fieldwork itself. This reduces the potential for respondent recall error. However, we also made a sense check that there was nothing unusual about that particular week, as would have been the case, for example, if it had fallen within the run up to Christmas or was the Easter week. Following this we were confident that the reference week would be a typical week from which we could reliably make inferences about online shopping behaviours.

43.   As a final check, the CMA requested two years' worth of delivery order data from each of the Parties and conducted an analysis calculating, for each of the 52 weeks up to and including the reference week,[18] the distribution of shoppers by frequency of online ordering. Table 1 below shows that this distribution for the reference week was almost exactly the same as the annual

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[17] In our analysis of the survey dataset we have taken this analysis further by weighting survey responses by value of their online order (ie the most recent one at the time they filled in the survey questionnaire).
[18] The analysis requires, for each week analysed, a count of the number of times each customer in that week has shopped online in the proceeding 51 weeks. Two years of data therefore generates only 52 weeks of results.

average, with a slightly smaller proportion of 'heavy' users (those that had shopped online with the Party more than 40 times within the preceding 52 weeks).[19]

Table 1: Number of customer orders in past 52 weeks – survey reference week compared with the average for the previous 52 weeks

%

	Asda		Sainsbury's	
Number of orders in previous 52 weeks	Sampled week	Mean of previous 51 weeks	Sampled week	Mean of previous 51 weeks
Less than 20	[✂]	[✂]	[✂]	[✂]
20-39	[✂]	[✂]	[✂]	[✂]
40 or more	[✂]	[✂]	[✂]	[✂]

Source: Parties' customer order data.

44. In the responses to our earlier analysis, the Parties presented analyses of online grocery usage from a recent Mintel survey, Kantar Worldpanel Grocery data, Nielsen Panel data and Sainsbury's own sales database. These analyses have as their base customers who shop online. None of these results are necessarily wrong in themselves, nor inconsistent with each other. However, the Parties compare the results with those of the CMA online survey which, as described above, has a different conceptual basis and generates different results, and none of these analyses provide any evidence that the CMA's survey results are biased, particularly in respect of heavy users.

45. We are strongly of the view that the CMA online survey week is not biased towards heavy users.

Representativeness of survey respondents

46. There are two other analytical considerations which are, to some extent, offsetting to be taken into account for a full assessment of the representativeness of our achieved sample:

(a) The design of the sample may under-represent very heavy users because those customers who shopped online with one of the Parties more than once in the survey reference week will not have this multiple usage reflected in the results. When we analysed the two year datafiles of customer-orders provided by the Parties for the numbers in Table 1 we noticed that there were many such customers;

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[19] Our analysis showed there was little variation across different weeks of the year.

(b) Table 6 of the GfK Report shows that while response rates are broadly the same, heavy users were more likely to respond to our survey than light users.

Correctly calculated national diversion estimates show no significant concern

47. The Parties state that 'due to the CMA's skewed sample population, it is appropriate to consider reweighting them using Kantar's online grocery results'. Their subsequent analysis weights the CMA online survey results in line with the distribution of intensity of online usage from the Kantar Worldpanel Grocery data. In effect, this attempts to put the CMA online survey data on the same conceptual basis as the Kantar data, estimating what the results would have shown had our survey been representative of customers, rather than customer orders. However, as already explained, we consider that the most appropriate basis for our merger assessment is the one that is conceptually equivalent to a representative sample of customer orders.

Potential for framing bias towards online diversion

48. The Parties argue that because the CMA online survey was conducted online 'there may have been a framing bias towards online diversion and away from in-store diversion'. The Parties submit that the CMA acknowledges that framing bias is a concern in the in-store grocery working paper which explicitly disregards the evidence in the Parties' online survey because 'a survey conducted online is likely to over-represent the views of customers who are more familiar with the digital environment and online shopping tools'.

49. We do not agree with the Parties' point that our concerns about using an online survey approach to survey in-store grocery customers are inconsistent with our decision to use this approach to survey online customers. All online shoppers are familiar with the digital environment and online shopping tools, but this is not true for all in-store shoppers.

50. We were aware of the potential for framing biases when designing the survey. This survey was completed by respondents online and was about online shopping, giving rise to the possibility that online alternatives would be front of mind when considering responses to the diversion question. This could have led to an underestimate of diversion to physical stores.

51. Two safeguards were built into the questionnaire design to minimise this risk. First, four questions about shopping in in-store were included, shortly before the diversion questions. The first three of these were about types and brands of stores visited within the last three months and the fourth was about the extent to which the respondent did their grocery shopping online or in-store.

This ensured that the respondent had thought about both their online and in-store shopping ahead of the diversion questions.

52. Second, the diversion questions themselves all included 'I would have shopped at a physical store' as one of the five options. This ensured that the respondent considered this as a response.

53. Nonetheless, in considering the survey evidence, we concede the possibility of a small residual framing bias. However, when assessing survey evidence the CMA makes an assessment in the round taking account many such potential sources of small bias. For example, the diversion questions followed the format of:

> 'Now imagine that before starting your most recent shop you knew that the {Asda.com/Sainsburys.co.uk} website and app was no longer available. Thinking of all the options that were open to you, what would you have done instead?'

54. Customers who are not registered with an alternative grocery website would need to register on one to use it. Such customers, as well as those that are already registered with one or more alternative sites, but are unfamiliar with them, may need to spend additional time navigating the site to place an order. The focus of the diversion wording on a single shopping occasion may therefore have resulted in some respondents thinking it easier to go to an in-store alternative when, in practice, a persistent degradation of the Party's offering would cause them to switch to an online alternative. This may give rise to a small overestimate of diversion to in-stores.

55. Our overall view is that the potential for either bias, framing or towards in-store, is small and to the extent that they are present in the survey estimates will, at least partially, offset each other. In our view, neither should prevent us from putting weight on the survey results.

Estimation of own-brand in-store diversion

56. The Parties have criticised the price diversion question in the CMA online survey, arguing that it was ambiguously worded such that it was unclear whether the price rise related only to purchases online or whether it applied in-store. And 'given how low the own-brand in-store diversions are in the survey results, it is clear that it is a significant issue which undermines the reliability of the results'.

57. This potential issue was identified early in the questionnaire design process, before consulting with the Parties and was discussed with the agency, GfK. After careful consideration the final wording chosen was:

'Imagine that before starting your most recent shop you knew that the overall cost of shopping online at {Asda.com/Sainsburys.co.uk} had gone up by about 5%, and that prices had remained unchanged everywhere else.

This means your last online shop with {Asda.com/Sainsburys.co.uk} would have cost an extra {INSERT AMOUNT – ROUND TO NEAREST 50p}. Would you still have used {asda.com/Sainsburys.co.uk} or not?

58. The next question then asks of all those answering 'no' to the question above, what they would have done instead.

59. The Parties argue that the price rise question was ambiguously worded and consequently open to misinterpretation. The overall cost of an online shop may include a delivery element as well as the cost of the groceries and it is not clear which of these the price rise relates to. Customers may have considered all or part of it to relate to the price of groceries, and since both Parties have the same prices online as in-store, this could have been interpreted as implying a price increase in-store, making them less likely to select the Party's in-store option as their next best alternative. This could have led to diversion to own-brand in-store being underestimated.[20]

60. We agree with this point. When respondents were asked earlier in the survey which physical stores they had visited within the last three months, Asda was the most commonly cited brand among the Asda online shoppers and Sainsbury's physical stores among Sainsbury's online shoppers. There are no reasons to doubt these responses and they are inconsistent with the responses to the price diversion question which showed own-brand in-store diversion of only 1%.

61. These likely underestimates have a potential impact on two key measures from the survey: strength of the competitive constraint from in-store, and estimates of diversion ratios to the merger party. We consider each of these in turn.

62. Respondents who misinterpreted the price diversion question in the way described would not have considered the diversion option of own-brand in-store to have been attractive. Those that would otherwise have chosen this option would instead have chosen something else. The options available to them would have been either to say that they would still have made their

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[20] It should be noted that if the Merger were to lead to a deterioration of the Party's offering in its physical stores, then the 'misinterpreted' version of the question would become more valid.

purchases online at the higher price (ie they would not be revealed as being price marginal), or to choose their next best option (which may have been an alternative in-store option or another party's online option), or not to have shopped at all. To the extent that they would have chosen something other than another in-store alternative, overall diversion to in-store options will be underestimated.

63. We do, however, have an alternative measure of this constraint. The forced diversion question, which was asked of all but the price marginal customers, was not subject to the same misinterpretation. This is clear in the survey results of these 'inframarginal' customers, which show 15% diversion for Sainsbury's customers from online to Sainsbury's in-store and 10% for Asda customers to Asda in-store. For each set of customers, own-brand in-store receives more diversion than any other in-store brand. Diversion, estimated from responses to the forced diversion question, to all in-store alternatives was 34% among Sainsbury's customers and 32% among Asda customers and we consider these to be the best estimates of in-store constraints provided by our survey.

64. In estimating diversion ratios to the merging party, again we have the option of relying on the results of the inframarginal customers whose responses were not subject to the likely question misinterpretation. In our view, we would lose valuable information if we completely ignored the responses of marginal customers in the calculation of diversion ratios and doing so would also reduce sample sizes for estimates feeding into our Supply Point analysis. We therefore include the responses of marginal customers in our analysis.

Summary of our assessment of the CMA online survey

65. The CMA's Online Survey was conducted with a high degree of rigour, consistent with the CMA's published best practice and designed specifically to meet our particular needs. A very large number of the Parties' online customers responded to the survey: over 20,000 for Sainsbury's and nearly 13,000 for Asda, representing an overall response rate of 8% and 5% among the Sainsbury's and Asda customers respectively. We conclude that the survey is robust and that we can place significant weight on it, subject to the caveat that it is likely that some respondents to the price diversion question misinterpreted the question in a way that will have resulted in an underestimation of own-brand in-store diversion.

Fuel

CMA Petrol Filling Stations (PFS) Survey

Overview

66.   We commissioned a market research company, DJS Research (DJS), to conduct an exit survey of customers at 16 Asda and 16 Sainsbury's PFSs. A random sample of PFSs was drawn using the following method.

   (a) A list was drawn up of Sainsbury's and Asda PFSs that failed one of the three filters below:

   (i)   The nearest competing PFS, by drive-time, belonged to the other merging Party;

   (ii)   The Merger would result in a 4:3 or worse in fascia using a 10 minute, 20 minute, or 25 minute drive-time catchment area; or

   (iii)   The Merger would result in a 2:1 in supermarket fascia using a 10 minute, 20 minute, or 25 minute drive-time catchment area (ie the Merger would remove the only rival supermarket).

   (b) Independent stratified samples of 16 Sainsbury's and 16 Asda PFSs were drawn from this list. The stratification variables were:

   (i)   a binary variable indicating whether the PFS was in Northern Ireland;

   (ii)   a binary variable indicating whether the postcode area contained one or more than one of the Parties' PFSs; and

   (iii)   a continuous variable: the drive-time to the nearest PFS of the other merging party.

   (c) Both the Sainsbury's and the Asda lists had exactly one PFS in Northern Ireland that failed the initial filters. Both Northern Ireland PFSs were chosen with certainty, and an equal probability sample was taken of the others, to ensure geographic coverage of the UK.

   (d) After having chosen the 32 PFSs to be surveyed we checked that the samples outside Northern Ireland were reasonably representative. No problems were found. However, the Parties informed us that one of the selected Asda PFSs, Staines, had planned work that would result in the site being closed just before the start of fieldwork. So Staines was replaced by the PFS at York. Furthermore, the Parties noted that none of

the Sainsbury's standalone PFSs had been chosen, so Kiln Lane was replaced by Bebbington.

67. Face-to-face exit interviews were conducted over a three-week period at each of the 32 sampled PFSs. Each PFS was assigned between 9 and 12 six hour shifts. Shifts were scheduled to ensure mornings, afternoons, weekdays, Saturdays and Sundays were all covered. The DJS survey report, published alongside our provisional findings, contains additional detail on the approach to allocating shifts.

68. In order to minimise selection bias, interviewers were instructed to approach customers at random; they could not use their discretion on who to approach. They were also asked to record basic details of all non-responders so any non-response bias could be monitored. Tables of non-response are contained in the DJS survey report.

69. The DJS research team and supervisors conducted spot checks at 20 PFSs and the CMA also conducted five spot checks.

70. A total of 7,863 exit interviews (3,891 at Sainsbury's and 3,972 at Asda PFSs) were completed. The response rates were 38% at Sainsbury's PFSs and 49% at Asda PFSs.

71. The agency's report of the survey methodology and findings, including the questionnaire used, is published on the case page alongside our provisional findings.[21]

The Parties' comments on the CMA fuel survey

72. The Parties were invited to comment on the CMA fuel survey. They submitted a written response in September 2018 on the design of the survey, and in December 2018 on our use of the survey results.

73. The Parties considered that our sampling approach was broadly sensible but stated that when assessing the third filter (the Merger removing the only supermarket rival) the CMA had not set out which rivals it considered to be supermarket PFS, but it appeared that, for example, Waitrose and Costco had not been treated as supermarket rivals. They considered this might be appropriate for survey sampling but strongly objected to any pre-judgement that these competitors should not be treated as supermarket rivals.

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[21] Sainsbury's/Asda merger inquiry webpage.

74. The Parties stated that because the sample was chosen from PFSs that had failed the CMA's filters, the survey was not representative of their entire estate and extrapolation to the entire PFS estate was not valid. In particular, they said:

   (a) The selected sample is skewed towards areas where the nearest supermarket rival is very close.

   (b) It is also skewed towards areas where the distance between the second closest PFS and the surveyed PFS is much larger than the distance between the closest PFS and surveyed PFS.

75. Whilst the Parties agreed with some aspects of the CMA's stratification approach, they stated that its implementation resulted in an additional bias to the sample (on top of the two issues set out above). They claimed the Asda PFSs surveyed are significantly closer to the nearest Sainsbury's than is the case for the full list of Asda PFSs failing the filters.

76. They also submitted that responses to the question as to where customers would switch if the surveyed PFS were closed were unprompted, but in most cases no verbatim note of the response was taken. Rather, responses were generally selected from a list which only included rival PFS within a 10 minute drive time of the survey site. They submitted that this resulted in a very sharp drop-off in respondents naming non-supermarket PFS beyond 10 minutes in particular.

77. In addition, the Parties questioned the survey mode. They submitted that an exit survey held at the PFS could skew responses towards rivals that are geographically close to the PFS at which the survey is carried out and towards other supermarket PFSs. They submitted that an online survey would have partly overcome this issue.

Our response to the Parties' comments

78. We did not include Shell PFSs located adjacent to Waitrose supermarkets in the supermarket fascia because Waitrose are not responsible for setting their prices. Costco were not included because they are not counted as a supermarket fascia in the in-store competitive assessment and because their PFSs can only be used by Cosco members.

79. We agree with the Parties that the survey was designed to be representative of PFSs that failed the initial filters, and not their entire PFS estate. And we agree this means the sample is skewed toward areas where the nearest supermarket is close and areas where the distance between the second closest PFS and the surveyed PFS is much larger than that between the

closest PFS and the surveyed PFS. We acknowledge this may limit the reliability of inferences we draw from the survey about the Parties' wider PFS estates. We are aware of these challenges and as a result, we have not relied solely on the survey in our decision-making but have combined it with evidence from other sources, notably the PCA.

80. We do not agree with the Parties' claim that the implementation of our stratification approach introduced a further bias in the Asda results. While it is true that the Asda stores we surveyed are slightly closer to the nearest Sainsbury's than the average of the full list, this difference is consistent with randomisation. Standard statistical tests show the difference between the PFSs sampled and those not sampled is not statistically significant.

81. We do not agree with the Parties' view that the diversion questions in our survey should have been prompted.[22] Eliciting diversion information in any survey is difficult; and it is especially so in a short survey such as a fuel survey. In the CMA fuel survey the diversion question was asked in three steps.

  (a) First, we asked an unprompted diversion question seeking the respondent's next-best alternative and probed for a response. Interviewers were briefed to code responses to a precode list, if there was an unequivocal match. Otherwise, they were instructed to write down the description of the PFS given by the respondent. The precode list contained only those PFSs within 10 minutes drive-time.

  (b) Second, if the unprompted diversion question did not result in the respondent identifying a PFS, we asked whether the respondent would divert to a PFS within 10 minutes of the sampled PFS, or more than 10 minutes' drive-time away.

  (c) Finally, if the respondent answered they would divert less than 10 minutes' drive-time away, they were prompted with a showcard or map.

82. In response to the Parties' criticism that our survey led to a discontinuity in diversion ratios for non-supermarket PFSs before and after 10 minutes, we have conducted further analysis of our own survey. This is shown in Figure 1 and confirms that there is such a discontinuity. Our analysis shows that the problem arises in the responses to the first (unprompted) diversion question. We therefore conclude that, despite best efforts to brief interviewers, it is likely

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[22] Over 90% of respondents gave an answer to this question and therefore did not progress to the second question.

that some responses to the unprompted question were recorded against a PFS on the precode list when they should not have been.[23]

83. Figure 1 suggests this effect is likely to be small (and we note that this does not seem to have affected supermarket PFSs) but needs to be considered when interpreting and using the results.

84. We have allowed for this in our competitive assessment where we assume overall out-of-market diversion of 7.5%, which is higher than the 6% figure in the survey.

Figure 1: Distribution of diversion distances
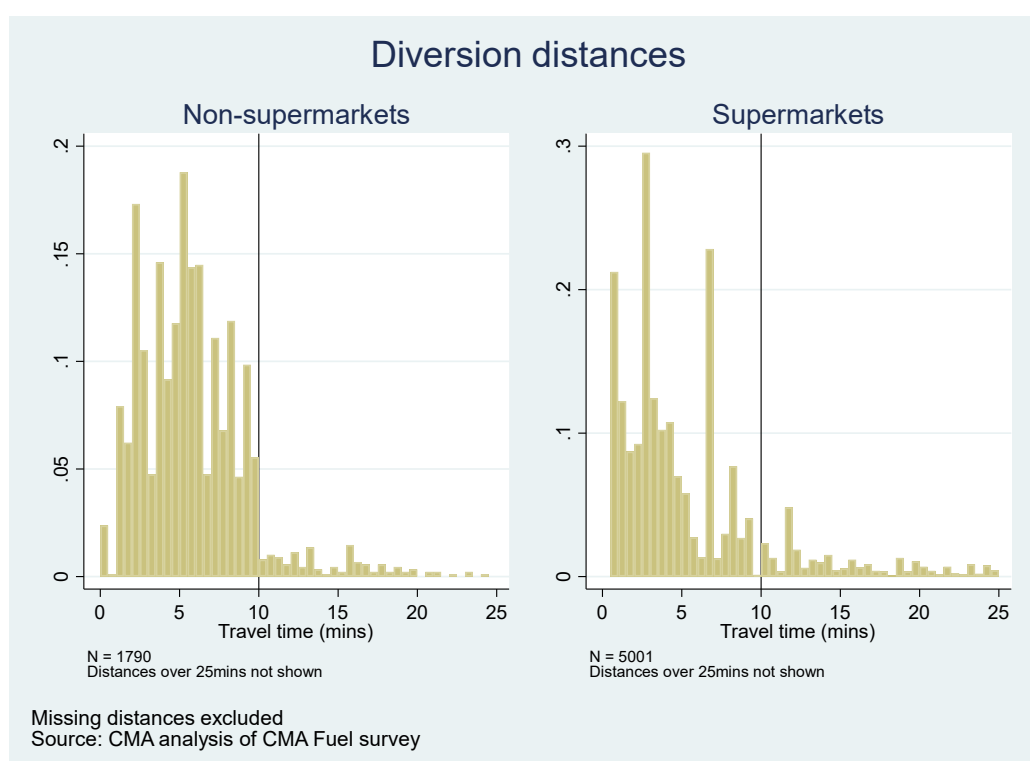
Source: CMA analysis of CMA fuel survey.

85. We have considered the Parties' suggestion on the use of an online survey. An exit survey asks questions immediately after a customer has visited the PFS. This means they should be able to accurately recall what they have just bought and how much they have spent, and, therefore, be well-placed to answer a hypothetical diversion question about their next-best alternative for the purchase just made. An online survey, conducted days or weeks after the visit, cannot replicate this. In addition, an online survey is less likely to be as representative as an exit survey, especially if restricted to Sainsbury's Nectar Card users. An exit survey naturally samples customer visits to PFSs, which

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[23] The precode list contains only those PFSs within a 10 minute drive-time radius of the surveyed PFS.

are the analytical unit of most relevance; by contrast an online survey gives an equal chance of selection to any customer in the sample, regardless of how frequently they use the Parties' PFSs. Furthermore, the response rates achieved in our exit survey are likely to be considerably higher than would have been achieved in an online survey.

Summary of our assessment of the CMA fuel survey

86. The CMA fuel survey was designed as a high-quality random probability sample. The PFSs were selected at random, and interviewers were instructed not to exercise any discretion when approaching customers thus avoiding selection bias. The survey also achieved a good response rate, which adds to our confidence in it.

87. We paid special attention to ensuring fieldwork monitoring was rigorous. The survey was piloted before it went into field, with CMA staff attending supervisor briefings and a pilot shift. We also built in a high level of monitoring once the survey went live. Researchers from the agency and CMA staff both monitored interviews.

88. We agree that some biases may have arisen. In particular, our earlier analysis may have under-estimated diversion to non-supermarket PFSs more than 10 minutes away from the surveyed PFS. We have accounted for this in our updated analysis by allowing for higher out-of-market diversion, and by not relying solely on the survey for the WSS analysis.

89. We also agree that care must be taken when using a survey of PFSs that failed the initial filters to make inferences on the Parties' wider estate and we have considered the limitations of this when weighing up all the evidence (as set out in Chapter 14).

90. Overall, we consider that the CMA fuel survey was a high-quality survey carried out to a high standard. Subject to the limitations described above, the results can be considered robust. We place significant weight on it when making inferences about the PFSs we surveyed. We place less weight on it when analysing the wider PFS estate, and have therefore combined the survey with analyses of other sources.

The Parties' surveys

Overview

91. The Parties commissioned the market research agency ABA to run three surveys ahead of the phase 2 inquiry. They shared the results of the survey

and copies of survey material such as the survey questionnaire. The three surveys were:

(a) a face-to-face exit survey of 10 Asda PFSs;

(b) a face-to-face exit survey of 10 Sainsbury's PFSs; and

(c) an online survey of Nectar customers for 20 PFSs.

92. The Parties stated that their surveys focussed on PFSs where the Parties' sites are relatively close and/or there are relatively few competitors nearby. The PFSs chosen for the face-to-face surveys were matched (ie ten pairs of PFSs were selected). However, it is not clear exactly how each pair was chosen, how the PFSs surveyed online were chosen, or how shift times were allocated for the face-to-face surveys.

93. A noticeable difference between the Parties surveys and the CMA fuel survey is the approach to asking the diversion questions. In the Parties' exit surveys respondents were first asked which fuel brand they would have switched to; this question was asked unprompted and then prompted. Once the respondent had chosen a fuel brand they were then prompted with a list or map of all of that brand's PFSs within (generally) a 25 minute drive time and asked which of these they would have been most likely to use. The CMA fuel survey attempted to probe the respondent rather than prompt them.

94. The numbers responding to each survey were good. The Sainsbury's exit survey had an average of 142 interviews per PFS; the Asda exit survey had an average of 222 interviews per PFS; and the Sainsbury's online survey averaged 269 interviews per PFS.

Summary of our views on the Parties' survey evidence

95. We have some concerns with the quality of the Parties' surveys:

(a) We were not provided with any evidence that PFSs were chosen at random to survey.

(b) The interviewer instructions for the Parties' fuel surveys did not provide sufficient assurance that the interviewers across the surveyed sites recruited respondents in a consistent and random way.

(c) The Parties provided little evidence to assure us of the quality of the fieldwork conducted for this survey. The Parties stated that spot-checking of interviewers occurs at six-monthly intervals and that one interviewer

was spot-checked in this survey.[24] Back-checking of responses also takes place only when data look 'suspicious', and we understand no responses were back-checked in these surveys. This contrasts with the extensive briefing and monitoring of interviewers in the CMA fuel survey. We were not able to monitor the Parties' survey quality directly, but the information provided by the Parties suggests their fieldwork monitoring was of a lower standard than we would expect.

(d) There was an error in the routing of the questions in the Asda PFS exit survey. In response to a question about an inconsistency in the survey data with the questionnaire, the Parties explained that for the Asda PFS exit survey many respondents were incorrectly routed through the survey and asked a question that they should not have been asked. (In their response to the fuel working paper the Parties submitted that the working paper did not explain why this error would have done anything other than bias respondents towards selecting a supermarket PFS, and this would be conservative for the merger assessment. We agree that it is not clear what the effects of this error will be, and we do not know if it will advantage or disadvantage the Parties, but we believe the error will result in some bias in the results.

(e) The Sainsbury's PFS online survey is a survey of Nectar customers only. These customers are unlikely to be a representative sample of all users of Sainsbury's PFSs.

(f) We do not agree with the Parties' assertion that an online survey would be more accurate than a face-to-face survey. The Parties report that their online survey gave different diversion results than their face-to-face survey, but they do not provide any convincing evidence that it is less biased.

96. Because of the limitations we have identified with the Parties' surveys, and given our own survey, which we believe to be robust, we have decided not to use the results of the Parties' surveys for the purpose of our local competitive assessment.

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[24] The Parties submission noted: 'Specifically in relation to the fuel survey a spot check/accompaniment was conducted by the area supervisor in Sainsbury's Petrol Station: RHYL for Job No. SPET2.E038 completed on 10 April 2018' and 'ABA also conducts mystery spot checks on all its interviewers at random on a six-monthly basis across all projects'.

Appendix C: In-store groceries: Econometric entry and exit analysis

1.   We conduct a Performance Concentration Analysis (PCA) to test how stores' revenue responds to the entry and exit of competing stores within their local area. In doing so, we generate quantitative evidence around the relevant geographic market and the relative strength of stores belonging to different categories of brand and size. In this section we discuss our econometric methodology and its strengths and weaknesses.

2.   We received weekly revenue data from the Parties for each store covering 2014–2017. The use of revenue is to identify which competitors provide a competitive constraint on the store of interest, and over what distances: if a new entrant reduces the revenues of the incumbent, then a significant share of customers are likely to view them as substitutes.

Data

3.   We received a dataset from the Parties. The dataset provided by the Parties covers the 2014–2017 and has the following information:

   (a) The weekly value of grocery sales at each of the Sainsbury's and Asda's Large and Medium stores.[1] We decided to use data on four weekly level to smooth out some of the random variation that occurs week-to-week;

   (b) The location, store size, opening date and closure date (if applicable) of competitors' Large and Medium grocery stores;[2] and

   (c) The drive-time distance between each competitor and the Parties' stores for all competing stores within 40 miles from each of the Parties' stores.

4.   Data on (b) and (c) are used to calculate the number of competitors' stores by fascia (including own fascia) in the local area for each of the Sainsbury's and Asda's stores and time period. When counting competitors, we considered a 15 minute drive-time catchment area for both Large and Medium stores.

Econometric model

5.   Our econometric model provides evidence on how stores' revenues respond to the entry and exit of competing stores within their local area. This is done

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[1] The Sainsbury's data ends in early-December 2017, while Asda's data covers the whole of December 2017.
[2] This information is based on Parties' internal databases of competitors' stores in the UK. The Parties [✂].

through a fixed effects specification, which controls for all factors that do not change over time. More specifically, our specification captures the relationship between changes in the monthly revenue generated at each Asda/Sainsbury's store and the variation (due to entry and exit) in the number of stores for each fascia-size type within each distance band over time.[3] We estimate the following reduced form regression:

$$\log(R_{it}) = \sum_s \sum_d \beta_{sd} N_{sd,it} + \delta_i + \delta_t + \varepsilon_{it}$$

6.   Where R_{it} is the revenue for Asda/Sainsbury's store i in month t; $N_{sd,it}$ is the number of stores of fascia and size combination s within distance band d of store i in month t; δ_i and δ_t are store and month fixed effects respectively; and ε_{it} is the error term.[4]

7.   In Chapter 8, we provided our provisional conclusion on the level of disaggregation of WSS weightings by store size and brand. We applied the same level of disaggregation by store size and brand to the entry/exit analysis.[5]

8.   In the Parties' dataset, distance is measured in minutes of drive time, which is consistent with our analysis of local markets for groceries. We count the number of competing stores within 3 distance bands based on drive-time: 0–5 minutes, 5–10 minutes and 10–15 minutes.

9.   For each fascia-size type and each distance band, the model estimates an effect which approximates the average percentage change in the revenue at an Asda/Sainsbury's store following entry or exit of a competing store. If a coefficient is negative and significantly different from zero, it means that revenue decreases (increases) following the entry (exit) of a competing store of the relevant fascia within the relevant distance band. The model therefore treats entry and exit as symmetric but opposite events.

Strengths and limitations

10.   The principal concern in a PCA is that the extent of local competition is driven by factors such as local costs and characteristics of demand (such as differences in affluence) also affect store performance. This would bias the

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[3] The variation with respect to the average number of stores of each fascia-size type within each distance band.
[4] We estimate the equation for Asda and Sainsbury's separately. We agree with the Parties' response to our 'Entry and expansion working paper'.
[5] We estimate a coefficient for each fascia-size in the data, except for grouping Co-op and Iceland into an 'Other' category. In response to our 'Entry and expansion working paper', the Parties suggested an approach like the one adopted in this appendix.

results, as we would wrongly be conflating the impact of such factors on performance with that of local competition. Whether this bias causes the model to under- or over-estimate the impact of competition depends on how these omitted factors affect store performance.[6]

11. The fixed effects regression helps to address this concern by accounting for store-specific and area-specific factors that do not vary over time: the model tests how a given store's performance responds to entry and exit over time.

12. Our econometric model also accounts for effects that change over time and are common to all stores. For example, it accounts for the Christmas or Easter periods that increase revenue at all stores.

13. Even so, it is possible that there are local factors that vary over time that are correlated with both local competition and revenue. Again, this would bias the results. There are a number of plausible scenarios in which this could occur:

    (a) Increases in local demand are likely to attract new entrants and increase the revenue at stores. This would cause a positive bias in the results, because entry would be wrongly associated with increases in revenue. We would therefore underestimate the effect of competition on revenue.

    (b) Incumbent stores might react to entry with short-term promotional or advertising activity. This would reduce the effect of the entry on revenue, again causing us to underestimate the true importance of local competition.[7]

14. It is therefore likely that our regression coefficients suffer from a positive bias. Negative coefficients may be underestimated in absolute terms, potentially becoming insignificantly different from zero and (in extreme cases) even turning positive. Therefore, although we can only interpret and give weight to the statistically significant negative coefficients, we cannot have confidence in non-significant or significantly positive results.

15. More generally, the interpretation of a non-significant result is that our estimation is not precise enough to capture a statistically significant effect. That is, non-significance in statistical terms is a lack of evidence, rather than being evidence of a lack of effect. Non-significance could be due to the following reasons:

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[6] For example, not accounting for income may result in an upwards bias. Specifically, an area with higher income may have more shops but also shops have higher revenues due to higher spending. This introduces a positive relationship between revenue and the number of stores in an area, which confounds the competition effect.
[7] Similarly, weakening local demand conditions may result in a higher likelihood of exit and a decline in revenue. Therefore, our results may be upwards biased, ie we are underestimating the coefficient on the number of firms.

(a) New entrants genuinely do not compete with the Parties, and so there is no evidence to be found.

(b) The model is unable to detect any effect of entry and exit due to a small number of these events over the period. In this case any effect of entry or exit is dwarfed by other variation in the dataset, leading to imprecise results.

16.   We note that there are in fact a reasonable number of entry and exit events across facia over the period considered. However, for some facia we note that there are relatively few entry and exit events. As the identification of the entry/exit effects on revenue relies on variation in the number of competing stores over time, we are concerned that, for some facia, we do not observe a sufficient number of event to reliably estimate the coefficient. In our interpretation of the results we therefore place less weight on coefficients that have a low number of entry/exit events.[8]

Results

17.   Table 1 presents the results of the model, estimated separately for Sainsbury's and Asda. The dependent variable is in logarithms, so the coefficients in the table (multiplied by 100) approximate the percentage change in revenue resulting from the entry or exit of a competing store.

18.   Overall the results suggest that:

(a) The impact of entry/exit on a store's revenues overall decays with distance. For example, the estimated coefficients on a large Tesco in the specification for Asda stores decrease with the distance bins. The impact within 0–5 minutes is -0.08 compared to -0.02 within 5–10 minutes. However, we note that not all coefficients are statistically significant. We interpret this as indicative evidence of a weakening competitive constraint with distance.

(b) Aldi and Lidl have a statistically significant impact on revenues within 0–5 minutes, albeit at a 10% confidence level for Lidl. In addition, Lidl has a statistically significant impact at 10–15 minutes. Overall, we take this as evidence that Aldi and Lidl pose some competitive constraint on the parties.

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[8] Note that our survey weightings were only complemented with entry-exit if coefficient was significant. In other words, we did not complement survey weights with entry-exit if it had a high number of observations, but it was insignificant.

(c) The impact of large stores is, broadly speaking, is stronger compared to the constraint from medium stores. We therefore interpret this as supporting evidence that large stores have a stronger impact compared to medium stores.

(d) Some of the estimated coefficients are unexpectedly positive. This might be because we are not fully able to account for confounding factors at the local level, specifically factors that change over time (see paragraph 13 for a detailed discussion). We expect that those factors are likely to bias our estimates upwards as discussed in paragraph 14.

Table 1: Entry/Exit effects

[✂]

Source: CMA analysis of the Parties' data.
Note: We report Standard Errors in parenthesis. All Standard Errors are clustered at the store level. The dependent variable is (log) revenue.

Weightings

19. In Chapter 8, paragraphs 8.142 to 8.143, we described our approach to calculating relative weights for each brand-size-distance category using the entry-exit analysis, and discussed key results associated with these weights. We present these weights in Table 2 and Table 3 below.

Table 2: Entry-exit analysis, weights relative to Large Tesco within 5 minutes' drive, Asda centroids

Centroid fascia	Competitor fascia	Competitor size	Drive-time distance in minutes	Relative weights	Parameter significance level
Asda	Tesco	Large	0-5	100	***
Asda	Tesco	Large	5-10	27	**
Asda	Tesco	Large	10-15	16	*
Asda	Tesco	Medium	0-5	52	
Asda	Tesco	Medium	5-10	25	
Asda	Tesco	Medium	10-15	13	
Asda	Morrisons	Large	0-5	12	
Asda	Morrisons	Large	5-10	12	
Asda	Morrisons	Large	10-15	5	
Asda	Sainsbury's	Large	0-5	72	***
Asda	Sainsbury's	Large	5-10	38	***
Asda	Sainsbury's	Large	10-15	6	
Asda	Sainsbury's	Medium	0-5	32	
Asda	Sainsbury's	Medium	5-10	27	**
Asda	Sainsbury's	Medium	10-15	10	
Asda	Waitrose	Large	0-5	64	***
Asda	Waitrose	Large	5-10	9	
Asda	Waitrose	Large	10-15	-5	
Asda	Aldi	Medium	0-5	34	***
Asda	Aldi	Medium	5-10	6	
Asda	Aldi	Medium	10-15	3	
Asda	Lidl	Medium	0-5	17	*
Asda	Lidl	Medium	5-10	-12	
Asda	Lidl	Medium	10-15	8	**
Asda	M&S	Medium	0-5	15	*
Asda	M&S	Medium	5-10	11	
Asda	M&S	Medium	10-15	1	
Asda	Co-Op & Iceland	Medium	0-5	20	***
Asda	Co-Op & Iceland	Medium	5-10	3	
Asda	Co-Op & Iceland	Medium	10-15	5	*

Source: CMA analysis using Parties' data.

Note: *, ** and *** means statistically significant at the 90%, 95% and 99% level respectively.

When there are no asterisks next to the relative weights in Table 1, it means that the estimated parameter for a given competitor within a given distance bin is not statistically significant. Relatedly, negative relative weights are implausible and hence, meaningless. We interpret both these cases as lack of evidence and, therefore, we do not attach any value to the respective relative weights for the purpose of the local analysis.

Table 3: Entry-exit analysis, weights relative to Large Tesco within 5 minutes' drive, Sainsbury's centroids

Centroid fascia	Competitor fascia	Competitor size	Drive-time distance in minutes	Relative weights	Parameter significance level
Sainsbury's	Tesco	Large	0-5	100	*
Sainsbury's	Tesco	Large	5-10	28	
Sainsbury's	Tesco	Large	10-15	1	
Sainsbury's	Tesco	Medium	0-5	63	**
Sainsbury's	Tesco	Medium	5-10	22	
Sainsbury's	Tesco	Medium	10-15	20	***
Sainsbury's	Morrisons	Large	0-5	62	***
Sainsbury's	Morrisons	Large	5-10	3	
Sainsbury's	Morrisons	Large	10-15	0	
Sainsbury's	Asda	Large	0-5	87	***
Sainsbury's	Asda	Large	5-10	9	
Sainsbury's	Asda	Large	10-15	4	
Sainsbury's	Asda	Medium	0-5	83	***
Sainsbury's	Asda	Medium	5-10	2	
Sainsbury's	Asda	Medium	10-15	-12	
Sainsbury's	Waitrose	Large	0-5	61	***
Sainsbury's	Waitrose	Large	5-10	25	
Sainsbury's	Waitrose	Large	10-15	-2	
Sainsbury's	Aldi	Medium	0-5	41	***
Sainsbury's	Aldi	Medium	5-10	8	
Sainsbury's	Aldi	Medium	10-15	-9	*
Sainsbury's	Lidl	Medium	0-5	31	***
Sainsbury's	Lidl	Medium	5-10	-3	
Sainsbury's	Lidl	Medium	10-15	3	
Sainsbury's	M&S	Medium	0-5	-5	
Sainsbury's	M&S	Medium	5-10	-2	
Sainsbury's	M&S	Medium	10-15	8	
Sainsbury's	Co-Op & Iceland	Medium	0-5	13	*
Sainsbury's	Co-Op & Iceland	Medium	5-10	6	
Sainsbury's	Co-Op & Iceland	Medium	10-15	1	

Source: CMA analysis using Parties' data.
Note: *, ** and *** means statistically significant at the 90%, 95% and 99% level respectively.
When there are no asterisks next to the relative weights in Table 1, it means that the estimated parameter for a given competitor within a given distance bin is not statistically significant. Relatedly, negative relative weights are implausible and hence, meaningless. We interpret both these cases as lack of evidence and, therefore, we do not attach any value to the respective relative weights for the purpose of the local analysis.

Parties' views

20.   In response to our working paper, the Parties commented on our approach. We summarise some of their comments and provide a response below.

First Difference estimation

21.   The Parties suggested and carried out a First Difference (FD) estimation as an alternative but related approach. The Parties point out that, when using FD, the estimated effects are broadly lower, but this is not unexpected since the first difference model only captures the effects of entry/exit in the month that the entry/exit occurred, and it is likely these effects are actually spread out over a number of months.

22.   FD and Fixed Effect (FE) estimation should give similar results. When using an FD approach, the past value of each variable is subtracted from the current

value of the variable.[9] Based on our analysis, this approach results in a large number of zeros in the change of the number of stores as entry/exit events are infrequent. This might result in low identification power of the FD estimator. In contrast, the FE estimator uses deviations from the mean number of stores for identification of the competition effect. The latter approach reduces the number of zeros considerably and allows for higher variation in the (demeaned) number of entry/exit events that is exploited to identify the competition effect on revenues. For this reason, we think that the FE estimator provides more reliable results compared to the FD estimator.[10]

Bias towards smaller catchments

23.   The Parties argued that the results of the entry/exit analysis are biased towards smaller catchment areas for the following reasons:

   (a) The entry/exit effects of stores typically tend to decline with the distance from Parties' affected stores, and, as it is normally hard to precisely estimate smaller effects, they are less likely to be statistically significant.

   (b) Entry/exits may be largely occurring in areas that already contain a large number of rival grocery stores and hence areas where there is already a higher level of competition.

24.   Our view is that:

   (a) As we discuss in paragraph 13, we consider there is the potential for an upward bias in our estimates and we have taken this into account in our decision-making.

   (b) Entry/exit should be responding to a change in profitable conditions in a local market. It is not clear whether a market with a high or low number of existing firms is a good predictor of entry/exit. For example, consider an isolated market with low demand, and thus a low number of stores. If this market experiences an increase in income, then this may trigger entry into the market. We therefore do not consider the number of existing competitors in a market as a good approximation for the entry/exit effect, introducing bias in our estimates.

25.   We therefore did not consider that the arguments of the Parties described above suggested it was necessary for us to change our approach. As we acknowledge in paragraph 14, we also expect a positive bias in our estimates,

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[9] The past value is called a lagged variable.
[10] Note that both estimators are subject to the biases mentioned in paragraph 13.

which we take into account when interpreting the results of the entry/exit analysis.

Appendix D: Kantar Worldpanel switching

Introduction

1. This appendix describes Kantar Worldpanel (Kantar) switching data (referred to in Chapters 7, 8, 10 and 11) and discusses how it has been used in our assessment.

Kantar dataset

2. Kantar provides data on switching by customers between retailers. This information is gathered from a panel of 30,000 households who scan in the barcode of all the grocery products they purchase.[1] As the same households are tracked over time, this allows Kantar to establish whether households are shifting some grocery spend from one retailer to another, as well as whether they are increasing or decreasing their spend in total.

3. [✀]

4. In general, Kantar splits changes in spend into four categories, of which 'switching' shows the monetary value of all switching between any two sets of retailers between two points in time:[2]

    (a) Switching: the spend gained or lost from shoppers directly substituting spend in one retailer for another over two time periods.

    (b) Held Shoppers (existing shoppers): the spend gained or lost from shoppers who bought from a particular retailer in both time periods but increased/reduced the amount they spent (ie spend gained, but not at another retailer's expense).

    (c) Shoppers Won/Lost (shoppers added to/dropped from the repertoire): the spend gained or lost from shoppers who either added or dropped the retailer from their repertoire (ie the money won/lost from shoppers who are not switching that spend from/to elsewhere).

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[1] And take home (it does not pick up groceries that are consumed before the respondent gets home).
[2] Switching is the direct substitution of spend from one retailer to another, measured in value. It is possible for a customer to switch some spend from one retailer to another, rather than switching entirely from one retailer to another. For instance, if a customer used to buy milk, eggs and bread at Tesco, but now bought only eggs and bread at Tesco, and yet bought milk from Sainsbury's there would be a reported switching gain to Sainsbury's (the value of the milk). If instead the customer just bought less milk at Tesco but did not replace this lower quantity elsewhere this would not be recorded as switching, but instead recorded in the Kantar data as 'shoppers held'. Equally if a customer stopped purchasing milk, eggs and bread completely, then this is also not recorded as a switch, but instead recorded in the Kantar data as 'shoppers lost'.

(d) Category Arrivals/Departures (new/lost shoppers): the spend gained from shoppers who did not shop at any retailer before (this is a redundant category in groceries).

5.   Kantar also allows for splitting switching numbers by certain subgroups, such as basket size, shopping mission, branded goods and product category.

6.   Kantar produces both annual switching reports and four weekly switching reports. The latter are based on 12 week trended data. Below we use the annual data, but we have also looked at the four weekly data to check whether there are temporary periods where the results are substantially different. While there are some small differences, the data does not suggest there were periods where the level of switching varied greatly.

Benefits of using Kantar switching ratios

7.   We consider using switching data has some strengths as a means of assessing closeness of competition.

(a) It is based on real observed behaviour of consumers (ie 'revealed preference'), rather than based on what customers say they would do in a hypothetical scenario (ie 'stated preference', as in, for example, survey diversion).

(b) We know that retailers use Kantar (or similar data from Nielsen) on switching to measure who they win and lose sales from, and this is therefore a generally accepted source of data for this purpose, and something the Parties use in their businesses when considering competitive conditions.

(c) The sample size at the national level is large such that we consider the switching estimates to be robust.

Limitations of Kantar switching ratios

8.   There are some limitations in using switching data to assess diversion and closeness of competition, both of which are important areas of focus for the CMA in assessing the likely effect of the proposed merger on competition and shoppers. These are discussed below.

The difference between switching and diversion

9. For the reasons described above, the Kantar data provides a good measure of switching ratios. However, for assessing closeness of competition we have considered whether these switching ratios are a good proxy for **diversion**.[3]

10. The basic premise for using switching as a proxy for diversion is that a certain level of past switching between two retailers would inform us of (proportionately) how much diversion would be likely to take place between two retailers following a change in PQRS at one.

11. Generally, switching data is most useful for estimating diversion when it can be associated with a specific change in PQRS, ie when it shows how many customers or sales switched from one retailer to another when one retailer changed an element of PQRS. This is because otherwise some of the observed switching may be caused by other factors, which do not relate to competition for marginal customers. In that case the switching data could give a misleading picture as to the diversion we could expect in response to a small change in PQRS, and hence ultimately a misleading picture as to the closeness of competition between different retailers.

Changes in circumstances vs diversion

12. We have a particular concern that some switching could be driven by step changes in the circumstances of the respondent (for instance, they have sold their car), and not be related to changes in the competitive offerings of retailers.

13. While this could affect all switching data to some extent, we consider this particularly pertinent when considering switching between channels. This is because the likelihood of switching being driven by changes in circumstances is lower when comparing switching within a channel (eg online), than across channels (eg from online to in-store), because there may be specific reasons why customers choose to shop online or in-store. For example, they may no longer be available at home for deliveries or they may have sold their car and can no longer easily get to a supermarket.

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[3] The diversion ratio from Store A to Store B is the proportion of customers that would switch to Store B in response to a worsening of Store A's competitive offering, as a proportion of all customers that would switch away from Store A. In other words, if Store A raises its price and 100 customers switch away from Store A and, of those 100 customers, 20 choose Store B, the diversion ratio from Store A to Store B would be 20%.

14. The Kantar data does not allow us to understand whether customers switched shopping missions between online and in-store for these reasons or in response to changes in the offers of different retailers.

15. This is important because we are trying to assess the merger-specific effect on competition, not whether there are certain general trends or changes in behaviour taking place. We therefore consider that little weight should be placed on Kantar switching data if it is being used to understand the constraint between channels.

Parties' views

16. The Parties argue that the CMA should use the Kantar switching data as relevant evidence for market definition in relation to online groceries, in particular showing the constraint on grocery sales made online from grocery sales made in-store. The Parties state that in suggesting that switching due to changes in circumstances makes this evidence unreliable, the CMA makes the assumption that customers migrate from in-store spending to online spending, but never switch back to in-store. The Parties claim this fundamentally misunderstands the way that customers shop – demonstrated by the fact that online customers do shop across both channels.

Our assessment

17. We fully expect that some customers **switch** back and forth between online and in-store channels; we do not make the assumption that customers only move in one direction. We do not believe that the Parties' argument addresses our concern regarding changes of circumstances. Our concern is that some switching is not related to competition. So, while some switching is a result of marginal changes in the competitor offers, some switching will also be due to changes in circumstances, and we are not able to distinguish these differences using the Kantar data.

Adjustment needed for switching losses to discounters

18. Some switching between retailers reported by Kantar may in fact be **migration**. For instance, a preferred retailer may enter an area and a customer may choose to move to that preferred retailer. If customers switch for such a reason, they may be unlikely to switch back, even if the 'losing' retailer slightly improved its PQRS. Some of these customers would be infra-marginal customers for the newly entering retailer; they would see the new store as significantly preferable to the existing retailers in the area. But in that case, a repeat of this kind of migration is unlikely to result if there was a small

change in PQRS in future and is less likely to influence a retailer's choice of PQRS in the short run.

19.   It is likely that some proportion of the switching recorded by Kantar is attributable to marginal customers reacting to slight changes in PQRS. However, we do not know what this proportion is. This is important because we are trying to assess the merger-specific effect on competition, not whether there are certain general trends or changes in behaviour taking place. We therefore consider that caution should be used when interpreting switching in the context of significant new store openings.

New discounter openings

20.   The issue outlined above is relevant in this case, as we note that Aldi and Lidl are growing quickly through new store openings. Further, we have received some evidence (discussed in the paragraphs which follow) which suggests that these store openings may account for a significant proportion of switching to these brands. Specifically, Aldi and Lidl opening stores in an area may result in an initial migration of customers, but further small changes in PQRS by either retailer (which would be more likely to pick up marginal customers) may have much less impact. That is, this type of switching may be less 'influenceable' by the incumbent retailers.

21.   This is supported by a Sainsbury's internal document which includes analysis which attempts to quantify the extent of switching driven by store openings versus switching on a 'like-for-like' basis.[4]

22.   In summary, Sainsbury's methodology was to:

   (a) [✂];

   (b) [✂];[5] and

   (c) [✂].

23.   The data used by Sainsbury's covers a period of just over two years, from P1 2014/15 to P3 2016/17. This analysis finds that [✂].

24.   We note that other grocery retailers may similarly distinguish between growth due to new store openings and like-for-like growth when considering the growth of Aldi and Lidl. In particular, one Tesco internal document we have reviewed observed that (i) switching to the discounters is heavily driven by

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[4] [✂].
[5] [✂].

new store openings and (ii) Tesco perceived these customer losses as less 'influenceable' (ie possible to respond to) than switching to the other 'Big 4'. As a result, Tesco focused its price investment on specific product categories, reflecting where switching to the 'Big 4' was more significant.

25. There may be other ways in which switching ratios misrepresent closeness of competition between retailers. However, the above evidence indicates that the effect of store openings by the discounters is a specific issue which retailers recognise and try to take account of.[6]

Methodology on disaggregating new store growth from like for like sales growth for Aldi and Lidl

26. In paragraphs 21 to 23 we discuss that Sainsbury's has [✂]:

    (a) [✂]

    (b) [✂]

    (c) [✂]

27. Sainsbury's analysis allowed us to create an estimate of how much growth can be attributed to like-for-like sales by taking an average of Sainsbury's calculation over a two-year period. This suggested that Aldi's like-for-like growth as a proportion of all Aldi growth was [✂]%, while for Lidl this was [✂]%. The total value of sales reported as losses to each of the Parties in the Kantar data was then multiplied by [✂] for Aldi and [✂] for Lidl when creating the adjusted switching loss ratios.

Parties' views

28. The Parties argued that our adjustment to the Kantar switching data to disaggregate new store growth of Aldi and Lidl from the like-for-like growth (described below) under-represents the importance of the constraint that the discounters represent to the merging Parties because the CMA had not correctly applied the new store opening adjustment to Aldi and Lidl. The Parties argued that the CMA should make two amendments to the Aldi and Lidl adjustments to correct this.

29. Firstly, the Parties argue that the adjustment to switching losses strips out all losses to new stores, which assumes new stores will not place any on-going constraint on the Parties. Although some switching to new stores may be

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[6] The rate of store openings by other grocery retailers (including the merging Parties) is considerably lower than for Aldi and Lidl.

migration/non-marginal customers, some will also be marginal customers. Therefore, new stores should be given at least the same strength of constraint as existing stores.

30. Secondly, the Sainsbury's internal document, which sought to distinguish between like-for-like growth and new store growth, is based on the increase in total sales between two points measured in net gains minus losses over that time period. Therefore, the Parties argue these net figures cannot be used to directly adjust the gross losses figures to Aldi and Lidl, but instead adjustments to Aldi and Lidl's data (which are based on the Sainsbury's internal document) should be made directly to net switching, and worked through to gross losses, rather than applied directly to gross losses.

31. The Parties further argue, prior to making their amendments to the CMA adjustments, that the constraint from Aldi and Lidl implied by the adjusted switching is inconsistent with other evidence including the CMA store exit survey and internal documents.

Our assessment

32. The CMA has applied both of the amendments suggested by the Parties.

33. We do not agree with the Parties that excluding new store switching suggests these stores have no on-going constraint, for the simple reason that those new stores will not be new the following year. However, we do agree that at least some switching to new stores will be as a result of diversion rather than migration. Therefore, as the Parties suggest, we are provisionally minded to include some switching to new stores.

34. For Aldi, this has been calculated by taking the adjusted net switching and dividing by the number of existing Aldi stores in that year to work out net switching per store, and then taking this per store figure and multiplying by the number of new stores that were opened in that year. The new store figures are then added to the existing store figures to work out the net switching total.[7] The process is the same for Lidl.

35. We also agree with the Parties that the switching adjustment should be made to the net switching figure, and worked through to gross losses, rather than applied directly to losses.

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[7] Note, the Parties suggested this new store adjustment be made on gross switching losses. However, we have applied this to net switching for the same reasons as the Parties give for applying the like-for-like adjustment to net switching rather than gross switching losses (see paragraph 40).

36. Using Aldi as an example, we have therefore taken net switching to Aldi and multiplied this by [✂]%. Then this new adjusted net switching figure has been used to calculate the adjusted gross losses to discounters by simply subtracting the adjusted net switching from unadjusted gross gains.

37. Overall these two amendments have a very modest effect on the results.

Net switching versus losses and gains

38. There are three ways to calculate switching ratios:

    (a) using switching losses;

    (b) using switching gains; and

    (c) using net switching.

39. Kantar switching data records switching gains and losses as well as the net switching position.

Parties' views

40. The Parties argue that the CMA should consider net switching in addition to switching losses and that the Parties' net switching is greatest to Aldi, Lidl and Tesco (with the discounters resulting in consistent losses, and Tesco fluctuating between losses and gains).[8]

Our assessment

41. In general, net switching may mask the amount of competitive interaction between two retailers. For instance, zero net switching may be a result of two retailers competing fiercely for customers, or not competing at all.

42. Our view is that switching losses most closely proxy for diversion and are the most informative about closeness of competition (given that our primary interest is in the proportion of customers that would divert to the other merging party in response to a small relative change in PQRS).

43. However, as discussed earlier, the Parties' losses are influenced by store openings by other retailers. The Parties' switching gains are less influenced

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[8] After this the Parties' net switching between each other is similar to Morrisons, and more than to any other retailer.

by store openings given that the Parties have opened relatively few stores recently.

44.   As described above, we have calculated switching ratios using data on switching losses but making an adjustment for new store openings by Aldi and Lidl. We have also sense checked the results using switching **gains**. For instance, there is a large difference between losses to and gains from Aldi and Lidl by the Parties. This would be consistent with a significant proportion of losses being driven by store openings – if that is the case, we would expect that the adjustment for new store openings would make the different switching ratios more consistent.

Results

In-store groceries

45.   This section presents Kantar switching losses from each merging Party including the adjustment to include only like-for-like sales for Aldi and Lidl (with the amendments suggested by the Parties).

46.   The results from Figures 1 and 2 below are discussed in Chapter 8.

Figure 1: Adjusted switching losses from Asda, by year

[✂]

Source: CMA analysis of Kantar 52 week switching 2015, 2016, 2017, 2018 (provided by Asda).

Figure 2: Adjusted switching losses from Sainsbury's, by year

[✂]

Source: CMA analysis of Kantar 52 week switching 2015, 2016, 2017, 2018 (provided by Asda).

Using switching gains as a check

47.   Figures 3 and 4 below show the spend gained from customers switching from each retailer as a proportion of all spend gained through switching.[9] The key findings are:

  (a) Overall, the results follow a similar pattern to Figures 1 and 2 on adjusted like-for-like switching losses.

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[9] Where two retailers compete closely with each other we would expect to see similar levels of wins and losses between them over a reasonable length of time.

(b) Both Parties gained more from Tesco than any other retailer in each year.

(c) For Sainsbury's the next highest proportion of gains were from Asda ([10–15%] in 2018), then Morrisons ([10–15%] in 2018) then Waitrose ([5–10%] in 2018).

(d) Sainsbury's gains from M&S were around [5–10%], and [5–10%] each from Aldi and Lidl in 2018.

(e) In 2018, Asda gained slightly more from Morrisons than Sainsbury's ([10–15%] and [10–15%] respectively), but much less from all other retailers ([5–10%] from Aldi, [5–10%] from Lidl and [5–10%] from Co-op).

Figure 3: Switching gains to Asda, by year

[✂]

Source: CMA analysis of Kantar 52 week switching 2015,2016,2017,2018 (provided by Asda).

Figure 4: Switching gains to Sainsbury's, by year

[✂]

Source: CMA analysis of Kantar 52 week switching 2015,2016,2017,2018 (provided by Asda).

Online

48.   This section presents Kantar switching losses from each of the Parties' online business to other online competitors.[10] As discussed in paragraphs 12 to 17 we do not consider this evidence informative for establishing the constraint that in-store groceries place on the Parties' online businesses, but we do think it is somewhat informative of the level of constraint that other online providers place on the Parties' online businesses.

49.   The results from Figures 5 and 6 below are discussed in Chapter 11.

Figure 5: Switching losses from Asda online to other online grocers

[✂]

Source: CMA analysis of Kantar 52 week switching for 2018 (provided by Asda).

Figure 6: Switching losses from Sainsbury's online to other online grocers

[✂]

Source: CMA analysis of Kantar 52 week switching for 2018 (provided by Asda).

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[10] In the data we received from Asda, Kantar does not split out Iceland's online business and does not include AmazonFresh.

Appendix E: Local assessment

Introduction

1.   This appendix discusses the following:

   (a) further detail of some of the issues and analysis discussed in Chapter 8;

   (b) arguments raised by the Parties, to the extent these were not considered in Chapter 8;

   (c) any additional relevant issues, which were not mentioned in Chapter 8.

Large and Medium Stores

### Issues relating to Survey Evidence and WSS Weightings

Approach to disaggregation

2.   In Chapter 8, paragraph 8.130, we provided our provisional conclusion on the level of disaggregation of WSS weightings by store size and brand.

3.   In this section, we discuss in detail how we reached this conclusion. In particular, we discuss how we took into account the trade-off between having less 'tailored' weights and having the weights estimated less robustly due to low sample size to decide whether and how to disaggregate the relevant weightings by brand and store size.

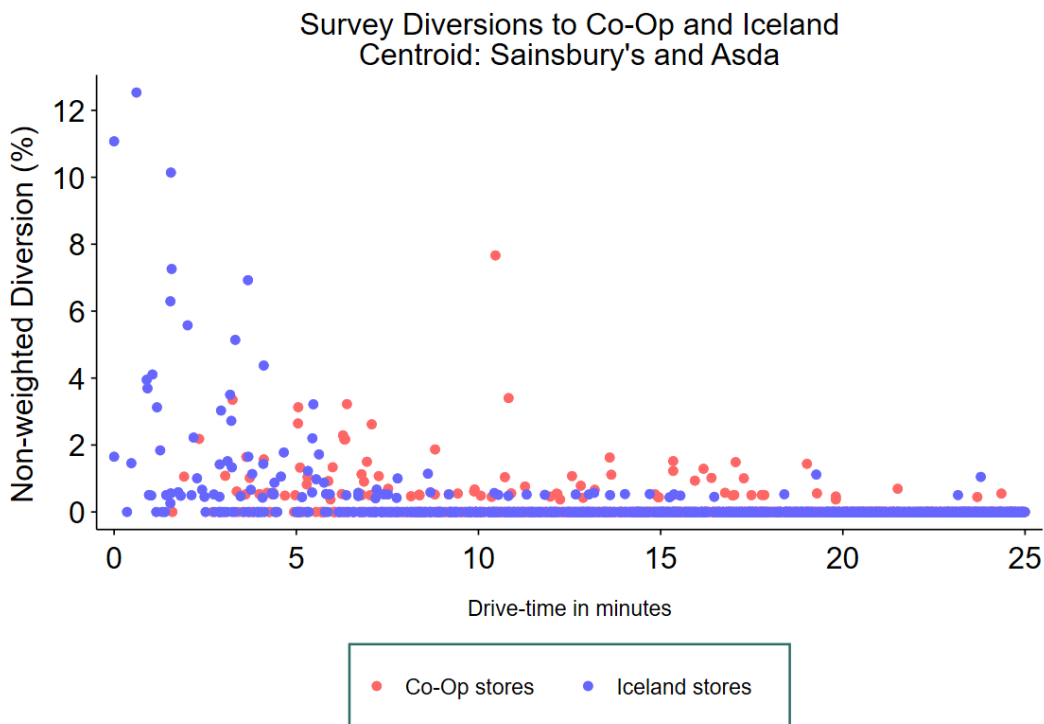   *Disaggregation of rival fascia by brand*

4.   As regards disaggregation of rival fascia, we found that the diversion generally differed by brand (including between M&S and Waitrose, as suggested by purple and green lines respectively in Figure 1 below), and the number of observations was usually adequate to consider each fascia separately. However, we decided to aggregate Co-op and Iceland due to a low number of observations for each of these fascia, and diversions which did not appear to be substantially different (see Figure 2).

Figure 1: Relative weightings derived from the CMA Grocery Exit Survey
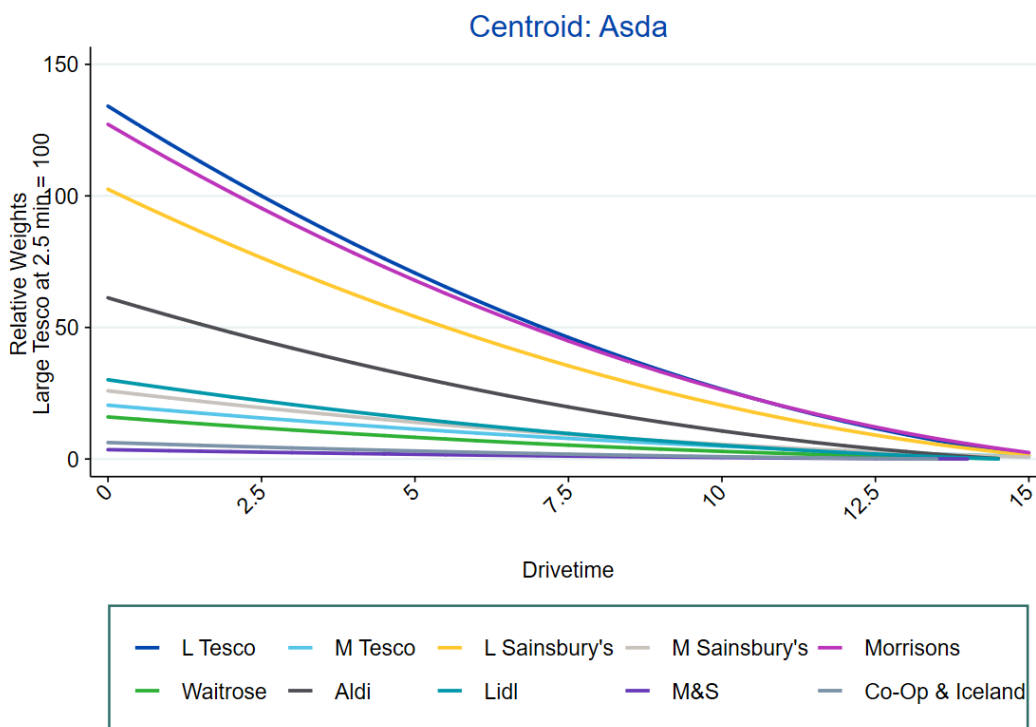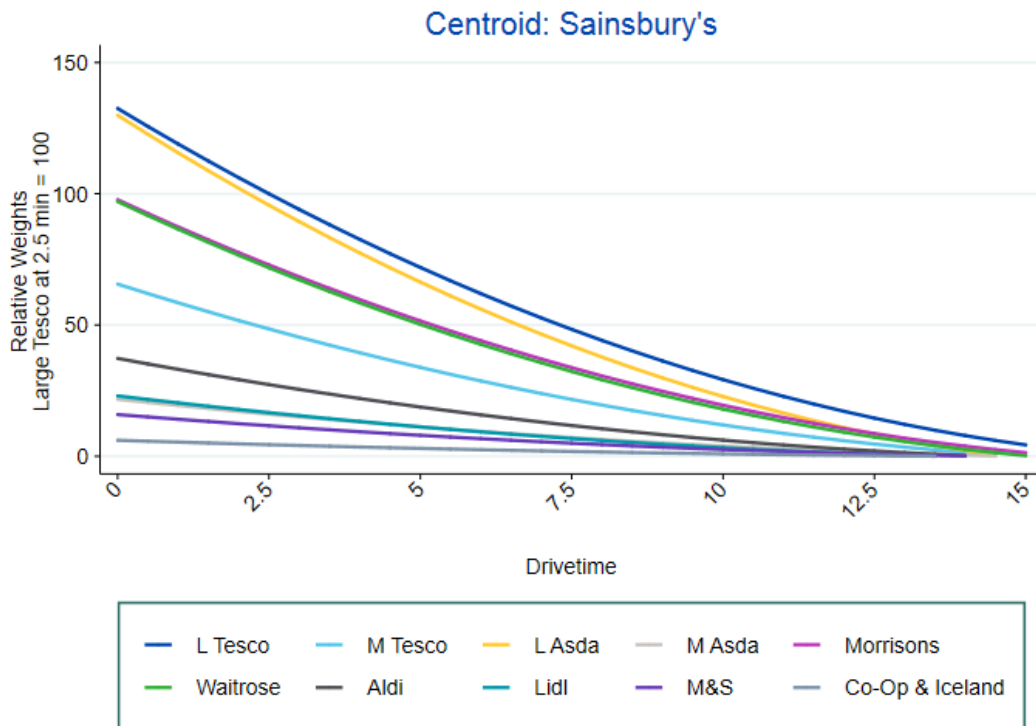
Source: CMA analysis. By Centroid: Sainsbury's, we refer to diversions from Sainsbury's stores. By Centroid: Asda, we refer to diversions from Asda's stores.

Figure 2: CMA exit store survey diversions to Co-op and Iceland

Survey Diversions to Co-Op and Iceland
Centroid: Sainsbury's and Asda

Source: CMA analysis.

Disaggregation of rival fascia by store size

5.   As regards the aggregation of rival fascia by store size, Table 1 below presents, for each fascia, the proportion of stores with store size below 1300sqm, 1400sqm (Medium Store threshold) and 1500sqm.

Table 1: Proportion of stores with store size below 1300, 1400 and 1500sqm by fascia

Proportion of stores with store size below:

Fascia	1300sqm	1400sqm	1500sqm
Aldi	95	98	100
Asda	26	27	28
Co-Op	96	98	99
Iceland	100	100	100
Lidl	73	81	95
M&S	91	94	95
Morrisons	7	9	11
Sainsbury's	20	22	25
Tesco	15	18	20
Waitrose	27	34	38

Source: CMA analysis.
Note: The table above covers stores that are within 30-minute drive-time from any of the Large and Medium stores of the Parties. Surface areas expressed in terms of the Net Sales Area for all stores except for M&S, which is expressed in terms of the Groceries Sales Area. Surface areas were generally expressed in terms of the Net Sales Area, given that all the Parties provided information on the Net Sales Area. For those Parties which also provided information on the Groceries Sales Area, we generally found that the differences between the Net Sales Area and Groceries Sales Area were not substantial. However, for M&S, we found a substantive difference between Net Sales Area and Groceries Sales Area, and therefore expressed their surface area in terms of the Groceries Sales Area.

6.   Table 1 shows that almost all of Aldi, Co-op/Iceland and M&S stores are Medium Stores (and therefore a very small proportion of their stores are Large Stores). Lidl has a high proportion of Medium Stores, and most of its Large Stores are just above the Medium Store threshold of 1400 sqm. Therefore, to avoid potential sample size (and therefore robustness) issues with estimating the weights of Large Stores for these providers, we have estimated a single weighting for the Medium and Large stores of each of Aldi, Lidl, M&S and Co-op/Iceland.

7.   Table 1 shows that Morrisons has a very high proportion of Large Stores. Therefore, to avoid potential sample size (and therefore robustness) issues with estimating the weights of Medium Stores for Morrisons, we have estimated a single weighting for all Morrisons supermarkets, regardless of their size.

8.   For Waitrose, we found that there was a low number of Medium Stores for estimation purposes. In addition, Figure 3 below suggests that diversion patterns for Waitrose Medium and Large Stores are consistent with each other. Therefore, we have estimated a single weighting for all Waitrose supermarkets, regardless of their size.

Figure 3: CMA exit store survey diversions to Waitrose, by store size

Survey Diversions to Waitrose
Centroid: Sainsbury's and Asda
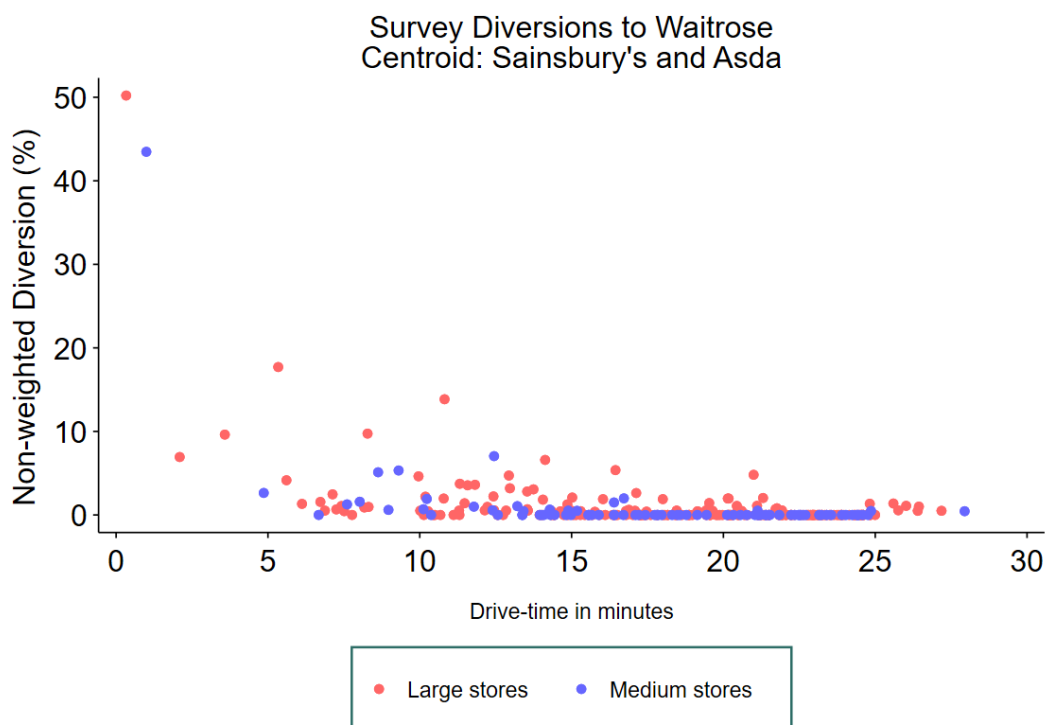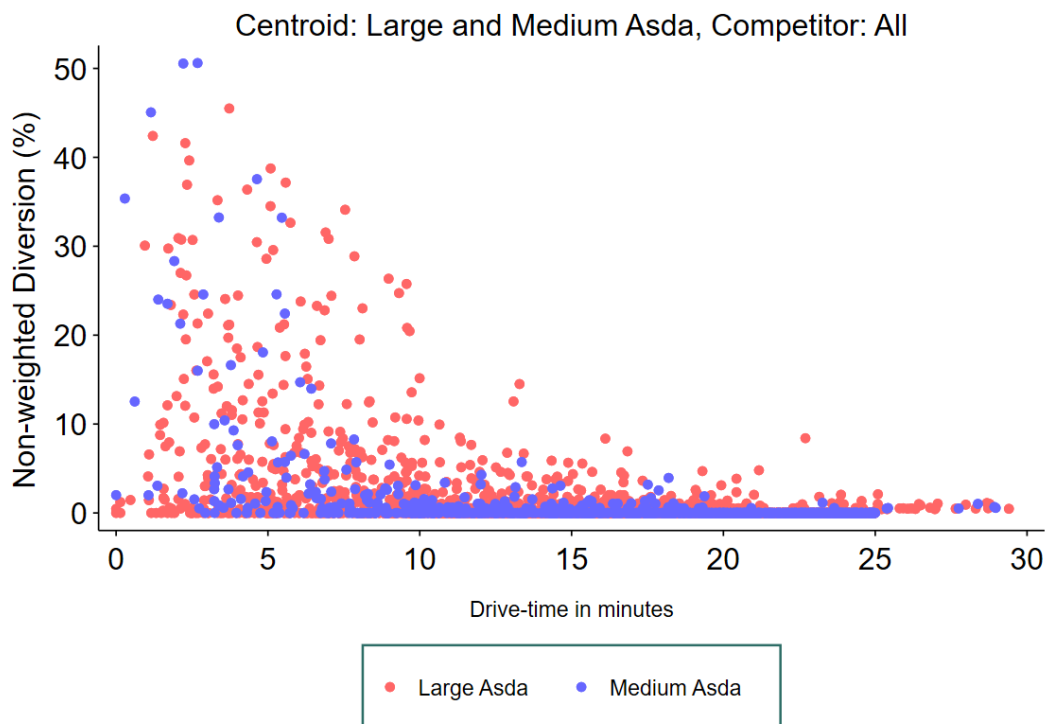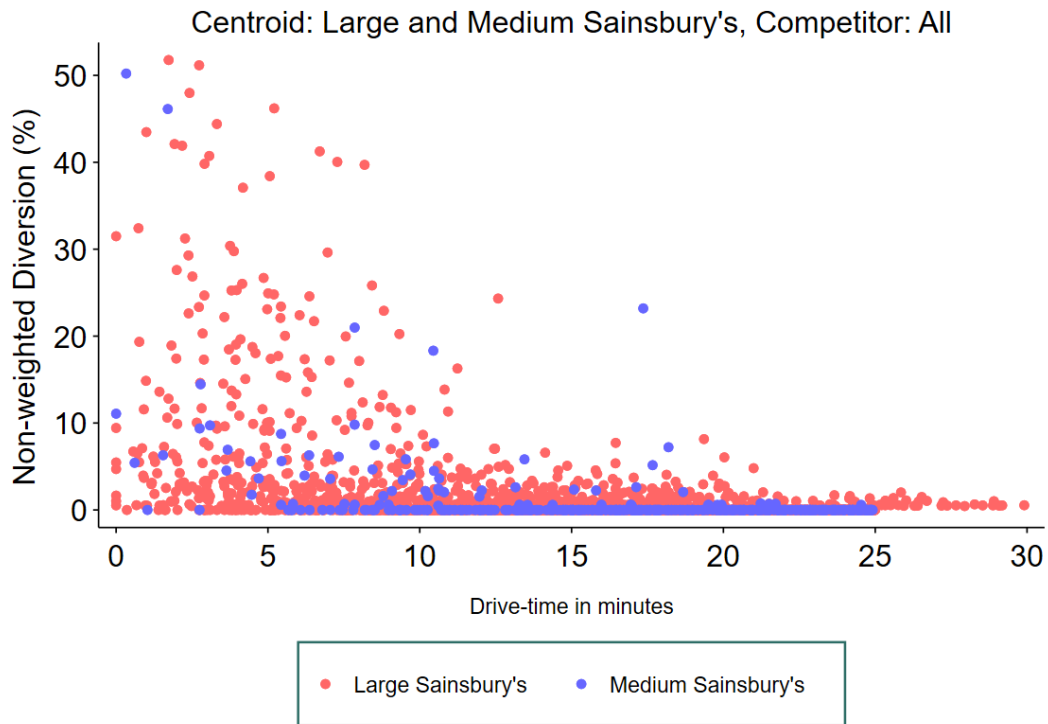
Source: CMA analysis.

Disaggregation of centroid fascia by brand

9.   Figure 1 above suggests that the constraint exerted by specific brands on Sainsbury's supermarkets differs materially from the constraint those same brands exert on Asda. Therefore, we estimate separate weights for each brand depending on whether we are assessing its constraint on Asda supermarkets or its constraint on Sainsbury's supermarkets.

Disaggregation of centroid fascia by store size

10.   There are very few observations of diversions from the Parties' Medium Stores. Therefore, consistently with the suggestion made by the Parties (as discussed in Chapter 8, paragraph 8.129(e)), we investigated whether there was a significant difference between the constraint exerted by rival stores on the Parties' Medium Stores as compared to the constraint they exert on the Parties' Large Stores. We did not find clear evidence of systematic differences in the constraint, as shown in Figure 4. Therefore, we made no distinction by size of the centroid stores when calculating the relevant weights.

Figure 4: CMA exit store survey diversions separately to Parties Medium and Large stores

Centroid: Large and Medium Sainsbury's, Competitor: All

- Large Sainsbury's
- Medium Sainsbury's

Centroid: Large and Medium Asda, Competitor: All

- Large Asda
- Medium Asda

Source: CMA analysis.

Relationship between distance and diversion

    Parties' view

11.   The Parties proposed that the CMA's methodology should calculate each of the brand-size constraints relative to a Large Tesco at each distance band, however rather than use each point estimate, the point estimates should be averaged across the distance bands to reduce the chances of any one distance band generating anomalies.[1] We understand that this would amount to assuming that the weightings for each brand-size combination decline at the same rate over distance as Large Tesco.

12.   The Parties submitted that this would avoid estimating a counterintuitive relationship between distance and weightings (such as ranking of different brands' weightings changing depending on distance). They submitted that estimating specific weightings for every brand group at individual distance bands risked creating spurious precision and that any resulting oddities within different time bands would be unlikely to reflect reality and would be more likely to simply reflect the CMA's sample of stores rather than a true underlying relationship.

    Our assessment

13.   We have taken the following approach to estimating the relationship between distance and diversion.

14.   First, based on the survey, we have plotted the store level diversions for each of the weightings categories discussed in the *Approach to disaggregation* section above. Figure 5 for example shows store-level diversions from Sainsbury's supermarkets to Large Tesco supermarkets. Each 'dot' on the chart represents a single Large Tesco supermarket.[2,3] For example, one Tesco supermarket was chosen by more than 50% of respondents surveyed at a given Sainsbury's store (see the top 'dot' of the graph below). Several Tesco stores (all of which were located at least 8 minutes away from the

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[1] Specifically, the Parties submit that a) average diversion should be calculated for a brand (for example Morrisons) in each 5 minute interval, b) these diversions should then be divided by average diversion to Tesco in the same 5 minute interval (eg average diversion to Morrisons within 5-10 minutes divided by an average diversion to Tesco within 5-10 minutes), c) an average across these ratios should be taken (suppose that is 0.8) and d) this ratio (0.8) should then be applied to the average diversion to Tesco within each time band to compute the diversion to Morrisons at each time band.
[2] The higher the dot, the more often it was named by respondents surveyed at a given Sainsbury's supermarket. The further to the right the dot, the further away the store was located from the relevant Sainsbury's supermarket. The downward slope suggests that stores that were located further away tended to be named less frequently.
[3] If a Tesco store is a competitor (ie it is within the catchment area) for more than one store of the Parties, this store will appear more than once in the chart.

surveyed Sainsbury's supermarket) were not mentioned by any respondents and therefore received zero diversion in the survey.

Figure 5: Store-level diversions from Sainsbury's to Large Tesco

Centroid: Sainsbury's, Competitor: Large Tesco
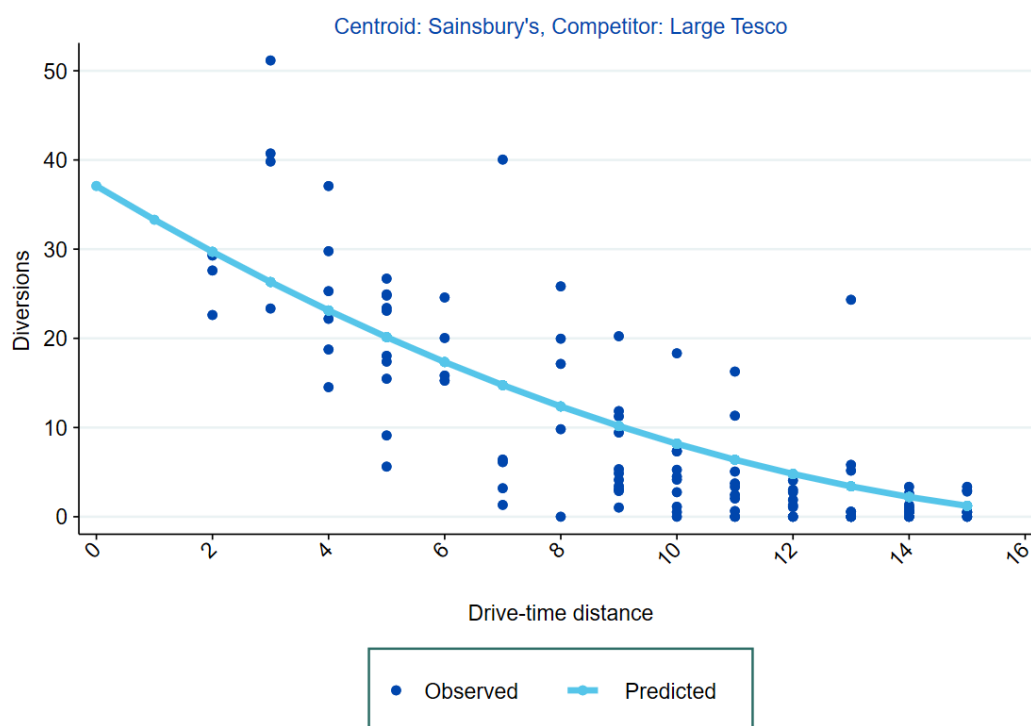
Source: CMA analysis.

15.   Second, for each of the brand-size categories, we created a quadratic line of best fit going through the 'dots' (i.e. individual observations of diversions to individual competitor stores). This is shown as the light blue line on the graph above. This quadratic line of best fit shows the estimated level of diversion to a typical supermarket in the relevant category (in this case, Large Tesco supermarkets) at the specific distance in question.[4]

16.   With respect to the Parties' argument that brand weight relativities remain constant over distance (which we understand amounts to applying Tesco's rate of decay over distance for all brand-size categories), we consider that the advantage of our approach is that it allows us to identify the appropriate decay over distance for each brand-size weighting based on the survey data, instead of imposing a uniform rate of decay. This may be appropriate given that diversion may decay differently depending on a brand.

17.   Further, we note that by smoothing the curve in the way described above (ie by estimating a line of best fit through the data points), our approach draws on

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[4] For example, the line suggests that Large Tesco supermarkets that are located 5 minutes away will on average receive around 20% of diversion, whereas Large Tesco supermarkets located 9 minutes away will on average receive around 10% of diversion.

all the data points available for each category of brand and size when generating that category's weighting. *Annex: smoothed decay curves by fascia* below shows smoothed decay curves for the weightings of competitors' stores. As these show, with a few exceptions, the curves are based on a reasonable number of observations.[5]

18.   Figure 1 presents all of these decay curves, expressed as a proportion of average diversion to a Large Tesco located 2.5 minutes away. Figure 1 shows that our approach does not result in the ranking of different brands' weightings changing over distance, which the Parties considered to be an issue in its submissions. However, we note that even if this ranking did change, this could reflect a true underlying relationship instead of being an oddity, given that the decay curves are generally based on a reasonable number of observations.

Robustness of the survey

  Representativeness

- *Parties' view*

19.   As discussed in Chapter 8, paragraph 8.131, the Parties submitted that the sampling methodology used to decide which stores to survey in the CMA store exit survey means that our results would tend to overstate the diversion between the Parties and understate the diversion from the Parties to other competitors. This was because (i) the average diversion to a given store will be lower if there are more competitors and (ii) in our sample, the Parties tend to be present in areas with fewer competitors (leading to higher diversion estimates) and (iii) in our sample, other competitors, such as Aldi and Lidl, tend to be present in areas with more competitors (leading to lower diversion estimates).

  Our assessment

20.   As discussed in Chapter 8, paragraph 8.134, we prepared an analysis which compares, for each brand, how often they appear in more or less concentrated areas which participated in the CMA store exit survey, relative to all overlap areas and relative to all local areas where the Parties are present.

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[5] In relation to diversions to competitor supermarkets from Asda supermarkets, we considered that the relationship between the weighting/diversion and distance was estimated with relatively few data points for Medium Sainsbury's, Medium Tesco and Waitrose. In relation to diversion from Sainsbury's supermarkets, the relationship was estimated with relatively few data points for Medium Tesco, Medium Asda and Waitrose. We considered these specific cases in the context of other evidence (in particular, entry-exit analysis). Cases in which there was a material difference between the survey evidence and the statistically significant entry/exit evidence are discussed further in the *Combining evidence* section.

21.   Specifically, the charts show how often each brand appears in 4 to 3 areas, 5 to 4 areas, 6 to 5 areas and so on. This is provided separately for the surveyed areas (dark blue lines) and the areas of overlap between the Parties (light blue lines). *Annex: representativeness graphs* provides the relevant charts.

22.   As discussed in Chapter 8, paragraph 8.135, these charts suggest that no brand is particularly over-represented in more or less concentrated areas in the survey sample compared to the areas of the overlap between the Parties. This therefore suggests that the sample of the CMA store exit survey is not unrepresentative in a way that would result in a significant overestimate or underestimate of diversion between the Parties.

Using store-level or area level data

- *Parties' view*

23.   The Parties' submit that calculating average diversions for each weighting based on store-level data would result in biased estimates. This is because this would attach more weight to the store diversions in areas with more competitors as these areas will tend to have a greater number of diverted stores within a given weighting. As a consequence, these simple averages will understate the average diversion to groups of brands that are disproportionally present in areas with more competitors.

24.   To avoid this problem the Parties submit that we should calculate the average diversion to groups of brands at each surveyed location and then calculate a simple average of these survey location averages.

- *Our assessment*

25.   As discussed in Chapter 8, paragraphs 8.131 to 8.136, and the *Representativeness* section above, our analysis suggests that no brand is particularly overrepresented in more competitive areas in the CMA store exit survey sample compared to the areas of the overlap between the Parties. This suggests that store-level simple averages will neither understate or overstate the average diversion calculated for each weighting.

26.   Further, even if we found that certain brands were particularly overrepresented in areas with more competitors in the CMA store exit survey sample compared to the areas of the overlap between the Parties, it is unclear how the approach suggested by the Parties would address this issue.

27.   The following example demonstrates why this is the case. Suppose that there are ten areas in which Lidl is present, and in each of these areas there are two Lidl stores present. In five of these areas, with fewer competitors, diversion from Sainsbury's to each Lidl is 25%. In the other five areas diversion to each Lidl is 5%.

28.   Suppose that only stores of the last type are surveyed. Taking an average diversion to Lidl at each surveyed location would result in an average diversion of 5% for each store in each location; taking an average across all surveyed locations would similarly result in an average diversion of 5% for each store. This diversion would not be representative of the actual constraint of each Lidl store, which would be much higher than this across all overlap areas (15%).

Stores receiving zero responses in the survey

29.   Some stores were not mentioned by any respondent in the CMA store exit survey. In this section we discuss whether or not these stores should be assigned zero diversion when estimating average diversion in each brand-size category.

30.   We also explain in this section that assigning zero diversion to a particular store when estimating average diversion in each brand-size category would not necessarily mean that these stores would be considered as exerting no competitive constraint on the Parties. This is because the relevant category of stores would receive the average score of all stores in the brand-size category. Therefore, a store receiving zero diversion in the survey may still get a WSS of more than zero.

Parties' view

31.   The Parties submit it is likely that some, potentially a large number, of the rival grocery stores which were not mentioned by any respondent in the CMA store exit survey are not genuine instances of a grocery store receiving zero diversion but rather are 'sampling zeroes'. They submit that by assigning zero diversion to these stores when it calculates weights, the CMA is treating those stores as exerting no competitive constraint on the Parties' surveyed stores, whereas in reality these stores do impose a competitive constraint. They submit that diversion to these rival grocery stores and hence the constraint these stores impose on the Parties' surveyed stores was not captured in the survey because the CMA only surveyed a relatively small number of customers at each surveyed store given the large number of rival grocery stores within 20 minutes.

32. The Parties submit that because the CMA interviewed on average about 200 respondents per surveyed store, and there are on average about 35 rival stores (excluding pipelines and Others) within 20 minutes' drive time of each surveyed store, there were a small number of respondents per rival store in the CMA's survey – specifically 6 respondents on average per rival store.

33. The Parties therefore submit that some stores may have received zero diversion in the survey (simply due to the relatively small number of respondents surveyed given the number of rival grocery stores in the catchments), even though the true diversion to these stores is positive.

Our assessment

34. We have treated stores that obtained zero diversion in the CMA store exit survey as having zero diversion when estimating the relevant brand-size weights.[6]

35. As discussed in Appendix B, paragraph 17(a), in the case of the CMA store exit survey, we consider that the minimum of 150 responses per store we specified is sufficient to provide robust results (and this was actually exceeded in all 100 stores, with the median number being just over 200).

36. The stores which receive zero diversion in the survey, referred to by the Parties as sampling zeros, are a manifestation of sampling error. They are unbiased and as such have a neutral effect, on average, across the survey dataset as a whole. A simple example can explain this point. If we assume that the true diversion to a particular store in the catchment area of one of the Parties' surveyed stores is 0.4%, then if we interview one hundred customers at the surveyed store we may, by chance, pick up no diversion to the 'particular' store, or we may pick up one or more customers who would divert to it. On average, sampling theory tells us that we would pick up 0.4% such customers.

37. For the purpose of our analysis, we are effectively averaging diversions across multiple areas for each brand-size class, and then applying this average diversion to all stores in a given brand-size class, when conducting the WSS. Therefore, even if a specific store obtains zero diversion in the CMA store exit survey, if other stores within that brand-size category obtain positive diversion in the survey, then that specific store with zero diversion in the survey will ultimately receive a positive weight in our analysis.

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[6] However, as explained below, this does not mean that these stores will be considered as exerting no competitive constraint on the Parties. This is because the relevant category of stores will receive the average score of all stores in the brand-size category. Therefore, a store receiving zero diversion in the survey may still get a WSS of more than zero.

38. The Parties submit that the constraint of discounters and Others is likely to be underestimated, especially in the 5-10 minute drive-time band, since these brand-size groupings have the highest number of zero diversion stores and hence are likely to have more sampling zero diversion stores, and as survey diversions sum to 100% it is likely that the average diversion to the 'Big 4' are over-estimated. However, we note that if a category of store has more stores with zero diversion than another type of store, this is likely to be reflective of its lower likelihood of being mentioned. There is no reason why sampling zeroes should be more prevalent for a given category of store, other than that it is less likely to be mentioned.

39. Finally, we note that the Parties submit that the evidence from the Parties' New Exit Survey shows there are [✂] stores in the CMA's Survey that received a zero diversion, but which had a positive survey diversion ratio in the Parties' New Exit Survey, and [✂] stores in the Parties' New Exit Survey that received a zero diversion but which had a positive diversion ratio in the CMA's store exit survey. The Parties therefore submit that there are a material number of sampling zero diversion stores in the CMA's Exit Survey.

40. We do not consider that this is suggestive of bias. As the number of customers in a local sample size increases, the surveyed diversion ratio will converge to the population diversion ratio. Sample diversion ratios that are underestimated (including diversions of zero, but also other, positive diversions that are underestimated) will therefore tend to rise. However, those sample diversion ratios that are overestimated will tend to fall. The Parties' data is consistent with the first effect arising. However, it does not follow that the weightings for any brand-size categories have been underestimated.

Adjustments made to the data in the surveyed areas

Store datasets used in our analysis

41. We have used the Parties' store dataset for the purposes of constructing weightings based on the survey. The Parties' store dataset was contemporaneous to our survey, and therefore aimed to list the Medium and Large stores that were available to consumers when they made their choices.

42. During the course of our analysis, we also created an updated store dataset ("updated store dataset") by requesting from both the Parties and relevant third parties data on their store estates. The weights that were constructed using the Parties' store dataset were applied to the updated store dataset in order to estimate diversion ratios and GUPPIs in each local area. This allowed us to take account of competitors' newly-opened stores and stores that were not yet open but likely to open in a timely manner. This also allowed us to

calculate GUPPIs not only for the existing stores of the Parties but also those that will exist in the future (and where there therefore may be a loss of potential competition).

Adjustments made to the Parties store dataset in the surveyed areas

43.   Within the Parties' store dataset, in the surveyed areas, we found in some cases multiple stores of the same fascia (Aldi, Lidl or M&S) within the same postcode. Given implied extremely close proximity of two stores of a single brand, we assessed whether they may be duplicate stores in the data. To assess whether this was the case we checked using the third-party data whether both stores exist. Our check suggested that these stores were indeed duplicates. Keeping these duplicated stores would incorrectly bias the weights downwards, as these stores would be incorrectly assigned a weight of zero in our analysis. We therefore removed duplicates in the same postcode from the Parties' dataset. We did not find any cases in which both stores had positive diversions, and therefore dropped the duplicate observation with zero diversion.

44.   Within the Parties' store dataset, in the surveyed areas, there were stores that were due to open just before the time of the CMA store exit survey (September and October, according to the Parties' information), but which received zero diversion in the CMA store exit survey. The zero diversions that these stores received may have been driven by these stores in fact not yet being open at the time the CMA store exit survey was run. Alternatively, these stores may have opened so recently that many consumers were not yet aware of them. We have excluded these stores from the part of the analysis where we estimated weights, to ensure that these stores did not incorrectly bias weights downwards.

45.   Upon cross-checking the Parties' store dataset with the third-party store data, we have found stores in the surveyed areas that were assigned by the Parties as Medium Stores when they were in fact convenience stores. These stores were excluded from our calculation of survey weightings for Medium and Large Stores.

Adjustments made to the survey data

46.   During an analysis of the CMA store exit survey dataset conducted earlier in our inquiry, we identified that some surveyed stores had a large proportion of respondents with a recorded diversion to 'Other store'.

47.   On querying this with Kantar Public, they identified that although the back-coding itself had been done correctly, there were some occurrences of the

coded versions of questions 15 and 21 of the survey that had not been updated with all the individual store codes (which indicate where the diversion actually occurred).[7] This was corrected in the CMA store exit survey dataset that was used for our analysis.

48.   Following the corrections referred to above, a proportion of diversions to 'Other store' remained. We conducted additional work using the brands identified at questions 14 and 20 and the verbatim responses at questions 15 and 21 recorded on the survey dataset in combination with the updated store dataset to identify and code further 'Other stores' as diversion destinations.[8,9] After this had been completed, only a very small proportion of diversion to stores that could not be identified remained. The remaining unidentified stores were included as part of the out-of-market diversion.

Combining evidence

49.   As discussed in Chapter 8, from paragraph 8.156, we plotted the weights derived from the entry-exit analysis (which are calculated in brackets of 5 minutes' drive time) against the weights derived from our analysis of the CMA store exit survey (which are shown in a 'curve' that plots the weights for all drive-time distances up to 15 minutes).[10] *Annex: entry-exit and survey comparison* below presents these graphs for each brand-size combination.

50.   In a small number of cases, there was a material difference between the implied weights derived from the survey evidence and the implied weights derived from the statistically significant entry/exit evidence. In each case where there was an inconsistency, we considered whether to make an adjustment to the survey weight. In doing so, we considered factors such as the relative sizes of the sample used to generate the estimates in either piece of evidence and the consistency of the suggested weights with other pieces of qualitative evidence.

51.   Based on this review, we made adjustments to six of the survey weights, by increasing the weight to bring it closer into line with the entry-exit analysis or other evidence. These adjustments are discussed in more detail below.

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[7] Question 15 seeks to identify an actual diversion store. It is an unprompted follow-up to the previous question that has established the brand of supermarket (or convenience store) to which a customer would divert (see footnote below for Question 14). 'Q15. And which [BRAND NAME FROM Q14] store would that be?' Question 21 is similar.
[8] Question 14 is unprompted and seeks to establish the brand to which a customer who says they would divert to a supermarket (or convenience store) would go. 'Q14. And which store would you have been most likely to visit instead? Please name one only.' If a respondent names an actual store at this question, the interviewer is instructed to say: ' Which company or brand is that?'. Question 20 is similar.
[9] In some cases, we also used Google Maps as an additional cross-check for identifying the right store.
[10] The entry-exit analysis is discussed in more detail in Appendix C.

Adjustments in cases with a lower number of observations in the survey and significant observations in entry-exit
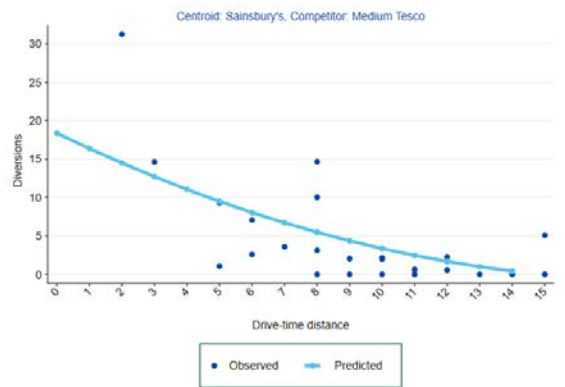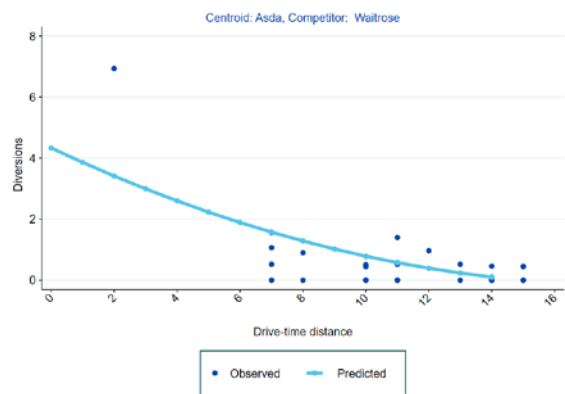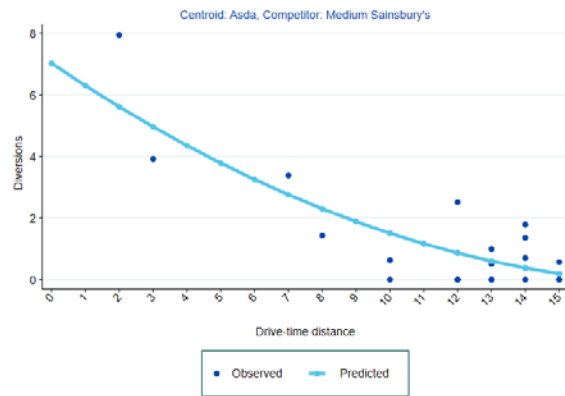
52.　Figure 6 below shows on the left hand side the comparison between the weights implied by the survey (which are shown in a 'curve' that plots the weights for all drive-time distances up to 15 minutes) and the weights implied by the entry-exit analysis (which are calculated in brackets of 5 minutes' drive time – see dots). On the right hand side, Figure 6 below shows store level diversions for each relevant brand-size combination (see blue 'dots'). This is presented for 3 brand-size combinations:

(a) Diversions from Asda to Medium Sainsbury's

(b) Diversions from Asda to Waitrose

(c) Diversions from Sainsbury's to Medium Tesco.

Figure 6: Comparison of entry-exit and survey weights (left hand side) and survey diversions (right hand side) for brand-size categories with significant entry-exit observations and comparatively few observations in the survey

[✂]

Centroid: Asda, Competitor: Medium Sainsbury's

[✂]

Centroid: Asda, Competitor: Waitrose

[✂]

Centroid: Sainsbury's, Competitor: Medium Tesco

Source: CMA analysis.

53.   As shown in Figure 6, in these three cases, the entry-exit has some significant observations (shown in red) and there are comparatively few observations in the overall survey analysis for the relevant brand-size category.

54.   In these cases, for observations where the entry-exit was significant, we adjusted the weighting to reflect both pieces of evidence. The final weighting used in our analysis for these three cases is shown by the light blue line in Figure 7 below.

Figure 7: Combined weights for brand-size categories with significant entry-exit observations and comparatively few observations in the survey

[✂]

Source: CMA analysis.

Adjustment in cases with significant observations in entry-exit and potentially poor fit of the survey in one of the distance bands

55.   Figure 8 below shows on the left hand side the comparison between the weights implied by the survey and the weights implied by the entry-exit analysis. On the right hand side charts, Figure 8 below shows store level diversions for each relevant brand-size combination (see blue 'dots'). This is presented for two brand-size combinations:

(a) Diversions from Sainsbury's to Aldi

(b) Diversions from Sainsbury's to Lidl

Figure 8: Comparison of entry-exit and survey weights (left hand side) and survey diversions (right hand side) for brand-size categories where an adjustment was made due to entry-exit and potentially poor fit of the survey in one of the distance bands

[✂]

[✂]
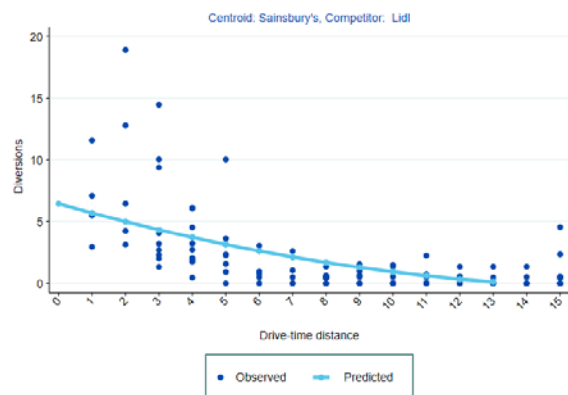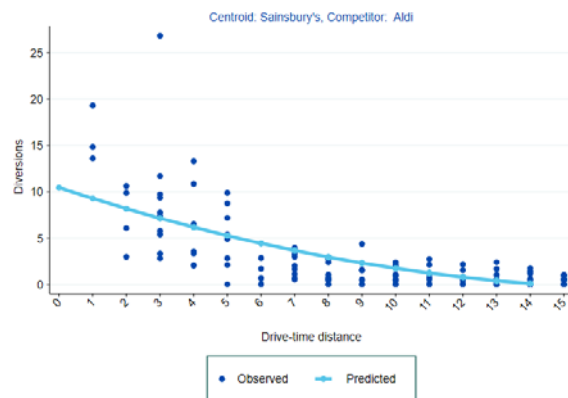
Source: CMA analysis.

56.   As shown in Figure 8, in these two cases, the entry-exit has some significant observations and, although the survey analysis had a good number of observations and a good fit for the data overall, it appears to be a poor fit for one of the distance bands (0-5 minutes). We made adjustments to bring these weightings closer to the statistically significant weights suggested by the entry-exit analysis where this would also improve the fit for the survey data.

57.   The final weighting used in our analysis for these two cases is shown by the light blue line in Figure 9 below.

Figure 9: Combined weights for brand-size categories where an adjustment was made due to entry-exit and potentially poor fit of the survey in one of the distance bands

[✄]

Source: CMA analysis.

Adjustment in case with a low number of observations in the survey and low but significant number of observations in entry-exit

58.   In one case, Asda Medium stores, the entry-exit analysis was significant within 0-5 minutes but the survey and entry-exit evidence disagreed significantly within this drivetime interval (see the left hand of Figure 10), and there were comparatively few observations for both types of analysis (as shown by the right hand side of Figure 10 for the survey; the significant entry-exit observations is based on 4 observations).

Figure 10: Comparison of entry-exit and survey weights (left hand side) and survey diversions (right hand side) for Medium Asda


[✄]
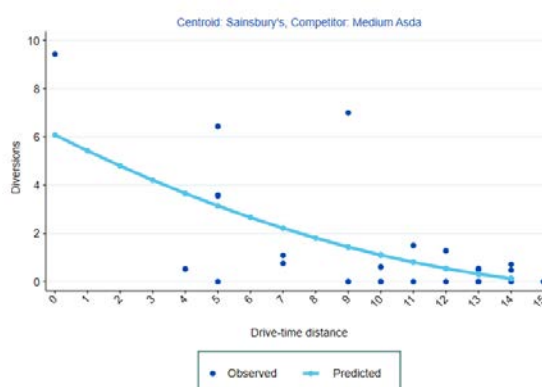
Source: CMA analysis.

59.   In this case, we took into account other contextual information in deciding how to reflect the two pieces of evidence. In particular, we considered the relative weightings between Asda Large and Medium stores (see Figure 11 below), which indicated that Asda Medium stores appear disproportionately weak

compared to Asda Large stores, relative to a comparison of Tesco Large Stores and Tesco Medium Stores, where the gap was not nearly so wide.

Figure 11: Relative weightings derived from the CMA Grocery Exit Survey
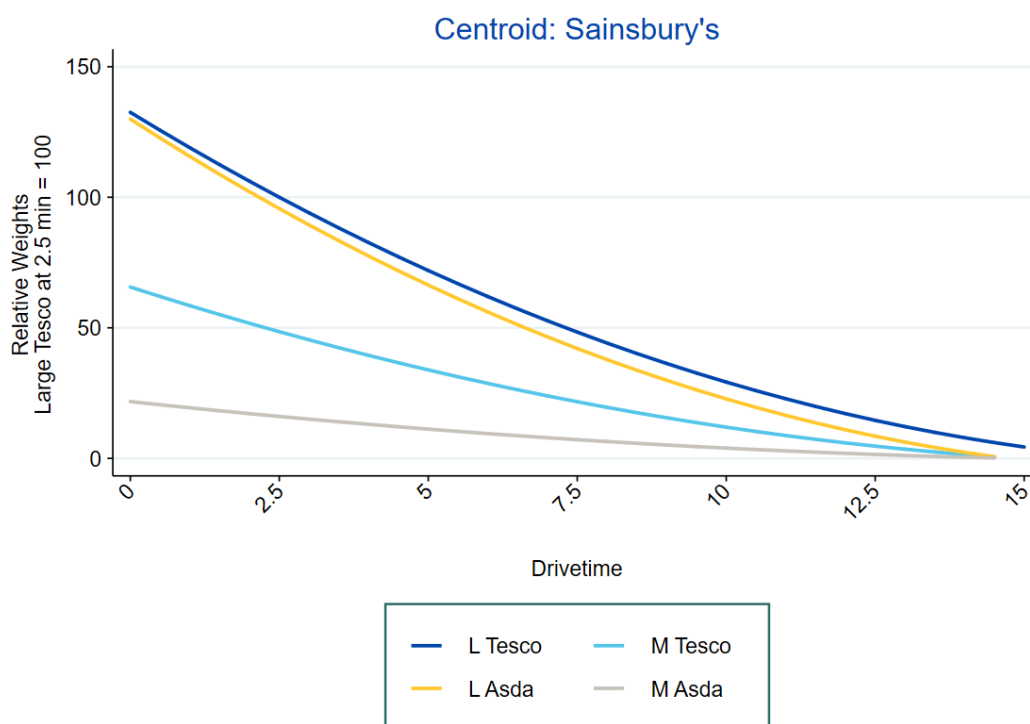
Source: CMA analysis of CMA store exit survey responses

60.   In this case, we adjusted the weighting to approximately reflect the midpoint between the two pieces of evidence (where the entry-exit analysis was significant, i.e. within 0-5 minute drivetime). The final weighting used in our analysis for Medium Asda is shown by the light blue line in Figure 12 below.

Figure 12: Combined weights for brand-size categories for Medium Asda

[✂]

Source: CMA analysis.

Performance of WSS

Parties' view

61.   The Parties submit that the fractional response estimator is an appropriate estimator for estimating the relationship between the WSS and the survey diversion, as it takes account of the bounded nature of the survey diversion

ratio, whilst using OLS to estimate this relationship is inappropriate as OLS does not take into account of the bounded nature of the diversion ratio.[11]

62. The Parties submit that using such estimator implies that a 10% WSS diversion translates into 6.6% survey diversion, rather than 9.7% (i.e. roughly a one to one relationship) estimated using OLS by the CMA.

63. The Parties submit that the pseudo R-squared from using the fractional response estimator to estimate the relationship between the WSS and survey diversion is 13%, suggesting that when an appropriate estimator is used the WSS used by the CMA is not such a good fit (i.e. the WSS does not explain the survey diversion well).

64. The Parties submit that the CMA's WSS appears to perform particularly poorly amongst the key set of stores, i.e. those that have a survey and WSS diversion ratio greater than 5%.

Our assessment

65. As mentioned above, the Parties' submit that the fractional response estimator is an appropriate estimator for measuring the relationship between survey diversion and WSS as unlike OLS this estimator takes account of the bounded nature of the diversion ratio. The advantage of the fractional response model is that it restricts a prediction of the dependent variable to be between 0 and 1. Using OLS may result in predictions that are outside of this bound, which is not correct. However, inspecting the predicted diversion ratios that the Parties referred to in their submissions, we did not seem to have the problem of predicting outside of the 0-1 bound, limiting the need to use a fractional response model.

66. We disagree with pseudo R-squared being an appropriate measure for goodness of fit (i.e. a measure of whether WSS explains the survey diversion well). The pseudo R squared can be used to compare different specifications of the same model using the same methodology, but is less informative on comparing goodness of fit across methodologies, as we have done in the past. Further, the pseudo R squared does not have the same interpretation as the 'normal' R squared in measuring the extent of explained variation so any given value of the pseudo R-squared in isolation has no clear implication for whether the goodness of fit of a particular model is good or not.

67. With respect to the performance of the WSS in terms of predicting survey diversion, we make the following observation. As set out in Chapter 8, all estimates of diversion will be subject to some noise, including both survey-

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[11] OLS refers to an Ordinary Least Squares estimator.

based diversion ratios and the WSS-based diversion ratios. Therefore, to the extent an individual surveyed diversion and the diversion estimate generated using the WSS model do not agree, this does not necessarily imply that the WSS has performed poorly. Consistency between the two should be assessed on aggregate rather than within any individual local area.

Price ratio

Parties' view

68. The Parties submit that using the past year of data (52 weeks including week ending 13 December 2018) Asda's estimate of the average price gap between the Parties was [5-10]%, whilst Sainsbury's estimate of the average price gap between the Parties was [0-5]%.

69. On the basis of these, the Parties submit that an appropriate price ratio would be the simple average of these two figures ([5-10]%), although they note that this may well overstate the extent of the price gap given the general trend downwards for both Parties' estimates.

Our assessment

70. On the basis of the above, we concluded that [5-10]% would be an appropriate price ratio between the Parties (the price being higher for Sainsbury's). We have therefore used a price ratio between the Parties of [✂] in our analysis.[12]

GUPPI formula (local level)

71. Below we set out the formula that we have used to calculate GUPPI values for each type of local overlap. In doing so we use the following notation for the relevant input variables:

    (a) p refers to the price level of a given supplier

    (b) m refers to a margin

    (c) $DR_{A \to B}$ refers to the diversion ratio from party A to party B

72. We also use the following subscripts to refer to the relevant parties:

    (a) S refers to a Sainsbury's owned store

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[12] Chapter 8 provides further detail of how the price ratio is used in the GUPPI calculations.

(b) A refers to an Asda owned store

73. The following formula is an index of the incentive to increase prices at a Sainsbury's-owned store that overlaps with an Asda-owned store. For the reverse case (price rises at the Asda store) we use an analogous formula.

$$GUPPI_{SA} = [diversion\ from\ Sainsbury's\ store\ to\ Asda] * [Asda's\ margin] \\ * [ratio\ of\ Asda's\ price\ to\ Sainsbury's\ price]$$

Or in notation:

$$GUPPI_{S \rightarrow A} = DR_{S \rightarrow A} m_A \frac{p_A}{p_S}$$

GUPPI calculation at the national level

74. As mentioned in Chapter 8, paragraph 8.69, at the national level, we have calculated a weighted average GUPPI for each Party. For example, for Sainsbury's supermarkets:

    (a) We first calculated GUPPIs for all Sainsbury's supermarkets at the local level

    (b) We then took a revenue weighted average of these GUPPIs. That is, the higher revenue a specific Sainsbury's store had, the higher weight it had when calculating the average.

75. Note that we have allocated a GUPPI of zero for all areas in which the Parties do not overlap. We note that this approach may understate the GUPPIs in these areas, as, in these areas, there may be diversion to the other merging Party out-of-market (eg beyond 15-minute drivetime).

Annex: smoothed decay curves by fascia

[✂]

Annex: representativeness graphs

[✂]

Annex: entry-exit and survey comparison

[✂]

Appendix F: Margin calculations

Introduction

1.   Margins are one of the inputs in the GUPPI formula. Margins are used to represent the value of any recaptured sales in the event of a price rise.

2.   There are three particular aspects of the Parties' businesses where margins vary and are relevant for our analysis:

     (a) differences in the margins for the Parties' different products/services (ie in-store groceries, online groceries, GM and PFSs);

     (b) the level of cost associated with variations in volumes as envisaged in the theories of harm (ie variability of costs); and

     (c) differences in the margins between local areas (for local theories of harm).

3.   We note that margins are an area where there is a clear asymmetry of information between the CMA and the Parties, since they are dependent on the operations and finances of the businesses. Accordingly, we are reliant on the information provided by the Parties in calculating these margins.

Difference in margins by product/service

4.   For these different products/services, the Parties do not necessarily track all the associated costs separately. For example, [✂]. Therefore, in order to calculate the appropriate margin for different activities, we need to estimate this split based on the information available.

5.   We have calculated gross margins for each of the relevant products/services of the Parties as shown in Table 1 below:

Table 1: Current percentage gross margins, by product/service

	%	
	Sainsbury's	Asda
In-store grocery	[✂]	[✂]
Online grocery	[✂]	[✂]
GM	[✂]	[✂]
PFSs*	[✂]	[✂]

Source: CMA analysis of the Parties' submissions.
* Figure for Sainsbury's PFSs assumes [✂]% of revenue from associated PFS services such as carwash would vary with changes in fuel sales. For Asda, [✂]% is used.

6.   However, we note the Parties' statements that the online grocery margins may not accurately capture all costs, for example, Sainsbury's stated [✂].

Calculations of variable margins

7.　The correct margin figures to use in the GUPPI analysis should reflect the profit or loss from the incremental change in associated volumes in these markets as a result of the Merger. This is referred to as the 'variable margin'. The CMA's 'Retail mergers commentary' states that 'variable margins are made up of the sales of the relevant products which both Parties supply less their variable costs. In past cases the CMA has considered that cost variability depends on the period over which the Parties could change their retail offer. The decisions on how to derive variable margins have therefore been made on a case-by-case basis and have required an element of judgement'.[1]

8.　Changes in volume directly affect the costs of acquiring the relevant goods (ie the cost of goods sold ('COGS')). Where volume changes are small compared to the overall business, they are unlikely to result in changes to assets used across the wider business, such as head office or national distribution, so the costs associated with these assets would be affected. However, the volume changes may be sufficient to result in operational changes at a local level. For this reason, we will consider the extent to which the costs associated with these operational changes would be likely to vary with changes in sales volumes.

9.　In this case, changes in volumes would be expected to impact a number of these more local costs, which we examine in more detail below.

10.　Although the time period may be relevant, the proportion of local costs which should be considered variable appears likely to be primarily constrained by the operating model itself, rather than the speed at which the changes can be implemented (eg changes in staff costs will depend on the extent to which the Parties will require additional hours of staff work to supply the increased volumes).

In-store grocery variable margins

11.　Sainsbury's stated that it has an existing estimate of its grocery variable margins that it uses for internal decision making. It stated that this is around [✂]%, and provided examples of when this was used in the past.

12.　Asda stated [✂]. It stated that, for groceries, this would be around [✂]%, and provided a number of examples to demonstrate individual projects where this approach was used in the past.

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[1] *CMA62*, technical box 1.

13. In order for the CMA to understand the basis of these figures, the Parties provided a breakdown of individual cost lines which they considered were variable with volumes. This was based on a bottom-up analysis of the time or costs associated with individual tasks and then aggregated to these cost lines. This exercise produced the results shown in Table 2 below.

Table 2: Summary of variability of cost lines for in-store groceries

%

	Sainsbury's variability	Asda variability
Gross margin	[✂]	[✂]
Wastage	[✂]	[✂]
Shrinkage	[✂]	[✂]
Store wages	[✂]	[✂]
Distribution/Logistics	[✂]	[✂]
Loyalty card (Nectar)*	[✂]	[✂]
Colleague discount	[✂]	[✂]
Retail controllable costs (RCC)**	[✂]	[✂]
Marketing	[✂]	[✂]

Source: The Parties.
* Sainsbury's customers can earn one Nectar point for every £1 qualifying spend in-store or online.
** Includes costs such as utilities, with variable elements including stores consumable costs such as carrier bags pizza boxes, wrapping material and card transaction costs.

14. Three cost lines make up the large majority of total costs, and so the variable margin figure will be most sensitive to estimates of the variability of these specific lines. These are: (i) COGS (around [✂]% of revenue); (ii) store wages (around [✂]% of revenue); and (iii) distribution/logistics costs (around [✂]% of revenue).

15. We had some concerns that the variability of certain tasks used in the Parties' bottom-up analysis might be overstated, resulting in low margins. In particular, we identified that:

    (a) With regard to store costs, the Parties' analysis appears to indicate that certain tasks which account for much of the spend are treated as being [✂] (eg [✂]); and

    (b) With regard to distribution/logistics costs, the Parties had treated all hourly paid staff labour costs as [✂]% variable, which appears unlikely and produces implied variability of distribution for Asda above the values used in the selected investment cases it provided.[2] Furthermore, the fact that the Parties do not allocate warehousing costs to stores would indicate that these elements may represent a largely fixed cost, and would support a lower variability in distribution costs.

16. In response to the CMA raising these concerns, the Parties provided an econometric analysis that examined how differences in sales correlated with

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[2] [✂].

differences in in-store labour, warehousing, shrinkage and marketing cost across their estate and over time. This generally showed that differences in costs were highly correlated with differences in sales. The Parties stated that this analysis demonstrated the conservatism of the Parties' estimates submitted in the Merger Notice (ie that the costs are more variable than originally submitted).

17. We have a number of concerns with this econometric analysis, and the resulting estimates of variability, which would indicate that the estimates it calculates are overstated. In particular:

(a) The variability levels are almost all substantially higher than the figures which the Parties state that they use for internal decision making.

(b) The analysis shows a number of counterintuitive results, in particular that a number of costs are more than 100% variable; and it may not reflect certain costs which the Parties told us have fixed elements (eg [✂]).

(c) The analysis does not control for differences in the economic environment of stores that might affect their cost functions. For example, we would expect a store's demand for labour to be driven not just by the volume of its sales, but also by its productivity and by the local cost of labour and other factors.[3] Omitting these factors may bias the estimate of cost variability. Some of these factors (eg productivity) are fundamentally unobservable, while others (eg input costs) could be measured in principle but are not currently available to the CMA. Nevertheless, as a sensitivity on the Parties' results, the CMA reran its analysis including 'fixed effects' for stores, which control for the effects of these store-specific variables under the assumptions that they are constant over time. This sensitivity produced lower estimates of cost variability. For example, the variability of labour costs reduces from [✂] to [✂]% for Sainsbury's, and from [✂] to [✂]% for Asda. The variability of logistics costs reduces from [✂] to [✂]% for Sainsbury's, and from [✂] to [✂]% for Asda.

(d) The variables are expressed in value terms (rather than volumes), which could be a source of bias if there are some unobserved variables that are positively correlated with both unit prices and wage rates in local areas. These would result in overestimating the level of variability.

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[3] For example, if we assume that the volume of sales that a store can generate depends on its productivity, its size and the amount of labour employed (with a degree of substitutability between store size and store labour), then its demand for labour will depend not just on sales, but also on the local cost of labour, the local cost of store space (rent), and this store's productivity.

(e) In some places, the analysis appears to rely on local data which may involve allocations rather than direct measurements. This would result in the regression analysis testing the extent to which the allocation approach correlates with sales changes, rather than the underlying costs.

18.   Weighing the available evidence in the round, we consider that the best figures we have available are those submitted by the Parties in their Merger Notice. However, we consider that in adopting these estimates we may be overestimating the extent of variability of some cost lines and therefore underestimating the variable margin.

GM variable margins

19.   The Parties did not provide any estimates of their GM variable margins, stating that they did not consider that the competitive assessment of GM would require a GUPPI analysis.

20.   We consider that the margins generated by the Parties in GM can affect their broader business incentives and are therefore relevant for numerous aspects of our competitive assessment (eg any 'halo' effect on groceries and fuel margins, see paragraphs 36 and 37 below).

21.   Since many of the assets and personnel used to supply GM overlap with in-store groceries (eg the stores, checkouts and staff, aspects of distribution, etc), we have applied the same individual cost line variability figures estimated for in-store groceries to GM. As noted in paragraph 4 above, this has sometimes involved estimating a split of these costs between groceries and GM if they are not directly tracked by the Parties.

Online groceries variable margins

22.   The Parties did not provide any estimates of their online variable margins.

23.   Both Parties stated that they [✂]. Accordingly, their corresponding online P&Ls are only used for internal management purposes.

24.   We note that the Parties' accounts are constructed such that, if certain costs are not being fully allocated to online groceries, they would instead be reflected as a cost in in-store groceries. The effect of this is that estimates based on these accounts are likely to understate the in-store grocery margins (ie too much cost would be allocated to in-store groceries, pushing the calculated margin figure lower than the true figure), and overstate the online grocery margins (ie too little cost would be allocated to online groceries, pushing the calculated margin figure higher than the true figure).

25.   We recognise that these online margins are approximate as they are based on accounting figures which may not fully capture all associated economic costs and benefits, so the accounting profitability of online groceries may understate its economic profitability. For example, Iceland told us that having a good online offer helped its in-store offer, stating 'the stronger Iceland's online offer is, the greater Iceland's ability to compete because new customers will more likely come in-store when they see how good Iceland's online offering is. The poorer the experience is online the less likely it is that customers will go in-store, and so reduces Iceland's competitive advantage'.

26.   In the absence of other available evidence, we have used the Parties' online P&Ls, and applied the same individual cost line variability estimated for in-store groceries to online groceries to provide an estimated variable margin.

PFS (including fuel) variable margins

27.   When considering the variable margins associated with the sale of fuel, we have also included the revenues and costs associated with the PFS site (eg shops, carwashes, ATMs, etc).

28.   The Parties noted that including non-fuel aspects would require an assessment of the extent to which such sales would decline if fuel volumes were to be lost, which would not be fully variable (for example, customers may come to the PFS just to use the car wash). On the basis of a price trial it had conducted, Sainsbury's estimated these as being [✀]% variable, while Asda was unable to conduct equivalent work and so assumed that these were [✀]% variable.

29.   The Parties stated that the variable elements of its PFS costs were [✀].

30.   We consider that the Parties characterisation of these costs being fully variable is reasonable, and so have incorporated it into our analysis.

Incorporation of margins into the GUPPI analyses

Use of national vs local margins

31.   In addition to their national accounts, used to calculate national average margins, the Parties also provided their local-level management accounts. In a number of places, the national and local accounts are not directly comparable ([✀]). In addition, the Parties have not included or do not have access to direct measurements of all of the specific costs we would look to include. In these circumstances, we have made a best estimate of an adjustment or allocation methodology.

32. The Parties stated that we should use national margins in our GUPPI analysis, rather than local margins. They stated that differences in local margins are largely as a result of the mix of products sold, which is primarily driven by differences in demographics between local areas rather than differences in competition. In addition, the Parties noted that in order to estimate local variable margins requires the allocation of certain costs or proportions of costs, which further dilutes any link between these estimated margins and local competition.

33. We disagree with this assessment, and consider that calculating local margins for use in any GUPPI analyses would be preferable. This is because:

   (a) We are conducting a local incentives analysis for certain theories of harm and would generally expect local margins to reflect the local competitive conditions better than a national margin figure, and hence be a more accurate representation of the incentives on the Parties.

   (b) The margins in the GUPPI reflect the value of recaptured sales in the event of a price rise. Where product mix is skewed towards higher margin products in a local market, this should be reflected in the incentives analysis.

   (c) Competitive differences are one aspect of selecting range, which affects the mix purchased, and hence the local margins.

   (d) Local margins do not only reflect mix differences. They also reflect differences in other costs where these are tracked a local level ([✄]).

   (e) If we instead adopted a national average, this would ignore any information which is available at the local level, effectively pro-rate all costs to individual stores. We consider that this would not be an accurate representation of local incentives.

34. Figures 1 and 2 at the end of this Appendix show the distribution of local in-store grocery variable margins for medium and large stores.

35. We note that for online groceries, and where local margins data is not available (eg pipeline stores) or we have concerns about the accuracy of this data (eg new stores which do not have a full year of trading, or where the implied margins are clear outliers),[4] we have used average national margins.

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[4] Where in-store grocery variable margins differ by +/- [✄]% from the national average, GM by +/- [✄]%, and PFS by +/- [✄]%.

Halo effect

36. As discussed in Chapter 8 of the Provisional Findings, in our assessment of in-store groceries GUPPI, we have increased Sainsbury's and Asda's in-store groceries margin in order to reflect that customers may purchase GM on top of groceries when switching to the other merging party.

37. In our assessment for fuel GUPPI, we have also considered the interaction between fuel and non-fuel sales. In determining the appropriate adjustment, we took into account the following evidence, as discussed in the Provisional Findings paragraphs 14.120 to 14.124:

    (a) the proportion of fuel customers who also purchase groceries;

    (b) the patterns of diversion for customers who purchase both fuel and groceries, including the proportion of customers who would divert their fuel spending alone and those who would divert both their fuel and groceries spending, either separately or together; and

    (c) the variable margins on groceries and GM at the supermarket adjacent to each PFS.

Effects of efficiencies on margins

38. The Parties' submissions have included an estimate of £[✂] of synergies as a result of the Merger, with £[✂] of these representing variable cost savings. Where variable cost savings are generated, the immediate effect would be to increase the profitability of any recaptured spend, increasing the associated margins. Accordingly, it is appropriate to include this effect in the GUPPI calculation.[5]

39. We have assessed the Parties submissions on expected rivalry-enhancing efficiencies (see Chapter 16 of the Provisional Findings), and provisionally conclude that the appropriate figure to use is £[✂], which is allocated between the Parties and across in-store groceries, online groceries, and GM. Accordingly, we have included the effect of this as an increase in these variable margins.[6]

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[5] As acknowledged in the Parties' response to the GUPPI working paper.
[6] The calculation used to adjust the current margins is multiplying by
{1 + [(efficiencies / variable costs) * (1 - variable margin) / variable margin]}.

Provisional conclusions on margin figures for our analysis

40.   Table 3 below shows the national average variable margins calculated by applying the approaches described above. As noted in paragraph 11.41 of the Provisional Findings, the online groceries variable margins may be overestimated, particularly for Sainsbury's.

Table 3: Average post-efficiencies variable margins

%

	Sainsbury's		Asda	
	Average gross margin	Average variable margin	Average gross margin	Average variable margin
In-store groceries	[✄]	[✄]	[✄]	[✄]
Online groceries	[✄]	[✄]	[✄]	[✄]
GM	[✄]	[✄]	[✄]	[✄]
PFSs (including fuel)	[✄]	[✄]	[✄]	[✄]

Source: CMA analysis

41.   As discussed in paragraph 33 above, for in-store groceries, GM and PFSs we have calculated local variable margin estimates and are using these as inputs into the local GUPPI analyses. For illustrative purposes, we have included Figures 1 and 2 below showing the distribution of local in-store grocery variable margins for medium and large stores for each of the Parties.

Figure 1: Sainsbury's distribution of local in-store grocery variable margins for medium and large stores

[✄]

Source: CMA analysis.

Figure 2: Asda distribution of local in-store grocery variable margins for medium and large stores

[✄]

Source: CMA analysis.

Appendix G: Pricing analysis

1.   This appendix contains further results from our pricing analysis as used as part of our assessment of pre-existing coordination in in-store groceries (discussed in Chapter 9).

2.   As set out in Chapter 9, we examined whether price rises by grocery retailers were consistently followed by other grocery retailers within two weeks. In the data we reviewed, we found that the members of the hypothetical coordinating group had not consistently changed their prices following price changes made by their competitors.

Further results

3.   This appendix includes the following sets of results:

   (a) Base case: [✂] initiating price changes or responding to price changes;

   (b) [✂] as initiator or responder;

   (c) Higher revenue products;

   (d) Branded products;

   (e) Allowing for simultaneous price movements (ie within the same week);

   (f) Extending the time window allowed for competitors to adjust their price from two weeks to three weeks;

   (g) Extending the time window allowed for competitors to adjust their price from two weeks to four weeks;

   (h) [✂];

   (i) Including temporary promotions; and

   (j) Disregarding price changes smaller than 5%.

4.   For each set of results, we present the following:

   (a) Initial price change by: this is the grocery retailer whose price changes we are considering.

   (b) Response by: this is the grocery retailer whose response we are considering.

(c) Number of price increases (decreases): this is the total number of price increases (decreases) made by the grocery retailer whose price changes we are considering.

(d) Number of responses: this is the number of times within two weeks that the grocery retailer whose responses we are considering also increases (decreases) its prices.

(e) Proportion of responses: the percentage of price changes where there is a response.

Tables

[✂]

Appendix H: Online delivered groceries: Likelihood of entry and expansion

Introduction

1. In this appendix we consider the likelihood of entry and expansion in online delivered groceries. This evidence informs our competitive assessment and whether the Merger could lead to an SLC. The remainder of this appendix is structured as follows.

   - Section 1 summarises the framework for assessing entry.

   - Section 2 describes the investment required to provide online delivered groceries, covering both CFCs and store-picking.

   - Section 3 describes the specific entry and expansion plans of the Parties and third parties and our assessment of the potential impact of these plans on whether the merger is expected to result in an SLC.

Framework for assessing entry

2. The Merger Guidelines state that, in assessing whether entry or expansion might prevent an SLC, the CMA will consider whether entry or expansion would be likely, timely and sufficient.[1]

   - **Likely.** 'The Authorities will consider not only the scale of any barriers to entry and/or expansion that may impact on the likelihood of entry or expansion but also whether firms have the ability and incentive to enter the market (or the intent to do so). For example, in a market characterised by low barriers to entry and/or expansion, entrants may nevertheless be discouraged from entry by the small size of the market, or the credible threat of retaliation by incumbents (whether in the same market as the merged firm or another where that new entrant is already present).'[2]

   - **Timely.** 'Entry and/or expansion must also be expected to be sufficiently timely and sustained to constrain the merged firm. The Authorities may consider entry or expansion within less than two years as timely, but this is assessed on a case-by-case basis, depending on the characteristics and

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[1] *CC2 Revised*, paragraph 5.8.3.
[2] *CC2 Revised*, paragraph 5.8.8.

dynamics of the market, as well as on the specific capabilities of potential entrants.'[3]

- **Sufficient.** 'To be considered a competitive constraint, entry or expansion should be of sufficient scope to deter or defeat any attempt by the merged firm to exploit any lessening of competition resulting from the merger. Small-scale entry, when the market share of the entrant is small compared with that of the merged firm, may nonetheless be sufficient to prevent an SLC for undifferentiated goods where there are no barriers to further expansion. By contrast, small-scale entry by a producer of differentiated goods may be insufficient, even when the entry may be the basis for later expansion. For example, entry into some market niche may be possible, but the niche product may not necessarily compete strongly with other products in the overall market and so may not constrain incumbents effectively.'[4]

Investment required for online delivered groceries

3. In this section we describe the investment required to provide online delivered groceries. We first describe the Parties' and third parties' views on entry and expansion. We then consider entry and expansion using the CFC model and then the store-pick model.

Parties' views on entry and expansion

4. The Parties told us that there was substantial evidence of new entry and expansion in online delivered groceries. They told us that the investment required for online delivered groceries was not sufficiently high to deter entry and expansion. For example, new online only grocery retailers such as Deliveroo, Grocemania and Homerun already competed to provide online delivered groceries, relying on the grocery store estate of third party competitors. The Parties also told us that current entry and expansion plans were underplayed by the CMA. For example:

(a) The Parties understood from a Retail Gazette report that Amazon was planning to launch Amazon Go bricks and mortar grocery stores and the Parties told us that these stores could be used to support Amazon's online delivered groceries capability.[5]

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[3] *CC2 Revised*, paragraph 5.8.11.
[4] *CC2 Revised*, paragraph 5.8.10.
[5] The Retail Gazette (10 December 2018), 'Amazon Go eyes London's West End for first UK store'.

(b) 'While the exact details of M&S' future online grocery delivery may not be known, the threat of expansion into the online channel is sufficiently clear so as to be factored into the constraints informing the Parties' commercial strategies'.

(c) [✂]

(d) The Parties also stated that the Tesco coverage maps that appeared in a CMA working paper understated the coverage of Morrisons and other retailers.

Third parties' views on entry and expansion

5.   Tesco told us that entry or expansion was not straightforward. Construction of CFCs was expensive and took time. In addition, CFCs were only viable in parts of the country with a sufficiently high density of online orders to make the investment economic. This was shown by the fact all CFCs were currently in southern England.

6.   Morrisons told us that the advantages and/or disadvantage of greater scale (including within procurement) were limited.

7.   [✂] told us that the key barriers to entry in online delivered groceries were the technical capability, availability/stocking and physical fulfilment network.

8.   Waitrose had concerns that the proposed merger may serve to increase barriers to entry or expansion for new/smaller players, thereby restricting customer choice and slowing down the pace at which the online customer offer develops.

9.   Amazon told us that greater scale can bring a range of advantages including logistical efficiencies, reduced last mile delivery costs and the ability to spread overheads.

10.   Ocado told us that it had two barriers when compared to its competitors. [✂]. Its competitors also subsidised their loss making online operations with profits from their store business. Ocado had no store business to rely on. Ocado told us that scale was most important in procurement, delivery, marketing, technology and central functions.

Assessment of the CFC Model

Assets required

11.   An Asda investment appraisal document [✂] showed that the major capital outlays were for land and building work. This included [✂].

Investment required

12.   Asda has invested in [✂] CFCs to fulfil online delivery: [✂].

13.   Sainsbury's told us that the cost of a CFC was around £[✂]. Internal documentation suggested the [✂].

14.   Amazon told us that over the past three years the average costs incurred by Amazon in expanding to a new city for AmazonFresh or Prime Now were £[✂].

15.   Morrisons told us that [✂].

16.   Ocado told us that expansion costs varied depending on how it expanded.

- New geography via an existing spoke:[6] the cost of entry was minimal as existing resources (people and vehicles) could be deployed into the new area. Similarly there were minimal exit costs.

- New geography via a new spoke or existing CFC: the investment in a new spoke was between £[✂]. This cost would not be recoverable in the event of an exit. There would be an additional cost of vans of £[✂], which could be used elsewhere in the existing geographies in the event of an exit. Typical annual operating costs were £[✂].

- New geography via a new CFC. The investment in a new CFC would be £[✂], dependant on size and location, with additional investment in two to five spoke sites at £[✂]. These costs could not be recovered in the event of exiting. There would be additional costs for vans of £[✂] at capacity. These could be used elsewhere in the existing geographies in the event of exit. Typical annual operating costs were £[✂] dependent on scale.

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[6] A spoke is a smaller distribution point closer to the end customers. Orders are trucked from the CFC to the spoke and then delivered in vans.

17.   Asda told us that the lead time between approving and opening a CFC was between [✂]. Sainsbury's told us that it had taken [✂]. Ocado told us that timelines depended on how it expanded. The lead time to plan and build a new spoke was [✂] and for new CFC it was [✂].

Recent examples

18.   Asda decided [✂].

19.   Asda documentation showed [✂].

20.   Sainsbury's internal documentation suggested [✂].

Our assessment

21.   The evidence shows that CFCs require considerable investment [✂]. This, and the extended timelines, establish that there are considerable barriers to entry for firms who seek to enter online delivered groceries by building CFCs. Furthermore, any firm which wished to enter online delivered groceries through the building of CFCs would have to invest in other assets, including an online website.

22.   With regard to expansion, we note that even companies using the CFC model which have expanded their online delivered groceries presence more recently, such as AmazonFresh, still have relatively small shares of supply. This suggests that even if there were geographic expansion using CFCs, or spokes served by CFCs, the impact on existing online delivered groceries retailers could be relatively small. We take these issues into account when we consider online delivered grocery suppliers' specific entry expansion plans below.

Assessment of store-pick model

Assets required

23.   Asda told us that when it decided store-picking was the correct approach it would add a 'pod' with storage space and a loading area for the delivery vans. [✂].

24.   Sainsbury's told us that store-picking required an internal storage area and an external area for van loading and parking.

25. Iceland told us that the costs of expansion online included vans, crates, handheld-terminals etc.

26. Tesco told us that conversion of stores to store-pick required both sufficient space within the store to pick and pack, and the space and planning consent for delivery vans.

Investment required

27. Asda supplied internal documents showing investments of £[✂]. Sainsbury's said investment introducing online capacity to an existing store generally cost £[✂].

28. Iceland told us that online expansion cost approximately £[✂] to prepare the store to fulfil online orders. These costs included vans, crates and handheld-terminals. Waitrose told us that the cost to enter or expand was very much determined by what works were required to create the necessary space within a [✂] operation. Specific equipment to operate picking and deliveries was in the region of £[✂]. The capital cost of a delivery van was approximately £[✂] and each [✂] had a minimum of [✂] vans.

Timelines

29. Asda told us the investment timeline for new store-picking capacity was around [✂]. Sainsbury's told us that where an online grocery operation could be introduced using existing excess space in a store, the timeframes were considerably shorter than [✂].

30. Iceland told us that lead times to start an online service varied but could be as little as four to six weeks for the expansion of store or service from existing stores, or anywhere from three to six months for new online store offerings eg new store openings, pick centres or fulfilment centres. The lead times for offering online out of Food Warehouse stores would be approximately [✂].

31. Waitrose told us that a minimum [✂] lead time was usually required.

Recent examples

32. Asda supplied documents showing investments of £[✂].

33. Sainsbury's supplied documents that showed it had invested £[✂].

34.   Iceland gave an example of expansion in April 2018, [✂].[7]

35.   Waitrose told us that during the last three years it had [✂] of a new store serving a new geography. Investment costs for online delivered groceries were £[✂] for picking and delivery equipment and [✂] vans at £[✂] each.

Our assessment

36.   The evidence shows that the store-pick model appears to be cheaper and more profitable, but this option is available only to those firms which have existing stores. It could therefore be used to enter online delivered groceries by firms which already sell groceries, but do not have an online offer. It is also possible that a retailer could use a third party delivery company to provide fulfilment services. We considered this option in our discussion of specific entry and expansion plans below.

37.   With regard to expansion, the store-pick model could be a quicker option, compared to CFCs, for those firms that already offer online delivered groceries. However, this is only where they have stores in the geographic areas they want to expand into and they can convert those stores for use in online delivered groceries. We take these issues into account when we consider retailers' specific and entry expansion plans below.

Specific entry and expansion plans

38.   Below we consider the specific entry or expansion plans of the Parties and third parties. We then present our assessment of the evidence.

Parties' views

39.   Asda told us that it had [✂]. Asda also told us that it had no major plans to expand geographic coverage of its delivery service over the next three years as it already served over 99% of postcodes.

40.   Sainsbury's told us that it had [✂]. However, it did plan to expand its geographic coverage through the provision of online delivered groceries from its new Kendal store.

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[7] [✂]

41.   The following third parties told us that they had no definitive plans to enter online delivered groceries: Booths, Co-op, and M&S. Costcutter told us that it had no definitive plans to enter online delivered groceries in Northern Ireland.

42.   Aldi told us that as the UK's largest supermarket without an online delivered groceries offering, it was regularly approached by third-party logistics providers specialising in the delivery of online delivered groceries. It had received several sales pitches from providers such as Deliveroo, Home Run, Quiqup and On the Dot, proposing that it enter into a partnership with them to sell online delivered groceries. These had not been progressed and Aldi had no immediate plans to move into online delivered groceries.

43.   Lidl told us [✂].

44.   The following third parties told us that they were not planning on expanding their geographic coverage: Tesco and [✂].

45.   Amazon told us [✂].

46.   Iceland told us that it planned to expand its delivery coverage in the next two years. This expansion would cover multiple areas of the UK, including Birmingham, Brighton, Leicester, London and Sheffield.

47.   Morrisons told us [✂].

Our assessment

48.   The evidence above on specific entry and expansion plans shows varying appetites for expansion in online delivered groceries. We have assessed the Parties' views on expansion by third parties, including their arguments that some grocery retailers could use third parties to delivery groceries. We place more weight on the views and documentary evidence we have received directly from third parties regarding their own entry and expansion plans.

49.   Having reviewed the evidence above, we provisionally found that there was no entry into online delivered groceries which would be timely or likely.

50.   With regard to expansion, we provisionally found that the geographic expansion by Iceland and [✂] would be timely and likely. We adjusted our

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[8] We also contacted Supervalu and Dunnes to understand whether they were planning on providing online delivered groceries in Northern Ireland, but did not receive a response.

competitive assessment to account for the timely and likely entry by Iceland and [✂] and this is described in Chapter 11.

Appendix I: Online market share and GUPPI methodology

Introduction

1.   This Appendix covers our approach to calculating market shares and GUPPIs at both the national and Supply Point level, and a list of provisional SLCs at the Supply Point level.

Delivery coverage and revenue data

Delivery coverage data

2.   Parties and third parties (that sell online delivered groceries) provided a list of UK postcodes that they deliver to.

3.   The Parties provided this data at the postcode sector and unit levels.[1]

   (a) Sainsbury's provided their data in four parts:

   (i)   the names of all postcode sectors they served as at 31 December 2018. Within these postcode sectors, they served all postcode units;

   (ii) the names of [✂] postcode sectors they did not serve as at 31 December 2018;

   (iii) the names of selected postcode units they served within other postcode sectors they would not otherwise serve as at 31 December 2018. [✂];

   (iv) the names of selected postcode units they did not serve at all. These postcode units are eliminated from the Sainsbury's delivery coverage and

   (b) Asda provided the names of all postcode units they served as at October 2018.

4.   The third parties provided their data at the postcode unit, sector and district levels.

   (a) Amazon provided the names of all postcode districts they served for AmazonFresh. Within each postcode district, they served all postcode units as at October 2018.

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[1] Please see the glossary for a definition of the different postcode levels.

(b) Iceland provided their data in two parts:

(i) the names of all postcode sectors they served as at July 2018, within which they served all postcode units; and

(ii) the names of selected postcode units they served within other postcode sectors as at July 2018.

(c) Morrisons provided the names of all postcode sectors they served as at July 2018. Within each postcode sector, they served all postcode units.

(d) Ocado provided their data in two parts:

(i) the names of all postcode sectors they served as at October 2018. Within these postcode sectors they served all postcode units; and

(ii) the names of selected postcode units they did not deliver to at all as at October 2018. These postcode units were eliminated from Ocado's delivery coverage at the postcode unit level.

(e) Tesco provided their data in two parts:

(i) the names of all postcode sector they served as at July 2018. Within these postcode sectors they served all postcode units; and

(ii) the names of selected postcode units they did not deliver to at all as at October 2018. These postcode units were eliminated from Tesco's delivery coverage at the postcode unit level.

(f) Waitrose provided the names of all postcode sectors that Waitrose.com delivers to as at October 2018. Within these postcode sectors they served all postcode units.

5. We used the Office for National Statistics Postcode Directory August 2018 data release to determine each party's coverage at the postcode unit level. Each party's data was merged with the postcode directory to ascertain their delivery coverage at the postcode unit level.

6. This provided our base data for which competitor supplies which postcode unit.

7. We also received a list of postcodes that Sainsbury's, Iceland and Morrisons have planned to start delivering to.

(a) Sainsbury's have names of [✂] postcode sectors they plan to expand into and serve by 31 December 2019.

(b) Morrisons provided details of postcode sectors they plan to expand into and serve by the end of 2019.

(c) Iceland provided details of postcode sectors they plan to expand into and serve by the end of 2019.

Revenue data

8. We also requested revenue data from the Parties and selected third parties on online delivered groceries sales made in 2017.

9. This data was provided at the postcode unit level for the Parties and Iceland, and the postcode sector level for Tesco, Ocado, Morrisons, Waitrose and AmazonFresh.

10. For the Parties:[2]

    (a) Sainsbury's provided this data for the financial year (FY) 2017/18 at the postcode unit level.

    (b) Asda provided this data for the calendar year 2017 at the postcode unit level.

11. For third parties:

    (a) AmazonFresh, Morrisons and Ocado provided their sales revenue data at the postcode sector level for the calendar year 2017.

    (b) Iceland provided the sales revenue data at the postcode unit level for the FY 2017/18.

    (c) Tesco and Waitrose provided their sales revenue data at the postcode sector level for the FY 2017/18.

12. We used the Office for National Statistics Postcode Directory August 2018 data release to determine the total sales revenue for each party at the postcode unit level.[3]

13. Within the limitations of the data provided to us, to ensure the revenue data was as consistent as possible between different retailers, we have made the following adjustments to the data:

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[2] As required by the CMA, Sainsbury's and Asda provided the data at the anonymised customer account level. For each anonymised customer account, the details for each postcode unit and sales value was provided.
[3] Each party's data was merged with the postcode directory to ascertain their actual delivery coverage revenue at the postcode unit level.

(a) Where parties provided their sales revenue at the postcode sector level, we have assumed an equal share of this revenue across all the postcode units that form part of each postcode sector.

(b) Where parties have provided data on a financial year basis, we have sought to ensure the data has been for the FY 2017/18.

(c) For the sales revenue data, we have sought to ensure the data have been calculated on a consistent basis, as follows:

   (i) Figures include VAT, customer refunds, online promotional discounts, pay as you go delivery charges, subscription delivery pass charges (if they are offered by the party) and discount vouchers.

   (ii) Figures exclude click and collect revenues from online orders or other variants of these types of services and general merchandise sales from online grocery orders.

(d) Where each party's data did not include or exclude these elements, we have adjusted this data as per each party's suggestion as to how best to estimate the figures we needed.[4] Where data contained negative values, we replaced these negative values with zero.[5]

14. As the delivery coverage data and revenue data are from two slightly different time frames[6] there are discrepancies between each dataset:

(a) In some cases, there may be sales revenue associated with postcode units that the relevant competitor/Party stated they did not deliver to.[7]

(b) where parties have provided their sales revenue data at the postcode sector level, sales revenue is equally shared and assigned to postcode units which form part of a postcode sector.[8]

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[4] Each party provided a variation of this data. If certain elements were not excluded (or included) from their data, we adjusted this data as per each party's recommendation. Where this could not be provided at the postcode unit or sector level, we applied a uniform adjustment to each postcode based on a national estimate of the element.
[5] Each Party provided an explanation as to why there were [✂]. Asda told us that [✂]. Sainsbury's told us that [✂].
[6] Sales revenue data is provided on a calendar year basis for 2017 or for the FY 2017/18 and delivery coverage data was provided from the second/third quarter of 2018 onwards (depending on competitor/Party).
[7] Some of the responses received from parties stated that revenue for a particular postcode unit could exist even if they don't serve that unit because: (1) a customer requested a delivery and the party chose to serve the customer request; (2) delivery coverage is periodically reviewed; and (3) a store closed in 2017 and thus no longer serves selected postcode units (but the revenue is still reported for 2017).
[8] This means it is possible sales revenue may be assigned to a postcode unit where no actual sales have been recorded.

15. Given the above, and that the coverage data is more up to date, we have used the coverage data to determine whether any party supplies a postcode, regardless of whether sales are recorded in that postcode or not.

16. We have used the revenue data in two ways:

- To calculate market shares, at both the national and Supply Point level, as discussed below.

- To provide the revenue split across different bands[9] within the Parties' Supply Points.

Market shares

17. At the national level, shares of supply were calculated by dividing each online grocery retailer's total revenue (as described above) by the combined total revenue from all online grocery retailers.[10]

18. At the Supply Point level, market shares were calculated by dividing each online grocery retailer's total revenue for all the postcode units that fall within the delivery area for that Supply Point, by the combined total revenue for all retailers for all the postcode units that fall within the delivery area for that Supply Point.

GUPPIs

19. Our national GUPPIs are based on direct survey diversion from the CMA online survey. We consider this highly robust given the nationally representative[11] nature of our survey and the very large sample size. We first discuss how the diversion question were asked in the survey, and how we interpreted it, before we discuss the Supply Point diversion estimates.

Survey diversion

20. The GUPPIs are calculated in response to a both a forced and price diversion question. These were asked in several steps:

(a) First, respondents were asked what they would have done had the overall cost of shopping online gone up by about 5%.

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[9] Bands are explained in more detail in paragraph 29, but these are simply groups of competitors ie Band 3 is Asda, Sainsbury's and Tesco.
[10] Ie Tesco, Asda, Sainsbury's, Morrisons, Ocado, Waitrose, AmazonFresh and Iceland.
[11] Representative of the Parties' orders in terms of geographic spread and value.

(b) Respondents who stated they would not have used the Party's online grocery website ('marginal' customers) were asked what they would have done instead (valid responses were: shopping online with another provider, shopping at a store and not having shopped at all).

   (i) Those who stated they would have shopped online were asked which website/app or store they would have been most likely to shop with.

   (ii) Those who stated they would have shopped at a store were asked which store they would have been most likely to shop with.

(c) Respondents who stated they would have continued to use the Party's online grocery website after a 5% price rise ('inframarginal' customers) were asked what they would have done if the Party's website and app were not available. They were given the same options as marginal customers (shopping online, shopping at a store, and not shopping) and their diversion behaviour was captured using the same method.

21. In calculating diversion, we made the following assumptions:

(a) When calculating the direct estimates for the online diversion questions, if the customer had selected a retailer that does not deliver to the customer's postcode, the response was coded as invalid and the amount spent by the customer was reallocated to the remaining valid online and in-store retailers.[12] This approach was carried out for all areas apart from areas where the Parties do not overlap.

(b) Similarly, when the customer gave a valid response to the question of whether they would divert to a store or online, but did not know which retailer they would use, ie, selected 'Don't Know' as a response for the online or in-store diversion questions, the amount spent by the customer was reallocated to retailers in the same delivery channel in proportion with the observed data.

(c) The direct diversion ratios were weighted by the amount spent by each customer. The diversion ratios calculated was the summation of forced (inframarginal) and price (marginal) diversion ratios including diversion to own brand.

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[12] A very small number of customers mentioned Aldi or M&S, we have treated these customers in the same way given that they do not sell online delivered groceries.

The national GUPPI

22. To calculate a national GUPPI for Asda and Sainsbury's we have combined the survey diversion with national margins[13] and the price ratio between the two retailers.[14]

23. The national GUPPI takes into account that some online sales will divert to the other merging Party's instore offer. Below we set out the formula that we have used to calculate GUPPI values. In doing so we use the following notation for the relevant input variables:

    (a) p refers to the price level of a given supplier.

    (b) mo refers to the national online margin (either Sainsbury's or Asda).

    (c) ms refers to the national instore margin (either Sainsbury's or Asda).

    (d) $DRO_{A \rightarrow B}$ refers to the diversion ratio from party A's online business to party B's online business (the national estimate taken from the CMA online survey).

    (e) $DRS_{A \rightarrow B}$ refers to the diversion ratio from party A's online business to party B's instore business (the national estimate taken from the CMA online survey).

24. We also use the following subscripts to refer to the relevant parties:

    (a) S refers to Sainsbury's.

    (b) A refers to Asda.

25. The following formula is an index of the incentive to increase prices at Sainsbury's online. For the reverse case (price rises at Asda online) we use an analogous formula.

$$
\begin{aligned}
GUPPI_{SA} = &([diversion\ from\ Sainsbury's\ online\ to\ Asda\ online] \\
&* [Asda's\ online\ margin] \\
&* [ratio\ of\ Asda's\ price\ to\ Sainsbury's\ price]) \\
&+ ([diversion\ from\ Sainsbury's\ online\ to\ Asda\ store] \\
&* [Asda's\ instore\ margin] \\
&* [ratio\ of\ Asda's\ price\ to\ Sainsbury's\ price])
\end{aligned}
$$

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[13] We discuss margins in Appendix F.
[14] The price ratio is the extent to which one Party's prices are higher or lower than the other. For online delivered groceries we have used the same price ratio as for instore groceries ([✁] from Asda to Sainsbury's). See Appendix E on the local assessment for an explanation of how this figure is calculated.

Or in notation:

$$GUPPI_{S \to A} = (DRO_{S \to A} mo_A \frac{p_A}{p_S}) + (DRS_{S \to A} ms_A \frac{p_A}{p_S})$$

Supply Point GUPPIs

26. For our local assessment, where possible we use the direct survey estimate of diversion for a given Supply Point (henceforth referred to as 'direct survey diversion') to feed into the GUPPI calculation. However, although our overall sample size is large, given the total number of Supply Points across both Parties ([✂]), in many Supply Points the sample size is fairly small. Following best practice in survey design, we place more weight on survey diversion estimates when the sample size is larger.[15] In particular, we have only calculated GUPPIs based on direct survey diversion for a given Supply Point when the sample size for that Supply Point is at least 100.

27. Where our sample size is less than 100 for a Supply Point we have estimated diversion for each Supply Point (henceforth referred to as 'estimated diversion').

Estimated diversion ratios

28. This section explains the methodology used to calculate estimated diversion ratios and describes our assessment of their robustness.

Methodology

29. First, we identified which competitors were active at each postcode unit in the UK.[16] Each postcode unit was then assigned to a group, according to the set of competitors that offers online delivered groceries to customers in that postcode unit (these groups of competitors are referred to in this Appendix as 'Bands'). For example, Band 6 consists of Asda, Sainsbury's, Tesco and Ocado, Band 13 consists of Asda, Sainsbury's, Tesco, Ocado and Waitrose.

30. We then used the CMA online survey to calculate a diversion ratio between the Parties for each Band (that is, average diversion from Sainsbury's online to Asda online, and Sainsbury's online to Asda stores, and the same from Asda to Sainsbury's, based on all customers within a given Band).

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[15] *Good practice in the design and presentation of customer survey evidence in merger cases (CMA78)*.
[16] Postcodes can be broken down into a number of components. The postcode unit is the full postcode and therefore the most granular level of postcode geography. See glossary for more detail.

31. As discussed in Chapter 11, these diversion ratios are based on a combination of forced and price diversion,[17] including own brand diversion.[18]

32. Each Asda and Sainsbury's Supply Point will deliver to a number of postcode units in the delivery area. For some Supply Points, each of the postcode units the Supply Point delivers to will be in the same Band (ie the Supply Point will face the same set of competitors across its entire delivery area). In these Supply Points the estimated diversion was taken as the direct survey diversion ratio for that Band.

33. However, in many cases the competitors the Supply Point faces may vary across the postcodes it delivers to. This means the delivery area of the Supply Point will contain multiple Bands. As the Parties do not tailor their offer in smaller geographic areas within the Supply Point, any assessment of whether to deteriorate the Supply Point offer will depend on how valuable the postcodes associated with different Bands are.

34. Therefore, where a Supply Point delivery area contains multiple Bands the estimate was taken as an average of the relevant Band diversion ratios as described above in paragraph 30. The average is weighted by the proportion of the Supply Point's revenue that each Band accounts for[19] to account for the fact that, in terms of revenue, some areas assigned to a particular Band are larger than others.

35. For each Supply Point the above approach was used to calculate both diversion to the other Merging Party's online offering and diversion to the other Merging Party's instore offering.

36. In paragraph 11.96 in Chapter 11 we discuss how expansion is incorporated into this analysis.

Robustness checks

37. We have assessed the robustness of our estimated diversion ratios. First, we considered whether any Bands with particularly small sample sizes would have a large impact on our results. Second, we compared the estimated diversion ratios with the direct survey diversion ratios.

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[17] See Appendix B on the assessment of survey evidence for an explanation of these concepts.
[18] See Chapter 11 and Chapter 8 for a discussion of using own brand diversion.
[19] Ie if it is an Asda Supply Point, and the postcodes that fall under Band 3 accounts for 40% of Asda's revenues at that Supply Point, then diversion ratios from that Band would get a weight of 0.4.

- *Band sample sizes*

38. In general we have large sample sizes for each Band, given that survey responses are from across the UK. Where a Band has a smaller number of survey respondents, this will generally reflect the fact that the Band is uncommon across the UK. For example, Band 9, which consists of areas where Iceland, Ocado and Tesco are the Parties' competitors (see Table 1 below) had only 21 responses from Asda customers and 11 responses from Sainsbury's customers to the diversion questions. But this band made up only [✄]% of Asda's and [✄]% of Sainsbury's' revenue. As such we would expect any Band with a small sample size to account for at most a low proportion of any given Supply Point, and therefore to have little influence on the results.

39. Table 1 shows the survey included respondents from 23 of the 30 bands. The seven bands where we did not have any respondents made up only a very small proportion of Sainsbury's' and Asda's revenue ([✄]). Four bands had fewer than ten respondents in the Asda sample, and three had fewer than ten respondents in the Sainsbury's sample. But in each case these bands made up a very small proportion of the Parties' revenue (less than [✄]% of the Asda revenue and less than [✄]% of the Sainsbury's revenue).

Table 1: Bands by sample size and revenue for each Party

[✄]

Source: CMA analysis of CMA online survey and revenue and coverage data from Parties and third parties.

40. However, we have checked whether any Bands with small sample sizes account for a large proportion of the revenue in any Supply Points.

41. Table 2 below shows that there are only seven Supply Points where the Band has a sample size of less than 100 and the Band accounts for a significant proportion of revenue in the Supply Point. We still consider the diversion calculated for these Supply Points to be unbiased and the best estimates available to us.[20]

Table 2: Supply Points where a Band with a small sample size accounts for over 30% of the weight

[✄]

Source: CMA analysis of CMA online survey and revenue and coverage data from Parties and third parties.

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[20] There is one Asda Supply Point where we consider the diversion result should be treated with some caution (where there were only 9 respondents in the Band (Band 18) that accounted for the most weight in the Supply Point (over 50%)). However, given the estimated diversion for this Supply Point was well below our threshold (see Chapter 11, paragraph 11.82 we consider our provisional finding that there is no SLC at this Supply Point is robust.

- *Correlation between the estimated diversion ratios and direct survey diversion ratios*

42. If each of the Supply Points had a large sample size we could compare our estimated diversion ratios with the direct survey diversion ratios. However, in most cases our Supply Point sample sizes are below 100.

43. We have nonetheless compared our estimated diversion ratios to the direct survey diversion ratios, for diversion to the other Merging Parties' online offering,[21] for different sample sizes.

Figure 1: Correlation between estimated diversion ratio and direct survey diversion ratio for Asda Supply Points with 50 or more responses
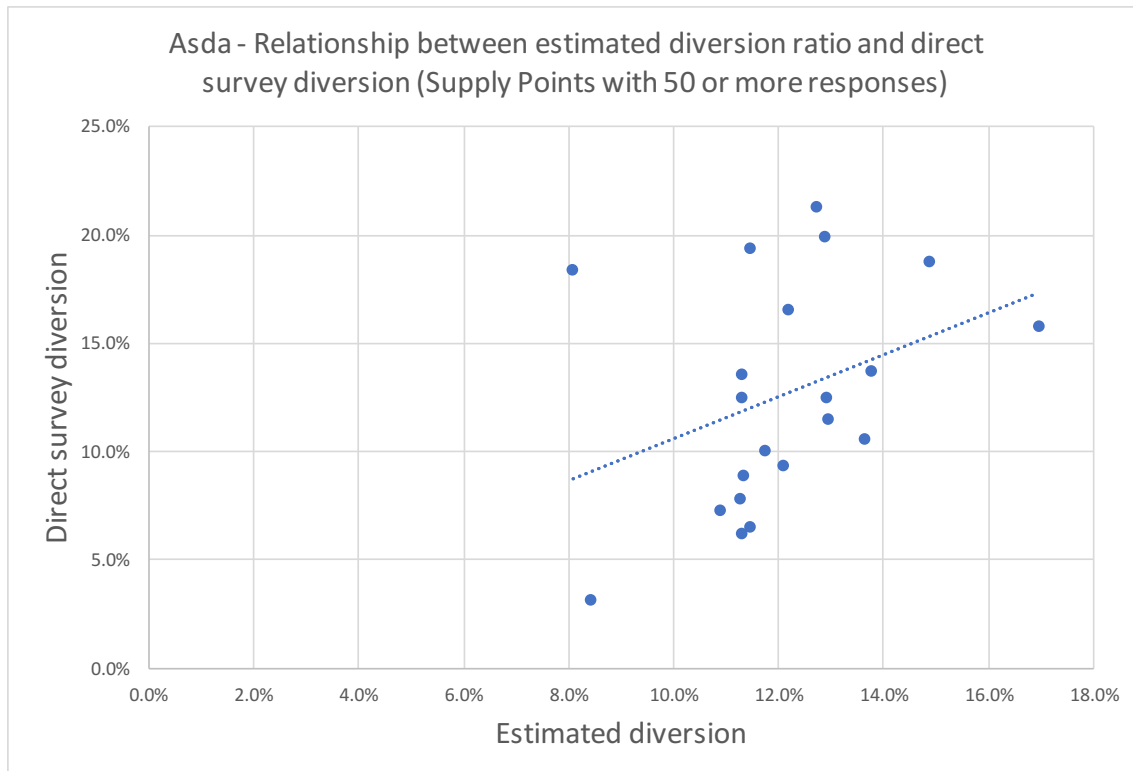
Source: CMA analysis of the CMA online survey.

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[21] By direct survey diversion we refer to the diversion ratio based on all the respondents in the Supply Point (regardless of the sample size).

Figure 2: Correlation between estimated diversion ratio and direct survey diversion ratio for Asda Supply Points with 49 or fewer responses

Asda - Relationship between estimated diversion ratio and direct survey diversion (Supply Points with 49 or fewer responses)

Source: CMA analysis of the CMA online survey.

Figure 3: Correlation between estimated diversion ratio and direct survey diversion ratio for Sainsbury's Supply Points with 50 or more responses

Sainsbury's - Relationship between estimated diversion ratio and direct survey diversion (Supply Points with 50 or more responses)

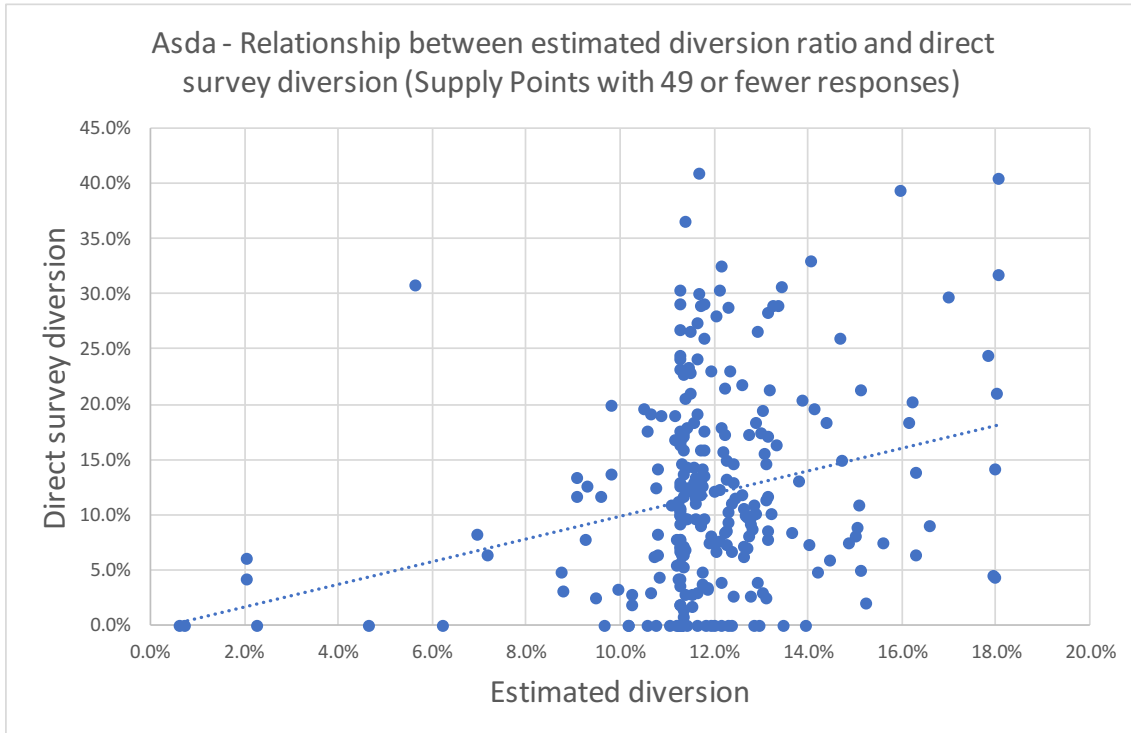Source: CMA analysis of the CMA online survey.

Figure 4: Correlation between estimated diversion ratio and direct survey diversion ratio for Sainsbury's Supply Points with 49 or fewer responses
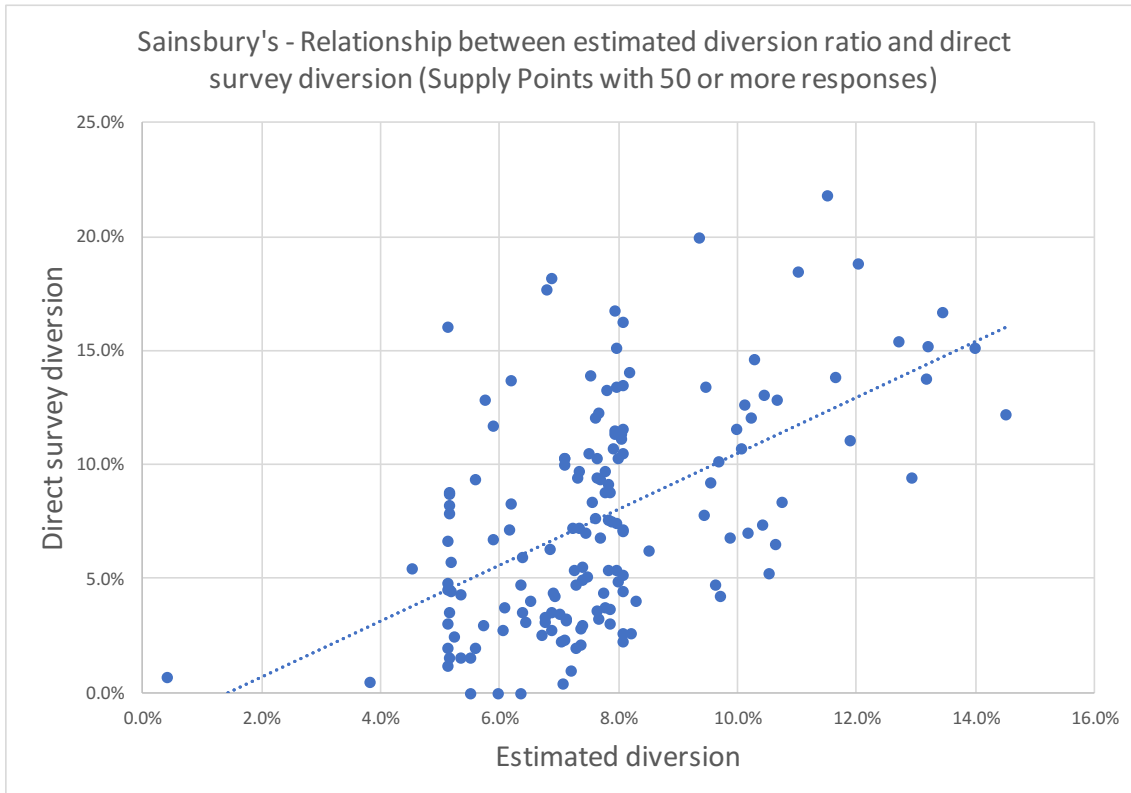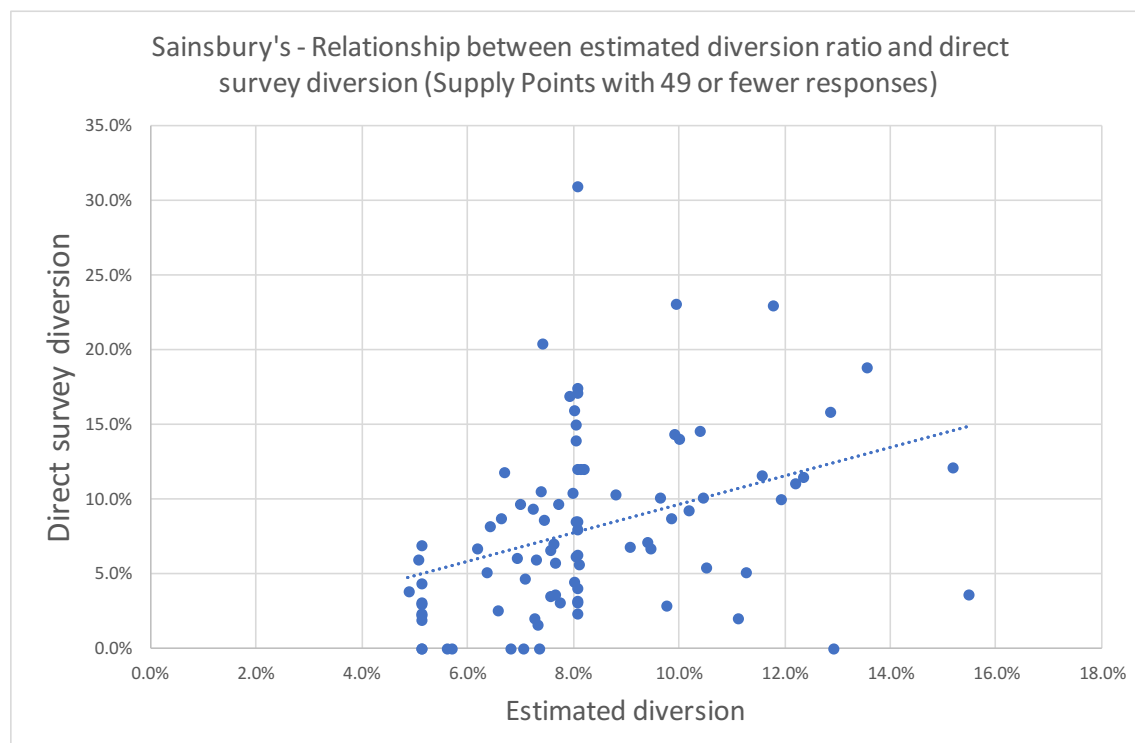

Source: CMA analysis of the CMA online survey.

44. We find that our estimated diversion ratios have less variance than our direct survey diversion ratios. This is to be expected, given that the estimated diversion ratio is constructed by averaging diversion amongst different Bands (competitor groups), and hence the distribution of estimated diversion ratios is nearer the national average diversion ratio than the distribution of direct survey diversion ratios.

45. In contrast, the direct survey diversion ratios will contain a lot of variation simply due to sampling error, as a result of the small sample sizes. To the extent that this sampling error is smaller in the estimated diversion ratios, this is actually desirable. However, some variation in the direct survey diversion ratios may be a result of genuine local differences that are not picked up by the estimated diversion ratios, and this would be a limitation of the latter.

46. There is stronger correlation between the estimated diversion ratios and the direct survey diversion ratios for Sainsbury's Supply Points than for Asda Supply Points. Similarly, where the Supply Point sample size is larger, we see more correlation with the estimated diversion ratios.[22] This gives us some confidence in our estimates.

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[22] This also partly explains why we see stronger correlation between Sainsbury's estimated diversion ratios and direct survey diversion ratios than between Asda's.

47. We therefore consider the estimated diversion ratios to be informative and the best estimates available for our analysis where our Supply Point sample sizes are below 100.

Assumptions

48. For the calculation of the estimated diversion ratios, the below assumptions were made in order to obtain robust results:

    (a) Any Band with zero revenue was assigned a weight of zero in the diversion ratio calculation.

    (b) Band 1 consists of areas where Asda and Sainsbury's online delivered groceries services do not overlap and the diversion ratio between the Merger Parties is assumed to be zero. If the revenue for Band 1 is positive in a Supply Point delivery area, the revenue of this Band is still included in the total revenue for the Supply Point in the diversion ratio calculation.

    (c) Because the Bands were derived using all the valid postcode units in the UK, the postcode units dataset covers a wider pool of areas than the CMA online survey. For Bands where no interview was obtained in the CMA online survey, a weight of zero was given to that Band in the diversion ratio calculation.

    (d) The Supply Point analysis uses the last Supply Point customers had used at the time the sample was chosen, and not that at the time of their most recent order. Some customers had made an online order between the time the sample was chosen and the time of the survey, and some, who at the time of sampling had last used a click-and-collect Supply Point, had since had a delivery. As a result, the data contains respondents who told us they had a delivery, but were assigned a click-and-collect Supply Point. These customers have been excluded from the Supply Point analysis (ie direct survey diversion), but their diversion responses have been included in the Band and National analysis (and therefore is included in the estimated diversion).

The GUPPI calculation

49. To calculate a GUPPI for each Supply Point we have taken the diversion for each Supply Point (whether the direct survey diversion or the estimated

diversion, depending on sample size) and have applied the national margins[23] and price ratio using the same formula as in paragraph 25 above.

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[23] As robust estimates for individual online margins for each Supply Point are not available we have used the same national online margins as described above.

Appendix J: General merchandise

1. This appendix contains supporting data used as part of our assessment of the effect of the Merger in the retail supply of GM (discussed in Chapter 13).

Shares of Supply

Clothing

2. Table 1 displays the shares of supply of GB's ten largest clothing retailers by value of sales revenue for the year ended February 2018. The table also includes the volume shares of those retailers.

Table 1: Clothing, footwear and accessories, sales value and volumes, Parties and top ten competitors, 52 weeks ending 11 February 2018

			%
Retailer	Sales value	Retailer	Sales volume
Sainsbury's (Tu)	2.3	Sainsbury's (Tu)	4.8
Asda	4.5	Asda	10.7
Combined	*6.8*	*Combined*	*15.5*
M&S	9.3	Primark	16.2
Next/Dir	7.2	M&S	10.5
Primark	5.8	Next/Dir	6.1
Debenhams	4.7	Tesco	5.9
New Look	3.3	Matalan	3.8
SportsDirect.com	3.2	SportsDirect.com	2.9
Tesco	2.9	Debenhams	2.8
Matalan	2.4	New Look	2.8
TK Maxx	1.9	H & M	2.0
H & M	1.8	TK Maxx	1.6

Source: The Parties.

3. Table 2 displays the shares of supply of the GB's 20 largest childrenswear retailers by value of sales revenue. The table also includes the volume shares of those retailers.

Table 2: Top 20 retailers' shares of GB childrenswear sales, 52 weeks ending 11 February 2018

%

Retailer	Value	Retailer	Volume
Asda	11.5	Asda	20.0
Sainsbury's	4.1	Sainsbury	6.5
Combined	*15.6*	*Combined*	*26.5*
Next/ Dir	13.0	Primark	14.7
Primark	7.2	Next/ Dir	10.0
Marks & Spencer	6.2	Tesco	8.4
SportsDirect.com	5.3	Marks & Spencer	6.3
Tesco	5.2	Matalan	3.7
Total Clarks/K Shoes	3.5	SportsDirect.com	2.5
JD/First Sport	3.5	H & M	2.5
Debenhams	3.1	Morrisons	2.1
Matalan	2.9	Debenhams	1.9
H & M	2.7	Mothercare	1.5
The Gap	2.0	The Gap	1.5
Mothercare	1.7	Peacocks	1.2
Shop Direct Group	1.7	Boots	0.8
New Look	1.4	Shop Direct Group	0.8
John Lewis	1.4	John Lewis	0.8
Morrisons	1.3	JD/First Sport	0.8
TK Maxx	1.0	New Look	0.8
Boots	0.8	Total Clarks/K Shoes	0.8

Source: The Parties.

4.   Table 3 displays the shares of supply of the UK's ten largest generic schoolwear retailers by the value of sales revenue and volume in 2017.[1] The table also includes the value and volume shares of these retailers in 2016.

Table 3: Generic schoolwear shares of supply, top ten UK competitors (12-week period ending last week of August 2017 and 2016)

%

	2017		2016	
Retailer	Volume	Value	Volume	Value
Asda	28.3	17.4	28.4	18
Sainsbury's	9.9	6	8	4.3
Combined	*38.2*	*23.4*	*36.4*	*22.3*
M&S	16.1	21.1	16.8	22.3
Tesco	13.5	9.7	12.2	7.8
School/School shop	2.6	6.9	2.3	5.9
Next/Dir	3.9	5.1	3.4	4.5
Matalan	3.5	2.9	3.3	3
Debenhams	1.4	1.6	0.8	0.9
Shop Direct	-	1.3	-	0.5
Aldi	4.9	1.2	4.7	1
Morrisons	1.6	-	1.7	-

Source: The Parties. Data comes from Kantar and is 12 w/e for 27 August 2017 and 28 August 2016.
Note: It is unclear if the geographic area covered in the Kantar data is from the whole of the UK or only GB.

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[1] There are 11 retailers because Shop Direct was in the top ten by value and not by volume, whereas, Morrisons was in the top ten by volume and not by value.

Electricals

5.   Table 4 displays the shares of supply of the UK's 10 largest electricals retailers by value of sales revenue in 2017.[2] The table also includes a sensitivity that excludes online-only retailers Amazon, AO.com and Shop Direct.

Table 4: Electricals, top ten competitors share of supply, 2017

		%
Retailer	*Base*	*Sensitivity: No online-only*
Sainsbury's	<0.7	<0.9
Argos	10.6	13.0
Asda	<0.7	<0.9
Combined	*<12.0*	*<14.8*
Dixons Carphone	26.4	32.4
Amazon	16.6	
John Lewis	8.0	9.8
Apple	8.0	9.8
Tesco	5.2	6.4
AO.com (formerly Appliances Online)	3.2	
Shop Direct	2.9	
Richer Sounds	1.1	1.3
GAME	0.7	0.9

Source: The Parties.

6.   Table 5 displays the shares of supply of the UK's ten largest PCE retailers by value of sales revenue in 2018. The table also includes a sensitivity that excludes online-only retailer Amazon.

Table 5: PCE, top ten competitors share of supply, 2018 (published in August)

		%
Retailer	Base	Sensitivity: No online-only
Sainsbury's	2.7	3.2
Argos	12.4	14.5
Asda	<1.4	<1.6
Combined	*<16.5*	*<19.3*
Boots	21.1	24.7
Amazon	17.0	
Tesco	9.4	11.0
Superdrug	4.2	4.9
John Lewis	3.7	4.3
Wilko	1.6	1.9
Debenhams	1.4	1.6

Source: The Parties.

7.   Table 6 displays the shares of supply of the UK's ten largest SKA retailers by value of sales revenue in 2017. The table also includes a sensitivity that excludes online-only retailer Amazon and Shop Direct.

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[2] The Table includes 12 retailers because neither Asda or Sainsbury's were in the top ten.

Table 6: SKA, top ten competitors share of supply, 2017

%

Retailer	Base	Sensitivity: No online-only
Sainsbury's	3.6	4.1
Argos	15.6	14.7
Asda	5.2	5.9
Combined	*24.4*	*27.7*
Amazon	10.6	
Dixons Carphone	10.4	11.8
Tesco	7.2	8.2
John Lewis	6.0	6.8
Shop Direct	2.8	
Wilko	2.2	2.5
Lakeland	1.3	1.5

Source: The Parties.

Toys

8.   Table 7 displays the shares of supply of the UK's ten largest toy retailers by value of sales revenue in 2017. The table also includes two sensitivities: the first excludes Toys R Us, which has exited the market since the market shares estimates were produced; the second further excludes Amazon, which is an online-only player. The final column includes another estimate of market shares from a separate source.

Table 7: Toys, top ten competitors shares of supply, 2017

%

Retailer	Base	NPD estimate 2017 Sensitivity: No Toys R Us	Sensitivity: No Toys R Us or Amazon	Global Data estimate 2017
Sainsbury's	3.6	4.0	4.3	Not in Top 10
Argos	14.4	15.9	17.3	12.0
Asda	5.6	6.2	6.7	4.2
Combined	*23.6*	*26.0*	*28.4*	*>16.2*
Toys R Us	10.2	0	0	8.0
Amazon	10.1	11.1	0	9.6
Tesco	9.1	10.0	10.9	4.7
Smyths	6.5	7.2	7.8	9.5
The Entertainer	5.3	5.8	6.4	4.4
John Lewis	2.2	2.4	2.6	Not in Top 10
ELC	2.0	2.2	2.4	Not in Top 10
Shop Direct	Not in Top 10	Not in Top 10	Not in Top 10	3.7
Disney Store	Not in Top 10	Not in Top 10	Not in Top 10	2.7
B&M	Not in Top 10	Not in Top 10	Not in Top 10	2.7

Source: The Parties.

GlobalData cross-shop data

9.   The Parties and third-parties submitted evidence from GlobalData's survey of shoppers in 2017, on the proportion of surveyed shoppers who bought items of the particular GM product categories under review (clothing, electricals, toys) from multiple retailers.

Clothing

10.   Figure 1 shows the proportion of shoppers who purchased clothing at one of the retailers in the top row that also purchased clothing at one of the retailers in the first column. For instance, 35.8% of shoppers who purchased clothing at Next also purchased clothing at M&S; and, 23.5% of shoppers who purchased clothing at M&S also purchased clothing at Next.

Figure 1: Competitor overlaps in the retail sale of clothing 2017

Where people shop

Competitor dynamics

Value giant Primark poses the biggest threat among the top 10 clothing players

Competitor overlaps
All figures are percentages

People who shop here ▶ Also shop here ▼	Marks & Spencer	Next	Primark	Arcadia	Asda	TK Maxx	Debenhams	Tesco	H&M	New Look
Marks & Spencer	100.0	35.8	23.1	27.5	24.7	33.9	45.5	31.2	23.1	19.9
Next	23.5	100.0	23.2	31.8	24.1	32.0	31.6	28.0	31.8	34.1
Primark	21.1	32.3	100.0	38.3	39.3	39.7	27.7	37.5	50.4	55.5
Arcadia	15.5	27.3	23.6	100.0	18.2	25.3	27.6	20.4	34.9	39.9
Asda	16.0	23.8	27.9	20.9	100.0	21.5	19.6	36.6	20.5	26.8
TK Maxx	12.1	17.4	15.5	16.0	11.9	100.0	15.4	14.9	21.7	17.5
Debenhams	27.9	29.5	18.5	30.0	18.5	26.4	100.0	22.5	22.7	22.1
Tesco	15.2	20.8	20.0	17.6	27.6	20.3	17.9	100.0	16.1	20.6
H&M	11.4	23.8	27.2	30.5	15.6	29.9	18.2	16.2	100.0	41.0
New Look	10.8	28.0	32.8	38.3	22.4	26.5	19.5	22.9	45.1	100.0

ⓘ Data in this chart are derived from GlobalData Retail's How Britain Shops survey of 10,000 shoppers in 2017. Arcadia includes Burton, Dorothy Perkins, Evans, Miss Selfridge, Outfit, Topman, Topshop and Wallis.

SECTOR REPORT SERIES: THE UK CLOTHING MARKET, JUNE 2017 • PRODUCED BY GLOBALDATA RETAIL   PAGE 55   ⓞ GlobalData.

Source: The Parties (GlobalData, UK Clothing Market, June 2017).

Electricals

11.   Figure 2 shows the proportion of shoppers who purchased electricals at one of the retailers in the top row that also purchased electricals at one of the retailers in the first column. For instance, 18.1% of shoppers who purchased electricals at Apple also purchased electricals at Amazon; and, 6.9% of shoppers who purchased electricals at Amazon also purchased electricals at Apple.

Figure 2: Competitor overlaps in the retail sale of electronics 2017

Competitor overlaps
All figures are percentages

People who shop here ▶ Also shop here ▼	Amazon	Apple	AO.com	Argos	Asda	Dixons Carphone	eBay	GAME	John Lewis	Maplin
Amazon	100.0	18.1	14.4	13.1	14.2	11.8	22.0	23.5	13.9	23.9
Apple	6.9	100.0	3.9	5.2	8.3	5.3	8.1	18.4	8.2	11.8
AO.com	6.0	4.3	100.0	5.0	4.9	6.5	6.4	7.6	6.1	2.7
Argos	24.6	25.7	22.2	100.0	31.1	23.5	33.3	38.6	16.1	30.9
Asda	5.8	8.9	4.8	6.8	100.0	4.8	8.5	13.9	4.7	7.3
Dixons Carphone	20.3	23.7	26.7	21.5	20.0	100.0	23.5	34.2	22.4	48.2
eBay	6.5	6.3	4.5	5.2	6.2	4.1	100.0	10.5	3.2	12.9
GAME	4.7	9.5	3.6	4.1	6.8	4.0	7.1	100.0	2.7	8.2
John Lewis	8.6	13.2	9.0	5.3	7.1	8.1	6.7	8.2	100.0	11.8
Maplin	3.3	4.3	0.9	2.3	2.5	3.9	6.0	5.7	2.7	100.0

ⓘ Data in this chart are derived from GlobalData Retail's How Britain Shops survey of 10,000 shoppers in 2017. Dixons Carphone includes Currys, PC World & Carphone Warehouse.

Source: The Parties (GlobalData, UK Electricals Market, May 2017).

Toys

12.   Figure 3 shows the proportion of shoppers who purchased toys at one of the retailers in the top row that also purchased toys at one of the retailers in the first column. For instance, 46.7% of shoppers who purchased toys at Argos also purchased toys at Amazon; and, 35.6% of shoppers who purchased toys at Amazon also purchased toys at Argos.

Figure 3: Competitor overlaps in the retail sale of toys 2017

Where people shop
Competitor dynamics

Competitive price points mean B&M and Argos have the highest customer cross-over

Competitor overlaps
All figures are percentages

People who shop here ▶ Also shop here ▼	Amazon	Argos	ASDA	B&M	Disney Store	Shop Direct	Smyths Toys	Tesco	The Entertainer	Toys R Us
Amazon	100.0	46.7	45.4	46.5	52.9	56.7	50.1	47.7	51.0	48.1
Argos	35.6	100.0	51.9	56.9	52.2	59.6	46.9	44.8	50.0	46.0
ASDA	14.8	22.3	100.0	38.4	32.4	36.3	25.1	22.9	25.9	23.0
B&M	10.4	16.7	26.3	100.0	17.3	29.5	18.6	19.1	20.9	15.7
Disney Store	9.5	12.3	17.8	13.9	100.0	25.8	15.7	14.2	19.8	18.6
Shop Direct	3.0	4.1	5.8	6.9	7.5	100.0	4.5	5.0	4.7	4.4
Smyths Toys	18.3	22.4	28.0	30.3	31.8	31.6	100.0	31.3	38.4	33.8
Tesco	16.6	20.4	24.3	29.6	27.3	33.5	29.7	100.0	29.3	24.6
The Entertainer	12.0	15.4	18.6	21.9	25.8	21.3	24.7	19.8	100.0	21.2
Toys R Us	18.4	23.1	27.0	26.9	39.6	32.7	35.5	27.1	34.6	100.0

ⓘ This chart shows the percentage of shoppers who bought toys & games from the retailers in the row who also bought toys & games from the retailers in the column in the past year. The 10 retailers shown above are the top 10 retailers in terms of market share. Data in this chart are derived from GlobalData Retail's How Britain Shops survey of 10,000 shoppers in 2017.

SECTOR REPORT SERIES: THE UK TOYS & GAMES MARKET, OCTOBER 2017 • PRODUCED BY GLOBALDATA RETAIL   PAGE 61   ⓞ GlobalData.

Source: The Parties (GlobalData, 'The UK Toys and Games Market 2017-2022', October 2017).

Proportion of revenue from online sales

Clothing

13.   We requested information from the Parties and third parties on the proportion of their sales revenue in the segments of clothing and childrenswear that comes from online sales. This data is displayed in Table 8.

Table 8: Multichannel clothing retailers' share of sales made online, most recent 12-month period with available data

[✂]

Source: The Parties and third parties.

Electricals

14.   We requested information from the Parties and third parties on the proportion of their sales revenue in the segments of electricals, PCE and SKA that comes from online sales. This data is displayed in Table 9.

Table 9: Multichannel electrical retailers' share of sales made online, most recent 12-month period with available data

[✂]

Source: The Parties and third parties.

Toys

15.   We requested information from the Parties and third parties on the proportion of their sales revenue in toys that comes from online sales. This data is displayed in Table 10.

Table 10: Multichannel toy retailers' share of sales made online, most recent 12-month period with available data

[✂]

Source: The Parties and third parties.

Appendix K: Fuel

1.   This appendix describes certain analyses and other information related to our assessment of the effect of the Merger in the retail supply of road fuels (discussed in Chapter 14).

Survey results and survey-based WSS

2.   The methodology of the CMA fuel survey is discussed in Appendix B. In this section we present the estimated diversions and we discuss how survey evidence was used to derive survey-based WSS for non-surveyed PFSs.

Survey diversion

3.   We report in the table below, for each surveyed PFS, the fuel spend-weighted diversion ratios to the other Party. The tables also report the drive-time to the nearest PFS of the other merging Party, and which of the initial filters that PFS failed.

Table 1: Asda PFSs, diversion ratios to Sainsbury's PFSs, fuel spend weighted

Asda PFS	% Diversion to Sainsbury's (excluding own-brand)	minutes Drive-time to nearest Sainsbury's PFS	Initial filters	Notes
Colne Dee	[60-70]	1.1	Closest comp; 2:1 SM (10 min)	
Bristol Whiteladies Rd	[10-20]	8.2	2:1 SM (10 min)	Standalone
Bromborough	[20-30]	9.2	2:1 SM (10 min)	
Charlton	[50-60]	2.1	2:1 SM (10 min)	
Chelmsford	[50-60]	4.3	Closest comp	Unstaffed
Coleraine (Asda)	[70-80]	2.9	2:1 SM (10 min)	
Frome	[50-60]	5.3	2:1 SM (10 min)	Unstaffed
Grantham (Asda)	[50-60]	3.6	2:1 SM (20 min)	
Keighley	[40-50]	1.6	Closest comp	Unstaffed
Northwich	[60-70]	1.0	Closest comp	Unstaffed
Nottingham	[30-40]	2.0	Closest comp	
Pontypridd	[60-70]	2.7	Closest comp	Standalone
Sinfin	[60-70]	6.9	2:1 SM (10 min)	Unstaffed
Tamworth	[60-70]	0.9	Closest comp	Unstaffed
Wolverhampton	[60-70]	3.3	2:1 SM (10 min)	Unstaffed
York	[60-70]	0.6	Closest comp	

Source: CMA analysis.

Table 2: Sainsbury's PFSs, diversion ratios to Asda PFSs, fuel spend weighted

Sainsbury's PFS	% Diversion to Asda (excluding own-brand)	minutes Drive-time to nearest Asda PFS	Initial filters	Notes
Ashton Moss	[40-50]	2.6	Closest comp	
Bebington	[30-40]	8.5	2:1 SM (10 min)	Standalone
Bridgewater	[30-40]	1.0	Closest comp	
Coleraine (Sainsbury's)	[70-80]	3.0	2:1 SM (10 min)	
Colne	[60-70]	3.2	Closest comp	
Crystal Peaks	[40-50]	2.3	Closest comp	
Dundee	[40-50]	4.6	Closest comp	
Emersons Green	[20-30]	7.0	2:1 SM (10 min)	
Grantham (Sainsbury's)	[70-80]	2.7	2:1 SM (20 min)	
Monks Cross	[50-60]	1.1	Closest comp	
Osmaston	[40-50]	6.6	2:1 SM (10 min)	
Perton	[10-20]	11.8	2:1 SM (20 min)	
Stanway	[20-30]	7.6	2:1 SM (10 min)	
Telford	[50-60]	1.9	Closest comp	
Washington	[20-30]	8.7	2:1 SM (10 min)	
Waterlooville	[40-50]	0.9	Closest comp	

Source: CMA analysis

4. In areas where a competitor owns several PFSs within close proximity, the competitive constraint that they exert on the relevant Party's PFS is determined by the number and location of all their PFSs, not just the PFS that is closest. This is illustrated in the charts below, which plot the fuel spend diversion (including own-brand diversion) at each surveyed PFS to each destination PFS with diversion greater than 2%.

5. For example, at Sainsbury's Telford PFS, there is material diversion to two Asda PFSs, so Asda's competitive constraint on Sainsbury's Telford PFS is a combination of the diversion to both.

Figure 1: Fuel diversion ratios by PFS at Sainsbury's PFSs

[✂]

Source: CMA analysis.

**Figure 2: Fuel diversion ratios by PFS at Asda PFSs**

[✂]

Source: CMA analysis.

Establishing a relationship between diversion and distance and type of PFS using regression analysis

6. Figure 3 below shows the percentage of fuel spend diversion (excluding own-brand diversion) to competitor PFSs within 30-minutes' drive-time against the drive-time distance from the centroid PFS surveyed by the CMA fuel survey.

The left chart shows non-supermarket competitor PFSs, and the right chart shows supermarket competitor PFSs.[1] We observe that:

(a) diversion decreases with drive-time distance to the centroid PFS, and it decreases rapidly up to 10-minutes and more slowly for distances beyond 10-minutes;

(b) only a few non-supermarket PFSs within around 5-minutes' drive-time have material diversion, and non-supermarket PFSs beyond 10-minutes' drive-time have negligible diversion; and

(c) supermarket PFSs within 5-minutes' drive-time have substantial diversion, and there are relatively few supermarket PFSs between 10- to 20-minutes' drive-time that have material diversion.

Figure 3: Diversion to competitor PFS vs. drive-time distance from centroid PFS
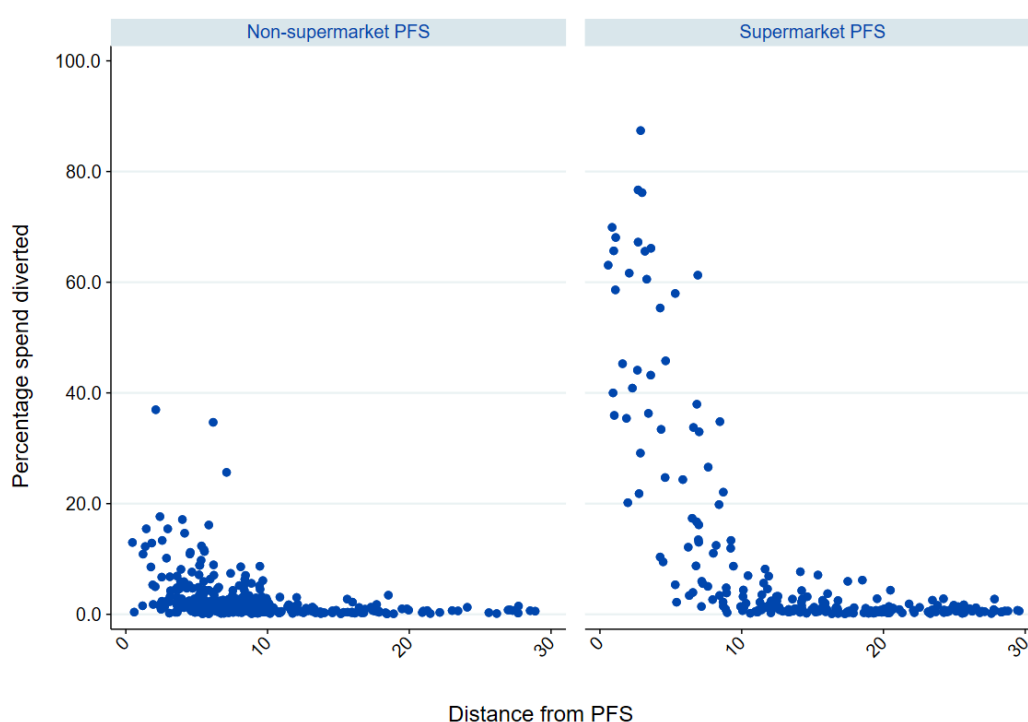
Source: CMA analysis.

7.   Based on these diversion patterns, we decided to estimate separate relationships between diversion and distance for supermarket and non-supermarket PFS. More formally, we estimated the following equation using OLS, with cluster-robust standard errors for each centroid PFS:

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[1] Supermarket PFSs are defined as those where grocery retailers are responsible for setting fuel prices. We consider that only in these cases would the PFS operator have the incentive to internalise the effect of fuel prices on groceries sales at the adjacent supermarket. [✂].

$$DR_{ij} = \alpha_1 + \alpha_2 SM_j + \beta_1 SM_j \frac{1}{1+d_{ij}} + \beta_2 NSM_j \frac{1}{1+d_{ij}} + \varepsilon$$

Where:

(a) DR_{ij} is the diversion ratio (excluding own-brand diversion) from centroid PFS i to competitor PFS j;

(b) SM_j and NSM_j are indicator variables that take the value of 1 if competitor PFS j is a supermarket PFS and non-supermarket PFS respectively, and 0 otherwise;

(c) d_{ij} is the drive-time distance between centroid PFS i and competitor PFS j.

8.   The results are presented in the table below.

Table 3: Diversion regression results

VARIABLES	DR
SM_j	-4.249***
	(0.975)
$SM_j \frac{1}{1+d_{ij}}$	131.819***
	(10.917)
$NSM_j \frac{1}{1+d_{ij}}$	18.306***
	(4.070)
Constant	-0.211
	(0.443)
Observations	614
R-squared	0.687

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: CMA analysis

9.   The R-squared is a statistical measure of how close the data are to the fitted regression line and indicates the proportion of the variance in the dependant variable (diversion ratios) that is predictable from the explanatory variables (such as whether the PFS is operated by a supermarket and drive-time distance). The estimation has a relatively high R-squared, which suggests that the model fits the data relatively well.[2]

10.   Figure 4 below illustrates the estimated relationships between diversion and drive-time distance to centroid PFS.

[2] The root MSE is 5.9271.

Figure 4: Predicted diversion ratio
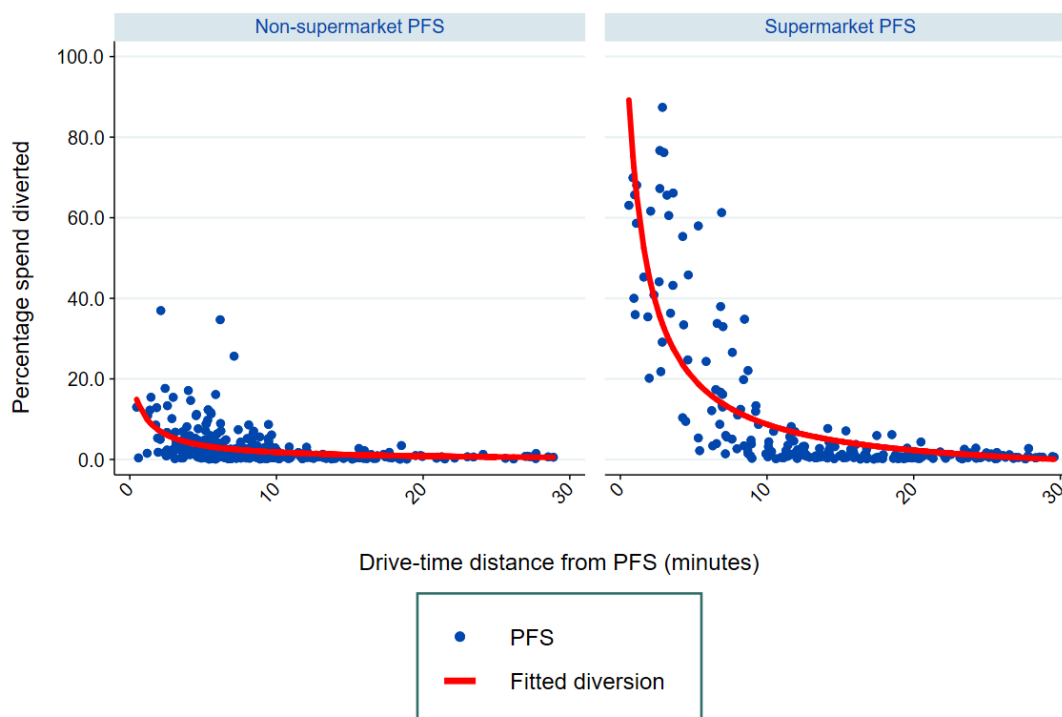
Source: CMA analysis

Computing survey-based WSS

11.   The results of the estimation above were used to produce estimated diversions for all local areas where the CMA fuel survey was not conducted. In each area, the relevant PFSs were determined based on our local market definition: namely, all non-supermarket PFSs within a 10-minute drive-time from the centroid PFS and all supermarket PFSs within a 20-minute drive-time from the centroid PFS.

12.   As the diversions so estimated do not sum to 1 within each local area, we normalised them through the following steps:

    (a) For each centroid PFS, we computed the sum of the weights assigned to all the PFSs in the relevant geographic market.

    (b) We computed normalised diversions by dividing the PFSs' individual diversions by their sum.

13.   The normalised diversions so obtained sum to 1 within each local market.

14.   We then introduced an out-of-market adjustment to account for diversion outside the geographic market. The appropriate level of this adjustment was determined by looking at the spend-weighted average diversion, across all the surveyed areas, to non-supermarket PFSs further than 10-minute drive-time

from the surveyed PFS and to supermarket PFSs further than 20-minute drive-time from the surveyed PFS. Figure 5 below shows, for any drive-time between 0 and 25 minutes, the proportion of customers who would divert to a PFS located at that or at a higher drive-time from the centroid. The three lines show the proportions for all customers, for those who would divert to a supermarket PFS, and for those who would divert to a non-supermarket PFS.

Figure 5: Survey diversion by drive-time
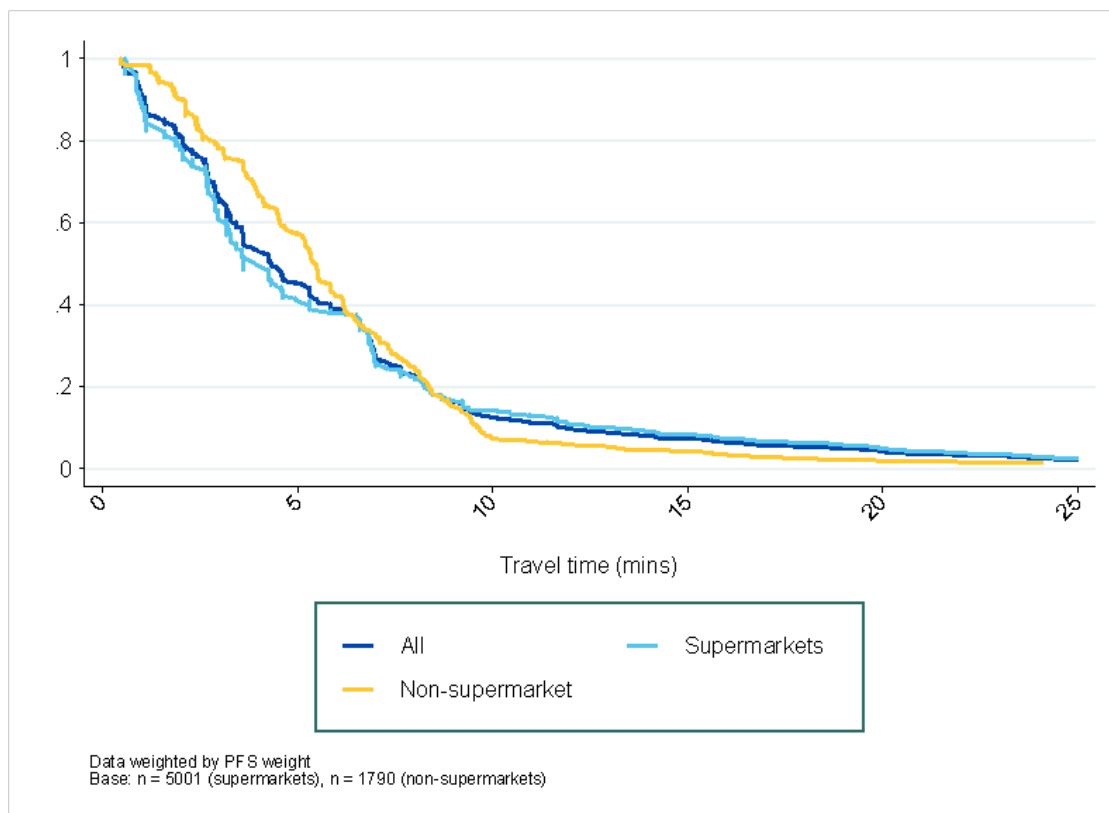
Source: CMA analysis.

15. The average out-of-market diversion across surveyed areas (including both supermarket and non-supermarket PFSs) is 6%. To account for a potential bias in our survey diversion towards closer PFSs (discussed in Appendix B), we increased the out-of-market adjustment to 7.5%. We therefore multiplied each PFS-specific diversion by 0.925.

16. For each centroid PFS, the WSS of the other Party was obtained by summing the normalised diversions of all its PFSs within the local market.

Price Concentration Analysis

17. A price-concentration analysis (PCA) aims to identify the effect that market concentration has on prices. In particular, we want to understand whether a reduction (or increase) in local competition is likely to lead to higher (or lower)

fuel prices in areas where the Parties overlap in the retail supply of road fuels. For the purposes of our competition assessment, the PCA is a useful tool to empirically estimate the effect that one additional competitor in the catchment area has on prices.

Data

18.　Experian Catalist collects quarterly data for all PFSs in the country, including data on brand, location, site-characteristics (eg self-service, car wash) and drive times between sites.

19.　Experian Catalist also collects daily data for diesel and petrol prices, for each PFS in the country, although this dataset is based on fuel card recording[3], so there are gaps in the data where the price on some days for some PFS where no fuel card transaction occurred. Where Experian Catalist had not recorded a price for one of Parties' PFS, we supplemented the Experian Catalist data with the Parties' own pricing data. We calculated the average price for each quarter in the data.

Specifications

20.　We have carried out a panel data analysis[4] that measures local concentration using a count of the number of competing PFSs in the local area for each centroid PFS and each quarter in our data.[5]

21.　For each centroid PFS and for each quarter, we use counts of competing supermarket PFSs and non-supermarket PFSs in 5-minute drive-time bands up to 25-minutes (consistent with the Parties' suggestions on the geographic extent of competitive constraints), to isolate the effects of different types of competitors and distance of competitor PFSs on fuel prices.[6]

22.　We are using a fixed effects approach to estimate the effect of a change in concentration in a local area on the price charged by a PFS. This approach

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[3] Fuel cards are payment cards for fuel at PFSs. They are used by fleet owners and managers in order to receive comprehensive real-time reports and set limits on fuel purchase by their drivers. Experian Catalist provides price data for fuel purchases made using the Allstar fuel card.

[4] Panel data looks at changes in prices and local concentration over time for each site.

[5] We are not using a brand count for two reasons. First, because there is not enough variation in brands over time. For example, it is possible that several PFS owned by Shell closed between 2016 Q2 and 2018 Q2 in a particular area, but at least one Shell remained open, so the number of brands was unchanged. Second, past CMA/OFT cases (eg Celesio/Sainsbury's) have used store counts because competition parameters such as location are more important than brand. In this case, based on third-party views and evidence from the CMA fuel survey, we believe that price and location are the most important parameters of competition in UK fuel retailing, and that brand (apart from the distinction between supermarket and non-supermarket PFS) plays a relatively minor role.

[6] We use 5-minute drive-time bands in order to create more accurate weights to use in a WSS. This followed a suggestion from the Parties, with which we agreed, that we use the evidence from the PCA to inform the weights for our WSS methodology.

allows us to exploit the effect that entry and exit events of competing PFSs have on the centroid PFS's prices. Moreover, the approach allows us to account for factors that are constant over time and that affect prices and concentration in a market. For example, local areas with high income may have a higher number of petrol stations and higher prices. To isolate the competition effect, we need to account for those factors, which is possible with a fixed effects approach.

23. In addition to new entry and outright exits of PFSs, our analysis also uses changes in ownership of competitor PFSs over time, particularly those events where a non-supermarket PFS was acquired by a supermarket, in order to identify the effects of different types of competitors on fuel prices.[7]

24. We estimate the following regression equation:

$$\ln(price_{it}) = \alpha_i + \theta_t + \gamma conc_{it} + u_{it}$$

where:

(a) $\ln(price_{it})$ is the natural logarithm[8] of the average retail price in quarter t at site i;[9]

(b) α_i is an indicator for the petrol station, which accounts for time-invariant site characteristics at site i, for example whether the petrol station has a car wash or other demand factors;

(c) $conc_{it}$ is a vector of local concentration measures (counts of competitor PFS, split out by supermarket or non-supermarket, in 5-minute drive-time bands) in the catchment area in quarter t around site i; and

(d) θ_t is a set of indicators that identify the quarter (e.g. 2016 Q1). Those are important because they capture common shocks to all petrol stations, for example, oil price shocks in different quarters.

25. We have presented several different specifications of the model, for all quarters between 2016 Q1 and 2018 Q2. First, we have varied whether we include as centroids all PFSs, or just those of supermarket fuel retailers (like the Parties):

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[7] We followed a suggestion from the Parties, with which we agreed.
[8] We use the natural logarithm of fuel prices because it allows us to interpret the coefficients (eg the effect of competitor counts on prices) in percentage terms, rather than in levels.
[9] We include both diesel and unleaded petrol prices in our analysis. As most PFSs offer both diesel and unleaded petrol and set different prices for each, in practice this means that i is indexed over site-fuel grade pairs (ie there are two observations for each PFS, one for diesel and one for unleaded petrol).

(a) Specification 1: we use the prices of all PFSs (i.e. i is indexed over all PFSs in the UK, for all quarters).

(b) Specification 2: we use the prices of supermarket PFSs (i.e. i is indexed over all supermarket PFSs in the UK, for all quarters).

Results

26.   The results of our PCA are in the table below.

Table 4: PCA results

	(1)	(2)
	All PFS	SM PFS
VARIABLES	ln_price	ln_price
Number of SM PFS, 0-5 mins	-0.00376***	-0.00711***
	(0.00060)	(0.00190)
Number of SM PFS, 5-10 mins	-0.00098***	-0.00256**
	(0.00032)	(0.00101)
Number of SM PFS, 10-15 mins	-0.00063***	-0.00173**
	(0.00022)	(0.00069)
Number of SM PFS, 15-20 mins	-0.00024	-0.00095
	(0.00021)	(0.00062)
Number of SM PFS, 20-25 mins	-0.00023	-0.00119**
	(0.00018)	(0.00050)
Number of non-SM PFS, 0-5 mins	-0.00104***	-0.00121*
	(0.00027)	(0.00069)
Number of non-SM PFS, 5-10 mins	0.00008	-0.00039
	(0.00015)	(0.00039)
Number of non-SM PFS, 10-15 mins	-0.00016	-0.00051
	(0.00012)	(0.00033)
Number of non-SM PFS, 15-20 mins	-0.00002	-0.00016
	(0.00009)	(0.00026)
Number of non-SM PFS, 20-25 mins	0.00000	-0.00004
	(0.00007)	(0.00019)
Observations	138,098	28,311
R-squared	0.982	0.980

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: CMA analysis.

27.   Interpreting these results, our PCA suggests that:

(a) An additional supermarket PFS competitor up to 15 minutes' drive-time from the centroid PFS has a statistically significant negative effect on the centroid's fuel prices. The effect is not statistically significant for supermarket PFSs located between 15- and 20-minute drive-times. For the version of our PCA which analyses supermarket PFS prices (but not the version that analyses all PFS prices, ie for Specification 2 but not Specification 1), there is a small but statistically significant effect for supermarket PFSs between 20- and 25-minute drive-times.

(b) Non-supermarket PFSs have a statistically significant effect on prices only when located within a 5-minute drive-time from the centroid, and this effect is only significant at the 10% level under Specification 2.

(c) In general, supermarket PFSs have a larger effect on fuel prices than non-supermarket PFSs. For example, under Specification 2, within a 5-minute drive-time, the impact of one additional supermarket PFS is almost six times as large as that of an additional non-supermarket PFS. An additional competing supermarket PFS within 5-minutes' drive-time lowers fuel prices at the centroid PFS by 0.71%, while the reduction is only 0.12% for an additional non-supermarket PFS within 5-minutes' drive-time.

28. We took account of the results from both Specifications 1 and 2 in determining the appropriate geographic market definition, as well as a range of other evidence as set out in paragraphs 14.9 to 14.13 of the main report. For constructing weights for our WSS, we decided that it would be more appropriate to use the coefficients from Specification 2 to reflect that supermarket and non-supermarket fuel retailers set prices and respond to competition differently, and that the Parties are supermarket fuel retailers.

29. Table 5 below shows the relative weight that the results from Specification 2 assign to supermarket and non-supermarket PFSs within the different drive-time bands. The weights are expressed as proportions of the weight assigned to supermarket PFSs in the 0 to 5 minutes band, which we normalise to 1. We include only the weights to PFSs within the geographic market as defined in Chapter 14.

Table 5: relative weights of supermarket and non-supermarket PFSs in the various drive-time bands

Drive-time band	Weight to supermarket PFS	Weight to non-supermarket PFSs
0 to 5 minutes	1	0.17
5 to 10 minutes	0.36	0.05
10 to 15 minutes	0.24	-
15 to 20 minutes	0.13	-

Source: CMA analysis.

30. We also tried different specifications considering only the prices of the Parties' PFSs. However, the reduced dataset does not provide sufficient variation (ie a sufficient number of entry/exit events) to accurately estimate the impact of concentration on prices.

Computing PCA-based WSS

31.   We used the result of the PCA under Specification 2 to assign weights to all competing PFSs in the local areas around each of the Parties' PFSs. The relevant PFSs were determined based on our local market definition as all the non-supermarket PFSs within a 10-minute drive-time from the centroid PFS and all the supermarket PFSs within a 20-minute drive-time from the centroid PFS. So, for example, a supermarket PFS located between 5 and 10 minutes' drive-time from the centroid was assigned a weight equal to 0.00256, while a non-supermarket PFS between 0 and 5 minutes' drive-time was assigned a weight of 0.00121.[10] This method ensures that the relative weights are consistent with the results of Specification 2 of the PCA regression.

32.   These weights were then normalised through the following steps:

(a) For each centroid PFS, we computed the sum of the weights assigned to all the PFSs in the relevant geographic market.

(b) We computed normalised weights by dividing the PFSs' individual weights by their sum; the normalised weights so obtained sum to 1 within each local market.

(c) To account for out-of-market constraints, we used the same adjustment adopted for the survey-based WSS – 7.5% (see paragraph 15). We therefore multiplied each weight by 0.925.

33.   For each centroid PFS, the WSS of the other Party was obtained by summing the normalised weights of all its PFSs within the local market.

Limitations of the approach

34.   A fixed effects model using panel data may help to address bias arising from time-invariant, unobserved variables that affect both prices and concentration. However, this approach also has limitations.

35.   One possible limitation of this approach is an omitted variable bias. In the PCA, we are trying to isolate the direct effect that market concentration (competitor counts) has on pump prices, but it is plausible that an omitted variable drives both pump prices and supermarket PFS entry. Such an omitted variable bias could, in principle, bias our results. We expect any such bias to be small. This follows as there has been little entry of supermarket

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[10] We note that some of the coefficients used for the weights (for supermarket PFSs between 15 and 20 minutes' drive-time from the centroid and for non-supermarket PFSs between 5 and 10 minutes' drive-time from the centroid) are not statistically significant.

PFSs for many years, and what entry there has been is likely to have been determined by the requirements of locating the attached supermarket. Hence any omitted variable bias in the PCA could exist only to the extent that any omitted variable which drives fuel prices is correlated with the characteristics which drive supermarket location choices.

36. The Parties further note that the fact that entry and exit is not random: PFSs which exit outright are, based on evidence on site characteristics in the Catalist data, weaker competitors and, in the dataset used for the PCA, exit is almost four times as common as entry for non-supermarket PFS. This will result in an underestimation of the competitive constraint exerted by non-supermarket PFSs. This would in turn lead to a higher WSS for supermarket PFSs, including the Parties' PFSs and, consequently, to higher GUPPI estimates. We take this into account when considering the appropriate threshold for our GUPPI-based decision rule.

37. The Parties also submitted that the Experian Catalist data does not always accurately identify the opening and closing dates of PFSs and that these errors may be more common for non-supermarket PFSs than for supermarket PFSs. This is because Experian Catalist data on openings and closures is based on observing purchases made with fuel cards; supermarket PFSs, having higher fuel volumes, are more likely to be accurately included in the data. As measurement errors bias the estimation towards zero, higher frequency of errors for non-supermarket PFSs would lead to underestimating the competitive constraint exerted by non-supermarket PFSs relative to that imposed by supermarket PFSs. This would in turn lead to a higher WSS for supermarket PFSs, including the Parties' PFSs and, consequently, to higher GUPPI estimates. The Parties have not submitted any evidence to support a finding that measurement errors are indeed more common for non-supermarket PFSs. We have not considered it necessary to make any adjustment for such a possibility.

Volume concentration analysis

38. The Parties also submitted the results of a volume concentration analysis.

39. The Parties estimate the following regression equation:

$$\ln(volume_{it}) = \alpha_i + \theta_t + \gamma conc_{it} + u_{it}$$

where:

(e) $\ln(volume_{it})$ is the natural logarithm of the average daily fuel volume in quarter t at site i;

(f) α_i is an indicator for the PFS, which accounts for time-invariant site characteristics at site i, for example whether the PFS has a car wash or other demand factors;

(g) $conc_{it}$ is a vector of local concentration measures (various types of competitor counts) in the catchment area in quarter t around site i; and

(h) θ_t is a set of indicators that identify the quarter (eg 2016 Q1). Those are important because they capture common shocks to all PFSs, for example, oil price shocks in different quarters.

40. The Parties argued that the impact of entry and exit on volumes is more informative for GUPPI analysis than the impact on prices, as it is more relevant to the question of diversion.

41. The Parties, however, recognised some potential drawbacks of this analysis:

    (a) As volumes are much more variable across time than prices, the estimated effect of entry and exit on volumes is harder to identify in the data.

    (b) Unlike price data, volumes data is only available for the Parties' PFSs, therefore reducing the amount of data available to estimate any effect by more than 90%.

    (c) The Parties' price responses to entry and exit may make the impact on volumes even harder to identify. For example, if the Parties respond to entry by cutting prices (as the results of the PCA suggest), the overall impact on their volumes would be a combination of the direct downward impact due to entry and the upward impact due to the price cut.

42. These drawbacks can explain why in none of the specifications used by the Parties does the entry or exit of non-supermarket PFSs have a statistically significant impact on the Parties' volumes, while the impact of the entry of supermarket PFSs is statistically significant only in some specifications.

43. We therefore consider that, in this case, a volume concentration analysis does not provide sufficiently robust estimates to be used for the calculation of WSS.

GUPPI calculations

44. Our approach to GUPPI is discussed in paragraphs 14.113 to 14.128 of the main report. In this section we provide additional details on our estimation of the component of the multi-product GUPPI reflecting the impact of non-fuel sales.

45. Using the results of the CMA fuel survey, we estimated, separately for Asda and for Sainsbury's, the average proportion of fuel customers who would divert their supermarket spending if the PFS was known to be closed. We distinguished between customers who would divert PFS and supermarket spending together (ie to the same location) and those who would divert them separately (ie to two different locations). The following table provides our average estimates across the surveyed PFSs.

Table 6: Breakdown of proportion of fuel customers diverting supermarket spending with fuel spending

	Diverting PFS and supermarket spending together	Diverting PFS and supermarket spending separately
Asda	9%	4%
Sainsbury's	7%	3%

Source: CMA analysis.

46. For each centroid PFS, we assigned to competitor PFSs in the local areas two sets of diversions:

    (a) The first diversion, d_1, was derived using the same approach adopted for the assessment of in-store groceries (see Chapter 8), including the same out-of-market adjustment. The only difference was that we estimated the diversion using only the subset of the survey respondents to the in-store exit survey who had purchased fuel at the adjacent PFS during that shopping mission.

    (b) The second diversion, d_2, was computed by excluding from the set of possible 'destinations' those supermarkets without an adjacent PFS and rescaling d_1 accordingly. We used a smaller out-of-market adjustment than for d_1 (10% instead of 25%), to reflect the fact that only supermarkets with an adjacent PFS exert a constraint.

47. We assumed that all respondents to the CMA fuel survey who said they would divert their PFS and supermarket spending separately would have diverted their supermarket spending according to diversion d_1, while those diverting them together would have done so according to diversion d_2. We therefore computed a weighted average of diversions to competitor PFSs using as weights the proportions in Table 6, above.

48. To compute the GUPPI adjustment, for each of the Parties' PFSs we looked at the estimated diversions to each supermarket of the other Party in the local market. We multiplied these diversions by a weighted average of the variable margins for groceries and GM at each of the 'destination' supermarkets, where the weights were based on the share of GM over total sales at each store.

49. Technically, the GUPPI adjustment should also be multiplied by the ratio of one Party's average PFS transaction value to the other Party's average supermarket transaction value. In practice, these quantities are very similar, so the ratio will be approximately one. For instance, the CMA fuel survey informs us that the average transaction value and the distribution of the Parties' fuel customers spend on fuel is comparable between Sainsbury's and Asda PFSs (with mean spends at both Parties' PFSs at £[✂]), and it also informs us that the average transaction values for the Parties' PFS and supermarket customers on PFS and supermarket products is very similar, with average spend at supermarket around £[✂] and average spend at PFS (fuel and PFS shop or kiosk) [✂].

50. We therefore computed the non-fuel GUPPI adjustment for Asda PFS j as

$$GUPPI_j^{nf} = \sum_{i \in LM(j)} \left\{ (0.04 * d_{1i} + 0.09 * d_{2i}) * \left[(1 - share_i^{GM}) * m_i^{gr} + share_i^{GM} * m_i^{GM} \right] \right\}$$

where

(a) $LM(j)$ is the set of Sainsbury's supermarkets within the local market centred around Asda's supermarket j;

(b) $share_i^{GM}$ is the share of revenues accounted for by GM at supermarket i;

(c) m_i^{gr} is the variable margin on groceries at supermarket i;

(d) m_i^{GM} is the variable margin on general merchandise at supermarket i.

51. Similarly, for each Sainsbury's supermarket i, the non-fuel GUPPI adjustment was computed as

$$GUPPI_i^{nf} = \sum_{j \in LM(i)} \left\{ (0.03 * d_{1j} + 0.07 * d_{2j}) \\ * \left[(1 - share_j^{GM}) * m_j^{gr} + share_j^{GM} * m_j^{GM} \right] \right\}$$

where

(a) $LM(i)$ is the set of Asda's supermarkets within the local market centred around Sainsbury's supermarket i.

52. The CMA fuel survey asked a 'forced diversion' question, ie respondents were asked whether, if they knew the PFS was closed, they would divert their supermarket spending as well. The Parties argued that customers who use both the PFS and the supermarket may be expected to be less sensitive to increases in the price of fuel than customers who use the PFS only. If this was

the case, the proportions of customers who would divert their supermarket spending in response to a small but significant increase in the price of fuel would be somewhat lower than what estimated in Table 6 above.

53. We recognise that this is possible and that, if it is the case, the non-fuel GUPPI adjustment may overestimate the pricing pressure generated by the recaptured loss of non-fuel revenue.

54. On the other hand, it is also possible that customers that currently only purchase fuel may begin purchasing fuel and groceries together once they divert. As the non-fuel adjustment does not account for this possibility, it may underestimate the pricing pressure.

Pricing analysis

Description of prices in the data

55. We obtained Experian Catalist data on daily prices for all PFSs in the UK between 1 April 2016 and 31 July 2018, and the Parties' own prices and volumes for the same period.

56. Figure 6 below plots the median unleaded price over this period, for all PFSs, Sainsbury's PFSs, and Asda PFSs. The picture is very similar for diesel.

Figure 6: Daily median unleaded prices
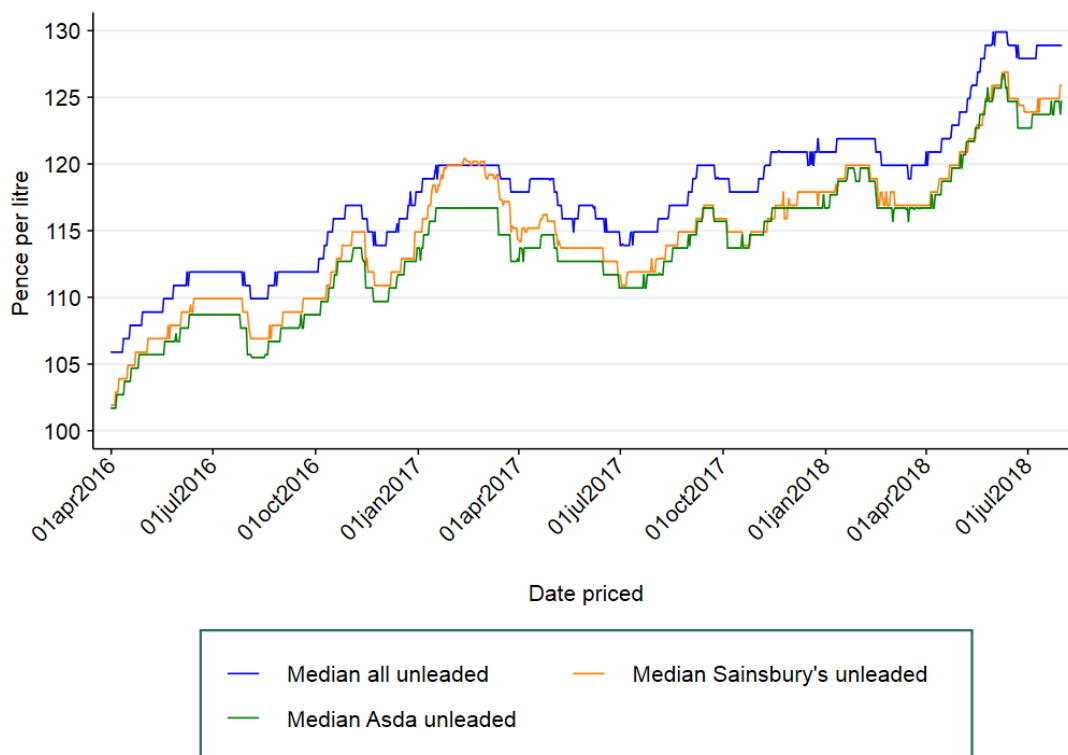
Source: CMA analysis of data from Experian Catalist and from the Parties.

57.   Our data covers a period where fuel prices are recovering from their sub-100ppl levels in 2015.

58.   Sainsbury's and Asda's prices are lower than average. In the period January to March 2017, Sainsbury's [✂]. Asda's [✂].

The Parties' pricing approaches

59.   The main features of the Parties' pricing approaches are described in paragraph 14.131 of the main report. The following paragraphs provide additional details.

60.   Additional details on Sainsbury's pricing approach:

   (a) [✂]

   (b) [✂]

   (c) [✂]

   (d) [✂]

   (e) [✂]

61.   Additional details on Asda's pricing approach:

        (a) [✂]

        (b) [✂]

        (c) [✂]

        (d) [✂]

        (e) [✂]

        (f) [✂]

Accuracy of the pricing rules

62.   The pricing rules used for our pricing analysis are described in paragraph 14.132 of the main report. We compared the prices generated by the pricing rules and the actual prices that the Parties set.
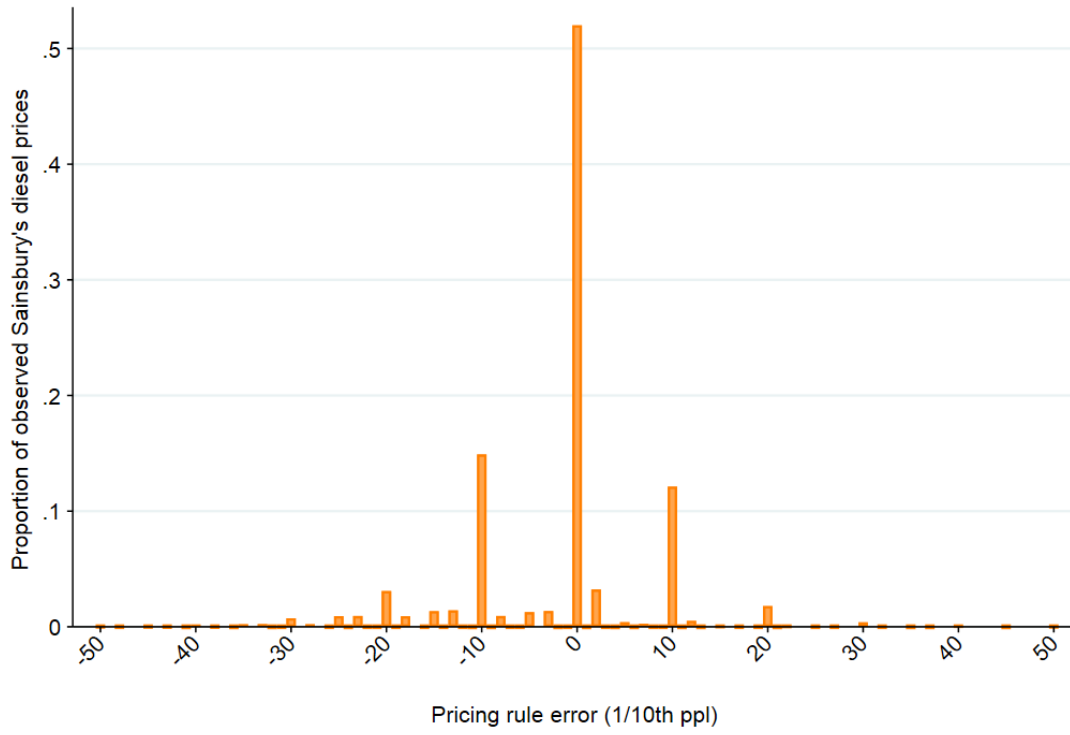
Sainsbury's pricing rule

63.   The price estimated through the Sainsbury's pricing rule coincided with the actual price 52% (diesel) and 41% (unleaded) of the time. The difference between estimated and actual price was within +/- 1ppl 86% (diesel) and 79% (unleaded) of the time ([✂]).

64.   Figures 7 and 8 below show the distribution of the difference between estimated and actual prices for Sainsbury's. The horizontal axis is in units of 1/10th of a penny per litre, and a positive error means that the estimated price was higher than the actual price (eg +10 implies the estimated price was 1ppl higher than the actual price).

65.   Errors when applying the Sainsbury's pricing rule are clustered around integer values of pence per litre. The errors are broadly symmetric, with the pricing rule slightly more likely to estimate a price that is too low for diesel, and slightly more likely to estimate a price that is too high for unleaded.

Figure 7: Sainsbury's pricing rule for diesel, distribution of errors

Source: CMA analysis.

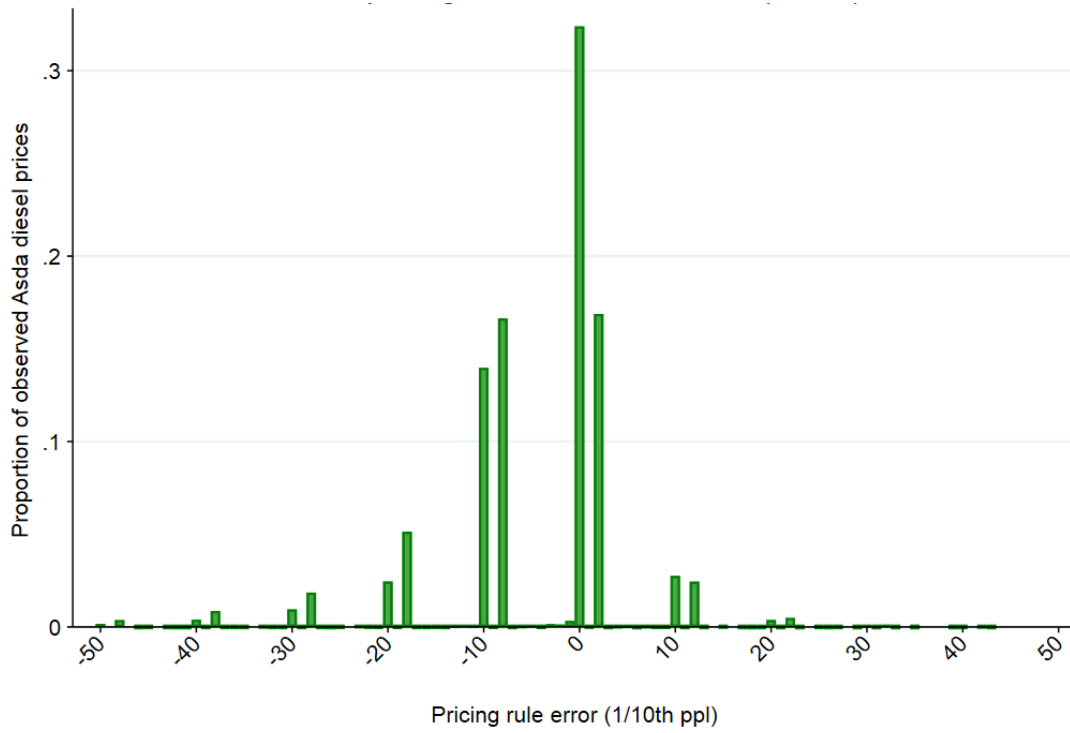**Figure 8: Sainsbury's pricing rule for unleaded, distribution of errors**
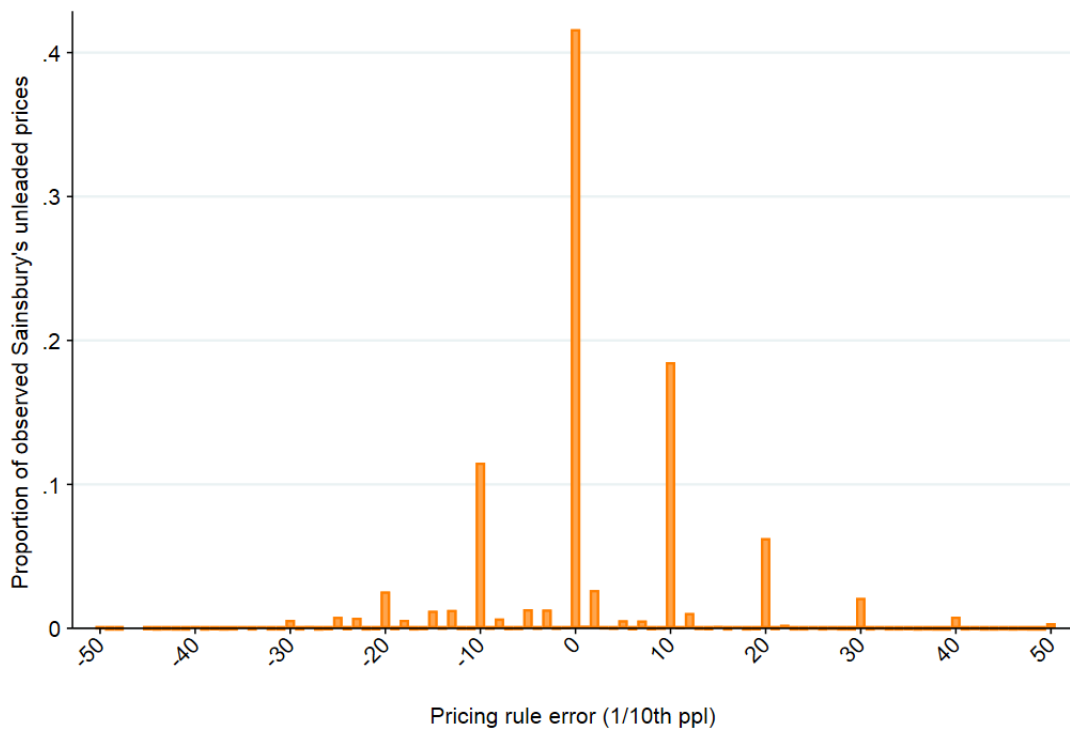
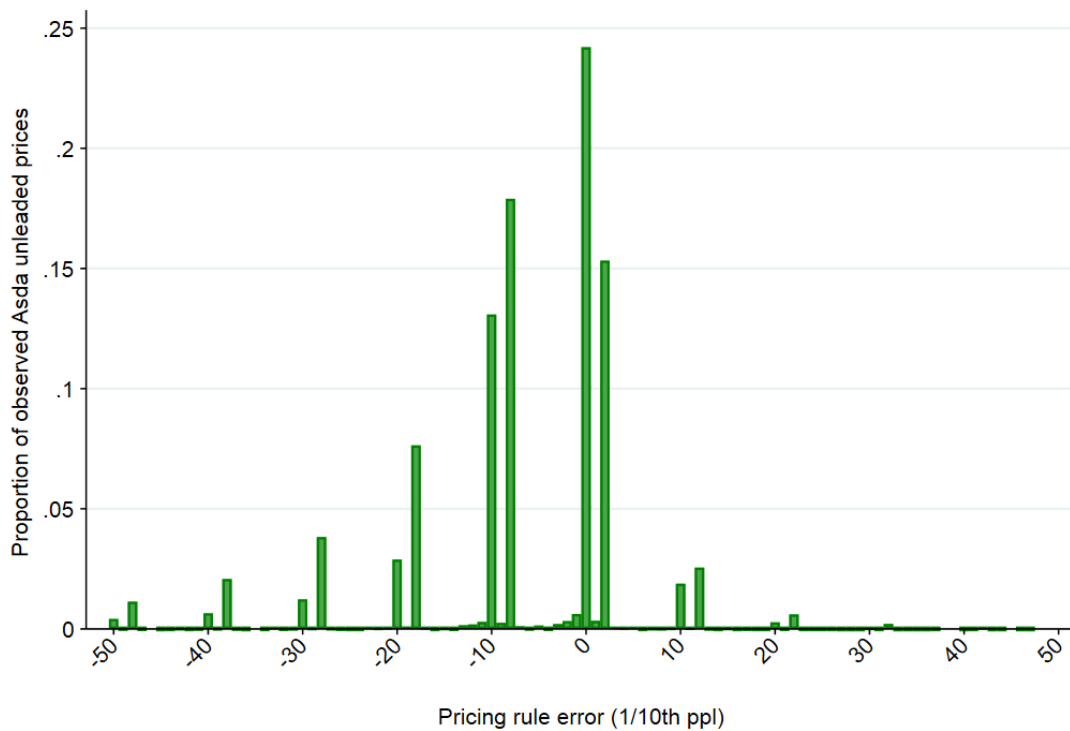Source: CMA analysis.

Asda pricing rule

66.   The price estimated through the Asda pricing rule coincided with the actual price 32% (diesel) and 24% (unleaded) of the time. In our view, this lower degree of accuracy can be explained by the fact that Asda's [✂]:

(a) [✂]

(b) [✂]

67.   This view is supported by our observation that the difference between the estimated and the actual Asda price was within +/- 0.2ppl 49% (diesel) and 40% (unleaded) of the time, which is a similar level of performance to Sainsbury's pricing rule for exact estimates ([✂]).

68.   The difference between the estimated and the actual Asda price was within +/- 1ppl 83% (diesel) and 73% (unleaded) of the time ([✂]).

69.   Figures 9 and 10 below show the distribution of the differences between estimated and actual prices for Asda. The horizontal axis is in units of 1/10th of a penny per litre, and a positive error means that the pricing rule estimated a price that was higher than the actual price (eg +10 implies the estimated price was 1ppl higher than the actual price).

70.   Errors when applying the Asda pricing rule are clustered around +/- 1ppl, but also +0.2ppl and -0.8ppl, [✂]. The distribution of errors is asymmetric, in that Asda's pricing rule is more likely to estimate a price which is too low relative to Asda's actual price.

Figure 9: Asda pricing rule for diesel, distribution of errors

Source: CMA analysis.

Figure 10: Asda pricing rule for unleaded, distribution of errors
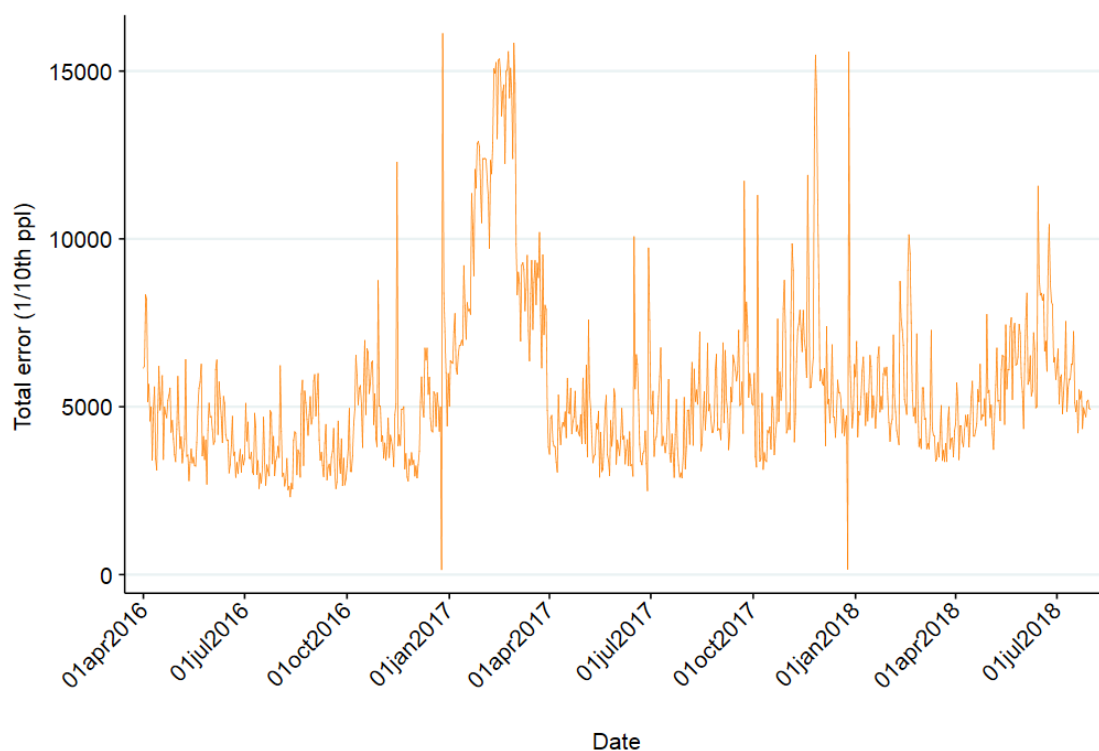

Source: CMA analysis.

71.   Overall, the pricing rules appear to capture c.75-80% of the Parties' pricing behaviour to within +/- 1ppl. We view this as a sufficient degree of accuracy to

place weight on this analysis as being informative of the Parties' actual pricing behaviour.

Accuracy of pricing rule over time

72.   We analysed the total error of the Sainsbury's pricing rule across all Sainsbury's PFSs over time. Figure 11 below illustrates this for unleaded, but the picture is very similar for diesel.

Figure 11: Daily total error of pricing rule for Sainsbury's unleaded

Source: CMA analysis.

73.   The pricing rule performs poorly during 2016/17 Q4. This is because Sainsbury's [✂]. Since overall errors were broadly symmetric for Sainsbury's, we infer that, [✂], the pricing rule usually estimates a price that is slightly too high relative to Sainsbury's actual prices.

74.   Similarly, we analysed the total error of the Asda pricing rule across all Asda's PFSs over time. Figure 12 below illustrates this for unleaded, but the picture is very similar for diesel.

Figure 12: Daily total error of pricing rule for Asda unleaded
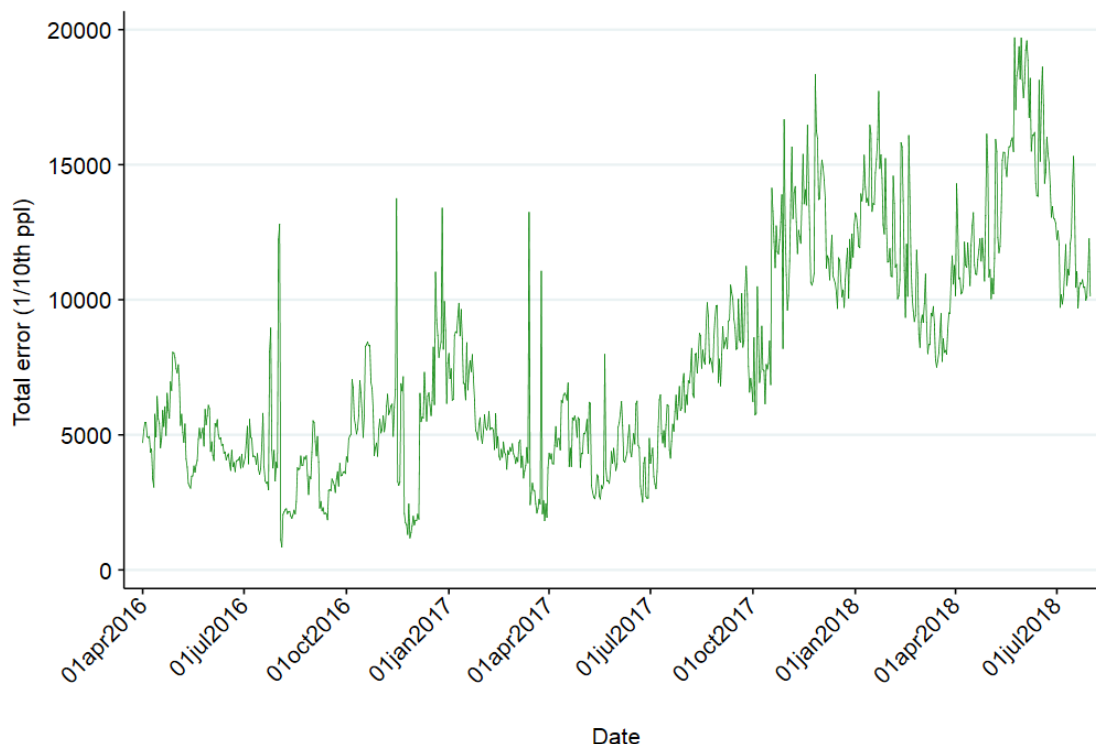
Source: CMA analysis.

75.   It appears that the Asda pricing rule ([✂]) is a relatively good description of Asda's behaviour until July 2017.

76.   As the sign of the daily median error of the Asda pricing rule in the period from July 2017 to July 2018 is negative, this means that Asda's prices in this period were higher than the estimated ones. This could suggest that Asda has become a less aggressive competitor since July 2017.

Proportion of time price matched by centroid PFS

77.   We constructed a score for each competitor to describe how often each competitor was price-matched by the Parties' PFS. We used this analysis as one piece of evidence when determining the appropriate market definition for our assessment. We used two variants of the score:

   (a) awarding 1 point for each time that competitor acted as the effective constraint and, where there was a tie for the price for any given day and centroid PFS, splitting the point evenly (eg if both Asda and Morrisons were the lowest distance-adjusted price for a Sainsbury's PFS one day, they each get 0.5);

   (b) awarding 1 point for each time that competitor acted as the effective constraint, and awarding no points in the event of a tie (which may be motivated by the logic that, in the case of ties, the constraint from any one

of the constraining competitor PFS would be replaced even in the absence of that competitor PFS).

78. The different variants used did not make a material difference to the results. We report the results using the second variant.

Figure 13: [✂]

[✂]

Source: CMA analysis.

79. For Sainsbury's PFSs, [✂].

80. For Asda's PFSs, [✂].

81. The Parties' PFSs are principally constrained by supermarket PFSs rather than non-supermarket PFSs. This reflects the fact that supermarket PFSs are cheaper than non-supermarket PFSs.

82. Turning to drive-time distance of the PFSs which the Parties price mark, Sainsbury's [✂].

Figure 14: Cumulative distribution function of drive-time to competitor PFS matched by Sainsbury's pricing rule

[✂]

Source: CMA analysis.

83. Asda's PFSs [✂]. When interpreting these results, we do note however that our pricing rule does not take into account [✂].

Figure 15: Cumulative distribution function of drive-time to competitor PFS matched by Asda's pricing rule

[✂]

Source: CMA analysis.

Robustness checks on the Pricing Indicator

84. We explained in paragraph 14.138 in the main report how we defined and computed the Pricing Indicator.

85. The Parties' economic advisers submitted that our approach might lead to excessively high values of the Pricing Indicator, because in a situation where the Parties' PFSs ignored the other merging Party's PFS, a significant proportion of the Parties' PFSs may be matched against the PFSs of oil majors like BP and Shell, who have PFS sites that are typically higher quality than the Parties' PFSs in terms of convenience of location, accessibility, and

other similar factors. The pricing rule would predict that the Parties would match or just undercut the price of those higher-quality competitor PFSs, when in reality, the Parties are likely to set a lower price to account for the difference in relative quality.

86.   We analysed, when one of the Parties' PFSs matched to a PFS of the other merging Party, the extent to which the second-most effective competitor PFS was an oil major. The second-most effective competitive PFS was another supermarket PFS more than 80% of the time for Sainsbury's and more than 90% of the time for Asda. This increases our confidence in the accuracy of the Pricing Indicator as an indicator of the magnitude of the expected merger effect.

Sainsbury's [✂]

87.   [✂]

[✂]

88.   [✂]

89.   [✂]

90.   [✂]

91.   [✂]

Figure 16: [✂]

[✂]

Source: [✂].

Figure 17: [✂]

[✂]

Source: [✂].

[✂]

92.   [✂]

    (a) [✂]

    (b) [✂]

    (c) [✂]

93.   [✂]

[✂]

94.   [✂]

      (a) [✂]

      (b) [✂]

[✂]

95.   [✂]

96.   [✂]

Appendix L: Quantitative analysis of the prices charged by suppliers to grocery retailers

1. This appendix summarises our analysis of the prices charged by suppliers to different retailers for a sample of SKUs.[1,2]

2. Suppliers may agree to charge lower prices to larger retailers for two reasons: first, because fulfilling larger orders may be inherently more efficient (eg in terms of distribution, invoicing, etc), meaning the per-unit costs incurred by the supplier are lower; and second, because larger retailers may have more bargaining power. However, the distinction between these two factors is not material to the waterbed effect and therefore our analysis did not seek to distinguish between them.

3. Our methodology broadly followed that used by the CC in the 2008 Groceries market investigation,[3] with some differences to account for the fact that we have a smaller data set, and in this case we are dealing with the potential effects of an anticipated merger, not a market investigation. The CC found that the four largest grocery retailers paid between 4 and 6% less than the mean for products in its sample. The CC also found a statistically significant relationship between the volumes bought by a customer and the prices it paid, although this relationship seemed to apply only to certain products and over certain ranges.

4. Identifying the precise effect of purchasing volumes on procurement costs is difficult because the prices charged by a supplier to a retailer depend not just on the volumes purchased by that retailer but also on a range of other factors, including the logistical arrangements, demand profiles, and bargaining skills of different retailers.[4] These other factors are difficult to observe and quantify. If some of these factors are correlated with procurement volumes (but do not directly result from being larger), this might bias the analysis of the relationship between procurement volumes and costs. More specifically, if some of these factors are **positively** correlated with size (which is likely to be the case for logistical arrangements and bargaining skills), then our analysis might **overstate** the relationship between procurement volumes and costs. As such, the results of our analysis are probably best interpreted as providing an

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[1] A SKU identifies a distinct product based on attributes such as brand, quantity and packaging.
[2] Our analysis focuses on the 'net price' charged for a SKU, which is the price per unit after all discounts, promotions and payments have been accounted for.
[3] See Groceries market investigation.
[4] Pricing may also depend on promotional strategies, but the effect of this factor is already incorporated into our analysis as it is based on prices net of all discounts and promotional rebates.

'upper bound' on the strength of the relationship between procurement volumes and costs. However, any such bias is likely to be small for small changes in volumes, which are the focus of our analysis in the context of waterbed effects.

5.   Our analysis is based on SKU-level data for 26 large suppliers of branded goods.[5] These suppliers cover a range of groceries categories including food, household products, tobacco, and alcoholic and non-alcoholic drinks. Each of these suppliers has provided data on its supply terms for its 20 top-selling SKUs to each of Tesco, Sainsbury's, Asda, Morrisons, Waitrose, and Co-op. We have not sought to conduct this analysis for own-brand goods as it is difficult to identify comparable SKUs across retailers for own-brand products. For this reason we did not include Aldi, Lidl or M&S in this analysis as these supply primarily own-brand products. Our analysis focuses on the 'net price' charged for a SKU, which is the price per unit after all discounts and payments have been accounted for. This database has 2,571 observations (where one observation corresponds to price and volume information for one SKU transacted between one retailer and one supplier) covering £6.6 billion worth of transactions in total.

6.   To draw some comparisons between the terms obtained by different retailers across SKUs, we calculated an index of the 'relative price' of each transaction. The 'relative price' paid by a retailer for a SKU is the net price paid by that retailer divided by the average price paid by all retailers who purchase that SKU. This approach follows that used by the CC in the 2008 Groceries market investigation.[6]

7.   To obtain some insights into the relationship between procurement volumes and costs, we plotted relative prices and procurement shares for individual SKUs and ran a non-parametric regression of the former on the latter (including fixed effects for individual retailers and suppliers).[7,8] The results are provided below: Figure 1 shows the observations and the predicted relationship graphically; Table 1 shows the predicted relative prices at different points in the curve, together with standard errors and confidence intervals; and Table 2 shows the predicted change in relative prices for a one

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[5] These suppliers were selected as follows [✂]. This gave a sample of 26 suppliers.
[6] See Groceries market investigation.
[7] A non-parametric regression seeks to identify the relationship between relative volumes and prices without 'pre-judging' the structure of that relationship (eg whether it is linear, quadratic, etc). This approach is appropriate in this context because there is no source of prior information about the shape of the relationship considered and there is enough data to implement a non-parametric analysis.
[8] We dropped SKUs that were purchased by fewer than five retailers, as in such cases the average used to calculate the relative price may be less robust (this results in 338 observations being deleted). We also dropped observations with a relative price higher than two, as these mostly relate to small volumes purchased from a small number of suppliers (this results in 24 observations being deleted).

percentage point increment in procurement share starting from different points in the curve, together with standard errors and confidence intervals.

Figure 1: Relative price and relative volume for individual SKUs
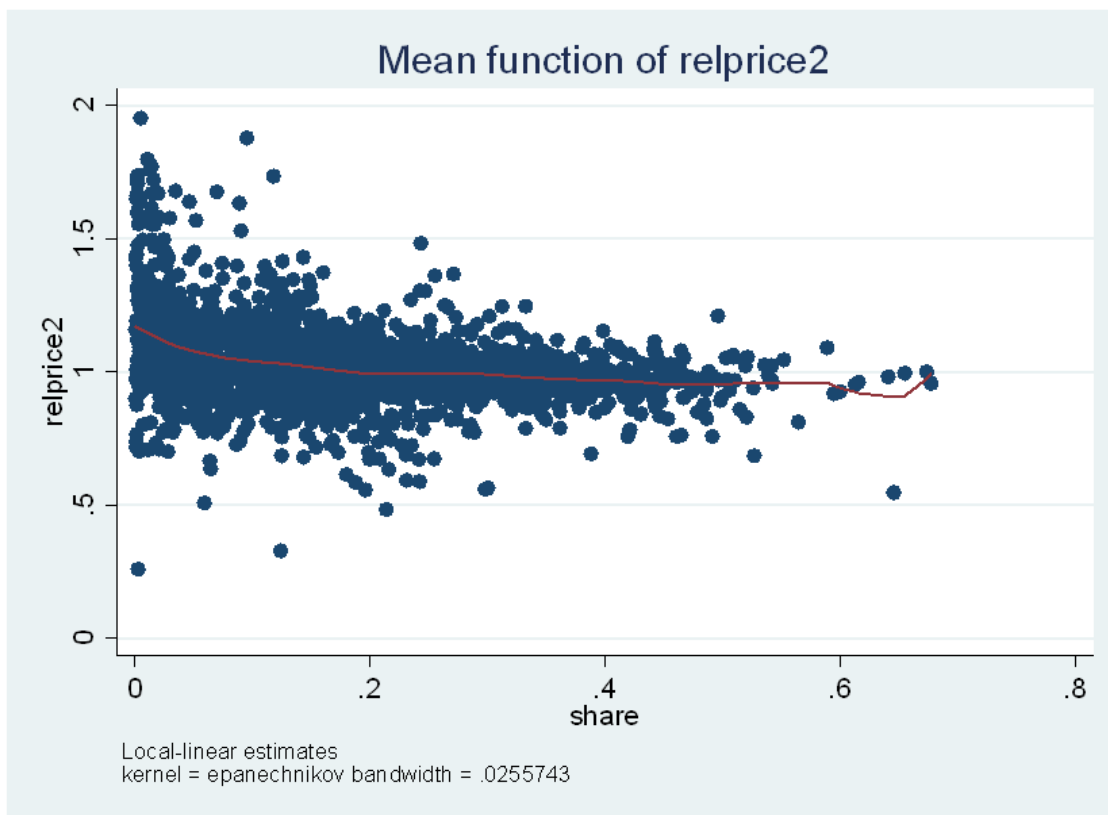
Source: CMA analysis of third party data.
Note: the red line shown in this chart is the predicted relationship between procurement share and costs given by a regression without fixed effects for individual retailers and suppliers. This is provided for illustrative purposes only. The regression results provided in the accompanying tables all incorporate fixed effects for individual retailers and suppliers.

Table 1: Relative prices at different levels of procurement share

Procurement share	Predicted relative price	Bootstrap standard error	z	P>|z|	95% Confidence interval	
0%	1.170	0.023	49.940	0.000	1.135228	1.208446
5%	1.093	0.007	155.610	0.000	1.079253	1.1077
10%	1.042	0.005	230.030	0.000	1.032134	1.048331
15%	1.009	0.004	261.400	0.000	1.000747	1.014772
20%	0.994	0.004	270.740	0.000	0.9870315	0.9999983
25%	0.993	0.004	228.250	0.000	0.9864163	1.001931
30%	0.988	0.004	281.380	0.000	0.9823732	0.9933845
35%	0.975	0.005	181.990	0.000	0.9658642	0.9834364
40%	0.972	0.005	182.070	0.000	0.9632014	0.9828451
45%	0.967	0.007	130.090	0.000	0.952033	0.9794486
50%	0.960	0.011	86.490	0.000	0.9407606	0.9787795

Source: CMA analysis of third party data.

Table 2: Difference in relative prices associated with a one percentage point difference in procurement share

Starting share	Effect of a one percentage point increase in share	Bootstrap standard error	95% confidence interval	
5%	-0.0099	0.0014	-0.0124	-0.0074
10%	-0.0076	0.0011	-0.0096	-0.0059
15%	-0.0054	0.0011	-0.0072	-0.0036
20%	-0.0009	0.0009	-0.0031	0.0002
25%	-0.0003	0.0009	-0.0016	0.0016
30%	-0.0026	0.0009	-0.0046	-0.0006

Source: CMA analysis of third party data.

8. Both Figure 1 and Table 2 show that this relationship is non-linear, in the sense that it is stronger for smaller procurement shares than for larger procurement shares. For example, starting from a 5% procurement share, a retailer increasing its share by one percentage point (so, from 5 to 6%) would see its average relative price decrease by a factor of 0.009 (ie its procurement costs would decrease by roughly 1%), while starting from a 15% procurement share a retailer increasing its share by one percentage point would see its average relative price decrease by a factor of 0.005 (ie its procurement costs would decrease by roughly 0.5%). In fact, Table 2 shows that the effect of a small increase in procurement share is not statistically significant when starting from a share of 20 or 25%.[9]

9. While the association between procurement shares and relative prices is stronger for smaller shares compared to larger shares **on average**, there is also more variability in the relative prices obtained for small shares. This is clearly visible from Figure 1, which shows more dispersion in the scatterplot to the left of the chart than to the right, and from Table 1 which shows that the standard errors are larger for small shares than they are for medium-to-large shares. So relative prices are more difficult to predict for small procurement shares, and are probably affected by different factors that are not captured in this analysis.

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[9] In the sense that the 95% confidence interval includes a zero effect.

Appendix M: Efficiencies

Introduction

1. The Parties' submissions on the scale of expected efficiencies from the Merger primarily relied on a number of pieces of analysis conducted by [✂] [afterwards 'the consultant'], a third-party consulting firm, which the Parties commissioned to conduct this assessment. Use of a third party was required in order to address the confidentiality issues which would inevitably arise from analysing competitively sensitive information from both Parties (eg the cost prices of individual products).

2. Accordingly, the Parties themselves have been unable to review the underlying data or analyses used to produce the synergies estimates. However, they oversaw the calculations, and were able to supply us with a broad overview of both the approach and the high-level results.

3. When we had more detailed questions on the approach and/or results (including many technical aspects of the calculations), the Parties asked [the consultant] to supply us with the specific data, calculations, and explanations which it had used.

4. This appendix explains the specific analysis which the Parties and [the consultant] conducted in order to produce the Parties' stated quantified synergies estimates, and our views on these approaches and results.

Description of the [the consultant] methodologies

5. [The consultant] and the Parties split the quantified synergies available from the Merger into the following areas:

    (a) Purchasing synergies;

    (b) Property synergies;

    (c) Goods not for resale ('GNFR'); and

    (d) Other operational synergies.

6. Each of these is described in more detail below.

Purchasing synergies

7. The Parties submitted that, currently, each of them is uncertain as to whether they are receiving the best buying terms from their suppliers. The Merger

would allow the Parties to compare actual buying terms currently being achieved, and so would demonstrate where suppliers are able to profitably supply at a lower price on some or all of their products. The Parties would then seek to renegotiate with their suppliers to achieve terms on the total combined volumes which are equivalent to the best that one Party currently receives. This process was described as 'harmonisation' of buying terms. A number of methodologies were used to estimate the effect of harmonising the buying terms from suppliers across the two Parties.

8. In addition to this harmonisation analysis, [the consultant] included an estimate of further savings following renegotiation with suppliers, on the basis of having higher volumes with a single supplier or lower supplier transaction costs through dealing with only one buyer.

SKU Approach

9. At a high level, the SKU Approach estimated the purchasing synergies from harmonisation of own-brand grocery products through a direct SKU-by-SKU comparison on a sample of own-brand products, coupled with an extrapolation to the un-sampled own-brand sales.

10. The specific process which [the consultant] used was as follows:

   (a) [The consultant] compared a selection of around [✂] Asda own-label food SKUs with all of Sainsbury's own-label SKUs to try and find equivalent matches between the companies[1] (around [✂] matches were found);

   (b) Where an equivalent match was found, [the consultant] calculated the effect of reducing the less favourable terms to being in line with the more favourable terms (eg if one product was being purchased for 99p at one Party and an equivalent at the other Party for 98p, they calculated the effect of 1p savings on the first Party's volumes). Where no equivalent match was found, no savings were assumed;[2]

   (c) Due to use of a sampling approach of the Asda data, [the consultant] then needed to calculate an estimated share of Sainsbury's SKUs which were assumed to have been sampled (ie there may be other Sainsbury's products which are equivalent to Asda products but since only a sample

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[1] [The consultant's] methodology for calculation of buying synergies.
[2] [The consultant's] methodology for calculation of buying synergies.

of Asda was used, this proportion is unknown). It did this based on the share of Asda's sampled SKUs which were matched;[3]

(d) These calculated savings were extrapolated to unsampled own-label spend within the same categories (actual unsampled spend for Asda and estimated unsampled spend for Sainsbury's);[4] and

(e) The weighted average savings from produce and meat, fish and poultry were also extrapolated to other fresh categories (food services, food to go, food counters, and food for later).

Supplier Approach

11.   The Supplier Approach estimated the purchasing synergies on branded grocery products of [<100] suppliers using a comparison of supplier margins for each Party (ie the gross margins generated by the Parties based on the sale of goods from these suppliers). The estimated purchasing synergies on branded grocery products of the remaining suppliers was reached by extrapolating the category savings from these [<100] suppliers to the remaining suppliers.

12.   The Parties stated that a comparison of supplier margins (rather than SKU sampling) was used because the different contractual terms in the Parties' contracts with suppliers would have made direct SKU-by-SKU comparisons across branded products more difficult.

13.   The specific process which [the consultant] used was as follows:

(a) Asda's top [<100] most significant branded suppliers by revenue were matched to Sainsbury's;

(b) Sainsbury's revenues were adjusted ('deflated') to reflect differences in branded retail prices (and promotions) between Sainsbury's and Asda using data supplied by a third party which tracked price differences between the Parties' on these products. This was to ensure that differences in supplier margins reflected differences in cost of goods sold (COGS) rather than differences in retail prices;

(c) The gross margins generated by sales at each Party were compared for each individual supplier, and [the consultant] moved the worse performer of the Parties to the better margin (applying caps of [✂]% on any individual supplier's savings if branded sales constituted less than 90% of

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[3] [The consultant's] methodology for calculation of buying synergies.
[4] [The consultant's] methodology for calculation of buying synergies.

the supplier's sales or fewer than 90% of SKUs were common between the Parties to reflect potential differences in mix, as well as a cap of two standard deviations away from the mean savings for any single supplier);[5] and

(d) [The consultant] then extrapolated the estimated savings from these [✂] [<100] largest branded suppliers to the rest of the Parties' branded purchases within each category.

14. In addition to this analysis, [the consultant] considered whether the differences in gross margin reflected a difference in mix of products sold, rather than differences in the COGS of each product. It did this by comparing the volumes and sales of branded products sold at each Party for [10-20] of the suppliers (the largest in their respective categories). Again, this required manually matching a subset of SKUs for each supplier, and so some were excluded. [The consultant] conducted a regression on the volumes of each matched SKU sold, and the proportion of sales that these SKUs represent of each supplier's portfolio. It found that the R-squared values associated with these regressions were between 0.5 and 0.9, with the majority being around 0.8.

Category Approach

15. At a high level, the Category Approach used the same methodology as the Supplier Approach and was applied to non-grocery sales (GM including clothing) as well as a small number of other grocery categories, namely Baby and Beauty, Beers Wines and Spirits.

16. The Parties stated that the same methodology was used as in the Supplier Approach because the similar likelihood of different contractual terms (ie the different contractual terms in the Parties' contracts with suppliers would have made direct SKU-by-SKU comparisons more difficult).

17. The specific process which [the consultant] used was as follows:

(a) Revenue and gross margins were calculated by the Parties from sales of each of the following categories/sub-categories: (i) Beer, Wine & Spirits (own label), (ii) Baby & Beauty (own label), (iii) Womenswear, (iv) Footwear and accessories, (v) Women's and men's essentials, (vi) Men's & school, (vii) Childrenswear, (viii) General merchandise;

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[5] [The consultant's] methodology for calculation of buying synergies.

(b) Sainsbury's revenues were adjusted to reflect differences in retail prices between Sainsbury's and Asda using the same methodology as the Category Approach for non-food grocery, and using a sample-based comparison of products produced by [the consultant] for clothing and the rest of GM (using baskets of around [✂] and [✂] products respectively); and

(c) The gross margins generated by each Party were compared for each category/sub-category mentioned above, and [the consultant] moved the worse performer of the Parties to the better margin (applying caps of [✂]% to reflect concerns about differences in mix).

18. No mix analyses were conducted on any of the above.

Fuel Approach

19. The Parties and [the consultant] did not produce any estimates of the potential synergies arising from fuel prior to the announcement of the Merger. However, during our investigation, the Parties submitted that [the consultant] had completed a number of pieces of analysis which it used to estimate the expected synergies in fuel.

20. The Parties explained that the majority of fuel costs are determined by factors outside of their control (ie the base price and duty), and so savings are only available within commercial components which are generally small (eg estimated as being around [0-5]% of total cost price of diesel for Asda).

21. The UK fuel retail market is served by a relatively small number of oil terminals with clusters of refineries and storage facilities in established supply points. The Parties' current approach to procuring their fuel from these clusters differs significantly. Although both set their prices with reference to a common index to reflect changes in the base price (sometimes known as a 'Platts+' contract), [✂] Sainsbury's [✂] subcontract all of its fuel [✂] while Asda [✂].

22. In order to estimate the potential synergies available from harmonising the Parties' fuel procurement costs, [the consultant] used the following process:

(a) In order to make contract prices between the Parties more comparable, [the consultant] adjusted the prices to reflect two sources of potential

difference, specifically, where contractual temperatures differed,[6] and where different contracts explicitly included or excluded certain components in the unit cost price.[7]

(b) Where both Parties are currently procuring fuel from the same terminal, [the consultant] compared the adjusted commercial cost prices,[8] and calculated the implied savings from moving the volumes of the Party achieving the worse cost price onto the better cost price from the other Party.[9]

(c) Where Parties are currently procuring fuel from different terminals, but they are relatively close to each other [✂].

23.   The Parties also submitted that there was an opportunity to generate synergies through harmonisation of their fuel distribution. Currently Sainsbury's uses [✂]. In contrast, for the vast majority of Asda's sites, [✂].

24.   When considering the potential synergies available from harmonisation of fuel delivery costs, [the consultant] used the [✂].

Beyond Best Terms ('BBT')

25.   In addition to working out the effect of harmonising to the best terms achieved by one of the Parties on existing purchases, [the consultant] estimated the additional savings available from Merger in groceries and GM as a result of either having higher volumes with a single supplier or lower supplier transaction costs through dealing with only one buyer.

26.   These were estimated on the basis of supplier interviews, where suppliers were asked to comment on the potential savings that could be generated and passed onto the retailers if they were to receive an increase in their volumes.

27.   On the basis of interviews with 7 former senior employees of suppliers,[10] [the consultant] produced two grids of potential savings to estimate the level of savings which would be expected to be achieved, depending on the nature of the manufacturing process, and the changes in volume from combining the businesses. These grids are shown below:

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[6] Because fuel volumes will expand/contract depending on the temperature they are supplied at, so contracts are usually specified either at ambient temperatures or at a standard 15 degrees centigrade, and prices for these may therefore differ.
[7] For example, the cost of fuel additives may or may not be included in the contract.
[8] Base prices and fuel duty are the same at both Parties, so can be excluded from the analysis.
[9] [✂].
[10] [The consultant] methodology for calculation of buying synergies.

Figure 1: Own label BBT savings grid (% savings applied to COGS)

Increase in volume	Minimal Prep	Processed - Small Batches	Processed - Mid Batches	Processed - Large Batches	Large Manufacturers
0%	[✂]	[✂]	[✂]	[✂]	[✂]
10%	[✂]	[✂]	[✂]	[✂]	[✂]
20%	[✂]	[✂]	[✂]	[✂]	[✂]
30%	[✂]	[✂]	[✂]	[✂]	[✂]
40%	[✂]	[✂]	[✂]	[✂]	[✂]
50%	[✂]	[✂]	[✂]	[✂]	[✂]
60%	[✂]	[✂]	[✂]	[✂]	[✂]
70%	[✂]	[✂]	[✂]	[✂]	[✂]
80%	[✂]	[✂]	[✂]	[✂]	[✂]
90%	[✂]	[✂]	[✂]	[✂]	[✂]
100%	[✂]	[✂]	[✂]	[✂]	[✂]

Source: CMA analysis.
Note: 'Minimal Prep' includes produce and meat, fish, and poultry; 'Processed' includes dairy, impulse food, frozen food, and food for later and the batch size depends on the weekly sales volumes of the individual SKUs; 'Large Manufacturers' includes household and petcare, beer, wine and spirits, canned and packaged.

Figure 2: Branded BBT savings grid (% savings applied to COGS)

Increase in volume	Minimal Prep	Processed - Small Batches	Processed - Mid Batches	Processed - Large Batches	Large Manufacturers
0%	[✂]	[✂]	[✂]	[✂]	[✂]
10%	[✂]	[✂]	[✂]	[✂]	[✂]
20%	[✂]	[✂]	[✂]	[✂]	[✂]
30%	[✂]	[✂]	[✂]	[✂]	[✂]
40%	[✂]	[✂]	[✂]	[✂]	[✂]
50%	[✂]	[✂]	[✂]	[✂]	[✂]
60%	[✂]	[✂]	[✂]	[✂]	[✂]
70%	[✂]	[✂]	[✂]	[✂]	[✂]
80%	[✂]	[✂]	[✂]	[✂]	[✂]
90%	[✂]	[✂]	[✂]	[✂]	[✂]
100%	[✂]	[✂]	[✂]	[✂]	[✂]

Source: CMA analysis.
Note: 'Minimal Prep' includes produce and meat, fish, and poultry; 'Processed' includes dairy, impulse food, frozen food, and food for later and the batch size depends on the weekly sales volumes of the individual SKUs; 'Large Manufacturers' includes household and petcare, beer, wine and spirits, canned and packaged.

28. For fuel [the consultant] did not include a benefit associated with higher volumes with a single supplier or lower supplier transaction costs through dealing with only one buyer. However, it did consider the potential for additional synergies from [✂].

29. In these areas, [the consultant] estimated the total cost to serve these PFSs from [✂].

Total purchasing synergies estimate

30. Using the approaches described above, [the consultant] estimated a total purchasing synergies estimate of £[✂], split as follows:

Table 1: [The consultant] sources of estimated procurement synergies

£

Estimated procurement synergies

SKU Approach	
Directly compared	[✂]
Extrapolate within categories	[✂]
Extrapolate to adjacent categories	[✂]
BBT	[✂]
Total SKU Approach	[✂]
	[✂]
Supplier Approach	[✂]
Top suppliers	[✂]
Extrapolation	[✂]
BBT	[✂]
Total Supplier Approach	[✂]
	[✂]
Category Approach	[✂]
Category calculation	[✂]
BBT	[✂]
Total Category Approach	[✂]
	[✂]
Fuel Approach	[✂]
Savings on same terminals	[✂]
Savings on nearby terminals	[✂]
Distribution	[✂]
BBT	[✂]
Total Fuel Approach	[✂]
Total procurement synergies estimated	[✂]

Source: Parties' submissions, [the consultant] analysis

31. This analysis indicates that the estimated purchasing synergies would be split such that [✂] would be from grocery, [✂] would be from GM and [✂] from fuel.[11]

Property synergies

32. [The consultant] assumed a [✂]% uplift in the revenue from Asda's stores receiving an Argos store due to (i) a grocery "halo" effect (that is, an increase in footfall and grocery sales as a result of the Argos in-fill presence); and (ii) a revenue uplift also assumed for the in-filled Argos stores.

33. The selection of grocery uplift was informed by Sainsbury's historically observing a [✂]% growth in sales from [✂] stores receiving Argos implants, compared with control stores.

34. The revenue from additional Argos store openings in Asda stores was estimated using average Argos store revenues (segmented by infill, micro, and click-and-collect), and accounting for increased costs (eg store labour) and cannibalisation risk from historical evidence.

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[11] During the investigation, the Parties updated some aspects of their analysis at various times but stated that the changes did not result in material variations to the scale of estimated synergies, for example that changes had *"very limited impact on the overall synergy estimate"*.

35. In addition, the potential savings from closing the relocating Argos stores was factored in, again based on Sainsbury's experiences to date.

36. Taking all of the above into account, the Parties estimated that these Argos expansions would generate £[✂] of revenue synergies and £[✂] of cost synergies.

37. In addition to the estimated synergies from Argos, the Parties expected to generate £[✂] of revenue synergies from [✂].

GNFR synergies

38. The Parties have estimated £[✂] of opex savings from supplier harmonisation and operational improvements in GNFR.

39. The largest elements of this are savings of between [✂].

40. The majority of these estimates are based on the previous experiences of Sainsbury's internal procurement expert in other businesses of this size.

41. The Parties noted that certain areas such as [✂] (which may require larger transformation to extract value) were outside the scope of this assessment, and so the Parties consider that there is a potential for upside in the GNFR synergies estimate.

Other operational synergies

42. The Parties have estimated [✂].

43. [✂]

44. [✂]

Total estimated synergies

45. A summary of the Parties' submitted estimated synergies is included in Table 2 below. For the reasons explained in paragraph 16.122 of the Provisional Findings, the share of these which represent variable cost savings is relevant, and so this is specifically shown.

Table 2: Parties' submissions on estimated quantified synergies

£

	Opex estimate	Variable cost synergies
Purchasing	[✂]	[✂]
Argos	[✂]	[✂]
Other property synergies	[✂]	[✂]
GNFR	[✂]	[✂]
Other operational synergies	[✂]	[✂]
Total	[✂]	[✂]

Source: The Parties.

CMA assessment of efficiencies analysis

46. As discussed in paragraph 16.122 of the Provisional Findings, fixed cost savings and revenue synergies are unlikely to result in rivalry-enhancing efficiencies. We have therefore focused our assessment on [the consultant's] estimates of purchasing synergies, which in any regard make up nearly [✂]% of the Parties' quantified synergies estimates.

47. Paragraphs 16.86 to 16.89 in the Provisional Findings explain a number of concerns we have with the Parties' use of 'harmonisation' as a means to calculate the majority of the estimated purchasing synergies. Notwithstanding these concerns, this section considers the extent to which the [the consultant] analyses would represent a robust estimate of the impact of harmonising terms between the Parties, if such an approach were to be implemented, as well as potential synergies arising from achieving the BBT benefits.

48. In conducting this assessment, we particularly consider the following points:

    (a) The extent to which current differences in cost prices reflect underlying differences in the products being bought, rather than inefficient procurement;

    (b) Whether apparent differences in cost prices reflect differences in cost-to-serve each Party, including the approach taken to promotions;

    (c) Whether the analysis has sufficiently controlled for non-price factors;

    (d) Whether the analysis and conclusions on the mix of products being sold in each Party is robust enough to support the methodology used; and

    (e) Whether there are any further methodological choices or assumptions which [the consultant] has used, which could introduce additional uncertainty or error into the calculations.

49.   We also note the results of a review by [✄] [afterwards 'the third party'], which assessed the individual synergy initiatives, and in particular whether the Parties' management had demonstrated appropriate rigour and objectivity in estimating the expected benefits of each.

50.   We note that due to the range of approaches used, the above points may be more or less relevant to particular elements of the total estimate, and where this is the case we will highlight which areas we consider are particularly affected.

Residual differences in underlying products

51.   In order to conduct the SKU Approach (used for harmonisation estimates of own label groceries), [the consultant] needed to build a list of equivalent SKUs so that it could compare the unit costs being achieved by each Party. To do this, it adopted a series of rules relating to pack size, product preparation, ingredients, product range, dimensions, and origin.

52.   However, we are concerned that even 'matched' products are likely to have some differences in their specification/composition/recipe, and hence their production costs. This might prevent attempts to harmonise the prices between Sainsbury's and Asda.

53.   The Parties argued that the [the consultant] rules were designed to ensure that matched SKUs would be indistinguishable to the consumer. In addition, many of the own-label products that are high-volume SKUs are very similar in specification (eg Granny Smith apples), and those with the closest match in terms of specifications can be considered interchangeable. They also stated that [the consultant] had adopted 'stringent matching criteria' and that that there was unquantified upside potential for full harmonisation for some matching SKUs that fell outside the conservative criteria applied.

54.   We have some concerns about the matching criteria used by [the consultant]. The threshold for the most straight-forward of tests applied (ie weight/quantity) allowed for differences of +/- 10%, which [✄] harmonisation. To suggest that such products would be 'indistinguishable' to the customer appears highly unlikely. As an example of how conservative the matching approach was, the Parties highlighted that two otherwise similar SKUs were not matched as they were not within 10% of weight of each other (Asda Broccoli and Cauliflower Florets, 400g, and Sainsbury's Cauliflower & Broccoli Florets 300g). However, it appears to us that this example does not represent a 'conservative' approach as the difference between these SKUs would be visible to the customer, and would be very likely to have different associated costs to produce due to the different weight of vegetables included.

55.   For more complex products and comparisons, this becomes even harder. Although the Parties explained that harmonised products should be indistinguishable to the consumer, complex, processed own-label products such as ready meals were included in the analysis. While some of these may be broadly comparable between the Parties, many will be unique to one of them, using distinct recipes, formulations, and ingredients to act as a point of differentiation with competitors. It would appear that such products would not be suitable for harmonisation, and yet the [the consultant] analysis included some as 'matched' SKUs and hence estimated an associated effect of harmonisation.[12]

56.   More generally, we consider that there appear to be a greater number of product criteria which customers care about than was included in the [the consultant] matching exercise. A comparison of the type conducted by [the consultant] may appear detailed, but in reality remains relatively crude. Where there are any differences in apparently 'matched' products, the Parties would presumably have to align these post-Merger (in order to benefit from the knowledge that it could be profitably supplied at that price, as well as to allow for any efficiencies in the supplier's manufacturing base to be realised). Customers would recognise differences and changes to these products, and would expect to pay a commensurate price for them. It therefore appears unlikely that the Parties could universally achieve the lower unit cost price on all of these products, while maintaining all the existing prices to their customers.

Differences in cost to serve the Parties

57.   There are good reasons to believe that the [the consultant] analysis has not adequately reflected the differences in cost-to-serve for each of the Parties.

58.   Any current difference in cost may be reflective of differences in the actual cost to serve the customer, such as variations in payment terms or logistical costs (eg if sending out partial trucks), as well as differing levels of service provide (for example, whether produce is supplied loose or pre-packed).

59.   The Parties stated that the methodology adopted by [the consultant] was designed to account for differences in promotional support with own-label SKU prices including all discounts, rebates, and promotional support, while branded suppliers were harmonised at the supplier level rather than the individual SKUs. The Parties also stated that [the consultant] *"inspect[ed] the treatment of a number of other elements (beyond discounts) that could*

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[12] For example, complex, processed own-label products such as chicken tikka masala were listed as equivalent, [✂].

potentially affect costs and margins", in particular accounting for differences in the treatment of coupons, foreign exchange rates, prior year accounting adjustments and waste.

60. We understand that although [the consultant] may have 'inspected' these elements, we are not aware of any adjustments being made to the data or methodology in order to reflect differences in the specific points inspected. In addition, there are other potential differences in costs-to-serve which have not been considered (such as associated logistical costs, payment days, unrealised incentives, etc).

61. Furthermore, despite the Parties' submissions that the Supplier Approach (for branded spend) addresses any concerns around differing promotional support, particular issues remain with reflecting differences in wider over-riders and promotional activity. Part of the negotiation between suppliers and retailers relates to the allocation of investment/support spend (ie funds provided by the manufacturer).[13] This can be invested in headline price, or used to fund additional or deeper promotions, which can have implications for the supplier's ability to profitably serve the retailer in question. An illustrative example of this is shown below:

   (a) For a particular product, Retailer A and its supplier have adopted a 'high-low' promotional strategy to generate more volumes while, for the same product, Retailer B and the supplier use an 'every-day low price' strategy with more limited promotions.

   (b) Despite these differing promotional approaches, both retailers can generate the same absolute gross margin, and the supplier is covering its contribution to fixed costs exactly, as shown in Table 3 below:[14]

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[13] [✂]
[14] Some instances of rounding, but does not materially affect the results.

Table 3: Illustration of promotional strategy affecting retailer % gross margins

Retailers' financials:		Retailer A	Retailer B	Calculation
A	Volume off promotion	100	150	Input
B	Volume on promotion	200	50	Input
C	Total Volume	300	200	A + B
D	Price off promotion	1.10	1.00	Input
E	Price on promotion	0.50	0.60	Input
F	Average price	0.70	0.90	I / C
G	Revenue off promotion	110	150	A * D
H	Revenue on promotion	100	30	B * E
I	Total revenue	210	180	G + H
J	COGS per unit off promotion	0.70	0.59	Input
K	COGS per unit on promotion	0.35	0.45	Input
L	Average COGS per unit	0.47	0.55	O / C
M	Total COGS off promotion	70	88	J * A
N	Total COGSS on promotion	70	23	K * B
O	Total COGS	140	110	M + N
P	Gross margin off promotion	40	62	G – M
Q	Gross margin on promotion	30	8	H – N
R	Total gross margin	70	70	P + Q
S	% gross margin off promotion	36%	42%	P / G
T	% gross margin on promotion	30%	25%	Q / H
U	Average current % gross margin	33%	39%	R / I
Supplier's financials:				
V	Supplier revenue	140	110	O
W	Supplier fixed costs	50	50	Input
X	Supplier variable cost per unit	0.3	0.3	Input
Y	Total supplier costs	140	110	W + (X * C)
Z	Supplier excess contribution	0	0	V - Y

Source: CMA analysis.

(c) Applying the Supplier Approach methodology results in estimated savings for Retailer B as shown below:

Table 4: Supplier Approach to harmonisation applied to parameters in Table 3 above

		Retailer A	Retailer B	Calculation
AA	Original total revenues	[⬚]	[⬚]	I
AB	Average price	[⬚]	[⬚]	F
AC	Deflated revenues (Retailer B)	[⬚]	[⬚]	AA (Retailer B) * AB (Retailer A) / AB (Retailer B)
AD	COGS	[⬚]	[⬚]	O
AE	% gross margin on deflated revenues	[⬚]	[⬚]	(AC – AD) / AC
AF	Better % gross margin across two retailers	[⬚]	[⬚]	Max (AE)
AG	COGS at new terms	[⬚]	[⬚]	AC * (1 – AF)
AH	Savings (uncapped)	[⬚]	[⬚]	AD – AG

    (d) The savings calculated for Retailer B are equivalent to reflecting the difference in average unit cost price between Retailer A and B.[15] However, the result is not consistent with the Parties' submissions that the supplier would be able to profitably serve Retailer B at these prices, since it would not be able to cover its fixed cost contribution at these unit costs.[16]

62. Since the uncertainty around these cost-to-serve factors (in terms of promotional spend, and other considerations) appear to not have been fully accounted for in the [the consultant] analysis, they introduce additional uncertainty regarding the robustness of any estimates produced.

Differences in non-price factors with suppliers

63. Any current differences in cost may be reflective of a broader relationship with suppliers, including additional aspects such as the level of support being provided for the suppliers' products, or whether the strategic aims of the retailer align with the supplier (eg to grow a particular category). This is also consistent with the complexity of supplier negotiations, and range of negotiable parameters, which the Parties and suppliers have described.

64. During the Grocery Market Investigation, the CC found that the difference in purchasing terms do not simply relate to additional volumes but may also relate to other factors, such as differences in the retailer's proposition and relationship with suppliers as well.[17] We have heard similar views from some

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[15] Average COGS per Unit for Retailer A - Average COGS per Unit for Retailer B * Total Volumes of Retailer B: [⬚].
[16] Supplier revenue for Retailer B would reduce to 93, but its total supplier costs would be unchanged, resulting in negative contribution.
[17] For example, CC Grocery Market Investigation (2008), Appendix 5.3, paragraph 12.

suppliers in this inquiry (discussed in more detail in Chapter 16 of the Provisional Findings).

65.   Non-price factors, such as the relationship between the Parties and their suppliers, are not captured in any form within the [the consultant] analysis, and so are effectively ignored/treated as having no weight.

66.   We consider that the area which is most clearly affected by this concern is the [the consultant] estimates of potential synergies arising from fuel.

67.   As explained in paragraph 21 above, the Parties have adopted significantly different approaches to purchasing and delivery of fuel with Sainsbury's effectively outsourcing this [✂], while Asda [✂]. In this way, Sainsbury's is effectively procuring [✂].

68.   Both Sainsbury's and Asda have explicitly stated that there are non-price factors in fuel which [✂].[18,19] Given the different approaches each has adopted, it appears that Sainsbury's attributes greater value to the benefits of [✂]. If Sainsbury's was looking to achieve the lowest unit cost without regard to other factors, it appears unlikely that this would be achieved by [✂]. This is also supported by the observation that, [✂].[20]

69.   The [the consultant] analysis places no weight on any factors other than price when conducting its harmonisation analysis. This therefore excludes any benefits from choosing an arrangement with higher marginal costs, but other offsetting benefits, [✂]. The most likely explanation is that [✂]. Therefore, the apparent benefits attributed to harmonisation by [✂] [the consultant] would either not be likely to materialise ([✂]) or could already be achieved [✂] unilaterally (ie would not be Merger-specific). Either way, these estimates would not reflect rivalry-enhancing efficiencies for the purposes of our assessment.

70.   The Parties acknowledge that Sainsbury's sees other benefits in its current approach which should be taken into account in the efficiencies analysis. However, they consider that, [✂].

71.   The Parties appear to be suggesting that Sainsbury's effectively [✂]. While this would appear possible, it would not replicate all of the non-price factors which Sainsbury's has placed value on when choosing to adopt its current

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[18] Asda stated that as well as price, it considered the payment terms, the product temperature, the location and facilities at the supplier's site, the efficiency of the terminal, and the availability of additives.
[19] Sainsbury's noted that there are a number of factors it took into account when selecting a fuel supplier, with the main ones being availability/security of supply, quality of the fuel and price.
[20] [✂].

approach. In particular, [✂], and so there would be a loss of value in adopting this approach.

72. Due to the extreme difference in the Parties' existing approaches, procurement of fuel represents the clearest example of non-price factors being an important consideration which is omitted by the [consultant's] analysis. However, as discussed in paragraphs 63 to 65 above, the same principles would also apply to the procurement of other products such as groceries and GM.

Mix effects

73. Where Parties have compared estimates of their gross margins with different suppliers in order to try and compare procurement costs, they have recognised that there are three components which influence these margins, namely:

   (a) The retail price;

   (b) The cost price; and

   (c) The mix of products being sold.

74. [The consultant] has attempted to control for the first of these (by adjusting Sainsbury's revenue as described in paragraphs 13(b) and 17(b) above) and is seeking to compare the second. It therefore needed to understand whether any differences in gross margins were not being driven by cost price differences, but instead by variations in the mix of products sold.

75. To do this, [the consultant] conducted a regression on the volumes of each matched SKU sold, and the proportion of sales that these SKUs represent of each supplier's portfolio, as described in paragraph 14 above. Prior to the Merger, it ran this analysis on a subset of SKUs for [10-20] suppliers, and found that the R-squared values calculated in its analysis supported that the mix sold in the Parties from each supplier tested was *"comparable"* and *"there were not substantial differences"*. Subsequently, in response to the CMA's working papers, it extended this analysis to all of the top [<100] suppliers, and found that [✂]% of this spend is generated by suppliers where the R-squared is at least [✂].The Parties submitted that *"It is mathematically not possible to generate a high adjusted R-squared (in the range calculated by* [the consultant]*) based on data for which the mix is not comparable."*

76. While we agree that the regression analysis may speak to the comparability of product mix, we have some serious concerns as to whether the analysis completed by [the consultant] is sufficient to support its conclusions. An

illustrative example of how these issues may arise is shown via the sales of hypothetical branded supplier in Table 5 below:

Table 5: Illustrative example of the potential mix effect on the Supplier Approach

	Sales		COGS		Gross Margin (%)	
	Party A	*Party B*	*Party A*	*Party B*	*Party A*	*Party B*
Branded Product 1	£100	£100	£90	£90	10%	10%
Branded Product 2	£100	£100	£90	£90	10%	10%
Branded Product 3	£100	£100	£90	£90	10%	10%
Branded Product 4	£100	£100	£90	£90	10%	10%
Branded Product 5	£100	£100	£90	£90	10%	10%
Branded Product 6	£100	£100	£90	£90	10%	10%
Branded Product 7	£100	£100	£90	£90	10%	10%
Branded Product 8	£100	£100	£90	£90	10%	10%
Branded Product 9	£100	£100	£90	£90	10%	10%
Branded Product 10	£100	£100	£90	£90	10%	10%
Branded Product 11	£100	£100	£90	£90	10%	10%
Branded Product 12	£100	£100	£90	£90	10%	10%
Branded Product 13	£100	£100	£90	£90	10%	10%
Branded Product 14	£100	£100	£90	£90	10%	10%
Branded Product 15	£250	£50	£150	£30	40%	40%
Total	**£1,650**	**£1,450**	**£1,410**	**£1,290**	**15%**	**11%**

Source: CMA analysis.

77. The R-square value for this hypothetical supplier is over 0.80, and its adjusted R-squared is 0.73. This is substantially higher than the average value [the consultant] calculated for all of the top [<100] suppliers. Furthermore, it has a 100% overlap of SKUs, which is higher than the Parties' average for branded suppliers. In spite of this apparent similarity of mix and the fact that each individual product has an identical cost price, there is material difference in the average gross margins with the supplier ([✂]). The entire difference is as a result of the difference in the mix being sold, and not (as the [the consultant] analysis would assume) due to differences in underlying unit costs which might afford the opportunity for harmonisation. We note that in this example, no cap would be applied under the Supplier Approach.[21]

78. This risk appears to be borne out in some of the details that we have available. For example, one supplier in the Parties' original analysis where individual SKU data was provided, generated an R-squared of [✂] and an adjusted R-squared of [✂] (both in volume terms), and yet over 40% of Asda's volumes and sales were in SKUs which were not sold at Sainsbury's.

79. An initial sense-check of suppliers which appear to have very different gross margins between the Parties highlighted that a number of these also had very different levels of spend. This raises some questions as to the validity of relying on gross margin comparisons, particularly where the Party with lower

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[21] Since 100% of products sold are branded, and 100% of SKUs are common between Party A and B. In addition, [✂].

volumes is apparently achieving substantially better cost prices.[22] One of these was included in the initial working papers sent to the Parties who explained that there had been an error in attributing spend at one of the Parties. However, similar types of concern would also appear to apply to other suppliers.

80.　In addition to this, we note that:

(a) [the consultant] analysis did not include all SKUs which the Parties purchased from a supplier in its analysis, instead focusing on the SKUs with the highest spend. This would introduce potential error into the correlation analyses, particularly for suppliers which might have a core range sold everywhere, but smaller or more bespoke products available as well.

(b) as is discussed in paragraph 94 below, the extrapolation used in the Supplier Approach would include attributing savings to suppliers where no mix analysis has been conducted, and even to suppliers which only serve one Party and so would have no overlap of SKUs at all (eg smaller branded suppliers).

81.　Finally, no mix analysis was conducted to test the Category Approach, and so there is an even larger amount of uncertainty regarding whether this figure is robust.

82.　These concerns associated with mix effects apply to over [✂]% of [✂] [the consultant's] estimated harmonisation benefits ([✂]% from the Supplier Approach, and [✂]% from the Category Approach).

Other methodological choices and assumptions

83.　In addition to the main concerns we have discussed above, there are a number of further points which act to further undermine the confidence we could place on the [consultant's] analyses to provide a robust figure for us to use in concluding on the likely rivalry-enhancing efficiencies arising from the Merger.

Capacity assumptions

84.　The Parties have generally ignored the risk that suppliers do not have unlimited capacity, and so some may have some degree of capacity

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[22] For example, [✂].

constraints which would limit their ability to provide additional volumes if the Parties harmonised their purchasing.

85. While this may appear reasonable in circumstances where both Parties are currently purchasing identical products from a single supplier (eg for some purchases from large branded suppliers), where the Parties would need to consolidate their suppliers, or there are differences in the product specification (eg the type of packaging used) it is likely that some of the supply base would not be able to accommodate the higher volumes immediately, particularly if it doubled the total volumes required which could be common due to the scale of each Party. This would be expected to delay, limit, or prevent the Parties' attempts to harmonise cost prices.

86. We have not seen any robust evidence for there being available capacity for suppliers in grocery, GM, or fuel. The Parties have asserted that capacity exists, which we are told are based on research and/or interviews with no specifics being provided.

Statements around scale of suppliers

87. As discussed above, the harmonisation analysis was necessarily carried out by a third party [the consultant] and the Parties do not have access to detailed information. We are therefore concerned around potential inconsistencies between the Parties' statements (which presumably reflect their understanding of the analysis) and the actual results. In particular, the Parties have publicly stated that "*This will be possible, in part, by harmonising our buying terms with a small set of large – often multinational – companies*",[23] and that when discussing the potential for harmonisation benefits "*it is worth emphasising that 85% of the volume of both businesses is concentrated in 100 suppliers, and those 100 suppliers tend to be large, multinational suppliers […] which is another important factor when thinking about how the synergies are delivered*".[24] This emphasis does not appear to be reflected in the methodology, where the savings were estimated from all branded suppliers and all matched own-label SKUs.

88. The Parties submitted that [the consultant] did not seek to specifically identify the largest suppliers and prioritise this group for delivery of synergies. Instead, the statement results from large supplier making up the majority of the Parties' spend, and presumably hence the majority of synergies. The Parties provided

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[23] https://corporate.asda.com/media-library/document/factsheet-proposed-sainsburys-and-asda-merger/_proxyDocument?id=00000166-7c1b-d0f7-a5fe-fc9f78fc0000
[24] Webcast to the Merger announcement, 56 minutes.

various figures to demonstrate their estimated combined spend with "large international suppliers".

89.   We consider that, although the majority of the Parties spend may be with "large international suppliers", it does not necessarily follow that the majority of synergies arise from these.

90.   The Parties have not provided the definition of "large international suppliers", and [the consultant] analysis did not include the identity of suppliers for own-label products, to allow us to directly test the statements above. However, we are able to compare certain data points to test what proportion of the efficiencies are expected to come from larger suppliers. The harmonisation benefits associated with the top [<100] branded suppliers is £[✂]. This is around [✂] of the total estimated benefits of total harmonisation (ie excluding BBT) or around [✂]% of the harmonisation benefits from grocery. It is [✂] the total savings generated from own label suppliers, and a very similar proportion of revenue to other branded suppliers (since the Top Suppliers savings were simply extrapolated to them).[25] Furthermore, the smallest of the [<100] Top Suppliers is one which has combined spend from the Parties of £[✂].

91.   The above analysis would indicate that not only are "large international suppliers" bearing a [✂] proportion of the efficiencies, but up to [✂]% of the Parties' harmonisation benefits are being generated from own label suppliers, or by branded suppliers generating £[✂] pa or less of combined sales between both Parties.

Extrapolating data

92.   The [the consultant] analysis has relied on extrapolation to unsampled spend in a number of places, most notably in estimating the total own-brand savings available based on the sample used (SKU Approach) and in estimating the level of savings available from smaller suppliers (Supplier Approach). This approach raises a number of serious concerns, in particular whether the sample used is representative of the population to which it is extrapolated.

93.   The Parties stated that the approach was robust, since the samples represented a large proportion of spend and were representative of the wider population. They also noted the time and data constraints on the analysis.

94.   We consider that the implications of this extrapolation include some clearly counterintuitive results, in particular that extrapolating the estimated savings from the Top Suppliers implies that branded suppliers which only serve one

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[25] Total harmonisation benefits estimated to be £[✂] of which £[✂] accrues from grocery.

Party would still generate harmonisation benefits (accounting for over £[✂] of combined existing spend).

95.   On top of this, we consider that the use of extrapolations here clearly introduces additional uncertainty to the analysis. While there may be good commercial reasons for adopting this approach (such as limitations of time, costs of commissioning additional analysis, or difficulty acquiring data), that is not a good reason for us accepting unreliable analysis.

96.   We were not convinced by the Parties' submissions around robustness and the reasons for their approach. In particular:

(a)   An approach of selecting the largest suppliers/top SKUs is very unlikely to result in a representative sample on its face. This is apparent from the fact that all of the top [<100] suppliers serve both Parties, but that is not true for all branded suppliers.

(b)   [The consultant] compared estimated savings amongst the top [<50] suppliers with the top [<100], and between the top [✂] [<100] themselves, and stated that they found no clear difference in the estimated savings. However this still only considers branded suppliers with over £[✂] of spend with the Parties. It is unclear why this would be representative of the long tail of smaller branded suppliers.

(c)   In the SKU Approach, for two categories [the consultant] included a stratified approach, including some lower-volume SKUs in its analysis. In addition, in response to the CMA's question it sampled a further [✂] SKUs in these two categories and tested the estimated level of savings. In these cases, it stated that the potential level of savings on SKUs outside the [✂] largest varies with no consistent pattern, and in some cases are actually higher. However, this analysis appears to be cherry-picking specific cut-offs, was only completed for two categories chosen by the Parties, and does not address the fact that the lower matching rates are achieved in these smaller SKUs.[26]

(d)   In order to address some of the issues around timing or data availability, the Parties could have reasonably commissioned [the consultant] for a longer time period (we understand the majority of work was completed in [✂] in mid-2017), and/or gathered more internal data to inform the analysis.

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[26] Lower matching rates are acknowledged by the Parties in response to our Efficiencies working paper.

Deflating to account for differences in retail prices

97.   As described in paragraph 13(b) and 17(b) above, in order for the gross margins with a supplier to reflect cost differences rather than retail price differences, Sainsbury's revenues were deflated to reflect the differences in retail prices (and promotions) between Sainsbury's and Asda. To do this, the Parties used price indices compiled by Brand View, a third-party data provider.

98.   For grocery categories, the Parties generally sought to use the most specific data available (namely, the Value Index for an individual supplier). Where this was not available, the Parties used a subcategory or category average. However, this average did not account for the fact that specific, different figures were being used for a proportion of the sales. Therefore, the overall indexation of the category would be skewed up or down from the actual evidence available. For example, in the subcategory [✂], the branded Value Index was around [✂], but all known branded suppliers in this subcategory were higher than this (from [✂]). Therefore, in order for the overall branded average for the subcategory to be [✂], the branded Value Index for other suppliers would be expected to be substantially lower than the figure which was used.

99.   The Parties stated that supplier-specific price indices were available for all [<100] Top Suppliers, and so this concern does not arise. However, this does not appear to be the case with numerous figures for grocery suppliers using a more general Value Index.[27]

100.   For GM (including clothing), [the consultant] did not have access to third party price indices, and so instead created its own bespoke index built using guidance from the Parties regarding the best-selling categories and most popular SKUs. These baskets comprised of only a small number of products ([✂] for clothing and [✂] for the rest of GM), compared with groceries where, although we do not have information on the specific number of SKUs compared, it is clear that they contain far more comparison points. For example, the Canned & Packaged grocery category alone has over [✂] separate tracked subcategories, each of which is likely to have a large number of SKUs (for example "canned vegetables" and "oriental" are considered as subcategories).[28] Having a large number of tracked grocery products would also be necessary to provide meaningful price indices for an individual supplier.

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[27] [✂].
[28] [✂]

101. Any bespoke exercise of this type is prone to more errors than using a dedicated service. This is exacerbated by the more differentiated nature of the GM categories. Therefore, these price indices appear to have struggled to find identical matching products, are unlikely to be representative of the entire category/subcategory, and are highly susceptible to being affected by a small number of product selections or errors. This appears particularly significant in the context of such diverse categories where like-for-like prices could vary substantially. For example:

(a) The clothing comparison is based on [✄] women's items, [✄] kids, and [✄] baby, with [✄] items in total for men's clothing, and [✄].

(b) The rest of GM comparison does not include any TVs, white goods, mobile phones, computers, lighting, DIY or gardening, books, music, etc, and only includes small numbers of other items. In addition nearly half of the items compared are not even available in Sainsbury's, only in Argos.

102. Accordingly, we consider that the approach to deflating these revenues is prone to error, particularly for GM.

Approach to estimating BBT

103. [The consultant] estimated the value of BBT based on interviews with industry participants, including senior executives who worked at some of the largest suppliers across categories. The Parties also stated that the BBT figure is conservative, particularly when assessed against the CMA/CC scale analyses discussed in paragraphs 16.63 to 16.72 of the Provisional Findings.

104. We consider that the BBT methodology is not comparable with the CMA/CC scale analyses. The BBT methodology's apparent aim was to estimate the reductions in manufacturing costs from increased volumes, and so would not reflect any other associated benefits from volume changes, most notably buyer power. We therefore consider that any comparisons with the scale analyses to be relatively meaningless, in particular as one of the CC reports specifically stated that *"significant differences in margins and prices are more likely to reflect the strength of the buyer than lower costs"*.[29]

105. Using seven interviews, [the consultant] estimated 110 distinct BBT benefit estimates (shown in Figures 1 and 2 above) which would apply to the combined existing spend depending on the type of manufacturing process, the expected scale of change, and whether it was branded or own label.

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[29] Supermarkets: A report on the supply of groceries from multiple stores in the United Kingdom, paragraph 11.104.

Although the Parties stated that a minimum of two interviews were conducted for each type of product, the small number of interviews appears to represent a very small amount of data on which to base these conclusions.

106.   In addition, the fact that the interviewers were all senior executives at large manufacturers means that they would be likely to have limited understanding of smaller manufacturing operations, and how changes in volume might affect their costs.

107.   We particularly note that the majority of BBT savings are derived from branded goods (around [✄]% of groceries), of which almost all are based on the relatively arbitrary assumption of a [✄]% savings cap on improvements in manufacturing efficiencies of large suppliers. If a cap of[✄]% had been applied instead, this therefore would have substantially reduced the overall BBT estimated savings to around [✄]% of the current estimate.

108.   The Parties argued that the selection of a [✄]% savings cap was conservative, and that some interviewees had indicated this value could be higher. However, we consider that the evidence to support this assumption is weak, and where figures are very sensitive to the selection of specific figures, we would expect additional work to be completed to verify the assumption.

Effect of cherry-picking individual parts of a larger contract

109.   In [✄], the [the consultant] analysis assumes that [✄].

110.   The Parties submitted that the CMA's concerns appeared to reflect [✄].

111.   We do not consider this to be correct. Given that [✄].

112.   When comparing [✄] with a blended average, the effect would be to highlight [✄] as benefitting from harmonisation, leaving the [✄]. This is shown in the illustrative example below, whereby [✄] have negotiated with a number of suppliers [✄], and achieved a range of costs and margins, while [✄] which again achieves different margins [✄].

Table 6: Illustrative example of cherry-picking specific contracts

[✄]

Source: CMA analysis

113.   During 'harmonisation', any [✄] which would be cheaper through the [✄] are removed, and a new blended average is calculated. This new blended average would be higher than the pre-harmonisation figure, since [✄] have now been removed.

114. We consider that the caps set by the Parties to address differences in sales mix (described in paragraphs 13(c) and 17(c) above), which they stated are conservative, are based on very limited or no evidence as to the selection of specific figures or conditions.

115. The use of caps may be conservative in principle, but in this case the figures and conditions appear relatively arbitrary, and could have a large impact on the final savings estimate (for example, the [✂]% cap applied in Women's and Men's Essentials clothing more than halves the estimated savings associated with this subcategory). We particularly note that the selection of [✂]% for the level of this cap is set above the median expected savings calculated across the sample of all suppliers ([✂]%).

116. When this was put to the Parties, they simply restated that the robustness of the mix analysis meant that capping the level of savings at the [✂] percentile represented a conservative approach. We disagree with this, in particular as a result of our concerns with the analysis conducted on mix (described in paragraphs 73 to 82) above, and consider that including this cap at a level substantially higher than average savings produced through other approaches further undermines the robustness of the estimates.

Results of [the third party] *review*

117. As discussed in paragraphs 16.25 to 16.29 of the Provisional Decision, the Parties commissioned [the third party] to review the synergies plan in order to meet Sainsbury's obligations in announcing that, post price investment, there would be £500 million net EBITDA synergies available for shareholders.

118. [The third party] reviewed the Parties' synergies plans, based on the [consultant's] analysis. In doing so, it applied the Quantified Financial Benefits Statement standard, which is based on the wording of Rule 28 of the Takeover Code that *"Any profit forecast or quantified financial benefits statement must be properly compiled and must be prepared with due care and consideration"* and that it must be *"reliable"*.[30]

119. [The third party] applied a weighting to the estimated synergy figures based on the extent to which it considered that the Parties' management had demonstrated appropriate rigour and objectivity in estimating them. In doing this, it rated each initiative and applied a risk weighting to reflect its stage of

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[30] Extract from Rule 28.3 of the Takeover Code.

development, the access to data and personnel possible, and the level of verifiable evidence.

120.   [The third party] stated that due to the different contexts and objectives and the methodologies used in coming to conclusions, its report would be of limited use for the CMA's purposes of assessing the likelihood of estimated synergies being delivered. However, it also stated that its report might be relevant for us because it provided information on all of the underlying initiatives. In particular, [the third party] provided a sensitised estimate of the synergies from each initiative. This is shown in Table 7 below:

Table 7: [The consultant] estimate and [the third party] sensitised figure

	[The consultant] *Analysis*	[The third party] *sensitivity*	[The third party] *as % of* [*the consultant*]
Purchasing*	[✕]	[✕]	[✕]
Argos	[✕]	[✕]	[✕]
Other property synergies	[✕]	[✕]	[✕]
GNFR	[✕]	[✕]	[✕]
Other operational synergies	[✕]	[✕]	[✕]
Total	[✕]	[✕]	[✕]

* £[✕] of synergies associated with fuel were not included in [the third party's] analysis, as they were not available at the time.
To maximise comparability, this has been excluded from the [the third party] as % of [the consultant] column.
Source: [The consultant's] analysis, [the third party's] analysis.

121.   The above table indicates that the original figures produced by [the consultant] would not be considered to meet the standard required for [the third party] to report them without qualification. In fact, [the third party] has substantially reduced the total figure to around [✕] of the original level.

Glossary

Aldi	Aldi Stores Limited.
Amazon	Amazon.com, Inc.
AmazonFresh	Grocery delivery for Amazon Prime and AmazonFresh customers.
Asda	Asda Group Limited, a subsidiary of **Wal-Mart** Stores Inc.
Bargain stores	B&M Bargains, Home Bargains, Poundstretcher, Poundland, Poundworld, Wilkinsons.
BBG	British Brands Group. Member organisation for brand manufacturers.
Big 4	Widely used in the industry to refer collectively to **Tesco**, **Sainsbury's**, **Asda** and **Morrisons**. We use it as a shorthand in this report, but no inference should be made regarding the relevance of the use of this term to the **CMA**'s competitive assessment of the **Merger**.
CC	Competition Commission.
Centroid	Store or site on which the analysis is focused; eg the context of the from which diversion is measured in the context of the CMA exit survey or store affected by entries and exits of competitors' stores in the context of the entry/exit analysis.
CFC	Customer fulfilment centre.
CMA	Competition and Markets Authority.
CMA fuel survey	The face-to-face exit survey that DJS Research conducted on behalf of the CMA at a sample of the Parties' PFSs.
CMA online survey	The online survey that GfK conducted on behalf of the CMA with a sample of the Parties' online shoppers.
CMA store exit survey	The face-to-face exit survey that Kantar Public conducted on behalf of the CMA at a sample of the Parties' Large and Medium stores.

convenience store	A **grocery store** smaller than 280 square metres that sells a range of groceries (ie not speciality grocery retailers).
Co-op	Co-operative Group Limited.
the discounters	Aldi and Lidl.
Experian Catalist	Provider of data for diesel and petrol prices.
Fascia	The fascia on a store front is any surface on the outside of the store that displays the company name, company logo and company colour scheme. By fascia we refer to the different brands (eg Sainsbury's, Asda, Morrisons, Tesco, Aldi, Lidl, etc) that are present in the market.
FDF	The Food and Drink Federation.
Forecourts	**Convenience store** located at a **PFS**.
GM	General merchandise (**GM**) can include a range of non-food categories and products, including: toys; homewares; white good electrical items; brown good electrical items; grey good electrical items; small domestic electrical appliances; nursery and baby; seasonal; DIY and garden; clothing; stationery; electronic games and entertainment; furniture; and financial services.
Grocery retailer	A firm selling groceries at a retail level, being either a supermarket, a **convenience store** or a specialist grocery retailer.
Grocery store	A retail store, a significant proportion of which is devoted to the sale of groceries.
Grocery wholesaler	A seller of groceries at a wholesale level, usually to convenience stores.
GSCOP	Groceries Supply Code of Practice.
Iceland	Iceland Foods Ltd.
In-store groceries	Groceries sold from physical stores.
Issues statement	Issues Statement on the Merger published on 16 October 2018

Kantar	Kantar Worldpanel. A company that provides data on switching between **retailers**.
Kantar Public	The survey company commissioned to produce the Kantar Report.
Kantar Report	The Kantar Public report we have published that presents the methodology and findings for the CMA store exit survey.
Large stores	Grocery stores sized 1400sqm or larger. Referred to in previous CMA, CC and OFT decistions in the groceries sector as one-stop stores or OSS.
Lidl	Lidl UK GmbH.
M&S	Marks and Spencer plc.
Medium stores	Grocery stores sized 280sqm-1400sqm. Referred to in previous CMA, CC and OFT decistions in the groceries sector as mid-sized stores or MSS.
Merger	The anticipated merger between **Sainsbury's** and **Asda.**
Merged Entity	The prospective combined business following the anticipated merger between **Sainsbury's** and **Asda**.
Morrisons	Wm Morrison Supermarkets plc.
NPD	New product development.
Ocado	Ocado.com.
OFT	Office of Fair Trading.
Online delivered groceries	Supply of groceries purchased online and delivered to the customer.
PCA	Price concentration analysis.
PCE	Personal care electricals.
PFS	Petrol filling station.
ppl	Pence per litre.
Postcode Area	Postcode areas are used by Royal Mail for the purposes of directing mail within the United Kingdon. The postcode area

	is the largest geographic unit and is described by the first letters of the postcode. For example, AB for Aberdeen and E for East London.
Postcode Sector	Postcode sectors are a subsets of Postcode Areas and are denoted by the the first part of the postcode, plus the first character of the second part. For example, the **CMA** is contained within the WC1B 4 postcode sector.
Postcode Unit	Postcode units are the smallest subset of Postcode Areas and are denoted by the full postcode. For example, the postcode unit of the **CMA** is WC1B 4AD.
PQRS	Price, quality, range or service.
Private label goods	Range of products carrying a **retailer**'s brand/name and produced to the **retailer**'s specifications.
Sainsbury's	J Sainsbury Plc.
SKA	Small kitchen appliances.
SKU	Stock keeping unit.
Shopping mission	Term used in the industry when differentiating between types of shopping trip.
SLC	Substantial lessening of competition.
Supermarkets	Large and Medium stores.
Symbol group	Symbol groups are collections of stores which are affiliated with a wholesale symbol group provider (the symbol group wholesaler), usually operating under a common brand or 'fascia'. The retailer is independent from the wholesaler, but generally commits to minimum purchase requirements (and other conditions which vary by wholesaler and symbol group brand), in return for use of the symbol brand and other benefits such as improved promotions.
Tesco	Tesco PLC.
The Act	The Enterprise Act 2002.
The Parties	Sainsbury's and Asda.

Traditional retailers	The term 'traditional retailers' or 'traditional groceries retailers' has been used in the industry to refer collectively to the **Parties**, **Tesco**, **Morrisons**, **Waitrose**, **Co-op** and **M&S**. We use it as a shorthand in these provisional findings, but no inference should be made regarding the relevance of the use of this term to the **CMA**'s competitive assessment of the **Merger**.
WSS	Weighted share of shops.
Waitrose	Waitrose & Partners.