Anticipated merger between J Sainsbury PLC and Asda Group Ltd

Appendices and Glossary

Appendices

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, were published on the inquiry webpage alongside a non-confidential version of our Provisional Findings report on 21 February 2019.

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. On 20 February 2019, we published a notice of Provisional Findings, a summary of our Provisional Findings report and a notice of possible remedies on the inquiry webpage. A non-confidential version of our Provisional Findings was published on the inquiry webpage on 21 February 2019. Non-confidential versions of responses to our Provisional Findings and to our notice of possible remedies have been published on the inquiry webpage.

15. We held joint response hearings with the Parties on 14 March 2019. We also held separate response hearings with each of the Parties on 14 March 2019. We held separate response hearings with a number of grocery retailers in March 2019 and on 29 March 2019 we held separate hearings with [the consultant] and [the third party].

16. We sent the Parties a Remedies Working Paper on 29 March 2019 for comment.

17. A non-confidential version of the final report was published on the inquiry webpage.

18. We would like to thank all those who have assisted us in our inquiry.

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 our assessment of the robustness of the CMA store exit survey, which we conducted to provide evidence on the unilateral effects 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 them.

3. The Parties also commissioned surveys of their own, both before our inquiry began and during the course of the inquiry. A description of each of the Parties' surveys, together with our assessment, is set out in this appendix and summarised in Chapter 8.

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 inquiry webpage 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 was

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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-time in urban/rural areas for Medium stores, and

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.[4] More details of the sample design and methodology are available in the Kantar Report.

6. In total, we obtained over 20,500 interviews, with more than 10,000 from customers of each Party. We specified a minimum of 150 interviews per surveyed store and this was exceeded across all 100 stores, with a median number of just over 200 respondents per store.

7. We prioritised survey quality across all aspects of the CMA store exit survey, as discussed in the Kantar Report. We paid particular attention to the quality of fieldwork, as this is an area that can sometimes be neglected and where inadequate standards can undermine what would otherwise be a robust survey. Kantar Public ensured that only experienced interviewers were used and briefing was comprehensive;[5] monitoring and spot-checks were above-normal by market research agency standards; unannounced monitoring visits by members of the CMA took place; and extensive data quality checks were carried out. Any quality issues that were identified by Kantar Public or ourselves were addressed quickly and remedied effectively; where needed, this included re-briefing of all interviewers, or, occasionally, removing individual interviewers from the project altogether and replacing shifts and deleting interviews from the dataset.

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

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

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a 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.

[4] Whilst our earliest analysis used the initial sample only, our Provisional Findings (20 February 2019) and this Final Report use the full sample of 100 stores (full sample) as the basis of analysis, unless specified otherwise.

[5] Including a two-hour compulsory Web-ex briefing for all interviewers and supervisors with an accompanying set of PowerPoint slides and annotated questionnaire before they were allowed to work any shifts, followed by re-briefing as required.

(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 Kantar's 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.

9. The Parties made a number of representations at each stage 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 engagement with them, we address the point only once, in relation to when it was most recently made.

10. Additionally, the Parties made a number of submissions in response to the local assessment for in-store groceries set out in our Provisional Findings[6] that were relevant to the CMA store exit survey. Most of these submissions concerned either specific parts of our analysis, or aspects of our survey that had already been addressed substantively in Chapter 8 or Appendix E of our Provisional Findings (for example the representativeness of the CMA store exit survey and the way we treated stores that received zero diversions in the survey). In these cases, we present the Parties' most recent submissions and our responses to them at Chapter 8 or Appendix E, as appropriate, of this Final Report.

Survey methodology – mode

11. 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

[6] Provisional Findings (20 February 2019).

a bias and did not conduct surveys using alternative modes (such as telephone or online) in order to test and control for this bias.

12. 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.[7] 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 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

[7] 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.

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 would 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

13. 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 focused 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 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 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.

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

(a) The sample for the CMA store exit survey was, by design, not representative of the whole of the Parties' estates, but was designed to oversample relatively more concentrated overlap areas.

(b) 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.[8]

(c) 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.

(d) 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.

(e) 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),[9] which have been given a specific weighting in our WSS model. As such, many of the surveyed areas contain more variation when considering the full range of competitors in the local area than their categorisation as 4-to-3 or 3-to-2 areas would suggest.[10]

(f) Notwithstanding the above, we considered it appropriate to examine the representativeness of our sample of stores with respect to specific criteria that are relevant to our in-store assessment; this analysis is presented and discussed in Chapter 8 (Representativeness of CMA store exit survey).

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[8] 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.
[9] For example, Aldi, Lidl, or both fascia were present in the catchment for most stores in our sample.
[10] We have also taken a different view of the treatment of Medium stores and catchment areas and this will have contributed to this effect.

Survey methodology – sample size at store level

15. 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.

16. The Parties also submitted that, given the relatively small number of respondents in the CMA store exit survey and the large number of potential stores to which to divert in each area, the zero diversions are likely to be 'sampling' issues rather than true zeros. They submit that the Parties' new exit survey shows that many of the CMA's 'zero' responses actually receive positive diversions in the Parties' survey (in the same locations as the CMA store exit survey).

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

    (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 for the analysis we carried out (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 mean the results are not comparable to those from the CMA's store exit survey.

    (c) We address the Parties' submissions on stores that receive zero survey diversions (also referred to as 'sampling zeros') in Appendix E.[12] While these are correctly designated as sampling zeros, they are a manifestation of sampling error and are unbiased.

[11] The Parties submission on the survey also refers to 'volatility', 'uncertainty' and 'variance'.
[12] Appendix E, 'Stores receiving zero responses in the CMA store exit survey'.

(d) In summary, we consider that the sample sizes at store level that were achieved for the CMA store exit survey are appropriate for our analytical needs.

Questionnaire

18. The Parties submitted that the following aspects of our questionnaire for the CMA store exit survey 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 to.

(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.[13] This, together with the very low proportion of 'Don't know' responses to questions seeking the brand to which customers would divert,[14] suggests that most supermarket shoppers know what their next-best options are without prompting 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.

20. In addition, the Parties' submitted the following:

(a) 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 away); and (ii) customers who spent less than a certain amount.[15]

(b) 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).

21. In response to these additional submissions, we note that:

(a) In the final survey design, we dropped the first aspect of screening referred to in paragraph 20(a). In respect of setting a minimum spend

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[13] See Kantar Public consumer research: findings from the store exit survey (21 February 2019), page 11.
[14] Around 3% overall.
[15] We note that at the time when the Parties made this submission, we had not decided what the minimum spend cut-off should be (and had considered the possibility of using a threshold higher than the £5 minimum spend we subsequently used), nor whether it should be the same for all stores surveyed.

threshold for eligibility to be interviewed, our analysis of the Parties' store-level data on the distribution of customer spend indicated that £5 was an appropriate cut-off for our purposes across all surveyed stores; this mitigated the Parties' concerns (that were mainly around higher thresholds).

(b) 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. Our own observation of interviews and feedback received from Kantar Public have not suggested that the final version of the question[16] 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.

Weighting of survey data

22. The Parties made the following submissions concerning our use of unweighted survey data in our analysis for the in-store local assessment:

(a) The CMA's Survey Good Practice says that survey results should be weighted where appropriate and 'in most merger situations, the unit that we are conceptually most interested in is the value of sales in monetary terms'.[17]

(b) In the assessment of online delivered groceries, the CMA weighted the responses by the value of the order and calculated diversions in terms of the value of orders placed by the respondents. As it says in the Provisional Findings: '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'.[18]

(c) The CMA's reasoning for using unweighted responses in the local assessment is not clear and seems to be based on a simple observation that the aggregate results did not 'vary significantly depending on whether or not they were spend-weighted', and that 'weighting may increase

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[16] 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?
[17] *Good practice in the design and presentation of customer survey evidence in merger cases (CMA78)*.
[18] Provisional Findings (20 February 2019).

overall error (increase sampling error without materially reducing bias)'. The CMA does not seem to have looked at whether the unweighted responses have an impact at the local level and in any case it is not clear why unweighted responses are the default for a merger assessment in this instance.

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

(a) The above submissions about our use of unweighted data were made in the context of our calculation of the out-of-market constraint. We address the wider considerations around this aspect of our analysis in Chapter 8.

(b) We considered the appropriateness of spend-weighting results from the CMA store exit survey. 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 (one form of error), it usually increases sampling error and, consequently, reduces the precision of our survey estimates and the confidence we have in them. As a result, an assessment needs to be made of the overall effect of any weighting.

(c) Our decision to use unweighted survey results for our local assessment of in-store groceries was based on analysis by Kantar Public and our own subsequent analysis, to determine whether spend-weighting was a better option than using unweighted results. The aggregate survey results, particularly for the diversion questions, were found to vary very little depending on whether or not they were spend-weighted. We also find that whether we use spend-weighted or unweighted diversion ratios has little effect on the in-store national weighted-average GUPPIs.[19] This indicates that weighting has relatively little impact on estimates. Overall, this means that weighting may increase error overall (that is, increase sampling error without materially reducing bias).

(d) Our analytically-based decision that the more appropriate approach here is to use unweighted survey data is not inconsistent with the CMA's Survey Good Practice. We additionally note that, in terms of our wider analysis, it is not correct to conclude that just because we applied spend-weighting to one set of survey data, it is necessarily the most appropriate approach for other sets of survey data and other analyses. We also note

[19] Which for Asda would remain unchanged to one decimal place and for Sainsbury's would reduce by 0.1 if the survey diversions were spend-weighted.

that the Parties' quote from our Provisional Findings at paragraph 22(b) above is not relevant to the argument here, as it relates primarily to a hypothetical situation where the sampling unit is not a customer visit (unlike for the CMA store exit survey).

(e) Furthermore, in response to the Parties' submission at paragraph 22(c) above, we note that whether the survey diversions are spend-weighted or unweighted makes little difference to the results of our local analysis.

(f) In summary, we are confident that our use of unweighted survey diversions for the in-store local assessment is appropriate and fit-for-purpose.

Summary of our assessment of the CMA store exit survey

24. 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.

25. 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 fieldwork quality assurance checks with the agency, as discussed at paragraph 7 above.

26. 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 in Chapter 8, we have conducted appropriate analysis and our choice of sample is not a material limitation for our in-store assessment.

27. Overall, we consider that the CMA store exit survey 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

28. 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. These surveys are described in the following paragraphs, together with our assessment of them.

Surveys conducted pre-notification of the Merger

Sainsbury's store exit survey

29. 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

30. 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

31. 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.

Our assessment of the Parties' pre-notification surveys

32. We consider that these surveys have the following limitations for the purposes of our analysis:

(a) As well as surveying in a relatively small number of stores and types of competitive environment, the sample for the Sainsbury's store exit survey was not selected on a random basis. The Asda exit survey was subsequently based around the same sample of Sainsbury's stores, as described above.

(b) The questionnaires used by the Parties were designed for their purposes at the time and, as such, were substantially different from the questionnaire that we subsequently used for the CMA store exit survey.

(c) We were not able to observe any of the fieldwork, nor to otherwise judge the standards of quality to which the surveys were conducted. In addition, we note the fieldwork for these surveys took place some time ago: in July 2017 for the Sainsbury's exit survey and Sainsbury's online survey of in-store customers and February 2018 for the Asda exit survey.

(d) The Sainsbury's online survey of in-store customers, by virtue of being conducted online, excludes those in-store shoppers that do not use the internet (who may not respond in the same way as online respondents). We consider that this has serious limitations when the purpose of the survey is to ask in-store shoppers about their next-best alternatives for their recent in-store shopping visit. We expect, therefore, that the survey will have over-represented diversion to the online channel. In addition, the survey was only of Nectar Card customers who, as loyalty-card customers, may not be representative of shoppers as a whole.

33. In addition to these limitations, we note that it was not feasible for us to combine the Parties' survey response datasets with the CMA store exit survey response dataset, nor would it have been statistically robust to do so given they are based on two different questionnaires.

34. For the reasons set out above, and given we have access to our own CMA store exit survey with a methodology designed specifically with the needs of our inquiry in mind, we have not placed any weight on the Parties' pre-notification surveys in our local assessment analysis.

Surveys submitted during the course of our phase 2 inquiry

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

35. 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.

36. The questionnaire was based on the one used for our survey, but with a number of modifications (some of which we discuss below).

Our assessment of the Parties' new exit survey

37. We recommend in our Survey Good Practice that Parties engage with us in advance of conducting surveys they wish to submit as evidence and we say that we may wish to monitor quality aspects, for example by observing fieldwork.[20]

38. The Parties were already aware of our views on, and concerns around, the surveys they conducted pre-notification, but still did not engage with us ahead of, or at the time of, conducting their new exit survey. Had they done so, we would have wished to engage with the Parties on the questionnaire design and briefing materials; we would have also requested the opportunity to carry-out a survey monitoring role by observing some fieldwork first-hand.

39. We consider that the Parties' new exit survey has the following limitations:

[20] *CMA78*, paragraphs 1.23–1.25.

(a) The Parties submitted that they used the CMA's questionnaire, with some modifications that they do not consider make the results not directly comparable. However, in our view, the modifications to the questionnaire mean that the Parties' results are not directly comparable to ours in a number of key respects. In assessing comparability between the Parties' survey and ours, we consider the following changes made by the Parties to the questionnaire to be most relevant:

(i) use of prompted competitor brand and store lists, including brand logos;[21]

(ii) addition of the word 'discounter' alongside supermarket as a diversion option;[22]

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

(iv) specifying that it was just grocery shopping the customer was to think about diverting.[23]

We consider that these changes are not inconsequential but, rather, and in combination, may be expected to create for some respondents a framing bias in favour of certain brands or types of stores as next-best alternatives, for example, discounters such as Aldi or Lidl, or stores that have a more limited offering than the Parties' stores. Furthermore, for the CMA store exit survey, we considered the design and wording of our own questionnaire very carefully in light of the evidential needs of our inquiry, including each of the aspects listed above. In each case, we specifically decided against the option the Parties have implemented in their new exit survey.

(b) As with the surveys conducted during pre-notification, we were unable to determine the level of rigour with which the Parties' new exit survey was conducted. We were not given the opportunity to assess or monitor the quality of the fieldwork for the Parties' new exit survey. We were not sent any interviewer briefing material, but note that what was submitted to us alongside their pre-notification surveys (which were also conducted by ABA) was extremely limited; if briefing for the new exit survey were

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[21] Where we consider the use of brand logos, in particular (alongside the prompted competitor brand lists), may have caused respondents to name a brand in response to seeing a familiar logo (or name), even when that brand may not otherwise have been considered the next-best alternative.
[22] Where we consider use of the word 'discounter' alongside 'supermarket' in the text of the relevant response option for the first diversion question may have created a bias towards brands such as Aldi and Lidl being named as next-best alternatives.
[23] The suggested restriction of the diversion basket to 'groceries' may have led respondents to think about alternatives that have a more-limited offering than the Parties' stores.

comparable to that used in the Parties' earlier surveys, this would, in our view, have been inadequate.

(c) The Parties' new exit survey only sampled stores the CMA had already surveyed. It therefore doesn't add new information to evidence our inquiry in terms of the range of stores surveyed. As discussed above under our assessment of the CMA store exit survey, we consider that our achieved sample size at each store is sufficient for our purposes; we don't consider that adding sample (for 40 of the 100 stores) from a survey that is not comparable is either methodologically correct or would result in better quality estimates for our purposes.

40. In response to our Provisional Findings, the Parties submitted that our concerns with their new exit survey are unwarranted and that each of the purported limitations are without basis. However, having carefully considered their submissions, our overall assessment of the limitations of the Parties' new exit survey, in itself and in comparison to the CMA store exit survey, remains as laid out above.

The Parties' new online survey (new online survey)

41. 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.[24] 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.

42. We consider that the Parties' new online survey will have suffered from the same limitation as we describe above in relation to the pre-notification online survey of in-store customers. Namely that, by virtue of being conducted online, it excludes those in-store shoppers that do not use the internet (who may not respond in the same way as online respondents). We consider that this has serious limitations when the purpose of the survey is to ask a random sample of in-store shoppers about their next-best alternatives for their recent in-store shopping visit. We expect, therefore, that the survey will have over-represented diversion to the online channel. In addition, the survey was only able to survey Nectar Card customers who, as loyalty-card customers, may not be representative of shoppers as a whole.

[24] Dates were not stated in the Parties' submission.

43. In addition, the new online survey used the modified questionnaire (as described above in connection with the Parties' new exit survey) and had limited coverage (Sainsbury's Nectar Card customers).

Summary of our assessment of the Parties' new surveys

44. We have carefully considered the Parties' new surveys and their submissions concerning them and the extent to which we consider we can place weight on them in our inquiry.

45. We consider that each of the Parties' new surveys has a number of limitations as discussed above and that neither can be considered comparable to the CMA store exit survey. We don't consider that it would be methodologically correct to incorporate the results from either of the Parties' new surveys in our analysis.

46. For the reasons set out above, and given that we have access to a robust survey of our own with a methodology designed specifically with the needs of our inquiry in mind, we have not placed any weight on the Parties' new surveys in our local assessment analysis.

Online delivered groceries

CMA Survey of Online Shoppers

Overview

47. 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 inquiry webpage alongside our Provisional Findings.[25]

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

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

48. 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 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.

49. The Parties have made submissions relating to the CMA's online survey at various stages of the inquiry, either as standalone documents or as part of wider submissions. As part of their response to our Provisional Findings, they submitted a report commissioned from Patrick Sturgis, Professor of Research Methodology at the University of Southampton, which we refer to as 'the Sturgis Report'.

50. 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

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

52. 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.

53. This is best explained by considering the effect of our survey design on frequent and infrequent 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.

54. 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. An infrequent (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 frequent (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.

55. 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.[26]

56. 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.

57. 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,

[26] 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).

submitting that the CMA online survey is inconsistent with evidence from other sources.

58. 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 sense checked 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.

59. As a final check, the CMA requested two years' worth of delivery order data from each Party and conducted an analysis calculating, for each of the 52 weeks up to and including the reference week,[27] 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 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).[28]

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.

60. 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

[27] 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.
[28] Our analysis showed there was little variation across different weeks of the year.

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 online survey results are biased, particularly in respect of heavy users.

61. We conclude that the CMA online survey week is not biased towards heavy users.

Representativeness of survey respondents

62. 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;

(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. The Parties assert that this bias is likely to be significant[29] and refer to the section in the Sturgis Report on non-response bias.

63. We have undertaken an analysis to assess the potential impact of these effects on diversion ratios. The delivery order datasets of the Parties were used to categorise each of the Parties' customers who had placed a delivery order in the reference week into either light, medium or heavy users of online delivery orders. The categorisation matched the one that was used by GfK. Asda customers were categorised according to whether they had placed 0–19, 20–39 or 40+ orders in the 52 weeks up to and including the survey reference week. For Sainsbury's, the equivalent categorisation was based on the period from 1 January 2018 up to the end of the survey reference week. These categorisations were then used to calculate the proportion, by value, of all delivery orders placed in the survey reference week, by customers falling into each category.

64. Using the survey dataset, the total spend weights for delivery customer respondents for each of these categories was calculated. Differences between population spend and survey spend proportions were accounted for by non-response bias and multiple shops within the survey reference week,

[29] Parties' response to the Provisional Findings, paragraph 528.

as described above. Additionally, the population was calculated on true spend values, while the spend weights applied to the respondent dataset for our analysis are capped at a maximum of £300 per respondent. A comparison of survey and population weighted results is set out in Table 2. It shows that, for each Party, the survey underweights light users and over-weights heavy users.

65. Table 2 also shows the diversion ratios, to the other Party, for light, medium and heavy users of online delivery orders using the same definitions as above, although, consistent with our analysis elsewhere, these calculations are based on inframarginal customers only. [✂].

66. Table 2 also shows the results from applying survey spend weights and population spend weights for each of the light, medium and heavy categories separately to these diversion ratios. Among Asda respondents, the overall impact is that the population weighted estimate of total diversion is [✂] percentage points [✂] than the survey weighted estimate. Among Sainsbury's respondents the population weighted estimate is [✂] percentage point [✂].

67. This analysis quantifies the potential impact of frequency of usage on non-response bias to the key estimates derived from the survey. Professor Sturgis's report notes there is a possibility that the sample may also be unrepresentative on unobserved variables that might be correlated with survey variables; and a possibility that survey variables are themselves predictive of non-response, which is to say that, for example, customers' diversion preferences might themselves cause non-response to the survey. This would be an example of so-called 'non-ignorable non-response' which poses particular challenges for unbiased estimation. We agree with Professor Sturgis, however, the fact that the analysis of the impact of bias arising from differential rates of response among light, medium and heavy users is small provides some reassurance that other forms of non-response bias are unlikely to have much of an effect on the survey results.

Table 2: Impact of population spend-weighting on diversion ratios

%

			Diversion to merger party		
	Survey spend	*Population spend*	*Online*	*In-store*	*Total*
Asda					
Less than 20	[✂]	[✂]	[10–20]	[0–5]	[10–20]
20-39	[✂]	[✂]	[10–20]	[0–5]	[10–20]
40 or more	[✂]	[✂]	[10–20]	[0–5]	[10–20]
Total:					
- survey weighted			[10–20]	[0–5]	[10–20]
- population weighted			[10–20]	[0–5]	[10–20]
Sainsbury's					
Less than 20	[✂]	[✂]	[5–10]	[0–5]	[5–10]
20-39	[✂]	[✂]	[5–10]	[0–5]	[5–10]
40 or more	[✂]	[✂]	[5–10]	[0–5]	[5–10]
Total:					
- survey weighted			[5–10]	[0–5]	[5–10]
- population weighted			[5–10]	[0–5]	[5–10]

Source: Parties' customer order data; CMA online survey.

Correctly calculated national diversion estimates show no significant concern

68. The Parties submit that 'due to the CMA's skewed sample population, it is appropriate to consider reweighting them [the national diversion estimates] using Kantar's online grocery results' and similar figures from Nielsen. 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, and separately using Nielsen data. We assessed the Parties' submissions and found in particular that diversion to in-store options was higher when these adjustments were made. However, the questions used in each of the CMA online survey, Kantar Survey and Nielsen Survey were different and both Kantar and Nielsen panels recruit via non-random sampling, while the CMA online survey uses random probability sampling. We agree with Professor Sturgis, who notes that each survey uses a different approach to measuring the extent of online shopping which makes direct comparisons between estimates difficult. We further note that adjusting on the basis of the Kantar data made a small change to the figures, while the Nielsen adjustment resulted in a larger change. In the Parties' submission Nielsen caveats its figures heavily.[30]

[30] Nielsen state: '*Note: This data should only be used directionally. Online data in panel has a higher margin of fluctuation compared to our total read, due to panel's sampling methodology. These margins increase with shorter time periods and narrower market selections (eg Sainsbury's online shoppers vs Total online shoppers). Please use with caution.'

Potential for framing bias towards online diversion

69. The Parties submit 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 its earlier in-store grocery analysis, 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'.

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

71. 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.

72. Two safeguards were built into the questionnaire design to minimise this risk. First, four questions about shopping 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.

73. 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 potential response.

74. Nonetheless, in considering the survey evidence, we recognise the possibility of a small residual framing bias. However, when assessing survey evidence the CMA makes an assessment in the round taking account of many such potential sources of small biases. 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?'

75. 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-store alternatives; a bias towards in-store.

76. 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, be offset by each other. In our view, neither should prevent us from putting weight on the survey results. Professor Sturgis also considers the possibility of a framing bias and concludes that, in the absence of evidence of framing bias, 'I do not consider that the risk of this type of measurement error is of notable significance'.

Estimation of own-brand in-store diversion

77. 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. They submit that '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'.

78. 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?

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

80. The Parties submit 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.[31]

81. 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%.

82. 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.

83. 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 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.

84. 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

[31] 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.

receives more diversion than any other in-store brand. Diversion, estimated from responses to the forced diversion question, to all in-store alternatives was 35% among Sainsbury's customers and 33% among Asda customers and we consider these to be the best estimates of in-store constraints provided by our survey.

85. In estimating diversion ratios to the Merger 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 response to the Parties' comments, and those of Professor Sturgis,[32] we have chosen this approach. In doing so we recognise that we lose some of our sample, reducing sample sizes which has an impact, particularly, on our Supply Point analysis. We also recognise that our analysis of diversion is consequentially based on inframarginal customers.

86. It is common in merger cases to base survey estimates on responses from the whole sample of respondents, most whom will be inframarginal, due to the typically limited number of responses available from marginal customers. The robustness of such estimates rests on the extent to which the assumption that the next best alternatives of price marginal customers follow the same distributions as price inframarginal customers, and the extent to which the theories of harm that these estimates are used to test consider price to be the dimension of PQRS that may be degraded as a result of the merger. The first of these is difficult to assess in this case, given the potential misinterpretation of the price diversion question. The second we have taken into account, as appropriate; neither the national nor local theories of harm rest solely on the possibility of price rises from the merger, but also incorporate potential degradation in some elements of quality, range and service.

Summary of our assessment of the CMA online survey

87. The CMA's online survey was conducted with a high degree of rigour, consistent with the CMA's Survey Good Practice and designed specifically to meet the needs of our analysis. 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 a corresponding weight on it, subject to the caveat that it is likely that some respondents to the price diversion

[32] Parties' response to the Provisional Findings, paragraph 529.

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

88. We commissioned a market research company, DJS Research (DJS), to conduct an exit survey of customers at 16 Asda and 16 Sainsbury's PFSs (the CMA fuel survey). 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.

89. 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.

90. 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.

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

92. 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.

93. The agency's report of the survey methodology and findings, including the questionnaire used, is published on the inquiry webpage alongside our Provisional Findings.[33]

The Parties' comments on the CMA fuel survey

94. The Parties were invited to comment on the CMA fuel survey. They submitted a written response on the design of the survey in September 2018 and made further submissions in response to our early analysis and the Provisional Findings.

95. 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), whilst the CMA had not set out which rivals it considered to be supermarket PFS, it appeared that, for example, Waitrose and Costco

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

had not been treated as supermarket rivals. The Parties initially submitted that this might be appropriate for survey sampling but strongly objected to any pre-judgement that these competitors should not be treated as supermarket rivals. In response to our Provisional Findings the Parties considered the decision to count Costco and Waitrose PFS as non-supermarkets implied a definition of supermarket that is too narrow, and led to the CMA overstating the closeness of competition between the Parties.

96. The Parties submitted 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.

97. 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.

98. 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 PFSs beyond 10 minutes in particular. As a result, as described in paragraphs 42 to 44 of Appendix K, the CMA introduced an out-of-market correction in our analysis. The Parties submitted that this is insufficient to compensate for this bias and suggested an out-of-market correction based on their own survey.

99. 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.

100. The Parties also stated that the CMA has unreasonably disregarded the Parties' own survey evidence. They accept some of the CMA's criticisms of

their surveys, but state that these relate to noise (precision of estimates) rather than bias.

Our response to the Parties' comments

101. [✂]. Costco was not included because it is not counted as a supermarket brand in the in-store competitive assessment and because its PFSs can only be used by Costco members. In response to our Provisional Findings, whilst the Parties repeated the points they had previously made regarding the treatment of these competitors, they did not submit any new evidence or reasoning as to why we should change our position. Therefore, we continue to consider that these PFSs should be treated as non-supermarket PFSs.

102. 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 we took account of them when using the results of the survey in our subsequent analysis and interpretation. We also note that we have not relied solely on the survey in our decision-making but have combined it with evidence from other sources such as the pricing indicator.

103. 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 for 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.

104. We do not agree with the Parties' submission that the diversion questions in our survey should have been prompted.[34] 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.

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

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 a 10-minute 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.

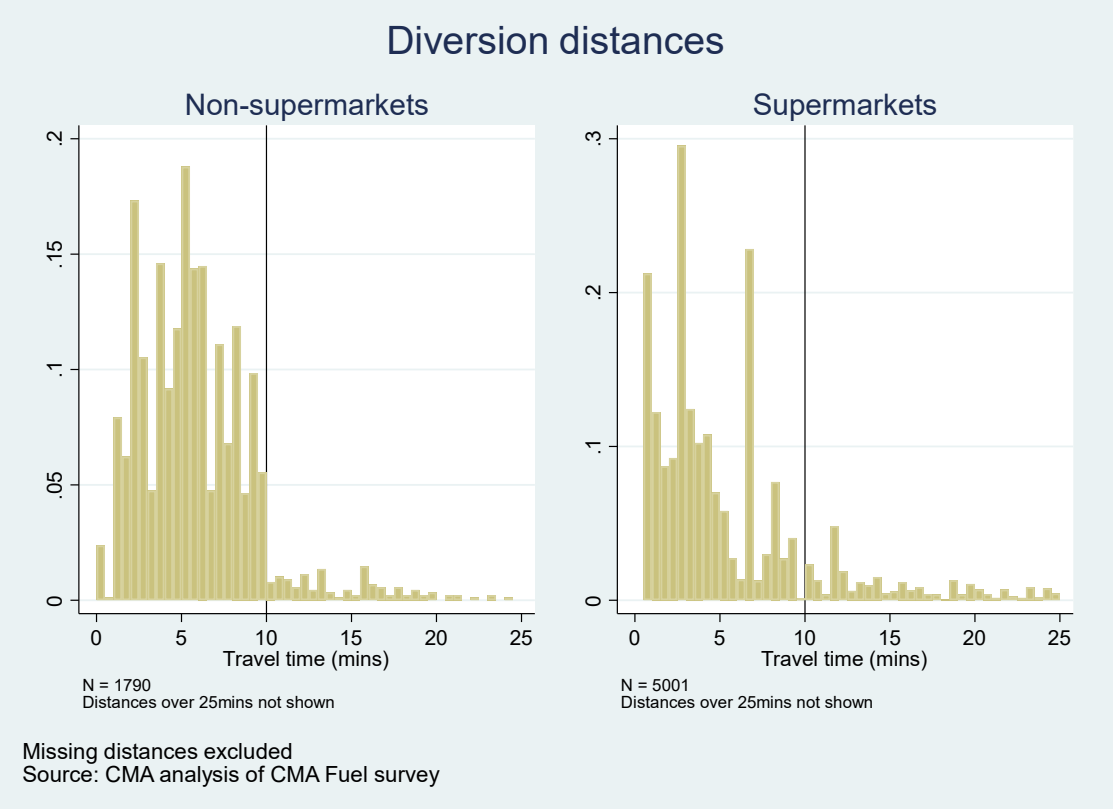
105. In response to the Parties' criticism that our survey led to a discontinuity in diversion ratios for non-supermarket PFSs at 10 minutes, we have conducted further analysis of our own survey. This is shown in Figure 1 and confirms that there is such a discontinuity. Our analysis shows that the problem arises in the responses to the first (unprompted) diversion question. We therefore conclude that, despite DJS's best efforts to brief interviewers, it is likely that some responses to the unprompted question were recorded against a PFS on the precode list when they should not have been.[35]

106. Figure 1 suggests this effect is likely to be small. We consider that this does not seem to have affected supermarket PFSs but needs to be considered when using and interpreting the results. The Parties disagree and state that the pattern of diversion for supermarkets is more volatile, due to the smaller number of supermarket PFSs, and therefore less visually striking. But they believe there is a clear bias introduced by the CMA's decision to only list rivals up to 10 minutes away on the interviewers' handheld devices.

107. We have allowed for the discontinuity at 10 minutes in diversion to non-supermarket PFSs 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. We disagree with the Parties' submission that this is not a sufficient correction. We have considered whether a similar discontinuity arises in diversion to supermarket PFSs but have concluded that there is no apparent discontinuity and have therefore not made an adjustment.

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

Figure 1: Distribution of diversion distances



Source: CMA analysis of CMA fuel survey.

108. We have considered the Parties' suggestion regarding 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 unlikely 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 are the analytical units 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

109. The CMA fuel survey was designed in accordance with our Survey Good Practice, including using a random probability sampling approach. 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.

110. 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.

111. 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.

112. 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 detail in Chapter 14.

113. Overall, we consider that the CMA fuel survey was a high-quality survey. Subject to the limitations described above, the results can be considered robust. We place considerable 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 from other sources.

The Parties' surveys

Overview

114. 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 with us. 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 Card customers for 20 PFSs.

115. 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.

116. 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.

117. 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

118. 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 their surveys. The CMA's Survey Good Practice sets out the level of briefing and monitoring we would like to see in a survey.[36] The Parties stated that spot-checking of interviewers occurs at six-monthly intervals and that one interviewer was spot-checked in this survey.[37] 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

[36] *CMA78*, paragraphs 2.42–2.54.
[37] 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'. The Parties submission noted: 'ABA also conducts mystery spot checks on all its interviewers at random on a six-monthly basis across all projects'.

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.

(e) The Sainsbury's PFS online survey is a survey of Nectar Card 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' submission that an online survey would be more appropriate 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.

(g) We also do not agree with the Parties' views that the criticisms of their surveys relate to noise (lack of precision) and not to bias. The points made above relate to problems with the quality of the Parties' surveys which will give rise to both bias and random variation.

119. Because of the limitations we have identified with the Parties' surveys, and given that we have conducted our own survey, which was designed with our analytical needs in mind and which we consider to be robust, we have not placed any weight on the Parties' surveys for the purpose of our local competitive assessment.

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

1. We conducted 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 generated quantitative evidence around the relevant geographic market and the relative strength of stores belonging to different categories of brand and size. In this Appendix 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. In interpreting this data we remain mindful of the distinction between migration and diversion as will be discussed in Appendix D.

Data

3. We received a dataset from the Parties. The dataset provided by the Parties covers the years 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.

[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 [✂].

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 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 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 in this distance band. 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.

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[3] The variation is measured 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.

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 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.

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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.

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:

    (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 events 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.

[8] Note that our survey weightings were only complemented with entry-exit if the 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.

(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.

(c) The impact of Large stores is, broadly speaking, 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 paragraphs 8.175 and 8.176, 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 'Entry and expansion 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.

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,

[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 (particularly at paragraphs 8.54 to 8.64), 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 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.

[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.[4] 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 Aldi, Lidl or the losing retailer (which would be more likely to influence 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.[5]

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

(a) [✂];

(b) [✂];[6] 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

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[4] See Aldi (2 October 2018), *One million new customers drive record sales for Aldi*. See Retail Gazette (10 July 2017), *Lidl to open 60 UK stores a year in £1.45 billion push*.
[5] By 'like-for-like' growth we mean the residual growth once the effect of building new stores has been stripped out.
[6] [✂].

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 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.[7]

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 [✂]:

(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 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.

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

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 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[8] 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 were 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.[9] The process is the same for Lidl.

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[8] See: *Kantar Public consumer research: findings from the store exit survey* (21 February 2019).
[9] 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 39).

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.

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.

Net switching versus losses and gains

37. There are three ways to calculate switching ratios:

(a) using switching losses;

(b) using switching gains; and

(c) using net switching.

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

Parties' views

39. The Parties argued 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).[10]

Our assessment

40. 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.

41. 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 Party in response to a small relative change in PQRS).

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

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

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

43. 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

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

45. 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

46. Figures 3 and 4 below show the spend gained from customers switching from each retailer as a proportion of all spend gained through switching.[11] The key findings are:

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

[11] 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

47. This section presents Kantar switching losses from each of the Parties' online business to other online competitors.[12] 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.

48. 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).

[12] 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; and

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

Large and Medium stores

Issues relating to survey evidence and WSS weights

Approach to disaggregation

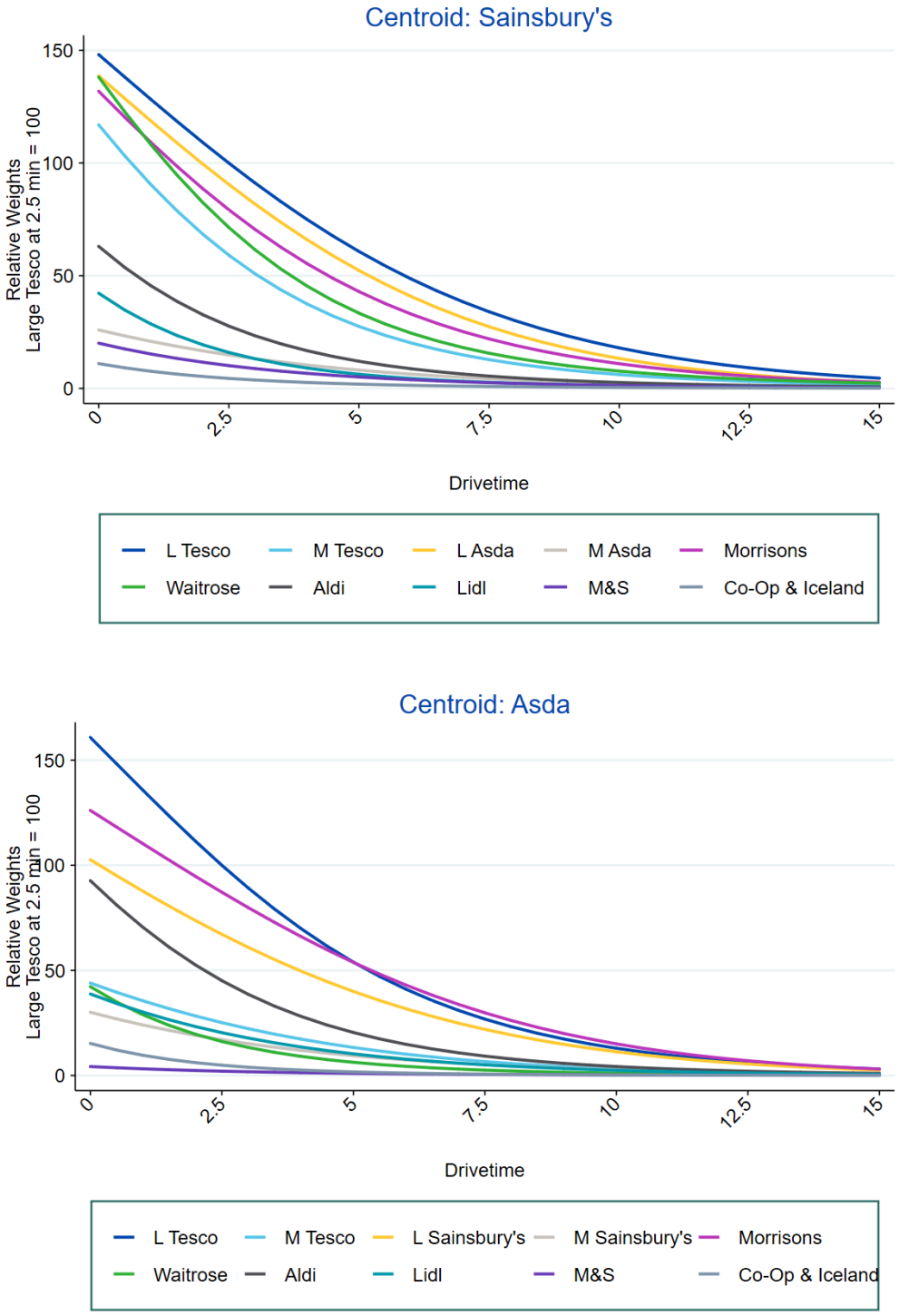
2. In paragraph 8.167, we provided our conclusion on the level of disaggregation of WSS weights by store size and brand.

3. In this section, we discuss in detail how we reached this conclusion. In particular, we discuss our decisions regarding the trade-off between having weights that are as tailored as possible to the types of stores to which they are applied and the need to have a sufficient sample of such stores to be able to estimate those weights robustly.

Disaggregation of rival fascia by brand

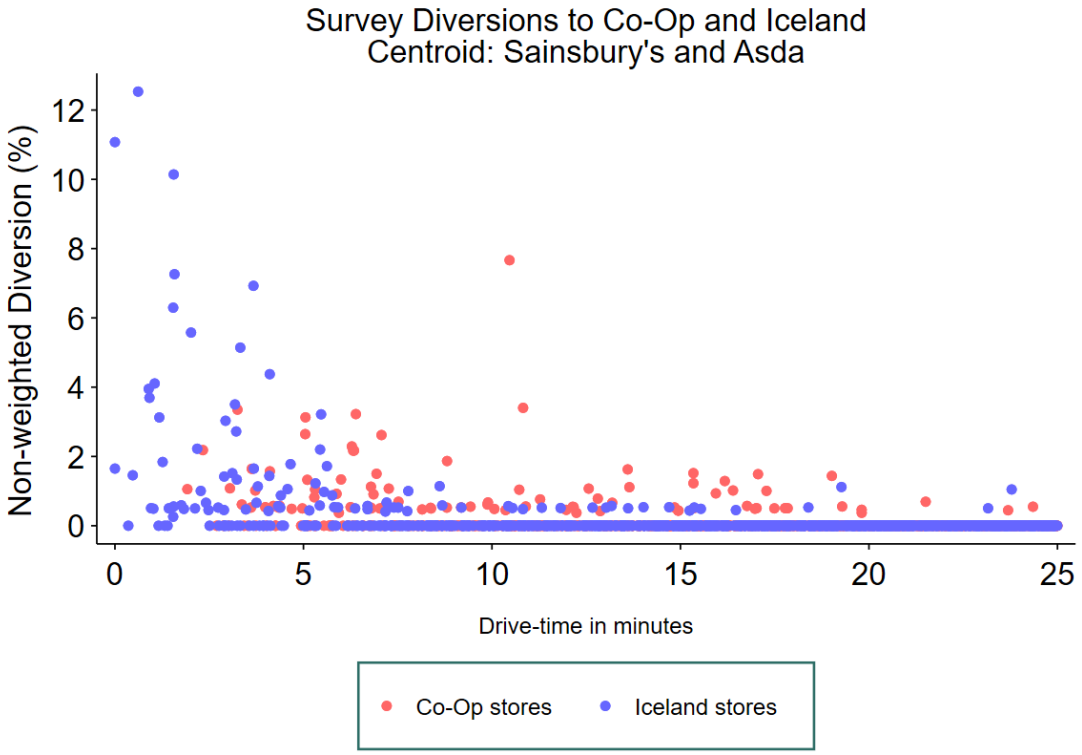
4. As regards disaggregation of rival fascia, we found that the diversion generally differed by brand (including between M&S and Waitrose, as suggested by the purple and green lines respectively in Figure 1 below), and the number of observations was usually adequate to consider each fascia separately. 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 weights derived from the CMA store exit survey



Source: CMA analysis.
Note: 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 store exit survey diversions to Co-op and Iceland



CMA analysis.
Note: By Centroid: Sainsbury's and Asda, we refer to diversions from both Sainsbury's and Asda's stores.

5. The Parties welcomed the approach of estimating separately the constraint for different rival fascia store/size combinations.[1]

Disaggregation of rival fascia by store size

6. 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 1,300 square metres, 1,400 square metres (Medium store threshold) and 1,500 square metres.

[1] Parties' response to the Provisional Findings, Schedule 3.1, paragraph 13.

Table 1: Proportion of stores with store size below 1,300 square metres, 1,400 square metres and 1,500 square metres by fascia

	Proportion of stores with store size below:		
Fascia	*1,300 square metres*	*1,400 square metres*	*1,500 square metres*
Aldi	95	98	100
Asda	26	27	28
Co-op	95	96	97
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

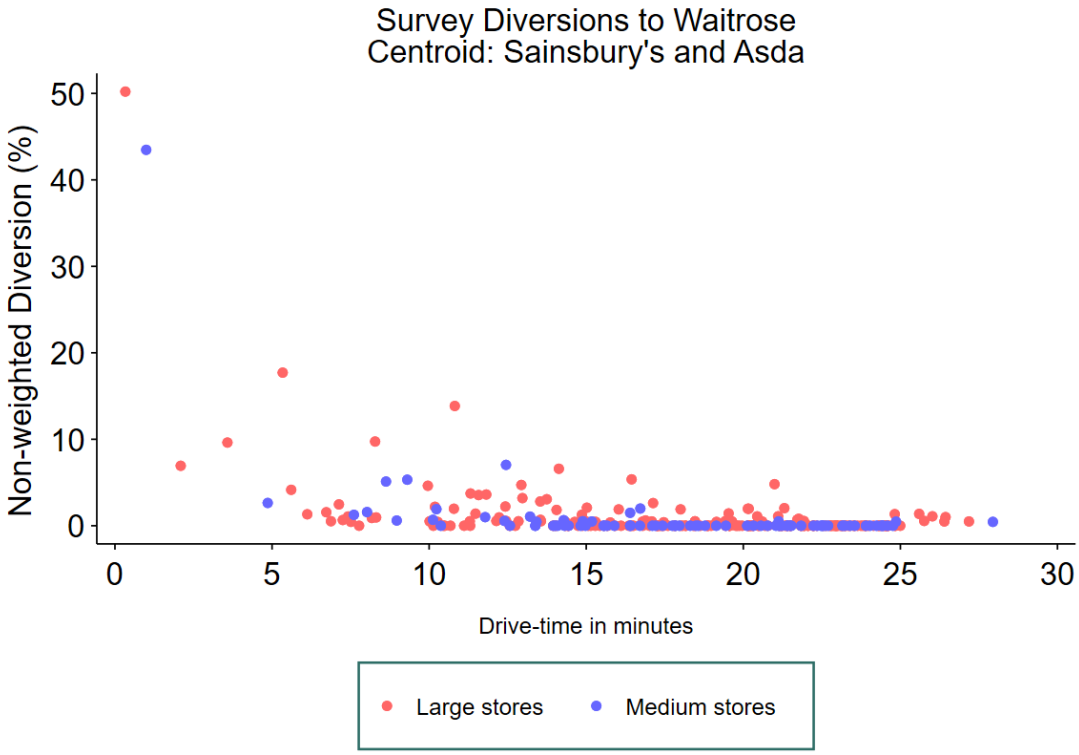
Source: CMA analysis.
Note: This table covers stores that are within a 30-minute drive-time from any of the Large and Medium stores of the Parties. Surface areas expressed in terms of the Net Sales Area for all stores except for M&S, which is expressed in terms of the Groceries Sales Area. Surface areas 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 its surface area in terms of the Groceries Sales Area.

7. 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 1, 400 square metres. Therefore, to avoid potential sample size (and therefore robustness) issues with estimating the weights of Large Stores for these providers, we estimated a single set of weights for the Medium and Large stores of each of Aldi, Lidl, M&S and Co-op/Iceland.

8. 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 set of weights for all Morrisons supermarkets, regardless of their size.

9. 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 set of weights for all Waitrose supermarkets, regardless of their size.

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



Source: CMA analysis.

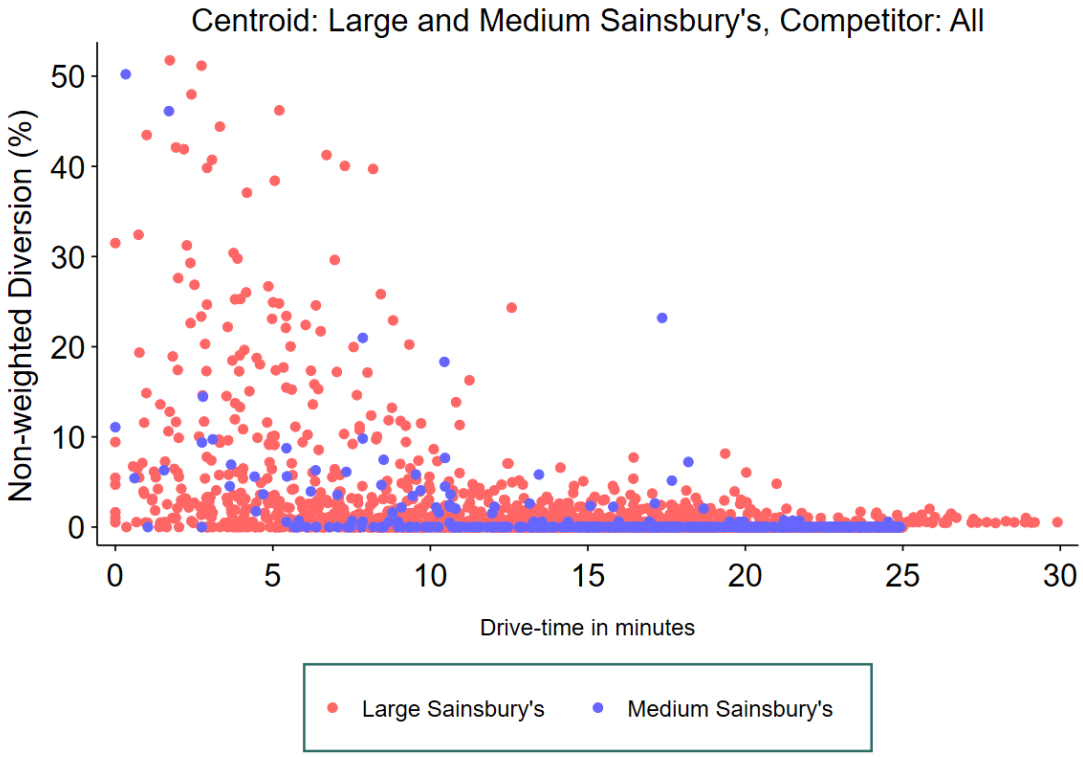
Disaggregation of centroid fascia by brand

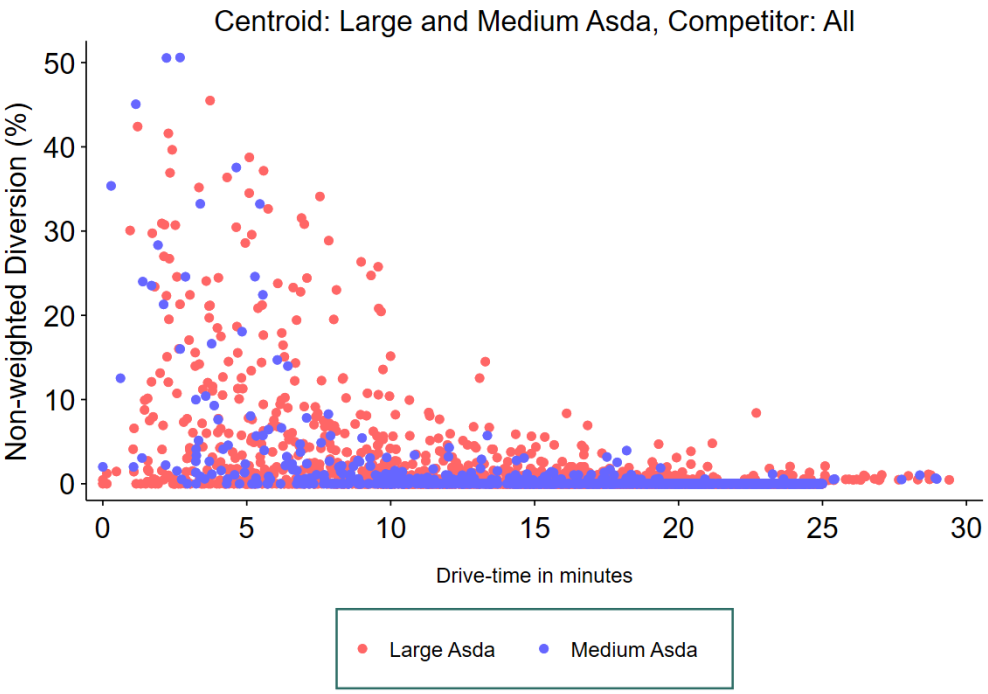
10. Figure 1 above suggests that the constraint exerted by specific brands on Sainsbury's supermarkets differs materially from the constraint those same brands exert on Asda. Therefore, we estimate separate weights for each brand depending on whether we are assessing its constraint on Asda supermarkets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

Disaggregation of centroid fascia by store size

11. There are very few observations of diversions from the Parties' Medium stores. Therefore, consistent with the suggestion made by the Parties (as discussed in paragraph 8.166(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 store exit survey diversions separately to the Parties Medium and Large stores





Source: CMA analysis.
Note: By Centroid: Sainsbury's, we refer to diversions from Sainsbury's stores. By Centroid: Asda, we refer to diversions from Asda's stores.

Relationship between distance and diversion

Parties' view

12. 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.[2] We understand that this would amount to assuming that the weights for each brand-size combination decline at the same rate over distance as Large Tesco.

13. The Parties submitted that this would avoid estimating a counterintuitive relationship between distance and weights (such as ranking of different brands' weights changing depending on distance). They submitted that estimating specific weights 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.

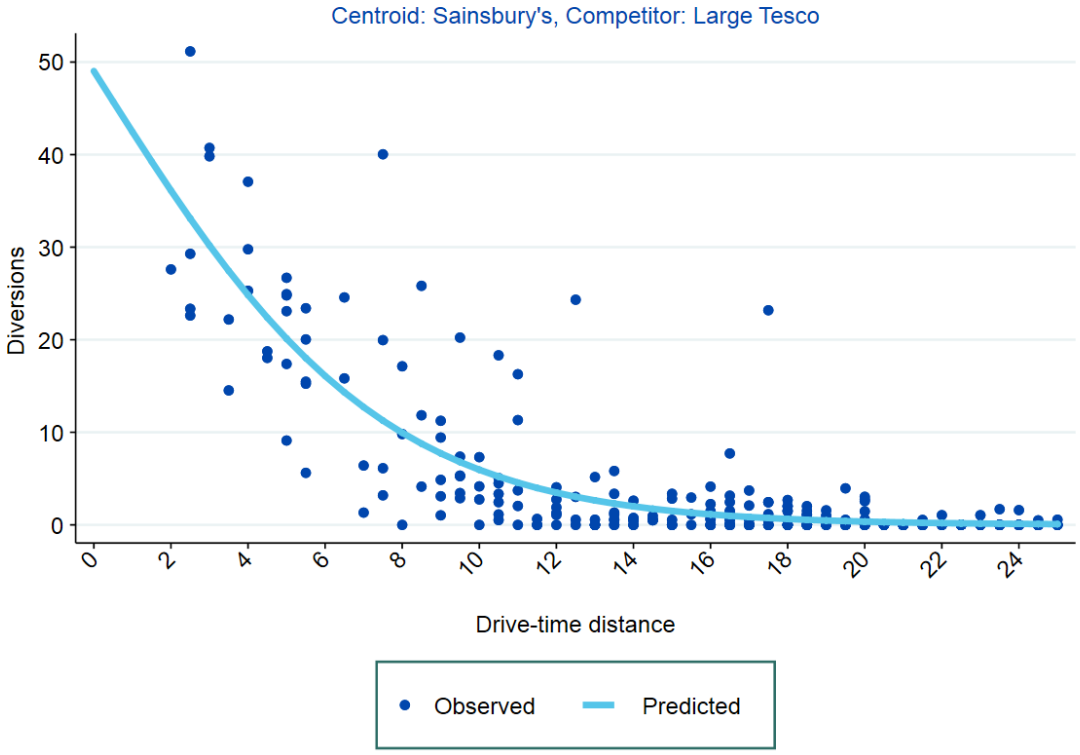
Our assessment

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

15. First, based on the survey, we have plotted the store level diversions for each of the weights categories discussed from paragraph 4 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.[3,4] For example, one Tesco supermarket was chosen by more than 50% of respondents surveyed at a given Sainsbury's store (see the top 'dot' in Figure 5 below). Several Tesco stores (all of which were located at least eight minutes away from the surveyed Sainsbury's supermarket) were not mentioned by any respondents and therefore received zero diversion in the survey.

[2] 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.
[3] 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.
[4] 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.

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



Source: CMA analysis.

16. Second, for each of the brand-size categories, we created a line of best fit going through the 'dots' (ie individual observations of diversions to individual competitor stores). This is shown as the light blue line on the graph above. This 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.[5]

17. The Parties submitted that a fractional response estimator would represent a better fit for the data than a quadratic ordinary least squares (OLS) regression, since a quadratic OLS regression would predict negative values outside of the 15-minute range. They submitted that although the estimated weights beyond the 15-minute distance were not used, these observations would influence the weights within the 15-minute range. We agreed with the Parties and, therefore, have used the fractional response estimator for the purposes of estimating the weights.

18. With respect to the Parties' argument that brand weight relativities should remain constant over distance (which we understand amounts to applying Tesco's rate of decay over distance for all brand-size categories), we consider

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

that the advantage of our approach is that it allows us to identify the appropriate decay over distance for each brand-size category 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.

19. Further, we note that by smoothing the curve in the way described above (i.e. by estimating a line of best fit through the data points), our approach draws on all the data points available for each category of brand and size when generating that category's weights. Annex 1 below show smoothed decay curves for the weights of competitors' stores. As these show, with a few exceptions, the curves are based on a reasonable number of observations.[6]

Representativeness of CMA store exit survey

Parties' views

20. 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).

21. The Parties also submitted that calculating average diversions for each brand-size category based on store-level data would result in biased estimates. They submitted that 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 brand-size category. As a consequence, these simple averages will understate the average diversion to groups of brands that are disproportionally present in areas with more competitors. The Parties submit that in more competitive areas it is more likely that there are multiple stores of the same brand; therefore, the diversions of brands in more competitive areas will be overstated.

22. The Parties submitted that to avoid this problem we should calculate the average diversion to groups of brands at each surveyed location and then

[6] In relation to diversions to competitor supermarkets from Asda supermarkets, we considered that the relationship between the weights/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, the entry-exit analysis).

calculate a simple average of these survey location averages.[7] The Parties submitted that to control for this problem in the CMA's estimation of WSS weights, the CMA would need to include additional explanatory variables in the regression, such as the number of stores in the area.

Our assessment

23. As an initial observation, we note that the purpose of oversampling concentrated areas was to improve the ability of the CMA store exit survey to predict diversion in areas with fewer competitors, which may be more relevant to the assessment of competitive effects. In addition, in response to the Parties' concerns on this point and our own developing thinking, the CMA expanded the sample to include 20 additional areas, many of which were areas with more competition than the initial sample of 80 stores.

24. Nevertheless, we considered the extent to which the Parties' supermarkets in our sample tended to be overrepresented in concentrated areas relative to all supermarkets in their estate. We also assessed the extent to which any such overrepresentation was more or less significant for the Parties than for competitors.

25. To this end, we prepared charts which compare, for each brand, the level of concentration in the areas where the Parties' stores were surveyed against the level of concentration in all areas where each brand's stores compete with the Parties.

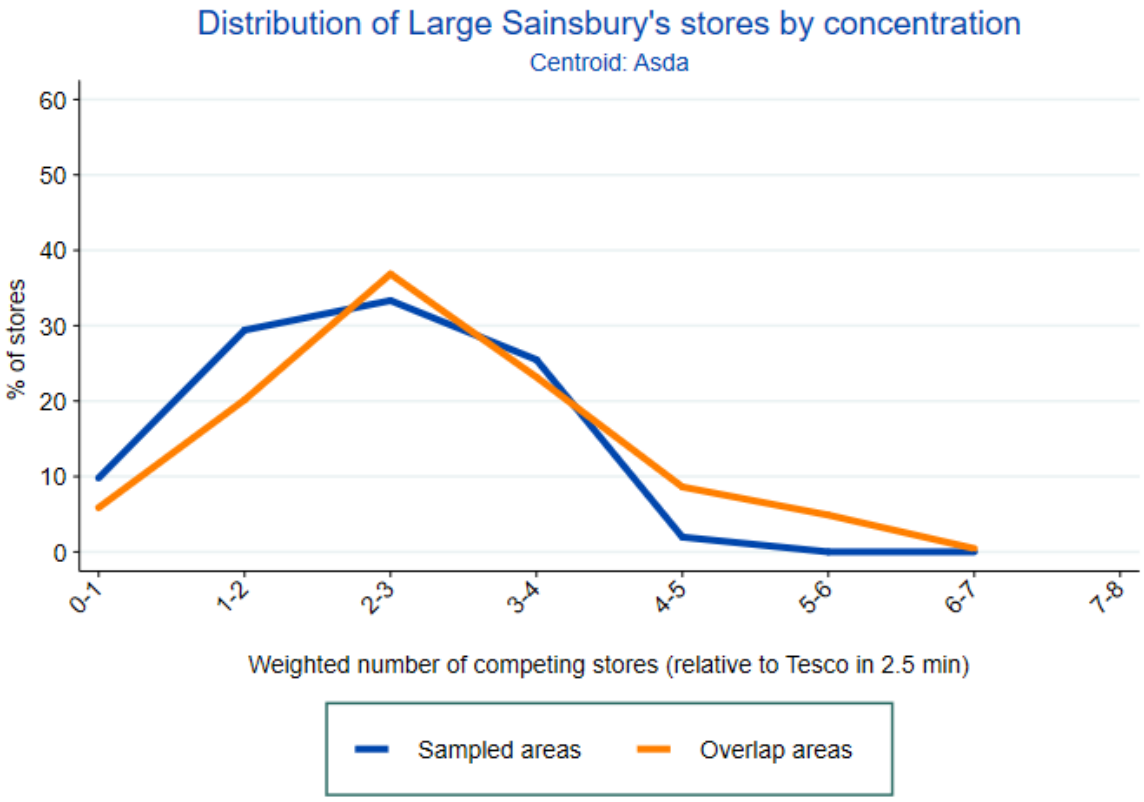
26. The Parties submitted that any assessment of whether a survey is representative of the level of competition faced by the Parties in different locations needs to be done with reference to an appropriate measure of concentration that reflects how competition works in a local area. We consider this reasonable and have accordingly accounted for brand, size, and distance in our measure of concentration.[8]

27. Example charts for Large Sainsbury's stores and Aldi stores (in areas where Asda is the centroid store) are presented in Figure 6 and Figure respectively. Charts for the other brands are presented in Annex 2. In these charts, the horizontal axis describes the weighted number of competitor stores (with a

[7] They further submitted that, although the CMA estimates diversion weights econometrically rather than by taking simple averages, the issue is not resolved, so the resulting weights remain biased. This is because in these regressions, more of the observations will come from more competitive areas and hence will have lower diversions at all drive-times, which will lower the estimated relationship.
[8] Similarly to the Parties' analysis of survey representativeness, discussed in paragraph 29, we have used WSS weights to measure the relative competitiveness of each store, so in each given area, each store is weighted using the WSS weights for that brand, size of each store and drive-time from the Parties' store. These weights are expressed relative to Large Tesco in 2.5 minutes (which would be assigned a weight of 1); therefore, a store would be assigned a lower weight if it is further away or from a 'weaker' brand (and conversely if the store is closer or from a 'stronger' brand).

greater number of competitors to the right). The vertical axis shows the proportion of stores sampled from areas with the corresponding level of concentration. The orange line shows the proportion of stores at each level of concentration when looking at all stores of the relevant brand that appear in areas where both Parties compete; the blue line shows the proportion of stores at each level of concentration in the CMA store exit survey sample. For instance, Figure 6 shows that, across all areas where Large Sainsbury's overlaps with Asda, 20% of areas have a weighted competitor count of between 1 and 2 competitors, whereas this proportion is 29% in our sample, suggesting some oversampling of Sainsbury's stores in concentrated areas (compared to their overall supermarket estate).

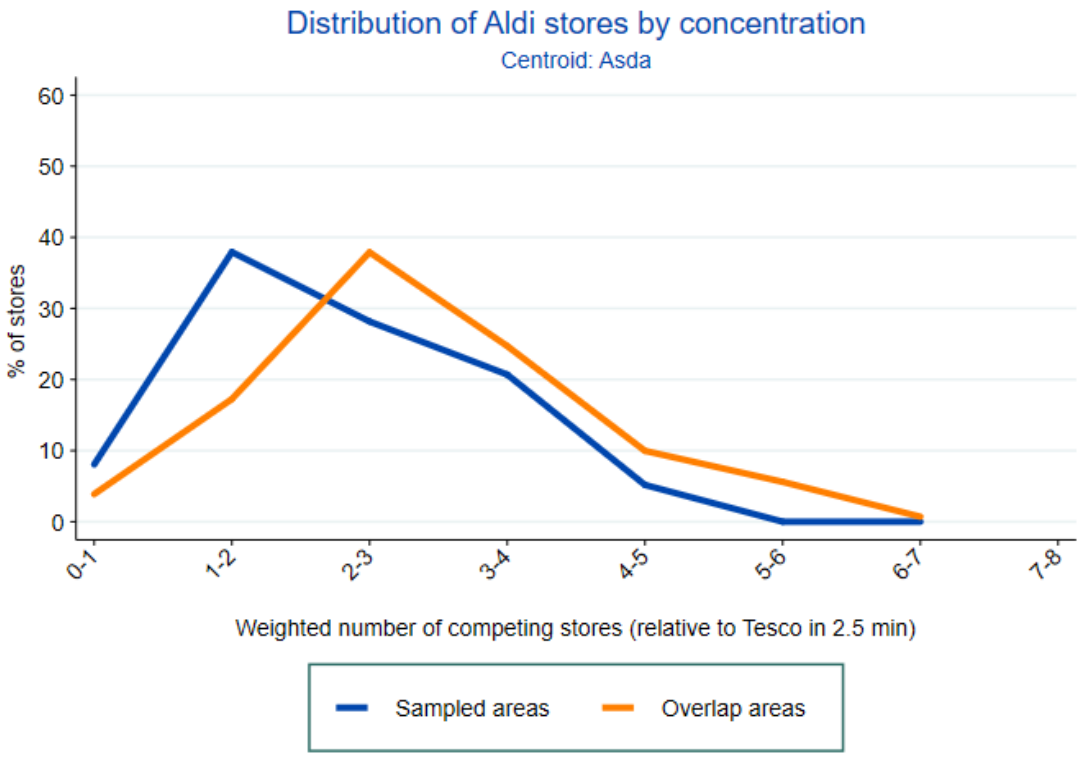
Figure 6: Distribution of Large Sainsbury's stores by concentration, in the CMA store exit survey and in all areas of overlap with Asda[9]



Source: CMA analysis.

[9] See footnote 8 for an explanation of how weighted number of competing stores in each area was calculated.

Figure 7: Distribution of Aldi stores by concentration, in the CMA store exit survey and in all areas of overlap with Asda



Source: CMA analysis.

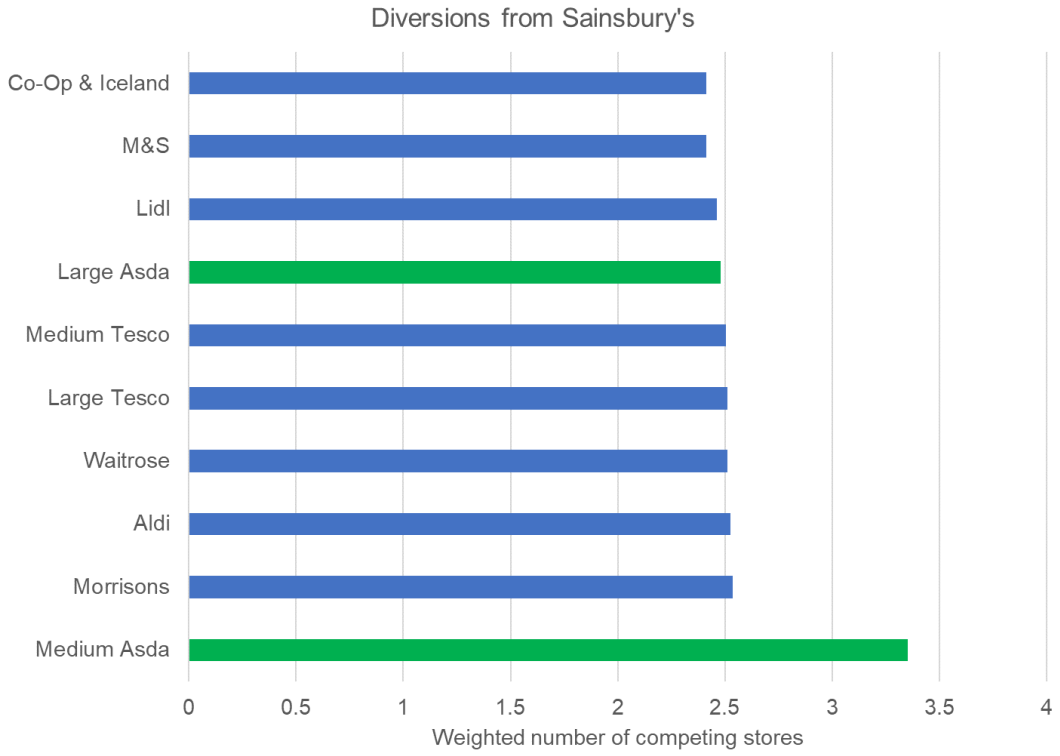
28. Figure 6 and Figure 7, in conjunction with the associated charts in Annex 2, show that while the surveyed stores of the Parties were drawn disproportionately from areas with fewer competitors, the Parties' stores are not particularly over-represented in concentrated areas compared to other brands as a result, because most brands are drawn disproportionately from concentrated areas (which was a deliberate decision within our survey design, as noted in paragraph 23). In fact, the charts suggest for example that surveyed stores of Medium Asda are drawn disproportionately from areas with *more* competitors.

29. The Parties submitted an analysis of a distribution of Sainsbury's and Asda stores in the local areas, by weighted number of competing stores. This was provided separately for sampled and overlap areas, and each of the Party's whole estates. The Parties submitted that their analysis showed that both the Sainsbury's and Asda surveyed stores were disproportionately drawn from less competitive areas, compared to each of the Parties' whole store estates. The Parties submitted that it was therefore incorrect for the CMA to conclude that the survey sample was not biased towards higher diversions between the Parties.

30. We agree that Sainsbury's and Asda stores were disproportionately drawn from less competitive areas compared to their whole store estates (and compared to the part of their estate that overlaps with the other Party). However, our view is that this also applied to other brands. To the extent these brands are oversampled from concentrated areas (compared to the overall store estate) to a similar extent, this should not affect the relative weightings the different brands are assigned.

31. In addition to this analysis, we also considered the average number of competitors faced by each brand in the sampled local areas. This differs from the previous analysis in that it considers the average number of competitors in sampled areas in absolute terms rather than relative to the wider estate of stores that overlap with the Parties. Figure and Figure 9 show the average number of competitor stores faced by the stores of each rival brand in the local areas sampled.[10]

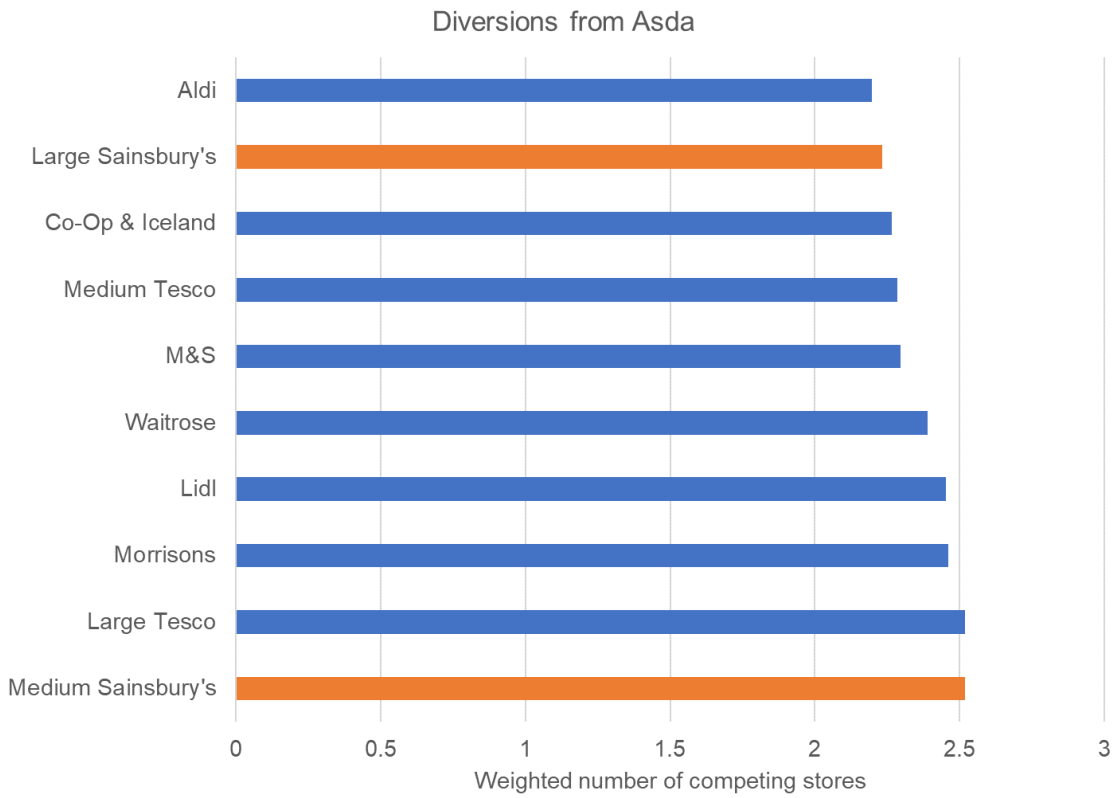
Figure 8: Number of competitor stores in the local areas of brands competing with Sainsbury's



Source: CMA analysis

[10] The number of competitors was weighted to account for the different strength of brand, size and distance.

Figure 9: Number of competitor stores in the local areas of brands competing with Asda



Source: CMA analysis

32. These charts show that:

(a) Almost every competitor of Sainsbury's faced, on average, a very similar level of competition in the local areas where they were sampled (close to 2.5 weighted competitors). One exception was Medium Asda stores, which tended to face more competition in the local areas in which it was sampled (3.4 weighted competitors). This may lead the survey weights to understate the competitive strength of Asda's Medium stores as a constraint on Sainsbury's stores; and

(b) Asda's competitors generally faced similar levels of competition in the local areas where they were sampled (between 2.2 and 2.5 weighted competitors), albeit with Large Sainsbury's stores being to the lower end of this range and Medium Sainsbury's being to the upper end of this range. While this might suggest that diversion to Sainsbury's Medium stores was understated, and diversion to Large Sainsbury's stores may have been overstated.

33. The analysis in Figure and Figure 9 suggests that we may understate diversion from each of the Parties to the other Party's Medium stores, but may somewhat overestimate diversion from Asda to Large Sainsbury's. We have considered this in coming to an appropriate GUPPI threshold.

34. The above analysis of averages takes into account the fact that greater weight is attached to stores in more competitive areas (as the analysis was carried out at the store level). With respect to the Parties' proposal that the CMA's analysis be adjusted by calculating diversion ratios at the area level, we consider that it is unclear how it would be possible to operationalise this suggestion. Such a calculation would result in many fewer observations for the calculation of distance curves and it is not clear how relevant distances could be calculated.[11] We therefore consider that our approach, which considers the limited scope for overestimation in the context of the GUPPI threshold, is a reasonable way to account for this issue.

Stores receiving zero responses in the CMA store exit survey

35. 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.

36. 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

37. The Parties submitted 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 zeros'. They submitted 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 submitted 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.

[11] A simple average of the distances of the stores in any brand-size category (the stores from which an average diversion ratio would be calculated) is only appropriate if the relationship between diversion and distance is linear, which we know not to be the case.

38. The Parties submitted 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.

39. The Parties therefore submitted 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

40. 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.[12]

41. 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).

42. 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.

43. We consider that sampling zeros provide information about the expected diversion ratio. Notably, survey responses are a reflection of the consumers sampled. In a survey, a store may receive a sample diversion ratio of zero even if there is a small, but positive probability of being chosen by a surveyed store's customer. Because the sampled zero is our best estimate of the small, but positive diversion, the zeros provide important information when estimating the brand-size weights.

44. Moreover, the Parties' focus on sampling zeros is misguided because it focuses on underestimation of the diversion ratio, but not instances where diversion ratios are overestimated. This is important because over- and underestimates may cancel each other out. Consider, for example, a hypothetical local area with one store of a given brand-size category, which receives a sampling zero. If there exists at least one additional store in the

[12] 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.

area of the same-brand size category, it may receive an overestimated sampling diversion. In fact, on average, we would expect this to be the case. Therefore, at the area level, the diversion to the brand would be expected to be correct. Similarly, if there exists a store of the same-brand size category in another local area it may also be overestimated, and we would expect this to happen if there are enough stores of a given brand-size category.

45. We would expect that a priori, in the presence of sampling error at the local level, averaging diversion responses across stores of the same brand results in a correct estimate of diversion for this brand. It therefore does not follow that the diversion to other brands is incorrectly measured.

46. The Parties submitted 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. We disagree with the Parties' conclusion. As set out above, to the extent that any category of store has more stores with zero diversion than another type of store, this should not be expected to mean that the constraint is underestimated in the WSS. It is in fact simply consistent with the true level of diversion to that store being closer to zero.

47. In response to our Provisional Findings, the Parties presented a table that showed for each brand the number of stores that have a zero diversion in the CMA store exit survey and a positive diversion in the Parties new exit survey and vice versa. They submitted that this comparison allows identification of the sampling zeros and the ability to distinguish them from the 'actual zeros'. They submitted that the CMA store exit survey has a greater number of sampling zeros for all brands and that, as the Parties' stores have among the lowest proportion of zeros, this means that the diversions between the Parties are likely to be overstated in the WSS analysis.

48. We consider that the Parties' analysis only shows that there are some sampling zeros. However, this is not necessarily problematic. Again, the Parties' focus on individual instances where the survey underestimates the true diversion ratio (to a given store) but does not take into account the fact that we would expect the overall level of overestimates and underestimates to balance out across stores in a local area and across local areas.

Adjustments made to the store datasets

Store datasets used in our analysis

49. We have used the Parties' store dataset for the purposes of constructing weights 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.

50. During the course of our analysis, we also created an updated store dataset (the 'updated store dataset') by requesting data on their store estates from both the Parties and relevant third parties. 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, and to exclude stores that are likely to close. 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), and to exclude stores that are likely to close.[13]

Adjustments made to the Parties store dataset in the surveyed areas

51. 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.

52. Within the Parties' store dataset, there were stores in the surveyed areas 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

[13] A total of 1,239 of the Parties' stores were included in the supermarkets dataset. The same approach to store openings and closures is adopted in the assessment of convenience stores, where a total of 856 Convenience stores were analysed.

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.

53. 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 weights for Medium and Large stores.

Adjustments made to the survey data

54. 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'.

55. 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).[14] This was corrected in the CMA store exit survey dataset that was used for our analysis.

56. 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.[15,16] 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.

[14] 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.
[15] 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.
[16] In some cases, we also used Google Maps as an additional cross-check for identifying the right store.

Adjustments made to the 'updated store dataset'[17]

57. The Parties submitted that the CMA's local analysis in the Provisional Findings did not take account of the presence of over 500 competing Co-op Midcounties stores, and that the impact of this exclusion could be significant.[18]

58. To account for missing data on Co-op Midcounties from the CMA dataset, we added 483 Co-op supermarkets from the Parties' dataset that do not appear in the CMA dataset (based on a postcode matching exercise).[19]

Combining evidence

59. In their response to our Provisional Findings, the Parties submitted that the CMA only adjusted the survey weights in a small number of cases and, therefore, relied almost solely on the survey diversions to estimate the WSS diversions. The Parties submitted that the CMA did not provide an explanation of what it considers to be material, when deciding whether or not the difference between the entry-exit and survey evidence was substantial enough to warrant an adjustment.

60. To address these concerns, we have systematically incorporated the entry-exit evidence to derive our final weights. Where the entry-exit analysis was statistically significant, we applied a set of rules to make adjustments to the survey weights to reflect both pieces of evidence. In a minority of cases, we considered that, in our judgement, the adjustments would produce counterintuitive results (such as a given weight becoming higher with distance) and therefore made no adjustment to the survey weights. If the results of the entry-exit analysis were not statistically significant, no adjustment was made.

61. The following rules to combine the survey weights and the entry-exit weights (which are calculated in brackets of 5 minutes' drive time) were applied:

(a) If entry-exit was only significant within 0-5 minute interval:

(i) We calculate the adjustment that would make the new weight at 2.5 minutes to be the midpoint between the entry-exit weight and the survey weight.

(ii) We set the weight at 0 minutes to be the survey weight plus the calculated adjustment.

[17] Used in order to estimate diversion ratios and GUPPIs in each local area.
[18] Parties' response to the Provisional Findings, Executive Summary, paragraph 16.
[19] For the purpose of convenience assessment, based on a similar exercise, we additionally added 1,036 Co-op convenience stores to the 'updated store dataset'.

(iii) For each additional minute (up to 5 minutes) we reduce the weight by 20% such that the curve at the 0-5 minute interval smoothly joins the (unadjusted) curve at the 5-10 minute interval

(b) If entry-exit was significant within 0-5 and 5-10 minutes intervals:

(i) We set the weight at 0 minutes to be the average between the survey weight and the average of the two entry-exit weights.

(ii) For each additional minute (up to 10 minutes) we reduce the weight by 10% such that the curve at the 0-10 minute interval smoothly joins the (unadjusted) curve at the 10-15 minute interval

(c) If entry-exit was significant within 0-5 and 10-15 minute intervals, the whole curve is shifted. The weight will be the midpoint between the survey and the average of the 2 entry-exit parameters.

(d) If entry-exit is only significant either at 5-10 or 10-15 minutes, we do not make an adjustment to the survey curves to avoid counterintuitive results (such as relative weights becoming stronger over distance).

62. Annex 3 presents graphs for each brand-size combination showing 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).[20]

63. The results of our combination of survey weights and entry-exit weights are illustrated in Annex 4. We consider that these adjusted weights account for the entry-exit evidence in the drive-times where it is statistically significant, and the survey evidence in the same segment, while also accounting for the survey evidence in the neighbouring segments and limiting the extent to which the combined weights give rise to sharp discontinuities in the weights or counterintuitive results (such as weights increasing with distance at certain points).

64. The Parties submitted that there was no basis for making an adjustment to the weights derived from the survey diversions if the relative effects implied by the survey evidence and the entry-exit analysis were not statistically different from each other, including when both relative effects were individually significantly different from zero. We disagree. The Parties' proposed approach would result in attaching zero weight to the entry-exit analysis even in cases where its result was statistically significant. As we consider the entry-exit analysis to

[20] The entry-exit analysis is discussed in more detail in Appendix C.

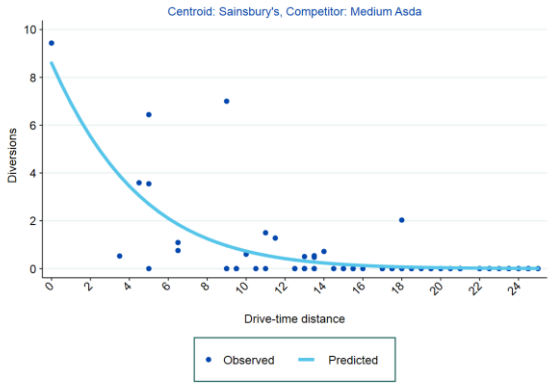
be a useful source of evidence on the relative constraint of different competitors, we did not think this would be appropriate. We do not consider it necessary for two pieces of evidence to be statistically different from each other before attaching weight to each of them.

Adjustment to survey diversion weights for Medium Asda

65. In case of diversions from Sainsbury's to 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 7), and there were comparatively few observations for both types of analysis (as shown by the right hand side of Figure 7 for the survey; the significant entry-exit observations is based on 4 observations).

Figure 7: Comparison of entry-exit and survey weights (left hand side) and survey diversions (right hand side) for Medium Asda

[✂]



CMA analysis.

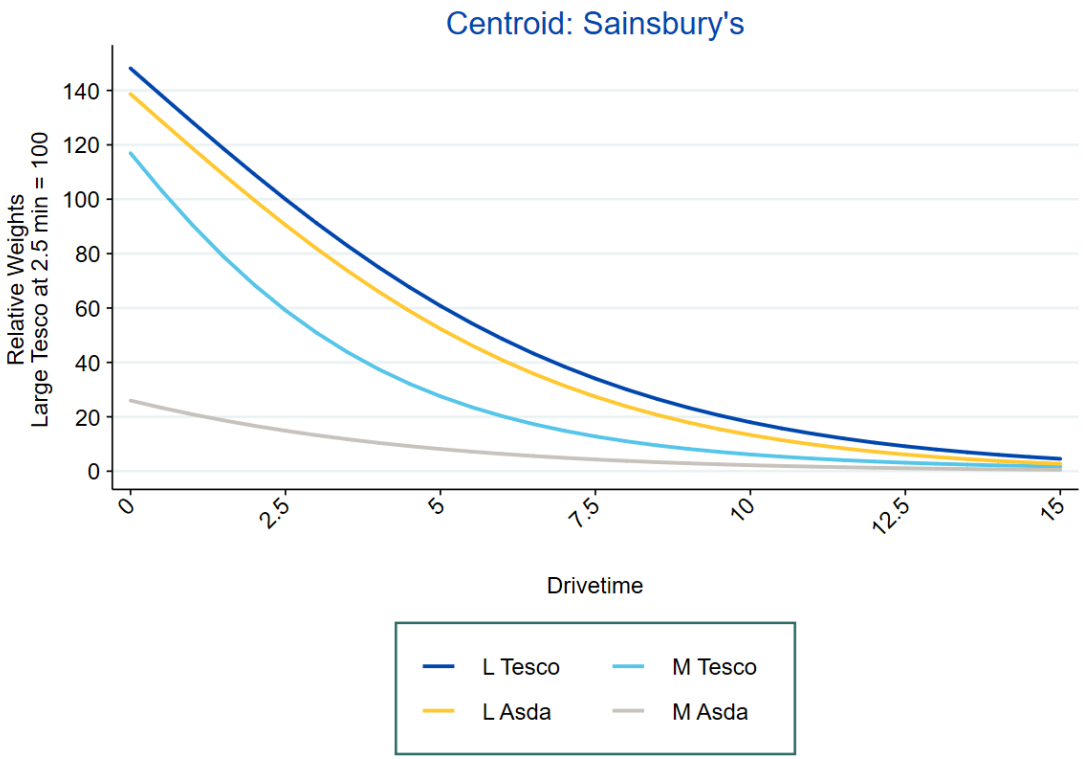
66. The Parties submitted that within the 0-5-minute drive-time band there is very little information to estimate either the survey diversion weight or the entry/exit effect of a Medium Asda store. The Parties submitted that the CMA should see if there is additional information that could be used to help estimate diversions from Sainsbury's to medium Asda stores. The Parties submitted that Sainsbury's impact data and Sainsbury's gravity model could be used to provide some evidence on this.

67. The Parties submitted that if the CMA is unwilling to take account of this additional information on the competitive effects of Asda Medium stores, then the appropriate course of action is to explicitly recognise it has little information. The Parties submitted that this lack of information means that any estimate of the diversion from Sainsbury's to medium Asda stores within 0-5 minutes will have a large degree of uncertainty, and the CMA must explicitly take account of this uncertainty in its assessment of the resulting GUPPIs.

68. Therefore, at a minimum, the Parties submitted that the CMA should calculate the GUPPIs both with and without the adjustment to assess how these ad hoc adjustments based on the results of the entry/exit analysis (especially the adjustment made to the estimated survey diversion weight for Sainsbury's to medium Asda stores) affect its assessment of potential SLCs.

69. We agree with the Parties that there are comparatively few observations for both the survey and entry-exit analysis when assessing diversions from Sainsbury's to Medium Asda. Our reasons for not placing weight on the Parties' gravity models or impacts analysis are set out in Chapter 8 and are not affected by this specific issue. However, we do take into account other contextual information in deciding how to reflect the two pieces of evidence. In particular, we considered the relative weights between Asda Large and Medium stores (see Figure 8 below), which indicated that, just based on the survey data, 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 8: Relative weights derived from the CMA store exit survey



Source: CMA analysis of CMA store exit survey responses.

70. In this case, we adjusted the weights to approximately reflect the midpoint between the two pieces of evidence (where the entry-exit analysis was

significant ie within 0-5 minute drivetime). The final weights used in our analysis for Medium Asda is shown by the light blue line in Figure 9 below.

Figure 9: Combined weights for brand-size categories for Medium Asda

[✂]

CMA analysis.
Note: By Centroid: Sainsbury's, we refer to diversions from Sainsbury's stores.

Estimation of weights

Parties' view

71. The Parties submit that the fractional response estimator is appropriate for estimating the relationship between the WSS and the survey diversion, as it takes account of the bounded nature of the survey diversion ratio, and therefore produces a line that better fits the data than a quadratic OLS estimator.

72. 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.

73. 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).

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

Our assessment

75. We agree with the Parties that the fractional response model is more appropriate to estimate the relationship between the survey diversions and the WSS, as it takes into account the bounded nature of the diversion ratio (which must be less than or equal to 100% and greater than or equal to 0%). Therefore, we have used the fractional response estimator for the purposes of estimating the weights.

76. We disagree with pseudo R-squared being an appropriate measure for goodness of fit (ie a measure of whether WSS explains the survey diversion well). The pseudo R squared can be used to compare different specifications

using the same methodology, but is less informative on comparing goodness of fit across methodologies. 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 the goodness of fit of a particular model.

77. 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-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.

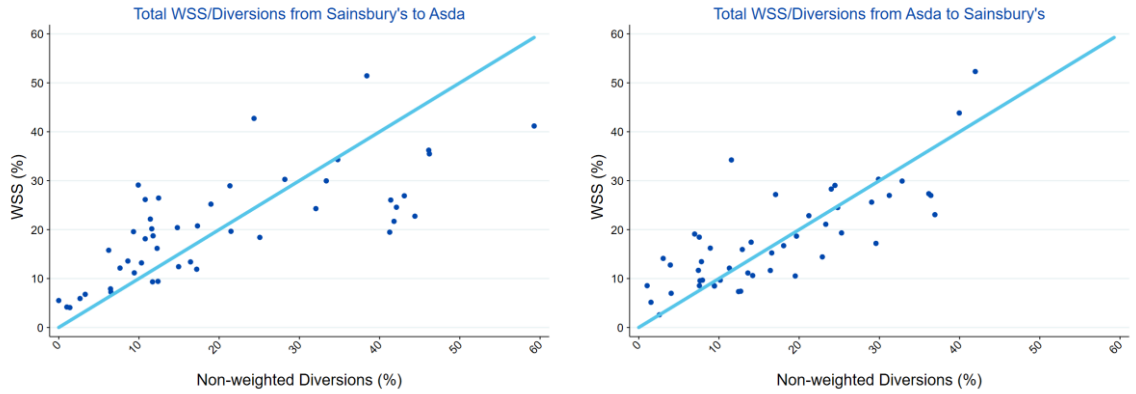
Purported bias in the WSS and the GUPPI

Parties' view

78. The Parties submitted that comparing the estimated WSS diversions between the Parties' stores with the diversion ratios between the Parties' stores found in the CMA's survey, shows that when the survey diversion is less than 15%, the WSS estimate is larger than the corresponding survey estimate for the vast majority of the Parties' stores in the CMA's survey. They also submitted that when the Parties have multiple stores in a local area, this overestimation of individual stores' diversions results in the overestimation of the aggregate diversion ratio between the Parties in local areas when the aggregate diversion ratio is less than 25%. The Parties argue that this implies that the WSS is systematically upwardly biased at lower levels of diversion. The Parties illustrated their argument with charts showing the WSS diversions and survey diversions for areas in the CMA store exit survey sample, highlighting that for the vast majority of the Parties' stores with a survey diversion to the other Party of less than 15%, the WSS was larger than the survey diversion.

79. A version of this chart reflecting our current analysis is shown in Figure 10.

Figure 10: Total diversions and total WSS (based on the survey only) to the Merging party in the surveyed areas.



Source: CMA analysis.
Note: The light blue line is the 45-degree line.

Our assessment

80. We consider that the patterns shown in Figure 10 are not indicative of bias in the WSS for the reasons set out below.

81. The WSS seeks to explain variation in diversion that arises due to brand, size, distance and the share of shops accounted for by the Parties and their rivals. The survey will capture not only these factors but also additional local factors that explain customers' average diversion choices, such as geographic barriers (eg rivers), population distribution or idiosyncratic strengths or weaknesses of specific stores in the local area. The survey will also contain sampling error. Therefore, even where the WSS reliably predicts the portion of diversion that is explained by brand, size and distance, it may appear not to match with the survey when location specific factors are at play, and where the sample diversion ratio is subject to sampling error. However, this can simply reflect that the survey is able to capture more aspects of diversion than the WSS model. This apparent mismatch between the WSS and the survey would manifest in Figure 10 as data points being positioned off the 45-degree line.

82. The reason this would not necessarily imply bias can be understood by reference to a stylised example. Consider a stylised scenario where there are 100 local areas and:

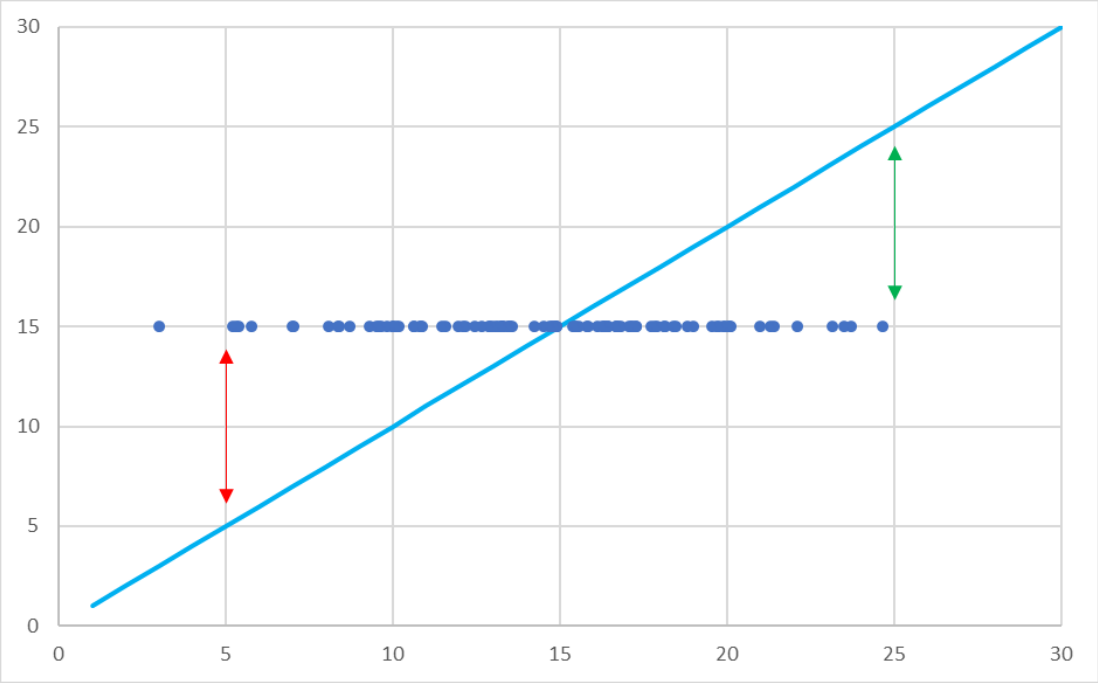
(a) all areas are identical in terms of the brands, store sizes and locations/distances of individual stores and, if there were no other differences between the local areas, the diversion ratio between the Parties would be 15%;

(b) the WSS is well-calibrated and accurately predicts this, i.e. it allocates 15% of diversion to the Parties based on the information available on BSD to be 15%;

(c) however, in each local area, there are other idiosyncratic factors that can cause diversion between the merging parties to be higher or lower than 15%, and these factors are captured by the survey (but not the WSS).

83. These idiosyncratic factors will cause the observations to fall to the left and right of the 45-degree line (i.e. there will be additional 'horizontal' variation in the survey diversion but no variation in the WSS). The resulting graph would appear as shown in Figure 11.

Figure 11: Stylised example of a well-calibrated WSS giving rise to apparent error that is driven by idiosyncratic factors not captured by the WSS



Source: CMA analysis

84. As is shown in Figure 11, there will be a tendency for the WSS to be greater than the survey diversion at lower levels of survey diversion (denoted by the red arrow) and lesser than the survey diversion at higher levels of survey diversion (denoted by the green arrow). However, this pattern arises even when the WSS is a good and unbiased predictor of variation in the portion of diversion that is explained by brand, size, distance and shares of shops in this stylised example (which is 15%).

85. For a given level of WSS, the errors are balanced. In the stylised example, for a WSS of 15%, the best estimate of the survey diversion ratio, controlling for

local factors, is 15%. Concentrating on the data points to the left of the chart (to the exclusion of the points to the right of the chart), would miss this point.

86. The stylised example in Figure 11 is illustrative of the fact that there are more sources of variation in the direct survey estimates of diversion – survey error as well as features of local areas not captured by WSS – than in corresponding WSS estimates. This is consistent with the WSS model generating local estimates that are individually neither systematically over- or under-estimated, but which, when plotted against corresponding survey estimates give rise to the pattern in in Figure 10: a higher proportion of survey estimates above the 45 degree line at lower levels of diversion and above the 45 degree line.

87. We note that, considering all data points above 15% or 20% WSS in Figure 10, there are data points on both sides of the 45-degree line, consistent with unexplained variation causing the WSS both to underestimate or overestimate diversion in individual local areas. When considering a specific local area for which we have a WSS but no survey diversion (or additional evidence on local-specific factors), while there is therefore a risk of overestimating or underestimating diversion between the Parties, there is nevertheless no clear evidence that the risk of overestimation is greater or lesser than the risk of underestimating diversion between them.

88. As set out in paragraph 8.296, we have made an allowance for uncertainty in our GUPPI threshold.

Accuracy of the gravity model compared with WSS

Parties' views

89. The Parties submit that the gravity models perform relatively well in predicting store sales. In particular, Asda's model explains [✂]% of the variation in actual sales and translates into a correlation coefficient of [✂]. For Sainsbury's, the modelled sales explain [✂]% of the variation in actual sales, which translates into a correlation coefficient of [✂]. They submitted that whilst Sainsbury's acknowledged that there is variation in accuracy (from a [✂]% to [✂]% difference between modelled and actual sales), this is no reason to dismiss the model.

90. The Parties submit that in predicting market demand, the Parties' gravity models have a correlation coefficient of [✂] and [✂]. They submitted that the WSS estimate was a poor fit for the CMA's survey diversions, that that they were significantly biased upwards, and that the overall fit (i.e. the WSS' ability

to predict surveyed store diversions) was [✂], with a correlation coefficient of [✂] – considerably lower than the gravity models.

91. The Parties submitted that the CMA's estimate of the actual survey had significant noise in its estimates. They submitted that, when comparing the gravity model's fit against the CMA survey diversions, around the critical diversions threshold range, the Parties' gravity model yielded a much better fit to the CMA's survey than the CMA's estimate from the WSS, both in terms of being unbiased and having lower amounts of noise.

Our assessment

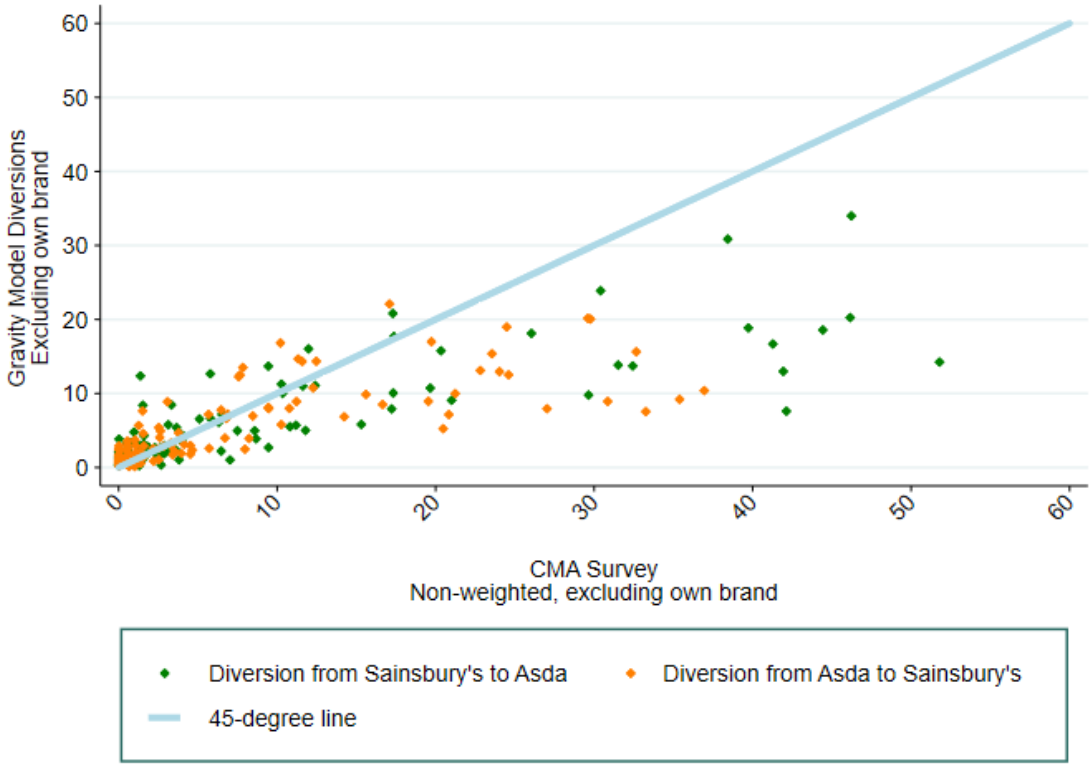
92. The Parties' comparison of the overall fit of the gravity model and WSS discussed in paragraph 90 is not performed on a like-for-like basis. As regards the gravity model, the Parties assess the correlation coefficient when predicting actual sales. As regards WSS, the Parties assess its correlation coefficient when it predicts survey diversions. We therefore do not consider the Parties' comparison between the two to be informative.

93. As discussed in paragraphs 80 to 87 and illustrated in Figure 10, we do not consider the patterns exhibited in the WSS (i.e. overstating diversions when the survey diversions are low, and understating them when the survey diversions are high) to be indicative of bias in the WSS.

94. Further, the Parties' claim that the fit of the gravity model for the CMA's exit survey diversions is better than the WSS appears to be based on a visual inspection of a chart provided by the Parties in Schedule 3.1 that plots the CMA's survey diversions against the diversion ratios that would be predicted based on the Parties' analysis of the gravity model. However, the Parties' chart was restricted to local areas with survey diversion of less than 15%. This would exclude a large number of observations where the WSS is close to the critical diversion ratio (but where the survey diversion is greater than 15%).

95. Figure 12 below plots the CMA store exit survey diversions against the diversions based on the Parties' gravity model simulation, with the only difference between this graph and the figure provided by the Parties in Schedule 3.1 to Response to the Provisional Findings that the x-axis has been extended to take into account survey diversions greater than 15%. Figure 12 suggests that the fit of the gravity model is not as good as might be inferred when considering the subset of data for which the survey diversion is low. It is important to consider all observations of the WSS, including where the survey diversion is high. When considering the full range, we consider that it is not clear that the fit for the gravity model for explaining the survey diversion is better than the fit of the WSS.

Figure 12: Comparison of gravity model and surveyed diversions in surveyed areas – store level



Source: CMA analysis.

Heteroskedasticity

96. The Parties submitted that the CMA's WSS regressions suffer from heteroskedasticity, which refers to the case where the variance around the estimated diversion ratios changes depending on one of the explanatory variables. In this case, the Parties submitted that variance around the WSS estimates increases as the drive-time between the Parties' stores gets smaller.

97. We agree with the Parties that there may be heteroskedasticity in our WSS regressions. The presence of heteroskedasticity, however, does not necessarily imply bias but may simply result in less precision in the estimates. Variance around the estimates does not bias in either direction in terms of our diversion estimates. In some cases, idiosyncratic factors not captured by the survey will result in higher diversion between the Parties, whereas in others, it will result in lower diversion between the Parties.

98. With respect to the national assessment, these errors will tend to cancel each other out to the extent the assessment relies on the assessment of incentives in many local areas.

99. With respect to the local assessment, we have considered the need to make an allowance for uncertainty in our discussion on the GUPPI threshold.

Specific observations by the Parties

100. The Parties submitted that the WSS does not reflect all variation in store diversions between the Parties' stores as shown by plotting the CMA's fitted values against the actual store diversions. First, the Parties submitted that these plots shows that at a 3-minute drive-time, the actual diversions found by the survey with respect to diversions from Sainsbury's to Asda find a range of 3% to 44%, while the WSS forecasts a weight of 25%. The Parties also highlight the specific data point for the town of [✂], for which the WSS predicts diversion from Sainsbury's to Asda of 21% whereas the survey found diversion of [✂]%.

101. With respect to these submissions, we make the following observations.

102. First, we consider that the assessment of the performance of a model by reference to individual observations carries the risk of simply identifying outliers, which can arise in models whether they generally perform well or not. In this respect, we note that the data point highlighted by the Parties was the largest positive difference between the WSS diversion and the survey diversion.

103. Second, in local areas that were surveyed, where the survey diversion is different from the WSS diversion, we have taken this into account in our assessment.

104. Third, in local areas that were not surveyed, the WSS model may overestimate or underestimate diversion. However, we do not think that an overestimate is inherently more likely than an underestimate (nor *vice versa*). In that sense, based on the evidence available and, as is discussed in paragraph 8.291, we consider that the GUPPI analysis based on the WSS is a good indicator of upwards pricing pressure.

105. Fourth, variance or uncertainty around our estimates is associated with a risk of false positive or false negative findings. We have considered the need to make an allowance for uncertainty in setting our local GUPPI threshold.[21]

[21] For our national assessment, aspects of our analysis that result in uncertainty are likely to offset each other. This means that any allowance for uncertainty would be less significant when considering at what level of GUPPI we consider a national concern may arise.

Treatment of own-brand diversion

106. Some respondents to the CMA store exit survey indicated that, in the event the store they had just shopped at was closed, they would switch to another supermarket of the same brand (whether in the same local area, or further away), a convenience store of that brand, or the brand's online delivered groceries business.

107. Including these 'own-brand diversion' responses may cause the extent of diversion between the Parties to be understated for a number of reasons:

(a) First, in areas where one of the Parties has multiple stores, we must account for the possibility that the relevant Party would have the incentive to raise prices at each of its stores, rather than just at a single store in isolation. This is especially relevant when their stores are located close together, as this increases the likelihood that they face similar competitive constraints. It is in this scenario – where stores are located close together – when own-brand diversion is most likely to make a difference to the assessment, but least likely to be appropriate to include.

(b) Second, a degradation of price or QRS at a given store may reduce the propensity of a customer to attend any other store of the same brand (or even of the same channel), because of an impact on their perception of the brand. This effect would suggest that survey diversion (which is based on a hypothetical store closure, which is less likely to affect brand perception) would overstate diversion to stores of the same brand and thus understate diversion between the Parties.

(c) Third, customers that indicate they would stay with the same brand are more likely to be loyal customers and, therefore, less likely to be marginal customers. This will tend to cause responses to a forced diversion question, which include own-brand diversion, to understate diversion between the Parties.

108. With respect to the reasoning set out in paragraph 107(a), the Parties submitted that it was incorrect to say that including own-brand diversions will only make a difference to the assessment when the Parties' stores are close together.[22] They submitted that this is because own-party diversions to stores that are far apart can change an SLC to a non-SLC, and that this is shown by a CMA sensitivity analysis in which we included own-brand diversion. However, the CMA sensitivity analysis referred to reflects the impact of including own-brand diversion to stores whether they are nearby or far away,

[22] This mischaracterises the reasoning set out in paragraph 107(a), which does not claim that own-brand stores will only make a difference to the assessment when they are close together.

and therefore is not an appropriate benchmark for assessing the impact of including own-brand diversion for the subset of stores that are constrained to a greater extent than the Parties.

109. With respect to paragraph 107(b), the Parties submitted that there was no evidence that a hypothetical degradation of PQRS at a given store is more likely to affect brand perception than a hypothetical store closure. However, the Parties have also submitted that worsening the offer in one of the Parties' branded supermarkets would have negative consequences for the brand as a whole.[23] We consider it reasonable to conclude that when comparing (i) the closure of one store and (ii) a degradation of PQRS at one store, the latter is more likely to cause a customer to infer that the PQRS of other stores of the same brand may also have been degraded.

110. The Parties also submitted that GUPPI analysis treats diversion ratios as constant, independent of the price of the store that customers switch from. However, the reasoning in paragraph 107(b) does not suggest that diversion ratios should depend on the price level of the centroid store. Rather, it says that the own-brand diversion pattern in response to a closure will overstate the own-brand diversion that would be expected if there were a PQRS degradation (and an associated impact on brand perception).

111. With respect to paragraph 107(c), the Parties submitted that it was an untested assertion that, in response to the diversion question, customers who indicated that they would stay with the same brand (rather than choose a different brand) are more likely to be loyal customers. We think that this is a reasonable conclusion to draw absent evidence to the contrary and on the basis that brand is a relevant consideration for customers.

112. The Parties submitted that, to the extent that assessing customer loyalty was a real concern for the CMA, the CMA's survey should have been crafted to test for this loyalty. This is a difficult concept to capture in survey questions and, given the constraints on the survey questionnaire (and time available for customer interviews), was not practicable to include. However, the CMA store exit survey showed that price-marginal customers were less likely than other customers to choose the same brand in response to the forced diversion question.[24]

[23] They submitted that customers readily use social media to nationally report local problems such as poor service, poor availability and poor store environments in the Parties' stores, and any reduction in quality would have an impact on customer perception of other stores in both the local area and nationally.
[24] That is, customers that indicated they would switch in response to a small price increase. Sainsbury's and Asda customers were less likely to name the same brand in response to the forced diversion question if they were price-marginal; 11% versus 15% among Asda customers and 11% versus 12% among Sainsbury's customers (see Kantar Report, page 45).

113. We consider based on the points set out above that excluding own-brand diversion is not likely to overstate diversion between the Parties in a significant way. We also consider it relevant that our analysis ultimately indicates that there are a large number of stores which are likely to experience significant upwards pricing pressure. As such, we think that calculating diversion while excluding diversion to the Parties' own supermarkets is likely to be a good approximation of the appropriate diversion ratio.

114. We considered the sensitivity of the analysis to our approach to the treatment of own-brand diversion. We considered that testing the full inclusion of own-brand diversion would be an extreme assumption, and too likely to understate diversion between the Parties to represent a meaningful lower bound. Therefore, we considered a sensitivity based on the midpoint between exclusion and inclusion, although we consider, in light of the above, that this is still likely to understate diversion between the Parties.[25] We consider that this sensitivity analysis supports our view that excluding own-brand diversion is unlikely to significantly overstate diversion between the Parties. We also note that any such overstatement should be considered in the round and compared to the other factors accounted for when setting our GUPPI threshold which would cause us to understate the GUPPI.

115. The Parties submitted that the complete exclusion of own-brand diversion was inconsistent with the analysis conducted by the CMA in Tesco/Booker. In Tesco/Booker, as in this case, the CMA recognised that full inclusion and full exclusion of own-brand diversion would respectively understate and overstate diversion between the merging parties. In Tesco/Booker, the CMA accounted for this by making adjustments to its GUPPI analysis. In this case, we are accounting for this by considering the sensitivity to own-brand diversion when setting our GUPPI threshold.

116. The Parties submitted that we excluded own-brand diversion to the online channel and convenience stores. However, this is incorrect. We accounted for own-brand diversion to the online channel and convenience stores in our analysis.[26]

117. The Parties submitted that it was possible to model the joint incentives of the Parties and thereby address the first of the effects set out in paragraph 107(a). We did not implement the proposed model in our analysis. We note that such an analysis would be relevant at most for our local

[25] Moving to the midpoint between including and excluding own-brand diversion would lead to a reduction in the national weighted-average GUPPI for both Parties of less than 0.1 percentage point. We have used the survey weights for the Parties' own supermarkets as the Parties' own supermarkets have not been given individual consideration in the baseline scenario.
[26] See paragraph 8.223 and associated footnotes.

assessment, since it would be incorrect not to exclude own-brand diversion in our national assessment (as explained at paragraph 8.224). In our view, the Parties' proposed approach would also not address all of the issues set out in paragraph 107. Given these points, and our analysis of the likely impact of excluding own-brand diversion on our results (set out above), we decided not to implement the Parties' suggestion. We reiterate that we have taken into account possible overestimation in our approach to setting an appropriate threshold for intervention.

Halo effect

118. As discussed in paragraphs 8.235 to 8.237, we have considered whether our assessment of the effect of the Merger on the supply of in-store groceries should take into account the Parties' margins on sales from their other business areas, by accounting in our GUPPI calculation for the expected GM that would also be made with any diverting in-store groceries sales. We refer to the GUPPI adjusted in this way as the 'multi-product GUPPI', as it takes into account the Parties' activities in both the supply of in-store groceries, and the supply of GM and fuel.

119. Our starting point for assessing whether to make an adjustment for the halo effect is that there is clear evidence that a halo effect exists. As set out in paragraph 7.129 to 7.132 in Chapter 7, several third parties recognised that GM sales drove incremental profit through increased average basket value and higher margins. Survey evidence shows that many customers of either groceries or GM also buy products from the other. As set out in paragraph 8 of Appendix M, [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. The Argos halo effect is explicitly referred to in the Parties' internal documents and was also given as a key rationale behind Sainsbury's acquisition of Argos.

120. The Parties submitted that a halo impact from grocery to GM only exists if significant numbers of customers buy GM because they are buying grocery (and moreover if the other Merging party would capture a significant proportion of any of these sales that were lost due to a grocery price rise). In particular, the Parties submitted that finding that many customers buy both groceries and GM is not sufficient to find a halo that needs to be taken into account in calculating merger effects. In order for this to be the case there needs to be a causal link between the two, such that an increase in grocery prices would result in the merged firm (i) selling less GM as well as fewer

groceries from the centroid store and (ii) picking up additional GM as well as grocery sales at the divert-to grocery store. Moreover, while the Parties acknowledged that there is a halo from Argos to grocery (which also feeds into [the consultant's] synergies modelling), the Parties submitted that this does not mean that there is a halo effect in the opposite direction ([✂]).

121. In this respect, the evidence suggests that the Parties do drive groceries customers to purchase GM, indicating that the existence of halo effect from grocery to GM does exists. Indeed, Sainsbury's stated at its main party hearing with the CMA: 'We have used that space therefore to develop other ranges that we think customers want to buy when they're buying food and grocery from us, so GM and clothing, and we leverage the footfall and we leverage the customers that come to us for food and grocery to offer those propositions and sell those products at what we hope are also very good value prices, so good quality at a good price, because you don't want your GM and clothing offer to contradict what you're trying to do in food and grocery'. Moreover, an internal document of the Parties suggests cross-selling from grocery to Argos, on top of cross-selling from Argos to grocery.

122. The Parties submitted that applying an adjusted multi-product GUPPI for GM and fuel in our assessment of the supply of in-store groceries would require an assumption that competitive parameters that are varied locally must be set separately for groceries and for GM and fuel. They submitted this was not the case because groceries and GM are sold at the same stores and use the same facilities and checkouts, and therefore QRS cannot be set separately for the two.

123. However, both groceries and GM are differentiated products with a range of aspects of PQRS that matter to consumers, including some with the scope to be flexed in ways that are not strictly set uniformly for everything that is sold in any given store. For example, the breadth of product range stocked in groceries is not clearly tied to GM. Ensuring good availability of grocery products (which entails wastage costs) is not clearly associated with availability of GM in the same supermarket. Aspects of service may also vary, to the extent for example there are separate staff and queuing times for the GM section of the Parties' supermarkets.[27,28]

124. The Parties submitted that the CMA should provide an analysis of the impact on costs and margins of flexing competitive parameters that are set

[27] This may be the case, for example, in the Argos department of Sainsbury's supermarkets.
[28] Moreover, the local GUPPI analysis, as reflected in the national weighted-average GUPPI, is used as one piece of evidence in the national assessment (see Chapter 8, paragraphs 8.89 to 8.95), and therefore is relevant to the Parties' post-Merger incentives to set prices for groceries, which are separate from GM prices.

separately for groceries and for GM and fuel, and show that it would be profitable for the merged firm to flex these parameters locally.

125. Paragraph 120 suggests that there is evidence that the Parties do drive their groceries customers to purchase GM, which suggests that it is profitable to flex competitive parameters that are set separately for groceries and for GM. We note that with regards to the national assessment, quality and range of GM and groceries are inherently set separately (or at least those aspects of quality and range that are set uniformly). For local factors (e.g. product availability, local range), it is not clear why these aspects of GM and groceries would be inherently tied to each other, such that the Parties would incur costs to decouple them.

126. The Parties submitted that any contribution of GM to the GUPPI calculated in our in-store groceries assessment requires four inputs to be measured accurately: measures of the proportion of customers that would divert both groceries and GM together in response to a grocery-only price increase; a measure of the value of the contributions of groceries and GM to the overall basket (in particular, a measure that is specific to the baskets of those customers that would divert both); a specific estimate of variable margin for those GM products that would be recaptured by the other Party; and a specific estimate of diversion of the GM part of diverted baskets to the other Party in response to a grocery-only price increase.

127. We do not have perfect data to estimate the precise value of the halo effect. However, to assign a value of zero to the halo effect would, in our view, result in a material underestimate of the economic value of any grocery sales lost and recaptured by the other Party. We have therefore sought to generate a best estimate of the appropriate value of this adjustment with the available data. Our approach is as follows:

(a) We consider that any given groceries customer has a probability of also purchasing GM.

(b) [10–20%] of Sainsbury's groceries transactions and [20–30%] of Asda groceries transactions contain GM. We use these values to approximate the probability that any given groceries customer will also purchase GM;

(i) The Parties submitted that the CMA should ensure that its analysis would not assume that the merged firm would regain more GM than it loses when customers switch from Sainsbury's to Asda. To prevent this, the CMA should use the minimum of both figures above ([10–20%] and [20–30%]).

(ii) Our view is that the probability that any given groceries customer will also purchase GM would depend on whether Parties' customers currently buy GM because that is their preference (in which case it would be more appropriate to assume for example that [✂]% of Sainsbury's groceries customers that switch to Asda would also purchase GM), or because they are triggered by the GM offering of the supermarket they are attending (in which case it would be more appropriate to assume that [✂]% of Sainsbury's groceries customers that switch to Asda would also purchase GM). Given that it is unclear which of the above is the case, we consider that a reasonable approximation would be to use mid-point ([✂]%) of the two figures above for both Parties.

(c) The uplift to the groceries margin for these customers depends on:

(i) the relative magnitude of GM margins compared to groceries margins, each of which we have calculated in our Appendix F; and

(ii) the relative spend on GM compared to groceries within baskets containing both GM and groceries. The Parties submit that the CMA should use the Parties' data in order to calculate this. We agree. The Parties estimate that the grocery share of total spend within baskets containing both GM and grocery was equal to [70–80%] for Asda and [70–80%] for Sainsbury's. We have used these figures in our assessment.

128. Based on these factors, we calculated that incorporating the halo effect would increase Sainsbury's national groceries margin from [✂]% to [✂]% (a [✂] percentage point increase), and Asda's national groceries margin from [✂]% to [✂]% ([✂] percentage point increase).[29] We have correspondingly increased Sainsbury's and Asda's margin by an equivalent proportional increase in each local area.

129. With respect to this approximation:

(a) this may understate the proportion of grocery purchases at Sainsbury's that include GM because Sainsbury's is still rolling out Argos in-fill in its supermarkets, which we consider will cause us to understate the value of sales recouped at Sainsbury's;

[29] This is calculated as the weighted average of the groceries margin and a blended 'groceries plus GM' margin, weighted by the proportion of transactions that contain groceries only versus the proportion containing both groceries and GM. The blended 'groceries plus GM' margin is given by taking the groceries-only margin and GM-only margin and weighting them based on their share of spend on each of groceries and GM within baskets that contain both GM and groceries.

(b) we have made no adjustment for fuel halo effects (grocery customers that also purchase fuel). The Parties submit that all internal documents relating to a fuel halo suggest that [✂]. Based on the above, we agree with the Parties that it is unlikely that this would cause us to understate the value of sales recouped by the Parties to a material extent.

(c) while some customers that currently buy groceries and GM together may no longer do so if they divert from one Party to the other, others that currently only purchase groceries may begin purchasing groceries and GM together once they divert. We consider our approach allows for both possibilities.

130. The Parties submit that a halo effect can only occur if switching of grocery sales causes GM sales to also be switched and recaptured by the other merging party. The Parties submit that the CMA unreasonably assumes that all GM sales in mixed baskets would shift with grocery, including the baskets with a large proportion of GM value. The Parties also submit that the CMA inappropriately assumes that margins on lost GM sales are the same as those across the wider GM portfolio. In particular, the Parties also submit that the CMA makes no attempt to distinguish between the margins on GM products that are conceivably liable to be switched together with groceries, compared with those that represent a more considered purchase and therefore are less likely to be recaptured.

131. In response to the above, we note that the basis of our calculation of the halo effect is not that customers that purchase both groceries and GM would shift their purchases to the other Merging Party in response to a deterioration of PQRS. Instead, the basis of our calculation is that there is a probability that customers will buy GM when they buy groceries. When groceries customers divert to the other supermarket, some that currently buy GM may not, and some that currently do not buy GM may then do so. Our view is that a continuation of current average behaviour across the two fascia is a reasonable central estimate.

132. The Parties submit that the CMA provides no evidence to suggest that it is likely that customers that today only purchase grocery might start to buy groceries and GM together due to the increase in grocery prices (and subsequent switch of grocery retailer) – yet assumes that this is the case in relation to Sainsbury's customers switching to Asda.

133. As discussed in paragraph 120, the Parties do drive their groceries customers to purchase GM. This suggests that customers that today only purchase groceries might start to buy groceries and GM together where they current do not do so. As discussed in paragraph 131, we have not asserted that all

customers would start purchasing GM because of a grocery price increase – rather that they all have a positive probability of purchasing GM.

Price ratio

Parties' view

134. 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%].

135. 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

136. 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.[30]

Parties' analysis of the GUPPI threshold

Comparison of impacts and GUPPI

137. In this section, we first discuss the methodological flaws in the Parties' analysis of the correspondence between our GUPPI threshold and competitive responses implied by their impact analysis. We then discuss how we sought to correct for these methodological flaws and present results of the updated analysis.

138. First, it is not clear to what extent Sainsbury's impacts policy is appropriate for the assessment of the correspondence between our GUPPI threshold and competitive responses by the Parties. This is because Sainsbury's policy appears to be more consistent with adjusting targets to mean that individual store managers' performance would be assessed fairly in the context of greater competitive constraints.[31] However, we note the Parties' submission

[30] Chapter 8 provides further detail of how the price ratio is used in the GUPPI calculations.
[31] The Parties submitted that: 'Each store has an annual budget which the store manager is targeted to meet. In the event of competitor activity in the area, the store's budget may be adjusted during the year to ensure that a

that Asda's policy was directly intended to improve the competitive offering in response to changing competitive conditions.[32]

139. Second, the Parties submit that their impacts data provide a very conservative measure of the extent of competitive reactions, as the data concerns budgetary allowances for small spend overlay rather than significant competitive investment.[33] However:

(a) Sainsbury's submitted that [✂]. Further, as discussed in paragraph 138, the Parties submitted that Asda's policy was directly intended to improve the competitive offering in response to changing competitive conditions. In our view it is therefore not clear why such reactions would not be considered significant; and

(b) Moreover, we consider that there may be competitive responses to rival entry other than those triggered by the Parties' specific impacts policy, including for example less systematic responses by local management. In this sense, there is a risk that the Parties' analysis understates the total competitive response to entry equivalent to any given level of GUPPI.[34]

140. Third, the Parties' analysis ignored several factors important to determining the level of competitive constraint in the local area. This included:

(a) the Parties' share of shops (their analysis only accounts for the distance to the closest shop of the other Party, and ignored all subsequent stores in the local area);

(b) competitors beyond 7.5 minutes; and

(c) the distance to competitors' stores – the Parties analysis only provides the number of competitors within 7.5 minutes. These weights are independent of the distance from the centroid store.

141. Fourth, the Parties' analysis of impacts considered whether a competitive response would be triggered by the entry of a single new supermarket. This is not directly comparable to the GUPPI, which effectively considers the elimination of an entire brand as a competitive constraint, including all of the

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store is not disadvantaged (for example by a competitor opening next door) or advantaged (for example by a competitor closing next door)' (Parties' response to the Provisional Findings, paragraph 59). The Parties also submitted that Sainsbury's [✂].

[32] The Parties submitted that: 'The main reason why Asda measures competitor impacts is to quantify the amount of reimbursement or 'overlay' to be provided to the impacted store if it has been affected by competitor activity… [✂]'.

[33] Parties' response to the Provisional Findings, paragraph 66.

[34] In addition, Sainsbury's reacts to impacts that are either above [✂]% of sales or exceed £[✂] in sales. As the impacts analysis only identifies impacts that have a [✂]% impact on sales and does not identify impacts that exceed £[✂] in sales, the analysis will tend to understate the share of the entry events that Sainsbury's was likely to have reacted to.

supermarkets that brand operates in the local area. This means that the impact of entry events (and, therefore, the likelihood of response) in the Parties' analysis would understate the competitive impact compared to the change in competitive constraint associated with the Merger.

142. Fifth, the Parties' analysis of impacts considered the impact of entry by a range of brands, compared to our competitive assessment which considered only entry by Sainsbury's or Asda. In many cases, our assessment of competitive constraints suggests that brands (especially those entering most frequently, such as Aldi and Lidl) exerted a weaker constraint on the Parties than the Parties do on each other. This means that any result that the level of impact resulting from entries is small in the Parties data that might be suggested by our GUPPI threshold may be driven by the fact that the Parties' analysis considers the entry of rivals that exert a weaker constraint than the Parties.

143. We sought to correct for some of these methodological issues by assigning a WSS to the entering stores considered in the Parties' analysis and assessing the relationship between the WSS of the entering store and the impact found in the Parties' impacts analysis. We considered that this would go some way towards addressing the three methodological issues described in paragraphs 140 to 142.

144. Having made these adjustments, we found that the evidence was consistent with there being competitive responses to changes in competition equivalent to our GUPPI threshold. Moreover, as set out in paragraph 139, we consider that this analysis may understate the overall competitive response by the Parties, given there may be responses other than the ones described in the relevant policies.

145. Figure 13 shows the result of this adjusted analysis.

(a) Each dot on the chart is an impact. The charts show what impact (left y-axis) an entrant with a specific WSS (horizontal axis) had. We are particularly interested in impacts close to or above the [✂] WSS for Asda and [✂] for Sainsbury's (black vertical dashed line), corresponding to a 1.5% GUPPI threshold,[35,36] and whether they exceeded [✂] for Asda and [✂] for Sainsbury's (black horizontal dashed line); in other words,

[35] The 1.5% GUPPI is used here because, when a competitor enters, there is no change in efficiencies (unlike a merger). Therefore, using a 1.5% GUPPI here is a fairer comparison to our threshold.
[36] We refer to critical diversions between the Parties in our analysis. We note that in case of an impact of a competitor other than the merging Party, the critical diversion corresponding to a 1.5% GUPPI may be different. This is because margins and prices of these rivals may be different from those of the Parties.

whether the Parties reacted to these.[37] The graphs suggests that this is often the case (and we reiterate that we believe this may understate the total competitive response of the Parties).

(b) The red line shows the proportion of impacts (reflected on the right y-axis) that the Parties reacted to at a specific WSS interval[38]

Figure 13: Correlation between WSS of an entrant and impact of entry

[✂]

Source: CMA analysis.

146. With respect to these charts, we note the following points:

(a) In some cases, there are impacts even at low levels of GUPPI and, in other cases, there is limited impact even at high levels of GUPPI. This is consistent with other factors being present that influence the extent of impact on the Parties' sales and, therefore, the likelihood that the Parties would consider it sufficiently impactful to trigger a change in their budget;

(b) Nevertheless, the proportion of instances in which the Parties respond is increasing with the GUPPI;

(c) The graphs suggest that the Parties often react to impacts above our GUPPI threshold and this is likely to be understated given that there may be competitive responses other than those triggered by this specific policy (and that the analysis excludes impacts on Sainsbury's that are less than [✂]% but more than £[✂]).

Parties' arguments on confidence intervals for GUPPIs

147. In response to our Provisional Findings, the Parties submitted that the uncertainty in the WSS estimates translates into material uncertainty around the estimated GUPPIs, and that for a substantial number of stores the 90% confidence intervals for the estimated GUPPIs are so large that they include zero. They submitted that this includes a number of stores where the estimated GUPPI is greater than 2.5%. They also submit that the Provisional Findings identified a large number of stores as SLCs (ie a GUPPI greater than 2.5%) which had confidence intervals that include 1%, meaning that it is possible that the actual GUPPI is less than the CMA's 1% threshold for

[37] Asda responds if the measured impact on sales is [✂]. Sainsbury's responds if the measured impact on sales is [✂] or above. See Parties' response to the Provisional Findings, paragraphs 59 and 62.
[38] These proportions are calculated for each 2.5% WSS interval, until WSS of 17.5%. Above WSS of 17.5%, we do not provide these proportions for each 2.5% WSS interval due to relatively low number of impacts at each interval. Instead, we calculate a single proportion of impacts with WSS of 17.5% or above that the Parties reacted to.

efficiencies (as at Provisional Findings) and a large number of other stores where the confidence intervals include 2.5%; at standard levels of statistical testing these also cannot be ruled out as having a GUPPI of less than 2.5%.[39]

148. We consider that it is not appropriate or necessary to apply statistical measures such as confidence intervals to our GUPPI estimates. Confidence intervals are measures of statistical significance; they do not express a standard of proof and should not be confused with the application of the standard of proof.[40] Requiring us to be confident, to within a certain statistical confidence interval, that the GUPPI estimates are above our threshold could lead to a higher standard of proof being applied to quantitative evidence as opposed to qualitative evidence. The appropriate standard to apply to our SLC decisions, whether based on quantitative or qualitative evidence (or more commonly, a combination of the two), is the balance of probabilities. Whilst we may use statistical tests to determine the reliability of our economic model and its various inputs at certain stages of our analysis, the ultimate decision as to whether the Merger may be expected to give rise to an SLC in a particular market is a judgment in the round in light of all available evidence.

149. We also note that the Parties' analysis of confidence intervals does not account for the fact that our analysis of diversion ratios has been validated by taking into account multiple sources of evidence, as discussed in paragraph 60.

150. We also do not agree with the Parties' method of calculating confidence intervals. They have made several approximations which have not been justified, have not explained the methodological decisions behind their calculations and the lower bounds of many of their confidence intervals are negative which, given that margins are positive, is technically incorrect. Our assessment is that the Parties' confidence intervals cannot be taken as valid. Therefore, given our disagreement in principle with the approach of applying confidence intervals to GUPPI estimates in this way, combined with our initial concerns around the Parties' methodology, we did not pursue this analysis further. As noted above, we have reliable evidence on which to base our decision and we have included an allowance for general uncertainty in our GUPPI threshold.

Parties' analysis of false positives and negatives

151. The Parties submitted a comparison of the number of SLCs between the CMA survey and the WSS. The Parties submitted that the 93 stores of the CMA

[39] Parties' response to the Provisional Findings, paragraph 100.
[40] As stated by Marcus Smith J in Britned v ABB [2018] EWHC 2616 (Ch), 'It would be unconventional to use a 51% confidence interval for the analogy to the balance of probabilities test used by lawyers is entirely spurious'.

survey where the Parties overlapped with each other provided a proxy for the true level of diversions under the assumption that the CMA survey was unbiased and accurate. The CMA survey diversions could then be compared against the estimated diversion ratios using our WSS estimates. The Parties plotted the level of 'false negatives' and 'false positives'. The Parties submitted that an optimal threshold minimises the total number of false positives and false negatives, subject to there being symmetric errors. The Parties submitted that the errors were substantially biased towards false positives until around 4.5% based on the data at Provisional Findings.

152. We received this submission on 5 April 2019 in an annex to the Parties' response to the Remedies Working Paper, although the substance of the submission concerns the CMA's SLC decisions. We decided to consider the submission despite the fact that it was received three weeks after the (extended) deadline for responses to our Provisional Findings[41] and at a time when we had nearly completed the additional analysis required for our final report. This has meant that we have not been able to undertake a complete analysis of the submission.

153. In the time available, we identified two methodological flaws in the Parties' approach that could have a significant impact on the results.

154. First, the CMA store exit survey over-sampled areas that were relatively concentrated, which will have a higher level of WSS than the overall population of stores. Stores with high levels of WSS can only produce false positives, whereas stores with low levels of WSS can only produce false negatives. This may account for some or all of the imbalance between false positives and false negatives found by the Parties in their analysis.

155. Second, we consider that the Parties' approach 'double-counts' uncertainty by comparing the WSS threshold to a survey diversion ratio threshold that also contains an allowance for uncertainty. A premise of the analysis is that the survey represents a proxy for the true diversion ratio, and it therefore follows that it should not be subject to the allowance for uncertainty that is applied to the WSS.

156. Given that these two factors may result in an overestimate of the appropriate GUPPI threshold, and we consider these factors may have had a substantial impact on the analysis. Therefore, even if we were to agree with the Parties that such an analysis is relevant to the choice of the GUPPI threshold, we consider that a corrected analysis may have been supportive of the threshold

[41] Rule 10.3 of the Rules of procedure for merger, market and special reference groups (CMA17) provides that 'Where, at any stage of a reference, any individual or body has been asked to provide information within a reasonable period of time and has failed to do so, without a reasonable explanation, the group shall not be obliged to have regard to any information received from that person or body after the date specified'.

we applied. However, we have not been able to adjust the Parties' analysis in light of the timing of their submission.

Convenience stores

Price ratios

157. There are the following types of overlaps in the assessment of convenience stores:

(a) Asda convenience to Sainsbury's supermarkets

(b) Sainsbury's convenience to Asda supermarkets

(c) Sainsbury's convenience to Asda convenience and vice versa

158. We discuss price ratios used for each of these types of overlap further below.

Asda convenience to Sainsbury's supermarkets

159. The Parties submit that the price gap between Asda's convenience offering and Sainsbury's supermarket offering may not be the same as the Parties' supermarket price gap, even though Asda had a single price file across its supermarket estate. Because different stores will have a different mix of products, these mixes may translate in differences in the price gap.

160. Asda estimates the price ratio between its convenience stores (all of which are attached to a PFS) and Sainsbury's supermarket stores to be [✂] on average over the most recent 52 weeks. [✂].

161. We have used the directly estimated figure of [✂] by Asda in our assessment.

Sainsbury's convenience to Asda supermarkets

162. Sainsbury's estimates the price ratio between its stores and Asda's supermarkets offering to be [✂]. [✂].

163. We have used the directly estimated figure of [✂] by Sainsbury's in our assessment.

Convenience to convenience

164. [✂].

165. Given Asda's price file is the same for convenience and supermarkets, we have used to Sainsbury's convenience to Asda supermarkets price ratio of [✂] in our assessment.

166. The Parties submit that the price gap between the Parties' convenience offerings is likely to differ from the price gap between Sainsbury's convenience offering and Asda's supermarkets offering due to different product mix in convenience and supermarket offerings.

167. We acknowledge that the price gap between the Parties' convenience offerings may differ from the price gap between Sainsbury's convenience offering and Asda's supermarkets offering due to different product mix in convenience and supermarket offerings. However, this is the best estimate that is available to us and we have therefore used it in our assessment.

168. We note that it is unclear whether this might lead to an over or underestimate of the GUPPIs for any given local area. However, we have included the uncertainty relating to this estimate when setting the threshold for the GUPPI decision rule.

GUPPI formula (local level)

169. Below we set out the formula that we have used to calculate GUPPI values for each type of local overlap in our supermarkets and convenience assessments. 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

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

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

    (b) A refers to an Asda owned store

171. 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:

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

GUPPI calculation at the national level

172. At the national level, we have calculated a weighted average GUPPI for each Party in our assessment for supermarkets. 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.

173. 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 1: Smoothed decay curves by fascia

[✂]

Annex 2: Representativeness graphs

[✂]

Annex 3: Entry-exit and survey comparison

[✂]

Annex 4: Survey weights adjusted by the entry-exit analysis

[✂]

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 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 not 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, our overall expectation would be that changes in volumes would impact a number of these more local costs, which we examine in more detail below. However, we note that smaller changes in volume (eg as the result of very small price changes) would not necessarily affect all of these local costs and so would result in the associated variable margin being closer to or equal to the gross margin.

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, rather than the time taken to make these changes).

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.

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[1] *CMA62*, technical box 1.

12. Asda stated that [✂]. 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.

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.
Note: The store level accounts include both in-store and online costs, therefore subsequent adjustments to the online grocery margin can result in small consequential changes to the in-store margins. Similarly, [✂].
* 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

[2] [✂].

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 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

[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.

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.

(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.[4]

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 GM margins generated by the Parties 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 41 and 42 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.

[4] The store level accounts include both in-store and online costs, therefore adjustments to the online grocery margin can result in consequential changes to the in-store margins (eg if the variability of specific costs differs online and in-store, discussed in paragraph 26 below).

Online groceries variable margins

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

23. In the absence of other available evidence at the point of publishing our Provisional Findings,[5] we calculated online variable margins based on the Parties' online P&Ls and applied the same individual cost line variability for in-store groceries to online groceries to provide an estimated online variable margin.

24. In response to the Provisional Findings, the Parties stated that this approach substantially overestimated their real online margins,[6] and that this was because [✂].[7] The Parties provided evidence to support this view, including econometric analysis on certain cost lines, bottom-up task analysis, and additional statements around their expected interaction between changes in volumes and changes in these costs.

25. We have some concerns with aspects of this analysis, in particular the econometric analysis exhibits many of the same issues as the previous submissions discussed in paragraph 17 above, resulting [✂] (for example controlling for 'fixed effects' in Asda's online wages [✂]). In addition to this, other aspects of the Parties' submissions appear likely to [✂].

26. However, we consider that the additional evidence provided by the Parties supports [✂] and have therefore made adjustments to the online variable margins to reflect these:

    (a) For staff wages, as described in paragraph 25 above, we consider that the revised econometric evidence for Asda [✂]. For Sainsbury's the econometric analysis for its driver wages [✂], and the remaining bottom-up analysis is predicated on seemingly unlikely assumptions (eg [✂]). Accordingly, we consider that [✂].

    (b) For online delivery, the econometric evidence submitted for Asda [✂]. For Sainsbury's we consider that [✂].

    (c) For marketing/advertising, we do not consider that the cost of vouchering [✂]. In particular, [✂].

[5] Provisional Findings (20 February 2019).
[6] Parties' response to the Provisional Findings, paragraph 68.
[7] We note that the Parties' response to the Provisional Findings did not provide any additional evidence or information on the allocation of costs between in-store and online, only [✂].

(d) Asda pays a royalty to Walmart to support its online proposition (eg technical support and development). We have seen evidence that Asda takes this cost into account when considering future decisions and consider [✂].

27. In concluding [✂], we have taken into account the extent to which they affect the final variable margin figures. Table 3 below shows [✂] that we have used in our analysis:

Table 3: Summary of adjustments [✂]

%

	Sainsbury's		*Asda*	
	Original figure	*Adjusted figure*	*Original figure*	*Adjusted figure*
Staff wages*	[✂]	[✂]	[✂]	[✂]
Online delivery (including fuel/fleet)**	[✂]	[✂]	[✂]	[✂]
Marketing/Advertising	[✂]	[✂]	[✂]	[✂]
Royalty***	[✂]	[✂]	[✂]	[✂]

Source: CMA analysis.
* Direct employment cost (salaries, pick & deliver).
** [✂].
*** [✂].

28. The effect of these adjustments is to reduce the estimated online variable margin of the Parties.

29. In addition to the above, we sought information from the Parties on their internal estimates of the online variable margin which they use to support their commercial decision-making. Sainsbury's stated [✂].[8] Asda stated that [✂].

30. We have considered the final online margins resulting from these adjustments and note that they appear to be broadly consistent with the limited internal estimates we have seen (eg from business cases, and internal modelling).

31. However, we note 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'.

[8] The CMA [✂].

PFS (including fuel) variable margins

32. 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).

33. 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.

34. The Parties stated that the variable elements of its PFS costs were [✂].

35. 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

36. 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.

37. 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.

38. 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.

39. 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.

40. 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) for in-store groceries, GM and fuel,[9] we have used average national margins.

Halo effect

41. As discussed in Chapter 8, 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 Party.[10]

42. 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 Appendix K:

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

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[9] Where in-store grocery variable margins differ by +/- [✂]% from the national average, GM by +/- [✂]%, and PFS by +/- [✂]%.
[10] We note that we have not included any additional adjustment to grocery margins to reflect benefits from fuel.

(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

43. The Parties' submissions have included an estimate of £1.6 billion of synergies as a result of the Merger,[11] with £[1.2 billion] 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.[12]

44. We have assessed the Parties submissions on expected rivalry-enhancing efficiencies (see Chapter 16 of the Final Report), and conclude that the appropriate figure to use is £500 million, which is allocated between the Parties and across in-store groceries, online groceries, and GM (excluding Argos). Accordingly, we have included the effect of this as an increase in these variable margins.[13]

Conclusions on margin figures for our analysis

45. Table 4 below shows the national average gross and variable margins calculated by applying the approaches described above.

Table 4: Average post-efficiencies gross and 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

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[11] Parties' response to the Provisional Findings, paragraphs 40, 189, 342 and page 11. Parties' response to the Remedies Notice, paragraph 10.1. *Sainsbury's and Asda commit to £1 billion of grocery savings and fuel cap* (19 March 2019).
[12] As acknowledged in the Parties' response to the GUPPI Working Paper.
[13] The calculation used to adjust the current margins is multiplying by
{1 + [(efficiencies / variable costs) * (1 - variable margin) / variable margin]}.

46. As discussed in paragraph 38 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) excluding those SKUs matched against [✂];

   (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.

Table 1: Base case

		For price increases			*For price decreases*		
Initial price change by	*Response by*	*No. of price increases*	*No. of responses*	*Proportion of responses*	*No. of price decreases*	*No. of responses*	*Proportion of responses*
[✂]							

Source: CMA analysis.

Table 2: [✂] as initiator or responder

		For price increases			*For price decreases*		
Initial price change by	*Response by*	*No. of price increases*	*No. of responses*	*Proportion of responses*	*No. of price decreases*	*No. of responses*	*Proportion of responses*
[✂]							

Source: CMA analysis.

Table 3: Higher revenue products

		For price increases			*For price decreases*		
Initial price change by	*Response by*	*No. of price increases*	*No. of responses*	*Proportion of responses*	*No. of price decreases*	*No. of responses*	*Proportion of responses*
[✂]							

Source: CMA analysis.

Table 4: Branded products

		For price increases			*For price decreases*		
Initial price change by	*Response by*	*No. of price increases*	*No. of responses*	*Proportion of responses*	*No. of price decreases*	*No. of responses*	*Proportion of responses*
[✂]							

Source: CMA analysis.

Table 5: Allowing for simultaneous price movements (ie within the same week)

		For price increases			*For price decreases*		
Initial price change by	*Response by*	*No. of price increases*	*No. of responses*	*Proportion of responses*	*No. of price decreases*	*No. of responses*	*Proportion of responses*
[✂]							

Source: CMA analysis.

Table 6: Extending the time window allowed for competitors to adjust their price from two weeks to three weeks

		For price increases			*For price decreases*		
Initial price change by	*Response by*	*No. of price increases*	*No. of responses*	*Proportion of responses*	*No. of price decreases*	*No. of responses*	*Proportion of responses*
[✂]							

Source: CMA analysis.

Table 7: Extending the time window allowed for competitors to adjust their price from two weeks to four weeks

		For price increases			*For price decreases*		
Initial price change by	*Response by*	*No. of price increases*	*No. of responses*	*Proportion of responses*	*No. of price decreases*	*No. of responses*	*Proportion of responses*
[✂]							

Source: CMA analysis.

Table 8: Excluding those SKUs matched against [✂]

		For price increases			*For price decreases*		
Initial price change by	*Response by*	*No. of price increases*	*No. of responses*	*Proportion of responses*	*No. of price decreases*	*No. of responses*	*Proportion of responses*
[✂]							

Source: CMA analysis.

Table 9: Including temporary promotions

		For price increases			*For price decreases*		
Initial price change by	*Response by*	*No. of price increases*	*No. of responses*	*Proportion of responses*	*No. of price decreases*	*No. of responses*	*Proportion of responses*
[✂]							

Source: CMA analysis.

Table 10: Disregarding price changes smaller than 5%

		For price increases			*For price decreases*		
Initial price change by	*Response by*	*No. of price increases*	*No. of responses*	*Proportion of responses*	*No. of price decreases*	*No. of responses*	*Proportion of responses*
[✂]							

Source: CMA analysis.

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 assessment of whether the Merger could lead to SLCs. 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 SLCs.

Framework for assessing entry

2. The 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

[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 compete 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) The CMA has failed to identify upcoming timely and large-scale entry by M&S through the joint venture with Ocado, which is well-positioned to increase Ocado's geographic coverage beyond its existing footprint.[6]

(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 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.[7]

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.

[6] Parties' response to the Provisional Findings, paragraphs 558 to 560.
[7] Waitrose response to the Issues statement, page 2.

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:[8] 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.

[8] 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.

Timelines

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, [✂].[9]

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.

41. The Parties submitted that the CMA had failed to carry out a sufficiently robust investigation of third party evidence. In particular, the CMA was told that M&S had no definitive plans to enter online delivered groceries and after the

[9] [✂].

Provisional Findings were issued, M&S announced that it was entering into a £750 million joint venture arrangement with Ocado.[10] The Parties also submitted that statements downplaying entry/expansion plans by [✂] and [✂] were also taken at face value by the CMA but should have been investigated in more detail.[11]

42. The Parties told us that contrary to the evidence the CMA had received competitors were expanding their online offers and the CMA should use its powers under section 109 of the Act to compel these competitors to provide accurate information. The Parties submitted that:[12]

(a) Amazon had substantial expansion plans as shown by recent press coverage of Amazon's recruitment, property acquisitions, pricing strategy and CFC investment plans in the UK.[13]

(b) Co-op had begun selling online groceries for the first time through its own dedicated website.

(c) Iceland had opened a new dark store in the West Midlands to increase its online capability, and more broadly, was in a strong position to undertake rapid online expansion [✂].[14]

(d) The CMA had underestimated the plans and impact of further expansion by Morrisons [✂].[15]

(e) Documents published by Ocado and M&S relating to their JV suggested that Ocado would expand its geographic coverage contrary to the statements included in the Provisional Findings.[16]

(f) Based on news reports of Waitrose's investment in its online capabilities and statements made at the time of the announcement of the Ocado/M&S JV, Waitrose clearly has expansion plans which should be taken into account.[17]

(g) The CMA had ignored the growing trend of grocery retailers partnering with delivery companies to provide groceries online.[18]

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[10] Parties' response to the Provisional Findings, paragraphs 557–559.
[11] Parties' response to the Provisional Findings, paragraph 25.
[12] Parties' response to the Provisional Findings, paragraphs 557–586.
[13] Parties' response to the Provisional Findings, paragraphs 565 to 571.
[14] Parties' response to the Provisional Findings, paragraphs 582 to 586.
[15] Parties' response to the Provisional Findings, paragraphs 576 to 581.
[16] Parties' response to the Provisional Findings, paragraphs 560–564.
[17] Parties' response to the Provisional Findings, paragraph 572–575.
[18] Parties' response to the Provisional Findings, paragraph 585.

Third parties' views

43. We used our information gathering powers under section 109 of the Act and issued notices requiring third parties to produce documents and information relating to any entry and expansion plans in online delivered groceries within the next two years.[19]

44. 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 current plans to move into online delivered groceries.

45. Aldi told us that it had instructed a consultancy to conduct a feasibility study into online delivered groceries. [✂]. Therefore, Aldi had no current plans to enter online delivered groceries.

46. Booths told us it had no intention of entering online delivered groceries in the next two years.

47. Lidl told us that it monitored developments within the retail market and had explored options to bring its groceries online. [✂][20] [✂].

48. Amazon told us [✂].

49. Amazon told us [✂].

50. Co-op told us that it had launched a trial online offer on 22 March using its Kings Road store in Chelsea. This was the first example of Co-op products delivered from a Co-op website and a Co-op customer interface. The trial involved a range of [✂] SKUs and delivery limited to a maximum [✂] radius from the store. The trial was to be extended to [✂] by the [✂] 2019 and Co-op was in discussions with [✂] [other parties]. Internal documents submitted by Co-op suggested the [✂] trial stores would be [✂] [limited in size and location].

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[19] Under section 109 of the Act, the CMA has the power to issue a notice requiring a person to provide documents and information for the purpose of assisting the CMA in carrying out any functions in connection with a matter that has been the subject of a reference under section 33 of the Act.
[20] [✂].

51. Co-op was also operating trials with [✂]. A trial was also being operated with [✂]. In both cases Co-op had no customer interaction. Other initiatives included trials with [✂].

52. Co-op told us that:

> ‘Our plans relate to “last mile” delivery, focussing on a narrow range of products. Our plans are nowhere near the scale of traditional online supermarket deliveries provided by the big four supermarkets and we have no ambition to provide services which would compete with these full scale online retailers in terms of geography, number of stores, or range of products available.
>
> The concept may be more competitive in the fast food sector (Just Eat, Deliveroo, Sainsbury Chop Chop service and Home Run) than a grocery proposition’.

53. 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.

54. Iceland also told us that it was planning on using its larger Food Warehouse stores as Supply Points to offer online delivered groceries. This had already happened in Manchester and Hyde. Other locations, namely Airdrie, Hull, Irvine, Kettering, Perth and Saltash were due to be activated between April and July 2019. Iceland planned to offer the service from as many Food Warehouse stores as possible and estimated that 10 to 30 begin supplying online delivered groceries in 2019. However, Iceland was unable to confirm what the impact of the offering will be on Iceland’s existing geographic coverage.

55. M&S told us that ‘it was factually accurate to confirm to the CMA on 12 February 2019 that it had no definitive plans to enter online delivered groceries’. M&S stated:

> ‘At the time M&S responded to the CMA’s put back, M&S was engaged in highly market sensitive negotiations with Ocado about the creation of a joint venture for the online supply of groceries. However, those negotiations were far from constituting a “definitive plan” …, Ocado rebuffed an initial non-binding offer from M&S on 18 January 2019 and, after the parties’ talks became public on 27 January 2019, it was concluded that there was no reasonable prospect of a deal between the parties and therefore that an RNS announcement was not required in response to the press leak’.

56. The M&S press release describes the deal with Ocado as a 50/50 joint venture, with M&S acquiring 50% of Ocado's retail business. The joint venture will trade as Ocado.com but benefit from access to M&S's brand, products and customer database from September 2020 at the latest, following the termination of the current Waitrose sourcing agreement and migration of sourcing to M&S.[21] The agreement between the joint venture and Ocado Solutions Platform commits the joint venture to purchasing additional modular CFC capacity.[22] [✂].

57. M&S internal documents on the joint venture with Ocado showed that they considered complementary geographic strength as a potential synergy. However, there is no evidence of specific plans, discussions or proposals relating to expanding Ocado's existing geographic coverage as part of the joint venture between M&S and Ocado. With respect to the impact of the joint venture on geographic expansion M&S have stated the following:

> 'M&S has entered into the JV to help achieve its commercial objectives and to provide the best service to its customers, some of whom live outside the Ocado Coverage Area. The JV has contractual commitments to add capacity over time, and it will be at the JV's discretion where it chooses to add capacity (either within the Ocado Coverage Area or outside of it). Accordingly, M&S fully expects that, in due course, the issue of geographic coverage will be assessed, and it may result in expansion beyond the Ocado Coverage Area. There are, however, no specific or concrete plans beyond this'

58. Morrisons told us that it had firm plans to open further postcodes in Essex, Cambridgeshire, East Sussex, Greater London, Kent and Surrey through the Erith CFC that is operated in partnership with Ocado. It also had plans to open further postcodes in the central population belt of Scotland and the major population concentrated areas of the East coast of Scotland. Morrisons provided a list of areas where it did not have concrete plans for expansion, however, were under consideration, these areas were: [✂], [✂], [✂], Morecambe, [✂], Dundee, [✂]and Plymouth.

59. In April 2019, Morrisons told us that the new geographies opened in the second half of 2018 [✂]. [✂], it had slightly reduced its planned coverage increases, as it sought to deliver stable performance and modest, sustainable growth. Morrisons stated that they will be expanding into Morecambe and

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[21] *Bringing the best together: transforming UK online grocery shopping M&S and Ocado announce new joint venture* (27 February 2019).
[22] CFCs consist of multiple modules. The Andover CFC consists of seven modules.

Plymouth, and that Dundee is now open. The postcode coverage of Morecambe and Dundee has been incorporated as a countervailing effect in our expansion methodology as described in paragraphs 51 to 55 of Appendix I. Morrisons was not able to provide postcode coverage for Plymouth at this time, and therefore we were not able to include the Plymouth expansion within our local GUPPI calculations. Morrisons are still considering expansion into [✂] for opening in 2019, however, such expansions would also be subject to approval from the Capital Approvals Sub-Committee and are not a certainty. In our view expansion into [✂] is not likely, and has therefore been excluded from our assessment. [✂].

60. Ocado told us that it had no plans to expand its geographic coverage within the next 24 months, [✂]. Ocado stated that in practice the ability of the JV to expand its geographic infrastructure would be limited given the constraints of Ocado's delivery infrastructure.

61. [✂]

62. Tesco told us that it did not have any plans to expand coverage to the 0.3% of UK households which were currently not covered by its online delivery groceries. Tesco told us that it was continually reviewing how to improve the profitability of its online grocery business. As part of this it had considered proposals which could [✂], but had decided not to discuss these with more senior management forums within Tesco. Tesco is undertaking [✂] and these proposals could be reconsidered. However, at this stage, it was not clear whether Tesco would go ahead with the proposals.

63. Waitrose told us that over the next two years expanding its online capacity was central to its strategy. [✂].

Online sales forecasts

64. In addition to the information collected above we asked the current suppliers of online delivered groceries to provide us with their online delivered groceries sales forecasts. The current market shares and the shares implied by the forecasts are shown in Table 1 below.

Table 1 – Forecasts of online market shares

	FY 2018 / Calendar 2017 (actual)	**Calendar year 2018 (actual)**	**FY 2020 / Calendar 2019 (forecast)**	**FY 2021 / Calendar year 2020 (forecast)**
Asda	[10-20]%	[10-20]%	[10-20]%	[10-20]%
Sainsbury's	[10-20]%	[10-20]%	[10-20]%	[10-20]%
Amazon	[0-5]%	[0-5]%	[0-5]%	[0-5]%
Iceland	[0-5]%	[0-5]%	[0-5]%	[0-5]%
Morrisons	[5-10]%	[5-10]%	[5-10]%	[5-10]%
Ocado	[10-20]%	[10-20]%	[10-20]%	[10-20]%
Tesco	[30-40]%	[30-40]%	[30-40]%	[30-40]%
Waitrose	[0-5]%	[0-5]%	[0-5]%	[5-10]%

Source: CMA analysis

65. We note that the largest anticipated gain in market share is the 2.2 percentage point gain of [✂] from [✂]% currently to [✂]% in FY 2021/Calendar year 2020. Overall these figures suggest that competitors do not expect their position in the market to change substantially in the coming years.

Our assessment

66. 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 deliver groceries and their references to recent press coverage. We place more weight on the views and documentary evidence we have received directly from third parties regarding their own entry and expansion plans.

67. While there is uncertainty regarding [✂], we considered that the evidence showed that entry by [✂] would be likely and timely. [✂]. We took account of this in our assessment of countervailing factors and our approach is described in more detail in Chapter 11.

68. We reviewed the evidence provided by the Parties and Co-op, noting the [✂] range of SKUs, the relatively small size of the stores used for store-picking, and Co-op's description of its strategy. Based on this evidence we found that Co-op's offering would not be likely to fall within our relevant market definition for online delivered groceries and therefore it should not be considered as entry into the relevant market.

69. We reviewed the evidence provided by the Parties, Ocado and M&S relating to the new Ocado/M&S joint venture. We do not consider this to be new entry by M&S into online delivered groceries. M&S is purchasing a 50% share in the existing retail business of Ocado, rather than adding substantial online delivered groceries capacity. [✂]. Consequently, we do not think that the transaction will lead to a substantial change in the competitiveness of Ocado within the next two years. Ocado's responses to the S109 notices state that it has no plans to expand its geographic coverage within the next 24 months, despite a commitment to increase capacity equivalent to a further eight CFCs over the next 12 years. Therefore the information we have received does not lead us to find that geographic expansion by the JV will be timely and likely.

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

71. With regard to expansion, we provisionally found that the geographic expansion by Iceland and Morrisons would be timely and likely. We took account of this in our assessment of countervailing factors and our approach is described in more detail in Chapter 11.

72. We have also reviewed the evidence on forecast sales expansion by each competitor, and have taken this into consideration in our assessment 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.

Delivery coverage and revenue data

Delivery coverage data

2. The 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 it served as at 31 December 2018. Within these postcode sectors, it served all postcode units;

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

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

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

   (b) Asda provided the names of all postcode units it 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 it served for AmazonFresh. Within each postcode district, it served all postcode units as at October 2018.

   (b) Iceland provided its data in two parts:

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

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

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

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

(d) Ocado provided its data in two parts:

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

(ii) the names of selected postcode units it 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 its data in three parts:

(i) the names of all postcode sector it served as at March 2019. Within these postcode sectors it served all postcode units;

(ii) the names of all postcode sectors it partially served as at March 2019. Within these postcode sectors it specified the names of all postcode units it served; and

(iii) the names of selected postcode units it 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 delivered to as at October 2018. Within these postcode sectors it 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 third party supplies which postcode unit.

7. We also received a list of postcodes that Sainsbury's, Iceland and Morrisons planned to start delivering to:[2]

   (a) Sainsbury's had names of [✂] postcode sectors it planned to expand into and serve by 31 December 2019.

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

   (c) Iceland provided details of postcode sectors it planned 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 and 2018.

9. The 2017 revenue 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:[3]

    (a) Sainsbury's provided this data for the financial year 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 financial year 2017/18.

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

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[2] For the avoidance of doubt, we asked about expansion plans until the end of 2020 and beyond, but parties either did not have any plans for 2020, or there was a high uncertainty about any plans. This is discussed further in Appendix H.
[3] 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.

12. The 2018 revenue data was requested for the calendar year. The Parties provided this data at the postcode unit level. Each third party provided its data at the national level.

13. We used the Office for National Statistics Postcode Directory August 2018 data release to determine:

    (a) the total sales revenue for each party at the postcode unit level using the 2017 data;[4] and

    (b) the total sales revenue for each party at the national level using their 2017 and 2018 data.

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

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

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

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

        (i) figures included 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; and

        (ii) figures excluded Click and Collect revenues from online orders or other variants of these types of services and GM sales from online grocery orders.

    (d) Where each party's data did not include or exclude these elements, we adjusted this data as per each party's suggestion as to how best to

[4] Each party's data was merged with the postcode directory to ascertain their actual delivery coverage revenue at the postcode unit level.

estimate the figures we needed.[5] Where data contained negative values, we replaced these negative values with zero.[6]

15. As the delivery coverage data and revenue data were from two slightly different time frames[7] there are discrepancies between each dataset:

    (a) In some cases, there may be sales revenue associated with postcode units that the relevant third party/Party stated they did not deliver to.[8]

    (b) Where parties provided their sales revenue data at the postcode sector level, sales revenue was equally shared and assigned to postcode units which form part of a postcode sector.[9]

16. Given the above, and that the coverage data was more up to date, we used the coverage data to determine whether any party supplied a postcode, regardless of whether sales were recorded in that postcode or not.

17. We used the revenue data in two ways:

    - To calculate market shares, at both the national and Supply Point level, as discussed below.[10]

    - To provide the revenue split across different 'Bands'[11] within the Parties' Supply Points.

Market shares

18. 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.[12]

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[5] 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.
[6] Each Party provided an explanation as to why there were [✂]. Asda told us that [✂]. Sainsbury's told us that [✂].
[7] Sales revenue data was provided on a calendar year basis for 2017 or for the financial year 2017/18 and delivery coverage data was provided from the second/third quarter of 2018 onwards (depending on competitor/Party).
[8] 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).
[9] This means it was possible sales revenue may be assigned to a postcode unit where no actual sales had been recorded.
[10] 2018 data was only used to calculate shares of supply at the national level.
[11] Bands are explained in more detail in paragraph 30, but these are simply groups of competitors ie Band 3 is Asda, Sainsbury's and Tesco.
[12] Ie AmazonFresh, Asda, Iceland, Morrisons, Ocado, Sainsbury's, Tesco and Waitrose.

19. 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

20. Our national GUPPIs are based on direct survey diversion from the CMA online survey. We consider this robust given the nationally representative[13] nature of our survey and the very large sample size. We first discuss how the diversion question was asked in the survey, and how we interpreted it, before we discuss the Supply Point diversion estimates.

Survey diversion

21. The GUPPIs are calculated using only responses to a forced diversion question and not price diversion for the reasons discussed in Appendix B, paragraphs 77 to 86 and paragraph 10.18. The diversion questions follow several steps:

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

    (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

[13] Representative of the Parties' orders in terms of geographic spread and value.

their diversion behaviour was captured using the same method. Only respondents to this question were used to calculate GUPPIs.

22. 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.[14] This approach was carried out for all areas apart from areas where the Parties do not overlap.[15]

(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.[16]

(c) The direct diversion ratios were weighted by the amount spent by each customer. The diversion ratios calculated included diversion to own brand.

The national GUPPI

23. To calculate a national GUPPI for Asda and Sainsbury's we combined the survey diversion with national margins[17] and the price ratio between the two Parties.[18]

24. The national GUPPI takes into account that some online sales will divert to the other Merging party's in-store offer. Below we set out the formula that we 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).

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[14] A very small number of customers mentioned a supermarket that does not sell online groceries (Aldi or M&S), or a supermarket that does not deliver online to the customer's address. We have treated these answers as invalid.
[15] This affected less than 2% of responses.
[16] This affected around 15% of responses.
[17] We discuss margins in Appendix F.
[18] 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 for an explanation of how this figure is calculated.

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

(d) $DRO_{A\to B}$ 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) $DRS_{A\to B}$ 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).

25. We also use the following subscripts to refer to the relevant Party:

(a) S refers to Sainsbury's.

(b) A refers to Asda.

26. 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.

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

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

27. 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 overlapping 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.[19] In particular, we

[19] See *CMA78*.

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.

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

Estimated diversion ratios

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

Methodology

30. First, we identified which competitors were active at each postcode unit in the UK.[20] 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; and Band 13 consists of Asda, Sainsbury's, Tesco, Ocado and Waitrose.

31. 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). We considered that we should not place much weight on Band-level estimates when the sample size is small, so, when the number of responses in the Band was less than 100 we took the estimated diversion ratio between the Parties to be zero. This will introduce a small downward bias in our estimates.

32. As discussed in Chapter 11, these diversion ratios are based on the forced diversion question.[21]

33. 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.

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[20] 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 the glossary for more detail.
[21] See Appendix B for an explanation of these concepts.

34. 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.

35. 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 31. The average is weighted by the proportion of the Supply Point's revenue that each Band accounts for[22] to account for the fact that, in terms of revenue, some areas assigned to a particular Band are larger than others.

36. 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 in-store offering.

Robustness checks

37. We 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.

- *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 17 responses from Asda customers and 8 responses from Sainsbury's customers to the forced 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.

[22] Eg 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.

39. Table 1 shows the survey included respondents from 22 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 ([✂]).

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

Competitors	*Band number*	*Revenue proportion*		*Sample size*	
		Asda	*Sainsburys*	*Asda*	*Sainsburys*
		[✂]			

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

40. At Provisional Findings[23] we noted there were seven Supply Points where a Band has a sample size of less than 100 and the Band accounts for over 30% of the revenue in the Supply Point. The Parties submitted that there was no reason to set this threshold at 30% and, given the very large measurement errors in the estimated diversions and the tight distribution of the Supply Point GUPPIs around the CMA's threshold, even a small change in this threshold could have a large impact on the results.[24]

41. We agree that setting a threshold at 30% is in part, arbitrary. As such, and as described in paragraph 31, we considered that any Band with a sample size of less than 100 should be given a diversion of zero regardless of how much revenue that Band accounts for in the Supply Point. This approach introduces a bias that reduces the diversion between the Parties and tends to underestimate the GUPPIs, given that diversions are nearly always above zero.

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

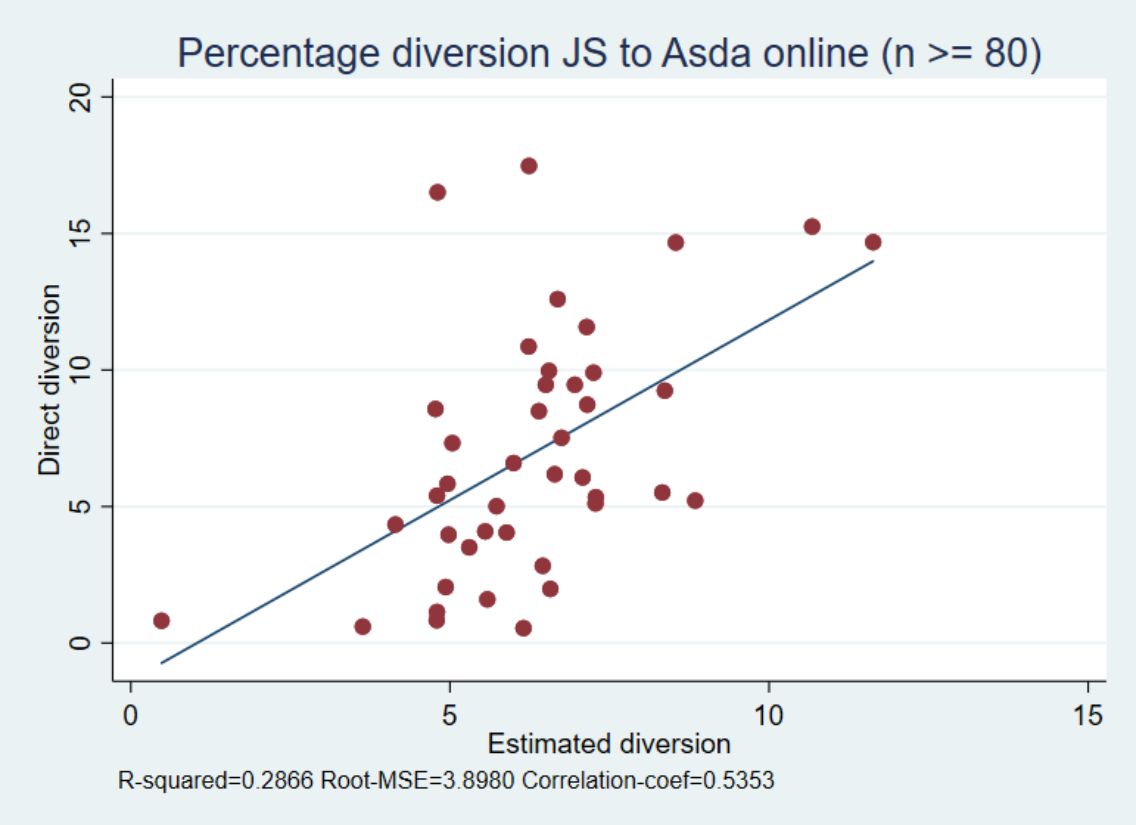
42. If each of the Supply Points had a large sample size we could compare our estimated diversion ratios with the direct survey diversion ratios. However, in most cases our Supply Point sample sizes are below 100.

43. We have nonetheless compared our estimated diversion ratios to the direct survey diversion ratios, for diversion from Sainsbury's to Asda's online offering, where the Supply Point sample size was 80 or greater.[25,26] Given

[23] Provisional Findings (20 February 2019).
[24] Parties' response to the Provisional Findings, paragraph 612.
[25] We chose 80 to achieve a balance between having enough points for a correlation to be meaningful, and to ensure the direct estimates are not subject to large amounts of sampling variation.
[26] By direct survey diversion we refer to the diversion ratio based on all the respondents in the Supply Point (regardless of the sample size).

there are very few Asda Supply Points with a sample size over 80 we do not think it would be meaningful to make this comparison for Asda.

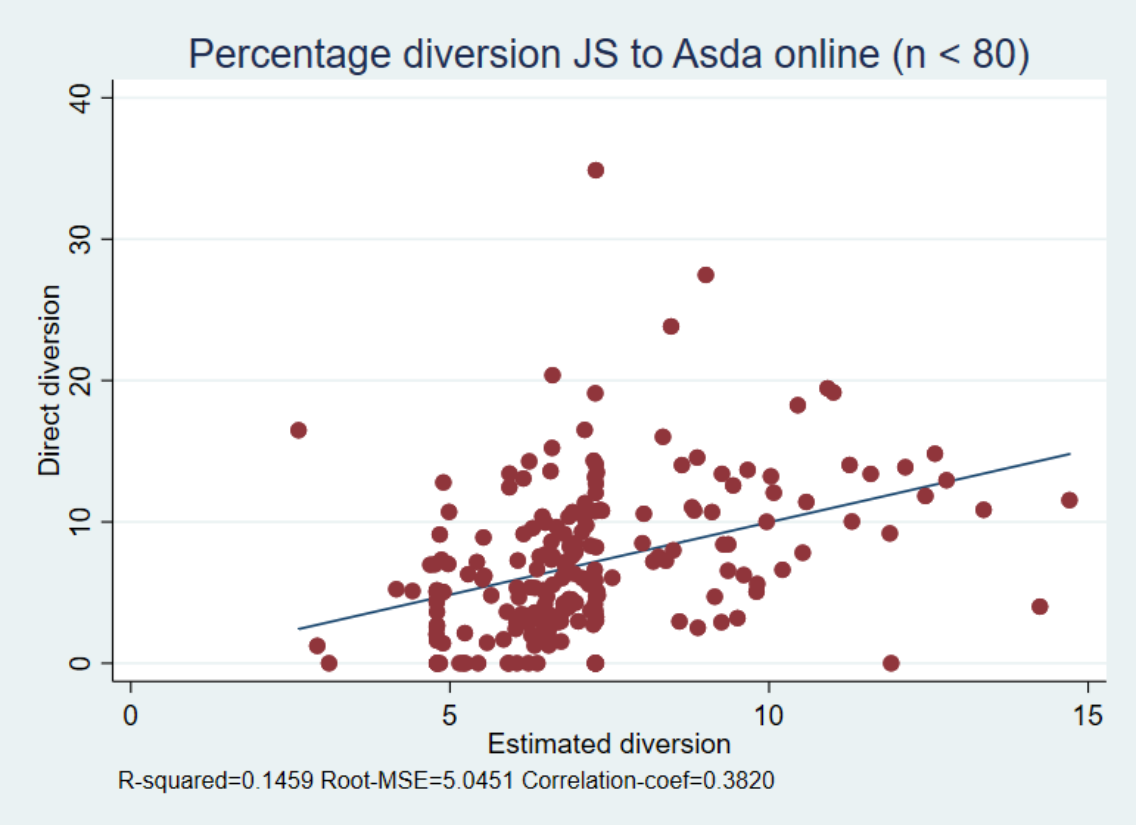
Figure 1: Correlation between estimated diversion ratio and direct survey diversion ratio for Sainsbury's Supply Points with 80 or more responses



Source: CMA analysis of the CMA online survey.

44. For completeness, we have also compared the estimated diversion ratios to the direct survey diversion ratios, for diversion from Sainsbury's to Asda's online offering, where the Supply Point sample size was less than 80 (ie the remaining Sainsbury's Supply Points).

Figure 2: Correlation between estimated diversion ratio and direct survey diversion ratio for Sainsbury's Supply Points with fewer than 80 responses



Source: CMA analysis of the CMA online survey.

45. We found 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 was 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.

46. 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.

47. There is stronger correlation between the estimated diversion ratios and the direct survey diversion ratios where the Supply Point sample size is larger. This gives us some confidence in our estimates.

48. 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

49. For the calculation of the estimated diversion ratios, the following assumptions below 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 Merging 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

50. 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[27] and price ratio using the same formula as in paragraph 26 above.

[27] 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.

Incorporating geographic expansion into GUPPI calculation

51. As discussed in paragraph 11.131 we have adjusted the Supply Point GUPPIs downward in areas where geographic expansion was both timely and likely. For the reasons set out in Appendix H we are making this adjustment for Iceland, Morrisons and [✂] (referred to as the 'expanding competitors'). This section describes the methodology used to make this adjustment.

52. We calculated the average national diversion ratios to the expanding competitors from each of the Parties in areas where both the expanding competitor and the Party currently supply online groceries. This is our best estimate of the level of diversion a competitor may receive in areas into which it is expanding.

53. We obtained details of all of the postcode units into which the expanding competitors planned to enter. In all of the postcode units where expansion was planned, we assumed that the expanding competitors would be able to achieve their average national diversion from the Parties whom they were overlapping with.[28] This diversion was assumed to be taken from all competitors, including the Parties, in proportion to the diversion of those competitors[29] in each Supply Point's delivery area.[30]

54. Online expansion may have only occurred in a proportion of the postcode units covered by a Supply Point.[31] To account for this, the reduction in diversion was adjusted based on the proportion of the Supply Point's revenue that came from postcode units where expansion had occurred.

55. Finally, we calculated GUPPIs using this reduced diversion for every overlapping Asda and Sainsbury's Supply Point where an expanding competitor had entered into some or all of the postcode units.

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[28] This assumed diversion was applied separately for each supply point. This means that if the Parties overlap on a particular postcode this postcode would have an assumed diversion from Asda that would be incorporated into the GUPPI for the local Asda Supply Point; and, an assumed diversion to Sainsbury's that would be incorporated into the GUPPI for the local Sainsbury's Supply Point.
[29] For simplicity when performing our calculations, we reduced GUPPIs directly instead of diversion. This has no impact on the results because we assume that both online and in-store diversion are affected by expansion. Therefore, reducing the GUPPIs is a direct mathematical transformation equivalent to reducing diversion.
[30] This diversion was based on direct diversion for supply points with 100 or more survey respondents and diversion estimates for Supply Points with less than 100 survey respondents.
[31] Either because the competitor was already present in some postcode units or because after expansion some postcode units were still not covered by the competitor.

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.

[1] Table 3 includes 11 retailers because Shop Direct was in the top ten by value but not by volume, whereas, Morrisons was in the top ten by volume but 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.

[2] Table 4 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

%

		NPD estimate 2017		*Global Data estimate 2017*
Retailer	*Base*	*Sensitivity: No Toys R Us*	*Sensitivity: No Toys R Us or Amazon*	
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. Table 8 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.

Table 8: Competitor overlaps in the retail sale of clothing 2017

%

People who shop here → also shop here ↓	*M&S*	*Next*	*Primark*	*Arcadia*	*Asda*	*TK Maxx*	*Debenhams*	*Tesco*	*H&M*	*New Look*
M&S	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
Arcardia	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

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

Electricals

11. Table 9 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.

Table 9: Competitor overlaps in the retail sale of electronics 2017

%

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

Source: The Parties (GlobalData (May 2017), *UK Electricals Market*).
Note: Data in this chart are derived from GlobalData Retail's How Britain Shops survey of 10,000 shoppers in 2017. Dixon Carphone includes Currys, PC World and Carphone Warehouse.

Toys

12. Table 10 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.

Table 10: Competitor overlaps in the retail sale of toys 2017

%

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

Source: The Parties (GlobalData (October 2017), *The UK Toys and Games Market 2017–2022*).
Note: Data in this chart are derived from GlobalData Retail's How Britain Shops survey of 10,000 shoppers in 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 11.

Table 11: Multichannel clothing retailers' share of sales made online, most recent 12-month period with available data

%

Retailer	*Clothing*	*Childrenswear*
[✂]	[✂]	[✂]

Source: The Parties and third parties.
*Includes footwear.
** Some third parties were only able to provide this information for either childrenswear or all clothing.

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 12.

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

%

Retailer	*Electricals*	*PCAs*	*SKAs*
[✂]	[✂]	[✂]	[✂]

Source: The Parties and third parties.
* Some third parties were not able to provide this information for each segment. This was because, either they did not have this information for those segments or they did not offer products in that particular segment.

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 13.

Table 13: Multichannel toy retailers' share of sales made online, most recent 12-month period with available data

%

Retailer	*Share of sales online*	*Notes*
[✂]	[✂]	[✂]

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).

Price Concentration Analysis

2. 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

3. 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.

4. Experian Catalist also collects daily data for diesel and unleaded petrol prices, for each PFS in the country, although this dataset is based on fuel card recording,[1] 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 used data covering all quarters between 2016 Q2 and 2018 Q2 and calculated the average price for each quarter.

The model

5. We have carried out a panel data analysis[2] 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.[3]

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[1] 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.
[2] Panel data looks at changes in prices and local concentration over time for each site.
[3] 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

6. 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.[4]

7. 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 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.

8. 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.[5]

9. 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[6] of the average retail price in quarter t at site i;[7]

(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;

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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.

[4] 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.

[5] We followed a suggestion from the Parties, with which we agreed.

[6] 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.

[7] 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).

(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 (eg 2016 Q2). Those are important because they capture common shocks to all petrol stations, for example, oil price shocks in different quarters.

10. In order to achieve a sufficient number of observation to allow for robut estimation of the coefficients, we used the prices of all PFSs, including both supermarket and non-supermarket PFSs (ie i is indexed over all PFSs in the UK, for all quarters).

Results

11. The results of our PCA are in Table 1 below.

Table 1: PCA results

	(1)
	All PFS
VARIABLES	ln_price
Number of SM PFS, 0-5 mins	-0.00749***
	(0.00094)
Number of SM PFS, 5-10 mins	-0.00186***
	(0.00050)
Number of SM PFS, 10-15 mins	-0.00112***
	(0.00036)
Number of SM PFS, 15-20 mins	-0.00095***
	(0.00034)
Number of SM PFS, 20-25 mins	-0.00017
	(0.00027)
Number of non-SM PFS, 0-5 mins	-0.00057**
	(0.00027)
Number of non-SM PFS, 5-10 mins	0.00007
	(0.00016)
Number of non-SM PFS, 10-15 mins	-0.00014
	(0.00012)
Number of non-SM PFS, 15-20 mins	0.00006
	(0.00009)
Number of non-SM PFS, 20-25 mins	0.00005
	(0.00007)
Observations	127,335
R-squared	0.978

Clustered robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: CMA analysis.

12. Interpreting these results, our PCA suggests that:

(a) An additional supermarket PFS competitor up to 20 minutes' drive-time from the centroid PFS has a statistically significant negative effect on the centroid's fuel prices.

(b) Non-supermarket PFSs have a statistically significant effect on prices only when located within a 5-minute drive-time from the centroid.

(c) In general, supermarket PFSs have a larger effect on fuel prices than non-supermarket PFSs. For example, within a 5-minute drive-time, the impact of one additional supermarket PFS is round 13 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 0.75%, while the reduction is only 0.06% for an additional non-supermarket PFS within 5-minutes' drive-time.

13. We also tried different specifications considering only the prices of supermarket PFSs or only those of the Parties' PFSs. However, the reduced datasets do not provide sufficient variation (ie a sufficient number of entry/exit events) to accurately estimate the impact of concentration on prices.

Limitations of the approach

14. 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.

15. 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 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.

16. 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. Exiting PFSs have around a third of the fuel volumes and shop sales of an open PFS, and substantially lower scores on quality, visibility and access.

Table 2: Characteristics of non-supermarket PFS in the PCA

	Open PFS	Entering PFS	Exiting PFS
PFS fuel volumes	2913	2483	1010
PFS shop sales	596	626	203
Quality	0.51	0.63	0.07
Visibility	0.5	0.47	0.09
Access	0.29	0.37	0.05

Source: CMA analysis.

17. 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 is why we decided not to use the results of the PCA for the purpose of our GUPPI analysis.

18. 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.

Volume concentration analysis

19. The Parties also submitted the results of a volume concentration analysis.

20. The Parties estimate the following regression equation:

$$\ln(volume_{it}) = \alpha_i + \theta_t + \gamma conc_{it} + u_{it}$$

where:

(a) $\ln(volume_{it})$ is the natural logarithm of the average daily fuel volume in quarter t at site i;

(b) 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;

(c) $conc_{it}$ is a vector of local concentration measures (various types of competitor counts) in the catchment area in quarter t around site i; and

(d) θ_t is a set of indicators that identify the quarter (eg 2016 Q2). Those are important because they capture common shocks to all PFSs, for example, oil price shocks in different quarters.

21. 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.

22. 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.

23. 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.

24. 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.

Survey results and WSS

25. 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 WSS for non-surveyed PFSs.

Survey diversion

26. We report in the tables 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 3: Asda PFSs, diversion ratios to Sainsbury's PFSs, fuel spend weighted

	%	minutes		
Asda PFS	*Diversion to Sainsbury's (excluding own-brand)*	*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 4: Sainsbury's PFSs, diversion ratios to Asda PFSs, fuel spend weighted

	%	minutes		
Sainsbury's PFS	*Diversion to Asda (excluding own-brand)*	*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

27. 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%.

28. 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

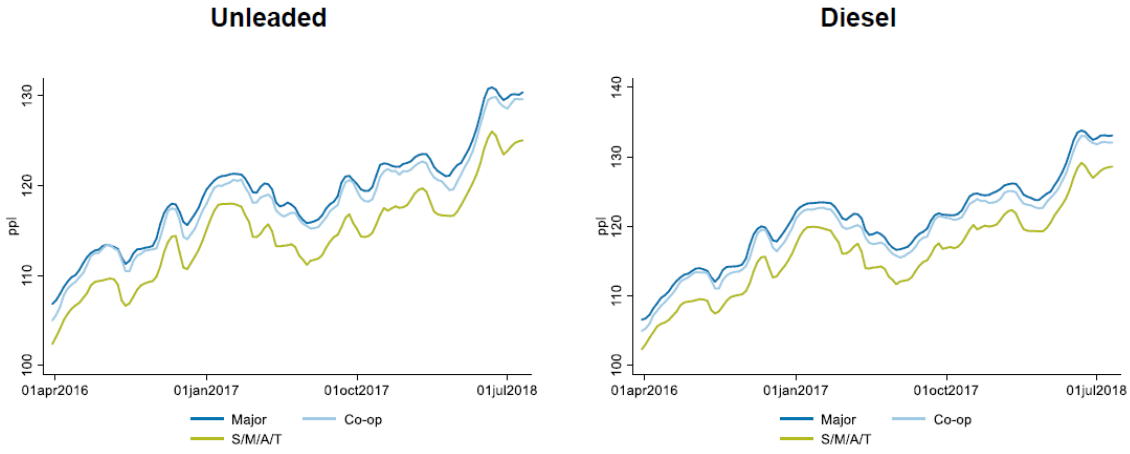
Defining the types of PFS

29. In analysing diversion, we distinguish between supermarket and non-supermarket PFSs. 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. [✂].[8]

30. We have excluded the PFSs owned by Co-op from the supermarket category for the following reasons:

(a) The Co-op fuel pricing distribution is more similar to the non-supermarket pricing distributions than to the supermarket pricing distributions, as can be seen in Figure 3 below.

Figure 3: Co-op's pricing



Source: Parties submission based on Catalist Data. Majors are defined as BP, Shell, Esso, Texaco and Gulf. Supermarket PFSs ("S/M/A/T") are defined as Sainsbury's, Morrisons Asda and Tesco.

[8] [✂].

(b) Co-op's PFSs are typically road-side sites and Co-op told us that, when assessing the competitiveness of a local area, it looks at the presence and distance of road-side competitors. [✂].

(c) [✂].

Establishing a relationship between diversion and distance and type of PFS using regression analysis

31. Figure 4 below shows the percentage of fuel spend diversion (including 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.

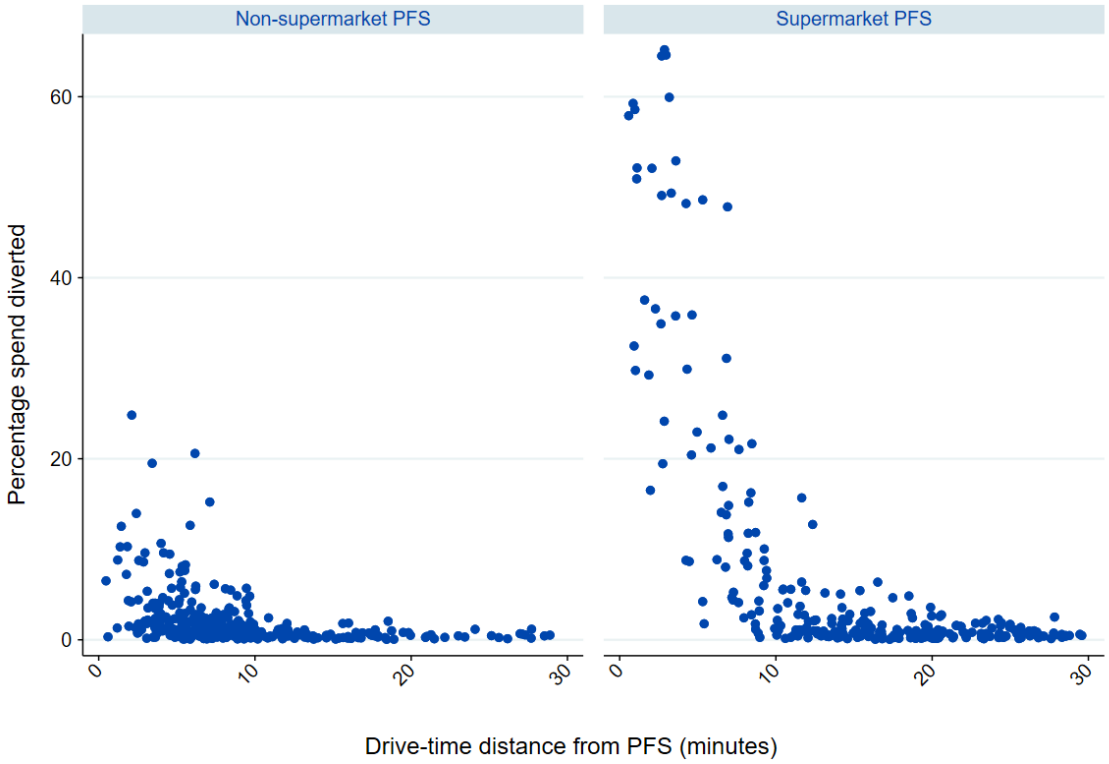
32. We observe that:

(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 4: Diversion to competitor PFS vs. drive-time distance from centroid PFS



Source: CMA analysis.

33. 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 a fractional response model (which has the advantage that it restricts a prediction of the dependent variable to be between 0 and 1), with cluster-robust standard errors for each centroid PFS:

$$E(DR_{ij}) = G(\beta_0 + \beta_1 SM_j + \beta_2 SM_j d_{ij} + \beta_3 NSM_j d_{ij} + \beta_4 {d_{ij}}^2 + \beta_5 {d_{ij}}^3)$$

where:[9]

(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;

[9] The expectation is conditional on the control variable; G(.) is a logistic function.

(c) d_{ij} is the drive-time distance between centroid PFS i and competitor PFS j.[10]

34. The results are presented in Table 5 below.

Table 5: Diversion regression results

VARIABLES	*DR*
SM_j	2.56711***
	(0.16715)
$SM_j d_{ij}$	-0.43250***
	(0.03157)
$NSM_j d_{ij}$	-0.36051***
	(0.02893)
${d_{ij}}^2$	0.00995***
	(0.00145)
${d_{ij}}^3$	-0.00007***
	(0.00002)
Constant	-1.95808***
	(0.14694)
Observations	724

Clustered robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

VARIABLES	*DR*
SM_j	2.56292***
	(0.16714)
$SM_j d_{ij}$	-0.43588***
	(0.03102)
$NSM_j d_{ij}$	-0.36298***
	(0.02835)
${d_{ij}}^2$	0.01020***
	(0.00143)
${d_{ij}}^3$	-0.00008***
	(0.00002)
Constant	-1.98046***
	(0.14349)
Observations	724

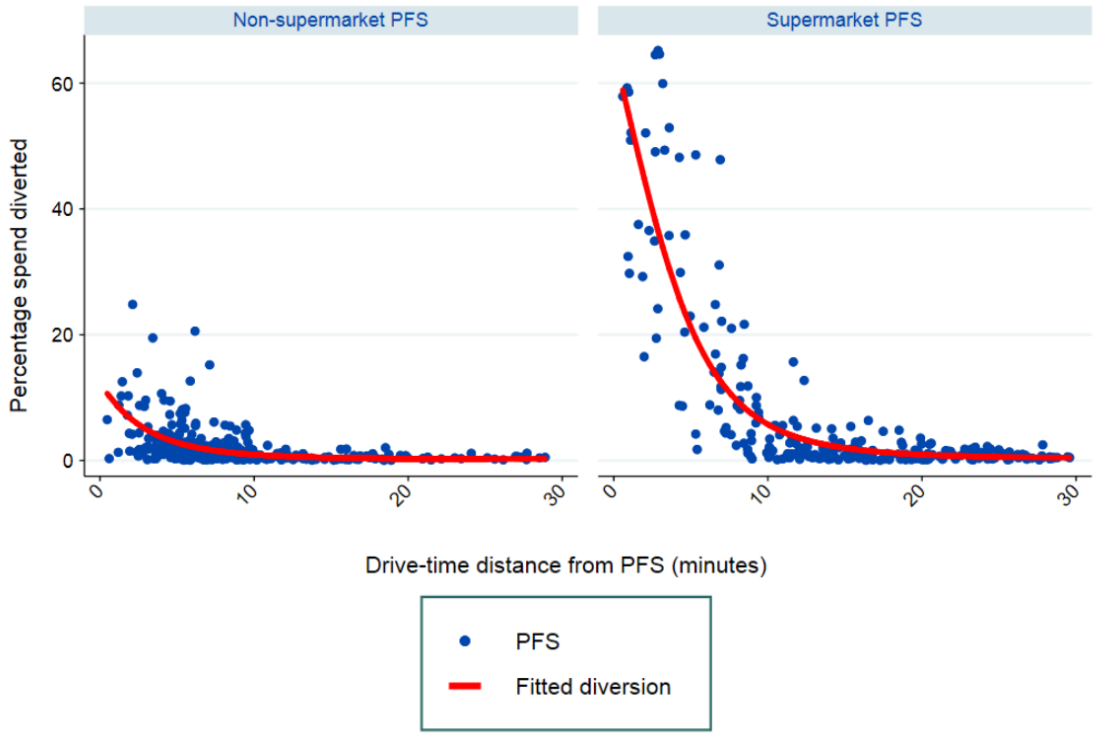
Clustered standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: CMA analysis.

35. Figure 5 below illustrates the estimated relationships between diversion and drive-time distance to centroid PFS.

[10] Figure 4 shows there is a non-linear relation between diversion and distance (diversion decreases with distance, but not at a constant rate). We have included the square and cubic terms of distance in the regression to account for non-linearity. As can be seen in Table 5, the estimated coefficients for the square and cubic terms are statistically significant.

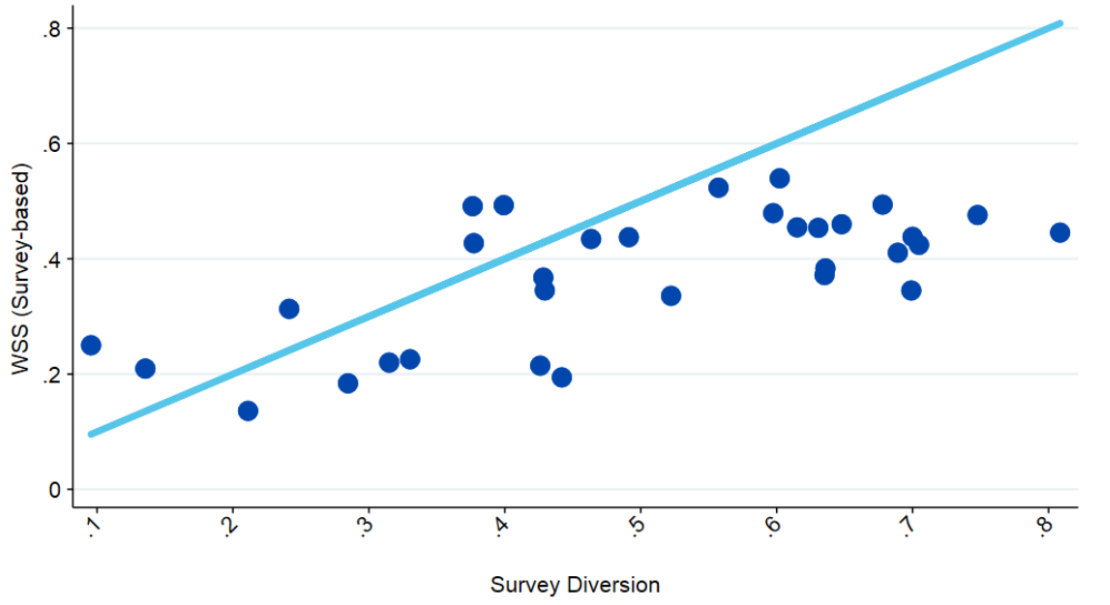
Figure 5: Predicted diversion ratio



Source: CMA analysis.

36. We have looked at how well the WSS estimated through this regression explain the variation in diversion in the surveyed areas. Figure 6 below shows how they correlate.

Figure 6: Correlation between WSS and survey diversion



Note: The light blue line is the 45-degree line.
Source: CMA analysis.

37. A linear regression of the survey diversion against the estimated WSS has an R squared of 44.6%. This means that the estimated WSS explain approximately half of the observed variation.

38. Figure 6 shows that, in surveyed areas, the extrapolated WSS tends to underestimate diversion to the other Party. It is unclear what drives this result:

    (a) Figure 5 suggests that our regression may slightly overestimate diversion to supermarket PFSs further than 10 minutes away from the centroid. This would result in the analysis underestimating diversion between the Parties when their PFSs are geographically close to each other, such as in most surveyed areas, but may have the opposite impact when the Parties are further away from each other.

    (b) The result may also possibly reflect differences in the closeness of competition between PFSs of different supermarket brands. As our regression treats all supermarket brands equally, if the Parties were closer competitors to each other than to other supermarket brands, this would result in the extrapolated WSS underestimating diversion to the other Party. If this were the case, our analysis would underestimate diversion between the Parties in non-surveyed areas.[11]

Computing the WSS

39. 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.

40. 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.

41. The normalised diversions so obtained sum to 1 within each local market.

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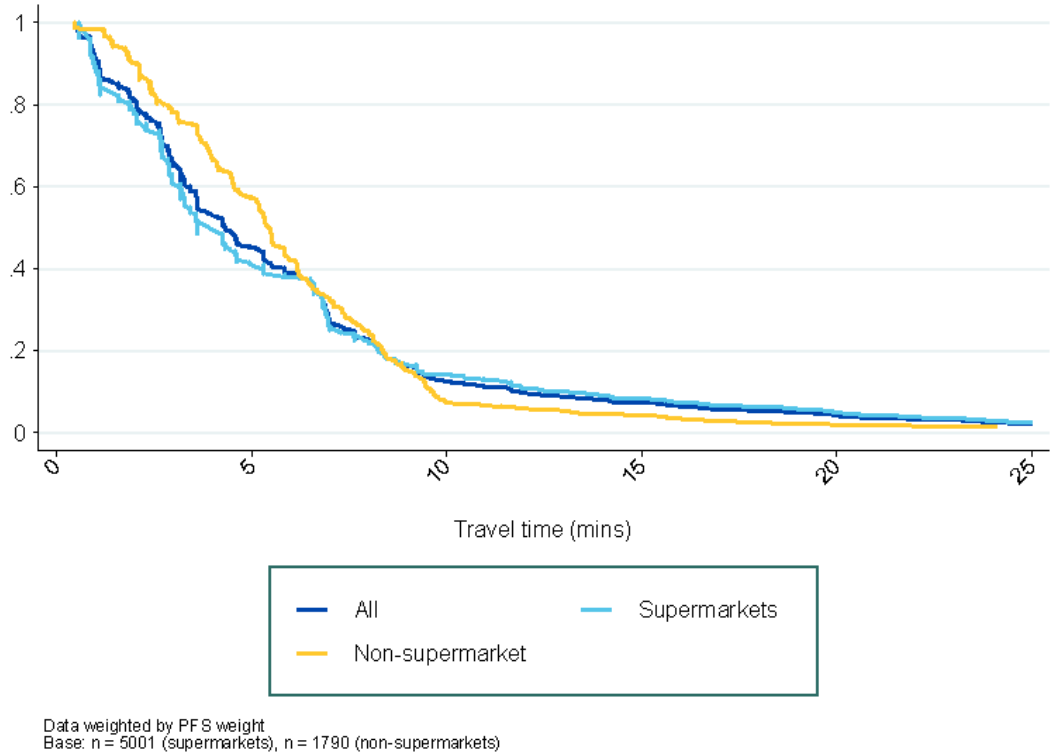
[11] As we do not use the extrapolated WSS to compute the GUPPI in surveyed areas, our methodology is not lenient to the Parties in those areas.

42. 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 7 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 7: Survey diversion by drive-time



Source: CMA analysis.

43. 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.

44. 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.

GUPPI calculations

45. Our approach to calculating the GUPPI is discussed in paragraphs 14.107 to 14.125 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.

46. 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). Table 6 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

47. 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 approach adopted for the assessment of in-store groceries (see Chapter 8), including the same out-of-market adjustment. The only differences are the following:

(i) we estimated the diversion using only the subset of the respondents to the CMA store exit survey who had purchased fuel at the adjacent PFS during that shopping mission;

(ii) we did not adjust the diversion based on the results of the entry/exit analysis, as the analysis does not provide evidence directly relevant to the subset of customers purchasing both fuel and groceries.

(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 (14% instead of 25%), to reflect the fact that only supermarkets with an adjacent PFS exert a constraint.

48. 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.

49. 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.

50. 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) [✂].

51. We therefore computed the non-fuel GUPPI adjustment for Asda PFS j as

$$GUPPI_j^{nf} = \sum_{i \in LM(j)} \left\{ (0.04 * d_{1i} + 0.09 * d_{2i}) * \left[\left(1 - share_i^{GM}\right) * m_i^{gr} + share_i^{GM} * m_i^{GM} \right] \right\}$$

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.

52. Similarly, for each Sainsbury's supermarket i, the non-fuel GUPPI adjustment was computed as

$$GUPPI_i^{nf} = \sum_{j \in LM(i)} \{(0.03 * d_{1j} + 0.07 * d_{2j}) * [(1 - share_j^{GM}) * m_j^{gr} + share_j^{GM} * m_j^{GM}]\}$$

where

(a) $LM(i)$ is the set of Asda's supermarkets within the local market centred around Sainsbury's supermarket i.

Robustness checks

53. The Parties have analysed the average effect of a PFS on grocery sales, based on evidence from their internal documents, the CMA fuel survey and an analysis of the impact of new PFS openings. The Parties have estimated that, on average across their PFS estates, this 'halo effect' corresponds to [✂]ppl.

54. We analysed whether the non-fuel GUPPI was consistent with this number. For this purpose, we computed the approximate halo implied by our non-fuel GUPPI. We did this by dividing the non-fuel GUPPI by the other Party's WSS (computed as explained in paragraphs 39 to 44). We converted the obtained figure into a pence-per-litre measure by multiplying it by the Party's fuel revenue over the last financial year and dividing it by the fuel volume over the same period.

55. The figures below show that the halo effect implied by our analysis is broadly consistent with the number estimated by the Parties.

Figure 7: [✂]

Source: CMA analysis.
Note: [✂].

Figure 8: [✂]

Source: CMA analysis
Note: [✂].

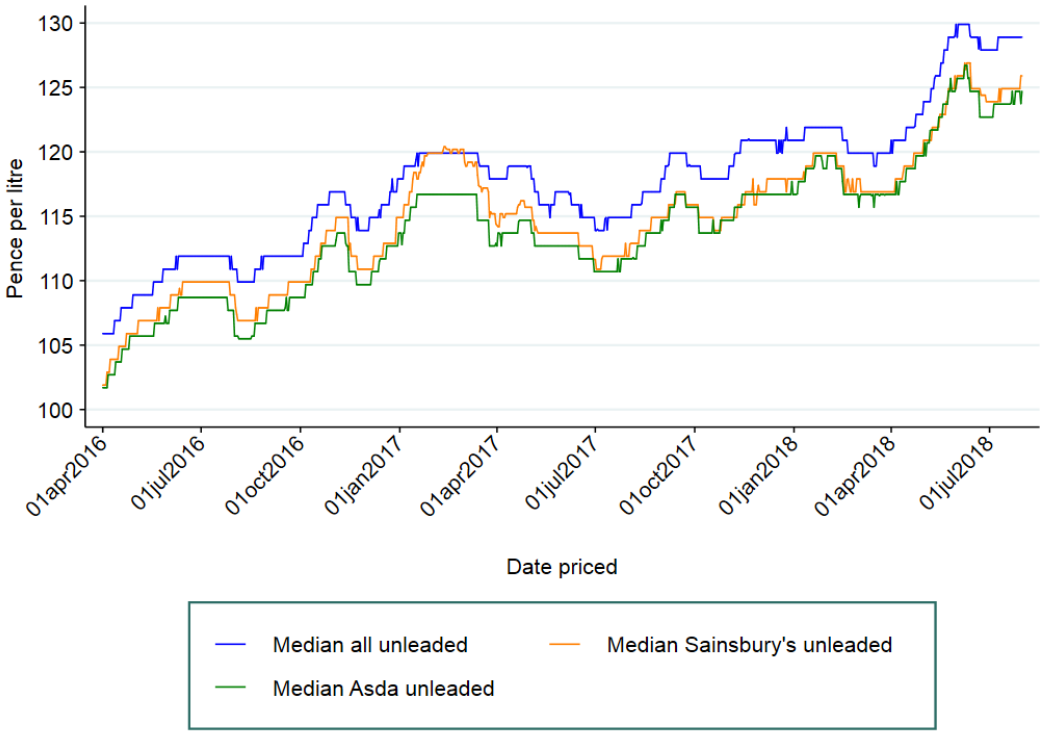
Pricing analysis

Description of prices in the data

56. 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.

57. Figure 9 below plots the median unleaded petrol price over this period, for all PFSs, Sainsbury's PFSs, and Asda PFSs. The picture is very similar for diesel.

Figure 9: Daily median unleaded petrol prices



Source: CMA analysis of data from Experian Catalist and from the Parties.

58. Our data covers a period where fuel prices are recovering from their sub-100ppl levels in 2015.

59. 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

60. The main features of the Parties' pricing approaches are described in paragraph 14.128 of the main report. The following paragraphs provide additional details.

61. Additional details on Sainsbury's pricing approach:

(a) [✂];

(b) [✂];

(c) [✂];

(d) [✂];

(e) [✂].

62. Additional details on Asda's pricing approach:

(a) [✂];

(b) [✂];

(c) [✂];

(d) [✂];

(e) [✂];

(f) [✂].

Accuracy of the pricing rules

63. The pricing rules used for our pricing analysis are described in paragraph 14.129 of the main report. We compared the prices generated by the pricing rules and the actual prices that the Parties set.

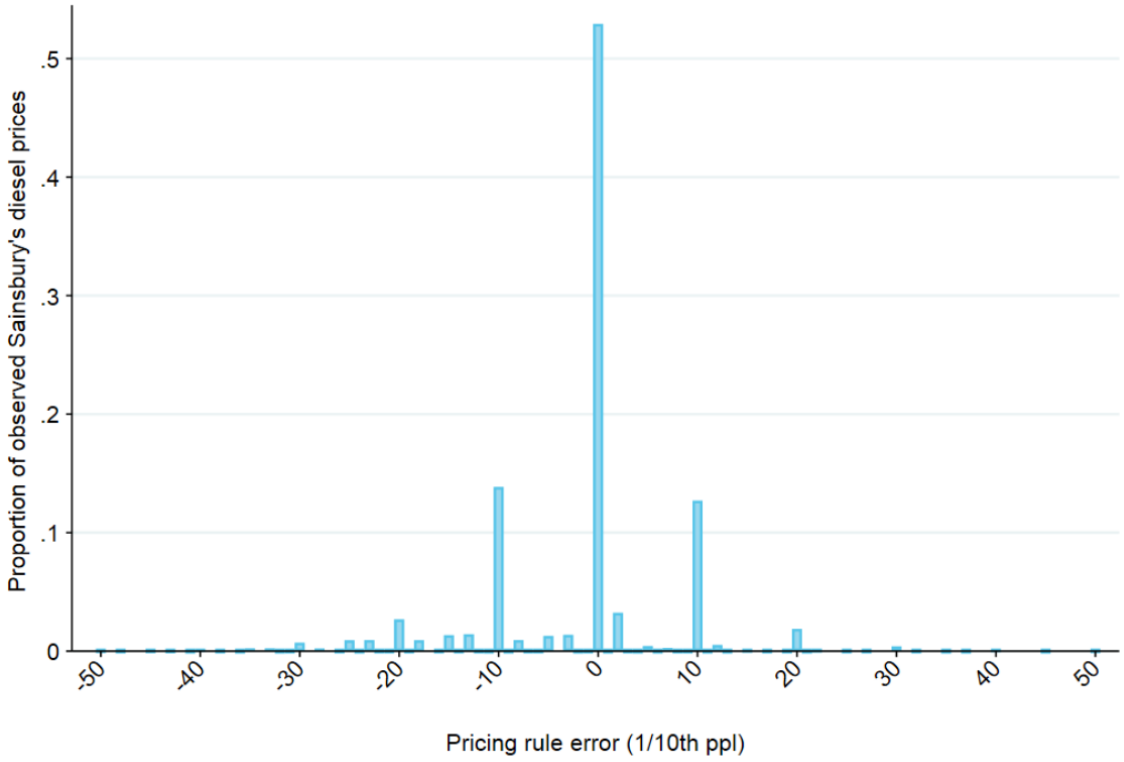
Sainsbury's pricing rule

64. The price estimated through the Sainsbury's pricing rule coincided with the actual price 52% (diesel) and 41% (unleaded petrol) of the time. The difference between estimated and actual price was within +/- 1ppl 86% (diesel) and 79% (unleaded petrol) of the time ([✂]).

65. Figures 10 and 11 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).

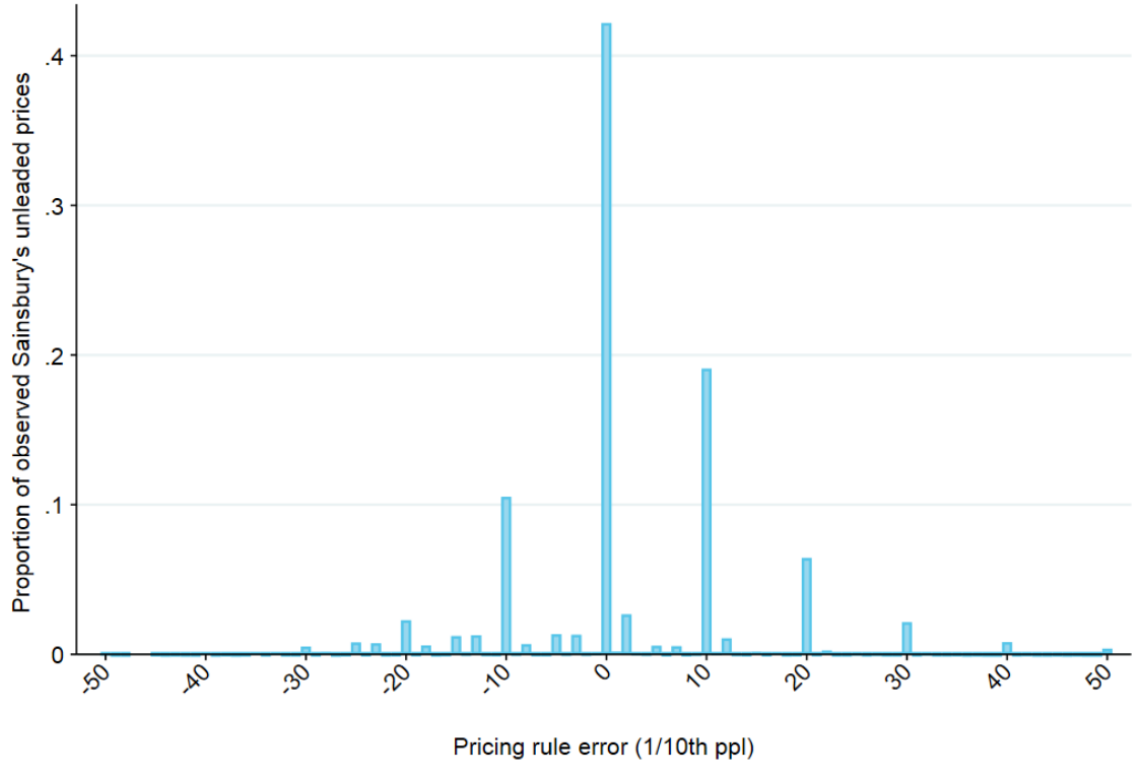
66. Errors when applying the Sainsbury's pricing rule are clustered around integer values of pence per litre. The errors are broadly symmetric, with the pricing rule slightly more likely to estimate a price that is too low for diesel, and slightly more likely to estimate a price that is too high for unleaded petrol.

Figure 10: Sainsbury's pricing rule for diesel, distribution of errors



Source: CMA analysis.

Figure 11: Sainsbury's pricing rule for unleaded petrol, distribution of errors



Source: CMA analysis.

Asda pricing rule

67. The price estimated through the Asda pricing rule coincided with the actual price 32% (diesel) and 24% (unleaded petrol) of the time. In our view, this lower degree of accuracy can be explained by the fact that Asda's [✂]:

    (a) [✂].

    (b) [✂].

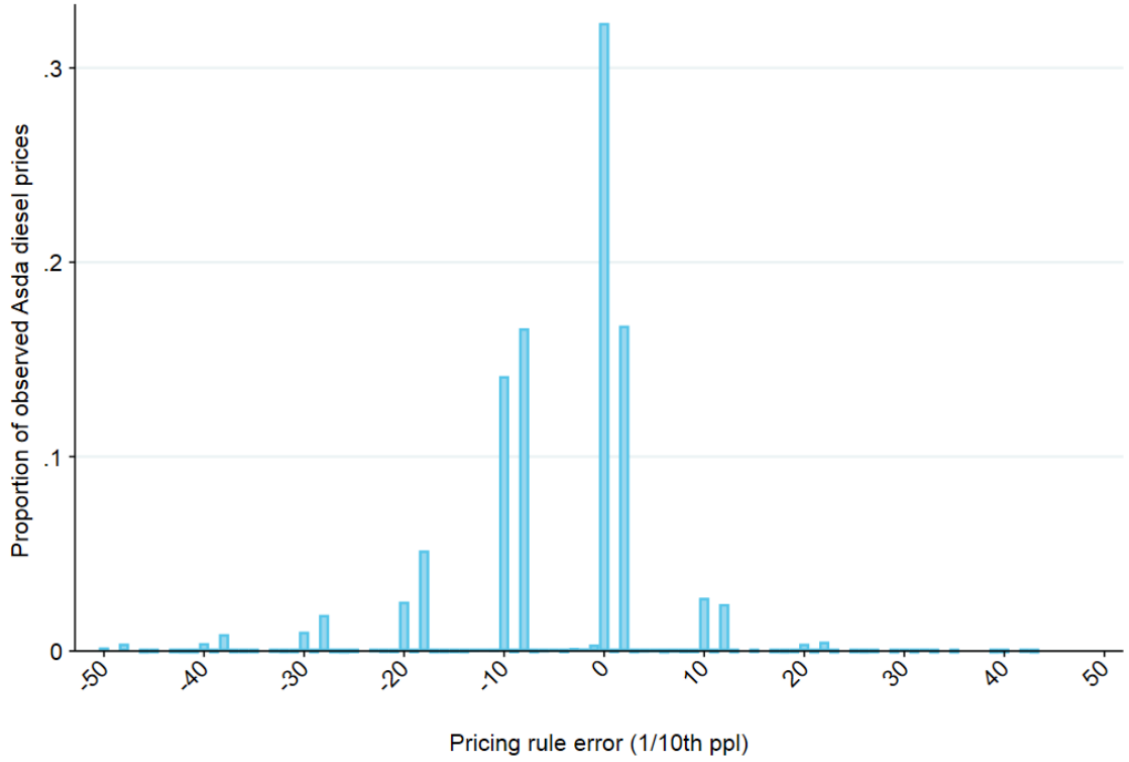
68. This view is supported by our observation that the difference between the estimated and the actual Asda price was within +/- 0.2ppl 50% (diesel) and 40% (unleaded petrol) of the time, which is a similar level of performance to Sainsbury's pricing rule for exact estimates ([✂]).

69. The difference between the estimated and the actual Asda price was within +/- 1ppl 83% (diesel) and 73% (unleaded petrol) of the time ([✂]).

70. Figures 12 and 13 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).

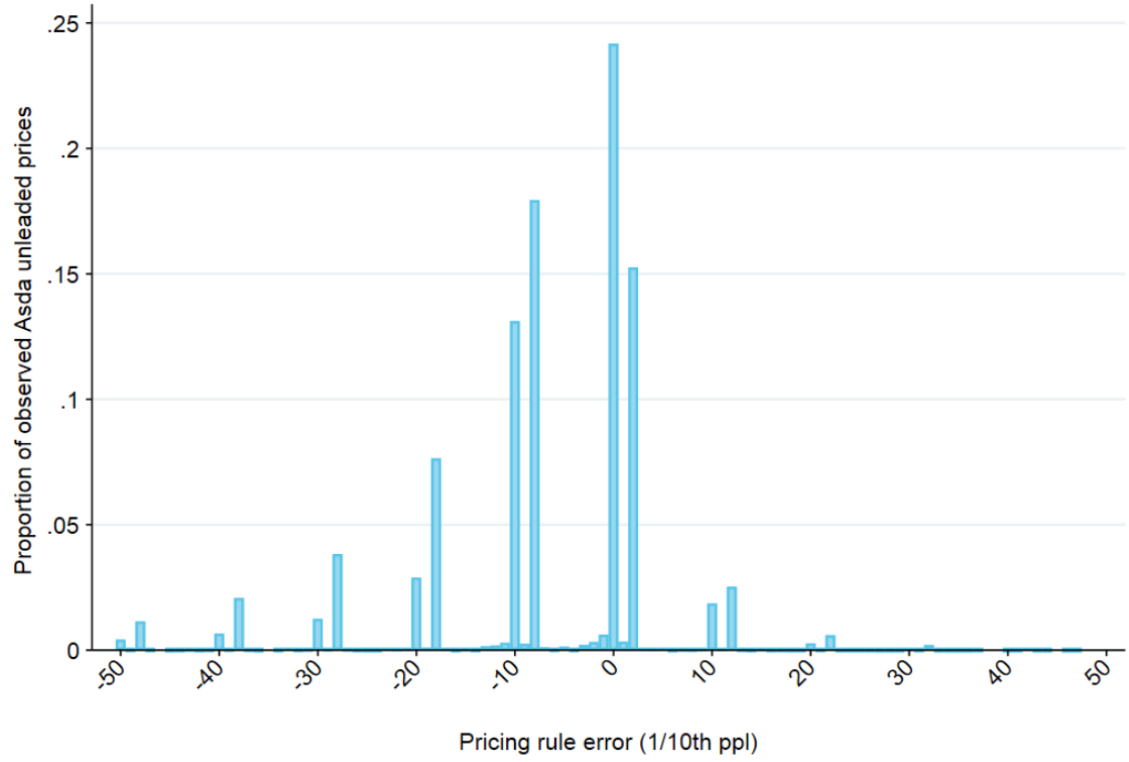
71. Errors when applying the Asda pricing rule are clustered around +/- 1ppl, but also +0.2ppl and -0.8ppl, [✂]. The distribution of errors is asymmetric, in that Asda's pricing rule is more likely to estimate a price which is too low relative to Asda's actual price.

Figure 12: Asda pricing rule for diesel, distribution of errors



Source: CMA analysis.

Figure 13: Asda pricing rule for unleaded petrol, distribution of errors



Source: CMA analysis.

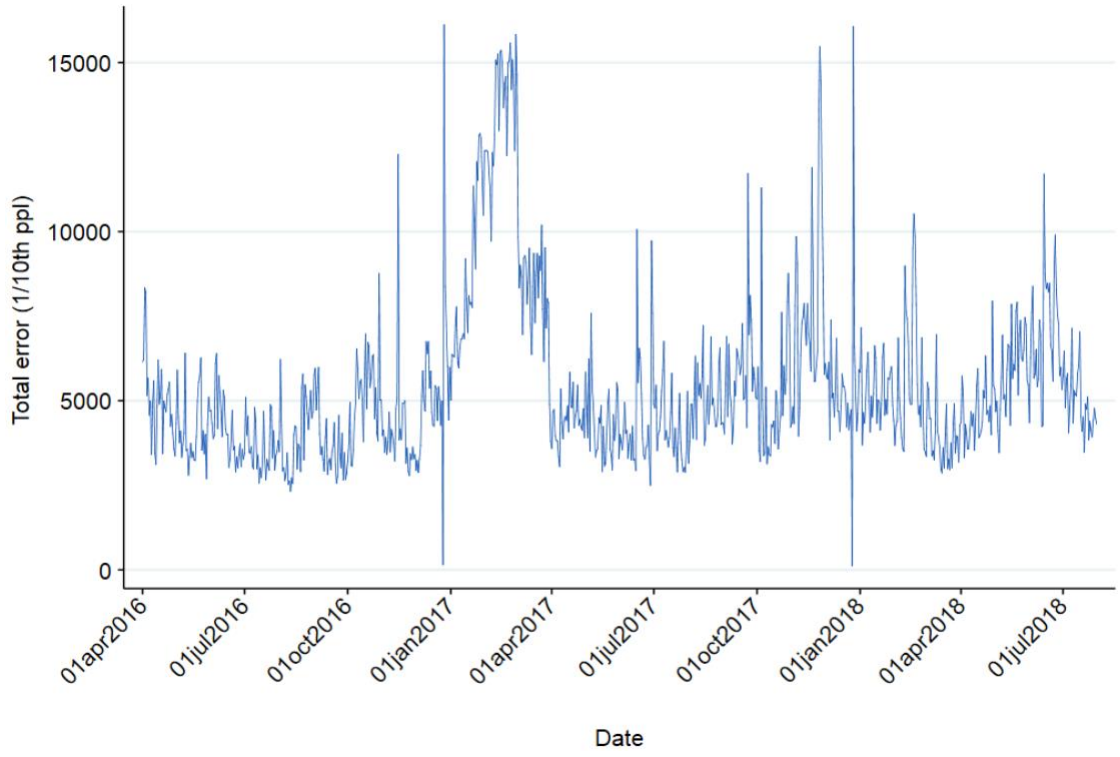
72. Overall, the pricing rules appear to capture c.75-85% of the Parties' pricing behaviour to within +/- 1ppl. We view this as a sufficient degree of accuracy to

place weight on this analysis as being informative of the Parties' actual pricing behaviour.

Accuracy of pricing rule over time

73. We analysed the total error of the Sainsbury's pricing rule across all Sainsbury's PFSs over time. Figure 14 below illustrates this for unleaded petrol, but the picture is very similar for diesel.

Figure 14: Daily total error of pricing rule for Sainsbury's unleaded petrol

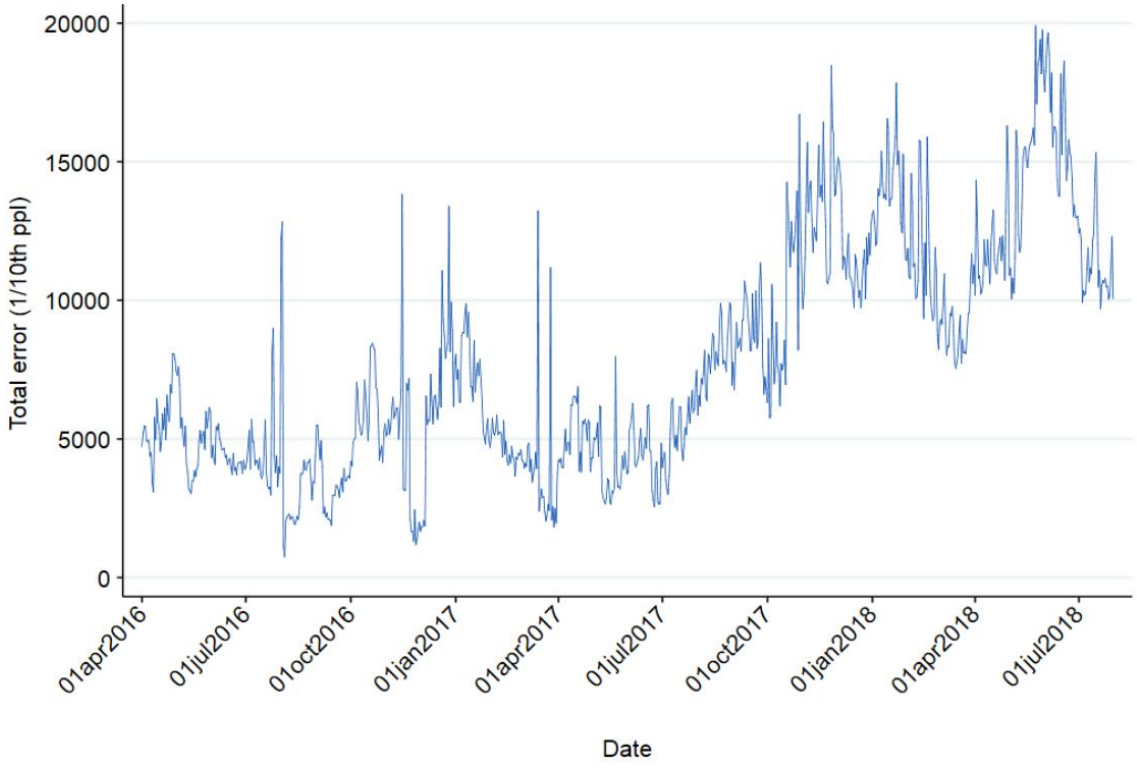


Source: CMA analysis.

74. 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.

75. Similarly, we analysed the total error of the Asda pricing rule across all Asda's PFSs over time. Figure 15 below illustrates this for unleaded petrol, but the picture is very similar for diesel.

Figure 15: Daily total error of pricing rule for Asda unleaded petrol



Source: CMA analysis

76. It appears that the Asda pricing rule [✂] is a relatively good description of Asda's behaviour until July 2017.

77. 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

78. 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).

79. The different variants used did not make a material difference to the results. We report the results using the second variant.

Figure 16: [✂]

Source: CMA analysis.

80. For Sainsbury's PFSs, [✂].

81. For Asda's PFSs, [✂].

82. 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.

83. Turning to drive-time distance of the PFSs which the Parties price mark, Sainsbury's [✂].

Figure 17: Cumulative distribution function of drive-time to competitor PFS matched by Sainsbury's pricing rule

[✂]

Source: CMA analysis.

84. Asda's PFSs [✂]. When interpreting these results, we do note however that our pricing rule does not take into account [✂].

Figure 18: Cumulative distribution function of drive-time to competitor PFS matched by Asda's pricing rule

[✂]

Source: CMA analysis.

Robustness checks on the Pricing Indicator

85. We explained in paragraph 14.135 in the main report how we defined and computed the Pricing Indicator.

86. 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.

87. 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 [✂]

88. [✂].

[✂]

89. [✂].

90. [✂].

91. [✂].

92. [✂].

Figure 19: [✂]

[✂]

Source: [✂].

Figure 20: [✂]

[✂]

Source: [✂].

[✂]

93. [✂]

(a) [✂][12]

[12] [✂].

(b) [✂]

(c) [✂]

94. [✂]

[✂]

95. [✂]

(a) [✂]

(b) [✂]

[✂]

96. [✂]

97. [✂]

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. 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 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] Groceries market investigation (2008).
[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.

5. The Parties stated that there was no evidence economic basis to support our assumption. Notably, that there was no evidence or economic basis to suggest that unobserved factors (bargaining and negotiating skills, legacy of accounts) are positively correlated with size. The Parties concluded that it was therefore not correct to assume a positive correlation.[5]

6. Moreover, they argued that the demand profile of customers would result in an underestimate of the relationship between price and procurement market share because retailers with a higher demand elasticity may face lower prices by suppliers. The Parties argued that this is supported by evidence, for example by OC&C analysis of Customer Quality and Perception rankings, which confirms the differentiation of those retailers in the CMA's sample.[6]

7. On the last point we note that we are using retailer fixed effects and thus are accounting for the possible issue. We therefore do not think that the relationship between price and procurement market share is underestimated.

8. Our analysis is based on SKU-level data for 26 large suppliers of branded goods.[7] 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.

9. The Parties pointed out that the CMA is not using panel data, ie does not observe procurement prices and quantities for SKUs over time, but relies on a cross section dataset to establish the results. The Parties argue that this is an important difference to the approach the CC used.[8]

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[5] Parties' response to the Provisional Findings, paragraphs 225–229.
[6] Parties' response to the Provisional Findings, paragraph 226(d).
[7] These suppliers were selected as follows: [✂]. This gave a sample of 26 suppliers.
[8] Parties' response to the Provisional Findings, paragraph 228.

10. We acknowledge that the absence of information over time is a limitation to the analysis. Specifically, we are not able to exploit variation across time for specific SKUs to establish the effect between price and procurement market share.

11. 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 Groceries market investigation.[9]

12. The Parties do not agree with the CMA's approach to calculating the relative price index:

    (a) They argue that, depending on the relative price being below or above one, an increase in the procurement share results in the relative price moving towards one.[10]

    (b) Instead, the Parties suggest we should use a price index that excludes the focal firm in the calculation of the relative price. This approach would not exhibit the property of the relative price mentioned in (a). The Parties show that their suggested approach results in a larger effect of procurement prices on procurement market share, which suggests a downwards bias in the CMA's approach.

13. Having reviewed the Parties' arguments, we have come to the following conclusions:

    (a) Firstly, we acknowledge the Parties' theoretical argument, however, we do not agree that the relative price index is likely to be biased in the way suggested by the Parties. The argument presented by the Parties, as illustrated in their response to the Provisional Findings,[11] critically hinges on an increase in the weight associated with focal firm's price.[12] The weights are calculated using procurement quantities, which we would expect to be a function of prices. Hence, an increase in the price is most likely to result in a lower procurement share. Put differently, comparing two firms each with a higher than average price, we are highly unlikely to observe that the firm with the higher price has the higher market share. Therefore, it is our view that the bias described by the Parties is not likely

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[9] Groceries market investigation (2008).
[10] Parties' response to the Provisional Findings, paragraph 228.
[11] Parties' response to the Provisional Findings, paragraph 228, footnote 138.
[12] Or a decrease in other firm weights.

to affect the estimated relationship between procurement market shares and prices.

(b) Secondly, we do not think that removing the focal firm's price from the average price calculation is appropriate in this case because it would introduce unwarranted variation, which may lead to bias. Consider the following example: there are two firms with the same procurement price, but different weights.[13] When using a price index which excludes the focal firm, each of the two firms has a different price index because of the difference in market share. This would result in correlation of the relative price with the procurement market share which is not due to difference in bargained price but due to variation introduced in the calculation of the price index. In contrast, when using the price index as we have calculated it, the relative price does not differ across the two firms and therefore we do not find a correlation between prices and procurement market shares in the above example. We therefore do not think that our calculation of the price index leads to an underestimation of the efficiencies and have thus decided to use the price index including all firms.

14. 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).[14,15,16] 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 percentage point increment in procurement share starting from different points in the curve, together with standard errors and confidence intervals.

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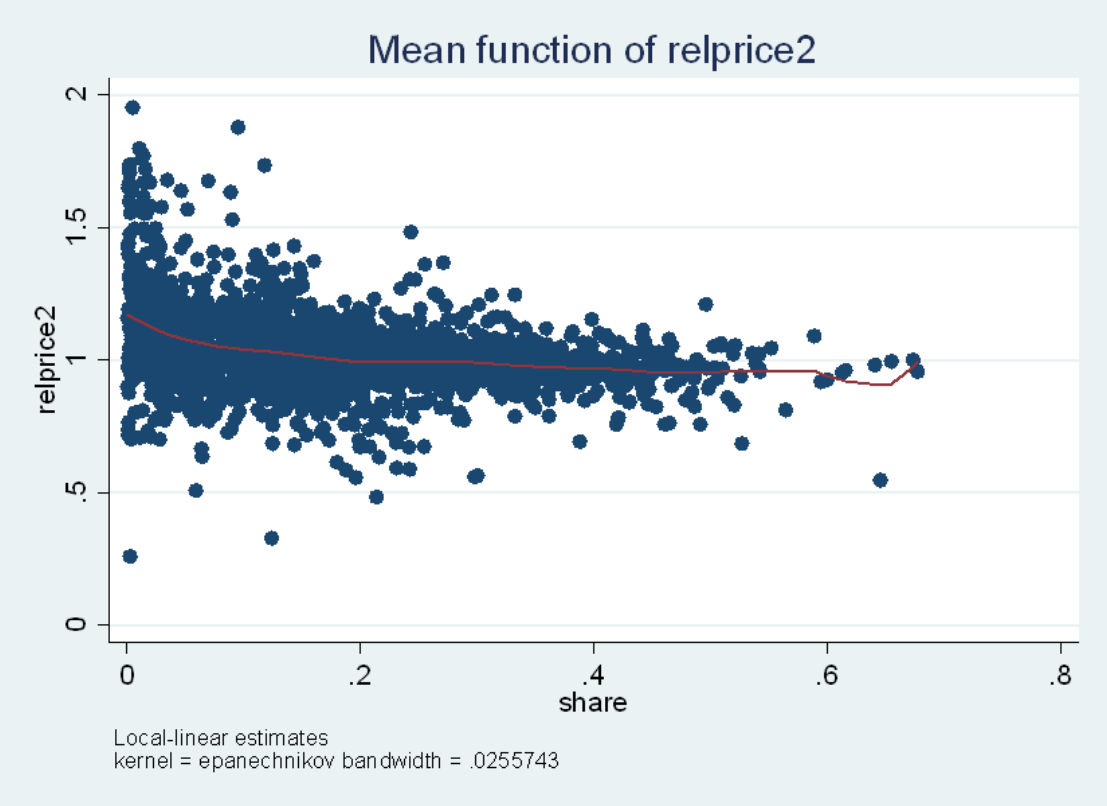
[13] Assume that this difference in the weights, ie quantities, is not due to reasons related to the existing procurement price. For example, one supermarket may run a marketing campaign which may lead to future changes in its procurement prices.

[14] 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.

[15] 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).

[16] Procurement market shares refer to shares for the sampled retailers only.

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	0.0018	-0.0128	-0.0056
10%	-0.0076	0.0008	-0.0094	-0.0065
15%	-0.0054	0.0009	-0.0068	-0.0039
20%	-0.0009	0.0011	-0.0030	0.0012
25%	-0.0003	0.0009	-0.0017	0.0013
30%	-0.0026	0.0010	-0.0049	-0.0008

Source: CMA analysis of third party data.

15. 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%.[17]

16. 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.

[17] 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. We also spoke to [the consultant] directly in order to (amongst other things) better understand the approach it had adopted, and the reasoning behind this.

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 their updated analysis, submitted in response to the Provisional Findings, [the consultant] included additional savings associated with transferring certain Sainsbury's SKUs to Asda's international procurement arm, International Procurement and Logistics ('IPL'). This involved moving certain matched SKUs to a [✂] and achieving better prices on additional unmatched [✂] volumes in relevant products by transferring to [✂] (assuming capex added where necessary for additional capacity).

9. In addition to these analyses, [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

10. 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.

11. The specific process which [the consultant] used for the harmonisation analysis was as follows:

    (a) [The consultant] gathered information on all own label grocery SKUs at Sainsbury's and Asda. It then compared a subset of around [✂] Asda own-label food SKUs with all of Sainsbury's own-label SKUs to try and find equivalent matches between the companies (c.[✂] matches were found). It also used price-matching data and a manual check within other

grocery subcategories to identify an additional c.[✂] matches between the Parties;[1]

(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;

(c) Due to use of a sampling approach of the Asda data (rather than using the available complete SKU lists), [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 of Asda was used, this proportion is unknown). It did this based on the share of Asda's sampled SKUs which were matched;

(d) The calculated savings on matched SKUs were extrapolated to unsampled own-label spend within the same categories (actual unsampled spend for Asda and estimated unsampled spend for Sainsbury's); 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, and food counters).

12. In addition to the above analysis, the Parties' response to the Provisional Findings contained additional analysis by [the consultant] on SKUs where it identified potential savings from transferring [✂]. [The consultant] also considered potential capacity constraints, with additional capacity and associated capex being added where required. For these eligible SKUs, the additional analysis consisted of:

(a) On matched SKUs (as described in the harmonisation analysis above), applying [✂] (with all fixed costs remaining allocated to [✂]).

(b) On unmatched SKUs, reducing unit costs by [✂].

[1] Used in Food for Later, Beer Wine & Spirits, and Baby & Beauty categories.

Supplier Approach (branded groceries)

13. [The consultant] used the Supplier Approach to estimate the purchasing synergies on branded grocery products by using a comparison of a sample of supplier margins for each Party (ie the gross margins generated by the Parties based on the sale of goods from these suppliers) and extrapolating the category savings to remaining suppliers.[2] In the original [consultant's] analysis, the comparison of margins was conducted on the [<100] largest branded grocery suppliers to the Parties. During our investigation, this analysis was extended to most of the remaining branded grocery suppliers, equivalent to an additional [500–600] matched suppliers (ie [600–700] in total), as a result of additional data becoming available. Together these suppliers represented the vast majority of branded grocery spend.

14. 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.

15. The specific process which [the consultant] used was as follows:

    (a) [600-700] branded grocery suppliers were matched between Asda and Sainsbury's. This included both the initial analysis on the top [<100] most significant branded suppliers by revenue ('Top Suppliers'), and the [500–600] additional suppliers included in the updated analysis ('Long Tail Suppliers');

    (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 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

[2] This included suppliers with data issues arising from distributors which were difficult to match to a single supplier group, and those where COGS percentages calculated 'seemed implausible'.

standard deviations away from the mean savings for any single supplier); and

(d) A very small number of branded suppliers which served both Parties had data issues. [The consultant] therefore extrapolated the estimated savings on this spend based on the matched suppliers discussed above. No savings were included for suppliers which only served one Party.[3]

16. 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 individual product. It did this by comparing the volumes and sales of branded products sold at each Party for certain suppliers. In their original submissions, this consisted of [10–20] of the suppliers (the largest in their respective categories). In the submissions in response to the Provisional Findings this analysis was extended to [30–40] suppliers within the Top Suppliers. 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 appearing to be around 0.7 to 0.8.

Supplier Approach (most GM, excluding clothing, bedding, and gardening & DIY)

17. In the Parties' original submissions, this spend was generally assessed using the Category Approach (described below). Following the Provisional Findings, the Parties updated their analysis to use a Supplier Approach for these subcategories due to the availability of data and in response to concerns raised by the CMA.

18. As with branded groceries, the analysis matched GM suppliers between the Parties (in this case [100–200] suppliers), compared the Parties' gross margin generated on the sale of these goods, and adjusted for differences in retail prices. The estimated purchasing synergies on the GM sales of the remaining suppliers was reached by extrapolating the savings from these sampled suppliers to the remaining GM spend.[4]

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[3] Eg Merchandisers or distributors, and suppliers for whom the COGS percentage calculated seemed implausible.
[4] We note that [the third party] applied the same sensitivities to the GM Supplier Approach as to the branded grocery Supplier Approach, however, it did not state whether any mix analysis was conducted on these GM suppliers.

19. For GM products, a comparison of retail prices used to ‘deflate’ Sainsbury’s revenue was generally not available at a department or category level, and so more general price indices were required at times.

20. The Parties’ submissions do not refer to any mix analysis being conducted on these suppliers.

Category Approach (Clothing, bedding, and gardening & DIY)

21. At a high level, the Category Approach used the same methodology as the Supplier Approach and was applied to the remaining GM categories.

22. 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).

23. 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 GM categories/sub-categories: (i) Bedding, (ii) Gardening & DIY, (iii) Womenswear, (iv) Footwear and accessories, (v) Women's and men's essentials, (vi) Men's & school, and (vii) Childrenswear.

    (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 third party information; 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).

24. The Parties’ submissions stated that mix analysis was performed on the Bedding, and Gardening & DIY categories, as well as one clothing subcategory, but no results of this were included.

Fuel Approach

25. 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.

26. 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).

27. 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 [✂] while Asda [✂].

28. 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,[5] and where different contracts explicitly included or excluded certain components in the unit cost price.[6]

    (b) Where both Parties are currently procuring fuel from the same terminal, [the consultant] compared the adjusted commercial cost prices,[7] 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.[8]

    (c) Where Parties are currently procuring fuel from different terminals, but they are relatively close to each other [✂].

29. 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, [✂].

30. When considering the potential synergies available from harmonisation of fuel delivery costs, [the consultant] used the [✂].

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[5] 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.
[6] For example, the cost of fuel additives may or may not be included in the contract.
[7] Base prices and fuel duty are the same at both Parties, so can be excluded from the analysis.
[8] [✂].

Beyond Best Terms ('BBT')

31. In addition to working out the effect of harmonising to the best terms achieved by one of the Parties on existing purchases, and the estimated benefits of transferring [✂], [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.

32. These were estimated on the basis of supplier interviews, where former supplier employees 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.

33. On the basis of these interviews with 7 former senior employees of suppliers,[9] [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:

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.

[9] [The consultant] methodology for calculation of buying synergies.

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.

34. 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 [✂].

35. In these areas, [the consultant] estimated the total cost to serve these PFSs from [✂].

Total purchasing synergies estimate

36. Using the approaches described above, [the consultant] estimated a total purchasing synergies benefit (including fuel) of £[✂], split as follows:

Table 1: [The consultant] sources of estimated procurement synergies

	£(million)
	Estimated procurement synergies
SKU Approach	
Directly compared (non-IPL)	[✂]
Directly compared (using IPL prices)	[✂]
Extrapolate within categories	[✂]
Extrapolate to adjacent categories	[✂]
Unmatched IPL capacity use	[✂]
BBT	[✂]
Total SKU Approach	[✂]
Supplier Approach (branded grocery)	
Top Suppliers	[✂]
Long Tail Suppliers	[✂]
Extrapolation	[✂]
BBT	[✂]
Total Supplier Approach (branded grocery)	[✂]
Supplier Approach (GM)	
Matched GM suppliers	[✂]
Extrapolation	[✂]
BBT	[✂]
Total Supplier Approach (GM)	[✂]
Category Approach	
Clothing	[✂]
Other GM categories	[✂]
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
Note: We have reflected BBT associated with Bedding and Gardening & DIY in the Category Approach (rather than the Supplier Approach), given that this was the approach used to estimate the relevant harmonisation benefits.
Numbers may not sum due to rounding.

37. This analysis indicates that the estimated purchasing synergies would be split such that [✂] would be from grocery, [✂] would be from GM and [✂] from fuel.

Property synergies

38. [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.

39. 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.

40. 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.

41. In addition, the potential savings from closing the relocating Argos stores was factored in, again based on Sainsbury's experiences to date.

42. Taking all of the above into account, the Parties estimated that these Argos expansions would generate £[✂] of revenue synergies and £[✂] of cost synergies.

43. In addition to the estimated synergies from Argos, the Parties expected to generate £[✂] of revenue synergies from [✂].

GNFR synergies

44. The Parties have estimated £[✂] of opex savings from supplier harmonisation and operational improvements in GNFR.

45. The largest elements of this are savings of between [✂].

46. The majority of these estimates are based on the previous experiences of Sainsbury's internal procurement expert in other businesses of this size.

47. 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

48. The Parties have estimated £[✂].

49. [✂].

50. [✂].

Total estimated synergies

51. A summary of the Parties' submitted estimated synergies is included in Table 2 below. For the reasons explained in Chapter 16, 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

£(million)

	Opex estimate	*Variable cost synergies*
Purchasing (incl fuel)	[✂]	[✂]
Argos	[✂]	[✂]
Other property synergies	[✂]	[✂]
GNFR	[✂]	[✂]
Other operational synergies	[✂]	[✂]
Total	***[1.6bn]***	**[✂]**

Source: The Parties.

CMA assessment of efficiencies analysis

52. As discussed in paragraph 16.202 of the Final Report, 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.

53. Paragraphs 16.118 to 16.142 of the Final Report 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.

54. 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;

(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.

55. 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.

56. 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

57. 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.

58. 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.

59. 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.

60. We find it surprising that the Parties appear to consider that a large part of its own label proposition is indistinguishable from each other. In particular, the Parties previously emphasised the importance of own label in the grocery markets. Similarly, Mintel's 2016 report on supermarkets stated that 'It is therefore on own-brand that retailers can really differentiate themselves. Half of grocery shoppers already feel this is the only difference between supermarket operators'.

61. 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%. 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.

62. The Parties argued that the actual differences in the weight of matched products was significantly below this 10%, and small compared with the average saving rate ([✂]), and therefore conclude that the apparent differences in cost cannot be attributable to differences in size or quantity, but instead reflects differences in commercial terms.[10]

63. We consider that the figures quoted by the Parties above support the risks we have identified in the matching approach. Taken at face value, [✂] is relatively large, particularly given this is only with respect to weight differences, and does not account for any differences in the other criteria used by [the consultant] when assigning matches, or any relevant criteria which it did not account for but will matter to some customers (eg average shelf-life, calories/sugar content, packaging quality/ease of use/volume, quality of ingredients, aesthetics/look). Other examples of this mismatch include matching a single Sainsbury's SKU to multiple Asda SKUs which had very different retail prices (so are unlikely to be indistinguishable from each other),[11] matching Sainsbury's premium products with Asda standard products,[12] matching products with very different unit costs and retail prices (and hence are unlikely to be indistinguishable),[13] and matching products where one Party is only sourcing very small quantities and yet the Parties assume they could achieve a lower price across volumes tens or hundreds of times larger.[14,15] The aggregate effect of including additional matches which are not indistinguishable can result in material changes in the total estimated benefits, particularly where unit cost differentials are large, since these savings are also extrapolated to the remaining unsampled spend.

64. For more complex products and comparisons, this matching process becomes even harder, as acknowledged by the Parties.[16] Although the

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[10] Parties' response to the Provisional Findings, paragraph 304.
[11] For example, [✂].
[12] For example, [✂].
[13] For example, [✂].
[14] For example, [✂].
[15] Similarly, [✂].
[16] Parties' response to the Provisional Findings, paragraph 305.

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 (eg each will have a margherita pizza), 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.[17]

65. The Parties stated that the analysis reflects the difficulties with harmonising more complex products by having a lower match rate.[18] However, we note that there still appear to be large numbers of these complex products included as being matched in the harmonisation analysis, generating a material estimated saving. For example, [✂].[19]

66. 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).

67. The Parties also argued that harmonisation in own label, and the associated negotiation process, will often involve [✂], and greater alignment and convergence of products and product specifications in the future.[20]

68. We consider that [✂] and convergence of products could potentially give rise to cost savings in procurement. However, this would no longer represent a pure 'harmonisation of existing terms' exercise (as reflected in the SKU Approach), and instead would be dependent on much more significant changes to the Parties' existing proposition. In [✂] or converging their products, the Parties would be making fundamental changes in their existing ranges. For example, if products were changed to reduce their input costs, it appears likely that the retail price would also need to reflect this, as customers would recognise differences and changes to these products and would expect

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[17] For example, complex, processed own-label products such as chicken tikka masala were listed as equivalent, [✂].
[18] Parties' response to the Provisional Findings, paragraphs 305 and 306.
[19] [✂] matched SKUs, saving an average of [✂]% of combined COGS on matched SKUs (excluding duplicate entries).
[20] Parties' response to the Provisional Findings, paragraphs 309 and 310.

to pay a commensurate price for them. It 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 (as is assumed in the SKU Approach calculation). This is particularly pertinent where the Parties would need to justify charging different retail prices in Asda vs Sainsbury's for exactly the same product, in circumstances where customers would be aware that they are under shared ownership. Alignment of SKUs would also result in less differentiation between the Parties' two brands in the future, a point which appears counter to the Parties' stated intentions,[21] as well as resulting in a reduction of range and choice for consumers.

69. The harmonisation estimates from the SKU Approach do not include any of these associated broader changes which would be necessary to reflect changes in the SKUs (eg changes in retail prices), and are therefore likely to overestimate the potential savings.

Differences in cost to serve the Parties and recovery of fixed costs

70. 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, including the recovery of fixed costs.

71. 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 trucks which are only partially full), as well as differing levels of service provide (for example, whether produce is supplied loose or pre-packed).

72. The Parties stated that there would be no significant differences in the cost to serve each of them due to [✂].[22]

73. While we agree with the Parties' overall point that they have broadly similar operations at a high level, when conducting a SKU-by-SKU analysis (or even supplier-by-supplier), there are likely to be important differences which are not reflected in the [consultant's] analysis. For example, if one Party looked to organise more frequent deliveries (in order to minimise the time between a product being manufactured and it reaching the store, and hence provide a longer average shelf-life to the consumer), then this would likely be higher associated logistics costs for the suppler, who would need to recover this from the relevant Party resulting in higher unit costs.

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[21] 'We will maintain and invest in the combined business to ensure we keep what customers already love about each distinctive brand – and add to it' (Proposed Sainsbury's and Asda merger).
[22] Parties' response to the Provisional Findings, paragraph 312.

74. 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 potentially affect costs and margins', in particular accounting for differences in the treatment of coupons, foreign exchange rates, prior year accounting adjustments and waste.

75. Although we understand that [the consultant] may have 'inspected' these elements, we have not been provided with the approach or results.[23] In addition, 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).

76. Furthermore, we have considered the extent to which serving one Party profitably at a given unit cost necessarily means they are able to serve the other at this unit cost as well, in particular where the different retailers have adopted different promotional strategies. An illustrative example of this is shown below:

[23] Parties' response to the Provisional Findings, paragraph 313 stated 'The results of this assessment are provided in Annex_001V.2_003', however no such assessment (or any results) are discussed.

Table 3: Illustration of fixed cost recovery

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.
Note: Some instances of rounding but does not materially affect the results.

77. 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

Source: CMA analysis.

78. The savings calculated for Retailer B are equivalent to reflecting the difference in average unit cost price between Retailer A and B.[24] 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.[25]

79. The Parties argued that the figures chosen in this example explicitly rule out the possibility of any benefits arising from the Merger as a result of receiving more information (or effects from increased buyer power), and not including a reduction in the supplier's fixed cost base as a result of dealing with one buyer rather than two. Therefore, they consider that it is unsurprising that an estimation methodology that is designed to estimate improved terms will lead to suppliers making losses, and that this is therefore not relevant to the harmonisation process.[26]

80. We agree with the Parties that the example provided is one in which the supplier would not be able to profitably serve both customers at the equivalent gross margins post-Merger. We consider that this reflects an issue with the harmonisation approach adopted by the Parties, and in particular is an example contrary to their statement that 'the Parties will quickly and easily determine whether the supplier is able to provide [one Party] product volumes at lower price terms than it is currently supplying'. We note that the specific approach which a supplier adopts to recovering its fixed costs from different customers will vary, and similar examples to the above could be constructed for a range of scenarios.[27]

81. With regard to the potential savings from reducing the supplier's fixed cost base, this is a separate consideration to the basis of harmonisation (which the Parties included in their BBT estimate) and so does not undermine the above analysis regarding the principles of harmonisation reflected in the Parties' calculation methodology.

82. Since the uncertainty around these cost-to-serve factors appear to not have been fully accounted for in the [the consultant] analysis, they introduce additional uncertainty regarding the robustness of any estimates produced.

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[24] Average COGS per Unit for Retailer A - Average COGS per Unit for Retailer B * Total Volumes of Retailer B: [✂].
[25] Supplier revenue for Retailer B would reduce to 93, but its total supplier costs would be unchanged, resulting in negative contribution.
[26] Parties' response to the Provisional Findings, paragraphs 314 and 315.
[27] Parties' response to the Provisional Findings, paragraph 316.

Differences in non-price factors with suppliers

83. 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.

84. 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.[28] We have heard similar views from some suppliers in this inquiry.

85. 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.

86. We consider that the area which is most clearly affected by this concern is the [the consultant] estimates of potential synergies arising from fuel. This is discussed in more detail in paragraphs 16.160 to 16.165, and so has not been repeated here.

87. However, we note that although fuel represents the clearest example of a difference in approach by the Parties in which their difference in procurement approach would demonstrate value on non-price effects (eg risk transfer), the same principles could also exist with regard to other procurement around groceries and GM. This can relate to additional contractual obligations such as agreements around pricing mechanisms (eg use of open book pricing), intention for future co-investment / funding for growth, visibility of product placement on shelves by the retailer, or guarantees around availability. Another example of this could be Sainsbury's decision to continue to rely on third party importers rather than setting up an internal procurement arm to deal with international primary producers directly (as Asda appears to have done with IPL).

88. The [consultant's] analysis only reflects unit cost differences, and so has not accounted for any benefits or differences for non-price effects that exist in any contracts between the Parties and their suppliers.

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[28] For example, Grocery Market Investigation (2008), Appendix 5.3, paragraph 12.

Mix effects

89. 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.

90. [The consultant] has attempted to control for the first of these (by adjusting Sainsbury's revenue as described in paragraphs 15(b), 19 and 23(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.

91. In order to test the mix effects, [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 16 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 [✂].[29] 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'.

92. 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:

[29] We note that the Parties' latest submission only includes the results of the mix effects analysis for 32 of the Top Suppliers.

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.

93. 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.[30]

94. The Parties stated that this example is 'very extreme', 'not representative' and 'detached from reality'. In particular, they stated that [✂].[31]

95. We agree that the above example is illustrative, but it nevertheless demonstrates that having a high adjusted R-squared is entirely consistent with having material mix effects, even to the extent of explaining the entire observed difference in total gross margin. Furthermore, even on the basis of the limited SKU-level data provided, and only considering the branded sales of the [✂] Top Suppliers in Sainsbury's, there are [✂] which contradict the Parties' statement by [✂].[32]

96. Even if the effect was more muted than the example we have included above would suggest, if [✂]% of observed differences in gross margin was

[30] Since 100% of products sold are branded, and 100% of SKUs are common between Party A and B. In addition, [✂].
[31] Parties' response to the Provisional Findings, paragraph 320.
[32] For example, [✂].

attributable to mix effects rather than harmonisation, this would reduce the potential savings from the harmonisation of Top Suppliers (and the extrapolations which rely on it) by around [✂]%.

97. With regard to the Parties' statement about [✂], but no difference to the error in harmonisation estimated. We also note that [✂].

98. We also note that the [the consultant] mix analysis did not include all SKUs which the Parties purchased from a supplier, instead only focusing on the SKUs with the highest spend. This approach 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.

99. The risks we have identified appear 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 [✂]% of Asda's sales were in SKUs which appear not to be sold at Sainsbury's.[33]

100. 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 and assuming that mix effects are immaterial, particularly where the Party with lower volumes is apparently achieving substantially better cost prices. 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, even using the Parties' latest analysis.[34] In fact, the latest analysis appears to have introduced substantially more of these potentially counterintuitive results by applying the Supplier Approach to the Long Tail of branded grocery suppliers,[35] and GM Suppliers.[36] This raises further questions about the potential effects of differences in mix, in particular since applying high gross margins based on small levels of spend to much larger volumes results in a disproportionately high level of expected savings.

101. The latest analysis also reveals additional evidence about the Supplier Approach which would support the issues identified around mix effects. In

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[33] [✂].
[34] For example, [✂].
[35] For example, [✂].
[36] For example, [✂].

particular, there are examples where the category share of Long Tail suppliers and GM suppliers would indicate that there can be no overlap of SKUs at all,[37] and yet the Supplier Approach continues to assume that the product mix is sufficiently similar to warrant no adjustments.[38] Since there is no difference in underlying prices (as there are no comparable SKUs), this mix effects can only result in a upward bias on the Parties' estimated savings.

102. In response to concerns raised by the CMA that no mix analysis was conducted on smaller suppliers, the Parties argued that it was not necessary to conduct any mix analysis on smaller suppliers, since [✂].[39]

103. While the Parties' analysis appears to show smaller suppliers [✂], we would be concerned about relying on this as an argument that mix effects would be immaterial for smaller suppliers. In particular:

(a) As noted above, when estimated differences in price are small, the mix effects may continue to be material even if [✂].

(b) While the Parties included some evidence in their submission to support their views, additional analysis on [✂] and hence mix effects.[40]

(c) The Parties highlighted the issues with conducting SKU-by-SKU analysis for branded products due to the issues with allocating over-rider spend which could affect SKU-level costs.

(d) Smaller branded suppliers may be more likely to have SKUs which are not sold at both Parties (eg exclusive products), and so should not have any benefits from harmonisation. By not conducting any mix analysis on smaller suppliers, the Parties have ignored this risk.

104. As discussed in paragraph 97 above, [✂].

105. 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.[41]

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[37] For example, [✂].
[38] No caps were applied to the estimated savings from any of these examples where category share would indicate that there can be no overlap of SKUs at all.
[39] Parties' response to the Provisional Findings, paragraphs 323 and 324.
[40] For the 901 to 1,000 largest suppliers of branded goods to Sainsbury's generate a mean difference of around [✂] percentage points in the gross margins between their first and third quartile of products; [✂].
[41] We note that Annex 001V.2 001a, slide 50 states that mix analysis was conducted on two GM subcategories and childrenswear, although the analysis or results of this were not included in any of the Parties' submissions.

106. The Parties argued that the Category Approach was conservative due to its aggregated nature, and was significantly downweighted in the sensitised estimate.[42]

107. We agree that the aggregated nature of the Category Approach results in a lower estimate of potential savings compared with an approach which is based on achieving best terms at each individual supplier, as long as each supplier generates a saving. However, the approach also makes broad assumptions which could result in an overestimate of harmonisation. For example, it does not account for the existence of spend that cannot be harmonised, such as unique suppliers or SKUs not sold at both Parties, instead implicitly assuming that harmonisation savings can be achieved across the entirety of combined spend. This would clearly result in an overestimate of the effects of harmonisation and is exactly the issue which could be investigated by an assessment of mix effects. Therefore, it is not clear that the Category Approach overall is necessarily conservative.

108. Furthermore, the Parties' argument that the Category Approach was significantly downweighted in the sensitised estimate appears to support the concerns we have identified, in that it reflects [the third party's] view that this methodology had demonstrated lower levels of rigour and objectivity.

109. In aggregate, 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).[43]

110. Finally, the Parties argued that there is no clear systematic bias introduced by mix effects. They stated that it is not clear that any difference in the mix of products would amplify the difference in margins compared with a fixed basket, and that it could just as well dampen the differences.[44]

111. Where mix effects are relatively large compared with the differences in underlying price, the methodology adopted by the Parties will inevitably result in an overestimate of the potential savings. This is as a result of always applying the best terms from either Party to the entire combined spend. Therefore, if there were no differences in underlying price (as in the example shown in Table 5 above), any differences in mix would result in a positive estimated savings (ie an overestimate of harmonisation). A similar issue

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[42] Parties' response to the Provisional Findings, paragraphs 325 and 326.
[43] These figures are based on including the estimated benefits of "Directly compared (using IPL prices)", but excluding the "Unmatched IPL capacity use". If you exclude all benefits associated with IPL, these figures increase to [✂]% and [✂]% respectively.
[44] Parties' response to the Provisional Findings, paragraph 318.

would arise in any circumstances where the mix effect is relatively large compared to the differences in underlying prices.[45] The evidence we have discussed above demonstrates that the Parties' analysis is prone to large mix effects, while there is limited evidence for any difference in actual underlying price (other than that which is predicated on the apparently flawed assumption that no mix effects exist).

112. Therefore, the lack of sufficient controls to account for mix effects results in the Parties' estimated figures of harmonisation being less robust, and due to the methodology adopted would result in an intrinsic upwards bias (ie overestimating the potential savings).

Other methodological choices and assumptions

113. 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

114. The Parties have generally ignored the risk that suppliers do not have unlimited capacity, and so some may have some degree of capacity constraints which would limit their ability to provide additional volumes if the Parties harmonised their purchasing by transferring of volumes.

115. 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.

116. 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

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[45] For example, if Party A had 1% lower prices, and the difference in mix was equivalent to 3% then the implied outcome would be either 4% (if these effects were complimentary) attributable to Party A or 2% (if these effects were offsetting) attributable to Party B. Either of these would result in a larger estimate of potential savings from harmonisation than the true difference in price.

exists, which we are told are based on research and/or interviews with no specifics being provided.

117. In their latest response, the Parties stated that [✂].[46]

118. [✂], but the Parties have incorporated assumptions around these into their synergies analysis methodology and propose that we rely on this figure in our competitive assessment. We would expect these assumptions to be supported by evidence. In this case, the Parties do not appear to have been able to provide such evidence, which raises questions about the validity of the assumptions they have used.

Statements around scale of suppliers

119. 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 about potential inconsistencies between the Parties' statements 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',[47] 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'.[48] 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.

120. 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 suppliers making up the majority of the Parties' spend, and presumably hence the majority of synergies. The Parties provided various figures to demonstrate their estimated combined spend with 'large international suppliers'. In particular, they stated that the top 150 grocery suppliers at each of the Parties (equivalent to [✂] unique suppliers once duplicates were removed) included both own label and branded suppliers, and in total accounted for [✂]% of grocery spend, and it was therefore logical to assume that most of the savings would come from them.

[46] Parties' response to the Provisional Findings, paragraph 297.
[47] Factsheet: Proposed Sainsbury's and Asda merger.
[48] Webcast to the Merger announcement, 56 minutes.

121. 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. 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 were 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 or around [✂]% of the harmonisation benefits from grocery,[49] and is a smaller proportion than the percentage savings generated by the Long Tail of branded grocery suppliers and by GM suppliers.[50]

122. The above analysis would indicate that 'large international suppliers' appear to be bearing a [✂] proportion of the efficiencies.

Extrapolating data

123. [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 GM 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.

124. The Parties stated that the approach was robust, since the samples represented a large proportion of spend and were representative of the wider population.[51] They also noted the time and data constraints on the analysis.

125. We consider that the implications of this extrapolation include some clearly counterintuitive results, in particular that extrapolating the estimated savings from the GM Suppliers to unmatched spend implies that GM suppliers which only serve one Party would still generate harmonisation benefits.

126. We were not convinced by the Parties' submissions around robustness and the reasons for their approach. In particular:

    (a) the analysis relied on an approach whereby it compared a sample of Asda SKUs with Sainsbury's SKUs. This is despite [the consultant] having

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[49] This includes 'Directly compared (using IPL prices)', but excludes 'unmatched IPL capacity use'.
[50] Average percentage harmonisation benefits for Top Suppliers was [✂]%, for Long Tail of Suppliers it was [✂]% and for matched GM Suppliers it was [✂]%.
[51] This submission was primarily related to aspects of the analysis which the Parties have subsequently changed to no longer rely on extrapolation, but we have conservatively assumed applies to the remaining uses of extrapolation as the Parties have not provided any additional arguments to support this approach.

information on all own label SKU information for both Parties when conducting its latest analysis. In doing this, not only is there a reduced set of matches which could result in non-representative extrapolations (as discussed below), but it also required additional assumptions to try an estimate the Sainsbury's unmatched spend in the sample which could have been avoided.

(b) 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.[52]

(c) In the GM Supplier Approach, the Parties do not appear to have conducted any analysis to test whether extrapolating savings based on £[✂] of matched suppliers to over £[✂] of additional spend would be reasonable. In one GM category, the spend covered by 'matched' GM Suppliers accounted for less than [✂]% of the category, and yet the estimated savings rate was directly extrapolated across the entire category.[53]

(d) In regard to potential time and data constraints, the Parties originally commissioned [the consultant] to undertake this work in mid-2017, and have subsequently updated its analysis during our investigation. Therefore, [the consultant] could have had access to the additional time and data to address some or all of these points.

IPL savings

127. The Parties' response to the Provisional Findings included a new analysis on potential sources of synergies in own label products, including estimated benefits from transferring volumes [✂] to IPL (Asda's procurement arm).

[52] Lower matching rates were acknowledged by the Parties in response to the CMA's Efficiencies working paper.
[53] [✂]. We note that applying this extrapolation at a more granular 'department' level would not change the low share of matched coverage within the category.

128. As discussed in paragraph 87 above, estimating the benefits from transferring procurement to an internal sourcing arm to [✂]. These same concerns would appear to apply to this IPL analysis.

129. Due to the timing of this submission, we have had limited time to review the specifics of the estimation, but note a number of potential concerns with the methodology, including:

(a) The analysis has assumed that [✂] alone can result in savings of up to [✂]% of COGS on certain products, which appears relatively high.

(b) Over [✂] have no data, yet it is assumed that these could generate [✂]% savings ([✂]).

(c) When transferring volumes [✂], the analysis appears to assume that fixed cost recovery is [✂], even when those volumes are transferred [✂].

130. Furthermore, no testable sources have been provided for most of the figures included. For example, [✂].

Deflating to account for differences in retail prices

131. As described in paragraph 90 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.

132. For Top Suppliers, 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.

133. 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.[54]

134. Furthermore, in the Parties' response to the Provisional Findings, when the Supplier Approach was expanded to include the Long Tail of grocery suppliers, this problem appears to have been exacerbated both as a result of having to rely on less accurate estimates of the Value Index (eg using category or sub-category estimates), and due to the issue identified above where the Parties continued to make no adjustments.[55]

135. For GM (including clothing), [the consultant] initially built its own bespoke index by manually checking price differences between the Parties on [✂] items of 'matched' clothing and [✂] GM items. In response to the Provisional Findings, the analysis was updated to use price indices based on SKU-level price matches provided by Asda.

136. The Parties did not explain their exact approach to developing GM price indices, but we note the following would raise some concerns about the accuracy of these deflators for calculating potential savings on GM in Sainsbury's and Asda:

(a) Of the [100–200] suppliers included in the GM Supplier approach, over [✂]% had no comparisons of prices between Asda and Sainsbury's included in these indices. Instead, these all relied on either estimated price differences between Asda and Argos, or category-level estimates.

(b) No explanation was provided about match rates or the number of observations used in the Category Approach.

(c) [The third party] referred to the price indices as being "not *known* data", but noted that it came from a reputable source. This would indicate that the Parties have not relied on this in the past in their commercial decision-making, and so would provide less reassurance around its accuracy.

137. Accordingly, we consider that the approach to deflating these revenues is prone to error, particularly for GM.

[54] For example, [✂].
[55] We note that the deflated revenues of the Long Tail of suppliers was hardcoded in [✂] and the Parties did not provide any explicit information on which deflators were used. However, as with Top Suppliers, there is no analysis on the tabs which calculated relevant deflators to indicate any adjustments had been made.

Approach to estimating BBT

138. [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 16.89 to 16.102.

139. 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'.[56]

140. 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. 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.

141. 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.

142. We particularly note that the majority of BBT savings are derived from branded goods, of which almost all are based on what appears to be 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 in grocery to around [✂]% of the current estimate and in GM lower than [✂]% of its current estimate.

143. 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

[56] Supermarkets: A report on the supply of groceries from multiple stores in the United Kingdom, paragraph 11.104.

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 (noting that the Parties' response to the Provisional Findings did not respond to this point).

Use of and selection of harmonisation caps

144. We consider that the caps set by the Parties to address differences in sales mix (eg as described in paragraph 15(c) above), which they stated are conservative, are based on very limited or no evidence as to the selection of specific figures or conditions.

145. 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. We particularly note that the selection of the level of this cap ([✂]% of combined COGS) is set above [✂].

146. When this was put to the Parties, they 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 89 to 112) 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.

147. Furthermore, the Parties' approach to applying their caps was based applying these figures to their combined spend. However, the principles of harmonisation would indicate that the correct figure would only include the spend from the Party currently receiving worse terms (since the Party with the better existing terms would be unaffected). This results in the implied level of savings for certain suppliers being very different to that indicated by the caps quoted by the Parties. For example when comparing against the level of saving on only the affected spend:

    (a) In the Top Supplier Approach, the Parties estimated [✂]% savings on existing spend which was uncapped;[57] the 5% cap allowed savings of up to [✂]%;[58] while applying a cap of two standard deviations from the median ([✂]%) allowed savings of up to [✂]%.[59]

[57] [✂].
[58] [✂].
[59] [✂].

(b) In the Long Tail Supplier Approach, the Parties estimated [✂]% savings on existing spend which was uncapped;[60] the 5% cap allowed savings of up to [✂]%;[61] while applying a cap of two standard deviations from the median ([✂]%) allowed savings of up to [✂]%.[62]

(c) In the GM Supplier Approach, the Parties estimated [✂]% savings on existing spend which was uncapped;[63] no 5% caps were applied to individual suppliers; applying a cap of two standard deviations from the median ([✂]%) allowed savings of up to [✂]%.[64]

(d) In the Category Approach, the Parties estimated [✂]% savings on existing spend which was uncapped;[65] the 5% cap actually allowed savings of up to [✂]%.[66]

148. The effect of this appears likely to be material. In clothing (which relies on the Category Approach), applying the 5% cap to the existing spend receiving worse terms rather than the combined spend would reduce the estimated savings from harmonisation by over [✂]%.

Results of [the third party] review

149. As discussed in paragraphs 16.27 to 16.34 of the Final Report, 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.

150. [The third party] reviewed the Parties' synergies plans, which relied 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'.[67]

151. [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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[60] [✂].
[61] [✂].
[62] [✂].
[63] [✂].
[64] [✂].
[65] [✂].
[66] [✂].
[67] Extract from Rule 28.3 of the Takeover Code.

development, the access to data and personnel possible, and the level of verifiable evidence. A copy of this report was submitted to us at the start of our investigation.

152. In response to our Provisional Findings, the Parties commissioned [the consultant] and [the third party] to conduct further work on their synergies plan and the corresponding estimated and sensitised figures. In particular, the Parties engaged [the consultant] to 'Work with [the third party] to increase the net value of buying synergies by a target of £[✂] through identification of potential methodologies and provision of additional information'. The results of this latest assessment 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 (groceries and GM)	[£1.2bn]	£729m	[c.60%]
Fuel	[✂]	[✂]	[✂]
Argos	[✂]	[✂]	[✂]
Other property synergies	[✂]	[✂]	[✂]
GNFR	[✂]	[✂]	[✂]
Other operational synergies	[✂]	[✂]	[✂]
Total	**[£1.6bn]**	**[£1.0bn]**	**[c.60%]**

Source: [The consultant's] analysis, [the third party's] analysis.

153. The above table indicates that the updated figures produced by [the consultant] would not be considered to meet the standard required for [the third party] to report them without qualification. [The third party] has substantially reduced the total figure to around 60% of the original level computed by [the consultant].

Appendix N: SLCs

Supply of groceries in supermarkets

1. For the reasons set out in our national assessment in Chapter 8, we found that the loss of competition between the Parties as a result of the Merger would give rise to an incentive to degrade PQRS across the Parties' national supermarket estates, which may be expected to result in an SLC in each local area where one or more of the Parties' supermarkets are present.

2. For the reasons set out in our local assessment in Chapter 8, we have found that the Merger may be expected to result in an SLC in 537 local areas in which both Parties are present. As explained in Chapter 7, we define local markets by reference to a 15 minutes' drive-time catchment area around each supermarket of the Parties (referred to as the centroid supermarket). We have listed below the centroid supermarkets around which we have found an SLC on the basis of this market definition.

Table 1: Centroid supermarkets around which we find an SLC (local assessment)

	Store postcode	*GUPPI (%)*
1	HU3 4PE	[✂]
2	AB10 7QA	[✂]
3	OL6 7PF	[✂]
4	LE10 1SS	[✂]
5	WN7 5RZ	[✂]
6	CH49 5PD	[✂]
7	LS16 7RY	[✂]
8	G77 6EY	[✂]
9	DA11 0DQ	[✂]
10	SL1 9LA	[✂]
11	NR30 1SF	[✂]
12	HD2 2LQ	[✂]
13	SS14 3AF	[✂]
14	CR0 4XS	[✂]
15	NG31 6NZ	[✂]
16	KT20 5NZ	[✂]
17	ST5 0AP	[✂]
18	B78 3HB	[✂]
19	PL6 8TB	[✂]
20	DN17 2XF	[✂]
21	EH54 6NB	[✂]
22	NP44 1UL	[✂]
23	CT1 1DG	[✂]
24	BS14 0ST	[✂]
25	CM3 5SY	[✂]
26	G72 0AQ	[✂]
27	DY5 3BJ	[✂]
28	PO7 7XR	[✂]
29	CM2 6RE	[✂]
30	BB12 0EQ	[✂]
31	RG6 5TT	[✂]

	Store postcode	*GUPPI (%)*
32	WS11 1LH	[✂]
33	SS14 1AE	[✂]
34	SG18 0JS	[✂]
35	IP33 3SP	[✂]
36	CT20 1AU	[✂]
37	DE14 3TN	[✂]
38	CV3 4AR	[✂]
39	NN2 7AZ	[✂]
40	SY3 7ET	[✂]
41	BL3 2QS	[✂]
42	HA3 7AE	[✂]
43	AB11 5EJ	[✂]
44	L6 5DR	[✂]
45	SS6 9RN	[✂]
46	SP10 2RW	[✂]
47	WR1 2DA	[✂]
48	B63 4AB	[✂]
49	IP2 9EG	[✂]
50	BT20 4SD	[✂]
51	BT11 9BQ	[✂]
52	BT52 1QP	[✂]
53	BT16 1RN	[✂]
54	KA22 8BZ	[✂]
55	TN37 7AA	[✂]
56	SN12 8LQ	[✂]
57	SG12 0AD	[✂]
58	CH41 6EB	[✂]
59	ML9 1QP	[✂]
60	B29 5UP	[✂]
61	NR4 6DP	[✂]
62	S5 8NH	[✂]
63	BN15 8AG	[✂]
64	UB3 4AZ	[✂]
65	GL51 6PN	[✂]
66	NE6 2XP	[✂]
67	SK7 4AG	[✂]
68	B14 7BW	[✂]
69	[✂]	[✂]
70	BT63 5AQ	[✂]
71	NN16 9HU	[✂]
72	EH20 9NY	[✂]
73	TW7 7DY	[✂]
74	LS21 1HE	[✂]
75	S41 8JZ	[✂]
76	WV10 0QB	[✂]
77	CV6 3EX	[✂]
78	DN15 6TA	[✂]
79	DN7 5DX	[✂]
80	SG4 9TY	[✂]
81	EN11 8HD	[✂]
82	NN4 8ER	[✂]
83	DY10 1HG	[✂]
84	NG18 5LG	[✂]
85	S80 2BJ	[✂]
86	S81 7AZ	[✂]
87	ST4 2HE	[✂]
88	ST13 6EN	[✂]

	Store postcode	*GUPPI (%)*
89	M46 9JZ	[✂]
90	L13 6RH	[✂]
91	SR4 9AS	[✂]
92	HD5 9AD	[✂]
93	S8 0SQ	[✂]
94	WF2 9BL	[✂]
95	DA17 6DF	[✂]
96	TR7 1RN	[✂]
97	N17 9JF	[✂]
98	CR4 3EB	[✂]
99	OL6 8ER	[✂]
100	EN3 4EF	[✂]
101	HA2 8JN	[✂]
102	NE15 8SD	[✂]
103	BD10 0BT	[✂]
104	DN31 1UF	[✂]
105	DL6 1DY	[✂]
106	BL3 4EB	[✂]
107	SK4 1JG	[✂]
108	S6 1TA	[✂]
109	WN7 1QX	[✂]
110	L20 6HX	[✂]
111	BB3 1BE	[✂]
112	N14 5PW	[✂]
113	M41 7ZA	[✂]
114	LE3 2LL	[✂]
115	LN6 8JY	[✂]
116	DE24 3DS	[✂]
117	ST6 6AT	[✂]
118	PL31 2AR	[✂]
119	CB1 3ER	[✂]
120	WF12 9AE	[✂]
121	SG1 1LA	[✂]
122	PR9 0TY	[✂]
123	NP12 0NT	[✂]
124	DL14 7LB	[✂]
125	NW10 7LW	[✂]
126	B69 4PU	[✂]
127	HR2 7JE	[✂]
128	BH8 9UP	[✂]
129	DA6 7BN	[✂]
130	SS3 8DA	[✂]
131	DE21 7LW	[✂]
132	LA1 5JR	[✂]
133	WN5 0XA	[✂]
134	ST16 3TA	[✂]
135	BS30 7DY	[✂]
136	SO40 3ZA	[✂]
137	E6 5JP	[✂]
138	HP12 4NU	[✂]
139	WF2 7EQ	[✂]
140	E14 3BT	[✂]
141	SE7 7ST	[✂]
142	EH15 3AR	[✂]
143	WA1 2QA	[✂]
144	DN32 9DL	[✂]
145	SK1 1UA	[✂]

	Store postcode	*GUPPI (%)*
146	NW9 0AS	[✂]
147	HP2 4AA	[✂]
148	PR2 9NP	[✂]
149	AB12 4XP	[✂]
150	SR2 9TT	[✂]
151	CV11 4FL	[✂]
152	WD24 7RT	[✂]
153	L24 9WA	[✂]
154	BN1 8AS	[✂]
155	BS3 4JY	[✂]
156	KT2 6QL	[✂]
157	WS3 3JR	[✂]
158	E10 5NH	[✂]
159	BR8 7UN	[✂]
160	M15 5AS	[✂]
161	DA9 9BT	[✂]
162	CV31 1YD	[✂]
163	LU5 4JD	[✂]
164	EH14 1RJ	[✂]
165	PR6 7JY	[✂]
166	PO14 1TT	[✂]
167	PO9 3QW	[✂]
168	G81 2RZ	[✂]
169	TR10 9LY	[✂]
170	NE12 9SJ	[✂]
171	CO4 5TU	[✂]
172	RH11 7AH	[✂]
173	HA9 9EX	[✂]
174	YO32 9LF	[✂]
175	MK1 1QB	[✂]
176	E17 7LS	[✂]
177	NE38 7NF	[✂]
178	ME5 9SE	[✂]
179	AL10 0JP	[✂]
180	M22 4QN	[✂]
181	M12 4QN	[✂]
182	TS18 2DS	[✂]
183	CH6 5BG	[✂]
184	YO31 7UZ	[✂]
185	DN2 4PE	[✂]
186	LA4 5QW	[✂]
187	DL1 4DF	[✂]
188	OL4 2RB	[✂]
189	WN3 6XA	[✂]
190	DA6 8EQ	[✂]
191	SE15 4NB	[✂]
192	SO30 3DQ	[✂]
193	E5 9AG	[✂]
194	NN2 6LS	[✂]
195	ST6 4HE	[✂]
196	ST5 0EN	[✂]
197	DY2 9RF	[✂]
198	WS11 8UF	[✂]
199	B32 1AD	[✂]
200	IG11 8FJ	[✂]
201	S20 7AB	[✂]
202	TQ2 7AN	[✂]

	Store postcode	*GUPPI (%)*
203	GU22 8BD	[✂]
204	TN2 3EY	[✂]
205	BS34 7JL	[✂]
206	PE30 3UG	[✂]
207	PO302QH	[✂]
208	SK8 5BB	[✂]
209	BN12 6PN	[✂]
210	DL1 2BJ	[✂]
211	CH41 7BG	[✂]
212	GL2 2SN	[✂]
213	CV3 5HN	[✂]
214	TQ4 7EP	[✂]
215	RM8 1BB	[✂]
216	GU21 5SE	[✂]
217	[✂]	[✂]
218	SK4 1TN	[✂]
219	CW9 5LG	[✂]
220	B98 7ER	[✂]
221	HA4 0FY	[✂]
222	CB7 5HH	[✂]
223	SM3 9HB	[✂]
224	SE13 7SD	[✂]
225	SK6 6AU	[✂]
226	NG8 3AP	[✂]
227	CF33 6BU	[✂]
228	MK3 5QW	[✂]
229	NE23 6QW	[✂]
230	E1 4UJ	[✂]
231	SE8 4AD	[✂]
232	NG5 7ED	[✂]
233	BN2 5UT	[✂]
234	WA5 8UG	[✂]
235	ML3 6AD	[✂]
236	DT4 8JQ	[✂]
237	OX33 1YZ	[✂]
238	DD4 7RX	[✂]
239	SW15 3DT	[✂]
240	CH62 3QP	[✂]
241	NE3 5BU	[✂]
242	NG7 5FP	[✂]
243	SW11 1JG	[✂]
244	GU14 7LT	[✂]
245	LA9 7JA	[✂]
246	L4 9XU	[✂]
247	BB8 8LU	[✂]
248	WV1 4DE	[✂]
249	DL1 3RB	[✂]
250	ME10 2PD	[✂]
251	KA12 8EH	[✂]
252	RG22 4DH	[✂]
253	TA1 2AN	[✂]
254	DY5 1QL	[✂]
255	SO53 3YJ	[✂]
256	CH45 4NZ	[✂]
257	LU2 9TA	[✂]
258	B76 1XL	[✂]
259	LE2 4AH	[✂]

	Store postcode	*GUPPI (%)*
260	SO14 7EG	[✂]
261	SN5 7DL	[✂]
262	RG30 4EL	[✂]
263	BA14 8AT	[✂]
264	TS18 2PB	[✂]
265	TF3 4HZ	[✂]
266	LS11 8AG	[✂]
267	WA14 5ZR	[✂]
268	OX11 6GD	[✂]
269	ST2 9AL	[✂]
270	LE4 8GN	[✂]
271	CV21 3EB	[✂]
272	CM20 1AN	[✂]
273	TQ12 1TG	[✂]
274	RM1 3EE	[✂]
275	KA8 9BF	[✂]
276	SM1 1LD	[✂]
277	HX1 4PG	[✂]
278	TA6 5AZ	[✂]
279	BA11 5LA	[✂]
280	BH15 1JQ	[✂]
281	L20 4BB	[✂]
282	N9 0AL	[✂]
283	BD21 3ER	[✂]
284	EH6 6NX	[✂]
285	B90 3GG	[✂]
286	CH65 0BZ	[✂]
287	DA1 4HW	[✂]
288	SO16 8HY	[✂]
289	KY2 6QL	[✂]
290	TF3 4AG	[✂]
291	EN11 8HF	[✂]
292	SM6 9AA	[✂]
293	L9 1NL	[✂]
294	BT64 1AA	[✂]
295	M14 6SS	[✂]
296	BB3 2AD	[✂]
297	HD6 1PQ	[✂]
298	WV11 1UP	[✂]
299	DA1 2HL	[✂]
300	N21 1UJ	[✂]
301	DA6 7DF	[✂]
302	AB25 3SA	[✂]
303	SK7 4AW	[✂]
304	KT2 5NZ	[✂]
305	OL6 7TE	[✂]
306	DE24 8EB	[✂]
307	OL1 1DJ	[✂]
308	E17 7JY	[✂]
309	TS19 0QB	[✂]
310	NE23 6RT	[✂]
311	DN15 7DE	[✂]
312	NE11 0JY	[✂]
313	NG31 6HJ	[✂]
314	DL1 5JG	[✂]
315	NW10 2TD	[✂]
316	SO15 5LL	[✂]

	Store postcode	*GUPPI (%)*
317	S20 7PJ	[✂]
318	BL5 3ZS	[✂]
319	BN2 3QA	[✂]
320	NG5 6BN	[✂]
321	PO30 5ZB	[✂]
322	B35 6HB	[✂]
323	BH8 9UW	[✂]
324	ST4 7QD	[✂]
325	SP10 1BG	[✂]
326	CT20 2SB	[✂]
327	SM4 5HT	[✂]
328	SL1 4XP	[✂]
329	SN4 7AX	[✂]
330	DL7 8EA	[✂]
331	PL31 2SS	[✂]
332	WA3 4EH	[✂]
333	NE34 7LZ	[✂]
334	BA15 2AZ	[✂]
335	NE27 0SJ	[✂]
336	M41 0NA	[✂]
337	GU14 7GL	[✂]
338	NE3 1JZ	[✂]
339	BT11 9AE	[✂]
340	KA21 5DT	[✂]
341	LS21 3AB	[✂]
342	CO15 1NU	[✂]
343	NG5 1HH	[✂]
344	BA14 8GF	[✂]
345	WV5 8AP	[✂]
346	DL14 9AE	[✂]
347	SP10 1DL	[✂]
348	CH6 5GB	[✂]
349	FK6 5DN	[✂]
350	KY13 8FH	[✂]
351	WR2 4EL	[✂]
352	B31 5AA	[✂]
353	GL2 5SA	[✂]
354	TR7 1NF	[✂]
355	NP12 2AN	[✂]
356	NE15 9AF	[✂]
357	G51 4BT	[✂]
358	TR11 2RZ	[✂]
359	PR3 2NA	[✂]
360	TS12 1DG	[✂]
361	BB8 9HY	[✂]
362	NP20 5NJ	[✂]
363	LA4 5TJ	[✂]
364	KA12 8BH	[✂]
365	EH54 6RQ	[✂]
366	YO32 2HU	[✂]
367	BT19 7HJ	[✂]
368	NE7 7JW	[✂]
369	NG18 1BW	[✂]
370	CA2 5TF	[✂]
371	M9 0QS	[✂]
372	PO7 7UL	[✂]
373	WA5 3AG	[✂]

	Store postcode	*GUPPI (%)*
374	WF1 1RS	[✂]
375	WN7 5SJ	[✂]
376	EH14 2ER	[✂]
377	B31 2TW	[✂]
378	B29 6SJ	[✂]
379	LE4 7SJ	[✂]
380	LE10 0QG	[✂]
381	FY1 3AJ	[✂]
382	S6 1LZ	[✂]
383	CT12 5FJ	[✂]
384	SE2 9NU	[✂]
385	SM1 1LD	[✂]
386	HU12 8DJ	[✂]
387	WA13 9PR	[✂]
388	LA9 6DL	[✂]
389	WV3 0ST	[✂]
390	RH10 8NF	[✂]
391	SE7 7SA	[✂]
392	L5 3LQ	[✂]
393	TN37 7SQ	[✂]
394	BL3 6DH	[✂]
395	BB11 1BS	[✂]
396	DA11 8JH	[✂]
397	NN1 2EL	[✂]
398	SE14 5UQ	[✂]
399	HA2 8EQ	[✂]
400	KT1 1BU	[✂]
401	B14 7PT	[✂]
402	CM20 2AG	[✂]
403	B72 1YH	[✂]
404	M1 2BN	[✂]
405	RM6 6PB	[✂]
406	SG2 7DU	[✂]
407	IP32 7EJ	[✂]
408	NR1 3RX	[✂]
409	NR30 1NN	[✂]
410	CM2 5PA	[✂]
411	DE73 8FE	[✂]
412	IP2 0BX	[✂]
413	SG18 0NA	[✂]
414	SG1 4AE	[✂]
415	SW19 6NL	[✂]
416	SS13 1SA	[✂]
417	E20 1DB	[✂]
418	CT1 1BW	[✂]
419	TS26 0BF	[✂]
420	NG24 3HG	[✂]
421	SA4 4NW	[✂]
422	CV22 6HU	[✂]
423	HA8 7BQ	[✂]
424	HR4 0AG	[✂]
425	CR0 4XT	[✂]
426	SN12 6LL	[✂]
427	ME10 4DN	[✂]
428	G15 6RX	[✂]
429	AB10 7AY	[✂]
430	DE14 1AA	[✂]

	Store postcode	*GUPPI (%)*
431	WR4 9JN	[✂]
432	BT51 3QQ	[✂]
433	B65 0HG	[✂]
434	LE2 4PE	[✂]
435	B14 5TN	[✂]
436	DD4 8XD	[✂]
437	NE38 7RU	[✂]
438	B69 3DB	[✂]
439	RG31 7SA	[✂]
440	SW19 1DD	[✂]
441	E6 6JF	[✂]
442	TN24 8YN	[✂]
443	WD25 9JS	[✂]
444	B97 6RF	[✂]
445	GL4 3RT	[✂]
446	LU5 4RF	[✂]
447	AB12 3SZ	[✂]
448	AB15 9SX	[✂]
449	NN16 8JY	[✂]
450	HP3 9QZ	[✂]
451	NW9 6JX	[✂]
452	NP44 1UL	[✂]
453	CF32 9ST	[✂]
454	HA4 0HQ	[✂]
455	HA0 1PF	[✂]
456	NN5 5DG	[✂]
457	SG5 1PU	[✂]
458	TA1 3NE	[✂]
459	SO30 2UH	[✂]
460	BH15 1XU	[✂]
461	RG22 4TW	[✂]
462	TA6 4AB	[✂]
463	TQ2 7HT	[✂]
464	SN5 7AA	[✂]
465	EX31 3NH	[✂]
466	BS3 2NS	[✂]
467	BA11 4DH	[✂]
468	LS11 8LS	[✂]
469	RM1 1AU	[✂]
470	NR5 0JS	[✂]
471	TA1 2LR	[✂]
472	PO1 4BS	[✂]
473	HG2 8QZ	[✂]
474	YO32 9LG	[✂]
475	B90 4AJ	[✂]
476	CH42 8PQ	[✂]
477	SY3 9NB	[✂]
478	SS7 3UB	[✂]
479	DY5 3JR	[✂]
480	LN6 7QN	[✂]
481	LE19 1WT	[✂]
482	CB2 3HX	[✂]
483	S80 3AT	[✂]
484	ME4 4HP	[✂]
485	CH49 6QG	[✂]
486	CH65 9HN	[✂]
487	PR1 6PJ	[✂]

	Store postcode	*GUPPI (%)*
488	DE21 6NZ	[✂]
489	ST16 2TF	[✂]
490	CV11 4XS	[✂]
491	CW9 5RT	[✂]
492	L14 5PT	[✂]
493	GL1 2AG	[✂]
494	SR3 1PD	[✂]
495	WS11 8XP	[✂]
496	RH10 1EG	[✂]
497	TS1 1RP	[✂]
498	HD1 6QR	[✂]
499	BS4 3BD	[✂]
500	BS34 8SS	[✂]
501	TQ4 7PE	[✂]
502	GU21 6XU	[✂]
503	ML3 0DF	[✂]
504	BH1 4AP	[✂]
505	DN1 1TT	[✂]
506	EH20 9PW	[✂]
507	BD10 0QF	[✂]
508	NG16 2LY	[✂]
509	WV6 7QH	[✂]
510	HU13 9NS	[✂]
511	LE18 1AD	[✂]
512	YO31 7JB	[✂]
513	MK2 2JS	[✂]
514	L25 5QA	[✂]
515	PR9 0AF	[✂]
516	L23 2SA	[✂]
517	BD21 3RU	[✂]
518	KA9 1TW	[✂]
519	WA1 2TN	[✂]
520	WS2 8XA	[✂]
521	WN3 6XA	[✂]
522	LA1 1HH	[✂]
523	SK1 1UB	[✂]
524	LS15 9JA	[✂]
525	ST1 5SA	[✂]
526	M5 4QU	[✂]
527	SO18 5RS	[✂]
528	TQ12 1BN	[✂]
529	G53 7RH	[✂]
530	M34 3SJ	[✂]
531	B78 3HD	[✂]
532	CV1 1FL	[✂]
533	LL11 2BA	[✂]
534	LE1 3PJ	[✂]
535	DN31 1UF	[✂]
536	WF12 8EB	[✂]
537	[✂]	[✂]

Supply of groceries in convenience stores

3. As stated in Chapter 8, because Asda operates a single national price file, we consider that our finding that the Merger would result in an SLC in each local

area where one or more of the Parties' supermarkets is present would also mean that the Merger may be expected to result in an SLC in each local area where an Asda convenience store is present.

4. For the reasons set out Chapter 8, we have found that the Merger may be expected to give rise to an SLC in 18 local markets. As explained in Chapter 7, these local markets are defined by reference to a one-mile catchment area around each convenience store of the Parties (referred to as the centroid convenience store). We have listed below the centroid convenience stores around which we have found an SLC on the basis of this market definition.

Table 1: Convenience centroid stores around which we find an SLC (local assessment)

	Store postcode	*GUPPI (%)*
1	TQ12 1AQ	[✂]
2	TS22 5DE	[✂]
3	SR8 4JJ	[✂]
4	SR7 7XR	[✂]
5	TS12 2NJ	[✂]
6	BN1 8LE	[✂]
7	S81 7BP	[✂]
8	ST7 2EW	[✂]
9	SY3 7TJ	[✂]
10	TS10 4NY	[✂]
11	G61 2DW	[✂]
12	SY2 6AZ	[✂]
13	BS8 2XS	[✂]
14	SY3 7ET	[✂]
15	BT52 1QP	[✂]
16	LS11 5BJ	[✂]
17	LE3 2LL	[✂]
18	BN1 8AS	[✂]

Online delivered groceries

Unilateral effects

5. As stated in Chapter 11, our finding that the Merger may be expected to result in an SLC in each local area where one or more of the Parties' supermarkets is present means that there is likely to be an equivalent increase in the prices of groceries sold by the Parties to their online delivered customers, as the prices of these products are the same as in-store. This means that the Merger would result in an SLC in each local area where one or more of the Parties is present in online delivered groceries.

6. For the reasons set out in our national assessment in Chapter 11, we found that the loss of competition between the Parties as a result of the Merger is

more likely than not to give rise to an incentive to degrade PQRS across Asda's online delivered groceries offerings, resulting in an SLC in each local area where Asda is present.

7. For the reasons set out in our local assessment in Chapter 11, we have found that the Merger may be expected to result in an SLC in the local markets for online delivered groceries around Asda Supply Points. As explained in Chapter 10, these local markets are defined by reference to the delivery area served by each Supply Point (the Supply Point centroid). We have listed below the Supply Point centroids around which we have found an SLC on the basis of this market definition.

Table 1: Supply Point centroids around which we find an SLC through unilateral effects (local assessment)

	Supply Point postcode	*GUPPI (%)*
1	HU34PE	[✂]
2	RM96SJ	[✂]
3	NE119YA	[✂]
4	SL19LA	[✂]
5	NR301SF	[✂]
6	BH88DL	[✂]
7	CR04XS	[✂]
8	KT205NZ	[✂]
9	ST50AP	[✂]
10	FY44QH	[✂]
11	AB217NG	[✂]
12	EH546NB	[✂]
13	CT11DG	[✂]
14	CM35SY	[✂]
15	DY53BJ	[✂]
16	PO77XR	[✂]
17	CM26RE	[✂]
18	CW12PT	[✂]
19	RG65TT	[✂]
20	WS111LH	[✂]
21	NP234SL	[✂]
22	SS141AE	[✂]
23	SG180JS	[✂]
24	IP333SP	[✂]
25	CT201AU	[✂]
26	SP102RW	[✂]
27	TA93BX	[✂]
28	TN377AA	[✂]
29	SN128LQ	[✂]
30	EX393QU	[✂]
31	SG120AD	[✂]
32	NR46DP	[✂]
33	EX312BN	[✂]
34	GL516PN	[✂]
35	NE62XP	[✂]
36	CF625AT	[✂]
37	NN169HU	[✂]
38	CO153TH	[✂]
39	LE32LL	[✂]

	Supply Point postcode	*GUPPI (%)*
40	LN68JY	[✂]
41	ME194SZ	[✂]
42	DE243DS	[✂]
43	ST66AT	[✂]
44	PL312AR	[✂]
45	CB13ER	[✂]
46	G821RB	[✂]
47	SN254BG	[✂]
48	SG11LA	[✂]
49	PR90TY	[✂]
50	HR27JE	[✂]
51	BH89UP	[✂]
52	CV22PN	[✂]
53	SS38DA	[✂]
54	ST163TA	[✂]
55	GL11DS	[✂]
56	SO403ZA	[✂]
57	NR65DT	[✂]
58	E65JP	[✂]
59	HP124NU	[✂]
60	E143BT	[✂]
61	EH153AR	[✂]
62	WA12QA	[✂]
63	CF147EW	[✂]
64	HG15DE	[✂]
65	NN175DT	[✂]
66	BB51QR	[✂]
67	PR29NP	[✂]
68	AB124XP	[✂]
69	NE359AR	[✂]
70	CV114FL	[✂]
71	WD247RT	[✂]
72	IP15PD	[✂]
73	BN18AS	[✂]
74	BS34JY	[✂]
75	PE131PE	[✂]
76	E105NH	[✂]
77	CV311YD	[✂]
78	LU54JD	[✂]
79	EH141RJ	[✂]
80	NG190HA	[✂]
81	BS233UZ	[✂]
82	PO93QW	[✂]
83	BA202HB	[✂]
84	NE129SJ	[✂]
85	CO45TU	[✂]
86	RH117AH	[✂]
87	MK11QB	[✂]
88	NE387NF	[✂]
89	TF27RX	[✂]
90	AL100JP	[✂]
91	CT102NR	[✂]
92	IG118FJ	[✂]
93	TN23EY	[✂]
94	PE303UG	[✂]
95	PO302QH	[✂]
96	BN126PN	[✂]

	Supply Point postcode	*GUPPI (%)*
97	TR274HU	[✂]
98	B987ER	[✂]
99	CH14QG	[✂]
100	TW59QA	[✂]
101	DA176DF	[✂]
102	TN240SE	[✂]
103	BN25UT	[✂]
104	BS345TL	[✂]
105	DT48JQ	[✂]
106	OX331YZ	[✂]
107	NP108XL	[✂]
108	BN236JH	[✂]
109	SW153DT	[✂]
110	NE35BU	[✂]
111	WV14DE	[✂]
112	ME102PD	[✂]
113	NE244LZ	[✂]
114	TA12AN	[✂]
115	SO533YJ	[✂]
116	LE24AH	[✂]
117	PE11ET	[✂]
118	SO147EG	[✂]
119	DH90NB	[✂]
120	SN57DL	[✂]
121	RG304EL	[✂]
122	BA148AT	[✂]
123	NE639XG	[✂]
124	TF34HZ	[✂]
125	LE48GN	[✂]
126	NR330PX	[✂]
127	CV213EB	[✂]
128	NN106AA	[✂]
129	FY76NU	[✂]
130	TQ121TG	[✂]
131	RM13EE	[✂]
132	TA65AZ	[✂]
133	BA115LA	[✂]
134	BH151JQ	[✂]
135	TW134BH	[✂]
136	SE15AG	[✂]
137	TD12AG	[✂]
138	LL301PJ	[✂]
139	NE331AZ	[✂]
140	SW111JG	[✂]
141	SE77ST	[✂]
142	NW90AS	[✂]
143	HA99EX	[✂]

Coordinated effects

8. For the reasons set out in Chapter 12, we found that the Merger would be expected to result in an SLC through coordinated effects in 108 local markets for online delivered groceries. As explained in Chapter 10, these local markets are defined by reference to the delivery area served by each Supply Point (the

Supply Point centroid). We have listed below the Supply Point centroids around which we have found an SLC on the basis of this market definition.

Table 1: Supply Point centroids around which we find an SLC through coordinated effects

	Supply Point postcode
1	AB107QA
2	AB124XP
3	AB217NG
4	AB548SX
5	AB422FY
6	BT399DQ
7	BT161RN
8	BT153PR
9	BT635AQ
10	BT414GY
11	BT401AX
12	BT521QP
13	BT808JR
14	BT828EQ
15	BT746JG
16	BT781QZ
17	CA30JQ
18	CA141NQ
19	DD24WB
20	DD47RX
21	DH90NB
22	DL13RB
23	DL147LB
24	EH141RJ
25	EH66NX
26	EH546NB
27	EH153AR
28	EH209NY
29	FK103SD
30	FK38TY
31	G314EB
32	G812RZ
33	G331AD
34	G671JW
35	G420AE
36	G513HR
37	G821RB
38	G720AQ
39	IV26BZ
40	IV306YQ
41	IV191NX
42	KA128EH
43	KA89BF
44	KY13NU
45	KY114LP
46	KY75QB
47	ML36AD
48	NE359AR
49	NE62XP
50	NE119YA
51	NE129SJ
52	NE35BU

	Supply Point postcode
53	NE244LZ
54	NE331AZ
55	NE387NF
56	NE639XG
57	PA12AB
58	PH15AP
59	PL312AR
60	PL68TB
61	PL254PR
62	SA68PS
63	SA726DA
64	SR29TT
65	SR85HA
66	TD12AG
67	TR109LY
68	TR274HU
69	TS66AB
70	TS179EN
71	TS122ZL
72	TS182PB
73	TS240XR
74	AB253SA
75	AB107AY
76	BT119AE
77	BT39EJ
78	BT275UQ
79	BT358QS
80	BT423AG
81	BT487TL
82	CA117FG
83	CA25TF
84	DD48XD
85	DL149AE
86	DL15JG
87	EH142ER
88	EH165PB
89	EH112QW
90	EH546RQ
91	FK81RA
92	G156RX
93	G744UN
94	G537RH
95	IV125QF
96	KA91TW
97	KY26QL
98	NE387RU
99	NE77JW
100	PL36RL
101	SA18JA
102	SR53JG
103	SR31PD
104	TD58DW
105	TR138BN
106	TR13XL
107	TR183AP
108	TS11RP

Fuel

9. For the reasons set out in Chapter 14, we find that the Merger may be expected to give rise to an SLC, on the balance of probabilities, in the local markets for the supply of fuel surrounding 127 of the Parties' PFSs. As explained in Chapter 14, these local markets are defined by reference to local catchment areas around a PFS (the PFS centroid) which include competitor non-supermarket PFSs up to 10 minutes' drive-time and competitor supermarket PFSs up to 20 minutes' drive-time. We have listed below the PFS centroids around which we have found an SLC on the basis of this market definition.

Table 1: PFS centroids around which we find an SLC

	Postcode	*GUPPI (%)*	*Pricing Indicator (ppl)*
1	AB10 7QA	[✂]	[✂]
2	AB12 4XP	[✂]	[✂]
3	B29 5UP	[✂]	[✂]
4	B76 1XL	[✂]	[✂]
5	B78 3HB	[✂]	[✂]
6	B90 3GG	[✂]	[✂]
7	BA11 5LA	[✂]	[✂]
8	BN1 8AS	[✂]	[✂]
9	BS3 4JY	[✂]	[✂]
10	BS30 7DY	[✂]	[✂]
11	BT52 1QP	[✂]	[✂]
12	CF37 1HF	[✂]	[✂]
13	CH45 4NZ	[✂]	[✂]
14	CH49 5PD	[✂]	[✂]
15	CH62 3QP	[✂]	[✂]
16	CM2 6RE	[✂]	[✂]
17	CM3 5SY	[✂]	[✂]
18	CR0 4XS	[✂]	[✂]
19	CV21 3EB	[✂]	[✂]
20	CW9 5LG	[✂]	[✂]
21	DA11 0DQ	[✂]	[✂]
22	DA9 9BT	[✂]	[✂]
23	DE21 7LW	[✂]	[✂]
24	DE24 3DS	[✂]	[✂]
25	DY5 1QL	[✂]	[✂]
26	DY5 3BJ	[✂]	[✂]
27	GU21 5SE	[✂]	[✂]
28	HA4 0FY	[✂]	[✂]
29	HR2 7JE	[✂]	[✂]
30	HX1 4PG	[✂]	[✂]
31	KA8 9BF	[✂]	[✂]
32	KT20 5NZ	[✂]	[✂]
33	KY1 3NU	[✂]	[✂]
34	L20 4BB	[✂]	[✂]
35	L4 9XU	[✂]	[✂]
36	L6 5DR	[✂]	[✂]
37	LA1 5JR	[✂]	[✂]
38	LE10 1SS	[✂]	[✂]
39	LE4 5NU	[✂]	[✂]
40	LL18 5EQ	[✂]	[✂]

	Postcode	*GUPPI (%)*	*Pricing Indicator (ppl)*
41	LU2 9TA	[✂]	[✂]
42	NE35 9AR	[✂]	[✂]
43	NG2 7JA	[✂]	[✂]
44	NG31 6NZ	[✂]	[✂]
45	NG5 7ED	[✂]	[✂]
46	NG7 5FP	[✂]	[✂]
47	NP12 0NT	[✂]	[✂]
48	NW10 7LW	[✂]	[✂]
49	OX33 1YZ	[✂]	[✂]
50	PO14 1TT	[✂]	[✂]
51	PO20 0FR	[✂]	[✂]
52	PO7 7XR	[✂]	[✂]
53	PR2 9NP	[✂]	[✂]
54	SE7 7ST	[✂]	[✂]
55	SN25 4BG	[✂]	[✂]
56	SN5 7DL	[✂]	[✂]
57	SO53 3YJ	[✂]	[✂]
58	SR2 9TT	[✂]	[✂]
59	SR5 1SF	[✂]	[✂]
60	TA9 3BX	[✂]	[✂]
61	TF3 4HZ	[✂]	[✂]
62	TR10 9LY	[✂]	[✂]
63	WD24 7RT	[✂]	[✂]
64	WF12 9AE	[✂]	[✂]
65	WF2 7EQ	[✂]	[✂]
66	WS11 1LH	[✂]	[✂]
67	WV1 4DE	[✂]	[✂]
68	[✂]	[✂]	[✂]
69	AB10 7AY	[✂]	[✂]
70	B29 6SJ	[✂]	[✂]
71	B31 5AA	[✂]	[✂]
72	B65 0HG	[✂]	[✂]
73	B69 3DB	[✂]	[✂]
74	BA11 4DH	[✂]	[✂]
75	BB8 9HY	[✂]	[✂]
76	BS3 2NS	[✂]	[✂]
77	BT51 3QQ	[✂]	[✂]
78	CF37 4BP	[✂]	[✂]
79	CH42 8PQ	[✂]	[✂]
80	CH49 6QG	[✂]	[✂]
81	CM2 5PA	[✂]	[✂]
82	CO3 8AA	[✂]	[✂]
83	CR0 4XT	[✂]	[✂]
84	CV22 6HU	[✂]	[✂]
85	CW9 5RT	[✂]	[✂]
86	DD4 8XD	[✂]	[✂]
87	DE21 6NZ	[✂]	[✂]
88	DE24 8EB	[✂]	[✂]
89	DN31 1UF	[✂]	[✂]
90	DY5 3JR	[✂]	[✂]
91	EH20 9PW	[✂]	[✂]
92	HA4 0HQ	[✂]	[✂]
93	HR4 0AG	[✂]	[✂]
94	HU13 9NS	[✂]	[✂]
95	KT16 9AG	[✂]	[✂]
96	KY2 6QL	[✂]	[✂]
97	L14 5PT	[✂]	[✂]

	Postcode	*GUPPI (%)*	*Pricing Indicator (ppl)*
98	L5 5AA	[✂]	[✂]
99	L9 1NL	[✂]	[✂]
100	LA4 5TJ	[✂]	[✂]
101	LE19 1WT	[✂]	[✂]
102	LE4 7SJ	[✂]	[✂]
103	LS11 8LS	[✂]	[✂]
104	NE23 6RT	[✂]	[✂]
105	NG2 6EP	[✂]	[✂]
106	NG31 6HJ	[✂]	[✂]
107	NG5 6BN	[✂]	[✂]
108	NG7 1GX	[✂]	[✂]
109	PO30 5ZB	[✂]	[✂]
110	PO7 7XE	[✂]	[✂]
111	S20 7PJ	[✂]	[✂]
112	SE10 0QJ	[✂]	[✂]
113	SN5 7AA	[✂]	[✂]
114	SR3 1PD	[✂]	[✂]
115	SR5 3JG	[✂]	[✂]
116	SY3 9NB	[✂]	[✂]
117	TA1 2LR	[✂]	[✂]
118	TA6 4AB	[✂]	[✂]
119	TF3 4AG	[✂]	[✂]
120	TW18 3AP	[✂]	[✂]
121	WD25 9JS	[✂]	[✂]
122	WF12 8EB	[✂]	[✂]
123	WN3 6XA	[✂]	[✂]
124	WV3 0TE	[✂]	[✂]
125	WV6 7QH	[✂]	[✂]
126	YO32 9LG	[✂]	[✂]
127	[✂]	[✂]	[✂]

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 **WalMart** Inc.
Bargain stores	B&M Bargains, Home Bargains, Poundstretcher, Poundland, Poundworld, Wilko.
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.
Click and Collect	Services offered by some grocery retailers whereby groceries are purchased online and collected in-store by the customer.
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.
DJS Research	DJS Research conducted the **CMA fuel survey** on behalf of the **CMA** at a sample of **the Parties' PFSs**.
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**.
GfK	GfK conducted the **CMA online survey** on behalf of the **CMA** with a sample of **the Parties'** online shoppers.
GM	General merchandise. 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.
Groceries market investigation	*Groceries market investigation (2008), Final report.*
The Guidelines	CMA's Merger Assessment Guidelines (*CC2 Revised*)
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	Kantar Public conducted the **CMA store exit survey** on behalf of the **CMA** at a sample of the **Parties' Large** and **Medium stores**.
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 1,400 square metres 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 280 square metres and 1,400 square metres. 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 UK. 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.
PRA	Petrol Retailers Association
Private label goods	Range of products carrying a **retailer**'s brand/name and produced to the **retailer**'s specifications.
Provisional Findings	Provisional Findings on the Merger published on 20 February 2019.
RCBs	Relevant Customer Benefits.

Retail mergers commentary	CMA's Retail mergers commentary (*CMA62*)
Remedies Guidance	*Merger remedies (CC8)*. The **CMA** recently adopted new merger Remedies Guidance on 13 December 2018 (*Merger remedies (CMA87)*), which applies to merger investigations commenced after that date. However, for investigations that commenced prior to 13 December 2018, the previous Remedies Guidance remains applicable. In this case the **CMA** is therefore applying *CC8*.
Remedies Notice	Remedies Notice published alongside the Provisional Findings on the Merger on 20 February 2019.
Remedies Working Paper	The Remedies Working Paper sent to the **Parties** on 29 March 2019 for comment and considered possible remedies to the **SLC**s that the CMA identified in its **Provisional Findings**.
Sainsbury's	J Sainsbury Plc.
SKA	Small kitchen appliances.
SKU	Stock keeping unit. A SKU identifies a distinct product based on attributes such as brand, quantity and packaging.
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.