Anticipated acquisition by Tesco PLC of Booker Group plc

Appendices and Glossary

Appendix A: Terms of reference and conduct of the inquiry

Terms of reference

1. On 12 July 2017, the CMA referred the anticipated acquisition by Tesco PLC of Booker Group plc for an in-depth phase 2 investigation:

    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 Tesco PLC will cease to be distinct from enterprises carried on by Booker Group plc; 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 the retail supply of groceries on a local basis.

    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 26 December 2017, on the following questions in accordance with section 36(1) of the Act:

        (a) whether arrangements are in progress or in 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.

Rachel Merelie
Executive Director, Markets and Mergers
Competition and Markets Authority
12 July 2017

Conduct of the inquiry

2. We published biographies on the members of the inquiry group conducting the inquiry on 14 July and the administrative timetable for the inquiry was published on our webpages on 28 July 2017 and updated on 10 October 2017 and 1 November 2017. On 9 August 2017, we published an issues statement on our webpages, setting out the areas of concern on which the inquiry would focus.

3. We invited a wide range of interested parties to comment on the anticipated acquisition. We sent detailed questionnaires to a number of retailers, suppliers and wholesalers. We conducted a survey of 463 convenience store retailers and gathered oral evidence through 14 interviews with selected third parties. Evidence was also obtained through further written requests. We also used evidence from the CMA's phase 1 inquiry into the merger. Summaries of interviews can be found on the case page.

4. We received written evidence from the Parties and a non-confidential version of their response to the phase 1 decision and issues statement is on the case page. We also held a hearing with the parties on 10 October 2017.

5. On 7 August 2017, members of the inquiry group, accompanied by staff, visited the premises of Tesco and Booker.

6. In the course of our inquiry we sent Tesco and Booker a number of working papers, and other parties were sent extracts of those working papers, for comment.

7. A non-confidential version of the provisional findings report will be available on the case page.

8. We would like to thank those who have assisted us in our inquiry so far.

Appendix B: Entry-exit analysis

Introduction

1. In assessing the competitive constraints on the Parties, we performed an entry-exit analysis that looks at the effects of store openings and closures at the retail level on the sales made by Booker to its retailer customers. The purpose of this appendix is to explain the methodology used for the CMA's econometric analysis, to present the main results and statistical tests, and to set out our assessment of the results of this analysis.

2. This appendix is organised into the following sections:

   (a) our hypothesis and analytical framework;

   (b) methodology;

   (c) data; and

   (d) results.

3. We use two years' worth of monthly customer-level data on Booker's sales to retailers, along with information on retail store openings and closures over the same time period.

4. The analysis uses the total value of purchases made by each of Booker's customers in a month as the dependent variable. As the main explanatory variables, we use the cumulative net number of entries nearby to the customer in question, ie the difference between the number of entries and the number of exits seen within the timeframe of the data available. We count the number of entries and exits and group them according to their distance from the Booker customer's store (the focal store).

5. The analysis seeks to identify whether, in response to changes in the local retail competition that Booker's customers face there are changes in the volumes that these customers purchase from Booker. Such changes could represent either changes in the behaviour of final consumers (eg switching between the Booker customer and the newly entering/exiting retailer) or of retailers (ie retailers switching to different wholesalers in response to changes in the local retail competition they face). The analysis also seeks to identify which retail competitors have a significant impact on Booker sales.

6. The analysis found that entry and exit within a quarter of mile of a Booker retailer customer has a statistically and economically significant effect on Booker sales to that retailer customer. This effect is similar in magnitude for

entry by multiples and discounters, but Tesco seems to have a larger effect than other fascia.[1] In general, we also find an effect up to around 1 mile, but the effect is smaller in magnitude than that found for entry within a quarter of a mile.

Methodology

7. The econometric model is used to understand how the total purchases made from Booker by a focal retail store is affected by the number of entries and exits of retailers within a given distance from the focal store. We use a fixed-effects panel data model, which controls for factors that do not change over time at store level. In the simplest form, we estimate the following reduced-form regression:

$$y_{it} = \alpha + \delta_i + \delta_t + \sum_j \sum_d \beta_{jd} E_{jd,it} + \varepsilon_{it},$$

where

(a) y_{it} is the (log) of sales made by Booker to a supplied store *i* in month *t*;

(b) $E_{jd,it}$ is the cumulative (from March 2015 to month *t*) difference between the number of stores that entered and those that exited for each fascia *j* (eg Tesco, Lidl or Waitrose) at distance *d* from store *i*;

(c) δ_i and δ_t are store and month fixed effects.

8. We interpret the coefficient β_{jd} as the average percentage change in the purchases made by a Booker-supplied store from Booker. If a coefficient is negative and statistically significantly different from zero, it means that Booker sales decrease following the entry of a retailer store of the relevant fascia within the relevant distance band.[2,3] While they are neither estimates of elasticities, nor of diversion ratios, the coefficients provide an estimate of the impact on Booker's performance of entry and exit by retail competitors to Booker's customers.

[1] Note that our dataset does not include all fascia present in the market. Please see following sections for details.
[2] Equivalently, if a coefficient is negative and statistically significantly different from zero, it means that Booker sales increase following the exit of a retailer store of the relevant fascia within the relevant distance band. In that sense, the model treats entry and exit as equal but opposite events.
[3] If a coefficient is positive and statistically significant, the model finds a positive (negative) relationship between entry (exit) and Booker's sales. We discuss the reason why this might be the case in the Strengths and limitations section. If a coefficient is not statistically significant, we cannot draw any conclusion on the nature of the relationship between entries and exits, and Booker sales.

Strengths and limitations

9. The principal issue in an entry-exit analysis of this type is the so-called endogeneity problem, ie the extent to which local competition is driven by factors such as local costs and demand that also affect performance, and that are not controlled for by the analysis. 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 results in the model to under- or over-estimate the impact of competition depends on how these omitted factors affect performance. The fixed effects regression addresses this concern, by holding constant all factors that do not vary over time.

10. However, it is possible that there are local factors that vary over time and are correlated with both local competition and performance. Again, this would bias the results. For example, increases in local demand (due to demographic or income changes, for example) are likely to attract new retail stores and increase the purchases made from Booker. This would cause a positive bias in the results, because we would wrongly associate increased retail store availability with increases in the value of wholesale purchases made by competing retailers. We would therefore underestimate the effect of competition on the value of wholesale purchases.

11. This endogeneity issue leads us to think that it is likely that our regression coefficients suffer from a positive bias, ie our positive coefficient estimates might be bigger, and our negative coefficients smaller in absolute terms then they should be. That means that negative coefficients may be underestimated in absolute terms, and potentially may be incorrectly found not to be significantly different from zero and may even be incorrectly found to be positive. This implies that the size of the catchment areas as indicated by the entry-exit analysis may suffer from a downward bias; we therefore use in our assessment other relevant evidence alongside the results presented in this appendix (see Chapter 6).

12. In addition, as explained in the following section, our data have some limitations. For example, the results represent estimates of the average effects of entry/exit, for particular fascia and distance bands. Given the data available, it has not been possible to assess how this effect may vary depending on, for example, the number of existing fascia or stores present in the local area. It is possible that entries or exits may have a greater effect in areas with less competition, in which case the presented coefficients will underestimate the effect of entry/exit in those areas.

13. Moreover, we do not have information on entries and exits from most symbol groups or from any independent store. The extent to which this omission

biases our results depends on the correlation between the included and omitted entries and exits. Given the unknown direction and magnitude of the bias, we take a cautious approach in the interpretation of the results and in our competitive assessment use them alongside other evidence.

Data

14. We used data submitted by both Booker and Tesco. Booker provided weekly sales data for all its customers for the financial years (FY) 2015, 2016 and 2017 (the period spans from March 2014 to March 2017). For the purpose of this analysis, we aggregated the data at a monthly level and focus on the FY 16 and 17 (that is from March 2015 to February 2017). We decided to focus on the last two FY because we noted an unexplained change in the level of total Booker's sales between FY15 and FY16. We did this because the change might be due to unrecorded observations in the data (eg Booker Retail Partner data might be omitted), rather than an actual change in Booker's sales.

15. Tesco provided data on entries and exits of its own stores (including One Stop) and of several competitors. Tesco explained that the entry data includes all the entries which it is aware of from multiples, discounters, Iceland and the Co-op. However, some fascia, including independents and most symbols, are not included in these data, and we will take that into account in the interpretation of the results. Tesco also submitted that 'the information on competitor store exits is less complete than the information on competitor store entries, given that competitor store exits are more difficult to track.'

16. We matched the two data sources and computed the straight-line distance between Booker-supplied stores and recorded entries and exits. We then grouped entries and exits in distance bands of a quarter of mile width. We discarded any entry and exit that occurred beyond 2.5 miles.

17. We used sales from Booker to its individual customers as a dependent variable. This variable is, for each customer, the sum of all purchases it made from Booker in a given month. We do not have data on purchases made from other wholesalers, therefore a fall in sales might mean that either the retail customer switched wholesaler, or the retail customer decreased its overall purchases. We do not distinguish between purchases made for different product categories. We also discarded observations which showed purchases lower than £1 (or negative) and greater than £55,000 (roughly the 95th percentile). We kept only those stores for which we have at least 6 months of data.

18. Our data have some limitations. For example, our dataset does not include the number of stores present for each fascia over time. That means that it has not been possible to assess how the effect of entry and exit may vary depending on, for example, the number of existing fascia or stores present in the local area. This affects our interpretation of the results. Indeed, it is possible that entries or exits may have a greater effect in areas with less competition, in which case the presented coefficients will underestimate the effect of entry/exit in those areas.

19. Moreover, as mentioned above, we do not have information on entries and exits from all symbol groups or from any independent store. The extent to which this omission biases our results depends on the correlation between the included and omitted entries and exits. Given the unknown direction and magnitude of the bias, we take a cautious approach in the interpretation of the results.

Descriptive statistics

20. In this section, we present descriptive statistics of the data set used in our analysis.

21. We observed monthly data for 27,643 customers between FY2016 and FY2017. However, not all of these customers are present for the entire period under consideration. That might be due to several reasons, for example some customers might have closed their shop, others might have switched wholesaler, others might have started to buy from Booker after March 2015. For instance, in March 2017 we observed a total of 27,289 customers.

22. Booker's customers include Booker symbol stores, independent stores and rival symbol stores. Table 1 shows the number of stores per fascia in March 2017, but the distribution does not change significantly over time.

Table 1: Number of stores in March 2017 by fascia

Fascia	*Category*	*Number of stores in March 2017*
BRP non-fascia	Symbol	[✂]
Budgens	Symbol	[✂]
Family Shopper	Symbol	[✂]
Londis	Symbol	[✂]
Not Applicable	Independent/other	[✂]
Premier	Symbol	[✂]
Club	Independent/other	[✂]
Rontec Shop N Drive	Independent/other	[✂]
Total		27,289

Source: CMA analysis of parties' data.

23. These stores vary significantly in their average spending. During the two financial years observed, symbols stores spent on average £[✂] a month on Booker, whereas independent and other stores spent on average £[✂] a month.[4]

24. Over three-quarters of Booker-supplied stores are located in what the parties defined as urban areas. Table 2 shows the distribution of stores in urban and rural areas.

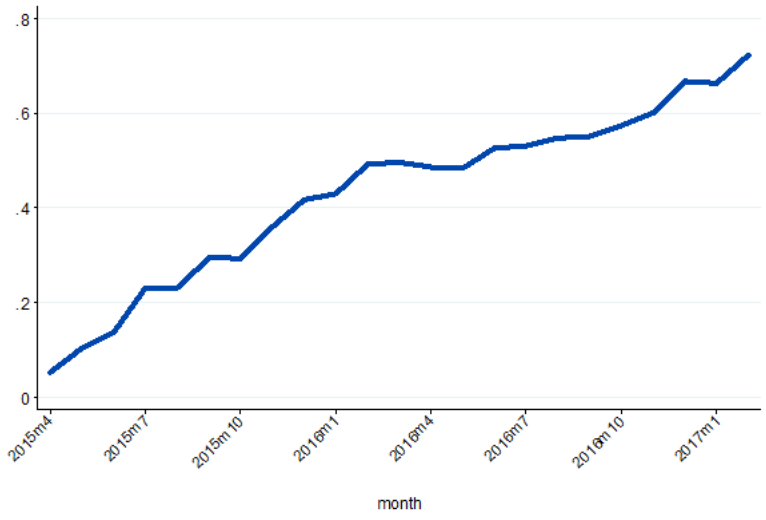
Table 2: Booker-supplied stores by geographic location

Fascia	*Number of stores in March 2017*	*Percentage*
Urban	[✂]	[✂]
Rural	[✂]	[✂]
N/A	[✂]	[✂]
Total	27,289	100%

Source: CMA analysis of parties' data.

25. As described below, we compute entries and exits in a cumulative way from March 2015. Figure 1 below shows the average cumulative net entries (entries minus exits) per customer. Figure 2 shows that recorded entries are mainly from multiples, followed by discounters.

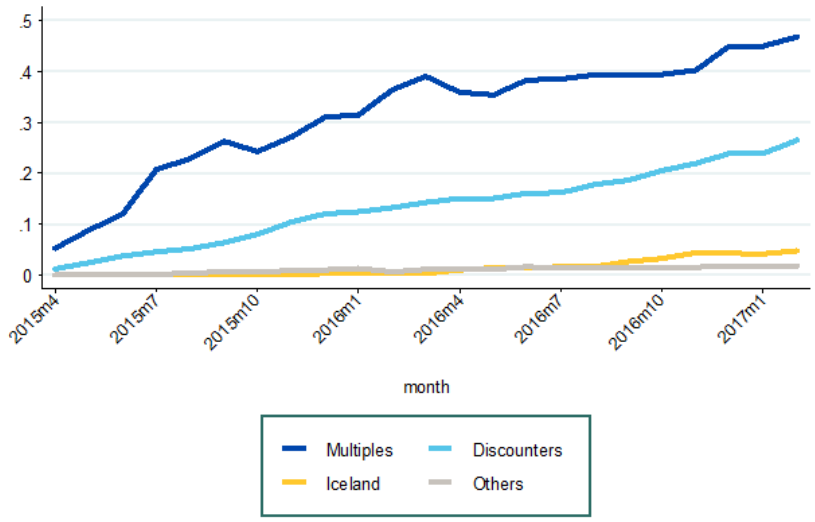
Figure 1: Average number of entries/exits per Booker customer



Source: CMA analysis of parties' data.

[4] The standard deviation for symbol stores is 11,851, while for independents and others is 6,465.

Figure 2: Average number of entries/exits per Booker customer by type of entrant



Source: CMA analysis of parties' data.

26. Finally, Figure shows Booker's average sales per customer over the time period under study.

Figure 3: Average sales from Booker to its customers over time

[✂]

Source: CMA analysis of parties' data.

Results

27. We have run two main sets of analyses. The first set of regressions looks at the overall market and the different types of grocery stores. In particular, we look at:

    (a) Whether and how the effect of entries and exits varies according to the distance from a Booker customer's store (the focal store);

    (b) Whether and how this effect varies if the focal store is located in urban or rural areas;

    (c) Whether and how this effect varies according to the type of store that opens/closes - eg whether the entrant is a multiple, or a discounter;

28. The second set of regressions focuses on the effect of Tesco on Booker's customers. In particular, we explore:

    (a) Whether and how entries and exits of a Tesco store have a different impact from entries and exits from other fascia;

(b) Whether and how this effect varies if the focal store is located in urban or rural areas;

(c) Whether and how Tesco's entries and exits have a different effect on Booker's symbol stores and on independent and other stores.

29. Below, we present these sets of results in turn.

Overall results

Whether and how the effect of entries and exits varies according to the distance from the focal store

30. Table 3 below shows the results of a regression of the sales of Booker on cumulative entries and exits in different quarters of miles from the location of Booker's customers. The results show that entries and exits in the closest quarter of mile have an impact of around 9% on Booker's sales. The impact drops to 2.5% in the second quarter of mile, and after that the impact is estimated to be below 2% or insignificant. Our model estimates a statistically significant impact up to the tenth quarter of mile (that is within 2.5 miles). However, the magnitude of the coefficients drops after the third quarter of mile and beyond, suggesting a decline in the competitive constraint after ½ mile.

Table 3: Impact of entry and exit according to distance

Variables	*By distance*
All entries/exits in 0 – ¼ mile	-9.25***
	(1.01)
All entries/exits in ¼ - ½ mile	-2.49***
	(0.72)
All entries/exits in ½ - ¾ mile	-1.75***
	(0.58)
All entries/exits in ¾ - 1 mile	-1.27**
	(0.52)
All entries/exits in 1 – 1¼ mile	-1.42***
	(0.49)
All entries/exits in 1¼ - 1½ mile	-0.42
	(0.45)
All entries/exits in 1½ - 1¾ mile	-1.31***
	(0.44)
All entries/exits in 1¾ - 2 miles	-1.20***
	(0.42)
All entries/exits in 2 - 2¼ mile	-1.13***
	(0.40)
All entries/exits in 2¼ - 2½ mile	-1.77***
	(0.39)
Constant	814.96***
	(0.39)
Observations	617,564
Number of customers	33,050
R-squared	0.05

Source: CMA analysis of parties' data.
Notes:
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Month fixed-effects omitted
The number of customers varies over time

Whether and how the effect of entries and exits varies if the focal store is located in urban or rural areas

31. We explored the possibility that the results might be different according to the area where Booker's customers are located, ie whether they are in a rural or urban setting.

32. The results for rural suggest a relatively large (13.5%) impact of entry/exit in the first quarter of mile. Beyond that distance our estimates are, with few exceptions, not statistically significantly different from zero. On the other hand, estimates for urban areas resemble, both in sign and magnitude, the overall results presented in Table 3.

33. Our results for stores located in rural areas vary substantially both in sign and magnitude, and the large standard deviations imply imprecise estimates. While the results for the first quarter of mile are similar but larger in magnitude than for urban areas, all other estimates are not significant. We therefore decided to place no weight on (ie disregard) the results for rural stores beyond ¼ mile.

Whether and how the effect of entries and exits varies according to the type of store that opens or closes

34. Table 4 shows the results when we accounted for the type of store that entered and exited. We grouped stores by:

    (a) all major brands under the label of multiples (Asda, Co-op, Marks & Spencer, Morrisons, Sainsbury's, Tesco, One Stop, and Waitrose);

    (b) Aldi and Lidl as discounters:

    (c) Iceland: and

    (d) all other brands in the 'others' category (Booths, Budgens, Costco, Farmfoods, Netto, Other).

35. Table 4 below shows the number of entries that occurred for each fascia in the dataset.

Table 4: Number of entries and exits by fascia

Fascia	*Category*	*Number of entries*	*Number of exits*
Asda	Multiple	57	2
Co-op	Multiple	213	59
Marks & Spencer	Multiple	114	7
Morrisons	Multiple	72	62
Sainsbury's	Multiple	184	3
Tesco	Multiple	114	91
One Stop	Multiple	-	49
Waitrose	Multiple	45	4
Aldi	Discounter	191	1
Lidl	Discounter	101	9
Iceland	-	60	2
Booths	Other	5	3
Budgens	Other	8	9
Costco	Other	3	-
Farmfoods	Other	7	-
Netto	Other	11	-
Other	Other	7	-
Total		*1,192*	*301*

Source: CMA analysis of parties' data.

36. The results suggest that:

(a) Within the first quarter of a mile multiples and discounters have a similar impact in urban areas, ranging from 8.7 to 9.6%;

(b) The effect of multiples extends beyond the first quarter of mile and drops under 2% only after ¾ of a mile, whereas the effect of discounters beyond the first quarter of mile is statistically insignificant (except for the fourth quarter of mile);[5]

(c) Iceland's entry and exit has no statistically significant effect on Booker's sales – this is likely due to the limited number of entry and exit events observed in the dataset. Given the limited data available on the entries and exits of Iceland's stores, it is likely that we may not be able to estimate the full impact of Iceland;

(d) Stores falling under the 'others' category have a relatively large impact (of 15.6%) in the first quarter of mile, but their effect is not statistically significant beyond that distance.

37. Estimates for rural areas are not of the expected sign and present large standard errors. This might be due to the little variation in the data in rural areas, or to the limited number of observations available.

[5] We attribute the lack of a result to the 'noise' in the data and/or limited number of observations.

Table 5: Impact of entry and exit according to distance and opened/closed store category

Variables		*Multiples*	*Discounters*	*Iceland*	*Others*
All entries/exits in 0 – ¼ mile	Urban	-8.70***	-9.59***	-5.75	-15.98***
		(1.20)	(2.25)	(6.06)	(4.94)
	Rural	-21.86***	25.68**	-	-12.98
		(6.18)	(12.59)		(21.32)
All entries/exits in ¼ - ½ mile	Urban	-3.77***	1.35	5.33	-4.49
		(0.86)	(1.56)	(3.35)	(4.03)
	Rural	-7.93	14.84	-	-7.95
		(6.65)	(9.25)		(26.11)
All entries/exits in ½ - ¾ mile	Urban	-2.65***	1.60	-3.61	6.94**
		(0.68)	(1.38)	(2.59)	(3.50)
	Rural	-10.43	20.61**	-	-23.84
		(7.01)	(8.20)		(38.73)
All entries/exits in ¾ - 1 mile	Urban	-0.67	-3.99***	-0.50	4.73
		(0.61)	(1.19)	(2.26)	(2.97)
	Rural	-3.46	-12.97	-	81.21**
		(7.02)	(8.37)		(38.73)
All entries/exits in 1 – 1¼ mile	Urban	-1.43**	-1.73	-4.81**	9.59***
		(0.57)	(1.12)	(2.22)	(2.75)
	Rural	-2.72	-17.21*	-	-
		(5.86)	(9.40)		
All entries/exits in 1¼ - 1½ mile	Urban	-0.99*	0.95	3.54*	-1.13
		(0.52)	(1.12)	(2.10)	(2.85)
	Rural	14.40**	-10.02	-	-80.43***
		(6.20)	(6.20)		(16.87)
All entries/exits in 1½ - 1¾ mile	Urban	-0.84	-4.59***	3.86*	-2.43
		(0.52)	(1.10)	(2.00)	(2.47)
	Rural	-3.13	-3.71	-	-19.28
		(4.59)	(7.16)		(17.62)
All entries/exits in 1¾ - 2 miles	Urban	-2.32***	1.13	3.35	3.08
		(0.49)	(1.02)	(2.06)	(2.44)
	Rural	11.82***	0.59	-12.80	11.69
		(4.10)	(5.44)	(16.97)	(12.93)
All entries/exits in 2 - 2¼ mile	Urban	-1.73***	0.28	0.82	4.50*
		(0.46)	(1.01)	(2.02)	(2.35)
	Rural	3.30	-8.69	7.23	-8.38
		(3.36)	(5.68)	(12.79)	(19.76)
All entries/exits in 2¼ - 2½ mile	Urban	-1.69***	-0.69	-2.18	-2.55
		(0.45)	(1.01)	(2.18)	(2.38)
	Rural	-6.14**	-3.37	-0.63	-11.91
		(2.85)	(4.44)	(14.49)	(11.24)
Constant					
		617,564			
		33,050			
Observations		0.05			
Number of customer no					
R-squared					

Source: CMA analysis of parties' data.
Notes:
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Month fixed-effects omitted

Tesco-specific results

Whether and how entries and exits of a Tesco store have a different impact from entries and exits from other fascia

38. Table 6 shows the effects of entries and exits by a Tesco store on Booker's sales according to the distance of those entries and exits from the focal store. In the same regression, we also include entries and exits from other stores. Note that our definition of 'Others' has now changed to include all entries and

exits not from a Tesco store. The effect in both the first and second quarter of mile is higher for Tesco stores than for other stores.[6] This suggests that Tesco poses on average a relatively stronger constraint than other fascia if it opens a store within half a mile.

39. The results beyond half a mile are mixed:

(a) the coefficient for Tesco is not significant between ½ and ¾ of a mile,

(b) but is negative and significant between ¾ and 1 mile,

(c) whereas coefficients for other fascia are significant between ½ and ¾ mile,

(d) but not significant between ¾ and 1 mile.

(e) Beyond that distance, coefficients for Tesco are either of the unexpected sign or not significant.

40. These results suggest that Tesco has a relatively large effect in the first half mile.

[6] We tested the null hypothesis that the coefficients for Tesco and other multiples within ¼ mile in urban areas were equal. The test rejected the null hypothesis at 1% significance level. We also tested the null hypothesis that the coefficients for Tesco and other multiples between ¼ and ½ mile in urban areas were equal. The test rejected the null hypothesis at 1% significance level.

Table 6: Impact of entry and exit Tesco stores and other fascia, according to distance and opened/closed store category

Variables	*Fascia*	*Tesco*
Entries/exits in 0 – ¼ mile	Tesco	-11.06***
		(3.09)
Entries/exits in ¼ - ½ mile	Tesco	-7.91***
		(2.04)
Entries/exits in ½ - ¾ mile	Tesco	-1.68
		(1.56)
Entries/exits in ¾ - 1 mile	Tesco	-3.57**
		(1.44)
Entries/exits in 1 – 1¼ mile	Tesco	3.52***
		(1.35)
Entries/exits in 1¼ - 1½ mile	Tesco	0.49
		(1.22)
Entries/exits in 1½ - 1¾ mile	Tesco	2.88**
		(1.15)
Entries/exits in 1¾ - 2 miles	Tesco	0.72
		(1.09)
Entries/exits in 2 - 2¼ mile	Tesco	3.01***
		(1.07)
Entries/exits in 2¼ - 2½ mile	Tesco	-0.14
		(1.04)
Entries/exits in 0 – ¼ mile	Others	-8.97***
		(1.07)
Entries/exits in ¼ - ½ mile	Others	-1.68**
		(0.77)
Entries/exits in ½ - ¾ mile	Others	-1.54**
		(0.62)
Entries/exits in ¾ - 1 mile	Others	-0.81
		(0.55)
Entries/exits in 1 – 1¼ mile	Others	-1.96***
		(0.51)
Entries/exits in 1¼ - 1½ mile	Others	-0.45
		(0.48)
Entries/exits in 1½ - 1¾ mile	Others	-1.82***
		(0.48)
Entries/exits in 1¾ - 2 miles	Others	-1.35***
		(0.45)
Entries/exits in 2 - 2¼ mile	Others	-1.69***
		(0.42)
Entries/exits in 2¼ - 2½ mile	Others	-1.97***
		(0.42)
Constant		814.97***
		(0.39)
Observations		617,564
Number of customer no		33,050
R-squared		0.05

Source: CMA analysis of parties' data.
Notes:
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Month fixed-effects omitted

Whether and how the effect of entry and exit of a Tesco store varies if the focal store is located in urban or rural areas

41. Similarly to what we found in the overall results section, the coefficients for rural areas vary substantially both in sign and magnitude, and the large standard deviations imply imprecise estimates. All this points to a lack of precision in our estimates for stores located in rural areas. Therefore, our results for rural areas were not sufficiently precise to allow firm inferences to be drawn separately from the urban results.

Whether and how Tesco's entries and exits have a different effect on Booker's symbol stores and on independent and other stores

42. Table 7 compares the results of Tesco's entries and exits on Booker's sales to its own symbol stores and, separately, on independent and other stores. The results suggest that the effect of Tesco's entry and exit on Booker's symbols is higher than on independents and others in the first quarter of mile.[7] The effect is more similar beyond the first quarter of mile, with a significant effect between ¼ and ½ mile. Beyond half mile, we find, in general, either non-significant effects or coefficients with the unexpected sign – with the only exceptions being on independents between ¾ and 1 mile, and on symbols between 1½ and 1¼ mile.

[7] Note that we did not test for the statistical significance of the difference between the coefficients in the two separate regressions.

Table 7: Impact of entry and exit of Tesco stores on symbol stores, and independent and other stores, according to distance (the two columns represent two different regressions)

Variables		*Symbols*	*Independents and others*
Entries/exits in 0 – ¼ mile	Tesco	-26.71***	-8.58**
		(6.20)	(3.39)
Entries/exits in ¼ - ½ mile	Tesco	-6.41**	-8.03***
		(3.01)	(2.32)
Entries/exits in ½ - ¾ mile	Tesco	-2.61	-1.52
		(2.46)	(1.76)
Entries/exits in ¾ - 1 mile	Tesco	-0.55	-4.23***
		(2.39)	(1.60)
Entries/exits in 1 – 1¼ mile	Tesco	3.61	3.19**
		(2.21)	(1.52)
Entries/exits in 1¼ - 1½ mile	Tesco	6.07***	-0.98
		(1.93)	(1.37)
Entries/exits in 1½ - 1¾ mile	Tesco	-3.21*	3.75***
		(1.83)	(1.29)
Entries/exits in 1¾ - 2 miles	Tesco	1.54	0.74
		(1.78)	(1.21)
Entries/exits in 2 - 2¼ mile	Tesco	1.66	2.80**
		(1.68)	(1.20)
Entries/exits in 2¼ - 2½ mile	Tesco	1.32	-0.36
		(1.57)	(1.18)
Entries/exits in 0 – ¼ mile	Others	-3.91**	-8.80***
		(1.74)	(1.20)
Entries/exits in ¼ - ½ mile	Others	-3.35***	-1.04
		(1.12)	(0.87)
Entries/exits in ½ - ¾ mile	Others	-1.02	-1.48**
		(0.97)	(0.70)
Entries/exits in ¾ - 1 mile	Others	-1.44*	-0.67
		(0.81)	(0.62)
Entries/exits in 1 – 1¼ mile	Others	-3.53***	-1.58***
		(0.77)	(0.58)
Entries/exits in 1¼ - 1½ mile	Others	-1.75**	-0.37
		(0.76)	(0.54)
Entries/exits in 1½ - 1¾ mile	Others	-1.43**	-1.82***
		(0.71)	(0.54)
Entries/exits in 1¾ - 2 miles	Others	1.98***	-1.97***
		(0.67)	(0.51)
Entries/exits in 2 - 2¼ mile	Others	-1.84***	-1.62***
		(0.64)	(0.48)
Entries/exits in 2¼ - 2½ mile	Others	0.74	-2.49***
		(0.62)	(0.48)
Constant		982.40***	782.21***
		(0.53)	(0.45)
Observations		101,583	515,981
Number of customer no		5,541	28,451
R-squared		0.13	0.05

Source: CMA analysis of parties' data.
Notes:
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

43. Finally, we explored the possibility that the effect of entry/exit might depend on the size of the opening/closing store. We categorised stores according to the classification used in the market definition section of the main report. For example, in urban areas:

(a) in the first quarter of mile we find a negative and significant effect for mid-size multiples, no effect for convenience multiple stores, and a positive effect for one-stop multiples;

(b) in the second quarter of mile we find no significant effect for all sizes of multiples;

(c) in the third quarter of mile we find a negative and significant effect for one-stop multiples, a non-significant effect of convenience multiples, and a positive and significant effect of mid-size multiples.

Given the mixed results we do not draw any conclusion on the influence of the size of an opening or closing store on Booker's sales, and omit the results in this appendix.

Appendix C: Vertical effects incentives analysis

Introduction

1. This appendix presents our analysis of the merged entity's incentives to raise prices in the following scenarios:

   (a) **Vertical – wholesale to retail:** the incentive of the merged entity to increase its wholesale prices (or cut costs that affect its quality of service) to stores *supplied by*[1] one of the merging parties because, if such a wholesale price increase or quality reduction were reflected in a worsened shopping experience, shoppers may switch to a store *owned by*[2] or *supplied by* the second merger party, and this means that, post-Merger, the strategy might be profitable where it was not before. Most often this refers to worsening wholesale prices to Booker-supplied retailers that overlap with Tesco-owned or Tesco-supplied stores (ie One Stop franchises).

   (b) **Vertical – retail to wholesale:** the incentive for the merged entity to increase its prices or cut costs that affect its quality at stores *owned* by one merging party that overlap with stores *supplied*[3] by the other merging party (most often Tesco stores that overlap with Booker-supplied stores); and

   (c) **Horizontal effects:** the incentive for the merged entity to increase prices or cut costs that affect its quality at a store *owned* by one merging party that overlap with stores *owned* by the other merging party (most often Booker-owned stores that overlap with Tesco-owned stores, and vice versa – ie horizontal overlaps).

2. We first present our method and the input assumptions on which it relies, we then set out the evidence underlying the assumptions we make in our analysis, and finally set out the findings of our incentives analysis.

[1] Premier, Londis, Budgens and Family Shopper stores supplied by but not owned by Booker, independent retailers supplied by Booker, and One Stop franchisees supplied by Tesco.
[2] Tesco stores, One Stop stores owned by Tesco and Budgens stores owned by Booker.

Methodology

The Parties' submissions

3. The Parties commissioned an economic analysis of the merged entity's incentives to:

   (a) increase Tesco's retail prices, or cut Tesco's costs in a manner that results in a lower service level, because after the Merger some lost sales may be recaptured at Booker-supplied stores and therefore ultimately by Booker's wholesale business; or

   (b) increase Booker's wholesale prices, or cut Booker's quality or service levels, because after the Merger some wholesale sales lost as a result of Booker-supplied retail stores having to worsen their offer may be recaptured by Tesco's retail business.

4. In this context, the Parties proposed that incentives should be modelled using a 'vertical gross upward pricing pressure index' (vGUPPI) as a tool.[4] This is an extension of the GUPPI tool that is frequently used in horizontal merger cases,[5] which aims to express the magnitude of post-merger incentives to increase prices. For example, a 5% GUPPI (or vGUPPI) implies that the Merger creates an incentive to increase prices similar to that which would be caused by an increase in costs equal to 5% of price.

5. In a horizontal context, the incentive to increase price at a given store depends on a range of factors including the margin earned at the overlapping store and the proportion of sales that would be recaptured at the overlapping store in the event of a price rise (the 'diversion ratio'). A diversion ratio from Store A to Store B of 50% would imply that, if Store A raised its prices and lost some customers as a result, 50% of those lost customers would choose to shop at Store B instead. The sum of the diversion ratios to each of the destinations that Store A's customers go to will be 100% and therefore the diversion ratio to any individual store cannot exceed 100%.

6. The Parties submitted that, using the vGUPPI framework, some reasonable assumptions and data on, for example, the Parties' relative margins, the following conclusions could be reached:

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[4] As proposed in Moresi, S and Salop, C. (2012), *vGUPPI: Scoring Unilateral Pricing Incentives in Vertical Mergers*; the relevant formulae are set out in the annex to this appendix.
[5] For more discussion see Retail Mergers Commentary CMA (2017).

(a) Where a Tesco store overlaps with a Premier, Family Shopper, or Londis store, the 'critical diversion ratio' required to produce a vGUPPI of 5% at the Tesco store is over 100%, and therefore not possible.

(b) Where a Tesco store overlaps with a Budgens store, the critical diversion ratio for a 10% vGUPPI is over 100%; for a 5% vGUPPI, it is 83.5%.

(c) Where a Booker-supplied symbol store overlaps with a Tesco store, the critical diversion ratios for a 5% vGUPPI are over 100%, except in the case of Budgens where it is 94%.

7. The Parties therefore argued that it is implausible that either party should increase its prices (or equivalently worsen service)[6] because of the Merger.

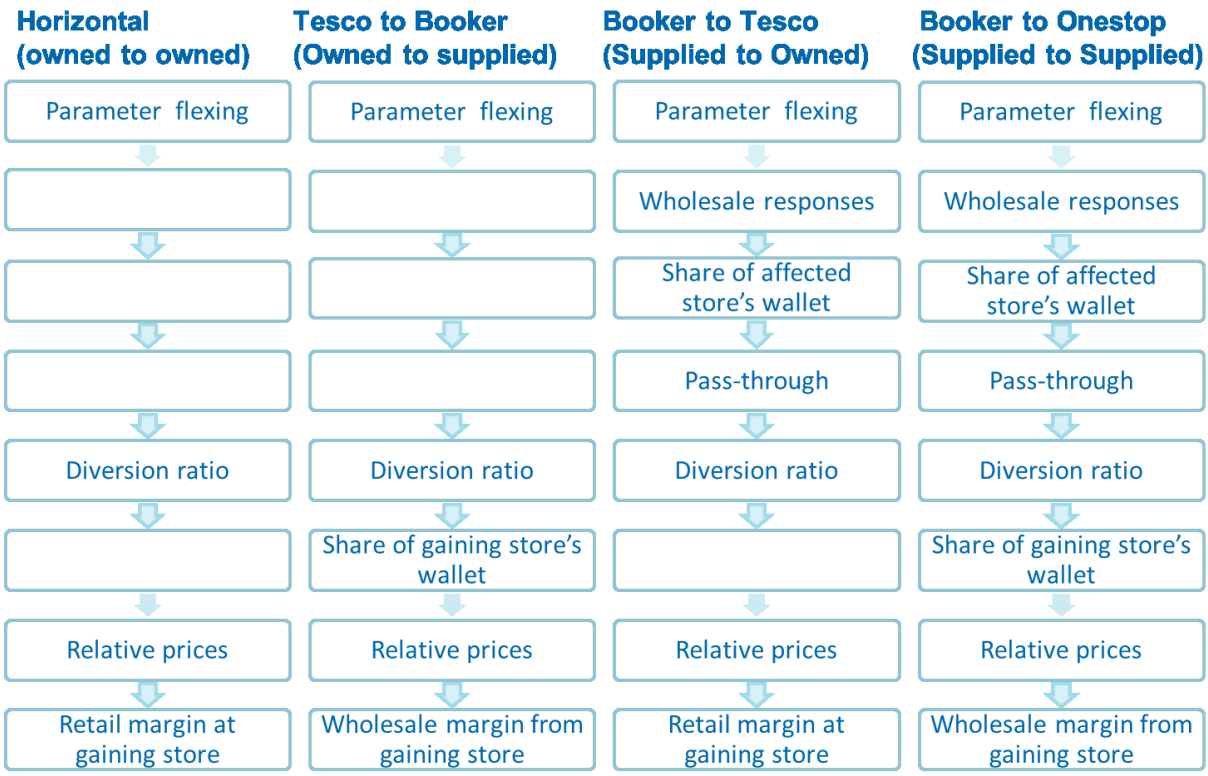
Our approach

8. The incentive to increase prices at or to a store depends on the proportion of sales that the store would lose as a result which would be recaptured by the relevant overlapping store (the diversion ratio), and the likely margin that the merged entity would gain as a result of that recapture.

9. In turn, this proportion of diverted sales and the recaptured margin depend on several factors. These factors vary depending on the type of overlap – that is, in this case, whether the store is owned or supplied, and on whether the expected recapture by the other party takes place via a store that it owns or one that it supplies. The relationship between the overlap type and the set of relevant factors is summarised in Figure 1 and listed below.

[6] In the rest of this appendix we use the term 'price' as a shorthand for all aspects of competition unless otherwise specified.

Figure 1: Factors that affect incentives



Source: CMA.

Factors affecting the Parties' incentives

Factors that are relevant to all types of overlaps

10. Parameter flexing. There will be a greater incentive to raise prices or degrade service if this can be costlessly targeted only at retail stores that overlap with the other merging party. It is therefore relevant to consider over what unit the Parties may flex various parameters, and what costs this might involve.

11. Diversion. A key influence on the incentive to raise prices is the proportion of any resulting lost retail sales that would be recaptured by the store owned or supplied by the other merging party. This is known as the 'diversion ratio' between the affected retail stores.

12. Margins per customer gained. The value to the merged entity of the recaptured sales is determined by the margin it would earn on the sales that it recaptures.

13. Price ratio. The ratio between the prices at the two stores[7] affects the value of the potentially recaptured sales. The higher this ratio, the greater the value of recaptured sales relative to the current price, and therefore, the greater the incentive to increase prices.

Factors that are relevant when considering a price rise at an owned store where recapture may occur at a supplied store

14. Booker's share of the recapturing store's wallet. The merged entity will have a greater incentive to increase prices at a store owned by Tesco if the Tesco store overlaps with a store that purchases a high proportion of its stock from Booker. That is, if Booker has a high 'share of the retailer's wallet' at the recapturing store.

Factors that are relevant when considering a price rise to a supplied store where recapture may occur at an owned store

15. Responses by retailers to wholesale prices and quality. When considering whether to increase the wholesale price that Booker offers to a supplied store that overlaps with a Tesco store, the incentive to do so will be lower in areas where the elasticity of demand[8] for wholesale services is high. That is, where there is likely to be substantial amounts of switching by Booker's wholesale customers in response to a wholesale price increase. Wholesale switching could be through the retailer switching away from Booker entirely, or switching some of its purchase volumes away.

16. Booker's share of the affected store's wallet. Should Booker put up the wholesale price to a specific store, the resulting retail recapture at the overlapping Tesco store will depend in part on how that wholesale price rise feeds through into a price rise seen shoppers at the affected retail store. This in turn will depend in part on the proportion of the affected store's products which are purchased from Booker. That is, Booker's share of the affected retailer's wallet. The greater Booker's share of the retailer's wallet (ie, the larger the proportion of products this retailer purchases from Booker), the greater the incentive to increase prices (for a given wholesale response *(f)* above). For a non-price worsening of Booker's offer, the relevant question relates to how important the relevant worsening is in relation to the retailer's overall offer.

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[7] In cases where the recapture is via wholesale sales, the price at the recapturing 'store' is the wholesale price, as shown in Figure 1.
[8] The ratio of the percentage change in wholesale demand to the change in wholesale price.

17. The rate of pass-through. Booker-supplied retailers may be able to avoid or mitigate any worsening of their retail offer that otherwise might result from an increase in Booker's wholesale prices by reducing their profit margin and thereby absorbing the price increase, instead of passing the wholesale price increase on to shoppers. The smaller is the rate of 'pass through' of wholesale price increases by retailers, the less likely that wholesale price increases will result in significant retail diversion from Booker-supplied stores to Tesco stores, and the smaller the incentive to raise wholesale prices arising from the Merger, all other things being equal.

Factors that are relevant when considering a price rise to a supplied store where recapture may occur at a supplied store

18. In the case of a potential price rise at a supplied store that overlaps with a store supplied by the other merging party, each of the factors *(a)* to *(h)* above is relevant, as show in Figure 1.

Factors assessed outside the GUPPI framework

19. As mentioned in paragraph 4 above, the Parties proposed that incentives should be modelled using a 'vertical gross upward pricing pressure index' (vGUPPI) as a tool.

20. We agree with the merging parties that vGUPPI is a useful tool for combining information on the various factors that affect the merged entity's incentives. However, we carried out a detailed analysis to test the implicit and explicit assumptions that lie beneath the results presented by the Parties, and undertook our own analysis using what we considered to be reasonable assumptions in light of the evidence.

21. Two key implicit assumptions made by the Parties in their modelling relate to 'parameter flexing' and wholesale demand elasticity.

Parameter flexing

22. The vGUPPI modelling of the Parties' incentives implicitly assumes that the merged entity can adjust aspects of its offer at the level of individual stores (whether owned or supplied), and that they can do so costlessly.

23. Insofar as there are costs to this kind of 'parameter flexing' – perhaps as a result of increasing prices at or to stores that do not overlap with the other party, or of reputational damage from targeted flexing[9] – this would tend to

[9] As discussed in Chapters 10 and 12.

reduce the incentives to increase prices. Therefore, the assumption that parameter flexing is costless causes the analysis to suggest a greater incentive to increase prices arising from the merger than an analysis that assumed there were some such costs.

24. As set out in the main report, we reviewed a range of evidence on the extent to which the Parties do or could adjust parameters of competition (of which price is one) at the level of individual retail stores, whether owned or supplied. We take this evidence into account alongside the results of our incentives analysis. See Chapters 9 and 10.

Wholesale competition

25. As explained above, the incentive to increase wholesale prices depends on the likely losses that would directly result from Booker increasing its wholesale prices (before accounting for any subsequent recapture resulting from overlaps with Tesco). These losses depend on how many retailers switch partially or completely away from Booker in response to a price rise. This in turn depends on the elasticity of wholesale demand.

26. The Parties proposed that in our vGUPPI analysis, wholesale demand elasticity be proxied by (the inverse of) Booker's wholesale margin.

27. Broadly, this is a reasonable assumption since in theory, low variable margins are an indicator of a business facing elastic demand (ie its customer are price sensitive) since if demand were not elastic (ie customers were not price sensitive) the business could profitably increase its prices and margins without a merger.[10] As a result, the wholesale margin and the wholesale elasticity are inversely related.[11]

28. As wholesale variable margins tend to be low, this assumption would suggest that wholesale demand is relatively elastic and, therefore, that there is likely to be a significant response by customers to wholesale price increases or reductions in the quality of service.

29. However, this assumption is subject to the caveat that variable margins are themselves difficult to measure and that with non-linear pricing the relationship between margins and elasticity is less straightforward. We therefore also gathered a range of other evidence on wholesale competition, which is important to take into account. This evidence (see Chapter 7)

[10] The intuition underlying this relationship is that, the greater the elasticity, the more customers will be lost if a firm increases its margin (either by increasing its price or reducing its cost by offering a worse quality). Therefore, firms will have less incentive to increase prices, and as a result have lower margins, if elasticity is high.
[11] With linear pricing, variable margins are the inverse of the elasticity when firms maximise profits.

confirmed that in general wholesale competition is strong, and therefore that wholesale demand is likely to be relatively elastic, but that its strength potentially varies by local area. We therefore took the following approach:

(a) we used the wholesale margins data in our vGUPPI analysis;

(b) we were cautious in the choice of assumptions about other inputs, in part to account for the possibility that wholesale competition might not in all localities be as strong as indicated by the data we have on wholesale margins; and

(c) then, for the areas where the analysis showed the highest potential incentives for price rise, we checked that all retailers in those areas have good wholesale options. This part of the analysis is set out at the end of Chapter 9.

Inputs to GUPPI and vGUPPI

30. The annex to this appendix shows the formulae used to calculate GUPPI and vGUPPI values for each type of overlap. Below we discuss the input assumptions that we used.

Diversion ratios

31. The Parties' post-Merger incentives to raise prices or worsen their offer depend in part on whether the shoppers that are lost because of a price increase or worsened offer would switch to stores owned or supplied by the other Party in sufficient numbers to make the worsening profitable.

32. It is possible, under certain combinations of margins, prices, cost pass-through and threshold for concern, for there to be no amount of diversion to the other party that would be sufficient to make a worsening of the scale envisaged by the threshold profitable. This would be the case where the 'critical diversion ratio' in a local area is above 100%. In this case, no competition concern would arise regardless of how closely the Parties' stores compete.

33. However, our analysis suggests that in very many local areas, the relevant level of critical diversion may be below 100%. This means that an in-depth review of the specific local circumstances in each such area is unlikely to be practical.

34. We therefore used a systematic proxy for diversion between the Parties, using standardised information about local competition.

35. The evidence we have reviewed (as set out in Chapters 6 and 7) suggests that:

(a) Distance is a very important element in competition between convenience stores; with most of the competitive constraint coming from stores located close-by (within a quarter of a mile), though stores located further (up to a mile) also provide some constraint;

(b) Different fascia exercise differing constraints, with these constraints potentially varying depending on whether the focus is competition with a Tesco store or with a Booker-supplied store.

36. Therefore, the evidence suggests that our approach, to proxy diversion ratios, should account for both the fact that distance matters (and that the constraint from stores very close by is stronger than those further away) and the fact that there is differentiation between fascia.

37. The approach we use to proxy these diversion ratios is a 'weighted share of shops'.[12] This methodology systematically incorporates detailed relevant evidence available to us in our competitive assessment without, to the extent possible, having to conduct a manual assessment of such a large number of areas, which is not feasible within the statutory timetable of a phase 2 merger investigation.

38. We applied this methodology to data on the Parties' stores, the stores they supply and the stores of competitors.[13] It was not possible for the Parties to provide an exhaustive list of all competing stores and therefore the data on competing stores is incomplete. This is especially true for independent retailers, for which only independent retailers with a commercial relationship with Booker could be identified systematically.[14] As a result, the diversion ratios modelled based on the approach set out above will tend to overstate the diversion between the Parties in local areas where competitors' stores are present but not accounted for in the data.

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[12] The CMA has previously used a weighted share of shops methodology in *Anticipated acquisition by Celesio AG of Sainsbury's Pharmacy Business* and *Anticipated merger between Ladbrokes plc and certain businesses of Gala Coral Group Limited*.

[13] The Parties collated information on stores' locations and stores' category of size as at June 2017 using internal and external sources, including data providers like Geolytix and Nielsen. The Parties' data included information on their pipeline stores. We complemented the dataset by adding data on third parties' pipeline stores, where that data was available. However, we also carried out a sensitivity analysis where we excluded these pipeline competitor stores.

[14] Independent retailers included in the store database are independent retailers who have a customer account and a minimum yearly spend of £5,000 with Booker. The CMA has classified these retailers either as Booker-supplied stores or competing stores depending on their spend with Booker in the past financial year. In particular stores spending less than £20,000 a year with Booker were classified as competitors.

Weighted share of shops

39. We generated a 'weighted share of shops' (WSS) formula as an indicator of competitive constraints as follows.

40. First, each store located within the geographic market of one of the Parties' stores received a weighting, which depended on two factors.

41. The first factor is distance, which is discussed in Chapter 6. Stores next to the Parties' store received a weighting of one. Stores at the very edge of the catchment area received a weighting of zero. The weightings of stores located between these two extremes decline from one to zero in a linear way. For example, if a competing store is located 0.75 miles away (ie 75% of the way to the edge of the geographic market, in the case of convenience stores[15]), the store's weight is reduced by 75%. This effectively applies a 'competitive discount' to the effect of stores located further away.

42. The second factor is closeness of competition between fascia: based on the evidence described in Chapter 7, we consider that certain fascia are less close competitors at the retail level and therefore these were assigned a reduced weighting in our analysis in certain circumstances. These weightings are listed below in paragraphs 50 to 51.

43. Second, once each store received a weighting, we then divided each store's weight by the sum of the weights of all stores within the geographic market. This means that the sum of all weighted shares within the catchment area of a given store of one of the Parties will add to 100%, and can be used as a proxy for the diversion ratio to those stores.

44. To provide an example, consider a Tesco Express convenience store which faces competition from two other convenience stores within 1 mile: A Sainsbury's store that is 0.5 miles away, and a Londis that is 0.25 miles away from the Tesco Express. The Sainsbury's store receives a weighting of 0.5 (because it is halfway between the centre and the edge of the catchment). The Londis store receives a weighting of 0.6, because its weighting is adjusted by a factor of 80% for being a symbol store (competing with a Tesco Express) and a factor of 75% for being a quarter of the way from the centre to the edge of the catchment area.[16] Each weighting is divided by 1.1, which is the sum of all weightings.[17] This gives the Sainsbury's a WSS of 45% and the

[15] See Chapter 6 of the main report for more detail on our definition of the relevant geographic market.
[16] Therefore, the weighting for the Londis is given by: $0.8 * 0.75 = 0.6$.
[17] That is, $0.5 + 0.6 = 1.1$.

Londis a WSS of 54%. Therefore, in this example, our analysis would assume a diversion ratio of 54% from the Tesco Express to the Londis.

45. The Parties submitted that WSS was inappropriate for modelling diversion ratios and it was inappropriate to use WSS as the basis for a decision rule for identifying areas that may give rise to an SLC, as the CMA had no means to calibrate or validate the predictions of the model and the CMA's evidence set for deriving the relevant inputs for a WSS was narrower than in previous merger inquiries where the CMA had used WSS, and that this was particularly risky in the convenience segment of retail groceries because of the complexity of drivers of consumer choice.

46. Modelling diversion ratios is inherently subject to uncertainty in any market. This is true of any measure of diversion where there are many explanatory factors at play, including not only weighted shares of shops but also measures such as share of fascia. However, the weighted share of shops approach has an advantage over shares of fascia because it accounts for distance, which is important in this market for the reasons referred to above. The use of a 'zero' weighting for stores at the edge of the geographic area is also consistent with the standard approach of attaching a zero weight to individual stores just outside the geographic market.

47. The use of a WSS approach has an ambiguous effect on the indicated likelihood of the merger giving rise to an incentive to increase prices or worsen quality. This is because it may increase the estimated diversion to the other merging party (for example, in areas where the Parties' stores are many and are located nearby, while competitors' stores are few in number and located far away), or may decrease it. In practice, our sensitivity analysis shows that the use of a WSS approach results in a marginally greater number of stores where the associated GUPPI or vGUPPI exceeds 5% than is the case when assuming equal diversion between all operators regardless of the number and location of stores within the catchment area.

48. The Parties submitted that weighting the shares of shops will materially overstate diversion as out-of-market diversion is excluded from the numerator and denominator. We have accounted for out-of-market diversion, as discussed from paragraph 59.

Importance of fascia

49. An important focus in this incentives analysis has been on weighted share of shops, reflecting the importance of distance in final customer choice. However, we also recognise that other factors affect final customer choice,

including, for example the fascia of the store.[18] That is, some customers will attach greater weight to the brand of the store, and lesser weight to distance, when choosing which store to go to. We have taken this into account in two ways.

50. First, in the weighted share of shops methodology described above, the distance-based weighting for each store in the geographic market is then multiplied by a further weighting factor relating to how closely the relevant fascia competes with that of the merging parties. The fascia weightings are equal to 1 except for the following retailer types:

- Retailers that do not stock tobacco: For Aldi, Lidl and Marks & Spencer, we have multiplied their initial weighting by 80% when competing with convenience-sized stores to reflect the fact that these retailers do not stock tobacco products, which are an important product category in convenience stores.[19]

- Symbol stores: When assessing incentives to increase price at a Tesco store, we have multiplied the initial weighting of competing symbol stores (including those supplied and not supplied by Booker) by 80%, to reflect the fact that symbol stores do not exert as strong a competitive constraint on Tesco as do the stores of other multiples, as set out in Chapter 7.

- Independent retailers: We have multiplied the weighting of all independent retailers by 50% where they are competing with a symbol retailer or groceries multiple, to reflect evidence that independents exert a weaker competitive constraint on national and regional retail chains than symbol groups do, as set out in Chapter 7.

51. Second, we have conducted sensitivity analyses of our assessment using a fascia-based (rather than a WSS-based) diversion ratio. In this sensitivity, each operator is counted only once regardless of its number of shops or how distant they are within the geographic market. However, the fascia-based weightings described above, accounting for closeness of competition, are still applied.

[18] That is, some customers will have a stronger or weaker preferences for particular brands of convenience store, which may make stores a stronger or weaker constraint, regardless of where they are located within the catchment area.
[19] In sensitivity analysis where Iceland is included as a competitor, we have applied the same weighting of 80% for the same reason.

Own-store or own-brand diversion

52. In the context of this Merger, there are many overlap areas where one or both Parties own or supply more than one store in the local area. Where this is the case, we must decide how to capture the interactions between these stores when calculating diversion ratios and pricing pressure indices.

53. By way of example, suppose that Tesco had the incentive to raise prices or deteriorate its offer at a given Tesco store because of diversion between that store and a Booker-supplied store. In response to this price increase or deterioration, some customers may also divert to a second nearby store owned by Tesco.[20]

54. If that second Tesco store also had an incentive to raise prices (because some of the customers of that second Tesco store would also divert to a Booker-supplied store), this would increase the extent to which sales lost by the first store would be recaptured at the Booker-supplied store, relative to the pre-merger situation. However, if that second Tesco store had no incentive to raise prices (for example, because it did not overlap with a Booker-supplied store, or faced strong competitive constraints), the sales that divert to this second Tesco store would not ultimately be recaptured by a Booker-supplied store and would only have the effect of reducing diversion between the first Tesco store and the Booker-supplied store. Diversion to this store would not contribute to an incentive to raise prices at the first Tesco store.

55. It is necessary to account for this 'feedback effect' when calculating diversion ratios and pricing pressure indices. One option is to 'allow' diversion to other stores owned or supplied by the same Party and assume it does not increase the amount of sales recaptured by the merged entity. A second option is to assume there is zero diversion to other stores owned or supplied by the same Party, thereby increasing diversion between the Parties and, therefore, the incentive to raise prices or cut costs in a way that reduces quality of service.

56. A GUPPI with a diversion ratio that allows own-store diversion is likely to underestimate the incentive to raise prices after the merger because it takes no account of the feedback effects described above. The extent of the underestimate will be greater in areas where the feedback effects are strongest – in particular, areas where overlapping stores all have an incentive to raise prices. A GUPPI with a diversion ratio that excludes own-store

[20] As set out in the Retail mergers commentary, this is relevant when the CMA is investigating a local theory of harm – there the firms flex the parameters of competition in individual shops. Where the CMA is investigating a theory of harm based on the aggregation of local concerns – as the Parties apply the same parameters of competition uniformly across their estates – the right approach is to use the second formulation of the diversion question and disallow own-brand diversion.

diversion is likely to overestimate the incentive to raise prices after the merger, especially in areas where those feedback effects are very limited or absent.

57. To take account of this, we took the following approach:

(a) We first calculated a 'first round' vGUPPI (or GUPPI) for each store owned or supplied by the Parties, using the assumption that there would be zero diversion between stores owned or supplied by the same Party. For the reasons set out above, this means that:

(i) If the other stores in the local are that are owned or supplied by the Parties *have an incentive* to raise prices, the 'first round' vGUPPI will be a reasonable proxy for the incentives of the store being assessed; but

(ii) If the other stores in the local area that are owned or supplied by the Parties have *no incentive* to raise prices, the 'first round' vGUPPI will overstate the incentives of the Parties to raise prices at the store being assessed;

(b) To correct for the latter issue, we then calculated a 'second round' vGUPPI (or GUPPI) for each store, using the assumption that:

(i) There would be zero diversion to another store owned or supplied by the same Party, if that other store had a 'first round' vGUPPI in excess of 5%;

(ii) There would be diversion to another store owned or supplied by the same Party if that other store had a 'first round' vGUPPI of less than 5%.

58. In past cases, the CMA has for the purposes of similar incentives analyses either 'allowed' or 'excluded' diversion to stores of the same brand or operator across all local areas. In this case, we have not taken a single approach to all local areas, but rather have distinguished between local areas based on the specific circumstances of the overlapping same-brand or same-operator store. We believe this approach improves the extent to which the analysis accounts for the feedback effects described above in paragraphs 52 to 54.

Out-of-market diversion

59. The product and geographic market described in Chapter 7 contains the most significant competitive alternatives available to the customers of the Parties. However, we also considered constraints outside the relevant market. To

account for these ‘out-of-market’ constraints within the incentives analysis, we considered whether to allow for a degree of ‘out-of-market’ diversion.

60. The Parties submitted that there would be constraints from outside the geographic catchment and the product market. They submitted that in past cases the CMA had allowed for 20% and 50% leakage from the relevant market and that, on a cautious basis, accounting for 20-30% leakage would be appropriate.

61. Survey evidence from the ACS suggested that 20% of customers travelled more than a mile to carry out their shopping mission. However, we noted that the ACS survey included some mid-sized stores and therefore may overstate the degree of out-of-market diversion from convenience stores.

62. In our base scenario, we have therefore assumed that there would be, on average, diversion to alternatives outside of the relevant market of 10%. We have also considered a sensitivity where out-of-market diversion accounts for 20% of diversion.

Margins

63. Margins enter the GUPPI and vGUPPI formulae in two ways:

    (a) Firstly, margins are used to represent the value of the potentially recaptured sale in the event of a price rise. The particular margin used depends on whether the expected recapture is at a retail owned store, or at the wholesale level via a supplied retail store. Margins enter both the GUPPI and the vGUPPI formulae in this way.

    (b) Secondly, margins are used to represent the wholesale price elasticity of demand. In the case of overlaps where there is a possible wholesale price rise affecting a supplied store, upstream wholesale margins enter the vGUPPI formula representing the likely extent of wholesale switching in response to the price rise; specifically we assume that the wholesale elasticity of demand is equal to the inverse of the wholesale margin.

64. The correct measure of margin in this case should reflect the profit made or lost from the incremental gain or loss of volumes. This is referred to as the variable margin, and is described in the CMA’s Retail Mergers Commentary as being *‘made up of the sales of the relevant products which both parties supply less their variable costs. […] 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.'[21]

65. In this case, the proportion of costs which should be included in the variable margin definition is dependent on the scale of the changes in volume being discussed, and the degree to which the Parties' costs could be reduced as a result.

66. We consider that the volume changes associated with price increases or worsened quality at individual stores would be relatively small in comparison to the size of the Parties' overall businesses. By way of example, if a price increase or quality degradation at an individual retail store were sufficient to result in all customers of that store switching away to competitors, this reduction in volumes would represent less than 0.01% of the business for either of Tesco and Booker. For smaller price increases or quality degradations, the change in volumes would be commensurately smaller. This is relevant when considering whether any central costs are variable.

67. Small changes in volume would, in principle, support only including the direct costs of acquiring the goods (COGs) in the variable margin, which is equivalent to the gross margin. However, we recognise that although the volume changes are small compared to the overall business (and therefore unlikely to result in changes to assets used across the wider business, such as head office or national distribution), they may be sufficient to result in operational changes at a local level. For this reason, we have considered the extent to which these costs would be likely to vary with changes in sales.

68. The Parties provided estimates of the variable margins for the relevant parts of their businesses based on their views of the variability of specific cost lines (ie how much these would change for a given reduction in volumes). In addition, Tesco has developed an algorithmic 'Cost to Serve' model which it uses as part of its internal decision-making processes to estimate profitability of operational changes, and can therefore provide an estimate for the relevant variable margins.

69. We considered the Parties' submissions summarised above. For a number of cost lines, we consider that the variability would likely be lower than proposed by the Parties, and so we revised the variable margin estimates accordingly. The estimated variability of individual cost lines, along with the Parties' original proposals, is shown in Table 1 below:

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[21] CMA62 – Retail mergers commentary, technical box 1.

Table 1: Summary of variable for cost lines (% of total cost line)

	CMA value used	*Tesco large store*	*Tesco conv'nce*	*One Stop*	*Budgens & Londis*	*Premier, Family Shopper, and Other Retail*
Gross margin (incl other income)	100%	[✂]	[✂]	[✂]	[✂]	[✂]
Store/branch payroll	50%	[✂]	[✂]	[✂]	[✂]	[✂]
Other store/branch cost (incl repairs)	0%	[✂]	[✂]	[✂]	[✂]	[✂]
Distribution	50%	[✂]	[✂]	[✂]	[✂]	[✂]
Wastage	100%	[✂]	[✂]	[✂]	[✂]	[✂]
Shrinkage	50%	[✂]	[✂]	[✂]	[✂]	[✂]
Marketing (incl customer discounts)	0%	[✂]	[✂]	[✂]	[✂]	[✂]
Other operating costs	Specific elements (eg card fees)	[✂]	[✂]	[✂]	[✂]	[✂]

Source: Submissions from Parties, CMA analysis.

70. The relative size of these individual cost lines differs between fascia, and hence the effect of treating these as variable (or semi-variable) also differs. However, applying the variability percentages described above generally results in an observed decrease from gross margin to variable margin of around a quarter to a third.

71. The Parties provided arguments that the CMA's calculations of the Parties' variable margins rely on data and assumptions that are inappropriate, and that the correct variable margin would therefore be lower than our estimates. We note these arguments, and that the main implication of using lower variable margins would be that the value of recaptured sales would be smaller and, therefore, the expected merger-specific incentive to raise prices or worsen quality would be reduced.

72. For some fascia, the Parties were able to provide local gross margin data. Where this was the case, we have calculated a local variable margin figure by taking the local gross margin figure and (1) applying an adjustment to the local gross margins to ensure the weighted average matches the national figures; (2) calculating the national difference between gross margin and variable margin; and (3) applying this difference to each local gross margin to provide a local variable margin.

73. For other fascia, the Parties were only able to provide cost information at a national average (eg most of Booker's symbol group retailers' margins). In these cases, we have applied an estimate of the national variable margin for each local store.

Table 2: Average variable margins for each format/fascia

	National average gross margin (%)	*National average variable margin (%)*	*Local data available?*
Tesco retail margins			
Tesco convenience	[✂]	[✂]	Yes
Tesco large stores	[✂]	[✂]	Yes
One Stop owned stores	[✂]	[✂]	Yes
One Stop franchises	[✂]	[✂]	Yes
Tesco wholesale margins			
One Stop franchises	[✂]	[✂]	Yes
Booker retail margins			
Budgens symbols	[✂]	[✂]	No
Londis symbols	[✂]	[✂]	No
Premier symbols	[✂]	[✂]	No
Family Shopper symbols	[✂]	[✂]	No
Booker-supplied independent stores	[✂]	[✂]	No
Booker owned-and-operated stores (retail only)	[✂]	[✂]	Yes
Booker owned-and-operated stores (retail + w/s)	[✂]	[✂]	Yes
Booker wholesale margins			
Budgens	[✂]	[✂]	No
Londis	[✂]	[✂]	No
Premier	[✂]	[✂]	Yes
Family Shopper	[✂]	[✂]	Yes
Independent stores	[✂]	[✂]	No

Source: Submissions from Parties, CMA analysis.

74. The results of our incentives analysis, set out later in this appendix, show very small numbers of stores for which the parties may have some incentive to increase prices.

75. We also conducted a sensitivity analysis using gross margins, which reflect the maximum level that variable margins could achieve. Even under this extreme scenario, we identified only small numbers of stores showing some incentive to increase prices, with only two stores having a vGUPPI exceeding 10%. This gives us confidence that we can rely on the results in our main scenario.

Price ratios

76. Since margins are stated in percentage terms, these subsequently need to be applied to a measure of absolute price at the recapturing store in order to determine the absolute profit which could be generated on recaptured sales, and then also divided by a measure of price at the focal store to measure the size of this value relative to current prices. These two steps are equivalent to multiplying the margin by the ratio of prices between the recapturing store and the store whose incentives are being analysed.

77. We gathered evidence on relative prices from a range of sources, but primarily based on the data the Parties' collect when tracking prices at a range of other suppliers. We used this to estimate the following ratios, which are expressed relative to prices at Tesco convenience stores (these being indexed to 100:

(a) Tesco convenience store retail prices = 100;

(b) Tesco larger store retail prices = [✂];

(c) Retail prices at Tesco supplied or owned One Stop stores = [✂];

(d) Tesco wholesale price to One Stop franchisees = [✂], based on:

(i) The retail gross margin generated by One Stop franchise stores should reflect the difference between Tesco's wholesale price and One Stop franchisees' own retail prices, because One Stop franchises purchase a large proportion of their wholesale inputs from Tesco ([✂]%). The retail gross margin of One Stop franchisees is [✂]% (as described in Table 2 above). Based on One Stop prices being [✂] compared to Tesco Express, this would imply that Tesco wholesale is around [✂]% cheaper than Tesco convenience store pricing.

(e) Booker wholesale prices = [✂], based on:

(i) Evidence that Tesco's main store estate is [✂]% more expensive than Booker's wholesale prices for tobacco, and [✂]% more expensive than Booker's wholesale prices for non-tobacco, while Tesco Express is [✂]% more expensive than Tesco's main store estate, and is therefore expected to be around [✂]% more expensive than Booker's wholesale prices for tobacco, and [✂]% more expensive than Booker's wholesale prices for non-tobacco, or [✂]% overall.[22]

(f) Retail prices at Booker-supplied or owned symbol stores = [✂], based on:

(i) Evidence from 2015 that Booker's RRPs for Budgens and Londis were [✂]% [✂] than Tesco's retail prices;

(ii) Evidence that Nisa is [✂]% [✂] than Tesco Express, and Nisa is [✂]% [✂] than both Londis and Budgens. This implies a [✂] over Tesco Express prices.

(iii) Evidence on prices at other convenience stores which might be considered similar to Booker's symbol stores, suggesting [✂] in the region of [✂]%. One Stop is [✂]% [✂]than Tesco Express; Co-op is

[22] Weighting based on proportion of Booker's sales to symbol groups which consists of tobacco ([✂]%) vs non-tobacco ([✂]%);

[✂]% [✂] than Tesco Express; and as mentioned above, Nisa is [✂]% [✂] than Tesco Express.

(iv) Evidence (as set out above) that Booker's wholesale price is [✂]% less than Tesco Express' retail prices, and that the average retail margin which Booker's symbol stores achieve is around [✂]%, which is equivalent to a [✂]% price premium of Booker's symbol stores retail prices over Booker's wholesale prices. This implies a [✂] Tesco Express prices.

(g) Booker-supplied independent store retail prices = [✂], based on:

(i) The margins reported in our survey were 7 percentage points higher on average for independent retailers compared to symbol group retailers.[23] This would imply a 5% price premium over symbol retailers and therefore a [✂]% [✂] Tesco Express. In support of this, Him! survey evidence shows that independent store shoppers purchase fewer items on promotion than symbol store shoppers.

(ii) An estimate of [✂]% higher prices of independent stores is also consistent with the maximum difference observed between Tesco Express stores and symbol groups Nisa and Spar.

78. The ratios used in our analysis were calculated based on the underlying ratios listed above; the results are not sensitive to small changes in those ratios. The necessary ratios depend on where the contemplated price rise takes place (ie Booker wholesale supply, Tesco's wholesale supply of One Stop franchises, Booker owned stores, or Tesco owned stores), and on where the contemplated recapture takes place (ie Tesco or Booker wholesale via a Tesco or Booker supplied store, or an owned store), as follows:

(a) To calculate GUPPI, representing the incentive to raise prices at Tesco because of recapture at a Booker owned store, or vice versa, involves the ratio of Booker retail prices to Tesco retail prices.

(b) To calculate the vGUPPI representing the incentive to raise prices at Tesco owned stores because of recapture by Booker wholesale, via a Booker supplied store, involves the ratio of Booker wholesale prices to Tesco retail prices.

(c) To calculate the vGUPPI representing the incentive to raise the wholesale price offered to Booker-supplied stores because of recapture at a Tesco

[23] See CMA survey of retailers, p44. Based on respondents which stated that they add a fixed percentage margin on top of wholesale prices.

retail store involves the ratio of Tesco retail prices to retail prices at the Booker supplied store.

(d) To calculate the vGUPPI representing the incentive to raise the wholesale price offered to Booker-supplied stores because of recapture at a Tesco-supplied store (ie One Stop franchises) involves the ratio of Tesco's wholesale prices to the retail prices at the Booker supplied store.

(e) To calculate the vGUPPI representing the incentive to raise the wholesale price offered to Tesco-supplied stores (ie One Stop franchises) because of recapture at a Booker-supplied store involves the ratio of Booker's wholesale prices to the retail prices at the Tesco-supplied store.

Share of the retailer's wallet

79. For retailers that are supplied by Booker, the proportion of their purchases which are made at Booker, as opposed to another wholesaler, (ie Booker's share of the retailer's wallet) enters our analysis in two ways:

(a) In cases where we are considering the prospect of a price rise at a store owned or supplied by Tesco, which may involve recapture at a Booker-supplied store, the proportion of this recapture that is likely to flow through to Booker will be reduced in proportion to the share of wallet.

(b) In cases where we are considering the prospect of an increase in the wholesale price rise offered to retailers supplied by Booker, the effect of this price rise on the retailer's offer will be reduced in proportion to the share of wallet.

80. The Parties submitted that symbol group customers sourced on average approximately [✂]% of their purchases from Booker.[24]

81. We do not have data, for individual Booker-supplied retailers, on the share of their wallet that is spent at Booker. However, we have the following evidence:

(a) On average among respondents to our survey, Booker has a 78% share of symbol group retailers' wallets and a 60% share of independent retailers' wallets.[25]

(b) Data for individual retailers, provided by the Parties, on the absolute amount that they spent with Booker in the 2017 financial year.

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[24] Annex 3 to the Parties' initial submission to the CMA. This was based on a EPOS data from a small sample of Premier and Londis stores. It was not clear how the sample was selected.
[25] CMA survey of Booker-supplied retailers.

82. We used this data together in the following way:

(a) Our default assumption about the share of wallet is based on our survey results (78% for symbol group retailers and 60% for independent retailers);

(b) For retailers that spend very little with Booker, we adjusted this assumption downwards. This downward adjustment was made by assuming a 'minimum wallet size' for symbol and independent retailers, and then calculating what each retailer's actual spend with Booker was as a proportion of this minimum wallet. For retailers where this figure was less than survey average, the down-weight was applied. For symbol group retailers we estimated a minimum wallet size of £100,000, since less than 2% of symbol group retailers surveyed said that they spend less than this in a year. The survey did not provide equivalent information on independent retailers; for them we assumed a minimum wallet size of £55,000, a quarter of the average.[26]

83. The Parties submitted that, when thinking about how a price increase by Booker could feed through to a *price increase at a Booker-supplied store*, we should set a materiality threshold for the share of the retailer's wallet and assume that below this level Booker does not have power to influence the retailer's prices. Based on an average independent retailer wallet size of £200,000 to £250,000 a year and assuming a 50% materiality threshold, they proposed that for retailers that spend below £125,000 a year with Booker, we should assume that they could not plausibly be a target of a strategy of targeted degradation.

84. We considered how to assess the way in which Booker's share of the retailer's wallet affects how a wholesale price increase by Booker would feed through to a retail price increase at the retailer's store. We considered that the greater the proportion of inputs purchased from Booker, the greater Booker's influence on a retailer's offer, and therefore that the most appropriate way was to assume that the impact of Booker's wholesale price on retail prices would be proportional to Booker's share of the retailer's wallet. We considered that there was no evidence suggesting that it would be a better approach to assume a specific 'materiality threshold' above which wholesale prices would affect retail prices (and below which they would not). We therefore adjusted

[26] The average wallet size for independent retailers is estimated to be £223,000. See phase 2 initial submission, Annex 4, paragraph 2.14 and footnote 21.

the relevant vGUPPI by multiplying it by Booker's share of the retailer's wallet.[27]

Pass-through

85. The pass-through rate captures how change in the wholesale price translates into a change in the retail price. A pass-through rate of 100 per cent means that, if the wholesale price increases by £1, then £1 will be added by retailers to the prices they charge to their customers.[28] A pass-through rate of 50 percent would mean that retail prices would increase by 50p in response to the same price increase.

86. Booker has submitted that pass-through is limited by the following:

(a) Price marked packs (PMPs) – The price printed on PMPs is set by suppliers for branded products, and by Booker for own-label products. Booker's analysis of 4 weeks of sales data for a small sample of Premier, Londis, Budgens and Family Shopper symbol stores showed that between [✂] and [✂]% of products sold were PMPs.[29] In our analysis of a larger sample, PMPs were found to account for between 32-45% of gross sales.[30] Booker told us that while retailers are free to set their own prices, a common reason for purchasing PMPs is to engender trust among their customers, meaning that for PMPs retailers would be less likely to pass a wholesale cost increase through to retail prices (in the absence of a change to the printed price). Although Booker could still influence, at a national level, the price set by retailers through its own-label PMPs or by de-listing PMPs, we consider that it is likely that it would not be able to effectively target such a strategy at a local level.

(b) Recommended retail prices (RRPs) – For the majority of non-PMP and non-promotion products sold by Booker, suppliers provide an RRP. For products without a supplier-set RRP, [✂]. Our analysis shows that RRP adherence is high; among a large sample of retailers around 70% of sales (by value) are priced by symbol group and independent retailers according to their RRP.[31] This is confirmed by our retailer survey which

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[27] In practice, this means that when calculating a vGUPPI of 5%, a retailer that purchases 10% of its wholesale inputs from Booker would have an adjusted vGUPPI of 0.5%, whereas a retailer that purchases 90% of its wholesale inputs from Booker would have an adjusted vGUPPI of 4.5%.
[28] This assumes that the wholesale cost of products is the sole marginal cost faced by retailers.
[29] Booker noted that this range reflects the differences in the states of its different symbol groups; eg a greater proportion of Londis stores are petrol forecourts which have lower demand for PMPs. The CMA's analysis of data from RDP showed that PMPs accounted for [✂]% of Booker's sales on December 1 2016 and [✂]% of Booker's sales of 1 July 2017.
[30] Data analysed at 1 December 2016 and 1 July 2017. Booker's gross sales comprise gross sales by Londis, Premier, Premier Express, Family Shopper and the independent retailers within Booker Retail Club.
[31] Data analysed at 1 December 2016 and 1 July 2017.

indicates that two third of independents and symbol retailers use RRPs all or most of the time). While high levels of adherence to RRPs imply some control over retail prices, Booker confirmed that its RRPs are set nationally. Nevertheless, Booker could, in principle, set RRPs at the individual retailer level, though this would likely be costly and require Booker to adopt a new strategy.

(c) Promotions - Booker told us that where branded products are sold as a PMP or as part of a mandatory promotion, it is the supplier that influences a retailer's pricing decision. Booker submitted that it does not, and would not, have the ability to negotiate with the supplier to implement less attractive promotions on its products because (i) suppliers would not be willing to fund a higher margin for Booker at the expense of their own volumes; and (ii) PMPs and promotions are applied on a consistent basis for the entire wholesale channel and are not Booker-specific.

87. In previous cases the CMA (and its predecessors) has assumed a pass-through rate of between 50 and 100% depending upon the specific conditions of competition.

88. Late in our process, Booker submitted some analysis of pass-through rates based on limited data collected from EPOS.[32] This analysis indicated that pass-through rates may lie between [✂] to [✂]%, although it was based on a limited sample and allowed for pass-through only up to two weeks after the initial wholesale price change.

89. We also gathered evidence on (hypothetical) cost pass-through in our retailer survey. Of the retailers that said they would remain with Booker for all or some of their purchases following a 5% price increase by Booker, almost three-quarters of independent retailers and three-fifths of symbol group retailers responded that they would increase price in line with cost (ie 100% pass through). Only 2% of symbol group retailers and one tenth of independent retailers said they would absorb the cost increase by Booker. Together, the responses to the survey suggest that around 75% of any cost increase could be passed through.

Provisional conclusion on cost-pass through

90. As set out above, Booker's ability to influence retail prices is likely to be constrained by several factors. Even if there were a proportion of products for

[32] The data incorporated daily and weekly data for 386 from Londis and Budgens retailers for the period 17 February 2017 to 6 August 2017. There were more than 20,000 observations, with the total number of observations used varying dependent on the number of 'lags' used in the analysis.

which Booker could influence retailers' pricing more directly (eg through own-label products or adjusting RRPs), there are also some products, such as PMPs, for which pass-through of wholesale price increases by Booker-supplied stores may be limited.

91. While actual pass-through could be lower, our incentives analysis assumes a pass-through rate of 75%, as implied by our retailer survey. We note that the other evidence described above received by us could suggest that the pass-through rate may be lower than 75% and therefore that the incentive, arising from the merger, for the Parties to increase prices suggested by the analysis may be overstated. We have therefore also presented the results of a sensitivity analysis based on 50% pass-through.

Summary of inputs

Table 3: Summary of inputs into the incentives analysis

Aspect of the analysis	*Input or assumption used in the 'base scenario'*	*Alternative input or assumption considered in sensitivity testing*
Diversion ratio	Diversion estimated to be in proportion to operators' weighted shares of shops	Assume that sales divert evenly between all fascia within the geographic area
Own-store or own-brand diversion	Own-store diversion assumed zero where 'first round' GUPPI or vGUPPI of that store is less than 5%	
Margins	Variable margins used in all cases, as described from paragraph 63	Gross margins used in all cases
Price ratios	Price ratios as set out from paragraph 76	
Share of retailer's wallet	Survey ratio, adjusted downwards where data on retailers' purchases shows their purchases from Booker are very low in value	
Pass-through	75%	50%
Approach to account for importance of input to symbol or independent retailer	Reduce vGUPPI in proportion to Booker share of wallet	
Out-of-market diversion	10%	20%
Iceland, Bargain Booze and Lifestyle Express	Not treated as effective competitors	Included as effective competitors
Weight attached to symbol stores when considering the incentive to raised prices at a Tesco store	80%	
Weight attached to stores that do not stock tobacco	80%	
Effectiveness of independent retailers as competitors	50% when competing with national or regional grocery chains, or symbol groups. 100% when competing with other independents.	

Source: CMA analysis.

Provisional results

92. In this section, we set out the provisional results of our analysis of the merging Parties' incentives to raise prices, under the input assumptions outlined above. We set out the number of focal stores of the Parties for which the calculated GUPPI or vGUPPI exceeds different GUPPI thresholds under different scenarios. In particular:

(a) Table 4 presents the results the 'main scenario', which reflects the conclusions sets out in this Annex and in Chapters 7 and 8.

(b) Table 5 sets out the results from various sensitivity scenarios, considering the number of areas that have a GUPPI or vGUPPI exceeding 5%, and in each case changing one assumption in the main scenario (and holding all other assumptions the same), as follows:

(i) Modelling diversion ratios by assuming sales divert in equal proportions to each operator within a given geographic area, rather than in proportion to their WSS (as set out from paragraph 8 above);

(ii) Using a pass-through rate of 50% (instead of 75%);

(iii) For 'out-of-market' diversion, using a rate of 20% (instead of 10%);

(iv) Using gross margins instead of variable margins;

93. Table 6 sets out the results for the same sensitivity scenarios, but considering the number of areas that have a GUPPI or vGUPPI exceeding 10% (instead of 5%).

Table 4: Number of stores exceeding a 5% or 10% GUPPI or vGUPPI threshold in the main scenario

	Owned-to-owned	*Owned-to-supplied*	*Supplied-to-owned*	*Supplied-to-supplied*
5% threshold	2*	11	10	0
10% threshold	0	0	0	0

Source: CMA calculations.
* These two stores are the [✂] the overlapping Tesco store.

Table 5: Number of stores exceeding a 5% GUPPI or vGUPPI threshold, by type of overlap

Scenario/sensitivity test	*Owned-to-owned*	*Owned-to-supplied*	*Supplied-to-owned*	*Supplied-to-supplied*
Exclude pipeline competitor stores	2	12	11	0
Include Iceland, Bargain Booze, Lifestyle Express as effective competitors	2	11	10	0
Assume that sales divert evenly between all operators within the geographic area	1	9	6	0
Out-of-market diversion: 20%	1	6	7	0
Use gross instead of variable margins	4	31	45	0
Pass-through: 50%	2	11	1	0

Source: CMA calculations.

Table 6: Number of stores exceeding a 10% GUPPI or vGUPPI threshold, by type of overlap

Scenario/sensitivity test	*Owned-to-owned*	*Owned-to-supplied*	*Supplied-to-owned*	*Supplied-to-supplied*
Base scenario	0	0	0	0
Exclude pipeline competitor stores	0	0	0	0
Include Iceland, Bargain Booze, Lifestyle Express as effective competitors	0	0	0	0
Assume that sales divert evenly between all operators within the geographic area	0	0	0	0
Out-of-market diversion: 20%	0	0	0	0
Use gross instead of variable margins	0	1	1	0
Pass-through: 50%	0	0	0	0

Source: CMA calculations.

ANNEX

The GUPPI and vGUPPI formulae

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

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

   (b) w refers to the wholesale price level of a given supplier;

   (c) m refers to the margin;

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

   (e) γ_A^B refers to the share of inputs a retailer A buys from the wholesale business of party B;

   (f) α refers to the pass-through rate.

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

   (a) T refers to a Tesco-owned retail store

   (b) TW refers to Tesco's wholesale business (supplying One Stop);

   (c) O refers to a One Stop franchisee;

   (d) B refers to a Booker-owned retail store

   (e) BW refers to Booker's wholesale business;

   (f) BR refers to a Booker-supplied symbol retailer or Booker-supplied independent retailer;

GUPPI – the horizontal case

3. The following formula is an index of the incentive to increase prices at a Booker-owned retail store that overlaps with a Tesco-owned store. For the reverse case (price rises at the Tesco store) we use an analogous formula.

$$GUPPI_{BT} = [diversion\ ratio\ from\ Booker\ owned\ retail\ store\ to\ Tesco\ ] * [Tesco's\ retail\ margin] * [ratio\ of\ Tesco's\ retail\ price\ to\ Booker's\ retail\ price]$$

Or in notation:

$$GUPPI_{B\to T} = DR_{B\to \mathrm{T}}\, m_T\, \frac{p_T}{p_B}$$

vGUPPI – the case of a price rise at an owned store with recapture at a supplied store

4. In the case where we consider Tesco's post-merger incentive to increase prices at a store it owns arising from the fact that, post-Merger, some sales may be recaptured at a symbol store or independent store supplied by Booker, the relevant GUPPI is very similar to the horizontal case but includes an extra term reflecting 'wholesale leakage' arising from the fact that the store supplied by Booker will not purchase all of its inputs from Booker.[33]

$$\begin{aligned} GUPPI_{TW} = {} & [diversion\ ratio\ from\ Tesco\ to\ Booker\ supplied\ store] \\ & * [Booker's\ share\ of\ the\ Booker\ supplied\ store's\ purchases] \\ & * [Booker's\ wholesale\ margin] \\ & * [ratio\ of\ Booker's\ wholesale\ price\ to\ Tesco's\ retail\ price] \end{aligned}$$

5. Using the notation set out above:

$$vGUPPI_{T\to BW} = DR_{T\to BS}\gamma_{BS}^{BW}\frac{p_{BW}}{p_T}m_{BW}$$

vGUPPI – the case of a price rise at a supplied store with recapture at an owned store

6. In the case where we consider the incentive of Booker, post-merger, to increase wholesale prices because a Tesco-owned store may recapture some of the resulting lost wholesale sales, the relevant upwards pricing pressure formula is as follows:[34]

$$\begin{aligned} \mathrm{v}GUPPI_{BW\to T} = {} & [diversion\ ratio\ from\ Booker\text{-}supplied\ store\ to\ Tesco\ store] \\ & * [Booker\text{-}supplied\ retailer's\ pass\ through\ rate] \\ & * [price\ ratio\ of\ Booker\ wholesale\ to\ Booker\text{-}supplied\ retailer] \\ & * [ratio\ of\ Booker's\ wholesale\ margin\ to\ Booker\text{-}supplied\ retail\ margin] \\ & * [Tesco\ retail\ margin] \\ & * [ratio\ of\ Tesco's\ retail\ price\ to\ Booker's\ wholesale\ price] \end{aligned}$$

7. Using the notation as above:

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[33] We use an analogous formula when considering the incentive to raise prices at a Booker-owned store that overlaps with a Tesco-supplied store (ie a One Stop franchise).
[34] As above, we use an analogous formula when considering the incentive to raise wholesale prices to One Stop franchisees because some lost wholesale sales may be recaptured at the retail level by a Booker-owned store.

$$vGUPPI_{BW\to T} = DR_{BS\to T}\alpha_{BS}\frac{p_{BW}}{p_{BS}}\frac{m_{BW}}{m_{BS}}m_T\frac{p_T}{p_{BW}}$$

8. This vGUPPI describes the incentive of Booker to increase the wholesale prices on those products that Booker currently supplies to a symbol retailer or independent retailer.[35] This might make up a small or a large proportion of the retailer's overall wholesale inputs. To the extent that the vGUPPI suggests a significant merger-specific incentive to increase wholesale prices would arise, but Booker supplies a small proportion of the retailer's inputs, the implied effect on the retail offer would be similarly small. Conversely, where the retailer secures most of or all its wholesale inputs from Booker, a large vGUPPI would suggest a significant impact on the retailer's overall retail offer. To account for this, in our base scenario, we have multiplied the vGUPPI by an additional term for the share of purchases made from Booker, as follows:

$$\widehat{vGUPPI_{BW\to T}} = DR_{BS\to T}\alpha_{BS}\frac{p_{BW}}{p_{BS}}\frac{m_{BW}}{m_{BS}}m_T\frac{p_T}{p_{BW}}\gamma_{BS}^{BW}$$

vGUPPI – the case of a price rise at a supplied store with recapture at a supplied store

9. In the case where we consider the incentive of Booker, post-Merger, to increase wholesale prices because a Tesco-supplied store (ie a One Stop franchisee) may recapture some of the resulting retail sales lost by the Booker-supplied store (and therefore, Tesco would recapture margins at the wholesale level), the relevant upwards pricing pressure formula is as follows:[36]

$$\begin{aligned} vGUPPI_{BW\to TW} = {} & [diversion\ ratio\ from\ Booker\text{-}supplied\ store\ to\ One\ Stop\ store] \\ & * [Booker\text{-}supplied\ retailer's\ pass\ through\ rate] \\ & * [price\ ratio\ of\ Booker\ wholesale\ to\ Booker\text{-}supplied\ retailer] \\ & * [ratio\ of\ Booker's\ wholesale\ margin\ to\ Booker\text{-}supplied\ retail\ margin] \\ & * [Tesco\ wholesale\ margin] \\ & * [share\ of\ One\ Stop\ store's\ purchases\ from\ Tesco] \\ & * [ratio\ of\ Tesco's\ wholesale\ price\ to\ Booker's\ wholesale\ price] \end{aligned}$$

10. Using the notation above:

$$vGUPPI_{BW\to TW} = DR_{BS\to O}\alpha_{BS}\frac{p_{BW}}{p_{BS}}\frac{m_{BW}}{m_{BS}}m_{TW}\gamma_O^{TW}\frac{p_{TW}}{p_{BW}}$$

[35] We use an analogous formula when considering the incentive to raise wholesale prices to One Stop franchises because some wholesale sales lost (due to an increase in retail prices) may be recaptured at the retail level by a Booker-owned store.

[36] As above, we use an analogous formula when considering the incentive to raise wholesale prices to One Stop franchisees because some lost wholesale sales may be recaptured at the retail level by a Booker-supplied store.

11. For the reasons set out in paragraph 8, we included an additional term for the share of the Booker-supplied store's purchases made from Booker:

$$\widehat{vGUPPI_{BW\rightarrow TW}} = DR_{BS\rightarrow O}\alpha_{BS}\frac{p_{BW}}{p_{BS}}\frac{m_{BW}}{m_{BS}}m_{TW}\gamma_{O}^{TW}\frac{p_{TW}}{p_{BW}}\gamma_{BS}^{BW}$$

Glossary

Aldi	Aldi Stores Limited.
Asda	Asda Stores Limited, a grocery retailer and a subsidiary of Wal-Mart Stores Inc.
ACS	Association of Convenience Stores.
Bestway	Bestway Cash & Carry Limited, a national **cash-and-carry wholesaler**.
Booker	**Booker** Group plc is the UK's largest grocery wholesaler. It is active primarily in the wholesale supply of groceries through its delivered and **cash-and-carry wholesale** services to independent retailers and through its supply of symbol group services under four **symbol group** fascia: Premier, Londis, Budgens and Family Shopper. The retailers which Booker supplies under these four fascia are referred to as 'Booker symbol group retailers'.
Brakes	Brake Bros Limited, a national delivery grocery and food-service wholesaler.
BRP	Booker Retail Partners.
British Brands Group	Member organisation for brand manufacturers.
Budgens	A **symbol group** owned by **Booker**.
Cash-and-carry wholesale	A **grocery wholesaler** that supplies business customers such as retailers, caterers and owners of small businesses.
CMA	Competition and Markets Authority.
Convenience store	A **grocery store** smaller than 280 square metres that sells a range of groceries (ie not speciality grocery retailers).
Costco	Costco Wholesale UK Limited, an national **cash-and-carry wholesaler**.
Costcutter	Costcutter Supermarkets Group Limited, operator of the Costcutter **symbol group**.

Dhamecha	Dhamecha Foods Limited, a regional **cash-and-carry wholesaler.**
Forecourts	**Convenience store** located at a petrol filling station.
Grocery retailer	A firm selling groceries at a retail level, being either a **supermarket,** a **convenience store** or a specialist grocery retailer.
Grocery store	A retail store, a significant proportion of which is devoted to the sale of groceries.
Grocery wholesaler	A seller of groceries at a wholesale level, usually to convenience stores.
GSCOP	Groceries Supply Code of Practice.
Iceland	Iceland Foods Ltd, a British supermarket chain.
IGD	A research and training charity.
Landmark	Landmark Wholesale Limited, a buying group acting on behalf of delivered wholesalers.
Lidl	Lidl UK GmbH, a German global discount supermarket chain.
Londis	The **symbol group** operated by Londis (Holdings) Limited and part of Booker.
Morrisons	Wm Morrison Supermarkets plc, a UK supermarket chain.
MSS	Mid-sized store.
Nisa	Nisa Retail, **grocery wholesaler** and operator of the Nisa symbol fascias (Nisa Local, Nisa Extra, Loco and Dual Branded).
One Stop	A chain of **convenience stores**, owned by Tesco.
one-stop store	A large supermarket which has a large range of products which can be purchased at the same time and in the same store, rather than on different shopping trips or from different stores.
OSS	One-stop store.

Own-brand or own-label	Range of products carrying a retailer's brand/name and produced to the retailer's specifications.
P&H	Palmer & Harvey McLane Limited, a national delivered grocery and foodservice wholesaler.
Parfetts	A G Parfett & Sons, an employee owned cash & carry.
Premier	The **symbol group** operated by **Booker.**
Retailer	A person, shop or business that sells goods to the public.
Sainsbury's	J Sainsbury plc, a **grocery retailer**.
SKU	Stock-Keeping unit.
SLC	Substantial lessening of competition.
Supplier	A manufacturer which sells products directly to a **grocery retailer** or wholesaler.
Symbol group	A group of **convenience stores**, some of which may operate under a franchise arrangement, and trade under a common fascia (symbol) (eg Spar, Costcutter).
Symbol group retailers	**Grocery retailers** which operate stores under a common fascia (or symbol) and undertake common marketing activities. Stores within a **symbol group** may be independently owned and use the common fascia under a franchise or membership agreement, or alternatively, may be directly owned by the **symbol group** or affiliated wholesalers. **Symbol group** retailers generally source supplies through affiliated wholesalers. The central organisation of the **symbol group** undertakes joint marketing and advertising, co-ordinates promotions, arranges for the provision of own-label products using the **symbol group** brand, and supplies support services (eg staff training, financial management and merchandising).
Symbol group wholesalers	**Grocery wholesalers** that supply **symbol group retailers**. The central organisation of the symbol group wholesaler undertakes joint marketing and advertising, co-ordinates promotions, arranges for the provision of own-label products using the symbol group brand, and supplies support

	services (eg staff training, financial management and merchandising).
Tesco	**Tesco** PLC is the UK's largest **grocery retailer**. It is active in the retail supply of groceries through its network of approximately 3,500 owned and operated Tesco and One Stop-branded stores. Tesco also has a **symbol group** offering, via its 129 franchised One Stop stores.
Tesco Express	**Convenience store** chain owned by Tesco.
The Act	The Enterprise Act 2002.
Today's	Today's (Holdings) Limited, a buying group acting on behalf of delivered wholesalers and retailers.
Wholesaler	A person, shop or business which buys and sells goods in large quantities to business customers.