

Econometric analysis of competitive constraints

1. Introduction

1. Section 5 of our provisional findings deals with the competitive constraints removed by the merger. This appendix presents the analysis referred to in this section of our provisional findings.

2. This appendix is organized as follows. Section 2 presents our analysis of the competitive interaction between Daddies and Heinz ketchup in the retail market. Section 3 presents our analysis of the competitive interaction between Heinz and own label ketchup in the retail market. Section 4 presents our analysis of the competitive interaction between Heinz barbecue sauce and HP barbecue sauce in the retail market. Section 5 presents our analysis of the competitive interaction between Heinz and HP tinned baked beans in the retail market, and section 6 our analysis of Heinz and HP tinned pasta meals. There is an annex containing regression results.

2. Daddies and Heinz ketchup in the retail market

3. From major grocery retailers' responses to our customer questionnaire, Daddies ketchup appeared to be frequently promoted only at Retailer B.¹ (We noted that Heinz ketchup also appeared to have been heavily promoted at Retailer B, frequently at the same time as Daddies.) We therefore considered that analysing Daddies ketchup at Retailer B should be informative about any competitive interaction between it and Heinz ketchup, since it might have been more pronounced at Retailer

¹HP confirmed this.

B than at the other major grocery retailers.² Further, the volume (kg) of Retailer B's sales of Daddies ketchup represented [X] per cent of the volume of aggregate Daddies ketchup sales in the IRI data over the period January to May 2005,³ [X] Retailer B's aggregate volume market share of Heinz ketchup ([X] per cent).⁴

4. In this regard, Retailer B submitted in its response to our customer questionnaire that there were nine promotions on Daddies ketchup ([X] on the 567g,⁵ and [X]⁶ on the 340g) in the period for which Retailer B submitted promotional and sales data (four-weekly from [X] to [X]).
5. We use these nine promotions, as well as 55 Heinz promotions (on 11 SKUs), in an econometric analysis of the impact of the incidence of Daddies and Heinz promotional activity on Daddies, Heinz and own label ketchup sales (volume and share).
6. The motivation for our empirical methodology can be seen from FIGURE 1, which shows the timing of promotions on Daddies ketchup at Retailer B and the share-of-sales data in our econometric analysis. For ease of interpretation, we also give the incidence of promotions of Daddies ketchup at Retailer B and changes in the shares of Daddies and Heinz ketchup in TABLE 1.

²If there is no competitive interaction at Retailer B—where promotions of Daddies ketchup decrease its relative price to Heinz ketchup—there is also likely to be no competitive interaction at other retailers.

³The most recent period in the IRI data.

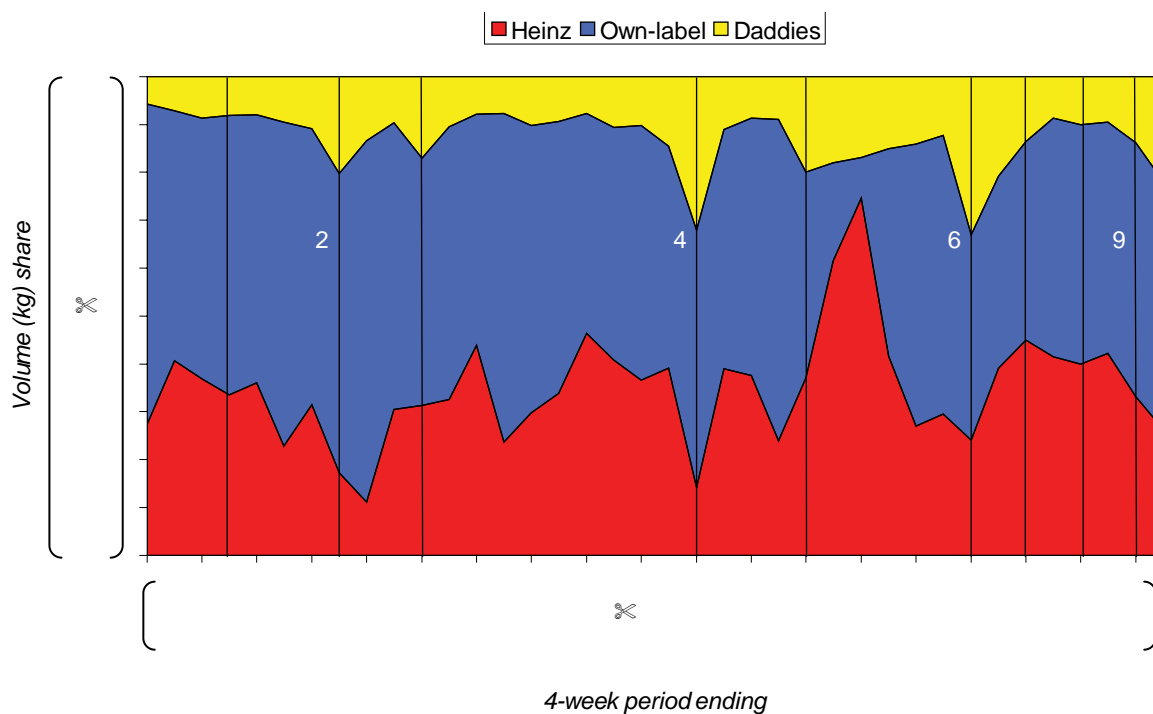
⁴Heinz submitted that the IRI data included Retailer B's sales, as well as other multiple grocery retailers and co-ops.

⁵The 567g bottle of Daddies ketchup is the biggest selling of the three sizes of Daddies ketchup sold by Retailer B in this period (340g, 567g and 1kg), selling [X] tonnes to [X] tonnes of the 340g and [X] tonnes of the 1kg.

⁶[X]

FIGURE 1

Share of Retailer B's sales (kg) of Daddies, Heinz and own label ketchup, and Daddies promotions, [X] to [X]



Source: Retailer B and CC calculations.

TABLE 1 Timing of promotions of Daddies ketchup and changes in shares of Daddies and Heinz ketchup at Retailer B, [X] to [X]

Promotion	Date	SKU	Type	Share of Retailer B's ketchup sales			
				Daddies %		Heinz %	
				Pre-promotion*	Promotion†	Pre-promotion*	Promotion†
1	[X]	567g	[X]				
2		567g					
3		567g					
4		567g					
5		567g			X		
6		567g					
7		340g					
8		340g					
9		567g					

Source: Retailer B and CC calculations.

*Four-week period immediately prior to the four-week period containing the start of the promotion.

†Four-week period containing all or most of the promotion.

§Coincides with 4-week period containing preceding promotion

7. Unsurprisingly, TABLE 1 and FIGURE 1 appear to suggest that Daddies ketchup tended to gain share-of-sales when it was promoted at Retailer B. What is less

obvious is where the share gained by Daddies came from: the impact of some promotions of Daddies ketchup at Retailer B is easily seen in FIGURE 1 but for others the picture is not clear cut.⁷

8. Specifically, there seem to have been four episodes of promotional activity on Daddies ketchup out of nine (which are numbered two, four, six and nine on FIGURE 1) where its increase in share-of-sales visibly appeared to be at the expense of sales of Heinz ketchup.⁸ Equally, there were two Daddies promotions (numbered one and eight in TABLE 1) that did not appear to affect either Daddies sales or Heinz sales; and three Daddies promotions (numbered three, five and seven in TABLE 1) where Daddies increase in sales did not appear come at Heinz's expense: indeed, Daddies promotions five and seven appear to have increased Heinz's share of ketchup sales at Retailer B.

9. For promotion seven, the promotion also appeared to have reduced Daddies share. The four-week period containing the start of this promotion (on the 340g) also contained a [X] promotion on the 567g, as well as a promotion on the 570g bottle of Heinz ketchup (see further paragraph 12 and TABLE 2). We further noted that the increase in Daddies' share when on promotion varied considerably over all promotions—from [X] percentage points (promotions 1 and 8) to [X] percentage points (promotion 4)—even within types of SKU and promotion (ie by a factor of [X] from [X] percentage points to [X] percentage points for the [X] promotions on the 567g Daddies ketchup).

⁷We have manually aligned the vertical lines in FIGURE 1 to the closest four-week period in Retailer B's sales data in which most or all of the Daddies ketchup promotion occurred.

⁸The large inverse movement in Heinz and own label volume shares between promotions five and six in the spring of 2005 appears to reflect the effects of the fire at Premier Foods' factory in Bury St Edmunds in October 2004. It is interesting to note that own label ketchup appeared to lose sales to Heinz but not to Daddies as a result of this, suggesting a constraint from Heinz to own label (but not from Daddies).

10. The first of the four promotions with a visible effect (promotion 2) occurred around the time of [REDACTED]⁹ (see FIGURE 2), which was justified by Heinz on the basis of increases in the cost of tomato paste and sugar. The loss of Heinz share may have had more to do with its own price increasing than with any cross-price effects of the Daddies promotion, especially since the total volume of ketchup sold by Retailer B (most of which is Heinz) decreased from [REDACTED] tonnes to [REDACTED] tonnes in the relevant four-weekly periods (ie decreases in the volume of Heinz ketchup sold of nearly [REDACTED] tonnes were not apparently compensated for by increases in the volume of Daddies ketchup sold, sales of which increased only from [REDACTED] tonnes to [REDACTED] tonnes).¹⁰
11. However, at least two of the final three of these promotions (promotions four, six and arguably nine) appear to have increased Daddies' share more than the earlier promotions and occur at a time (later in 2004 and in 2005) when the price of Heinz ketchup was increasing, as FIGURE 2 shows.¹¹ These price increases appear to be a product of Heinz's continued move from glass to plastic bottles and specifically the gradual (by retailer and SKU) introduction of its top-down plastic bottles from the summer of 2003 (the 570g in July 2003, the 460g and 700g in October 2004, and the 910g and 1.2kg in spring 2005¹²), which have a retail price around 20 per cent more than their upright plastic and glass equivalents (per unit weight).¹³ These later incidences of promotional activity and changes in sales shares might suggest a constraint operated from Daddies to Heinz in the post-2003 period, inasmuch as Daddies promotions appear to have affected Heinz's sales.

⁹See Appendix C for an analysis of this pass through.

¹⁰That is, the four weeks ending [REDACTED] and the four weeks ending [REDACTED].

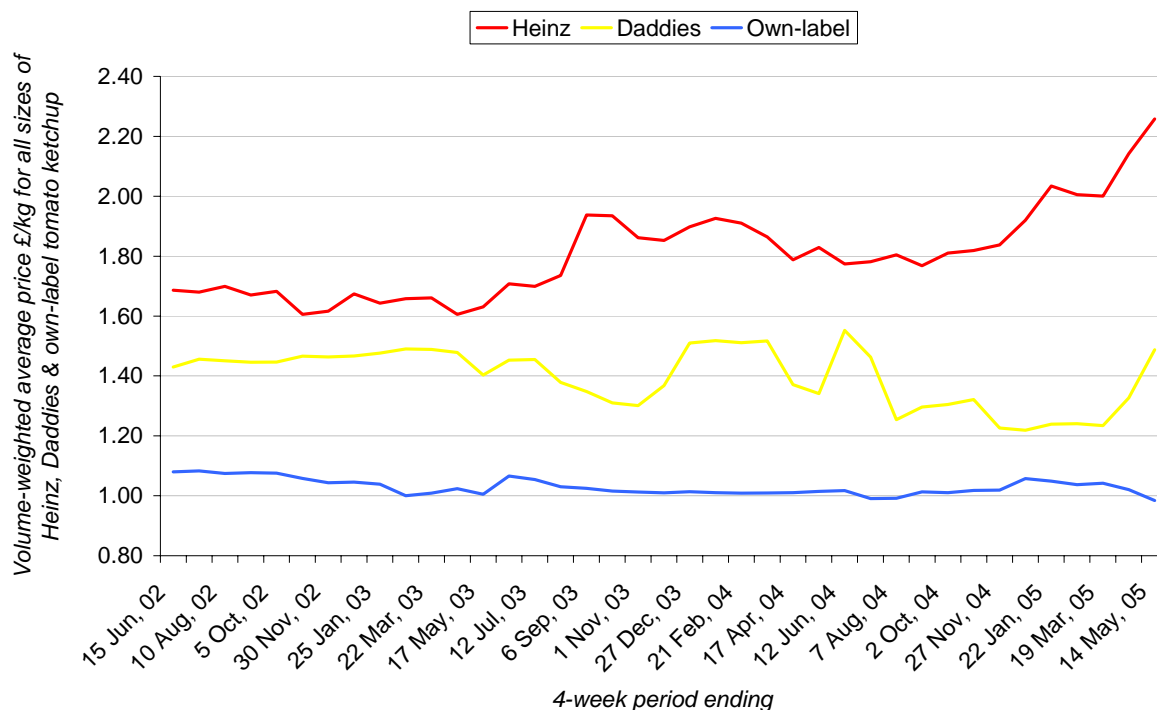
¹¹Moreover, unlike the promotion in [REDACTED], the total volume of ketchup sold by Retailer B remained roughly the same from [REDACTED] ([REDACTED] tonnes and [REDACTED] tonnes), and recovered from [REDACTED] ([REDACTED] tonnes to [REDACTED] tonnes) after the effects of the Premier fire.

¹²Timings from each SKU's first appearance in the IRI sales data. Because top-down bottles were rolled-out gradually (eg the 570g was introduced in half the estate of one major retailer at first before moving to the other major retailers), sales of top-down bottles did not take off until October 2004. For example, in the four weeks ending 4 September 2004, top-down sales accounted for 13.5 per cent of Heinz ketchup sales nationally (according to the IRI data). By the four weeks ending 30 October 2004 (when the 460g and 700g were introduced) this had increased to 17.9 per cent and was 70.8 per cent by the four weeks ending 14 May 2005 (when all 5 top-down sizes were sold).

¹³Average comparing 570g top-down plastic to 570g upright glass, 460g top-down plastic to 460g upright plastic and 700g top-down plastic to 700g upright plastic for the four-weekly periods from 30 October 2004 to 14 May 2005 where all six are sold.

FIGURE 2

Volume-weighted national average price £/kg of all sizes of Heinz, Daddies and own label ketchup, June 2002 to May 2005



Source: IRI data from Heinz and CC calculations.

12. Moreover, Heinz ketchup was promoted at Retailer B for some or all of the time during eight out of the nine promotions on Daddies ketchup at Retailer B, as TABLE 2 shows. Since Retailer B did not supply data on the value of sales, only on sales volumes, this makes it hard to know whether the relative price of Daddies ketchup to Heinz decreased as a result of its promotion at Retailer B.¹⁴

¹⁴We note that a '50% extra free' promotion on Daddies 567g ketchup would decrease its relative price to Heinz by 33 per cent if the Heinz price did not vary, since the Daddies' price per kg becomes a price per 1.5kg meaning its relative price per kg falls to $1/1.5 = 0.67$ (ie by 33 per cent).

TABLE 2 Timing of promotions on Daddies ketchup and Heinz ketchup at Retailer B, [3x] to [3x]

Daddies ketchup promotions			Heinz ketchup promotions		
Date	SKU	Type	Date	SKU	Type
[3x]	567g	[3x]	*	570g	[3x]
	567g		†	1kg squeezezy	
	567g		‡	700g	
	567g		§	Organic 460g	
	567g		¶	570g	
	567g		N/A		
	340g		§	570g	
	340g		¶	460g top-down	
	567g			700g top-down	

Source: Retailer B.

*Also Heinz 1kg from [3x] to [3x].

†Also Heinz 460g organic ketchup from [3x] to [3x].

‡Also Heinz 1kg and 570g top-down from [3x] to [3x], which is in the same four-week period in Retailer B's sales data even though it does not overlap with the Daddies promotion.

§Also 910g top-down from [3x] to [3x].

¶Also 910g top-down from [3x] to [3x].

13. To distinguish between the effects of these two issues (ie the possibility of Daddies' promotional effects only later in the period; and the coincidental promotion of Heinz), which we considered would make it hard to isolate any effect of Daddies promotions on sales, we turned to a multiple regression analysis of Retailer B's sales (volume and share) of all Daddies ketchup, all Heinz ketchup and all own label ketchup, for the whole period from 2003 to 2005 ([3x]) and for the post-2003 period ([3x]).

14. We individually regressed Daddies sales, Heinz sales and own label sales on binary (1/0) indicator variables ('dummy variables') for each type of promotion (eg buy two for £x, y per cent extra free, promotional price) on each Daddies and Heinz SKU,¹⁵ which we assigned to each four-weekly period in Retailer B's sales data in which the promotion occurred¹⁶, as well as a dummy variable for each of the four 4-week periods that Heinz submitted were affected by the fire at Premier Food's factory in

¹⁵This gave three dummy variables for Daddies (567g [3x], 567g [3x], 340g [3x]) and 19 for Heinz (1kg [3x], 1kg [3x], 1kg [3x], 910g top-down [3x], 700g [3x], 700g [3x], 700g top-down [3x], 700g top-down [3x], 570g [3x], 570g [3x], 570g top-down [3x], 570g top-down [3x], 460g [3x], 460g [3x], 460g top-down [3x], 460g organic [3x], 342g [3x], 342g [3x], 200g [3x]).

¹⁶For promotions that spanned two four-week periods (none spanned three), we experimented with assigning promotional indicator variables only to the four-weekly period in which most of the promotion occurred. Our results were qualitatively unaffected and we have not reported them. We did not experiment with weighting our promotional variables according to the number of days in each four-week period spanned by each promotion (eg assigning a promotion that spanned one week of a four-week period the value 0.25 instead of one and treating it as a continuous and not discrete variable in our analysis) because some promotions (eg 'extra free') involved special bottles, which would have remained on the shelves until they were all sold (one major retailer described this as WIGIG, 'when it's gone, it's gone'), meaning a weight based on the length of the promotion would not have captured its impact in the way it would have done for (say) a 'buy two for £2.00' offer.

Bury St Edmunds in October 2004¹⁷, which affected supplies of own label ketchup to Retailer B. Because we had relatively few data points for our econometric analysis (ie 38 four-weekly periods)—and a large number of SKU/promotion combinations to capture with our dummy variables—we also experimented with dummy variables for each SKU only¹⁸ but our results (which are summarised in the annex) were unaffected.¹⁹

15. We then tested:

- whether, over the whole period and for the post-2003 period, the incidence of Daddies promotions was related to Daddies, Heinz and own label sales (volume²⁰ and share) and whether we could have any confidence in the significance of any relationship; and
- whether, over the whole period and for the post-2003 period, the incidence of Heinz promotions was related to Daddies, Heinz and own label sales (volume and share) and whether we could have any confidence in the significance of any relationship.²¹

16. In testing whether the incidence of promotional activity at Retailer B was related to sales, we tested specifically whether promotions collectively (ie taken together),

¹⁷That is, the four-week periods ending 28 November 2004, 26 December 2004, 23 January 2005 and 20 February 2005.

¹⁸This gave two dummy variables for Daddies (567g and 340g) and ten for Heinz (1kg, 910g, 700g, 700g top-down, 570g, 570g top-down, 460g (including organic), 460g top-down, 342g and 200g).

¹⁹We also experimented with dummy variables for each size only (ie taking upright and top-down together for each of the 700g, 570g and 460g bottles). Our results were qualitatively unaffected and we have not reported them. We further experimented with dummy variables for all promotions on the smaller-selling SKUs together (ie the 342g and 200g). Our results were qualitatively unaffected and we have not reported them.

²⁰We looked at the change in volume (defined as volume in one four-week period minus volume in the preceding four-week period) because sales volumes of Heinz, Daddies and own label ketchup were non-stationary. To determine this, we performed the Dickey-Fuller version of the t-test for a unit root in each sales series. Tests of the null hypothesis of non-stationarity returned $Z = -1.89$ ($p=0.34$) for Heinz volumes, $Z = -2.81$ ($p=0.06$) for Daddies volumes and $Z = -2.28$ ($p=0.18$) for own label volumes, all of which have p-values greater than 5 per cent (0.05) and so failed to reject the null hypothesis that sales volumes were non-stationary. Performing the same test on the change in sales volumes gave $Z = -8.12$ ($p=0.00$) for Heinz, $Z = -6.44$ ($p=0.00$) for Daddies and $Z = -5.71$ ($p=0.00$) for own label, so all three series were stationary. Performing the same test on the share of sales gave $Z = -3.88$ ($p=0.00$) for Heinz, $Z = -4.24$ ($p=0.00$) for Daddies and $Z = -3.24$ ($p=0.01$) for own label, so all three series also were stationary.

²¹Testing the impact of the incidence of one brand's promotional activity on its own sales provided a reality-check on the results of testing the impact of another brand's promotional activity on its sales (as its own promotional activity should have affected its own sales). Doing so for each type of promotion on each SKU, rather than with some aggregate measure of the incidence of promotional activity, allowed for inter-SKU cannibalization within the brand (such as that mentioned in Research International's analysis of Heinz's introductory top-down pricing).

statistically-significantly affected the variability in sales (volume and share). We used the output from our analysis to do two different things. First, we used our regression coefficients to see the size of effect promotions had on sales (volume and share). Secondly, we examined with what confidence (in statistical terms) we could conclude that the incidence of promotions was related to sales (volume and share).

17. The results of our statistical tests are given in TABLE 6 and our regression results are given in the annex and summarized in TABLE 4 and TABLE 5. These suggested that:

- taken together, promotions of Daddies ketchup at Retailer B increased—and were related to fluctuations in—the volume and share of Retailer B's sales of Daddies ketchup in the whole period and in the period post-2003;
- taken together, promotions of Daddies ketchup at Retailer B did not reduce—and were not related to fluctuations in—the volume or share of Retailer B's sales of Heinz or own label ketchup in the whole period nor the period post-2003;
- taken together, promotions of Heinz ketchup at Retailer B did not increase—and were not related to fluctuations in—the volume or share of Retailer B's sales of Heinz ketchup in the whole period nor the period post-2003; and
- taken together, promotions of Heinz ketchup at Retailer B did not reduce—and were not related to fluctuations in—the volume or share of Retailer B's sales of Daddies or own label ketchup in the whole period nor the period post-2003.

18. These results are summarized in TABLE 3, which indicates whether promotions of Daddies and Heinz ketchup at Retailer B were related to sales of Daddies, Heinz and own label ketchup at statistically-significant levels, ie whether we could conclude that the incidence of promotions was related to sales with a discernible effect.

TABLE 3 Results of statistical tests on Heinz and Daddies ketchup promotions and sales data from Retailer B

	<i>Were these promotions related to sales of ketchup at statistically significant levels?</i>					
	<i>Daddies sales</i>		<i>Heinz sales</i>		<i>Own label sales</i>	
	<i>Volume</i>	<i>Share</i>	<i>Volume</i>	<i>Share</i>	<i>Volume</i>	<i>Share</i>
Daddies promotions—whole period	✓	✓	x	x	x	x
Daddies promotions—post 2003 period	✓	✓	x	x	x	x
Heinz promotions—whole period	x	x	x	x	x	x
Heinz promotions—post 2003 period	x	x	x	x	x	x

Source: TABLE 4, TABLE 5 and TABLE 6.

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19. The effects shown in TABLE 3 are derived from the results of our analysis shown in TABLE 4 and TABLE 5. They suggest that Daddies promotions increased its share of sales, which is unsurprising. This increase was sizeable in proportion to Daddies pre-promotion sales and was related to the incidence of Daddies promotions, which is what the test results in TABLE 6 show.

 20. Since shares of sales must sum to 100 per cent, an increase in Daddies share must have been compensated for by decreases in the shares of Heinz and/or own label. However, given Heinz's much larger share of sales than Daddies, any decrease it suffered in share of sales was insignificant in volume terms compared to its pre-promotion sales and so could not accurately be related to the incidence of Daddies promotions; hence Daddies promotions collectively were not related to Heinz's sales (which is what the test results in TABLE 6 show).

 21. The precision of our estimated promotional impacts in TABLE 4 and TABLE 5 (measured by the standard errors) also indicated that the effect of Daddies promotions on Heinz sales was likely to vary over a considerable range.

TABLE 4 **Estimated impact of promotions of Daddies and Heinz ketchup at Retailer B on sales of Daddies, Heinz and own label ketchup for the whole period**

	Average promotion effect				Average when not promoted§
	Daddies		Heinz		
	Impact†	Standard error	Impact‡	Standard error	
Daddies volume (kg)	577	147	-1,403	850	<div style="display: flex; align-items: center; justify-content: center;"> { <div style="text-align: center;"> ¶ ✂ ¶ </div> } </div>
Daddies sales share (percentage points)	1.6	0.4	-1.6	1.1	
Heinz volume (kg)	-357	508	1,074	2,940	
Heinz sales share (percentage points)	-0.8	0.7	3.7	1.9	
Own label volume (kg)	-42	242	-552	1,753	
Own label sales share (percentage points)	-0.7	0.8	-2.1	2.0	

Source: Retailer B and CC calculations.

†Estimated as linear combination of regression coefficients on Daddies promotion dummy variables for each series multiplied by the average value of each Daddies promotion dummy variable.

‡Estimated as linear combination of regression coefficients on Heinz promotion dummy variables for each series multiplied by the average value of each Heinz promotion dummy variable.

§For Daddies, average when Daddies was not promoted. For Heinz, average when Heinz was not promoted. As own label was not promoted, a simple average is given.

¶Per cent not percentage points.

TABLE 5 Estimated impact of promotions of Daddies and Heinz ketchup at Retailer B on sales of Daddies, Heinz and own label ketchup for the post-2003 period

	Average promotion effect				Average when not promoted§
	Daddies		Heinz		
	Impact†	Standard error	Impact‡	Standard error	
Daddies volume (kg)	1,091	401	-2,257	1,392	<div style="border-left: 1px solid black; border-right: 1px solid black; padding: 5px; display: inline-block;"> † ‡ § ¶ # </div>
Daddies sales share (percentage points)	1.8	0.5	-3.8	2.1	
Heinz volume (kg)	-1,189	1,186	3,145	3,846	
Heinz sales share (percentage points)	-1.2	1.0	4.9	2.6	
Own label volume (kg)	-126	644	-919	2,234	
Own label sales share (percentage points)	-0.6	0.9	-2.2	2.3	

Source: Retailer B and CC calculations.

†Estimated as linear combination of regression coefficients on Daddies promotion dummy variables for each series multiplied by the average value of each Daddies promotion dummy variable.

‡Estimated as linear combination of regression coefficients on Heinz promotion dummy variables for each series multiplied by the average value of each Heinz promotion dummy variable.

§For Daddies, average when Daddies was not promoted. For Heinz, average when Heinz was not promoted. As own label was not promoted, a simple average is given.

¶Per cent not percentage points.

#There was no four-week period post-2003 when Heinz was not promoted.

22. Put differently, the impact of promotions was small and not estimated with statistical precision. For example, from TABLE 4 the average effect of a Daddies promotion over a four week period was a gain of 577 kg by Daddies and a loss of 357 kg by Heinz. These gains and losses were made against a background where the average volume of ketchup sold in a four week period without promotions was [X] tonnes ([X] kg) of Daddies, when Daddies was not promoted,²² and [X] tonnes ([X] kg) of Heinz, when Heinz was not promoted.²³ The variability²⁴ from one four week period to another in the volume of ketchup sold around these un-promoted averages was 7 tonnes (7,451 kg) for Daddies and 19 tonnes (18,613 kg) for Heinz, variability that dwarfed the estimated impact of promotions.

²²There were [X] four-week periods when Daddies was not promoted.

²³There were [X] four-week periods when Heinz was not promoted.

²⁴Measured by the standard deviation. In the other worked examples in this appendix, we used the standard error of the estimated intercept from the regressions of sales volumes and shares as our estimated variability. We did not do this for ketchup because there are no four week periods in our data where both Daddies and Heinz were not promoted, so there was no way of checking whether our estimated regression intercept (which estimates what this un-promoted average would have been) was consistent with the underlying data.

23. Overall, we considered that this analysis showed evidence of only a very weak relationship between Heinz and Daddies promotions and sales. The effect on sales of any such relationships was small, unsystematic with respect to promotions and likely to vary over a considerable range. This evidence did not support the existence of a competitive constraint between Heinz and Daddies ketchup.

TABLE 6 Tests of significance (null hypothesis: no effect) of incidence of Daddies and Heinz promotional activity at Retailer B on sales of Daddies, Heinz and own label ketchup

<i>Effect of Daddies promotions on sales of</i>				
<i>Dependent variable</i>	<i>Time period</i>	<i>Daddies*</i>	<i>Heinz†</i>	<i>Own label‡</i>
Volume (kg) of sales~ Share (%) of sales	Whole period¶	F_{3,14} = 6.93 (p = 0.004)	F _{3,14} = 0.42 (p = 0.741)	F _{3,14} = 0.22 (p = 0.878)
	Whole period§	F_{3,15} = 8.38 (p = 0.002)	F _{3,15} = 1.69 (p = 0.212)	F _{3,15} = 0.47 (p = 0.707)
Volume (kg) of sales~ Share (%) of sales	Post-2003 period#	F_{2,7} = 5.13 (p = 0.043)	F _{2,7} = 0.52 (p = 0.615)	F _{2,7} = 0.03 (p = 0.971)
	Post-2003 period#	F_{2,7} = 8.63 (p = 0.013)	F _{2,7} = 3.05 (p = 0.111)	F _{2,7} = 0.83 (p = 0.475)
<i>Effect of Heinz promotions on sales of</i>				
<i>Dependent variable</i>	<i>Time period</i>	<i>Daddies*</i>	<i>Heinz†</i>	<i>Own label‡</i>
Volume (kg) of sales~ Share (%) of sales	Whole period¶	F _{18,14} = 1.11 (p = 0.430)	F _{18,14} = 1.89 (p = 0.115)	F _{18,14} = 1.23 (p = 0.352)
	Whole period§	F _{18,15} = 0.94 (p = 0.558)	F _{18,15} = 1.58 (p = 0.188)	F _{18,15} = 1.27 (p = 0.321)
Volume (kg) of sales~ Share (%) of sales	Post-2003 period#	F _{14,7} = 0.78 (p = 0.675)	F _{14,7} = 1.41 (p = 0.333)	F _{14,7} = 0.80 (p = 0.662)
	Post-2003 period#	F _{14,7} = 1.14 (p = 0.454)	F _{14,7} = 1.27 (p = 0.391)	F _{14,7} = 1.81 (p = 0.218)

Source: Retailer B and CC calculations.

*Incidence of branded promotion and a dummy for the Premier fire explained 77 per cent of the variability in the changes in the volume of Daddies sales for the whole period and 78 per cent for the post-2003 period. Incidence of branded promotion and a dummy for the Premier fire explained 80 per cent of the variability in the share of Daddies sales for the whole period and 88 per cent for the post-2003 period.

†Incidence of branded promotion and a dummy for the Premier fire explained 73 per cent of the variability in the volume of Heinz sales for the whole period and 77 per cent for the post-2003 period. Incidence of branded promotion and a dummy for the Premier fire explained 82 per cent of the variability in the share of Heinz sales for the whole period and 87 per cent for the post-2003 period.

‡Incidence of branded promotion and a dummy for the Premier fire explained 67 per cent of the variability in the volume of own label sales for the whole period and 68 per cent for the post-2003 period. Incidence of branded promotion and a dummy for the Premier fire explained 82 per cent of the variability in the share of own label sales for the whole period and 90 per cent for the post-2003 period.

§38 four-weekly observations.

¶37 four-weekly observations.

#25 four-weekly observations.

~First difference in the volume of sales because sales data was non-stationary (see footnote 20). First-differencing the dummy variables turned them from binary (1/0) variables into variables taking on the values -1, 0 and 1. Because we had relatively few data points, we did not estimate separate coefficients when the first-differenced dummies took on the values -1 and 1 but rather restricted the estimated coefficients to be symmetric. We noted that this meant that the end of a promotion had a symmetric effect to the beginning of a promotion, which may not have been consistent with promotions having a ratchet effect on sales (where the increase in promoted sales was greater than the decrease when the promotion ended).

Note: Conventionally, if the p-value associated with the F-test statistic is less than 5 per cent (ie 0.05), we reject the hypothesis of no effect. The F-tests that reject the hypothesis of no effect are given in bold. Conversely, if the p-value associated with the F-test statistic is greater than 0.05, we do not reject the hypothesis of no effect.

3. Heinz and own label ketchup in the retail market

24. We noted above that promotions of branded (ie Daddies and Heinz) ketchup at Retailer B taken together did not affect its sales of own label ketchup. This appeared at odds with some of the evidence submitted by Heinz and reported in Appendix C. To investigate this, we examined the incidence of promotional activity on Heinz ketchup at Retailer A and its impact on Retailer A's own label ketchup sales (and of Daddies ketchup²⁵) using the same methodology as above.
25. Our results are summarized in TABLE 8 and suggested that the incidence of Heinz promotional activity was statistically-significantly related to variability in the sales of own label ketchup. (By which we mean that taken together, promotions of Heinz ketchup at Retailer A decreased—and were related to variability in—Retailer A's sales of own label ketchup.) The results in TABLE 8 also suggested that the incidence of promotional activity on Heinz ketchup at Retailer A taken together may have affected sales of Daddies ketchup, though the evidence was not mixed (there was an impact for volumes but not for share).²⁶ However, the estimated promotional impacts in TABLE 7 also indicated that the effect of Heinz promotions on Daddies sales was likely to have been small and to have varied over a considerable range.

²⁵Retailer A did not promote Daddies ketchup to a degree sufficient to include a separate dummy variable for its promotion in our analysis (ie it was collinear with the dummy variables on Heinz promotions). This meant that any positive impact of Daddies promotions at Retailer A on its sales of Daddies ketchup would have been conflated with the impact of Heinz promotions at Retailer A on its sales of Daddies ketchup. This could have made the estimated impact of Heinz promotions on Daddies sales appear smaller than it actually was (because some of the impact included the presumably positive effects of Daddies promotions) but this could also have made the impact of Heinz promotions on Daddies sales more precisely estimated than it actually was (because the impact of Daddies promotions on Daddies sales presumably was more precisely estimated than the impact of Heinz promotions on Daddies sales).

²⁶There were nine incidences of seven types of promotions on Heinz ketchup in the period (1kg top-down [X], 1kg top-down [X], 1kg top-down [X], 910g top-down [X], 910g top-down [X], 570g top-down [X], 570g [X]). Our analysis included a dummy variable for the Premier fire. [X] instances of promotional activity by Retailer A on Heinz ketchup occurred in the same period, meaning our analysis could have underestimated the impact of Heinz promotions by Retailer A on its own label sales (because the effect of these promotional instances was knocked out by the Premier fire dummy).

TABLE 7 Estimated impact of promotions of Heinz ketchup at Retailer A on sales of Daddies, Heinz and own label ketchup, [38] to [38]

	Average promotion effect*		
	Impact†	Standard error	Average when Heinz not promoted‡
Daddies volume (kg)	-1,561	528	$\left(\begin{array}{c} \text{¶} \\ \text{⌘} \\ \text{¶} \\ \text{¶} \end{array} \right)$
Daddies sales share (percentage points)	0.0	0.0	
Heinz volume (kg)	31,400	6,654	
Heinz sales share (percentage points)	0.6	0.3	
Own label volume (kg)	-18,184	5,497	
Own label sales share (percentage points)	-0.6	0.3	

Source: Retailer A and CC calculations.

*Promotional effects on volumes in kg do not sum to zero because promotions may have increased the total volume of ketchup sold. However, promotional effects on shares do sum to zero by construction.

†Estimated as linear combination of regression coefficients on Heinz promotion dummy variables for each series multiplied by the average value of each Heinz promotion dummy variable.

‡Heinz was not promoted in [38] four-week periods.

¶Per cent, not percentage points.

TABLE 8 Tests of significance (null hypothesis: no effect) of incidence of Heinz ketchup promotional activity at Retailer A

Effect of Heinz ketchup promotions on volume (kg) of ketchup sales			
Total†*	Heinz‡*	Daddies§~	Own label ¶~
$F_{7,39} = 2.96$ (p = 0.014)	$F_{7,39} = 3.93$ (p = 0.003)	$F_{7,38} = 3.03$ (p = 0.013)	$F_{7,38} = 3.03$ (p = 0.013)
Effect of Heinz ketchup promotions on share of ketchup sales*★			
Heinz‡	Daddies§	Own label ¶	
$F_{7,39} = 1.85$ (p = 0.104)	$F_{7,39} = 1.90$ (p = 0.095)	$F_{7,39} = 2.07$ (p = 0.070)	

Source: Retailer A and CC calculations.

*Based on 48 four-weekly observations from the four weeks ended [38] to the four weeks ended [38].

†Incidence of Heinz ketchup promotion and a dummy variable for the Premier fire explained 35 per cent of the variability in the total volume of ketchup sales.

‡Incidence of Heinz ketchup promotion and a dummy variable for the Premier fire explained 54 per cent of the variability in the volume of Heinz ketchup sales and 58 per cent of the variability in the share of Heinz ketchup sales.

§Incidence of Heinz ketchup promotion and a dummy variable for the Premier fire explained 68 per cent of the variability in the first difference in the volume of Daddies ketchup sales and 85 per cent of the variability in the share of Daddies ketchup sales.

¶Incidence of Heinz ketchup promotion and a dummy variable for the Premier fire explained 53 per cent of the variability in the first difference in the volume of own label ketchup sales and 68 per cent of the variability in the share of own label ketchup sales.

#Dickey-Fuller tests for a unit root returned $Z = -3.14$ (p=0.02) for total ketchup sales, $Z = -3.38$ (p=0.01) for Heinz ketchup sales, $Z = -1.96$ (p=0.30) for Daddies ketchup sales and $Z = -2.64$ (p=0.08) for own label ketchup sales, so total sales and Daddies sales were non-stationary (we noted that the stationarity of the own label sales series may have been a product of a structural break in the series at the time of the Premier fire). For the change in sales, Dickey-Fuller tests returned $Z = -11.89$ (p=0.00) for total sales, $Z = -10.18$ (p=0.00) for Heinz sales, $Z = -5.59$ (p=0.00) for Daddies sales and $Z = -6.90$ (p=0.00) for own label sales, so all four series were stationary. For the share of sales, Dickey-Fuller tests returned $Z = -3.44$ (p=0.01) for Heinz sales, $Z = 2.82$ (p=0.05) for Daddies sales and $Z = -3.34$ (p=0.01) for own label sales (these tests included one lagged dependent variable to control for serial correlation), so the share of Daddies sales may have been non-stationary.

~Based on 47 four-weekly observations from the four weeks ended [38] to the four weeks ended [38].

★We noted that a structural break at the time of the Premier fire may have made these series appear stationary when they were not.

4. Heinz and HP barbecue sauce in the retail market

26. We examined the competitive constraint between Heinz and HP barbecue sauce using the same methodology described above, ie by analysing the incidence of

promotional activity of one brand on sales of others (including own label) at Retailer B (see TABLE 9) and Retailer A (see TABLE 10).²⁷

TABLE 9 Timing of promotions on barbecue sauce at Retailer B, [X] to [X]

Promotion	Date	SKU	Type
<i>Heinz barbecue sauce</i>			
1	⌈ ⌋	460g	⌈ ⌋
2		460g	
3		460g	
4		460g	
5		570g	
6		570g	
7		570g	
8		570g	
<i>HP barbecue sauce</i>			
1	⌈ ⌋	430g	⌈ ⌋
2		430g	
3		430g	
4		430g	
5		430g	
6		430g	

Source: Retailer B.

TABLE 10 Timing of promotions on barbecue sauce at Retailer A, [X] to [X]

Promotion	Date	SKU	Type
<i>Heinz barbecue sauce</i>			
1	⌈ ⌋	420g	⌈ ⌋
2		570g	
3		570g	
<i>HP barbecue sauce</i>			
1	⌈ ⌋	430g	⌈ ⌋
2		430g	
3		430g	
4		430g	
5		430g	
6		430g	

Source: Retailer A.

27. The results of our statistical tests are given in TABLE 14 and TABLE 15 and our regression results are summarized in TABLE 12 and TABLE 13. These suggested that:

²⁷We were only aware of one other major retailer that sold own label barbecue sauce. However, we were not able to include this major retailer in our analysis because it supplied sales and promotions data that could not accurately be matched to each other because they were dated differently (ie were for different time frequencies). For Retailer B, data was analysed for the same time periods as for ketchup. For Retailer A, data was analysed for the period from 2002-2005 ie [X] ('the whole period' in the context of Retailer A for barbecue sauce) and for the post-2002 period ie [X].

- taken together, promotions of HP barbecue sauce at Retailers A and B increased—and were related to fluctuations in—the volume and share of Retailer A’s and B’s sales of HP barbecue sauce, but did not affect sales of other brands and own label;
- evidence was mixed on the effect of HP promotions on Heinz, since taken together, promotions of HP barbecue sauce
 - decreased—and were related to fluctuations in—the share of Retailer A’s and B’s sales of Heinz barbecue sauce, but
 - decreased—but were not related to fluctuations in—the volume of Retailer A’s sales of Heinz barbecue sauce, and
 - increased—and were related to fluctuations in—the volume of Retailer B’s sales of Heinz barbecue sauce;
- taken together, promotions of Heinz barbecue sauce at Retailers A and B
 - decreased—and were related to fluctuations in—the share of Retailer A’s and B’s sales of HP barbecue sauce, but
 - did not decrease—and were not related to fluctuations in—the volume of Retailer A’s and B’s sales of HP barbecue sauce; and
- taken together, promotions of Heinz barbecue sauce at Retailers A and B affected—and were related to fluctuations in—the volume and share of Retailer A’s and B’s sales of Heinz, own label and other brands of barbecue sauce.²⁸

28. Our results are summarized in TABLE 11, which indicates whether promotions of HP and Heinz barbecue sauce at Retailers A and B were related to sales of HP, Heinz, other branded and own label barbecue sauce at statistically-significant levels.

²⁸Our analysis was performed for both the volume (kg) of sales and the annual difference in the volume of sales (ie the difference between a four-week period in one year and the same four-week period a year earlier) because of the seasonality in sales of barbecue sauce. Both series were stationary.

TABLE 11 Results of statistical tests on HP and Heinz barbecue sauce promotions and sales data from Retailers A and B

Were these promotions related to sales of barbecue sauce at statistically significant levels?

	HP sales		Heinz sales		Own label and other branded sales	
	Volume	Share	Volume	Share	Volume	Share
HP promotions at Retailer A	✓	✓	x	✓	x	x
HP promotions at Retailer B	✓	✓	✓	✓/x*	x	x
Heinz promotions at Retailer A	x	✓	✓	✓	✓	✓/x*
Heinz promotions at Retailer B	x	✓	✓	✓	✓	✓

Source: TABLE 12, TABLE 13, TABLE 14 and TABLE 15.

*Evidence is mixed

TABLE 12 Estimated impact of promotions of Heinz and HP barbecue sauce at Retailer B on sales of Heinz, HP and other barbecue sauce

	Average promotion effect*				
	HP		Heinz		Average when not promoted§
	Impact†	Standard error	Impact‡	Standard error	
HP volume (kg)	1,840	232	324	223	↑
HP sales share (percentage points)	2.2	0.7	-3.8	0.7	
Annual change in HP volume (kg)	266	140	-147	126	
Heinz volume (kg)	526	148	1,058	142	↔
Heinz sales share (percentage points)	-0.7	0.5	2.5	0.5	
Annual change in Heinz volume (kg)	387	235	1,068	192	
Other barbecue volume (kg)	332	217	918	209	↑
Other barbecue sales share (percentage points)	-1.4	1.0	1.3	0.9	
Annual change in other barbecue volume (kg)	-53	154	148	139	

Source: Retailer B and CC calculations.

*Volumes in kg do not sum to zero because promotions may increase total volume of barbecue sauce sold. However, shares do sum to zero (allowing for rounding) as a result of how shares of sales are calculated.

†Estimated as linear combination of regression coefficients on HP promotion dummy variables for each series multiplied by the average value of each HP promotion dummy variable.

‡Estimated as linear combination of regression coefficients on Heinz promotion dummy variables for each series multiplied by the average value of each Heinz promotion dummy variable.

§For HP, average when HP was not promoted. For Heinz, average when Heinz was not promoted. As own label was not promoted, a simple average is given.

¶Per cent, not percentage points.

TABLE 13 **Estimated impact of promotions of Heinz and HP barbecue sauce at Retailer A on sales of Heinz, HP and other barbecue sauce**

	Average promotion effect*				Average when not promoted§
	HP		Heinz		
	Impact†	Std err	Impact‡	Std err	
HP volume (kg)	3,795	871	345	511	$\left(\begin{array}{c} \uparrow \\ \times \uparrow \\ \uparrow \end{array} \right)$
HP sales share (percentage points)	2.0	0.8	-1.4	0.5	
Annual change in HP volume (kg)	589	162	-279	141	
Heinz volume (kg)	-1,153	749	1,964	439	
Heinz sales share (percentage points)	-2.0	0.6	0.8	0.4	
Annual change in Heinz volume (kg)	-170	171	-88	149	
Other barbecue volume (kg)	480	803	1,171	471	
Other barbecue sales share (percentage points)	0.0	0.6	0.6	0.3	
Annual change in other barbecue volume (kg)	17	104	-239	91	

Source: Retailer A and CC calculations.

*Volumes in kg do not sum to zero because promotions may increase total volume of barbecue sauce sold. However, shares do sum to zero (allowing for rounding) as a result of how shares of sales are calculated.

†Estimated as linear combination of regression coefficients on HP promotion dummy variables for each series multiplied by the average value of each HP promotion dummy variable.

‡Estimated as linear combination of regression coefficients on Heinz promotion dummy variables for each series multiplied by the average value of each Heinz promotion dummy variable.

§For HP, average when HP was not promoted. For Heinz, average when Heinz was not promoted. As own label was not promoted, a simple average is given.

¶Per cent, not percentage points.

29. We noted the apparent asymmetry between the competitive effects of Heinz and HP on each other, and the competitive effects of Heinz on other brands and own label. Taken literally, this might have suggested that a price increase for HP barbecue sauce would cause customers to switch to Heinz but a price increase for Heinz barbecue sauce may have caused some switching to HP but could have caused more switching to other brands and own label. In this context, we noted that the promotions and sales used in our analysis were for barbecue sauce defined in a narrow sense (ie classified as barbecue by IRI²⁹) and may therefore not have captured competitive interaction in any more broadly-defined markets³⁰.

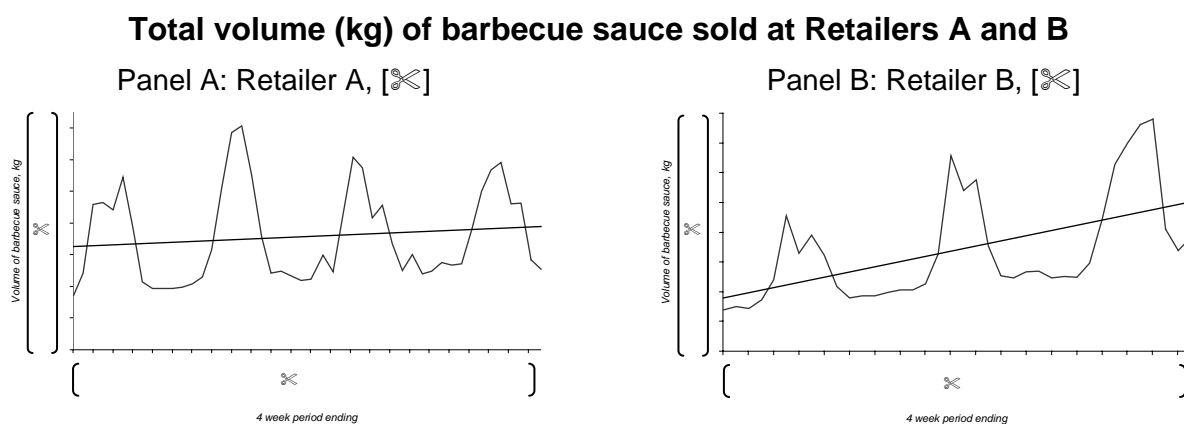
30. We further noted that the estimated impacts of promotions of HP barbecue sauce at Retailers A and B was to increase sales of other barbecue sauces (which also was

²⁹Barbecue market definition A in Appendix E.

³⁰Such as barbecue market definitions B and C in Appendix E.

true for Heinz to a lesser extent). This appeared at odds with what Heinz had submitted—that Heinz’s and HP’s shares of sales of barbecue sauce had been declining. However, FIGURE 3 shows that the total sales volumes of barbecue sauce at Retailers A (Panel A) and B (Panel B) did increase in the relevant period, even allowing for the seasonality in sales of barbecue sauce (as the upward-sloping trend lines in Panels A and B show).

FIGURE 3



Source: Retailers A and B and CC calculations.

31. Overall, we considered that this analysis showed evidence of a relationship between Heinz and HP promotions and sales. For example, from TABLE 13, at Retailer A the average effect of an HP barbecue sauce promotion over a four week period was a gain of 4 tonnes (3,795 kg) by HP and a loss of 1 tonne (1,153 kg) by Heinz. These gains and losses were made against a background where the average volume of barbecue sauce sold in a four week period was [REDACTED] tonnes ([REDACTED] kg) of HP, when HP was not promoted³¹, and [REDACTED] tonnes ([REDACTED] kg) of Heinz, when Heinz was not promoted³². The variability³³ from one four week period to another in the volume of barbecue sauce sold around these un-promoted averages was 2 tonnes (1,942 kg) for HP and 2 tonnes (1,671 kg) for Heinz.

³¹There were [REDACTED] four week periods when HP was not promoted.

³²There were [REDACTED] four week periods when Heinz was not promoted.

³³Measured by the standard error of the estimated intercepts in TABLE 38 and TABLE 41.

TABLE 14 Tests of significance (null hypothesis: no effect) of incidence of branded promotional activity at Retailer B on sales of HP, Heinz and other barbecue sauce (including own label)

		Effect of HP promotions on sales of		
Dependent variable	Time period	HP*	Heinz†	Other barbecue sauce‡
Volume (kg) of sales	Whole period§	F_{2,32} = 31.6 (p = 0.000)	F_{3,16} = 14.4 (p = 0.000)	F _{2,32} = 2.78 (p = 0.077)¶
Share (%) of sales	Whole period§	F_{2,32} = 11.7 (p = 0.000)	F_{2,32} = 5.86 (p = 0.000)	F _{2,32} = 1.83 (p = 0.178)
Annual change in volume of sales	Post-2003 period#	F_{3,17} = 3.88 (p = 0.039)	F_{2,19} = 15.0 (p = 0.000)	F _{3,17} = 0.07 (p = 0.932)

		Effect of Heinz promotions on sales of		
Dependent variable	Time period	HP*	Heinz†	Other barbecue sauce‡§
Volume (kg) of sales	Whole period§	F _{3,32} = 1.71 (p = 0.184)	F_{3,32} = 23.0 (p = 0.000)	F_{5,32} = 10.9 (p = 0.000)
Share (%) of sales	Whole period§	F_{3,32} = 11.3 (p = 0.000)	F_{3,32} = 15.7 (p = 0.000)	F_{3,32} = 3.81 (p = 0.019)
Annual change in volume of sales	Post-2003 period#	F _{4,17} = 1.26 (p = 0.317)	F_{3,19} = 11.8 (p = 0.000)	F_{3,19} = 4.07 (p = 0.022)

Source: Retailer B and CC calculations.

*Incidence of branded promotion explained 76 per cent of the variability in the volume of HP sales. Incidence of branded promotion explained 64 per cent of the variability in the share of HP sales. Incidence of branded promotion explained 45 per cent of the variability in the annual change in HP sales.

†Incidence of branded promotion explained 82 per cent of the variability in the volume of Heinz sales. Incidence of branded promotion explained 66 per cent of the variability in the share of Heinz sales. Incidence of branded promotion explained 82 per cent of the variability in the annual change in Heinz sales.

‡Incidence of branded promotion explained 65 per cent of the variability in the volume of other barbecue sales. Incidence of branded promotion explained 30 per cent of the variability in the share of other barbecue sales. Incidence of branded promotion explained 40 per cent of the variability in the annual change in other barbecue sales.

§38 four-weekly observations.

¶Rejected the hypothesis of no effect at the 8 per cent level but not the 5 per cent level.

#25 four-weekly observations.

Notes:

1. Conventionally, if the p-value associated with the F-test statistic is less than 5 per cent (ie 0.05), we reject the hypothesis of no effect. The F-tests that reject the hypothesis of no effect are given in bold. Conversely, if the p-value associated with the F-test statistic is greater than 0.05, we do not reject the hypothesis of no effect.

2. Dickey-Fuller tests rejected the null hypothesis of a unit root (ie non-stationarity) in the levels and annual differences of the HP and Heinz sales series. Specifically, Z = -3.47 (p=0.01) for the volume of HP sales, Z = -5.22 (p=0.00) for the volume of Heinz sales, Z = -5.47 (p=0.00) for the annual difference in the volume of HP sales and Z = -2.96 (p=0.04) for the annual difference in the volume of Heinz sales. For the sales shares, Z = -5.22 (p=0.00) for Heinz, Z = -3.47 (p=0.00) for HP, and Z = -1.97 (p=0.30) for other barbecue, so only other barbecue was non-stationary.

TABLE 15 Tests of significance (null hypothesis: no effect) of incidence of branded promotional activity at Retailer A on sales of HP, Heinz and other barbecue sauce (including own label)

<i>Effect of HP promotions on sales of</i>				
<i>Dependent variable</i>	<i>Time period</i>	<i>HP*</i>	<i>Heinz†</i>	<i>Other barbecue sauce‡</i>
Volume (kg) of sales	Whole period§	F_{2,43} = 12.3 (p = 0.000)	F _{2,43} = 1.20 (p = 0.310)	F _{2,43} = 0.73 (p = 0.487)
Share (%) of sales	Whole period§	F_{2,43} = 3.22 (p = 0.050)	<i>F_{2,43} = 5.36 (p = 0.080)</i>	F _{2,43} = 0.27 (p = 0.766)
Annual change in volume of sales	Post-2002 period¶	F_{2,30} = 7.56 (p = 0.002)	F _{2,30} = 0.82 (p = 0.449)	F _{3,30} = 0.02 (p = 0.979)
<i>Effect of Heinz promotions on sales of</i>				
<i>Dependent variable</i>	<i>Time period</i>	<i>HP</i>	<i>Heinz†¶</i>	<i>Other barbecue sauce‡#</i>
Volume (kg) of sales	Whole period§	F _{2,43} = 0.32 (p = 0.725)	F_{2,43} = 17.9 (p = 0.000)	<i>F_{2,49} = 3.09 (p = 0.056)</i>
Share (%) of sales	Whole period§	F_{2,43} = 5.82 (p = 0.006)	F_{2,43} = 7.12 (p = 0.002)	<i>F_{2,43} = 2.54 (p = 0.091)</i>
Annual change in volume of sales	Post-2002 period¶	F _{2,30} = 1.96 (p = 0.158)	F_{2,30} = 29.1 (p = 0.000)	F_{2,30} = 4.18 (p = 0.025)

Source: Retailer A and CC calculations.

*Incidence of branded promotion explained 38 per cent of the variability in the volume of HP sales. Incidence of branded promotion explained 41 per cent of the variability in the annual change in HP sales.

†Incidence of branded promotion explained 47 per cent of the variability in the volume of Heinz sales. Incidence of branded promotion explained 68 per cent of the variability in the annual change in Heinz sales.

‡Incidence of branded promotion explained 17 per cent of the variability in the volume of other barbecue sales. Incidence of branded promotion explained 40 per cent of the variability in the annual change in other barbecue sales.

§48 four-weekly observations.

¶35 four-weekly observations.

Notes:

1. Conventionally, if the p-value associated with the F-test statistic is less than 5 per cent (ie 0.05), we reject the hypothesis of no effect. The F-tests that reject the hypothesis of no effect are given in bold. Conversely, if the p-value associated with the F-test statistic is greater than 0.05, we do not reject the hypothesis of no effect. The F-tests that reject the hypothesis of no effect at the 10 per cent level (ie 0.10) are given in italics.

2. Dickey-Fuller tests rejected the null hypothesis of a unit root (ie non-stationarity) in the levels and annual differences of the HP and Heinz sales-volume series. Specifically, Z= -3.54 (p=0.01) for the volume of HP sales, Z= -2.99 (p=0.04) for the volume of Heinz sales, Z= -3.83 (p=0.00) for the annual difference in the volume of HP sales and Z= -2.94 (p=0.04) for the annual difference in the volume of Heinz sales. For the sales shares, Z= -3.16 (p=0.02), Z= -3.13 (p=0.02) and Z= -2.72 (p=0.07), respectively, so only the share of sales of other barbecue sauce was non-stationary.

5. Heinz and HP tinned baked beans in the retail market

32. We examined the competitive constraint between Heinz and HP tinned baked beans (and tinned baked bean meals) using the same methodology described above, ie by analysing the incidence of promotional activity of one brand on sales of others at Retailer A (which was the only major retailer that provided us with sufficient data to do this).³⁴
33. From its response to our customer questionnaire, Retailer A promoted Heinz tinned baked beans frequently but HP tinned baked beans less so (see TABLE 16 for Heinz promotions at Retailer A and TABLE 17 for HP promotions at Retailer A).

TABLE 16 Timing of promotions on Heinz baked beans at Retailer A, [34] to [34]

Promotion	Date	SKU	Type
1	[34]	415g with sausages	[34]
2		4x415g	
3		6x415g	
4		415g with sausages	
5		4x415g	
6		205g	
7		200g	
8		400g	
9		6x415g	
10		4x415g	
11		4x415g	
12		4x415g	
13		395g cheesy	
14		415g with sausages	
15		4x415g	
16		4x415g	
17		4x415g	
18		4x415g	
19		4x415g	
20		4x415g	
21		4x415g	

Source: Retailer A.

³⁴For promotions that spanned two four-week periods (none spanned three), we experimented with assigning promotional indicator variables only to the four-weekly period in which most of the promotion occurred. Our results were qualitatively unaffected and we have not reported them. For Retailer A, data was analysed for the period from 2002-2005 ie [34] ('the whole period' in the context of Retailer A for baked beans).

TABLE 17 Timing of promotions on HP baked beans at Retailer A, [REDACTED] to [REDACTED]

Promotion	Date	SKU	Type
1	[REDACTED]	4x420g	[REDACTED]
2		4x420g	
3		4x420g	

Source: Retailer A.

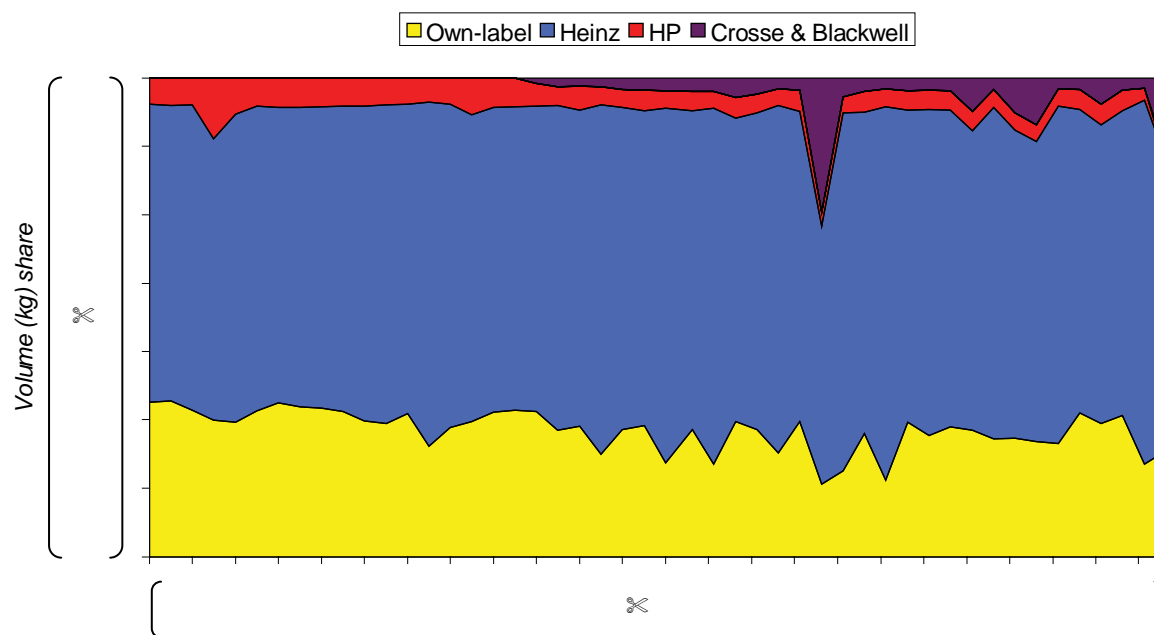
34. The motivation for our empirical analysis can be seen from FIGURE 4, which—in conjunction with TABLE 16 and TABLE 17—shows the timing of promotions of Heinz and HP tinned baked beans at Retailer A and the share-of-sales data in our econometric analysis. Although promotions of Heinz and HP tinned baked beans at Retailer A did not overlap, the high frequency of promotions of Heinz tinned baked beans made it very hard to isolate their effect on sales of HP, Crosse & Blackwell and own label tinned baked beans, even though the effect of the three HP promotions on the left-hand side of FIGURE 4 can be seen. (We noted that FIGURE 4 appeared consistent with what we had been told about Premier Foods migrating sales from HP to Crosse & Blackwell.)

35. The spike in Crosse & Blackwell’s share in [REDACTED] was a result of a large change in the relative price of Crosse & Blackwell baked beans [REDACTED]. Although Retailer A did not provide Crosse & Blackwell promotions data, this and subsequent price promotions were included in our analysis. [REDACTED]³⁵

³⁵[REDACTED]

FIGURE 4

Share of Retailer A's sales (kg) of Heinz, HP, Crosse & Blackwell and own label tinned baked beans, [✂] to [✂]



Source: Retailer A and CC calculations.

36. The results of our statistical tests are given in TABLE 20 and our regression results are given in the annex and summarized in TABLE 18. These suggested that:
- taken together, promotions of Heinz tinned baked beans at Retailer A increased—and were related to fluctuations in—the volume (kg) and the share of Retailer A's sales of Heinz tinned baked beans;
 - taken together, promotions of Heinz tinned baked beans at Retailer A did not reduce—and were not related to fluctuations in—the volume (kg) or share of Retailer A's sales of HP, Crosse & Blackwell or own label tinned baked beans;³⁶
 - taken together, promotions of HP tinned baked beans at Retailer A increased—and were related to fluctuations in—the volume (kg) and the share of Retailer A's sales of HP tinned baked beans; and

³⁶There is some statistical evidence that promotions of Heinz tinned baked beans at Retailer A taken together were related to fluctuations in the share of Retailer A's sales of own label tinned baked beans but their impact on own label sales was negligible.

- taken together, promotions of HP tinned baked beans at Retailer A did not reduce—and were not related to fluctuations—the volume (kg) or share of Retailer A's sales of Heinz, Crosse & Blackwell or own label tinned baked beans.

TABLE 18 **Estimated impact of promotions of Heinz and HP tinned baked beans at Retailer A on sales of Heinz, HP, own label and Crosse & Blackwell tinned baked beans, [2010] to [2011]**

	Average promotion effect*				Average when not promoted§
	Heinz		HP		
	Impact†	Std err	Impact‡	Std err	
Heinz volume (kg)	191,223	43,221	-10,547	16,959	
Heinz sales share (percentage points)	1.7	0.2	-0.1	0.1	
HP volume (kg)	-5,141	6,106	13,086	6,106	
HP sales share (percentage points)	-0.2	0.1	0.2	0.0	
Crosse & Blackwell volume (kg)	-58,888	30,992	811	10,071	
Crosse & Blackwell sales share (percentage points)	-0.9	0.4	0.0	0.1	
Own label volume (kg)	1,632	30,098	-3,649	11,810	
Own label sales share (percentage points)	-0.2	0.1	-0.2	0.0	

Source: Retailer A and CC calculations.

*Volumes in kg do not sum to zero because promotions may increase the total volume of tinned baked beans sold. However, shares do sum to zero (allowing for rounding) as a result of how shares of sales are calculated.

†Estimated as linear combination of regression coefficients on Heinz promotion dummy variables for each sales series multiplied by average value of each Heinz promotion dummy variable.

‡Estimated as linear combination of regression coefficients on HP promotion dummy variables for each sales series multiplied by average value of each HP promotion dummy variable.

§For Heinz, average when Heinz not promoted. For HP, average when HP not promoted. For Crosse & Blackwell, average when Crosse & Blackwell not promoted. As own label was not promoted, a simple average is given.

¶Per cent, not percentage points.

37. These results are summarized in TABLE 19, which indicates whether promotions of HP and Heinz tinned baked beans at Retailer A were related to sales of HP, Heinz, Crosse & Blackwell and own label tinned baked beans at statistically-significant levels.

TABLE 19 Results of statistical tests on tinned baked bean promotions and sales data from Retailer A

Were these promotions related to sales of tinned baked beans at statistically significant levels?

	Heinz sales		HP sales		Crosse and Blackwell sales		Own label sales	
	Volume	Share	Volume	Share	Volume	Share	Volume	Share
Heinz promotions	✓	✓	✗	✗	✗	✗	✗	✓
HP promotions	✗	✗	✓	✓	✗	✗	✗	✗

Source: TABLE 18 and TABLE 20.

38. Overall, we considered that this analysis showed evidence of only a very weak relationship between Heinz and HP promotions and sales. For example, from TABLE 18 the average effect of an HP promotion over a four week period was a gain of 13 tonnes (13,086 kg) by HP and a loss of 11 tonnes (10,547 kg) by Heinz. These gains and losses were made against a background where the average volume of tinned baked beans sold in a four week period was [redacted] tonnes ([redacted] kg) of HP, when HP was not promoted³⁷, and [redacted] tonnes ([redacted] kg) of Heinz, when Heinz was not promoted³⁸. The variability³⁹ from one four week period to another in the volume of tinned baked beans sold around these un-promoted averages was 9 tonnes (9,233 kg) for HP and 65 tonnes (65,349 kg) for Heinz, variability at least as large as the estimated impact of promotions.

³⁷There were [redacted] four-week periods when HP was not promoted.

³⁸There were [redacted] four-week periods when Heinz was not promoted.

³⁹Measured by the standard errors of the estimated intercepts in TABLE 56 and TABLE 57.

TABLE 20 Tests of significance (null hypothesis: no effect) of incidence of branded promotion at Retailer A on sales of Heinz, HP, Crosse & Blackwell and own label tinned baked beans

		Effect of Heinz promotions on sales of			
Dependent variable	Time period	Heinz*†	HP†‡	Crosse & Blackwell†§	Own label†¶
Volume (kg) of sales	Whole period#	F_{6,36} = 6.14 (p = 0.000)	F _{6,36} = 1.31 (p = 0.277)	F _{3,22} = 1.25 (p = 0.316)	F _{6,36} = 0.50 (p = 0.805)
Share (%) of sales	Whole period#	F_{6,36} = 14.6 (p = 0.000)	F _{6,36} = 1.80 (p = 0.126)	F _{6,36} = 1.40 (p = 0.271)	F_{6,36} = 5.11 (p = 0.000)
		Effect of HP promotions on sales of			
Dependent variable	Time period	Heinz*†	HP†‡	Crosse & Blackwell†§	Own label†¶
Volume (kg) of sales	Whole period#	F _{2,36} = 0.44 (p = 0.645)	F_{2,36} = 25.2 (p = 0.000)	F _{1,22} = 0.01 (p = 0.937)	F _{2,36} = 0.06 (p = 0.940)
Share (%) of sales	Whole period#	F _{2,36} = 1.49 (p = 0.239)	F_{2,36} = 23.1 (p = 0.000)	F _{1,22} = 0.01 (p = 0.942)	F _{2,36} = 0.07 (p = 0.932)

Source: Retailer A and CC calculations.

*Incidence of branded promotion explained 54 per cent of the variability in the volume of Heinz sales and 76 per cent of the variability in the share of Heinz sales.
 †Dickey-Fuller tests for a unit root returned Z= -5.02 (p=0.00) for the volume of Heinz sales, Z= -5.65 (p=0.00) for the volume of HP sales, Z= -5.08 (p=0.00) for the volume of Crosse & Blackwell sales and Z= -4.83 (p=0.00) for the volume of own label sales, so all sales series were stationary. For the share of sales, Dickey-Fuller tests returned Z= -6.62 (p=0.00) for Heinz, Z= -3.41 (p=0.01) for HP, Z= -5.09 (p=0.00) for Crosse & Blackwell and Z= -4.74 (p=0.00) for own label, so all share-of-sales series also were stationary.
 ‡Incidence of branded promotion explained 65 per cent of the variability in the volume of HP sales and 66 per cent of the variability in the share of HP sales.
 §Incidence of branded promotion explained 64 per cent of the variability in the volume of Crosse & Blackwell sales and 64 per cent of the variability in the share of Crosse & Blackwell sales.
 ¶Incidence of branded promotion explained 10 per cent of the variability in the volume of own label sales and 54 per cent of the variability in the share of own label sales.
 #46 four-weekly observations except for Crosse & Blackwell, which had 27 four-weekly observations from the four weeks ended [3<] to the four weeks ended [3<].
 Note: Conventionally, if the p-value associated with the F-test statistic is less than 5 per cent (ie 0.05), we reject the hypothesis of no effect. The F-tests that reject the hypothesis of no effect are given in bold. Conversely, if the p-value associated with the F-test statistic is greater than 0.05, we do not reject the hypothesis of no effect.

5. Heinz and HP tinned pasta meals in the retail market

39. We examined the competitive constraint between Heinz and HP tinned pasta (and tinned pasta meals) using the same methodology described above, ie by analysing the incidence of promotional activity of one brand on sales of others at Retailer A (which was the only major retailer that provided us with sufficient data to do this).⁴⁰
40. From its response to our customer questionnaire, Retailer A promoted Heinz tinned pasta meals frequently but promoted HP only on a few occasions, apparently reflecting HP's much smaller product line that is focused on cartoon-character branded pasta (see TABLE 21 for Heinz promotions at Retailer A and TABLE 22 for HP promotions).⁴¹

TABLE 21 Timing of Heinz tinned pasta meals promotions at Retailer A, [X] to [X]

Promotion	Date	SKU	Variant on plain pasta	Type
1		4x400g		
2		200g/205g		
3		415g		
4		400g		
5		400g		
6		415g		
7		4x400g		
8		200g		
9		400g		
10		200g/400g		
11		400g		
12		4x400g		
13		4x400g		
14		400g		
15		410g		
16		4x400g		
17		200g/205g		
18		400g		
19		200g/205g		
20		400g		
21		200g/205g		
22		400g		
23		4x400g		
24		400g		

Source: Retailer A.

⁴⁰For promotions that spanned two four-week periods (none spanned three), we experimented with assigning promotional indicator variables only to the four-weekly period in which most of the promotion occurred. Our results were qualitatively unaffected and we do not report them. For Retailer A, data was analysed for the period from 2002-2005 ie [X] ('the whole period' in the context of Retailer A for tinned pasta products and for the post-2002 period ie [X]).

⁴¹We replicated our analysis for only cartoon-character branded tinned pasta meals to control for this. Our results were qualitatively unaffected and are given in TABLE 76 in the annex.

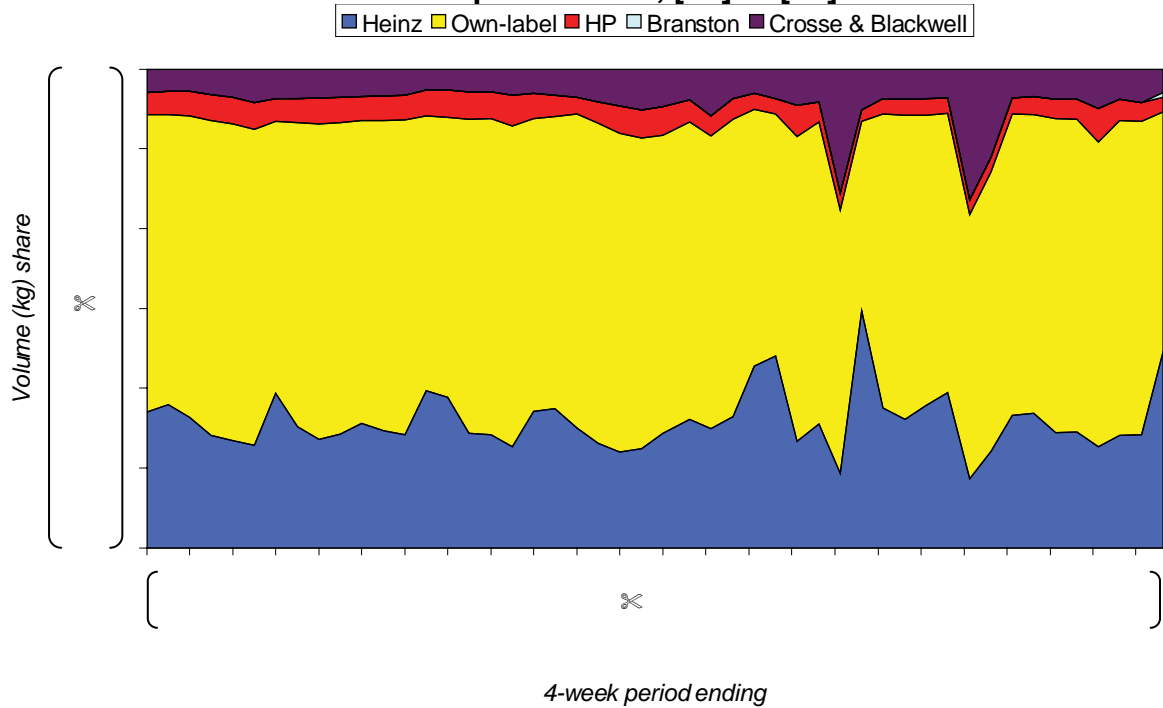
TABLE 22 Timing of promotions of HP tinned pasta meals at Retailer A, 2002 to 2005

Promotion	Date	SKU	Type
1	[✂]	213g [✂]	[✂]
2		213g [✂]	
3		213g [✂]	

Source: Retailer A.

FIGURE 5

Share of Retailer A's sales (kg) of Heinz, HP, Crosse & Blackwell and own label tinned pasta meals, [✂] to [✂]



Source: Retailer A and CC calculations.

41. The motivation for our empirical analysis can be seen from FIGURE 5, which—in conjunction with TABLE 21 and TABLE 22—shows the timing of promotions of Heinz and HP tinned pasta meals at Retailer A and the share-of-sales data in our econometric analysis. Although promotions of Heinz and HP tinned pasta meals at Retailer A did not overlap, the sheer frequency of promotions of Heinz tinned pasta meals at Retailer A made it very hard to isolate their effect on sales of HP, Crosse & Blackwell and own label tinned pasta meals. The spikes in Crosse & Blackwell's

sales were a result of very large changes in the relative price⁴² of Crosse & Blackwell tinned pasta meals in [X] and [X] (these promotions were included in our analysis, although Retailer A did not give us promotional data for Crosse & Blackwell).

42. The results of our statistical tests are given in TABLE 25 and our regression results are given in the annex and summarized in TABLE 23. These suggested that:

- taken together, promotions of Heinz tinned pasta meals at Retailer A increased—and were related to fluctuations in—the volume (kg), share of and annual change in Retailer A's sales of Heinz tinned pasta meals;
- taken together, promotions of Heinz tinned pasta meals at Retailer A
 - did not reduce—and were not related to fluctuations in—the volume (kg) and annual change in Retailer A's sales of HP tinned pasta meals,
 - reduced—and were related to fluctuations in—the share of Retailer A's sales of HP tinned pasta meals,
 - affected—and were related to fluctuations in—the volume, share of and annual change in Retailer A's sales of own label tinned pasta meals,
 - affected—and were related to fluctuations in—the volume and annual change in Retailer A's sales of Crosse & Blackwell tinned pasta meals, but
 - did not reduce—and were not related to fluctuations in—the share of Retailer A's sales of Crosse & Blackwell tinned pasta meals;
- taken together, promotions of HP tinned pasta meals at Retailer A increased—and were related to fluctuations in—the volume (kg), share of and annual change in Retailer A's sales of HP tinned pasta meals; and
- taken together, promotions of HP tinned pasta meals at Retailer A did not related at conventional levels of statistical significance to fluctuations in—and did not

⁴²In [X] the volume weighted average price fell to £[X]/kg from £[X]/kg and from £[X]/kg to £[X]/kg in [X].

significantly reduce—the volume (kg), share of and annual change in Retailer A's sales of Heinz, Crosse & Blackwell or own label tinned pasta meals.

TABLE 23 **Estimated impact of promotions of Heinz and HP tinned pasta meals at Retailer A on sales of Heinz, HP, own label and Crosse & Blackwell tinned pasta meals, [2010] to [2011]**

	Average promotion effect*				Average when not promoted§
	Heinz		HP		
	Impact†	Standard error	Impact‡	Standard error	
Heinz volume (kg)	90,537	14,815	-5,036	5,290	↑
Heinz sales share (percentage points)	1.5	0.3	-0.1	0.1	
Annual change in Heinz volume (kg)	25,816	16,987	1,935	2,159	
HP volume (kg)	892	1,199	1,416	428	↑
HP sales share (percentage points)	-0.1	0.0	0.1	0.0	
Annual change in HP volume (kg)	303	1,262	531	160	
Crosse & Blackwell volume (kg)	4,228	3,355	-440	1,198	✂
Crosse & Blackwell sales share (percentage points)	0.0	0.2	0.0	0.1	
Annual change in Crosse and Blackwell volume (kg)	-8,925	2,859	16	282	
Own label volume (kg)	7,780	5,572	-1,833	1,990	↑
Own label sales share (percentage points)	-1.4	0.2	0.0	0.1	
Annual change in own label volume (kg)	-16,760	6,453	790	516	

Source: Retailer A and CC calculations.

*Volumes in kg do not sum to zero because promotions may increase the total volume of tinned pasta meals sold. However, shares do sum to zero (allowing for rounding) as a result of how shares of sales are calculated.

†Estimated as linear combination of regression coefficients on Heinz promotion dummy variables for each sales series multiplied by average value of each Heinz promotion dummy.

‡Estimated as linear combination of regression coefficients on HP promotion dummy variables for each sales series multiplied by average value of each HP promotion dummy.

§For Heinz, average when Heinz not promoted. For HP, average when HP not promoted. For Crosse & Blackwell, average when Crosse & Blackwell not promoted. As own label was not promoted, a simple average is given.

¶Per cent, not percentage points.

43. These results are summarized in TABLE 24, which indicates whether promotions of HP and Heinz tinned pasta meals at Retailer A were related to sales of HP, Heinz, Crosse & Blackwell and own label tinned pasta meals at statistically-significant levels.

TABLE 24 Results of statistical tests on tinned pasta meals promotions and sales data from Retailer A

Were these promotions related to sales of tinned pasta meals at statistically significant levels?

	Heinz sales		HP sales		Crosse and Blackwell sales		Own label sales	
	Volume	Share	Volume	Share	Volume	Share	Volume	Share
Heinz promotions	✓	✓	✗	✓	✓	✗	✓	✓
HP promotions	✗	✗	✓	✓	✗	✗	✗	✗

Source: TABLE 23 and TABLE 25.

44. Overall, we considered that this analysis showed evidence of only a very weak relationship between Heinz and HP promotions and sales. For example, from TABLE 24 the average effect of an HP promotion over a four week period was a gain of 1 tonne (1,416 kg) by HP and a loss of 5 tonnes (5,036 kg) by Heinz. These gains and losses were made against a background where the average volume of tinned pasta meals sold in a four week period was [redacted] tonnes ([redacted] kg) of HP, when HP was not promoted,⁴³ and [redacted] tonnes ([redacted] kg) of Heinz, when Heinz was not promoted.⁴⁴ The variability⁴⁵ from one four week period to another in the volume of tinned pasta meals sold around these un-promoted averages was 2 tonnes (1,973 kg) for HP and 24 tonnes (24,383 kg) for Heinz, variability that dwarfed the estimated impact of promotions.

⁴³There were [redacted] four week periods when HP was not promoted.

⁴⁴There were [redacted] four week periods when Heinz was not promoted.

⁴⁵Measured by the standard errors of the estimated intercepts in TABLE 64 and TABLE 65.

TABLE 25 Tests of significance (null hypothesis: no effect) of incidence of branded promotional activity at Retailer A on sales of Heinz, HP and own label tinned pasta meals

		Effect of Heinz promotions on sales of			
Dependent variable	Time period	Heinz*	HP†	Own label‡	Crosse & Blackwell±
Volume (kg) of sales	Whole period§	F_{12,33} = 6.34 (p = 0.000)	F _{12,33} = 1.67 (p = 0.120)	F_{12,33} = 2.37 (p = 0.025)	F_{12,33} = 1.28 (p = 0.000)
Share (%) of sales	Whole period§	F_{12,33} = 8.25 (p = 0.000)	F_{12,33} = 2.08 (p = 0.048)	F_{12,33} = 9.98 (p = 0.000)	F _{12,33} = 0.90 (p = 0.553)
Annual change in sales	Post-2002 period¶	F_{11,21} = 6.76 (p = 0.000)	F _{11,21} = 1.48 (p = 0.210)	F_{11,21} = 4.15 (p = 0.003)	F_{12,33} = 3.69 (p = 0.005)

		Effect of HP promotions on sales of			
Dependent variable	Time period	Heinz*	HP†	Own label‡	Crosse & Blackwell±
Volume (kg) of sales	Whole period§	F _{1,33} = 0.91 (p = 0.348)	F_{1,33} = 10.9 (p = 0.002)	F _{1,33} = 0.85 (p = 0.364)	F _{1,33} = 0.14 (p = 0.716)
Share (%) of sales	Whole period§	F _{1,33} = 1.24 (p = 0.274)	F_{1,33} = 15.4 (p = 0.000)	F _{1,33} = 0.12 (p = 0.733)	F _{1,33} = 0.03 (p = 0.856)
Annual change in sales	Post-2002 period¶	F _{1,21} = 0.80 (p = 0.380)	F_{1,21} = 11.0 (p = 0.003)	F _{1,21} = 2.35 (p = 0.141)	F _{1,21} = 0.00 (p = 0.955)

Source: Retailer A and CC calculations.

*Incidence of branded promotion explained 71 per cent of the variability in the volume of Heinz sales. Incidence of branded promotion explained 80 per cent of the variability in the share of Heinz sales. Incidence of branded promotion explained 78 per cent of the variability in the annual change in Heinz sales.

†Incidence of branded promotion explained 50 per cent of the variability in the volume of HP sales. Incidence of branded promotion explained 58 per cent of the variability in the share of HP sales. Incidence of branded promotion explained 59 per cent of the variability in the annual change in HP sales.

‡Incidence of branded promotion explained 47 per cent of the variability in the volume of own label sales. Incidence of branded promotion explained 80 per cent of the variability in the share of own label sales. Incidence of branded promotion explains 74 per cent of the variability in the annual change in own label sales.

±Incidence of branded promotion explained 86 per cent of the variability in the volume of Crosse & Blackwell sales. Incidence of branded promotion explained 84 per cent of the variability in the share of Crosse & Blackwell sales. Incidence of branded promotion explained 95 per cent of the variability in the annual change in Crosse & Blackwell sales.

§48 four-weekly observations.

¶35 four-weekly observations.

Notes:

1. Conventionally, if the p-value associated with the F-test statistic is less than 5 per cent (ie 0.05), we reject the hypothesis of no effect. The F-tests that reject the hypothesis of no effect are given in bold. Conversely, if the p-value associated with the F-test statistic is greater than 0.05, we do not reject the hypothesis of no effect.

2. Dickey-Fuller tests for a unit root returned Z= -5.67 (p=0.00) for Heinz tinned pasta sales, Z= -3.49 (p=0.01) for HP tinned pasta sales, Z= -5.11 (p=0.00) for tinned pasta own label sales and Z= -4.76 (p=0.00), so Heinz, HP, own label and Crosse & Blackwell sales were stationary. For the share of sales, Dickey-Fuller tests returned Z= -6.08 (p=0.00) for Heinz sales, Z= -3.28 (p=0.02) for HP sales, Z= -4.40 (p=0.00) for own label sales, and Z= -4.98 (p=0.00) for Crosse & Blackwell sales, so market share series also were stationary.

Regression results

Ketchup

TABLE 26 Regression results for first difference in volume (kg) of Daddies ketchup sales at Retailer B for the whole period

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[ⓧ]	[ⓧ]	1.33	0.204	[ⓧ]	[ⓧ]
Daddies 567g [ⓧ]	21,338	5,439	3.92	0.002	9,674	33,003
Daddies 567g [ⓧ]	21,778	20,818	1.05	0.313	-22,872	66,428
Daddies 340g [ⓧ]	22,662	14,664	1.55	0.145	-8,788	54,112
Heinz 1kg [ⓧ]	-3,811	5,289	-0.72	0.483	-15,156	7,533
Heinz 1kg [ⓧ]	3,548	25,683	0.14	0.892	-51,535	58,632
Heinz 1kg [ⓧ]	-6,700	12,756	-0.53	0.608	-34,059	20,659
Heinz 570g [ⓧ]	13,735	10,173	1.35	0.198	-8,084	35,554
Heinz 342g [ⓧ]	3,569	10,241	0.35	0.733	-18,396	25,534
Heinz 700g [ⓧ]	(dropped)					
Heinz Organic 460g [ⓧ]	4,868	6,971	0.70	0.496	-10,083	19,818
Heinz 570g [ⓧ]	-10,240	8,362	-1.22	0.241	-28,176	7,696
Heinz 460g [ⓧ]	15,515	16,377	0.95	0.360	-19,610	50,641
Heinz 460g [ⓧ]	-842	8,140	-0.10	0.919	-18,301	16,617
Heinz 570g top-down [ⓧ]	-264	11,482	-0.02	0.982	-24,890	24,362
Heinz 570g top-down [ⓧ]	<i>-11,882</i>	<i>6,198</i>	<i>-1.92</i>	<i>0.076</i>	<i>-25,176</i>	<i>1,412</i>
Heinz 700g top-down [ⓧ]	-10,379	9,638	-1.08	0.300	-31,052	10,293
Heinz 200g [ⓧ]	-14,709	15,039	-0.98	0.345	-46,964	17,547
Heinz 342g [ⓧ]	11,230	13,330	0.84	0.414	-17,361	39,821
Heinz 700g top-down [ⓧ]	-4,380	9,272	-0.47	0.644	-24,266	15,506
Heinz 910g top-down [ⓧ]	-65,384	21,458	-3.05	0.009	-111,407	-19,361
Heinz 460g top-down [ⓧ]	-32,726	19,219	-1.70	0.111	-73,948	8,495
Heinz 700g top-down [ⓧ]	-86,081	24,163	-3.56	0.003	-137,906	-34,256
Premier fire	10,138	10,135	1.00	0.334	-11,599	31,876

Source: Retailer B and CC calculations.

Notes: Method of estimation is OLS.

1. 37 observations.

2. $R^2 = 0.7653$.

3. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 27 Regression results for share (%) of Daddies ketchup sales at Retailer B for the whole period

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	0.000	0.000	4.86	0.000	0.000	0.000
Daddies 567g [38]	0.054	0.011	4.85	0.000	0.030	0.078
Daddies 567g [38]	0.014	0.023	0.62	0.544	-0.035	0.064
Daddies 340g [38]	0.008	0.023	0.34	0.741	-0.041	0.056
Heinz 1kg [38]	-0.030	0.011	-2.72	0.016	-0.053	-0.006
Heinz 1kg [38]	-0.010	0.025	-0.42	0.681	-0.063	0.043
Heinz 1kg [38]	0.007	0.034	0.21	0.835	-0.066	0.080
Heinz 570g [38]	0.001	0.016	0.06	0.951	-0.034	0.036
Heinz 342g [38]	0.019	0.024	0.76	0.457	-0.033	0.071
Heinz 700g [38]	(dropped)					
Heinz Organic 460g [38]	-0.003	0.013	-0.24	0.817	-0.030	0.024
Heinz 570g [38]	-0.025	0.017	-1.50	0.154	-0.061	0.011
Heinz 460g [38]	-0.022	0.025	-0.87	0.398	-0.076	0.032
Heinz 460g [38]	0.020	0.015	1.36	0.195	-0.011	0.052
Heinz 570g top-down [38]	-0.034	0.025	-1.33	0.204	-0.087	0.020
Heinz 570g top-down [38]	0.006	0.012	0.48	0.640	-0.019	0.031
Heinz 700g top-down [38]	-0.013	0.019	-0.68	0.504	-0.052	0.027
Heinz 200g [38]	-0.029	0.031	-0.93	0.365	-0.095	0.037
Heinz 342g [38]	0.007	0.021	0.32	0.756	-0.038	0.051
Heinz 700g top-down [38]	-0.008	0.019	-0.41	0.687	-0.048	0.033
Heinz 910g top-down [38]	-0.014	0.019	-0.73	0.474	-0.053	0.026
Heinz 460g top-down [38]	-0.006	0.025	-0.22	0.828	-0.060	0.049
Heinz 700g top-down [38]	<i>-0.047</i>	<i>0.025</i>	<i>-1.91</i>	<i>0.076</i>	<i>-0.099</i>	<i>0.006</i>
Premier fire	0.032	0.015	2.17	0.046	0.001	0.064

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 38 observations
3. $R^2 = 0.8027$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 28 Regression results for first difference in volume (kg) of Heinz ketchup sales at Retailer B for the whole period

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[ⓧ]	[ⓧ]	0.43	0.671	[ⓧ]	[ⓧ]
Daddies 567g [ⓧ]	-13,222	18,812	-0.70	0.494	-53,569	27,125
Daddies 567g [ⓧ]	-54,381	72,009	-0.76	0.463	-208,824	100,062
Daddies 340g [ⓧ]	29,356	50,721	0.58	0.572	-79,429	138,141
Heinz 1kg [ⓧ]	63,747	18,296	3.48	0.004	24,506	102,988
Heinz 1kg [ⓧ]	-34,854	88,835	-0.39	0.701	-225,387	155,678
Heinz 1kg [ⓧ]	-9,799	44,123	-0.22	0.827	-104,433	84,835
Heinz 570g [ⓧ]	-20,896	35,189	-0.59	0.562	-96,368	54,576
Heinz 342g [ⓧ]	8,268	35,423	0.23	0.819	-67,707	84,243
Heinz 700g [ⓧ]	(dropped)					
Heinz Organic 460g [ⓧ]	-1,342	24,112	-0.06	0.956	-53,056	50,373
Heinz 570g [ⓧ]	-16,297	28,926	-0.56	0.582	-78,336	45,742
Heinz 460g [ⓧ]	25,830	56,648	0.46	0.655	-95,668	147,328
Heinz 460g [ⓧ]	-26,244	28,157	-0.93	0.367	-86,635	34,146
Heinz 570g top-down [ⓧ]	61,082	39,716	1.54	0.146	-24,099	146,264
Heinz 570g top-down [ⓧ]	-6,976	21,439	-0.33	0.750	-52,958	39,007
Heinz 700g top-down [ⓧ]	<i>59,848</i>	<i>33,339</i>	<i>1.80</i>	<i>0.094</i>	<i>-11,657</i>	<i>131,353</i>
Heinz 200g [ⓧ]	25,601	52,020	0.49	0.630	-85,970	137,172
Heinz 342g [ⓧ]	-30,934	46,109	-0.67	0.513	-129,829	67,961
Heinz 700g top-down [ⓧ]	-23,383	30,859	-0.76	0.460	-89,157	42,391
Heinz 910g top-down [ⓧ]	31,731	74,223	0.43	0.676	-127,461	190,923
Heinz 460g top-down [ⓧ]	-8,295	66,479	-0.12	0.902	-150,879	134,289
Heinz 700g top-down [ⓧ]	53,687	83,579	0.64	0.531	-125,573	232,947
Premier fire	3,703	35,056	0.11	0.917	-71,485	78,892

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 37 observations
3. $R^2 = 0.7341$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 29 Regression results for share (%) of Heinz ketchup sales at Retailer B for the whole period

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[∞]	[∞]	27.77	0.000	[∞]	[∞]
Daddies 567g [∞]	-0.042	0.020	-2.11	0.052	-0.085	0.000
Daddies 567g [∞]	-0.015	0.042	-0.36	0.721	-0.104	0.073
Daddies 340g [∞]	0.034	0.041	0.84	0.416	-0.053	0.121
Heinz 1kg [∞]	0.054	0.019	2.77	0.014	0.012	0.095
Heinz 1kg [∞]	-0.029	0.045	-0.65	0.524	-0.124	0.066
Heinz 1kg [∞]	-0.024	0.061	-0.38	0.707	-0.155	0.107
Heinz 570g [∞]	-0.023	0.029	-0.79	0.441	-0.086	0.039
Heinz 342g [∞]	0.072	0.044	1.66	0.118	-0.021	0.166
Heinz 700g [∞]	(dropped)					
Heinz Organic 460g [∞]	-0.013	0.023	-0.55	0.587	-0.061	0.036
Heinz 570g [∞]	-0.050	0.030	-1.65	0.119	-0.114	0.014
Heinz 460g [∞]	0.048	0.045	1.06	0.308	-0.049	0.144
Heinz 460g [∞]	0.007	0.027	0.28	0.786	-0.049	0.064
Heinz 570g top-down [∞]	0.013	0.045	0.28	0.783	-0.084	0.109
Heinz 570g top-down [∞]	0.037	0.021	1.74	0.102	-0.008	0.081
Heinz 700g top-down [∞]	0.084	0.033	2.51	0.024	0.013	0.155
Heinz 200g [∞]	0.046	0.056	0.82	0.426	-0.073	0.164
Heinz 342g [∞]	-0.031	0.038	-0.83	0.420	-0.111	0.049
Heinz 700g top-down [∞]	-0.041	0.034	-1.21	0.247	-0.114	0.032
Heinz 910g top-down [∞]	0.047	0.033	1.40	0.181	-0.024	0.118
Heinz 460g top-down [∞]	-0.001	0.046	-0.03	0.977	-0.099	0.096
Heinz 700g top-down [∞]	0.076	0.044	1.73	0.104	-0.018	0.170
Premier fire	0.125	0.027	4.70	0.000	0.068	0.181

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 38 observations
3. $R^2 = 0.8166$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 30 Regression results for first difference in volume (kg) of own label ketchup sales at Retailer B for the whole period

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[⌘]	[⌘]	0.35	0.729	[⌘]	[⌘]
Daddies 567g [⌘]	-1,563	8,966	-0.17	0.864	-20,793	17,668
Daddies 567g [⌘]	-17,005	34,321	-0.50	0.628	-90,616	56,606
Daddies 340g [⌘]	-15,951	24,175	-0.66	0.520	-67,801	35,898
Heinz 1kg [⌘]	14,564	8,720	1.67	0.117	-4,139	33,267
Heinz 1kg [⌘]	16,771	42,341	0.40	0.698	-74,041	107,584
Heinz 1kg [⌘]	33,556	21,030	1.60	0.133	-11,549	78,660
Heinz 570g [⌘]	7,731	16,772	0.46	0.652	-28,241	43,703
Heinz 342g [⌘]	-44,353	16,884	-2.63	0.020	-80,565	-8,142
Heinz 700g [⌘]	(dropped)					
Heinz Organic 460g [⌘]	-214	11,492	-0.02	0.985	-24,862	24,435
Heinz 570g [⌘]	41,775	13,787	3.03	0.009	12,206	71,345
Heinz 460g [⌘]	-1,138	27,000	-0.04	0.967	-59,047	56,771
Heinz 460g [⌘]	5,853	13,420	0.44	0.669	-22,931	34,636
Heinz 570g top-down [⌘]	-5,466	18,929	-0.29	0.777	-46,065	35,134
Heinz 570g top-down [⌘]	2,600	10,218	0.25	0.803	-19,317	24,516
Heinz 700g top-down [⌘]	6,382	15,890	0.40	0.694	-27,699	40,463
Heinz 200g [⌘]	1,976	24,794	0.08	0.938	-51,201	55,154
Heinz 342g [⌘]	994	21,977	0.05	0.965	-46,142	48,129
Heinz 700g top-down [⌘]	<i>27,546</i>	<i>15,286</i>	<i>1.80</i>	<i>0.093</i>	<i>-5,238</i>	<i>60,331</i>
Heinz 910g top-down [⌘]	18,629	35,376	0.53	0.607	-57,245	94,504
Heinz 460g top-down [⌘]	20,052	31,686	0.63	0.537	-47,907	88,010
Heinz 700g top-down [⌘]	33,699	39,836	0.85	0.412	-51,741	119,138
Premier fire	-40,325	16,709	-2.41	0.030	-76,161	-4,488

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 37 observations
3. $R^2 = 0.6709$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 31 Regression results for share (%) of own label ketchup sales at Retailer B for the whole period

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[X]	[X]	12.85	0.000	[X]	[X]
Daddies 567g [X]	-0.012	0.021	-0.57	0.579	-0.057	0.033
Daddies 567g [X]	0.001	0.044	0.02	0.986	-0.092	0.094
Daddies 340g [X]	-0.042	0.043	-0.98	0.343	-0.133	0.049
Heinz 1kg [X]	-0.024	0.020	-1.19	0.252	-0.068	0.019
Heinz 1kg [X]	0.040	0.047	0.85	0.410	-0.060	0.139
Heinz 1kg [X]	0.016	0.064	0.25	0.804	-0.121	0.153
Heinz 570g [X]	0.022	0.031	0.72	0.480	-0.043	0.088
Heinz 342g [X]	<i>-0.091</i>	<i>0.046</i>	<i>-1.99</i>	<i>0.065</i>	<i>-0.188</i>	<i>0.006</i>
Heinz 700g [X]	(dropped)					
Heinz Organic 460g [X]	0.016	0.024	0.66	0.522	-0.035	0.066
Heinz 570g [X]	0.075	0.032	2.38	0.031	0.008	0.143
Heinz 460g [X]	-0.026	0.047	-0.54	0.594	-0.127	0.075
Heinz 460g [X]	-0.027	0.028	-0.99	0.339	-0.087	0.032
Heinz 570g top-down [X]	0.021	0.047	0.44	0.665	-0.080	0.122
Heinz 570g top-down [X]	-0.042	0.022	-1.92	0.074	-0.089	0.005
Heinz 700g top-down [X]	<i>-0.071</i>	<i>0.035</i>	<i>-2.03</i>	<i>0.060</i>	<i>-0.145</i>	<i>0.003</i>
Heinz 200g [X]	-0.017	0.058	-0.28	0.780	-0.141	0.107
Heinz 342g [X]	0.025	0.039	0.62	0.543	-0.059	0.109
Heinz 700g top-down [X]	0.049	0.036	1.37	0.190	-0.027	0.125
Heinz 910g top-down [X]	-0.033	0.035	-0.95	0.358	-0.107	0.041
Heinz 460g top-down [X]	0.007	0.048	0.15	0.886	-0.095	0.109
Heinz 700g top-down [X]	-0.029	0.046	-0.63	0.535	-0.127	0.069
Premier fire	-0.157	0.028	-5.65	0.000	-0.216	-0.098

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 38 observations
3. $R^2 = 0.8163$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 32 Regression results for first difference in volume (kg) of Daddies ketchup sales at Retailer B for the period post-2003

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[ⓧ]	[ⓧ]	0.89	0.403	[ⓧ]	[ⓧ]
Daddies 567g [ⓧ]	27,273	10,034	2.72	0.030	3,547	51,000
Daddies 567g [ⓧ]	(dropped)					
Daddies 340g [ⓧ]	18,841	22,286	0.85	0.426	-33,856	71,538
Heinz 1kg [ⓧ]	-1,440	12,371	-0.12	0.911	-30,693	27,814
Heinz 1kg [ⓧ]	(dropped)					
Heinz 1kg [ⓧ]	-1,412	21,422	-0.07	0.949	-52,067	49,243
Heinz 570g [ⓧ]	13,536	18,171	0.74	0.481	-29,432	56,503
Heinz 342g [ⓧ]	(dropped)					
Heinz 700g [ⓧ]	(dropped)					
Heinz Organic 460g [ⓧ]	904	13,760	0.07	0.949	-31,634	33,442
Heinz 570g [ⓧ]	-14,876	13,738	-1.08	0.315	-47,361	17,610
Heinz 460g [ⓧ]	(dropped)					
Heinz 460g [ⓧ]	5,352	18,281	0.29	0.778	-37,875	48,578
Heinz 570g top-down [ⓧ]	(dropped)					
Heinz 570g top-down [ⓧ]	-8,041	9,723	-0.83	0.435	-31,032	14,950
Heinz 700g top-down [ⓧ]	-2,546	20,655	-0.12	0.905	-51,388	46,295
Heinz 200g [ⓧ]	-12,557	25,400	-0.49	0.636	-72,619	47,505
Heinz 342g [ⓧ]	7,753	21,760	0.36	0.732	-43,700	59,207
Heinz 700g top-down [ⓧ]	-2,460	12,513	-0.20	0.850	-32,048	27,128
Heinz 910g top-down [ⓧ]	-57,865	31,336	-1.85	0.107	-131,964	16,233
Heinz 460g top-down [ⓧ]	-24,367	28,702	-0.85	0.424	-92,235	43,501
Heinz 700g top-down [ⓧ]	<i>-79,260</i>	<i>34,186</i>	<i>-2.32</i>	<i>0.054</i>	<i>-160,097</i>	<i>1,577</i>
Premier fire	-37,081	22,627	-1.64	0.145	-90,585	16,422

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 25 observations
3. $R^2 = 0.7789$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 33 Regression results for share (%) of Daddies ketchup sales at Retailer B for the period post-2003

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[X]	[X]	3.56	0.009	[X]	[X]
Daddies 567g [X]	0.061	0.015	4.06	0.005	0.025	0.096
Daddies 567g [X]	(dropped)					
Daddies 340g [X]	0.007	0.024	0.30	0.773	-0.049	0.063
Heinz 1kg [X]	-0.036	0.015	-2.44	0.045	-0.071	-0.001
Heinz 1kg [X]	(dropped)					
Heinz 1kg [X]	-0.013	0.039	-0.33	0.748	-0.105	0.079
Heinz 570g [X]	0.001	0.023	0.06	0.952	-0.053	0.056
Heinz 342g [X]	(dropped)					
Heinz 700g [X]	(dropped)					
Heinz Organic 460g [X]	-0.004	0.016	-0.25	0.809	-0.043	0.035
Heinz 570g [X]	<i>-0.039</i>	<i>0.019</i>	<i>-2.04</i>	<i>0.081</i>	<i>-0.085</i>	<i>0.006</i>
Heinz 460g [X]	(dropped)					
Heinz 460g [X]	0.000	0.023	-0.01	0.994	-0.054	0.054
Heinz 570g top-down [X]	(dropped)					
Heinz 570g top-down [X]	-0.011	0.018	-0.62	0.552	-0.053	0.031
Heinz 700g top-down [X]	-0.027	0.032	-0.85	0.423	-0.101	0.048
Heinz 200g [X]	-0.034	0.038	-0.88	0.408	-0.125	0.057
Heinz 342g [X]	0.005	0.025	0.19	0.858	-0.055	0.064
Heinz 700g top-down [X]	-0.021	0.023	-0.92	0.387	-0.074	0.033
Heinz 910g top-down [X]	-0.034	0.023	-1.46	0.187	-0.089	0.021
Heinz 460g top-down [X]	-0.010	0.029	-0.34	0.745	-0.080	0.060
Heinz 700g top-down [X]	-0.079	0.030	-2.68	0.031	-0.149	-0.009
Premier fire	0.023	0.017	1.35	0.219	-0.017	0.063

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 25 observations
3. $R^2 = 0.8772$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 34 Regression results for first difference in volume (kg) of Heinz ketchup sales at Retailer B for the period post-2003

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	0.61	0.561	[]	[]
Daddies 567g []	-29,736	29,659	-1.00	0.349	-99,867	40,395
Daddies 567g []	(dropped)					
Daddies 340g []	31,417	65,872	0.48	0.648	-124,345	187,180
Heinz 1kg []	60,526	36,567	1.66	0.142	-25,941	146,994
Heinz 1kg []	(dropped)					
Heinz 1kg []	3,110	63,320	0.05	0.962	-146,617	152,837
Heinz 570g []	-54,177	53,710	-1.01	0.347	-181,181	72,828
Heinz 342g []	(dropped)					
Heinz 700g []	(dropped)					
Heinz Organic 460g []	-2,343	40,673	-0.06	0.956	-98,519	93,833
Heinz 570g []	-19,397	40,608	-0.48	0.647	-115,419	76,624
Heinz 460g []	(dropped)					
Heinz 460g []	-19,052	54,034	-0.35	0.735	-146,822	108,719
Heinz 570g top-down []	(dropped)					
Heinz 570g top-down []	-15,483	28,739	-0.54	0.607	-83,441	52,474
Heinz 700g top-down []	42,606	61,053	0.70	0.508	-101,761	186,973
Heinz 200g []	38,036	75,079	0.51	0.628	-139,498	215,570
Heinz 342g []	-55,277	64,318	-0.86	0.419	-207,364	96,811
Heinz 700g top-down []	-27,954	36,986	-0.76	0.474	-115,412	59,503
Heinz 910g top-down []	18,100	92,625	0.20	0.851	-200,923	237,122
Heinz 460g top-down []	-21,532	84,837	-0.25	0.807	-222,139	179,074
Heinz 700g top-down []	42,725	101,047	0.42	0.685	-196,215	281,664
Premier fire	21,420	41,690	0.51	0.623	-77,160	120,001

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 25 observations
3. $R^2 = 0.6828$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 35 Regression results for share (%) of Heinz ketchup sales at Retailer B for the period post-2003

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[X]	[X]	15.13	0.000	[X]	[X]
Daddies 567g [X]	-0.066	0.028	-2.38	0.049	-0.132	-0.001
Daddies 567g [X]	(dropped)					
Daddies 340g [X]	0.043	0.044	0.98	0.362	-0.061	0.147
Heinz 1kg [X]	0.025	0.028	0.90	0.396	-0.040	0.090
Heinz 1kg [X]	(dropped)					
Heinz 1kg [X]	-0.060	0.072	-0.84	0.430	-0.231	0.110
Heinz 570g [X]	-0.033	0.043	-0.77	0.467	-0.134	0.068
Heinz 342g [X]	(dropped)					
Heinz 700g [X]	(dropped)					
Heinz Organic 460g [X]	0.005	0.030	0.17	0.873	-0.067	0.077
Heinz 570g [X]	-0.061	0.036	-1.70	0.132	-0.146	0.024
Heinz 460g [X]	(dropped)					
Heinz 460g [X]	-0.030	0.043	-0.70	0.509	-0.130	0.071
Heinz 570g top-down [X]	(dropped)					
Heinz 570g top-down [X]	0.003	0.033	0.09	0.930	-0.074	0.080
Heinz 700g top-down [X]	0.041	0.059	0.70	0.505	-0.097	0.180
Heinz 200g [X]	0.015	0.071	0.21	0.842	-0.154	0.184
Heinz 342g [X]	-0.022	0.047	-0.48	0.648	-0.132	0.088
Heinz 700g top-down [X]	-0.079	0.042	-1.88	0.102	-0.178	0.020
Heinz 910g top-down [X]	0.007	0.043	0.16	0.876	-0.095	0.109
Heinz 460g top-down [X]	-0.039	0.055	-0.71	0.499	-0.168	0.090
Heinz 700g top-down [X]	0.040	0.055	0.73	0.487	-0.090	0.170
Premier fire	0.114	0.032	3.60	0.009	0.039	0.189

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 25 observations
3. $R^2 = 0.8696$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 36 Regression results for first difference in volume (kg) of own label ketchup sales at Retailer B for the period post-2003

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	0.59	0.574	[]	[]
Daddies 567g []	-3,155	16,097	-0.20	0.850	-41,218	34,908
Daddies 567g []	(dropped)					
Daddies 340g []	-2,846	35,751	-0.08	0.939	-87,384	81,693
Heinz 1kg []	28,917	19,846	1.46	0.188	-18,013	75,846
Heinz 1kg []	(dropped)					
Heinz 1kg []	53,134	34,366	1.55	0.166	-28,129	134,397
Heinz 570g []	8,977	29,151	0.31	0.767	-59,954	77,907
Heinz 342g []	(dropped)					
Heinz 700g []	(dropped)					
Heinz Organic 460g []	10,815	22,075	0.49	0.639	-41,383	63,014
Heinz 570g []	50,604	22,039	2.30	0.055	-1,511	102,719
Heinz 460g []	(dropped)					
Heinz 460g []	27,588	29,327	0.94	0.378	-41,758	96,935
Heinz 570g top-down []	(dropped)					
Heinz 570g top-down []	5,087	15,598	0.33	0.754	-31,796	41,971
Heinz 700g top-down []	20,955	33,136	0.63	0.547	-57,399	99,309
Heinz 200g []	-13,367	40,748	-0.33	0.752	-109,721	82,988
Heinz 342g []	-14,271	34,908	-0.41	0.695	-96,815	68,273
Heinz 700g top-down []	28,790	20,074	1.43	0.195	-18,676	76,257
Heinz 910g top-down []	5,935	50,271	0.12	0.909	-112,938	124,807
Heinz 460g top-down []	8,074	46,044	0.18	0.866	-100,803	116,951
Heinz 700g top-down []	22,364	54,842	0.41	0.696	-107,318	152,046
Premier fire	-37,081	22,627	-1.64	0.145	-90,585	16,422

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 25 observations
3. $R^2 = 0.6828$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 37 Regression results for share (%) of own label ketchup sales at Retailer B for the period post-2003

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[∞]	[∞]	5.46	0.001	[∞]	[∞]
Daddies 567g [∞]	0.005	0.025	0.22	0.830	-0.053	0.064
Daddies 567g [∞]	(dropped)					
Daddies 340g [∞]	-0.050	0.039	-1.29	0.239	-0.142	0.042
Heinz 1kg [∞]	0.011	0.024	0.47	0.655	-0.046	0.069
Heinz 1kg [∞]	(dropped)					
Heinz 1kg [∞]	0.073	0.064	1.15	0.288	-0.078	0.224
Heinz 570g [∞]	0.031	0.038	0.83	0.433	-0.058	0.121
Heinz 342g [∞]	(dropped)					
Heinz 700g [∞]	(dropped)					
Heinz Organic 460g [∞]	-0.001	0.027	-0.03	0.974	-0.064	0.062
Heinz 570g [∞]	0.101	0.032	3.17	0.016	0.026	0.176
Heinz 460g [∞]	(dropped)					
Heinz 460g [∞]	0.030	0.038	0.79	0.454	-0.059	0.119
Heinz 570g top-down [∞]	(dropped)					
Heinz 570g top-down [∞]	0.008	0.029	0.28	0.789	-0.060	0.076
Heinz 700g top-down [∞]	-0.014	0.052	-0.28	0.791	-0.137	0.108
Heinz 200g [∞]	0.019	0.063	0.30	0.772	-0.130	0.168
Heinz 342g [∞]	0.018	0.041	0.43	0.683	-0.080	0.115
Heinz 700g top-down [∞]	0.100	0.037	2.69	0.031	0.012	0.187
Heinz 910g top-down [∞]	0.027	0.038	0.71	0.501	-0.063	0.117
Heinz 460g top-down [∞]	0.049	0.048	1.01	0.345	-0.065	0.163
Heinz 700g top-down [∞]	0.039	0.049	0.81	0.447	-0.076	0.154
Premier fire	-0.137	0.028	-4.90	0.002	-0.204	-0.071

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 25 observations
3. $R^2 = 0.9040$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

Barbecue sauce

TABLE 38 Regression results for volume (kg) of Heinz barbecue sauce at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[∞]	1,671	[∞]	0.000	[∞]	[∞]
Heinz 400ml/450g [∞]	44,708	7,472	5.98	0.000	29,639	59,776
Heinz top-down 570g [∞]	2,427	7,229	0.34	0.739	-12,152	17,006
HP 430g [∞]	-4,714	4,752	-0.99	0.327	-14,297	4,869
HP 430g [∞]	-6,353	4,919	-1.29	0.203	-16,272	3,567

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. $R^2 = 0.4667$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 39 Regression results for share (%) of Heinz barbecue sauce at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	17.29	0.000	[]	[]
Heinz 400ml/450g []	0.232	0.062	3.72	0.001	0.106	0.358
Heinz top-down 570g []	-0.033	0.060	-0.55	0.584	-0.155	0.088
HP 430g []	-0.066	0.040	-1.65	0.105	-0.146	0.014
HP 430g []	-0.123	0.041	-2.98	0.005	-0.205	-0.040

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. R² = 0.3259.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 40 Regression results for annual change in volume (kg) of Heinz barbecue sauce at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	-1.80	0.081	[]	[]
Heinz 400ml/450g []	35,299	5,033	7.01	0.000	25,019	45,578
Heinz top-down 570g []	-3,090	5,199	-0.59	0.557	-13,709	7,528
HP 430g []	-360	3,278	-0.11	0.913	-7,054	6,335
HP 430g []	-5,592	4,389	-1.27	0.212	-14,555	3,370

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 35 observations.
3. R² = 0.6800.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 41 Regression results for volume (kg) of HP barbecue sauce at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	1,942	[]	0.000	[]	[]
Heinz 400ml/450g []	1,676	8,686	0.19	0.848	-15,841	19,193
Heinz top-down 570g []	6,608	8,404	0.79	0.436	-10,340	23,557
HP 430g []	8,721	5,524	1.58	0.122	-2,419	19,861
HP 430g []	27,708	5,718	4.85	0.000	16,177	39,239

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. R² = 0.3839.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 42 Regression results for share (%) of HP barbecue sauce at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	32.22	0.000	[]	[]
Heinz 400ml/450g []	-0.251	0.077	-3.24	0.002	-0.407	-0.095
Heinz top-down 570g []	-0.087	0.075	-1.17	0.250	-0.238	0.064
HP 430g []	<i>0.083</i>	<i>0.049</i>	<i>1.69</i>	<i>0.098</i>	<i>-0.016</i>	<i>0.183</i>
HP 430g []	0.105	0.051	2.06	0.045	0.002	0.208

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. $R^2 = 0.2791$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 43 Regression results for annual change in volume (kg) of HP barbecue sauce at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	3.63	0.001	[]	[]
Heinz 400ml/450g []	-2,543	4,778	-0.53	0.598	-12,300	7,215
Heinz top-down 570g []	-9,764	4,935	-1.98	0.057	-19,843	315
HP 430g []	4,746	3,112	1.53	0.138	-1,609	11,101
HP 430g []	15,862	4,166	3.81	0.001	7,355	24,369

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 35 observations.
3. $R^2 = 0.4118$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 44 Regression results for volume (kg) of other barbecue sauce at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	8.13	0.000	[]	[]
Heinz 400ml/450g []	14,221	8,007	1.78	0.083	-1,927	30,368
Heinz top-down 570g []	13,873	7,747	1.79	0.080	-1,750	29,496
HP 430g []	-1,409	5,092	-0.28	0.783	-11,679	8,860
HP 430g []	6,016	5,271	1.14	0.260	-4,613	16,646

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. $R^2 = 0.1728$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 45 Regression results for share (%) of other barbecue sauce at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[∞]	[∞]	16.12	0.000	[∞]	[∞]
Heinz 400ml/450g [∞]	0.019	0.056	0.34	0.733	-0.093	0.132
Heinz top-down 570g [∞]	0.121	0.054	2.24	0.031	0.012	0.229
HP 430g [∞]	-0.018	0.035	-0.5	0.618	-0.089	0.054
HP 430g [∞]	0.017	0.037	0.48	0.636	-0.057	0.092

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. $R^2 = 0.2336$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 46 Regression results for annual change in volume (kg) of other barbecue sauce at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[∞]	[∞]	3.27	0.003	[∞]	[∞]
Heinz 400ml/450g [∞]	923	3,080	0.30	0.766	-5,367	7,214
Heinz top-down 570g [∞]	-8,353	3,182	-2.63	0.013	-14,850	-1,855
HP 430g [∞]	411	2,006	0.20	0.839	-3,686	4,508
HP 430g [∞]	199	2,686	0.07	0.941	-5,285	5,684

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 35 observations.
3. $R^2 = 0.2201$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 47 Regression results for volume (kg) of Heinz barbecue sauce at Retailer B

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[∞]	[∞]	9.09	0.000	[∞]	[∞]
Heinz 400ml/450g [∞]	2,269	1,004	2.26	0.031	224	4,313
Heinz top-down 570g [∞]	3,516	675	5.21	0.000	2,141	4,890
HP 430g [∞]	7,288	1,029	7.08	0.000	5,192	9,384
HP 430g [∞]	3,207	644	4.98	0.000	1,895	4,518
Intercept	-816	849	-0.96	0.344	-2,545	914

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 38 observations.
3. $R^2 = 0.8235$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 48 Regression results for share (%) of Heinz barbecue sauce at Retailer B

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[∞]	[∞]	23.00	0.000	[∞]	[∞]
Heinz 450g [∞]	0.195	0.035	5.59	0.000	0.124	0.266
Heinz 570g top-down [∞]	<i>0.044</i>	<i>0.023</i>	<i>1.89</i>	<i>0.068</i>	<i>-0.003</i>	<i>0.092</i>
Heinz 570g top-down [∞]	0.148	0.036	4.14	0.000	0.075	0.221
HP 430g [∞]	0.002	0.022	0.09	0.931	-0.044	0.048
HP 430g [∞]	-0.098	0.030	-3.33	0.002	-0.159	-0.038

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 38 observations.
3. $R^2 = 0.6626$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 49 Regression results for annual change in volume (kg) of Heinz barbecue sauce at Retailer B

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[∞]	[∞]	1.10	0.285	[∞]	[∞]
Heinz 450g [∞]	2,734	1,159	2.36	0.029	309	5,159
Heinz 570g top-down [∞]	<i>1,311</i>	<i>710</i>	<i>1.84</i>	<i>0.081</i>	<i>-176</i>	<i>2,798</i>
Heinz 570g top-down [∞]	6,635	1,279	5.19	0.000	3,958	9,312
HP 430g [∞]	3,844	783	4.91	0.000	2,205	5,482
HP 430g [∞]	<i>-1,133</i>	<i>1,242</i>	<i>-0.91</i>	<i>0.373</i>	<i>-3,732</i>	<i>1,465</i>

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 25 observations.
3. $R^2 = 0.8217$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 50 Regression results for volume (kg) of HP barbecue sauce at Retailer B

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[∞]	[∞]	14.85	0.000	[∞]	[∞]
Heinz 450g [∞]	-847	1,580	-0.54	0.596	-4,064	2,371
Heinz 570g top-down [∞]	2,284	1,062	2.15	0.039	120	4,447
Heinz 570g top-down [∞]	146	1,619	0.09	0.929	-3,153	3,445
HP 430g [∞]	6,894	1,014	6.8	0.000	4,829	8,958
HP 430g [∞]	7,217	1,337	5.4	0.000	4,495	9,940

Source: Retailer B and CC calculations.

Note:

1. Method of estimation is OLS.
2. 38 observations.
3. $R^2 = 0.7623$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 51 Regression results for share (%) of HP barbecue sauce at Retailer B

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[X]	[X]	40.63	0.000	[X]	[X]
Heinz 450g [X]	-0.055	0.049	-1.12	0.269	-0.154	0.044
Heinz 570g top-down [X]	-0.147	0.033	-4.48	0.000	-0.213	-0.080
Heinz 570g top-down [X]	-0.219	0.050	-4.39	0.000	-0.321	-0.117
HP 430g [X]	0.033	0.031	1.07	0.292	-0.030	0.097
HP 430g [X]	0.199	0.041	4.85	0.000	0.116	0.283

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 38 observations.
3. $R^2 = 0.6376$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 52 Regression results for annual change in volume (kg) of HP barbecue sauce at Retailer B

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[X]	[X]	4.74	0.000	[X]	[X]
Heinz 450g [X]	-198	1,044	-0.19	0.852	-2,383	1,988
Heinz 570g top-down [X]	-1,004	640	-1.57	0.133	-2,344	336
Heinz 570g top-down [X]	632	1,152	0.55	0.590	-1,780	3,044
HP 430g [X]	177	705	0.25	0.804	-1,299	1,653
HP 430g [X]	3,054	1,119	2.73	0.013	713	5,396

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 25 observations.
3. $R^2 = 0.4531$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 53 Regression results for volume (kg) of other barbecue sauce at Retailer B

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[X]	[X]	7.43	0.000	[X]	[X]
Heinz 450g [X]	-1,977	1,477	-1.34	0.190	-4,986	1,031
Heinz 570g top-down [X]	5,070	993	5.1	0.000	3,047	7,093
Heinz 570g top-down [X]	4,215	1,514	2.78	0.009	1,130	7,299
HP 430g [X]	2,053	948	2.17	0.038	123	3,983
HP 430g [X]	-590	1,250	-0.47	0.640	-3,135	1,956

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 38 observations.
3. $R^2 = 0.6528$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 54 Regression results for share (%) of other barbecue sauce at Retailer B

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[X]	[X]	13.10	0.000	[X]	[X]
Heinz 450g [X]	-0.140	0.065	-2.17	0.038	-0.272	-0.009
Heinz 570g top-down [X]	0.102	0.043	2.36	0.025	0.014	0.191
Heinz 570g top-down [X]	0.071	0.066	1.07	0.293	-0.064	0.206
HP 430g [X]	-0.035	0.041	-0.85	0.400	-0.120	0.049
HP 430g [X]	<i>-0.101</i>	<i>0.055</i>	<i>-1.85</i>	<i>0.074</i>	<i>-0.212</i>	<i>0.010</i>

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 38 observations.
3. $R^2 = 0.2964$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 55 Regression results for annual change in volume (kg) of other barbecue sauce at Retailer B

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[X]	[X]	5.8	0.000	[X]	[X]
Heinz 450g [X]	-1,522	1,147	-1.33	0.200	-3,924	879
Heinz 570g top-down [X]	2,231	704	3.17	0.005	759	3,704
Heinz 570g top-down [X]	2,557	1,266	2.02	0.058	-93	5,208
HP 430g [X]	-282	775	-0.36	0.720	-1,904	1,340
HP 430g [X]	-233	1,229	-0.19	0.852	-2,806	2,340

Source: Retailer B and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 25 observations.
3. $R^2 = 0.4011$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

Tinned baked beans

TABLE 56 Regression results for volume (kg) of Heinz tinned baked beans sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[<]	65,349	[>]	0.000	[<]	[>]
HP 4x420g [ⓧ]	-184,395	197,923	-0.93	0.358	-585,802	217,012
HP 4x420g [ⓧ]	34,022	252,299	0.13	0.893	-477,664	545,707
Heinz 6x415g [ⓧ]	128,675	210,654	0.61	0.545	-298,551	555,900
Heinz 4x415g [ⓧ]	92,310	177,066	0.52	0.605	-266,796	451,416
Heinz 4x415g [ⓧ]	663,114	122,355	5.42	0.000	414,966	911,262
Heinz 415g with sausages [ⓧ]	206,729	197,923	1.04	0.303	-194,678	608,136
Heinz 395g cheezy [ⓧ]	273,137	332,511	0.82	0.417	-401,226	947,499
Heinz 200g [ⓧ]	-353,308	368,774	-0.96	0.344	-1,101,217	394,601
Crosse & Blackwell promotion	-302,780	231,677	-1.31	0.200	-772,643	167,082

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 46 observations.
3. $R^2 = 0.5377$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 57 Regression results for volume (kg) of HP tinned baked beans sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[<]	9,233	[>]	0.000	[<]	[>]
HP 4x420g [ⓧ]	198,360	27,964	7.09	0.000	141,647	255,073
HP 4x420g [ⓧ]	3,427	35,646	0.10	0.924	-68,867	75,721
Heinz 6x415g [ⓧ]	1,614	29,763	0.05	0.957	-58,747	61,975
Heinz 4x415g [ⓧ]	-11,727	25,017	-0.47	0.642	-62,464	39,009
Heinz 4x415g [ⓧ]	-31,937	17,287	-1.85	0.073	-66,997	3,123
Heinz 415g with sausages [ⓧ]	40,234	27,964	1.44	0.159	-16,480	96,947
Heinz 395g cheezy [ⓧ]	-2,122	46,979	-0.05	0.964	-97,401	93,156
Heinz 200g [ⓧ]	-1,936	52,103	-0.04	0.971	-107,606	103,733
Crosse & Blackwell promotion	-37,315	32,733	-1.14	0.262	-103,700	29,071

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 46 observations.
3. $R^2 = 0.5377$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 58 Regression results for volume (kg) of own label tinned baked beans sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[x]	[x]	71.33	0.000	[x]	[x]
HP 4x420g [x]	-47,671	137,832	-0.35	0.731	-327,206	231,865
HP 4x420g [x]	-12,410	175,698	-0.07	0.944	-368,743	343,922
Heinz 6x415g [x]	-36,522	146,697	-0.25	0.805	-334,037	260,994
Heinz 4x415g [x]	-141,077	123,307	-1.14	0.260	-391,154	109,001
Heinz 4x415g [x]	7,963	85,207	0.09	0.926	-164,845	180,770
Heinz 415g with sausages [x]	182,159	137,832	1.32	0.195	-97,377	461,695
Heinz 395g cheezy [x]	-26,224	231,557	-0.11	0.910	-495,843	443,395
Heinz 200g [x]	-41,046	256,811	-0.16	0.874	-561,881	479,790
Crosse & Blackwell promotion	-119,611	161,337	-0.74	0.463	-446,819	207,596

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 46 observations.
3. R² = 0.1025.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 59 Regression results for volume (kg) of Crosse & Blackwell tinned baked beans sales at Retailer A for the four weeks ended [x] to the four weeks ended [x]

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[x]	[x]	4.75	0.000	[x]	[x]
HP 4x420g [x]	(dropped)					
HP 4x420g [x]	113,549	140,988	0.08	0.937	-281,037	303,744
Heinz 6x415g [x]	-134,158	143,780	-0.93	0.361	-432,339	164,023
Heinz 4x415g [x]	(dropped)					
Heinz 4x415g [x]	-131,511	69,591	-1.89	0.072	-275,833	12,812
Heinz 415g with sausages [x]	(dropped)					
Heinz 395g cheezy [x]	66,073	175,683	0.38	0.710	-298,271	430,416
Heinz 200g [x]	(dropped)					
Crosse & Blackwell promotion	728,366	123,204	5.91	0.000	472,857	983,875

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 28 observations.
3. R² = 0.6382.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 60 Regression results for share (%) of Heinz tinned baked beans sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	126.37	0.000	[]	[]
HP 4x420g []	-0.019	0.011	-1.72	0.094	-0.040	0.003
HP 4x420g []	0.001	0.014	0.09	0.932	-0.027	0.029
Heinz 6x415g []	0.020	0.011	1.71	0.096	-0.004	0.043
Heinz 4x415g []	0.023	0.010	2.36	0.024	0.003	0.042
Heinz 4x415g []	0.056	0.007	8.43	0.000	0.043	0.069
Heinz 415g with sausages []	0.008	0.011	0.71	0.481	-0.014	0.029
Heinz 395g cheezy []	0.016	0.018	0.90	0.372	-0.020	0.053
Heinz 200g []	-0.024	0.020	-1.18	0.247	-0.064	0.017
Crosse & Blackwell promotion	-0.062	0.013	-4.93	0.000	-0.088	-0.037

Source: Retailer A and CC calculations.

Note:

1. Method of estimation is OLS.
2. 46 observations.
3. $R^2 = 0.7609$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 61 Regression results for share (%) of HP tinned baked beans sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	22.11	0.000	[]	[]
HP 4x420g []	0.032	0.005	6.79	0.000	0.022	0.041
HP 4x420g []	0.000	0.006	0.06	0.954	-0.012	0.012
Heinz 6x415g []	-0.000	0.005	-0.05	0.962	-0.010	0.010
Heinz 4x415g []	-0.001	0.004	-0.24	0.814	-0.009	0.007
Heinz 4x415g []	-0.007	0.003	-2.61	0.013	-0.013	-0.002
Heinz 415g with sausages []	0.004	0.005	0.87	0.388	-0.005	0.013
Heinz 395g cheezy []	-0.001	0.008	-0.19	0.850	-0.017	0.014
Heinz 200g []	0.002	0.009	0.24	0.809	-0.015	0.020
Crosse & Blackwell promotion	-0.007	0.005	-1.27	0.212	-0.018	0.004

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 46 observations.
3. $R^2 = 0.6609$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 62 Regression results for share (%) of own label tinned baked beans sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	108.190	0.000	[]	[]
HP 4x420g []	0.002	0.014	0.140	0.886	-0.026	0.030
HP 4x420g []	-0.006	0.018	-0.330	0.745	-0.042	0.030
Heinz 6x415g []	-0.007	0.015	-0.490	0.630	-0.037	0.023
Heinz 4x415g []	-0.010	0.013	-0.830	0.410	-0.036	0.015
Heinz 4x415g []	-0.039	0.009	-4.560	0.000	-0.057	-0.022
Heinz 415g with sausages []	0.003	0.014	0.240	0.811	-0.025	0.032
Heinz 395g cheezy []	-0.024	0.023	-1.040	0.307	-0.072	0.023
Heinz 200g []	0.025	0.026	0.970	0.339	-0.028	0.078
Crosse & Blackwell promotion	-0.040	0.016	-2.440	0.020	-0.073	-0.007

Source: Retailer A and CC calculations.

Note:

1. Method of estimation is OLS.
2. 46 observations.
3. $R^2 = 0.5387$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 63 Regression results for share (%) of Crosse & Blackwell tinned baked beans sales at Retailer A for the four weeks ended [X] to the four weeks ended [X]

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[X]	[X]	4.91	0.000	[X]	[X]
HP 4x420g [X] (dropped)	0.001	0.020	0.07	0.942	-0.040	0.043
HP 4x420g [X]	-0.019	0.020	-0.92	0.366	-0.061	0.023
Heinz 6x415g [X] (dropped)	-0.020	0.010	-2.01	0.057	-0.040	0.001
Heinz 415g with sausages [X] (dropped)	0.009	0.025	0.35	0.732	-0.043	0.060
Heinz 395g cheezy [X] (dropped)	0.103	0.017	5.91	0.000	0.067	0.139

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 28 observations.
3. R² = 0.6405.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

Tinned pasta meals

TABLE 64 Regression results for volume (kg) of Heinz tinned pasta meal sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[X]	24,383	[X]	0.000	[X]	[X]
HP 213g [X]	-60,431	63,475	-0.95	0.348	-189,572	68,709
Heinz 200g/400g [X]	-51,084	120,464	-0.42	0.674	-296,169	194,002
Heinz 200g/205g [X]	183,466	88,394	2.08	0.046	3,626	363,305
Heinz 410g [X]	95,177	120,464	0.79	0.435	-149,908	340,262
Heinz 415g [X]	106,336	112,805	0.94	0.353	-123,167	335,838
Heinz 400g [X]	466,675	120,464	3.87	0.000	221,590	711,761
Heinz 4x400g [X]	121,998	77,911	1.57	0.127	-36,512	280,508
Heinz 4x400g [X]	-154,803	96,546	-1.60	0.118	-351,228	41,621
Heinz 400g [X]	-158,101	125,460	-1.26	0.216	-413,351	97,148
Heinz 200g [X]	-164,259	174,141	-0.94	0.352	-518,552	190,033
Heinz 415g [X]	266,316	99,822	2.67	0.012	63,226	469,406
Heinz 400g [X]	464,186	84,807	5.47	0.000	291,645	636,728
Heinz 400g [X]	139,531	54,328	2.57	0.015	29,000	250,062
Crosse & Blackwell promotion	51,042	86,908	0.59	0.561	-125,773	227,858

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. R² = 0.7091.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 65 Regression results for volume (kg) of HP tinned pasta meal sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	1,973	[]	0.000	[]	[]
HP 213g []	16,986	5,137	3.31	0.002	6,536	27,436.8
Heinz 200g/400g []	8,674	9,748	0.89	0.380	-11,160	28,507
Heinz 200g/205g []	-12,529	7,153	-1.75	0.089	-27,082	2,024
Heinz 410g []	-1,103	9,748	-0.11	0.911	-20,937	18,730
Heinz 415g []	7,065	9,129	0.77	0.444	-11,507	25,637
Heinz 400g []	-9,007	9,748	-0.92	0.362	-28,840	10,826
Heinz 4x400g []	12,656	6,305	2.01	0.053	-171	25,483
Heinz 4x400g []	6,285	7,813	0.80	0.427	-9,610	22,181
Heinz 400g []	14,860	10,153	1.46	0.153	-5,796	35,516
Heinz 200g []	12,264	14,092	0.87	0.390	-16,407	40,935
Heinz 415g []	12,494	8,078	1.55	0.131	-3,940	28,929
Heinz 400g []	-3,893	6,863	-0.57	0.574	-17,856	10,070
Heinz 400g []	-497	4,396	-0.11	0.911	-9,441	8,448
Crosse & Blackwell promotion	-8,236	7,033	-1.17	0.250	-22,545	6,073

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. $R^2 = 0.4959$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 66 Regression results for volume (kg) of own label tinned meal pasta sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	77.04	0.000	[]	[]
HP 213g []	-21,993	23,875	-0.92	0.364	-70,567	26,580
Heinz 200g/400g []	-13,181	45,310	-0.29	0.773	-105,364	79,003
Heinz 200g/205g []	-9,796	33,248	-0.29	0.770	-77,438	57,847
Heinz 410g []	25,117	45,310	0.55	0.583	-67,067	117,300
Heinz 415g []	49,827	42,429	1.17	0.249	-36,494	136,151
Heinz 400g []	-22,132	45,310	-0.49	0.628	-114,316	70,051
Heinz 4x400g []	113,031	29,304	3.86	0.001	53,411	172,651
Heinz 4x400g []	-19,243	36,314	-0.53	0.600	-93,124	54,638
Heinz 400g []	-23,006	47,189	-0.49	0.629	-119,013	73,000
Heinz 200g []	33,416	65,499	0.51	0.613	-99,843.6	166,675.2
Heinz 415g []	<i>69,457.5</i>	<i>37,546.0</i>	<i>1.85</i>	<i>0.073</i>	<i>-6,930.3</i>	<i>145,845.4</i>
Heinz 400g []	-36,417.2	31,898.4	-1.14	0.262	-101,315.0	28,480.7
Heinz 400g []	21,500.7	20,434.3	1.05	0.300	-20,073.1	63,074.6
Crosse & Blackwell promotion	2,521.5	32,688.6	0.08	0.939	-63,983.9	69,026.9

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. $R^2 = 0.4728$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 67 Regression results for volume (kg) of Crosse & Blackwell tinned pasta sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	12.70	0.000	[]	[]
HP 213g []	-5,283	14,373	-0.37	0.716	-34,526	23,960
Heinz 200g/400g []	-20,962	27,278	-0.77	0.448	-76,459	34,536
Heinz 200g/205g []	18,598	20,016	0.93	0.360	-22,125	59,321
Heinz 410g []	<i>47,240</i>	<i>27,278</i>	<i>1.73</i>	<i>0.093</i>	<i>-8,258</i>	<i>102,738</i>
Heinz 415g []	2,771	25,544	0.11	0.914	-49,199	54,740
Heinz 400g []	-3,597	27,278	-0.13	0.896	-59,094	51,901
Heinz 4x400g []	12,857	17,642	0.73	0.471	-23,037	48,750
Heinz 4x400g []	-32,151	21,862	-1.47	0.151	-76,627	12,328
Heinz 400g []	-37,895	28,409	-1.33	0.191	-95,695	19,904
Heinz 200g []	-9,448	39,433	-0.24	0.812	-89,675	70,779
Heinz 415g []	5,856	22,604	0.26	0.797	-40,133	51,844
Heinz 400g []	22,653	19,204	1.18	0.247	-16,418	61,724
Heinz 400g []	24,936	12,302	2.03	0.051	-93	49,965
Crosse & Blackwell promotion	272,764	19,680	13.86	0.000	232,725	312,803

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. $R^2 = 0.8639$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 68 Regression results for share (%) of Heinz tinned pasta meal sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	130.20	0.000	[]	[]
HP 213g []	-0.012	0.011	-1.11	0.274	-0.034	0.010
Heinz 200g/400g []	-0.005	0.021	-0.24	0.811	-0.047	0.037
Heinz 200g/205g []	<i>0.027</i>	<i>0.015</i>	<i>1.80</i>	<i>0.081</i>	<i>-0.004</i>	<i>0.058</i>
Heinz 410g []	0.002	0.021	0.11	0.911	-0.040	0.045
Heinz 415g []	0.006	0.019	0.32	0.752	-0.033	0.046
Heinz 400g []	0.095	0.021	4.60	0.000	0.053	0.138
Heinz 4x400g []	-0.012	0.013	-0.91	0.368	-0.040	0.015
Heinz 4x400g []	-0.005	0.017	-0.31	0.758	-0.039	0.029
Heinz 400g []	-0.006	0.022	-0.27	0.790	-0.050	0.038
Heinz 200g []	-0.045	0.030	-1.50	0.143	-0.106	0.016
Heinz 415g []	0.025	0.017	1.45	0.156	-0.010	0.060
Heinz 400g []	0.092	0.015	6.27	0.000	0.062	0.121
Heinz 400g []	0.019	0.009	2.05	0.048	0.000	0.038
Crosse & Blackwell promotion	-0.058	0.015	-3.88	0.000	-0.089	-0.028

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. $R^2 = 0.7956$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 69 Regression results for share (%) of HP tinned pasta meal sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[<] 0.011	[<] 0.003	26.87	0.000	[<] 0.005	[<] 0.016
HP 213g [ⓧ]	0.006	0.005	1.22	0.233	-0.004	0.017
Heinz 200g/400g [ⓧ]	<i>-0.007</i>	<i>0.004</i>	<i>-1.96</i>	<i>0.058</i>	<i>-0.015</i>	<i>0.000</i>
Heinz 200g/205g [ⓧ]	-0.003	0.005	-0.55	0.583	-0.013	0.008
Heinz 410g [ⓧ]	0.001	0.005	0.31	0.758	-0.008	0.011
Heinz 415g [ⓧ]	<i>-0.009</i>	<i>0.005</i>	<i>-1.85</i>	<i>0.073</i>	<i>-0.020</i>	<i>0.001</i>
Heinz 400g [ⓧ]	0.003	0.003	0.93	0.359	-0.004	0.010
Heinz 4x400g [ⓧ]	0.004	0.004	0.99	0.329	-0.004	0.012
Heinz 400g [ⓧ]	0.009	0.005	1.67	0.104	-0.002	0.020
Heinz 200g [ⓧ]	0.008	0.007	1.1	0.278	-0.007	0.023
Heinz 415g [ⓧ]	0.002	0.004	0.49	0.625	-0.007	0.011
Heinz 400g [ⓧ]	<i>-0.006</i>	<i>0.004</i>	<i>-1.76</i>	<i>0.088</i>	<i>-0.014</i>	<i>0.001</i>
Heinz 400g [ⓧ]	-0.003	0.002	-1.3	0.201	-0.008	0.002
Crosse & Blackwell promotion	-0.008	0.004	-2.15	0.039	-0.015	0.000

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. R² = 0.5845.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 70 Regression results for share (%) of own label tinned pasta meal sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[<] 0.003	[<] 0.009	110.58	0.000	[<] -0.015	[<] 0.022
HP 213g [ⓧ]	0.010	0.017	0.59	0.558	-0.025	0.045
Heinz 200g/400g [ⓧ]	<i>-0.025</i>	<i>0.013</i>	<i>-2.01</i>	<i>0.053</i>	<i>-0.051</i>	<i>0.000</i>
Heinz 200g/205g [ⓧ]	-0.019	0.017	-1.09	0.282	-0.054	0.016
Heinz 410g [ⓧ]	-0.005	0.016	-0.31	0.758	-0.038	0.028
Heinz 415g [ⓧ]	-0.086	0.017	-5.00	0.000	-0.121	-0.051
Heinz 400g [ⓧ]	0.009	0.011	0.80	0.430	-0.014	0.032
Heinz 4x400g [ⓧ]	0.012	0.014	0.90	0.377	-0.016	0.040
Heinz 400g [ⓧ]	0.013	0.018	0.71	0.483	-0.024	0.049
Heinz 200g [ⓧ]	0.039	0.025	1.58	0.123	-0.011	0.090
Heinz 415g [ⓧ]	-0.022	0.014	-1.55	0.131	-0.051	0.007
Heinz 400g [ⓧ]	-0.086	0.012	-7.08	0.000	-0.111	-0.061
Heinz 400g [ⓧ]	-0.025	0.008	-3.19	0.003	-0.041	-0.009
Crosse & Blackwell promotion	-0.056	0.012	-4.52	0.000	-0.082	-0.031

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. R² = 0.8018.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 71 Regression results for share (%) of Crosse & Blackwell tinned pasta meal sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	14.15	0.000	[]	[]
HP 213g []	-0.001	0.007	-0.18	0.856	-0.016	0.013
Heinz 200g/400g []	-0.010	0.013	-0.77	0.448	-0.038	0.017
Heinz 200g/205g []	0.004	0.010	0.40	0.695	-0.016	0.024
Heinz 410g []	0.020	0.013	1.53	0.136	-0.007	0.048
Heinz 415g []	-0.002	0.013	-0.15	0.880	-0.027	0.024
Heinz 400g []	-0.009	0.013	-0.69	0.495	-0.037	0.018
Heinz 4x400g []	0.001	0.009	0.14	0.889	-0.016	0.019
Heinz 4x400g []	-0.010	0.011	-0.91	0.367	-0.032	0.012
Heinz 400g []	-0.014	0.014	-0.98	0.336	-0.042	0.015
Heinz 200g []	-0.004	0.019	-0.20	0.839	-0.043	0.035
Heinz 415g []	-0.004	0.011	-0.40	0.691	-0.027	0.018
Heinz 400g []	0.002	0.009	0.18	0.857	-0.017	0.021
Heinz 400g []	0.009	0.006	1.52	0.139	-0.003	0.021
Crosse & Blackwell promotion	0.121	0.010	12.50	0.000	0.101	0.141

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. R² = 0.8403.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 72 Regression results for annual change in volume (kg) of Heinz tinned pasta meal sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	-0.54	0.597	[]	[]
HP 213g []	67,711	75,550	0.90	0.380	-89,405	224,826
Heinz 200g/400g []	74,776	128,378	0.58	0.566	-192,200	341,753
Heinz 200g/205g []	174,825	108,082	1.62	0.121	-49,944	399,595
Heinz 410g []	-188,829	146,319	-1.29	0.211	-493,115	115,458
Heinz 415g []	-225,652	207,175	-1.09	0.288	-656,496	205,193
Heinz 400g []	553,225	204,301	2.71	0.013	128,358	978,092
Heinz 4x400g []	145,475	93,090	1.56	0.133	-48,116	339,065
Heinz 4x400g []	-312,238	131,610	-2.37	0.027	-585,935	-38,540
Heinz 400g []	-95,209	176,728	-0.54	0.596	-462,735	272,318
Heinz 200g []	-256,584	230,394	-1.11	0.278	-735,714	222,546
Heinz 415g []	79,153	157,470	0.50	0.620	-248,324	406,630
Heinz 400g []	534,276	96,380	5.54	0.000	333,843	734,709
Heinz 400g []	(dropped)					
Crosse & Blackwell promotion	-79,674	102,119	-0.78	0.444	-292,042	132,695

Source: Retailer A and CC calculations.

Note:

1. Method of estimation is OLS.
2. 48 observations.
3. R² = 0.7858.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 73 Regression results for annual change in volume (kg) of HP tinned pasta meal sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	-2.44	0.024	[]	[]
HP 213g []	18,597	5,611	3.31	0.003	6,928	30,267
Heinz 200g/400g []	10,297	9,535	1.08	0.292	-9,531	30,126
Heinz 200g/205g []	-9,647	8,027	-1.20	0.243	-26,341	7,047
Heinz 410g []	2,048	10,867	0.19	0.852	-20,552	24,647
Heinz 415g []	3,646	15,387	0.24	0.815	-28,353	35,645
Heinz 400g []	357	15,174	0.02	0.981	-31,198	31,912
Heinz 4x400g []	17,036	6,914	2.46	0.022	2,658	31,414
Heinz 4x400g []	-801	9,775	-0.08	0.935	-21,128	19,527
Heinz 400g []	-595	13,126	-0.05	0.964	-27,892	26,701
Heinz 200g []	12,225	17,111	0.71	0.483	-23,360	47,810
Heinz 415g []	13,376	11,695	1.14	0.266	-10,946	37,697
Heinz 400g []	489	7,158	0.07	0.946	-14,397	15,376
Heinz 400g []	(dropped)					
Crosse & Blackwell promotion	-5,707	7,584	-0.75	0.460	-21,480	10,066

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. R² = 0.7858.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 74 Regression results for annual change in volume (kg) of own label tinned pasta meal sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[]	[]	-0.97	0.345	[]	[]
HP 213g []	27,650	18,052	1.53	0.141	-9,891	65,191
Heinz 200g/400g []	24,828	30,675	0.81	0.427	-38,963	88,620
Heinz 200g/205g []	-81,906	25,825	-3.17	0.005	-135,613	-28,200
Heinz 410g []	6,464	34,962	0.18	0.855	-66,243	79,170
Heinz 415g []	7,983	49,503	0.16	0.873	-94,964	110,929
Heinz 400g []	-97,593	48,816	-2.00	0.059	-199,111	3,925
Heinz 4x400g []	75,150	22,243	3.38	0.003	28,894	121,407
Heinz 4x400g []	57,442	31,447	1.83	0.082	-7,956	122,839
Heinz 400g []	54,107	42,228	1.28	0.214	-33,711	141,924
Heinz 200g []	-57,153	55,050	-1.04	0.311	-171,637	57,330
Heinz 415g []	-61,667	37,626	-1.64	0.116	-139,915	16,581
Heinz 400g []	-16,055	23,029	-0.7	0.493	-63,946	31,837
Heinz 400g []	(dropped)					
Crosse & Blackwell promotion	-63,584	24,400	-2.61	0.017	-114,327	-12,840

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations
3. R² = 0.7488.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 75 Regression results for annual change in volume (kg) of Crosse & Blackwell tinned pasta meal sales at Retailer A

Promotion	Coefficient	Standard error	t	P> t	95% confidence interval	
Intercept	[⌘]	[⌘]	0.48	0.633	[⌘]	[⌘]
HP 213g [⌘]	559	9,859	0.06	0.955	-19,944	21,062
Heinz 200g/400g [⌘]	-313	16,753	-0.02	0.985	-35,152	34,526
Heinz 200g/205g [⌘]	<i>27,958</i>	<i>14,104</i>	<i>1.98</i>	<i>0.061</i>	<i>-1,373</i>	<i>57,289</i>
Heinz 410g [⌘]	-67,583	19,094	-3.54	0.002	-107,291	-27,874
Heinz 415g [⌘]	-56,088	27,035	-2.07	0.051	-112,312	135
Heinz 400g [⌘]	22,050	26,660	0.83	0.418	-33,394	77,493
Heinz 4x400g [⌘]	12,926	12,148	1.06	0.299	-12,336	38,189
Heinz 4x400g [⌘]	-59,411	17,174	-3.46	0.002	-95,127	-23,695
Heinz 400g [⌘]	-19,483	23,062	-0.84	0.408	-67,444	28,478
Heinz 200g [⌘]	-18,576	30,065	-0.62	0.543	-81,100	43,948
Heinz 415g [⌘]	<i>-40,011</i>	<i>20,549</i>	<i>-1.95</i>	<i>0.065</i>	<i>-82,745</i>	<i>2,724</i>
Heinz 400g [⌘]	33,319	12,577	2.65	0.015	7,163	59,475
Heinz 400g [⌘]	(dropped)					
Crosse & Blackwell promotion	262,388	13,326	19.69	0.000	234,675	290,101

Source: Retailer A and CC calculations.

Notes:

1. Method of estimation is OLS.
2. 48 observations.
3. $R^2 = 0.9549$.
4. Statistically significant effects given in bold (5 per cent) and italics (10 per cent).

TABLE 76 Tests of significance (null hypothesis: no effect) of incidence of branded promotional activity at Retailer A on sales of Heinz, HP and Crosse & Blackwell cartoon-branded tinned pasta meals

		Effect of Heinz promotions on sales of		
Dependent variable	Time period	Heinz*	HP†	Crosse & Blackwell‡
Volume (kg) of sales	Whole period§	F_{2,44} = 3.91 (p = 0.023)	F _{2,44} = 0.72 (p = 0.495)	F _{2,44} = 0.36 (p = 0.698)
Share (%) of sales	Whole period§	F _{2,44} = 1.68 (p = 0.199)	F _{2,44} = 2.36 (p = 0.106)	F _{2,44} = 1.00 (p = 0.376)
Annual change in sales	Post-2002 period¶	F_{2,31} = 12.4 (p = 0.000)	F_{2,31} = 3.76 (p = 0.035)	F_{2,31} = 5.35 (p = 0.028)

		Effect of HP promotions on sales of		
Dependent variable	Time period	Heinz*	HP†	Crosse & Blackwell‡
Volume (kg) of sales	Whole period§	F _{1,44} = 0.16 (p = 0.690)	F_{1,44} = 8.17 (p = 0.007)	F _{1,44} = 0.60 (p = 0.442)
Share (%) of sales	Whole period§	F _{1,44} = 1.13 (p = 0.294)	F _{1,44} = 3.49 (p = 0.069)	F _{1,44} = 0.12 (p = 0.733)
Annual change in sales	Post-2002 period¶	F _{1,31} = 0.00 (p = 0.962)	F_{1,31} = 10.8 (p = 0.003)	F_{1,31} = 4.56 (p = 0.018)

Source: Retailer A and CC calculations.

*Incidence of branded promotion explained 16 per cent of the variability in the volume of Heinz sales. Incidence of branded promotion explained 10 per cent of the variability in the share of Heinz sales. Incidence of branded promotion explained 44 per cent of the variability in the annual change in Heinz sales.

†Incidence of branded promotion explained 19 per cent of the variability in the volume of HP sales. Incidence of branded promotion explained 17 per cent of the variability in the share of HP sales. Incidence of branded promotion explained 37 per cent of the variability in the annual change in HP sales.

‡Incidence of branded promotion explained 3 per cent of the variability in the volume of Crosse & Blackwell sales. Incidence of branded promotion explained 5 per cent of the variability in the share of Crosse & Blackwell sales. Incidence of branded promotion explained 32 per cent of the variability in the annual change in Crosse & Blackwell sales.

§48 four-weekly observations.

¶35 four-weekly observations.

Notes:

1. Conventionally, if the p-value associated with the F-test statistic is less than 5 per cent (ie 0.05), we reject the hypothesis of no effect. The F-tests that reject the hypothesis of no effect are given in bold. Conversely, if the p-value associated with the F-test statistic is greater than 0.05, we do not reject the hypothesis of no effect.

2. Dickey-Fuller tests for a unit root returned Z= -3.52 (p=0.00) for Heinz tinned pasta sales, Z= -3.49 (p=0.01) for HP tinned pasta sales, Z= -1.69 (p=0.437) for tinned pasta Crosse & Blackwell sales, so Heinz and HP were stationary, while the test suggested Crosse & Blackwell sales were non-stationary. Including a trend term in the Dickey-Fuller test for a unit root in Crosse and Blackwell sales returned Z= -3.77 (p=0.02), suggesting it was trend stationary. For the share of sales, Dickey-Fuller tests returned Z= -2.74 (p=0.067) for Heinz sales, Z= -3.28 (p=0.02) for HP sales and Z= -1.64 (p=0.462) for Crosse & Blackwell sales, which suggested HP's market share was stationary while Heinz's share and Crosse & Blackwell's share were non-stationary.

Results for ketchup with aggregate promotions by SKU

TABLE 77 Estimated impact of promotions aggregated by SKU of Daddies and Heinz ketchup at Retailer B on sales of Daddies, Heinz and own label ketchup

	Average effect of promotions								Average when not promoted*						
	Whole period				Post-2003				Whole period	Post-2003					
	Daddies		Heinz		Daddies		Heinz								
	Impact†	Standard error	Impact‡	Standard error	Impact†	Standard error	Impact‡	Standard error							
Daddies volume (kg)	427	123	-746	565	897	325	-382	737	<div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block;"> <table style="border-collapse: collapse;"> <tr> <td>#</td> <td>#</td> </tr> <tr> <td>#</td> <td>✂ N/A§ #¶</td> </tr> <tr> <td>#</td> <td>#</td> </tr> </table> </div>	#	#	#	✂ N/A§ #¶	#	#
#	#														
#	✂ N/A§ #¶														
#	#														
Daddies sales share (percentage points)	1.3	0.4	-2.1	0.9	0.2	0.0	0.0	0.1							
Heinz volume (kg)	-506	360	1,812	940	-841	805	1,350	1,826							
Heinz sales share (percentage points)	-0.7	0.6	2.8	1.5	-0.6	1.1	0.3	2.9							
Own label volume (kg)	-314	471	-757	455	93	428	-248	1,017							
Own label sales share (percentage points)	-0.6	0.6	-0.7	1.4	-0.7	0.9	3.4	2.4							

Source: Retailer B and CC calculations.

*For Daddies, average when Daddies not promoted. For Heinz, average when Heinz not promoted. As own label is not promoted, simple average is given.

†Estimated as linear combination of regression coefficients on Daddies promotion dummy variables for each sales series multiplied by their mean values.

‡Estimated as linear combination of regression coefficients on Heinz promotion dummy variables for each sales series multiplied by their mean values.

§No 4-week period post 2003 where Heinz was not promoted.

¶As there is no 4-week period post-2003 where Heinz was not promoted, average has been estimated from intercept in regression of Heinz's share of sales.

#Per cent, not percentage points.

Tests of significance of aggregate promotions on ketchup sales

TABLE 78 Tests of significance (null hypothesis: no effect) of incidence of aggregated branded promotional activity at Retailer B on sales of Daddies, Heinz and own label ketchup

		<i>Effect of Daddies promotions on sales of</i>		
<i>Dependent variable</i>	<i>Time period</i>	<i>Daddies</i>	<i>Heinz</i>	<i>Own label</i>
Volume (kg) of sales	Whole period	F_{2,23} = 6.17 (p = 0.007)	F _{2,23} = 2.50 (p = 0.104)	F _{2,23} = 0.24 (p = 0.788)
Share (%) of sales	Whole period	F_{2,24} = 9.84 (p = 0.001)	F _{2,24} = 3.22 (p = 0.058)	F _{2,24} = 0.74 (p = 0.487)
Volume (kg) of sales	Post-2003 period	F_{2,11} = 4.05 (p = 0.048)	F _{2,11} = 1.35 (p = 0.298)	F _{2,11} = 0.06 (p = 0.943)
Share (%) of sales	Post-2003 period	F_{2,11} = 7.72 (p = 0.008)	F _{2,11} = 2.05 (p = 0.175)	F _{2,11} = 0.52 (p = 0.610)
		<i>Effect of Heinz promotions on sales of</i>		
<i>Dependent variable</i>	<i>Time period</i>	<i>Daddies</i>	<i>Heinz</i>	<i>Own label</i>
Volume (kg) of sales	Whole period	F _{10,23} = 0.54 (p = 0.844)	F_{10,23} = 2.82 (p = 0.019)	F _{10,23} = 1.41 (p = 0.239)
Share (%) of sales	Whole period	F _{10,24} = 1.38 (p = 0.349)	F _{10,24} = 2.00 (p = 0.079)	F _{10,24} = 1.72 (p = 0.133)
Volume (kg) of sales	Post-2003 period	F _{10,11} = 0.35 (p = 0.944)	F _{10,11} = 1.99 (p = 0.137)	F _{10,11} = 1.08 (p = 0.448)
Share (%) of sales	Post-2003 period	F _{10,11} = 1.03 (p = 0.475)	F _{10,11} = 0.89 (p = 0.572)	F _{10,11} = 1.86 (p = 0.162)

Source: Retailer B and CC calculations.