

Quantification of TV advertising of follow-on formula

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1 Summary

This report describes for the period 2017-2019 in the UK:

- television advertising of formula;
- household purchasing of the advertised products;
- the correlations between advertising and sales.

Our key findings are as follows:

- Three brands were advertised on TV during the analysed period: Cow & Gate, Aptamil and SMA.
- Only follow-on formula was advertised in the analysed period.
- We find no statistically significant, or consistent, correlation between advertising spend and household purchasing; this continues to hold when we zoom in on advertising on specific TV shows, and comparing it with purchasing of households that report they watch these shows.

2 Background

The UK Department of Health and Social Care (DHSC) recommends exclusive breastfeeding for the first six months of a baby's life, followed by breastfeeding and the introduction of complementary solid foods, in alignment with World Health Organisation (WHO) guidelines.

UK regulations prohibit advertising of infant formula and restrict the advertising of follow-on formula (intended for babies 0-12 months old). The requirement is that advertising of follow-on formula does not discourage breastfeeding and does not promote infant formula (by, for example, advertising the range of products as opposed to a specific product, or by including images of infants under the age of 6 months). Appendix A provides details of DHSC's interpretation of the requirements of the current regulation.

Aims and objectives

This report describes: (i) television advertising of follow-on formula in the UK, (ii) household purchases of the advertised brands, and (iii) to what extent purchasing and advertising spends correlate.

3 Data

We use data on TV adverts from AC Nielsen and on purchases and TV viewing behaviour from Kantar. In the main report we use data for the period January 2017 to December 2019.

The advertising data are from AC Nielsen and includes for the main period of analysis information on all TV adverts for formula products broadcast on UK television. The data include details on the products that were advertised, precise details on when and where the advert was shown (the exact time, the channel, the programmes that ran either side of the advert), and the amount that was paid for the adverts. For 2000-2012 we also have information on monthly expenditure on all TV adverts by brand as well as information on expenditures on adverts placed on other types of media (press, internet, direct mail). Finally, for 2015 we additionally have information on the impact of the adverts, in terms of how many pairs of eyes saw them.

To measure purchases we use data from the Kantar FMCG Purchase Panel (2020). The data include information on the purchases of food and drinks for home consumption made by a sample of households in the UK, collected from participants who scan purchases when they are brought into the house. We have information on all formula purchases made by households. The data record individual transactions, and include the product that was purchased, the price and other product characteristics. The Kantar data also include information on household demographics, and self-reported information on typical TV viewing habits.

4 TV advertising and brand advertising

Three brands were advertised on TV during the period 2017-2019 as shown in Table 1: Cow & Gate and Aptamil, both belonging to Danone Nutricia, and SMA, which was purchased by Nestlé in 2012.^{1,2}

Table 1: TV advertising spend 2017-2019

	Expenditure (£m)		
	2017	2018	2019
Cow & Gate - Follow-On Milk	4.0	5.2	2.2
Nutricia - Aptamil Follow-On Milk	4.3	4.5	5.2
SMA - Advanced Follow-On Milk			1.2

Note: Based on Kantar FMCG data January 2017 to December 2019.

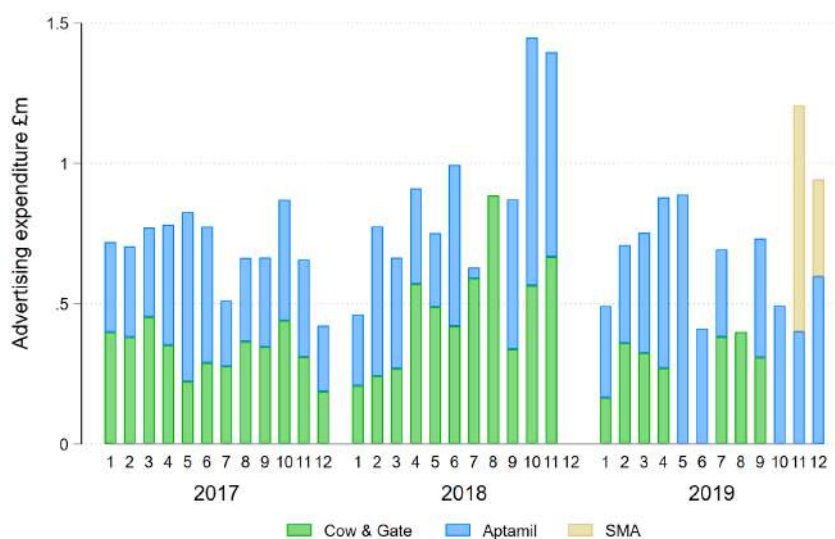
In line with regulations, no TV adverts are shown for infant formula. All of the TV advertising of formula was for follow-on formula, and most advertising in terms of expenditure was done by Danone for its two brands - Cow & Gate and Aptamil. SMA did not advertise on TV for most of this period (see discussion in Appendix B.2). Figure 1 shows total expenditure on TV advertising in each month by the three brands that advertise.³

¹See press release: <https://www.nestle.com/media/pressreleases/allpressreleases/april-2012-nutrition-announcement>

²In Appendix B.1 we discuss how formula TV advertising expenditures compare with advertising expenditures on other media for the period 2000-2012. Since 2006, TV advertising expenditure exceeds expenditure on any other media by a large margin.

³Appendix Figure B3 we presents similar figures with similar patterns for the number of times adverts were shown and the total seconds of adverts shown.

Figure 1: TV advertising spend on follow-on formula, 2017–2019



Note: Based on Kantar FMCG data January 2017 to December 2019.

In Appendix B.2 we show broader trends in advertising expenditure for 2000-2019.

Table 2 shows the market shares and prices of brands of follow-on and growing-up formula sold in the UK.^{4,5} Danone has the largest market share (72% of follow-on and 63% of growing-up formula), with its two brands - Cow & Gate and Aptamil. SMA is the only other firm with a substantial market share in follow-on formula, while in growing-up formula Alpro and SMA have similar market shares.

The three products highlighted in bold are the three that are advertised on TV.

⁴Follow-on formula is defined as milk suitable from 6 months, growing-up formula (also referred to as 'toddler milk') on the other hand is suitable from 12 months.

⁵A few brands that account for less than 0.1% of sales are excluded. We show a full list of related parent companies in Appendix Table B1.

Table 2: Sales of follow-on and growing-up formula

Formula type / Parent company	Brand	Expenditure share (%)	Average price (£)	
			Per kg of powder	Per litre of ready to drink
Follow-on formula				
Danone Nutricia ELN		71.9		
	Cow & Gate Follow-On Milk	36.8	9.79	3.51
	Aptamil Follow-On Milk	31.2	12.31	4.08
	Aptamil ProFutura Follow-On Milk	4.0	16.48	6.05
SMA Nutrition		15.8		
	SMA Pro Follow-On Baby Milk	15.0	11.74	3.61
Aldi Stores Ltd	SMA LS Follow-On Baby Milk	0.8	9.37	
		6.2		
Hipp Nutrition	Aldi Follow-On Baby Milk	6.2	7.74	
		5.1		
	Hipp Organic Follow On-Baby Milk	4.8	10.72	3.66
	Hipp Organic Good Night Baby Milk	0.3	16.07	
Growing-up formula				
Danone Nutricia ELN		62.9		
	Cow & Gate Growing Up Milk	30.2	9.49	2.93
	Aptamil Growing Up Milk	28.9	11.68	3.38
	Aptamil ProFutura Growing Up Mk	3.8	16.49	
Alpro		15.3		
	Alpro Soya Growing Up Milk	15.3		1.38
SMA Nutrition		15.1		
	SMA Pro Baby Milk	13.9	10.86	
	SMA Toddler Baby Milk	0.8	7.74	2.93
Nestle UK Ltd	SMA Pro Toddler Baby Milk	0.4		3.20
		3.6		
Hipp Nutrition	Nestle Nido Baby Milk	3.6	8.13	
		2.3		
	Hipp Organic Growing Up Baby Milk	2.3	10.19	2.99

Note: Based on Kantar FMCG data January 2017 to December 2019.

5 Household purchasing of advertised products and advertising spend

In this section we give a brief description of household purchasing of the three advertised products (Cow & Gate follow-on formula, Aptamil follow-on formula, and SMA follow-on formula) and the degree to which purchasing and advertising spend correlate.⁶ We first discuss the proportion of households purchasing formula, followed by the amounts purchased conditional on purchasing. As one of the issues about the lack of restriction of advertising of follow-on milk is that it can play a role in promoting all formula milk, Appendix C repeats the same analysis but for advertised *brands* (i.e. including all types of formula) instead of advertised products (follow-on formula only). Results are broadly in line.

We focus on households that are pregnant or have a child aged under 1 year in the household in the month of purchase. While this excludes some formula purchases from the analysis⁷, the rationale for this choice is that the National Health Service advises that formula is not needed once a baby is 12 months old. The UK government currently advises exclusive breastfeeding for the first six months of life and states that unless a midwife, health visitor or GP suggests otherwise, first infant formula is the only formula a baby needs. It can stay on it when solid foods are introduced at around 6 months and drink it throughout its 1st year. Follow-on formula, which should never be fed to babies under 6 months old, has no benefit to a baby.

5.1 Proportion who purchase

70% of households purchase formula at some point while they are pregnant or have an under-one year old.

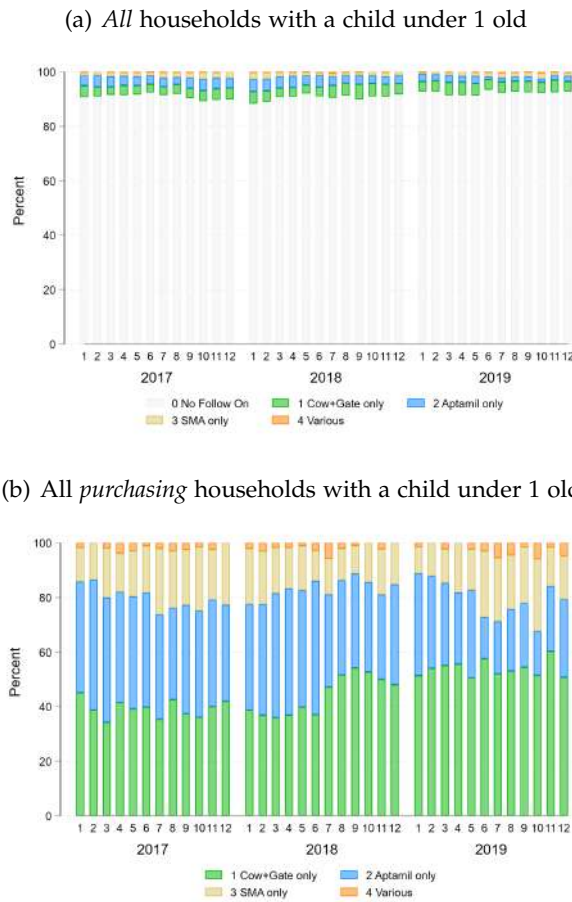
We analyse the frequency of purchasing advertised formula by categorizing within each month whether a household with a child under the age of one purchases 1 of the advertised products. We find that, in each month around 90% of these households do not purchase any of these products, as shown in panel (a) of Figure 2.

⁶For a more detailed discussion of household formula purchases over the analysed period we refer to the IFS report "Quantification of purchasing of formula, commercial baby meals, finger foods and drinks (using Kantar data)", by B. Augsburg, R. Griffith and R. Stroud.

⁷As discussed in the previous report on formula purchasing, the type of household purchasing formula varies in important ways. For example, 17% of formula expenditures is incurred by households without a child age 36 months or younger, which might be providing child care.

If they do purchase, they tend to stick to one brand, rather than purchasing products from different brands. On average only 4% of households that do make purchases bought more than one product in a given month (orange part of the bar). Panel (b) of Figure 2 shows the proportion of households purchasing advertised brands conditional on purchasing. Over time, the proportion purchasing Cow & Gate follow-on formula increased, as did the proportion purchasing SMA follow-on formula to an extent, at the expense of Aptamil follow-on formula.

Figure 2: Percentage of households purchasing advertised follow-on formula, 2017-19



Note: Authors' calculations using Kantar Purchase Panel (Take Home), 2017-2019. Households with a child aged under 1 year that purchased formula other than follow-on are considered as not purchasing.

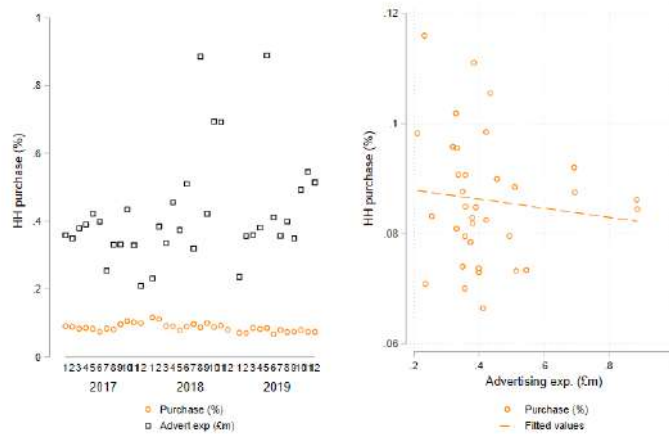
On the left side of Figure 3, we plot the proportion of households with a child under 1 purchasing advertised products and the TV advertising spend (in millions of £) in the same month. On the right side of the figure, we show the same data in a scatter plot,

including a linear fit estimation.

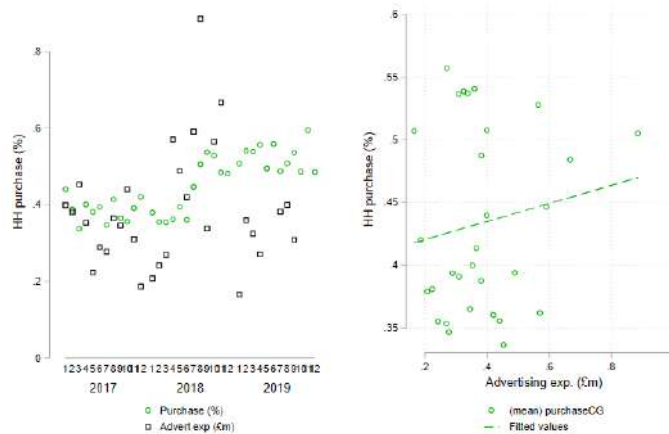
Panel (a) shows these data for any follow-on formula, while panels (b) and (c) zoom in on the most frequently purchased brands, Cow & Gate and Aptamil. No clear pattern emerges. While the scatter plots suggest a positive relationship between purchasing and advertising spend for Cow & Gate, the variables correlate negatively for Aptamil. None of these correlations is statistically significant (see notes to the figure). Some become significant when considering purchasing of *any* formula type (Appendix Figure 3).

Figure 3: Proportion of households with an under-1 year-old purchasing follow-on formula and advertising spend, 2017-2019

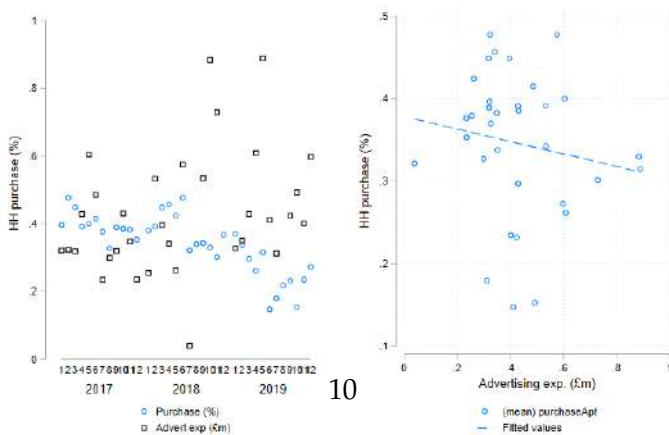
(a) Any follow-on formula



(b) Cow+Gate follow-on formula



(c) Aptamil follow-on formula



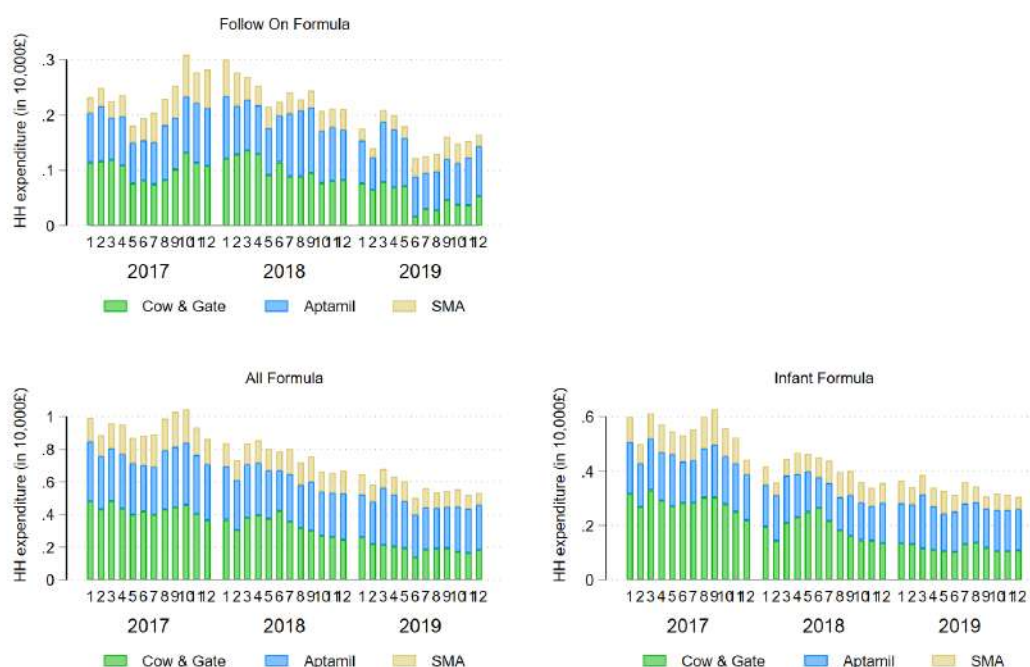
Note: Authors' calculations using Kantar Purchase Panel (Take Home), 2017-2019 and data on advertising from AC Nielsen for the same period. The sample is households with a child under 1 year. Each dot is a month. Correlations for right column: Any formula: -0.112 (p-val 0.824); Cow+Gate: 0.152 (p-val 0.422); Aptamil: -0.156 (p-val 0.386).

5.2 Amounts purchased

We repeat the analysis in the previous section for the amount of formula purchased.

The upper panel of Figure 4 shows expenditure by households with a child under 1 year on advertised follow-on brands (in 10,000£). We see a general reduction over time in amounts spent on advertised follow-on formula, which is particularly strong for Cow & Gate. The lower panel shows the same information for all formula purchased by households with a young child and for the amount of infant formula purchased. Patterns are consistent across the types of formula.

Figure 4: Amount of formula purchased by households with an under-1-year-old, 2017-2019

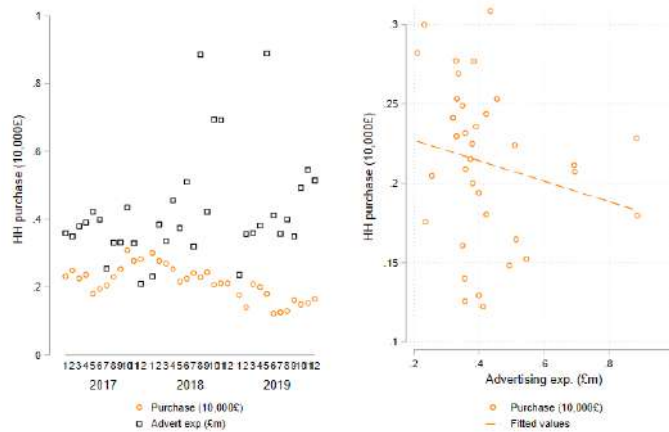


Note: Authors' calculations using Kantar Purchase Panel (Take Home), 2017-2019. Sample is all households with a child under 1 year that purchased formula at some point during the period.

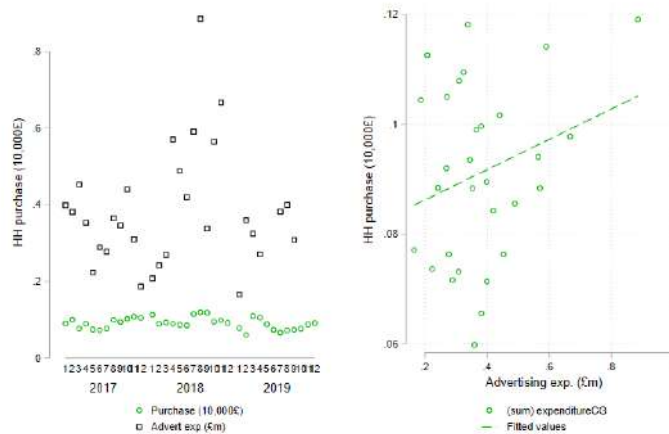
Figure 5 plots household expenditure on advertised products and advertising spend as time series and against each other. As with the proportion of households that purchase, there are not any statistically significant, or consistent, correlations.

Figure 5: Amount of follow-on formula purchased by households with an under-1-year-old and advertising spend, 2017-2019

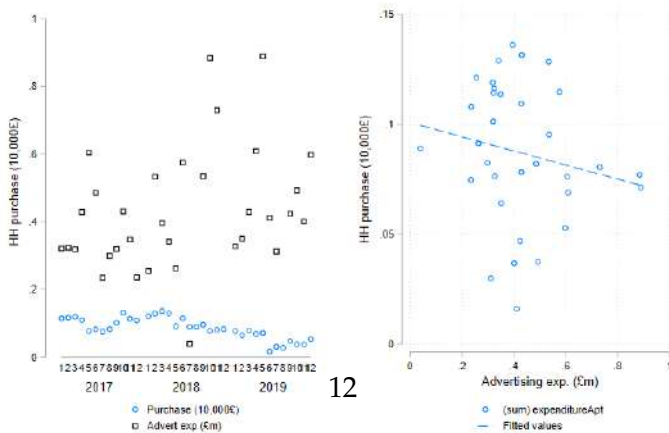
(a) Any follow-on formula



(b) Cow+Gate follow-on formula



(c) Aptamil follow-on formula



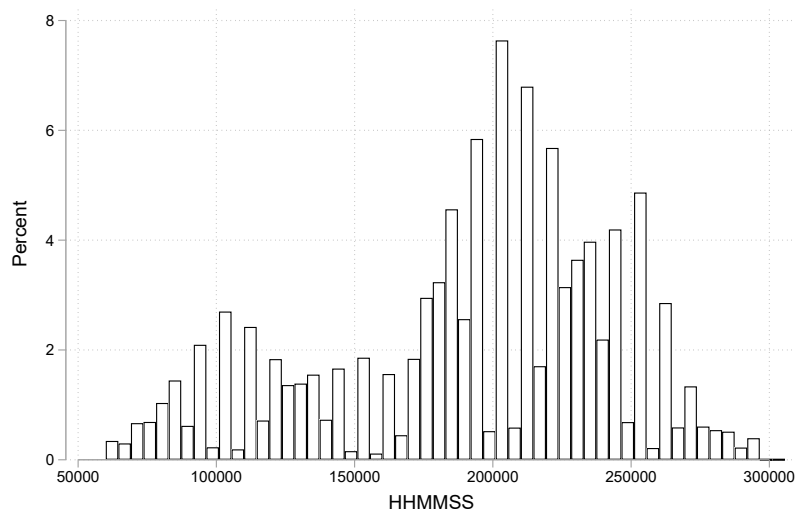
Note: Authors' calculations using Kantar Purchase Panel (Take Home) and data on advertising from AC Nielsen for 2017-2019. Each dot is a month. The sample is all households with a child aged under 1 year that purchased formula at some point during the period. Correlations for right column: Any formula: -0.202 (p-val 0.246); Cow+Gate: -0.246 (p-val 0.158); Aptamil: -0.184 (p-val 0.307).

6 Advert placement

The AC Nielsen data record precise information about when each advert is shown on TV, how long the advert is, the channel and programmes either side.

Most adverts are 30 seconds long (90%) with the others 20 seconds. They are shown evenly spread across days of the week (see Appendix Table D1), and more often shown in the later afternoon and evening, as shown in Figure 6, with little variation over brands (Appendix Figure D1).

Figure 6: Advert placement - advertising spend on times of day



Note: Authors' calculations using data on advertising from AC Nielsen for 2017-2019. Time is based on a 24 hour system, showing hours, minutes and seconds ('HHMMSS'). Hours larger than 24 are morning hours (midnight to 5:59am).

Figure 7 shows the top five programmes during which adverts for Cow & Gate and Aptamil were shown in each year 2017-2019. Both brands spend their largest share on adverts during Coronation Street or The X-Factor in each of the three years.⁸

⁸A caveat for the remaining analysis is that results could be different were we to use advert impact (measured as number of eyes that saw the advert) as a basis for ranking, rather than expenditure. We repeat the analysis of identifying the top five shows using impact data instead of spending in Appendix E. The overlap is not perfect - only one of the five shows overlaps for Aptamil, and only two overlap for Cow & Gate. However, since we have this impact information only for 2015, we cannot use this measure in this report.

Figure 7: Advert placement - advertising spend on shows



Note: Authors' calculations using data on advertising from AC Nielsen for 2017-2019.

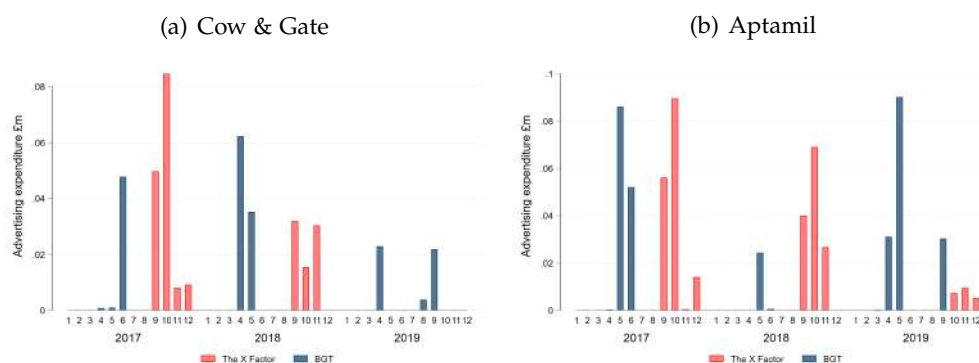
7 Advert placement and viewing behaviour

The previous analysis does not reveal a significant time series correlation between total advertising and total brand sales. In this section, we refine this analysis by focusing on advertising on specific shows, and correlating it with purchases by households that report they watch these shows.

The idea is as follows. Imagine two households that are similar in characteristics, including that they like to watch the same kind of shows - in this case talent shows - and likely react similarly to formula advertising exposure. However, these two households have different times they have available for leisure activity, including watching TV, and so one household watches Britain's Got Talent and the other The X-Factor.⁹ Combined with variation in when brands advertise, these two households, otherwise similar in characteristics, will be exposed to advertising of different brands. We show in Appendix I if they react to the advertising, we might expect to observe different purchasing behaviour.

In Figure 8 we show that there is indeed variation in when Cow & Gate and Aptamil advertise during The X-Factor and Britain's Got Talent, both in terms of time and amounts spent. Cow & Gate for example spent significant amounts on adverts shown during Britain's Got Talent in April and May 2018, whereas Aptamil spent nothing on them in April 2018 and only a comparatively small amount during May of 2018. Aptamil on the other hand spent a significant amount in May 2019, whereas Cow & Gate did not.

Figure 8: Advert placement - advertising spend on talent shows



Note: Authors' calculations using data on advertising from AC Nielsen for 2017-2019.

⁹The X Factor is a music talent show which was shown on ITV in the autumn of each year we cover in our analysis. Britain's Got Talent is a general talent show which was shown in the spring, also on ITV.

We next make use of information on households' TV viewing behaviors from the Kantar media data. Each year households are asked to indicate whether they regularly/sometimes/rarely/never watch a list of specific TV shows, including Britain's Got Talent and The X-Factor.¹⁰ The Kantar viewing data show that 28% of households with a child under 1 year regularly watch Britain's Got Talent (56% of which do not regularly watch The X Factor) and 16% regularly watch The X Factor (23% of which do not regularly watch Britain's Got Talent).

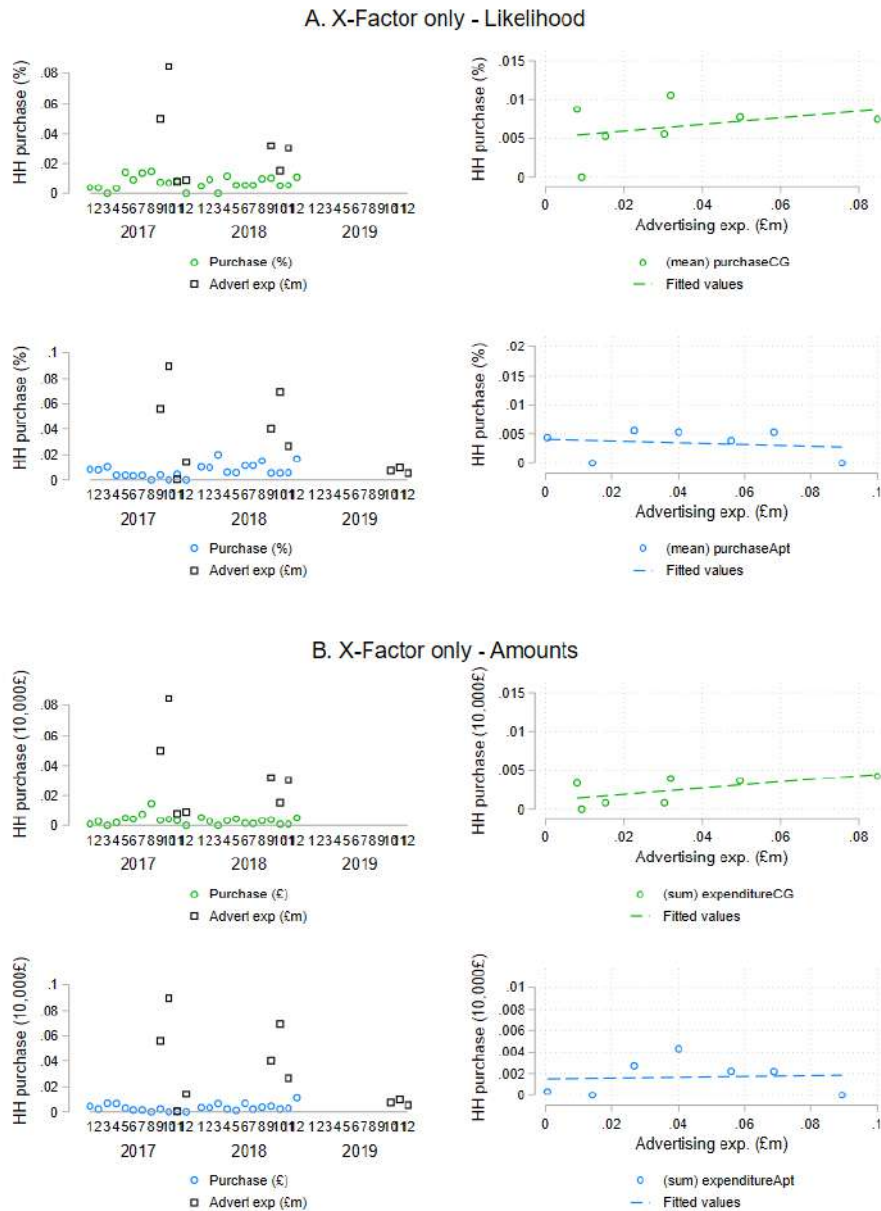
In Figure 9, we focus on those households that report they watch The X-Factor but not Britain's Got Talent, showing advertising spend as well as the proportion of households purchasing the advertised product and the amount purchased, in line with figures presented in Section 5.1.

As with overall advertising spends and purchasing of follow-on formula, we do not uncover any statistically significant, or consistent, relationships between spend on adverts shown during The X-Factor and formula purchase for households that report they watch The X-Factor only. This is the case both for the proportion of households that purchase (upper panel) and the amount purchased (lower panel). The same holds for advertising spend on adverts shown during Britain's Got Talent and purchasing by households that watch that show, shown in Figure 10.

We repeat the same analysis but considering soap operas in Appendix G. We again do not find evidence of significant correlation between likely exposure to formula advertising and purchase of that product.

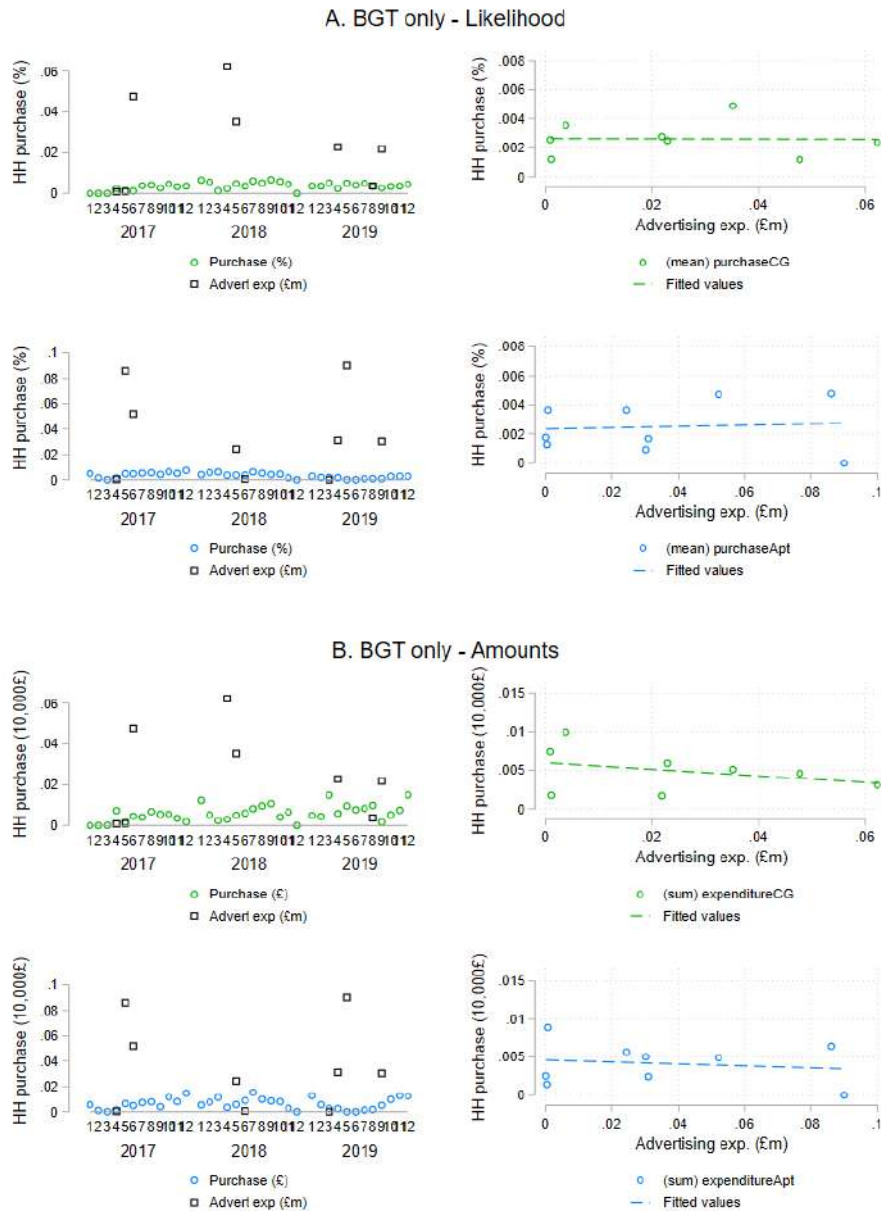
¹⁰In 2019, The X-Factor focused on Celebrities ('The X Factor: Celebrity'). While we still have advertising data, households were not asked whether they watch this show, so we are missing viewing information for that year.

Figure 9: Purchases of follow-on formula and advertising spend - focus on The X-Factor, 2017-2019



Note: Authors' calculations using Kantar Purchase Panel (Take Home) and data on advertising from AC Nielsen for 2017-2019. Each dot is a month, green refers to Cow & Gate and blue to Aptamil. Correlations for right column Proportion: Cow & Gate: 0.339 (p-val 0.457); Aptamil: -0.188 (p-val 0.687). Correlations for right column Amounts: Cow & Gate: 0.620 (p-val 0.138), Aptamil: 0.073 (p-val 0.876).

Figure 10: Purchases of follow-on formula and advertising spend - focus on Britain's Got Talent, 2017-2019



Note: Authors' calculations using Kantar Purchase Panel (Take Home) and data on advertising from AC Nielsen for 2017-2019. Each dot is a month, green refers to Cow & Gate and blue to Aptamil. Correlations for right column Proportion: Cow & Gate: 0.012 (p-val 0.980); Aptamil: 0.341 (p-val 0.335). Correlations for right column Amounts: Cow & Gate: 0.341 (p-val 0.454), Aptamil: -0.233 (p-val 0.517).

8 TV adverts' content

In this final section of the report we provide an overview of the content of creatives.

Each brand is advertised with two or three different adverts: Cow & Gate has two different ones, Aptamil has four, two of which are typically shown shortly after each other, and SMA also has three different adverts, one of which is for growing-up formula (however, this was not shown during the period of analysis). At times, the same advert is shown with slightly varying text. Details of the formula adverts shown on TV are provided in Appendix H. We highlight here a few common features of these adverts.

- All adverts focus on one specific product, which is named and shown at the end of the advert. As has been highlighted in the literature¹¹, these products look very similar to other products of the same brand, in particular infant formula. The figure shows for the three main advertised products first the infant formula package, and then the follow-on formula package as shown in the adverts. The similarities are obvious.



- Aptamil adverts show a nursing woman, and all adverts show a child being bottle fed - most often by the mother and in the exact same position as is typical for breastfeeding:



¹¹See for example the 2022 OPRU report "Scoping review to map on-package formula labelling: including nutrition and health claims on infant, follow-on and growing-up formula", by R. Conway, S. Esser, A. Steptoe, A. Smith, and C. Llewellyn.



- All adverts, except for one, show at some point the family/mother/father interacting with the child:



- All adverts relate to a happy emotional state of the child, and/or to the child completing developmental milestones (such as clapping, first steps), often with the support of its parents:



- All adverts mention nutritional additives. While some simply say 'key nutrients', most refer specifically to for example vitamin D and iron, and SMA further mentions 2'FL and LNnT:



- The majority of adverts mention how long they have done, what is referred to as "breastmilk research" (40+ years). Conway et al. (2022) highlight that such statements might be understood by parents as being a health claim or as suggesting a product was equivalent to breastmilk.
- All adverts end with a slogan (details below).

Despite these similarities in content, adverts have a clear target group. Hastings et al. (2020) describe how formula companies segment the market into three different

groups - blue, yellow and red, where blue mothers are "all about ambition, about raising a capable, healthy, happy baby...", for yellow mothers "it's all about happiness [...], about creating a loving, happy home", and red mothers do things "aimed at enhancing the sense of the baby, cocooned childhood". They further explain that the main targets in western countries are yellow and blue mothers. We find that:

- The focus of Cow & Gate is 'yellow mothers/parents':
 - the adverts use yellow/warm colours (this can be seen in Appendix H);
 - songs played in the adverts are about being happy ("if you're happy and you know it clap your hands...") and being free ("born free, as free as the wind blows...");
 - the adverts show smiling and giggling children;
 - the final slogan is "Nourish their happiness!".
- Aptamil focuses on 'blue caregivers':
 - the adverts are blue in colour;
 - they suggest great achievements in the child's future (pictures about becoming a mathematician, athlete; text says for example "With every experience, your baby is starting to write their future");
 - they are more scientific in nature, making technical claims (for example "Aptamil with ProNutra plus follow-on milk contains our unique blend of ingredients, with Omega 3 and iron to support normal cognitive development ");
 - the final slogan is "Their future starts today!" or "Raise them ready!".
- SMA also focuses on 'blue caregivers':
 - the adverts are blue in colour;
 - they suggest great achievements in the child's future;
 - they are more scientific in nature, making technical claims (for example "The UK's first follow-on formula with 2'FL and LNnT);
 - the final slogan is "Science inspired by nature.".

APPENDIX

A Regulations

The UK has the following restrictions on advertising follow-on formula.

A Guidance note prepared by DHSC provides information and advice and sets out the Department's interpretation of the requirements of the current, binding Commission Delegated Regulation (EU) 2016/127.

Article 10(1) of the Commission Delegated Regulation (EU) 2016/127 (FSG Regulation) states that *labelling, presentation and advertising of infant formula and follow-on formula shall be designed so as not to discourage breastfeeding:*

It is advised that when advertising follow-on formula, companies do not:

- promote a range of formula products by making the brand the focus of the advert, rather than specific products (for example, where specific products are mentioned only in a footnote or in a picture of a tin of formula within the advertisement)
- include text or images which relate to pregnancy (for example, pregnancy test kits) or the feeding or care of infants under 6 months
- include pictures or text which directly or indirectly relate or compare products to breastmilk
- focus on carers' emotions in relation to the feeding or care of infants under 6 months
- feature babies which consumers may perceive as being under 6 months (even if they are over 6 months)
- focus primarily on the promotion of ingredients, or the effect of ingredients, which are common to both follow-on formula and infant formula

Article 8 of the Commission Delegated Regulation states that *nutrition and health claims are prohibited on infant formula:*

Examples of 'claims' on infant formula that could be considered as 'non-permitted' claims include:

- 'contains all the nutrients your baby needs to grow strong and healthy'
- 'easy to digest'
- 'gentle'
- highlighting the addition or exclusion of any ingredients such as:
 - taurine

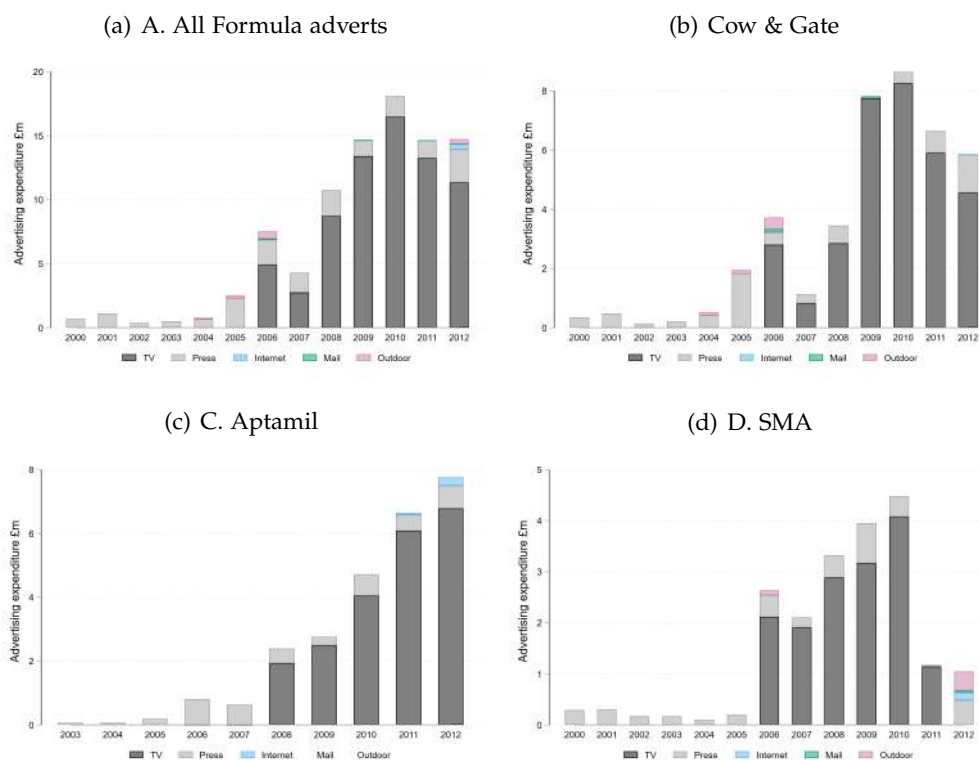
The regulations provide further specifics with regard to product *labelling*, which refers to anything that is attached to product containers. DHSC's Guidance notes state that labels may not idealise the product (e.g. they should not show nursing mothers, should not show pictures that imply that formula is associated with infant health, happiness, or well-being; no reference should be made to an infant's or carer's emotion).

B Additional information on formula advertising

B.1 Media where advertised, 2000-2012

In Figure B1 we use data on formula advertising expenditures by media type, which we have available for 2000-2012. The top left figure shows expenditures aggregated across brands; the other three figures disaggregate the data for Cow & Gate, Aptamil and SMA. Since 2006, TV advertising has taken off and increased expenditure significantly from about £5 million in 2006 to over £15 million in 2010, decreasing again to about £12 million in 2012. The second-largest expenditure was for advertising in the press, with about £1-2 million a year. From time to time, companies advertise via mail, outdoors, or on the internet, but expenditure amounts are small in comparison with expenditure on TV advertising. The general trend looks similar across brands.

Figure B1: Formula advertising spend by media type, 2000-2012



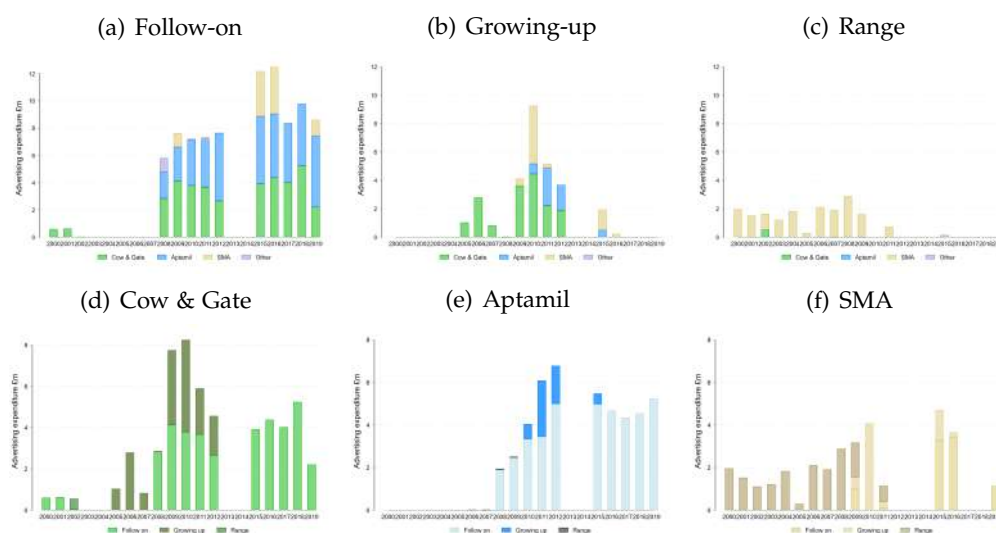
Note: Authors' calculations using data on advertising from AC Nielsen for 2000-2012.

B.2 TV adverts 2000-2019

We have data on advertising expenditure by brand at the month level back to 2000 (though not for the years 2013 and 2014). The upper panel of Figure B2 shows that TV advertising for follow-on milk took off from about 2008, although some adverts were shown already in the early 2000s. Expenditure for TV adverts for growing-up formula peaked in 2010. The lower panel of the figure shows that Aptamil TV adverts started in 2008, whereas Cow & Gate and SMA already advertised earlier on TV.

The fact that growing-up and range advertising more or less stopped after 2015 is likely related to a campaign that was successful in July 2016 in making Improvement Notices legally binding.¹²

Figure B2: TV advertising spend on formula, 2000–2019



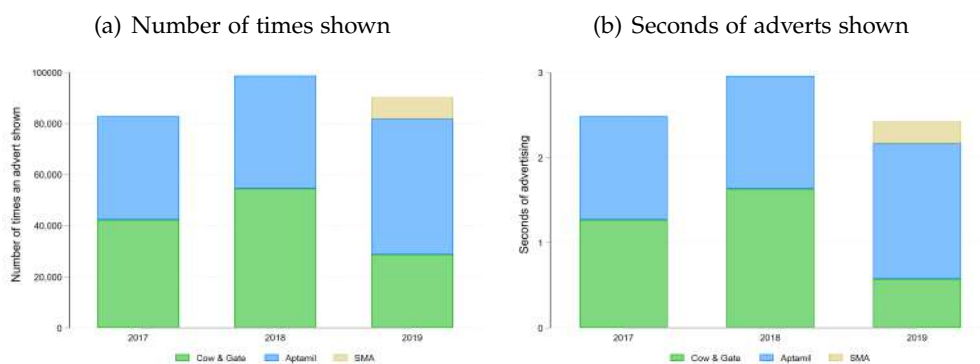
Note: Authors' calculations using data on advertising from AC Nielsen for 2000-2019. 'Range' refers to unspecified products or those not to be allocated to follow-on or growing-up formula, such as for example 'SMA - Progress Milk'.

¹²The motion text mentioned SMA specifically. The exact wording was: "That this House is concerned that the provisions of the Infant Formula and Follow-on Formula Regulations 2007 are disrespected in the UK, as evidenced by the current promotion for Nestlé SMA infant formula by Tesco in breach of Article 23 of those regulations, the near identical labelling of infant and follow-on formula to make them cross-promotional in breach of Article 19 of those regulations, the widespread advertising of infant formula brand names and logos in breach of Article 21 of those regulations and the use of idealising text and images on labels in breach of Article 17 of those regulations; therefore rejects the Department of Health's proposals to decriminalise certain of those requirements, such as labelling provisions in planned draft legislative proposals, related to EU Regulation 609/2015 which will replace these 2007 regulations; and stresses that any move to a system of Improvement Notices must have the purpose of speeding up compliance and be backed by prosecutions rather than giving companies who have flouted the law for many years additional time to comply."

B.3 Alternative measures of advertising

In the main body of the report, we present figures on advertising based on advertising expenditures. In Figure B3 (analogue to Figure 1 but by year, not month-year) we show alternative measures, namely the number of times adverts were shown (panel (a)) and the number of seconds products were advertised (panel (b)). Interpretations are consistent across measures.

Figure B3: TV advertising spend on follow-on and growing-up formula



Note: Authors' calculations using data on advertising from AC Nielsen for 2017-2019.

B.4 Companies that advertise

Table B1: Producer of formula products

Formula type	Parent company	Expenditure share (%)	Average price (£)	
			Per kg of powder	Per litre of ready to drink
Infant formula	Danone Nutricia ELN	71.3	11.4	4.6
	Nestlé SMA	16.1	11.6	4.4
	Aldi Stores Ltd	6.2	7.7	
	Hipp Nutrition	4.5	10.9	3.8
	Bebivita	0.8	9.0	
	J Sainsbury PLC	0.6	7.8	
	Kendal Healthcare Ltd	0.6	10.5	
	<i>Total</i>	100	11.1	4.5
Follow-on formula	Danone Nutricia ELN	67.3	11.0	3.8
	Nestlé SMA	14.6	11.6	3.6
	Aldi Stores Ltd	5.9	7.7	
	Hipp Nutrition	4.7	11.5	3.7
	Vitacare Ltd	3.9	23.3	
	Abbott Laboratories Ltd	0.9	14.7	
	J Sainsbury PLC	0.8	7.7	
	Bebivita	0.8	10.3	
	Kendal Healthcare Ltd	0.7	10.3	
	Materna Industries Ltd	0.3	14.3	
	<i>Total</i>	100	10.8	3.8
Growing-up formula	Danone Nutricia ELN	60.8	10.7	3.2
	Nestlé SMA	14.7	11.0	3.1
	Alpro	14.5		1.4
	Nestle S.A.	3.6	8.1	
	Hipp Nutrition	2.3	10.2	3.4
	Abbott Laboratories Ltd	1.5	15.1	
	Kendal Healthcare Ltd	1.1	9.8	
	Vitacare Ltd	1.0	25.5	
	Bebivita	0.6		6.0
	<i>Total</i>	100	10.5	2.1

Note: Kantar data October 2016 to February 2020. Expenditures and prices calculated based on all products purchased in this period. Specialist formula was not purchased in ready-to-drink format. Parent companies are defined using Kantar definitions. This table is an adapted version of table 3.2 in the IFS report "Quantification of purchasing of formula, commercial baby meals, finger foods and drinks (using Kantar data)", by B. Augsburg, R. Griffith and R. Stroud.

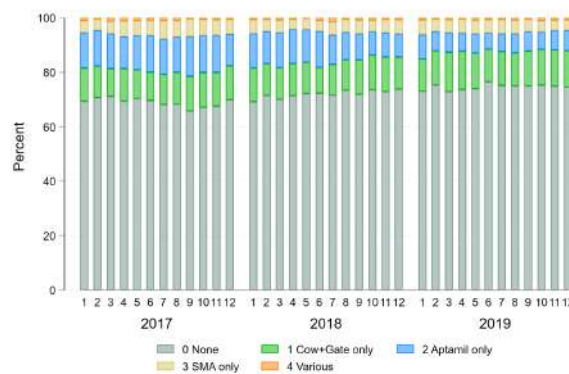
C Household purchasing - any formula type of advertised brands

This appendix creates Figures 2, 3, and 5 from Section 5, focusing on any formula purchased, rather than follow-on formula purchased.

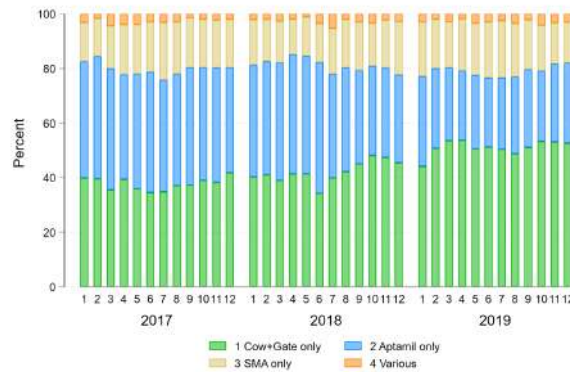
C.1 Proportion who purchase

Figure C1: Percentage of households purchasing any formula, 2017-19

(a) All HHs with under 1yr old



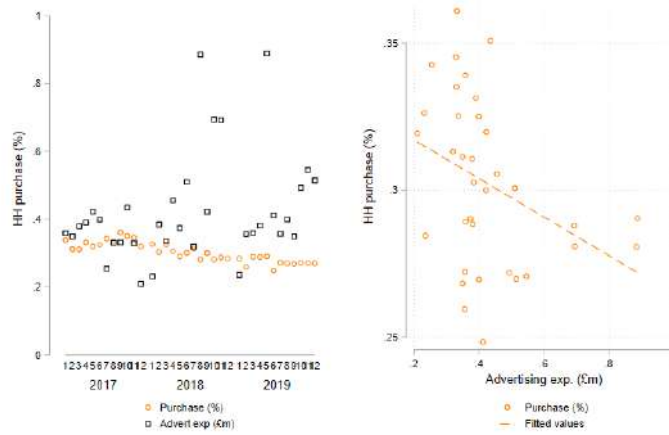
(b) All *purchasing* households with child under 1 year



Note: Authors' calculations using Kantar Purchase Panel (Take Home), 2017-2019.

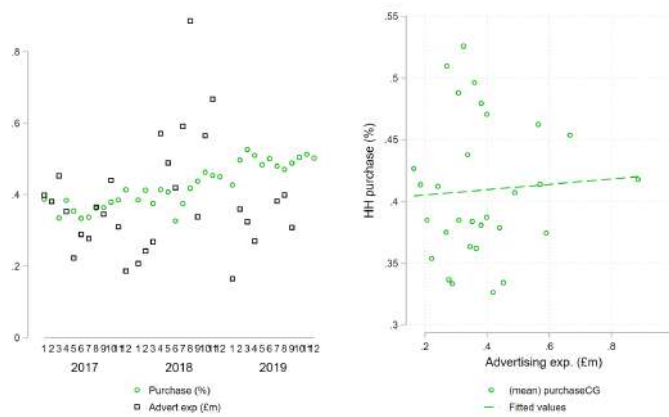
Figure C2: Proportion of households with an under-1-year-old purchasing any formula and Advertising spend, 2017-2019

(a) Any formula



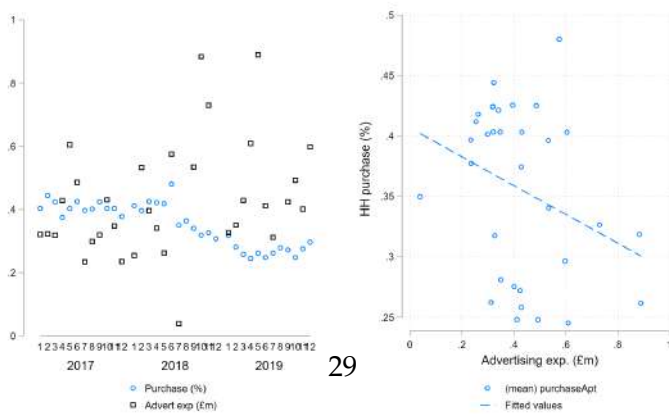
(b) Cow+Gate formula

B. Cow+Gate



(c) Aptamil formula

C. Aptamil

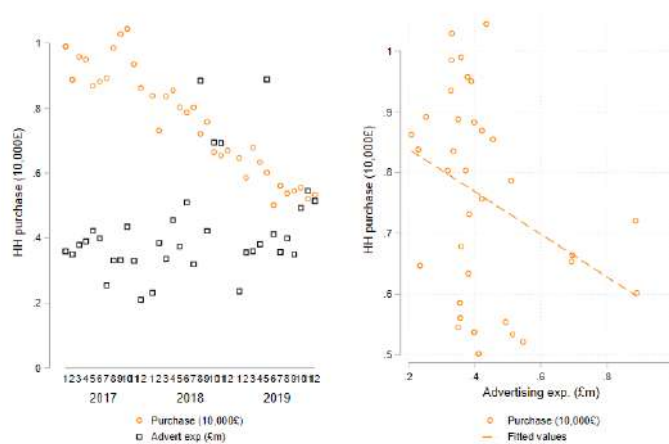


Note: Authors' calculations using Kantar Purchase Panel (Take Home), 2017-2019 and data on advertising from AC Nielsen for the same period. The sample is households with an under one year-old. Each dot is a month. Correlations for right column: Any formula: -0.359 (p-val 0.034); Cow+Gate: 0.061 (p-val 0.751); Aptamil: -0.307 (p-val: 0.082).

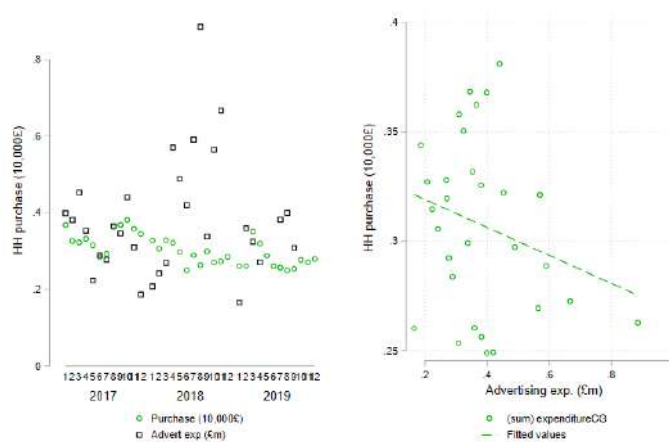
C.2 Amounts purchased

Figure C3: Amount of formula purchased by households with an under-1-year-old and advertising spend, 2017-2019

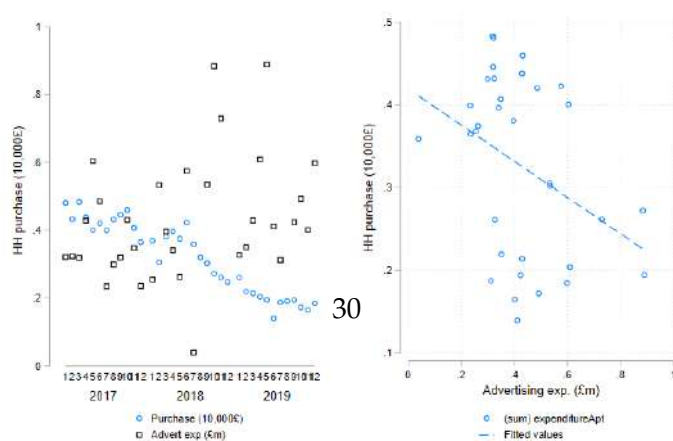
(a) Any formula



(b) Cow+Gate formula



(c) Aptamil formula



30

Note: Authors' calculations using Kantar Purchase Panel (Take Home) and data on advertising from AC Nielsen for 2017-2019. Each dot is a month. Correlations for right column: Any formula: -0.336 (p-val 0.049); Cow+Gate: -0.247 (p-val 0.189); Aptamil: -0.365 (p-val: 0.037)

D Advert placement - additional information

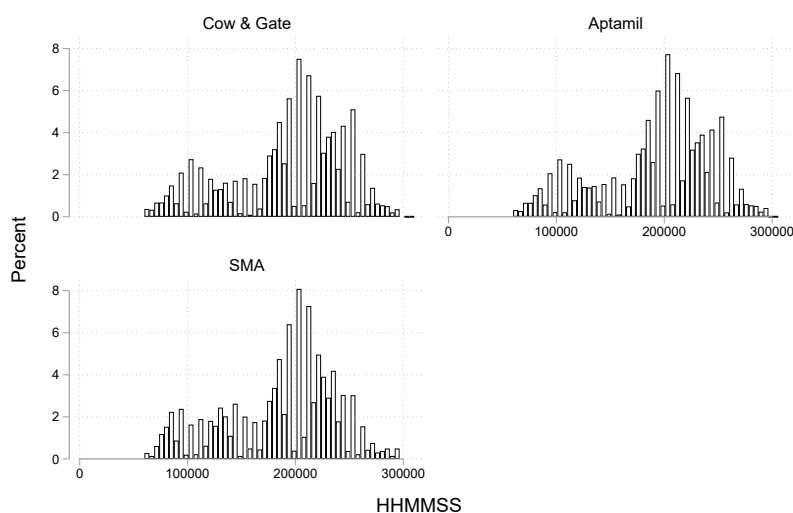
This appendix provides additional information on placement of TV advertising of follow-on formula. Table D1 shows the percentage of TV adverts shown across days of the week, for follow-on formula by the three main brands, Cow & Gate, Aptamil and SMA. Figure D1 shows the analogue to Figure 6 but for each of the three main brands separately.

Table D1: Advert placement - day of week, 2017-2019

	Share (%) of adverts			
	Cow & Gate	Aptamil	SMA	Total - Follow-on
Monday	15.06%	14.39%	13.22%	14.66%
Tuesday	15.37%	5.23%	14.45%	15.27%
Wednesday	13.73%	14.5%	16.44%	14.2%
Thursday	13.68%	14.13%	14.08%	13.92%
Friday	13.32%	13.75%	13.52%	13.55%
Saturday	14.24%	15.02%	13.65%	14.62%
Sunday	14.59%	12.98%	14.63%	13.78%
<i>Total</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>

Note: Authors' calculations using data on advertising from AC Nielsen for 2017-2019.

Figure D1: Advert placement - time of day, by brand



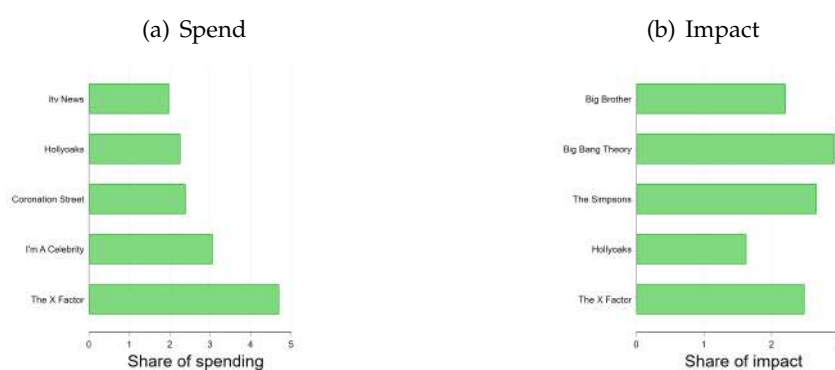
Note: Authors' calculations using data on advertising from AC Nielsen for 2017-2019. Time is based on a 24 hour system, showing hours, minutes and seconds ('HHMMSS'). Hours larger than 24 are morning hours (midnight to 5:59am).

E Advert impact

The 2015 data also contain information on ‘impacts’ for each advert. Impacts are a widely used industry measure. The number of impacts is equal to the number of adult and child pairs of eyes that view the advert, so two impacts could refer to two different people viewing the advert once, or one person viewing the advert twice. Adults are defined as those aged 16 and older, and children are aged 4-15 years.¹³

We show in Figure E1 the top programmes in terms of expenditure (left panel) and impact (right panel) for Cow & Gate in 2015. While The X-Factor and Hollyoaks are ranked among the top five for both measures, the two measures otherwise rank different shows among the top five for Aptamil, shown in Figure E2. The Jeremy Kyle Show is the only programme in the top five on both measures.

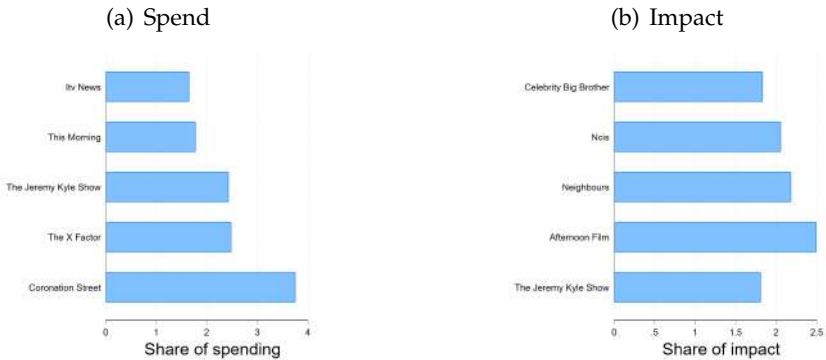
Figure E1: Top shows for Cow & Gate - spend and impact, 2015



Note: Authors' calculations using data on advertising from AC Nielsen for 2015.

¹³Impacts are from the Broadcasters' Audience Research Board (BARB). BARB calculates the number of impacts by using a panel of 5,100 homes, with each representing about 5,000 other similar households across the UK. Households are given a remote control with a button on it for each member of the household (and a button to register the presence of guests); each individual must press their button each time they enter or leave the room while the television is on. Each household's TV is fitted with a meter, which records 15 seconds of audio from the TV advert and matches this to a reference library.

Figure E2: Top shows for Aptamil - spend and impact, 2015



Note: Authors' calculations using data on advertising from AC Nielsen for 2015.

F Advert placement and viewing behaviour - talent shows

Table F1 compares households with a child under 1 year that regularly watch Britain's Got Talent, but not The X-Factor, to households with a child less than one year of age that regularly watch The X-Factor but not Britain's Got Talent.

Table F1: Balance - Talent shows

Variable	(1) BGT		(2) X-Factor		T-test Difference (1)-(2)
	N	Mean/SE	N	Mean/SE	
Household income > £30k	393	0.422 (0.025)	79	0.481 (0.057)	-0.059
Household size	379	3.921 (0.067)	79	3.646 (0.120)	0.275*
Ethnicity - White	379	0.802 (0.020)	79	0.823 (0.043)	-0.021
Highest qualification - higher education or higher	393	0.527 (0.025)	79	0.494 (0.057)	0.033
Highly skilled	379	0.280 (0.023)	79	0.215 (0.047)	0.064
Semi-skilled	379	0.522 (0.026)	79	0.658 (0.054)	-0.136**
Unskilled	379	0.198 (0.020)	79	0.127 (0.038)	0.071
Age - Under 25	390	0.010 (0.005)	79	0.025 (0.018)	-0.015
Age - 25-50	390	0.897 (0.015)	79	0.937 (0.028)	-0.039
Age - 51+	390	0.092 (0.015)	79	0.038 (0.022)	0.054
Underweight	300	0.020 (0.008)	66	0.000 (0.000)	0.020
Normal	300	0.473 (0.029)	66	0.409 (0.061)	0.064
Overweight-Obese	300	0.507 (0.029)	66	0.591 (0.061)	-0.084

Notes: Based on Kantar media data. 'BGT' is the group that regularly watches Britain's Got Talent, but not The X-Factor; 'x-Factor' is the group that regularly watches The X-Factor but not Britain's Got Talent. Characteristics are those of the main shopper in the household. The value displayed for t-tests are the differences in the means across the groups. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

G Advert placement and Viewing behaviour - soap operas

Here we repeat the same analysis conducted in Section 7, but focusing on soap operas (specifically Coronation Street and Emmerdale) rather than talent shows.

Table G2: Balance - Soap operas

Variable	(1) Coronation Street		(2) Emmerdale		T-test Difference (1)-(2)
	N	Mean/SE	N	Mean/SE	
Household income > £30k	179	0.441 (0.037)	72	0.431 (0.059)	0.011
Household size	179	3.765 (0.085)	71	3.718 (0.133)	0.047
Ethnicity - White	179	0.788 (0.031)	71	0.859 (0.042)	-0.071
Highest qualification - higher education or higher	179	0.536 (0.037)	72	0.500 (0.059)	0.036
Highly skilled	179	0.257 (0.033)	71	0.282 (0.054)	-0.025
Semi-skilled	179	0.536 (0.037)	71	0.577 (0.059)	-0.041
Unskilled	179	0.207 (0.030)	71	0.141 (0.042)	0.066
Age - Under 25	176	0.017 (0.010)	72	0.000 (0.000)	0.017
Age - 25-50	176	0.909 (0.022)	72	0.917 (0.033)	-0.008
Age - 51+	176	0.074 (0.020)	72	0.083 (0.033)	-0.009
Underweight	140	0.029 (0.014)	56	0.018 (0.018)	0.011
Normal	140	0.379 (0.041)	56	0.393 (0.066)	-0.014
Overweight-Obese	140	0.593 (0.042)	56	0.589 (0.066)	0.004

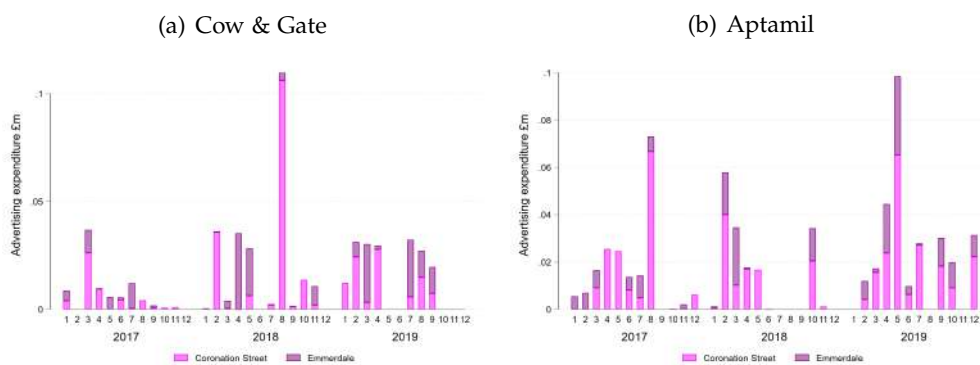
Notes: Based on Kantar media data. 'Coronation Street' is the group that regularly watches Coronation Street, but not Emmerdale; 'x-Factor' is the group that regularly watches Emmerdale but not Coronation Street. Characteristics are those of the main shopper in the household. The value displayed for t-tests are the differences in the means across the groups. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

From the Kantar viewing data we know that 19% of households with a child under 1

regularly watch Coronation Street (40% of which do not regularly watch Emmerdale) and 14% regularly watch Emmerdale (21% of which do not regularly watch Coronation Street). Table G2 compares characteristics of the two types of households.

Figure G1 again reveals important variation in advertising spends across brands and time. Cow & Gate for example has a large spike in expenditure in August 2018 for adverts shown on Coronation Street, whereas Aptamil did not advertise on this soap opera (or any other) in that month. Aptamil on the other hand spent significantly large amounts in August 2017 on the same soap opera, whereas Cow & Gate did not.

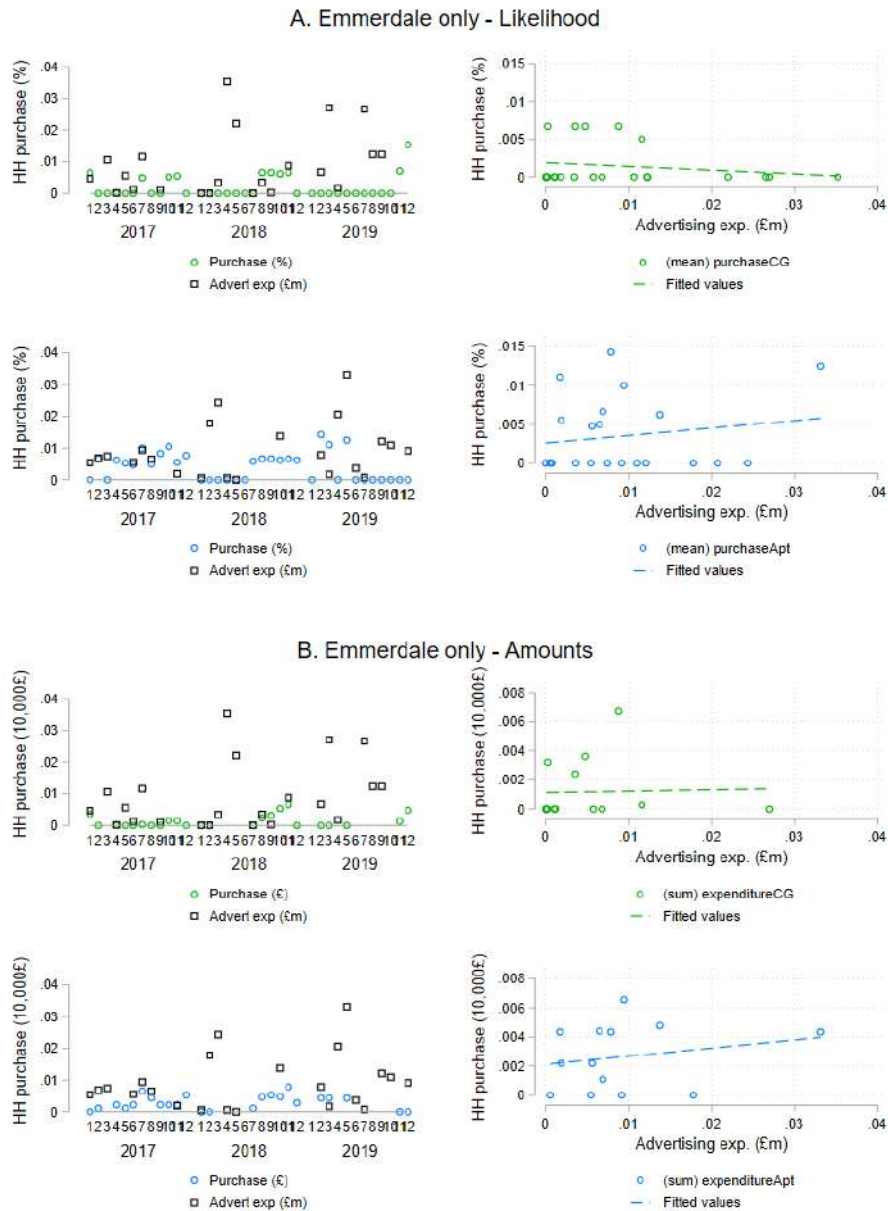
Figure G1: Advert placement – advertising spend on soap operas



Note: Authors' calculations using data on advertising from AC Nielsen for 2017-2019.

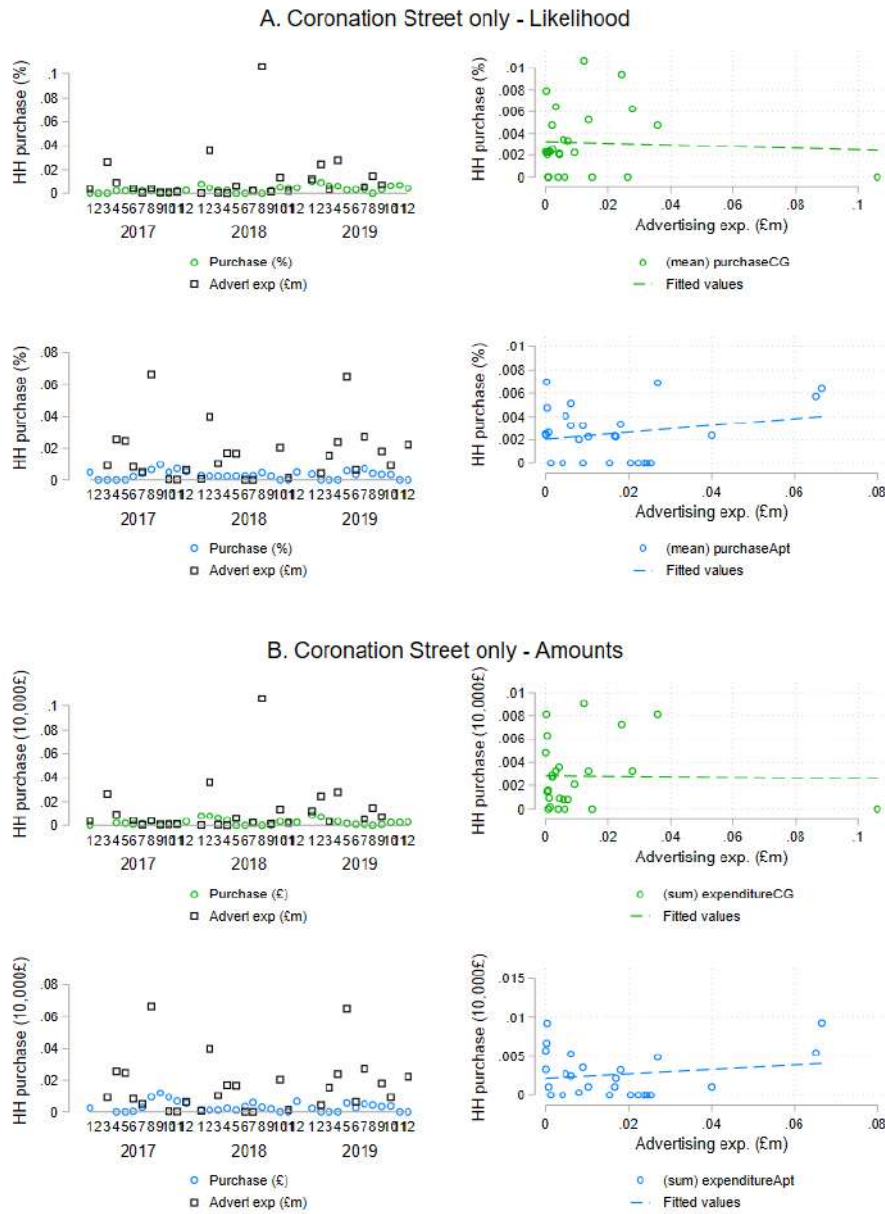
However, despite this variation we again do not uncover any statistically significant, or consistent, relationship between advertising spend and household purchasing (proportion or amount) on advertised products when focusing on groups that watch one specific show over another. This is shown in Figures G2 and G3.

Figure G2: Purchases of follow-on formula and advertising spend - focus on Emmerdale, 2017-2019



Note: Authors' calculations using Kantar Purchase Panel (Take Home) and data on advertising from AC Nielsen for 2017-2019. Each dot is a month. Correlations for right column Proportion: Cow & Gate: -0.183 (p-val 0.415); Aptamil: 0.173 (p-val 0.442). Correlations for right column Amounts: Cow & Gate: 0.034 (p-val 0.909), Aptamil: 0.213 (p-val 0.486).

Figure G3: Purchases of follow-on formula and advertising spend - focus on Coronation Street, 2017-2019



Note: Authors' calculations using Kantar Purchase Panel (Take Home) and data on advertising from AC Nielsen for 2017-2019. Each dot is a month. Correlations for right column Proportion: Cow & Gate: -0.057 (p-val 0.781); Aptamil: 0.227 (p-val 0.256). Correlations for right column Amounts: Cow & Gate: -0.020 (p-val 0.925), Aptamil: 0.177 (p-val 0.387).

H Content of adverts

Cow & Gate

- **Cow & Gate follow-on formula:**

- **Song:** *If you're happy and you know it clap your hands...*
- **Text:** *"When they're happy, you know it. Cow & Gate follow-on milk is enriched with important nutrients. We've been feeding babies for over 100 years, we believe when they're happy on the inside, they're happy on the outside."*
- **Length:** 30sec.
- **Screenshots of creative:**



- **Cow & Gate follow-on formula:**

- **Song:** *Born free, as free as the wind blows...*
- **Text:** *"We believe little ones are happiest developing at their own pace. Inspired by nature and our knowledge of breast milk, Cow & Gate's follow-on milk contains key nutrients tailored to your baby's development stage. Cow & Gate follow-on milk - nourish their happiness."*
- **Length:** 30sec.
- **Screenshots of creative:**



Aptamil

- **Aptamil follow-on formula:**

- **Song:** No song, only background music.
- **Text:** *"From the very first days, your baby starts to write their future, and breastmilk provides them with the best start in life. [Inspired by 40 years of breastmilk research our experts created our range of Aptamil follow-on milks.] If you choose to move on, Aptamil with Pronutra plus follow-on milk contains our unique blend of ingredients, with Omega 3 and iron to support normal cognitive development – helping you, lay the foundation for their baby's future. Aptamil with Pronutra plus follow-on milk. Their future starts today."*
- **Length:** 30sec.
- **Screenshots of creative:**



- **Aptamil follow-on formula:**

- **Song:** No song, only background music.

- **Text:** "Breastfeeding provides your baby with the best start in life. As they grow, we believe that giving them different experiences helps build their resilience. If you choose to move on, trust the Number 1, Aptamil follow-on milk, inspired by 40 years of breastmilk research. Enriched with our unique blend of ingredients, including vitamin D, which supports the normal functioning of their immune system. Aptamil follow-on milks. Raise them ready."

- **Length:** 30sec.

- **Screenshots of creative:**



- **Aptamil follow-on formula:**

- **Song:** No song, only background music.

- **Text:** "Your baby's future can be influenced by the early choices you make. Inspired by 40 years of breastmilk research. Discover Aptamil's range of follow-on milks. [Aptamil Pro future follow-on milks. Our most advanced formulation yet] Their future starts today."

- **Length:** 20sec.

- **Screenshots of creative:**



- **Aptamil follow-on formula:**

- **Song:** No song, only background music.

- **Text:** "From the very first experiences that you share with them, your baby is building their resilience. Nutritionally tailored for their needs, Aptamil follow-on milk is inspired by 40 years of breastmilk research. Let them experience the world to grow resilience. Aptamil follow-on milk. Raise them ready. And now discover Aptamil Pro-futura follow-on milk. Alternative text: With every experience, your baby is starting

to write their future, to take on challenges, to adapt, and to persevere. Inspired by 40 years of breastmilk research, Aptamil follow-on milk contains Vitamin D to support their immune system, while you support them for their future. Aptamil follow-on milk. Raise them ready. And now discover new Aptamil sensavia follow-on milk."

– **Length:** 30sec.

– **Screenshots of creative:**



SMA

- **SMA follow-on formula:**

- **Song:** No song, only background music.
- **Text:** *"The effect a baby has on their mother is fascinating, transferring antibodies, forging neuro pathways, to help keep her baby safe. It's this unwavering care, that's inspired our SMA advanced follow-on milk. The UK's first follow-on formula with 2'FL and LNnT. Enriched with vitamin D to help the normal functioning of babies' immune system. SMA Advanced follow-on milk. Science inspired by nature."*
- **Length:** 30sec.
- **Screenshots of creative:**



- **SMA follow-on formula:**

- **Song:** No song, only background music.
- **Text:** *"You've had the adventures, the tickled tummies, you perfected the face that always gets a smile, and you've watched them thrive, all those things you do every day, help them develop and shine; just like new SMA Pro follow-on milk, our most advanced formula yet, it contains nutri-steps with iron, to help support their nutritional foundation for life. New SMA Pro follow-on milk supporting a nutritional foundation for life."*
- **Length:** 30sec.
- **Screenshots of creative:**



The one advert that differs more significantly from the other adverts (shown late 2015 and early 2016, hence outside the period that the main report covers) is the one for SMA's growing-up toddler milk. This advert refers to parenting being difficult (and by extension the formula - in this case in ready-to-drink format - making life easier). The advert is underlined by a song with lyrics "*perfectly perfect, except when I am not*", reassuring parents that naughtiness is actually good ("*Naughtiness shows your toddler's developing well, 90 years' experience tells us that. That's how we developed our new SMA toddler milk with nutri-steps, our unique blend of ingredients, enriched with vitamin D and calcium, to help support normal growth in development of bones...*"). And ending with the slogan "*You're doing great!*".

- **Screenshots of creative:**

