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Retailers' promotions and the demand for sugary products in Scotland

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Abstract

Scotland has one of the highest rates of obesity in OECD countries and its diet has been pointed out as an important factor behind it. Retailers also have been pointed out as fostering unhealthy consumption through their promotional activity. This paper explores the importance of retail promotions on sugary food categories (i.e., take home confectionery, frozen confectionery and ice cream, and non-diet soft drinks) covering the period 2006-2011 and using home scanner panel data. Results indicate that consumers respond to promotions on the category and families with children have significantly increased their purchases of sugary products.

Keywords: Retail promotion, sugary products, Scotland, health and wellbeing.

1. Introduction

Developed countries are facing an obesity epidemic¹ with increasing number of overweight and obese adults and, particularly worrisome, is the growing prevalence of childhood obesity. Scotland has one of the worst overweight and obesity records within the OECD countries, with 68% of males and 62% of females being overweight or obese. These conditions are also prevalent in children where over 15% of boys and almost 13% of girls under the age of 16 are obese and 30% of children are overweight (Keenan et al., 2011).

A poor diet fostered by a rapid increase in the supply of affordable processed food has been mentioned as one of the major contributors to obesity (Boyd et al., 2011). Furthermore, Retailers have been pointed out as fostering unhealthy consumption through their promotional activity (Yates, 2008; Dobson, 2011; Chandon and Wansink, 2012).

To abate the obesity cost, the Scottish Government is proposing a range of preventative actions. One of those consists of working with retailers to target all promotional activity on food and drink towards incentivising eating for a healthy weight, including price promotions, vouchers, in-store product placement, direct mail marketing and multiple-buy offers such as '2 for the price of 1' (Scottish government, 2010).

The purpose of this paper is to assess the effect of retail promotions on consumers' purchases of sugary products using detailed data for Scotland. 'Sugary' products (e.g., confectionary, ice-cream, non-diet soft drinks) were selected as a less healthy food category due to the fact that their consumption by Scottish children is well above the recommended dietary targets (McNeill et al., 2009).

2. Data and methods

Data

The dataset used in the paper is the Kantar Worldpanel dataset for Scotland (KWDS), which contains weekly purchasing data of food and drink purchases for consumption at home covering the period 2006 to 2011. The dataset also contains information about prices paid, whether the price was affected by a promotion (including the type of promotion) and the quantities purchased by the household. The panel is representative of the Scottish population

¹ The Body Mass Index (BMI) is commonly used as a measure of obesity and overweight, with BMI greater than 30 taken to indicate obesity and BMI between 25 and 30 as overweight in adults.

and all the purchases are accompanied by a weight that allows expanding the figure to the population level. The entire panel (all the years) covers about 3,694 households, however not all of them are observed every year as it is a rotating panel dataset and households remain in the sample a maximum of three years.

To address our objective, three categories of sugary products were constructed from the dataset. The first category consists of ‘Take home confectionery’, which included 29,224 products classified in four subcategories: ‘Chocolate confectionery’, ‘Gum confectionery’, ‘Ice cream cone’ and ‘Sugar confectionery’. The second category of sugary products was ‘frozen confectionery and Ice cream’. This category includes 12,632 products classified in 32 subcategories such as ‘Chocolate ices’, ‘Lollies’, ‘Frozen cream’, ‘Frozen pastry’, etc.. The third category products was called ‘Soft drinks’ and included 21,392 different products classified in 19 subcategories such as: ‘Bottled colas’, ‘Canned colas’, ‘Bottled shandies’, ‘Canned shandies’, ‘bottled lemonade’, ‘Tonic water’, etc. Diet products and mineral water were not included amongst the soft drinks.

Regarding retailers’ promotions, these were grouped into four categories: ‘Full price’ (i.e. no promotion was offered), ‘Temporary price reduction’ (e.g., 1 penny less than the normal price), ‘Multi-buy’ (e.g., 2 for 1, buy 4 save £2, buy 2 get 2 free), and ‘Y for £X’ (e.g. 2 for £1.49, buy 2 for 50p).

Methods

The methodology consisted of processing the Kantar Worldpanel dataset for Scotland (KWDS) and computing simple descriptive statistics to answer the questions of interest. The total expenditure (E) for a category i (i.e., Take home confectionery, frozen confectionery and Ice cream and Soft drinks) for year t was estimated as:

$$E_{i,t} = \sum_{j=1}^{n_1} \omega_{j,i,t}^1 \cdot E_{j,i,t}^1 + \sum_{j=1}^{n_2} \omega_{j,i,t}^2 \cdot E_{j,i,t}^2 + \sum_{j=1}^{n_3} \omega_{j,i,t}^3 \cdot E_{j,i,t}^3 + \sum_{j=1}^{n_4} \omega_{j,i,t}^4 \cdot E_{j,i,t}^4 \quad (1)$$

$$E_{i,t} = E_{i,t}^1 + E_{i,t}^2 + E_{i,t}^3 + E_{i,t}^4 \quad (2)$$

Where the supra indices 1,2,3 and 4 indicate full price, temporary price reduction, multi-buy and Y for £X. ω is the weight assigned to the purchase point and E is the expenditure, j index represent the product and there are n_1 , n_2 , n_3 and n_4 products belonging to category i, purchased under full price and each promotion type. Nominal figures were transformed to real terms using appropriate consumer price index categories. This allowed us to compute the real growth on the purchases on the sugary categories grown during the period 2006 to 2011 and also the importance (i.e., share) of each promotion in the total sales on the category.

The next step was to compute the contribution to the growth on the expenditure category by each type of promotion and by full price sales. This was computed using (3), where the symbol ‘^’ indicates growth rate.

$$\hat{E}_{i,t} = \left(\frac{E_{i,t-1}^1}{E_{i,t-1}} \right) \hat{E}_{i,t}^1 + \left(\frac{E_{i,t-1}^2}{E_{i,t-1}} \right) \hat{E}_{i,t}^2 + \left(\frac{E_{i,t-1}^3}{E_{i,t-1}} \right) \hat{E}_{i,t}^3 + \left(\frac{E_{i,t-1}^4}{E_{i,t-1}} \right) \hat{E}_{i,t}^4 \quad (3)$$

Expressions (1) and (3) were computed for the lifestage variable. This comprised the following groups: ‘Pre-Family’ (households where the age of the housewife is less than 45 and there are no children), ‘Young Family’ (households where youngest child is less than 4 years old), ‘Middle Family’ (households where youngest child is between 5 and 9 years old), Older Family (households where youngest child is greater than 10 years old) and ‘Other

households' (which comprised the following groups 'other dependents' (housewife is older than 45, there are no children, and there are 3 or more adults), 'empty nest families' (housewife is between 45 and 65 years old and no children in the household) and 'retired' (housewife is older than 65 and there are no children in the household)).

To study differences in the use of price promotions amongst retailers when selling sugary products, shares by type of promotions with respect to the total purchases on the category by supermarket were computed. We concentrated the analysis on the purchases from the four top supermarkets in Scotland, i.e., Tesco, Asda, Morrisons and the Cooperative. However, the results in this paper are shown aggregated.

3. Results and discussion

Table 1 presents the contribution to growth for all categories by type of promotion. The importance of temporary price reduction to support growth in all the categories is clear, showing positive rates for all of them.

It is particularly interesting that the growth observed in the 2011 for take home confectionary and soft drinks was due only to the use of temporary price reductions. On the frozen confectionary and ice cream category, growth was supported mainly by temporary price reduction in 2008 and 2009, multibuy promotion in 2010 and Y for £X promotion in 2011. Furthermore, the results in table 1 show that the non use of promotions (i.e. full price) negatively affected the growth of purchases of the three categories of sugary products between 2008 and 2011. This finding highlights the importance of promotions in stimulation the purchases of sugary products.

Table 1. Contribution to annual real growth in purchases of 'sugary products' by type of promotion 2007-11 (Percentages)

	2007	2008	2009	2010	2011	Average Contribution
Take home confectionary						
Growth rate	6.6	-4.1	-3.5	1.0	-13.3	-2.9
Full price	2.8	-4.4	-2.8	-1.4	-10.6	-3.4
Temporary price reduction	3.8	1.8	0.5	3.7	0.9	2.1
Multibuy	0.7	-1.2	-1.5	-1.7	-2.7	-1.3
Y for £X	-0.7	-0.4	0.3	0.4	-0.9	-0.3
Frozen confectionary and ice cream						
Growth rate	2.9	-9.9	-3.4	-6.2	-15.3	-6.6
Full price	4.3	-5.4	-5.5	-6.4	-13.1	-5.4
Temporary price reduction	1.3	2.3	2.0	-1.1	-0.5	0.8
Multibuy	-2.8	-6.4	0.6	1.5	-1.9	-1.8
Y for £X	0.1	-0.5	-0.5	-0.1	0.1	-0.2
Soft drinks						
Growth rate	5.1	-4.9	-7.0	-0.3	-9.6	-3.5
Full price	3.5	-6.0	-6.9	-2.4	-5.4	-3.5
Temporary price reduction	1.9	2.2	0.8	1.4	0.1	1.3
Multibuy	0.0	-1.1	-1.2	0.9	-3.9	-1.1
Y for £X	-0.4	-0.1	0.3	-0.1	-0.5	-0.2

Source: Own elaboration based on Kantar Worldpanel Data for Scotland

Figure 1 depicts the importance of promotions on the total purchases by category and considering only families with children (i.e., young families, middle families and older families). The figure shows an increasing trend during the period, particularly since 2007. In fact, the share of sales under promotions in the total sales of the three categories reached 43% for take home confectionary (i.e., an increase by 9.5 percentage points since 2006), 49% for frozen (4.5 percentage points) and 54% for soft drinks (7.2 percentage points) in 2011.

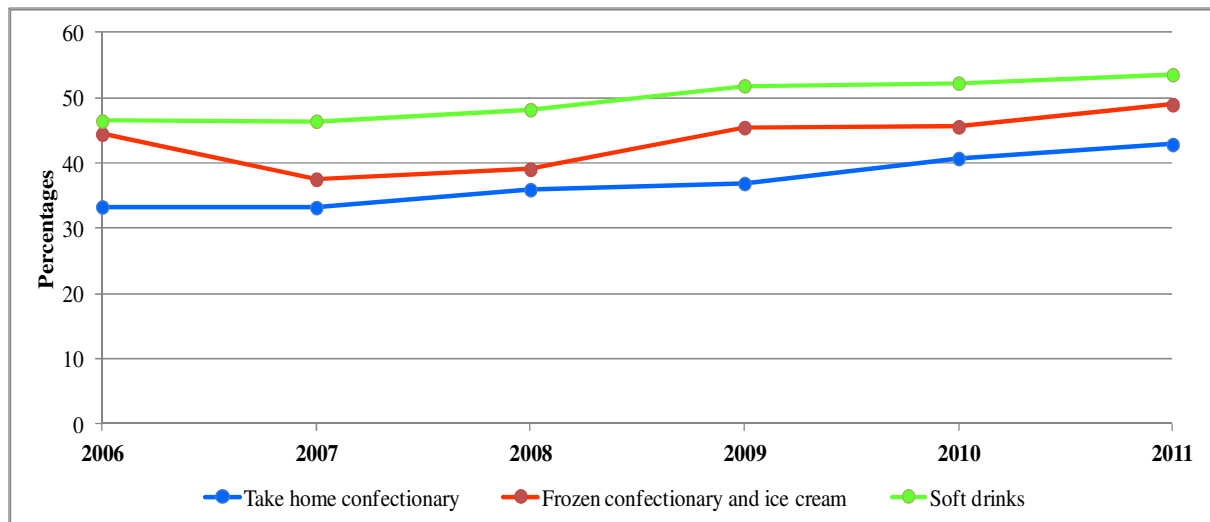


Figure 1. Importance of promotions by product category for families with children.

Source: Own elaboration based on Kantar Worldpanel data.

The growth rates in all the sugary categories, for the families with children (i.e. young family, middle family and older family) were positive and well above the average growth observed in Table 1.² For the three categories of sugary products, the growth of purchases was the highest for young family followed by middle family and older family groups.

As regards to the contribution to growth, full price, temporary price reduction and multibuy (although this type of promotion in a less extent in some of the groups) explained most of the growth. It should be noted that, more than a significant increase on the total food expenditure, these results may come from an increase of purchases to consume at home followed a contraction on eating out in the context of the recession (The Economist, 2012).

The results seem also to match information for Great Britain that during the recession there has been an increase in the consumption of low nutrition processed food. In particular, the trends show that consumption of fat, sugar and saturates has soared since 2010, particularly among the poorest households, despite the overall volume of food bought remaining almost static (Butler, 2012).

Overall, the results by lifestage group indicate that young households and families with children have increased substantively their purchases of sugary products, helped by different types of retail promotions.

4. Conclusions

The purpose of this paper has been to analyse the use of retail promotions on retailers' sales of sugary products (i.e., take home confectionary, frozen confectionary and ice cream, and non-diet soft drinks) during the period 2006-11. The sales were analysed by lifestage categories (e.g., whether the household has young children).

The results indicate that while in real terms the expenditure in all the product categories have grown over time, only take home confectionary and soft drinks have shown positive growth when inflation and growth of the Scottish population is taken into account.

The growth on the expenditure of the three categories has been strongly supported by the use of retail promotions, particularly by temporary price reductions. Furthermore, evidence from the top four supermarkets in Scotland show that their use of promotions have increased over time in almost all the three studied categories. These results reinforce the idea that

² Disaggregated results by lifestage categories are available from the authors upon request.

retailers have been using promotions to keep the expenditure growing during the recession times. Furthermore, the fact that all of them (i.e., supermarkets) are using promotions indicates that regulating the use of promotions in some unhealthy categories might have positive effects on the quality of consumers' purchases.

The growth rates in all the sugary categories, for most of the lifestage groups were found positive and well above the average growth. This points out to a deterioration of the diet quality during the recession period.

The results have important implications for public health. Given that the growth on the sale sugary products was found to be supported by retailers' promotions, then policies tending to increase the retailers' awareness or forbidding the use of such marketing tools by retailers for specific products due to implication for health are certainly justified.

Furthermore, the fact that on the aggregate the expenditure growth of the categories is partly offset by the contraction on the expenditure of the 'other families' group, have several policy implications. The first one is that families with children should be strongly targeted with information as regards their food purchases and the implications of children obesity.

The second implication is that obesity indicators (e.g., the indicators used by the Scottish Government for Monitoring Progress for the Prevention of Obesity Route Map, Scottish Government, 2012) should be broken, when possible, by different groups (e.g., with and without children). Current indicators (e.g., soft drink consumption) only consider the total amount consumed of soft drinks, confectionery, biscuits, cakes or pastries for the entire Scotland.

Third, as pointed out by Dobson (2011) the results also have implications for industry, which can play a significant role in promoting healthy diets by reducing the fat, sugar and salt content of processed foods, ensuring that healthy and nutritious choices are available and affordable to all consumers or practicing responsible marketing.

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