Implications of hitting the jackpot competition for the health agenda

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Abstract

One of the models in the industrial organisation literature considers that firms aim to "hit the jackpot", i.e., to introduce new products that are successfully uptaken by consumers, and therefore, remain on retailers' shelves for a long time. This paper studies the implications of such a type of competition for the health agenda aiming at improving the nutritional quality of the available food products focusing on the processed potato products category. The analysis indicates that one should not expect the assortment of products to change and the most effective public policy would be the enforcement of product reformulation.

Keywords: Manufacturing firms, health agenda, industrial organisation.

1. Introduction

One of the problems frequently mentioned as regards the UK food system is the increasing link between consumers' diet and degenerative diseases (Lang et al., 2001). Furthermore, quality of the diet has been mentioned as one of the reasons behind the observed pattern of obesity in adults and children and which also has health repercussions (UK GOSF, 2007).

Although there are many reasons behind the health problem, quality of the diet is a particularly interesting one because in it consumers' choice and product availability come together. The UK diet has substantively changed during the post-war time affected by changes in the society e.g., changes in demographics (Foster and Lunn, 2007).The increasing importance of multiple retailers together with new food technologies and new ingredients allowed manufacturers (through their own brand products) and retailers (through their private label products) to exhibit a wide range of foods and gave consumers an opportunity to compare them and select their preferred choice.

Within the above context, choice editing, i.e., the process of controlling or limiting the choices available, has been advocated as a policy measure aimed at improving the quality of the diet. The controversy with respect to choice editing is whether consumers should choose freely or not. According to Professor Tim Lang (Hickman, 2007) consumers need not be bothered in the supermarket aisle over complex issues regarding food sustainability, often without any meaningful data on the label to inform their decision-making. Instead, he suggested that the manufacturers and retailers should take more responsibility by making most of these decisions on consumer's behalf before the product even reaches the shelves.

The purpose of this study is to discuss to what extent manufacturers and retailers could be willing or able to edit consumers' choice given the way that they compete in the market for introducing new food products, this is done using the frozen potato product category as an example.

2. The frozen potato products

To put context into the discussion the case of the processed potato products category was considered. Data from Kantar Worldpanel for Scotland for the period 2006 to 2011 were used to compute the number of products carried out, the shares of those products, and the share of healthy products on the total assortments by retailers and manufacturers. Table 1 presents the number of products per supplier.

Table 1. Potato processed products - Number of products per supplier

Supplier	2006	2007	2008	2009	2010	2011
Top 4 supermarkets						
Firm 1	18	18	17	18	20	19
Firm 2	13	14	13	14	14	17
Firm 3	19	19	19	19	22	24
Firm 4	21	15	15	22	23	21
Other supermarkets						
Firm 1	7	6	5	7	8	10
Firm 2	7	9	8	7	1	0
Firm 3	7	8	6	5	7	3
Firm 4	12	11	11	8	9	9
Discounters						
Firm 1	7	9	10	10	12	11
Firm 2	9	9	10	13	14	14
Firm 3	1	2	3	2	4	1
Other retailers						
Firm 1	5	3	8	9	7	3
Firm 2	17	19	21	20	23	18
Major manufacturers						
Firm 1	27	32	28	29	28	22
Firm 2	18	11	12	10	11	14
Firm 3	6	5	4	3	1	2

Source: Own elaboration based on Kantar Worldpanel data for Scotland.

The purpose of Table 2 is to explore inside the assortment of products by major firms, which are divided by retailer and supermarkets. Four statistics where computed by firm: the Herfindahl index as a measure of concentration; the skewness coefficient as measure of the asymmetry of the distribution of product shares within the firms, where a positive value of the coefficient indicates that the tail on the right side is longer or fatter than the left side (i.e., the are products with high value shares); the minimum share and the maximum share. Table 2 shows that there is a high difference between the minimum and the maximum shares. For some of the cases the maximum reaches values above 50 per cent.

Table 3 presents the importance of products with healthier attributes within the assortment of manufacturers (brands) and retailers (private labels). Products with healthier attributes are those that are advertised as fat free or with lower fat that the standard products. Examples of these healthier products are the oven chips which are either fat free or very limited quantities of oil (e.g., less than 3 per cent).

Two striking results from Table 3 are: first, share of products with healthier attributes is relatively low. The share of the healthier products does not reach the 20 per cent and it is skewed towards much lower values. The second result is that despite the health campaigns, there is no clear trend towards greater share for healthier products.

Table 2. Frozen potato products – Product statistics by major supplier

Supplier	Statistic	2006	2007	2008	2009	2010	2011
Manufacturer 1	Herfindahl	0.376	0.362	0.314	0.355	0.377	0.474
	Skewness	4.471	4.856	4.460	4.711	4.665	4.145
	Minimum	0.000	0.000	0.000	0.000	0.000	0.000
	Maximum	0.590	0.576	0.534	0.576	0.597	0.674
Manufacturer 2	Herfindahl	0.220	0.231	0.198	0.224	0.228	0.229
	Skewness	2.108	1.295	1.222	1.041	1.541	1.904
	Minimum	0.000	0.000	0.000	0.002	0.004	0.002
	Maximum	0.317	0.319	0.307	0.307	0.372	0.381
Manufacturer 3	Herfindahl	n.c.	n.c.	0.160	0.136	0.129	0.132
	Skewness	n.c.	n.c.	-0.180	1.555	1.090	1.911
	Minimum	n.c.	n.c.	0.017	0.007	0.000	0.000
	Maximum	n.c.	n.c.	0.220	0.237	0.218	0.261
Manufacturer 4	Herfindahl	0.382	0.593	0.693	0.991	1.000	0.754
	Skewness	1.323	1.391	1.057	0.707	n.c.	0.000
	Minimum	0.000	0.000	0.000	0.000	0.000	0.000
	Maximum	0.560	0.752	0.818	0.996	1.000	0.856
Supermarket 1	Herfindahl	0.134	0.111	0.102	0.107	0.096	0.117
	Variance	0.004	0.003	0.002	0.003	0.002	0.003
	Skewness	1.747	0.578	0.691	1.536	1.722	1.796
	Minimum	0.000	0.000	0.000	0.000	0.000	0.003
	Maximum	0.227	0.162	0.173	0.190	0.177	0.204
Supermarket 2	Herfindahl	0.113	0.132	0.109	0.124	0.116	0.122
	Skewness	1.783	2.262	1.356	1.569	1.663	1.891
	Minimum	0.003	0.000	0.001	0.000	0.000	0.004
	Maximum	0.238	0.283	0.217	0.234	0.219	0.247
Supermarket 3	Herfindahl	0.078	0.080	0.077	0.083	0.081	0.090
	Skewness	0.949	0.460	0.700	1.127	1.353	1.872
	Minimum	0.000	0.000	0.001	0.009	0.002	0.002
	Maximum	0.151	0.129	0.129	0.158	0.153	0.190
Supermarket 4	Herfindahl	0.264	0.205	0.225	0.226	0.263	0.269
	Skewness	1.233	0.483	1.479	2.081	2.326	2.026
	Minimum	0.017	0.003	0.002	0.013	0.008	0.005
	Maximum	0.429	0.301	0.384	0.415	0.457	0.449

Source: Own elaboration based on Kantar Worldpanel data for Scotland.

Table 3. Frozen potato products – Standard and healthier products shares for major suppliers

Supplier	Category	2006	2007	2008	2009	2010	2011
Manufacturer 1	Standard	84.1	84.1	82.8	84.2	83.5	81.8
	Healthier	15.9	15.9	17.2	15.8	16.5	18.2
Manufacturer 2	Standard	94.3	97.2	94.1	94.7	95.3	96.3
	Healthier	5.7	2.8	5.9	5.3	4.7	3.7
Manufacturer 3	Standard	n.c.	n.c.	100.0	100.0	100.0	100.0
	Healthier	n.c.	n.c.	0.0	0.0	0.0	0.0
Manufacturer 4	Standard	100.0	100.0	100.0	100.0	100.0	100.0
	Healthier	0.0	0.0	0.0	0.0	0.0	0.0
Supermarket 1	Standard	91.5	89.4	91.3	98.0	98.2	98.2
	Healthier	8.5	10.6	8.7	2.0	1.8	1.8
Supermarket 2	Standard	87.2	90.5	94.0	96.2	97.7	97.0
	Healthier	12.8	9.5	6.0	3.8	2.3	3.0
Supermarket 3	Standard	100.0	100.0	100.0	100.0	98.8	98.4
	Healthier	0.0	0.0	0.0	0.0	1.2	1.6
Supermarket 4	Standard	100.0	98.3	100.0	100.0	100.0	100.0
	Healthier	0.0	1.7	0.0	0.0	0.0	0.0

Source: Own elaboration based on Kantar Worldpanel data for Scotland. (n.c.=not computed)

3. Discussion: hitting the jackpot competition and the health agenda

The tables above pose some questions: first, despite the interest why does the healthy category represent such a low percentage for each firm? and second, what are the probability that the firms will improve their assortment in terms of healthy products by replacing unhealthy by healthy products?

The questions above can be answered using a model of product proliferation (Raubitschek, 1988) available in the industrial organisation literature. The model characterises the way in which manufacturing firms supplying convenience consumer goods (e.g., grocery products) actually compete.

According to the model these firms aim to "hit the jackpot", i.e., to introduce new products to the market that are successfully uptaken by consumers, and therefore, remain on retailers' shelves for a long time. Thus, firms focus their rivalry on new product introductions and even though the introduction of a new product is expensive and the failure rate is high, the rewards if one hits the jackpot can be quite high.

To what extent the results from Table 3 are consistent with the type of competition reflected in Raubitschek's model? The answer is that the model can accommodate the results presented in Table 3. This is because as far consumers favour not only healthier food but also its standard versions, the firms will have incentives to maintain an assortment of products that includes both varieties of food products.

A result that it is relevant from Raubitschek's model is that as the probability of hitting a jackpot increases, the number of products introduced by each firm and the total number of products introduced by all the firms will increase. This result is important because the probability of hitting the jackpot can be associated with factors both related to the competition (number of products on a category) but also with consumers' interest on new products (e.g., healthier products) that provides an incentives for introducing more products. In this sense, advertising towards healthier nutritional regimes (e.g., health campaigns) have effect of encouraging the introduction of new products with that profile. This is reflected on "Delivering Healthy Growth" document by UK Food and Drink Federation (FDF, 2013), where it is stated that over "8,500 products are launched each year ranging from light options, to fortified foods, to new product sizes, in order to meet specific consumer or nutritional needs. From providing healthy convenience food for busy people, to offering safe choices for people with food allergies and intolerances, manufacturers provide access to a broad range of foods that can contribute to a balanced diet" (op. cit, p. 7).

One could expect that the introduction of new products (e.g., healthier) would bring cannibalisation of profits from other products maintained by the firms. This could eventually force the firms to remove those products from their assortment. However, as shown by Raubitschek, although the profits of the other firms' products are reduced, as the probability of hitting a jackpot increases: (i) the expected number of products per firm and the total expected number of products in the market in the symmetric equilibrium increases; (ii) the expected operating profits of each firm in the symmetric equilibrium increase. In other term, as the current products are still producing profits for the firms, these do not have any incentive to stop offering them.

Note that the logic of the competition represented by model helps to explain why manufacturers would not support a policy such as choice-editing. There is no incentive for a firm to reduce its assortment to make it healthier and stop supplying some of its jackpot products. In this sense it is coherent with the model the fact that the UK Food and Drink Federation (FDF, 2013) sees its contribution to solve the health problem through

reformulation of products, introduction of new products, providing information, introducing new technologies and providing advice to their staff. None of these include choice editing.

4. Conclusions

The purpose of this paper has been to study the implications of firms' behaviour as regards the introduction of new products (i.e., "hitting the jackpot" competition) in the context of the health agenda followed by many countries, which aims at improving the nutritional quality of the available food products. To put context to the discussion, the case of the processed potato products category was considered.

Raubitshek's model, despite its simplifications, helps to understand the operation of multiproduct firms selling differentiated products in highly concentrated convenience consumer goods industries often focus their rivalry on new product introductions even though the introduction of a new product is expensive and the failure rate is high.

The analysis indicates that one should not expect the assortment of products to change much (i.e., towards a greater provision of healthy products) unless the consumers' demand for healthy products, in comparison to that for standard/unhealthy products, increases. In fact, the market share of healthy products remains low, and as shown by the data, do not fluctuate much. Furthermore, given the way that firms compete they do not have incentives to follow any type of choice editing.

Under the described setting the two best policies to follow to improve the quality of the assortment of food products are: to continue the information campaign aiming to improve consumers' interest on healthier products, and through this to increase their demand for healthier products (i.e., affecting the probability of hitting the jackpot). The second policy derives from the fact that if firms are not going to improve their product assortment, then product reformulation (e.g., reducing saturated fats, sugar and salt) is an effective device to improve the nutritional character of the existing product stock.

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