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Resetting the Table: An Evaluation of Macronutrient Trends in UK Food Retailer Product Innovations

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Abstract

Healthy food consumption is determined by both the preferences of the consumer and the assortment provided by retailers. While previous research has overwhelmingly centered on the former, this study takes a new approach in examining the producer. Using Mintel's Global New Product Database (GNPD) information on food innovations, this paper analyzes macronutrient trends in private label food products released in the United Kingdom from 2005 to 2011. This groundbreaking study considers breakfast cereals and prepackaged meals. Within the two groups we also examined a subset of products with children-oriented positioning claims. Six UK grocers were selected for analysis based on sales; Asda, Marks & Spencer, Morrisons, Sainsbury's, Tesco, and Waitrose. The private label products of these six firms were then compared to national brands including Kellogg's and Nestle. The seven criteria used to evaluate nutritional value in breakfast cereals were sodium, fat, sugar, fiber, protein, carbohydrate, and energy (kcal); for meals the same criteria were used, with the substitution of saturated fat for sugar and carbohydrates. Results suggest variation in nutrition objectives between prepared meals and breakfast cereal products for retailers. For example, over time retailers generally reformulated meals to have a higher fiber content and lower fat. In contrast, fiber levels in cereal remained fairly constant, and fat increased over time. Time-aggregated results, however, suggest growing homogenization of private label macronutrient trends, relative to other retailers and national brands. Further studies hope to reveal healthful motivations behind these changes.

Keywords: Food Retail, Private Label, Nutrition, Product Innovations

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Introduction

Traditionally, nutrition has been the assumed responsibility of the consumer, with choice, self-control, and awareness being the ingredients of a healthy lifestyle. Yet such an approach ignores the food environment and its capacity as the limiting and/or facilitating factor. This in turn underscores the relationship between the supply-side decisions of food firms, and consumption behaviors and effects. Our research is in response to this incomplete interpretation of nutrition as a key component of Corporate Social Responsibility.

Through analysis of breakfast cereals and prepared meals at the macronutrient level, we are able to characterize industry-wide nutrition trends and infer upon their implications for both businesses and consumer. We suggest that, through food product innovations, UK firms such as Tesco and Sainsbury's effectively reset consumers' tables. By conducting our analysis at the macronutrient level, we hope to illuminate the causal connection between objectives, actions, and outcomes. Key research questions include: how do the macronutrients change over time, among retailers? Is there evidence of convergence and/or differentiation among the products launched by the top food retailers? Do the top retailers follow the national brands, in terms of innovation strategies and macronutrient trends?

The emerging trends from this research provide supplemental information to a larger study focusing on corporate social responsibility (CSR) and childhood wellness and nutrition in the United Kingdom. As a result, blindness is an important design component of this research—the authors' unfamiliarity with British retail and the deliberate separation from the CSR component of the larger project ensure the objectivity of the research.

Background

This study examines the macronutrient relationships between private label products and national brands, and how this fits into the larger picture of corporate social responsibility claims within the industry. Taking into consideration the competitive nature of the private label market and its relationship with national brands, this project raises questions regarding firm level strategies.

Method

This project focuses on private label food products released in the United Kingdom from 2005 to 2011. Mintel's Global New Product Database (GNPD) was our resource for all nutrition label information. This commercial resource tracks innovations launched around the world and includes a wealth of product-specific information, including marketing strategies and product pictures. Only food innovations categorized as either a "meal center" or "breakfast cereal" are included in the study. As a subset of the two categories, we also examine children-oriented products (as indicated by a positioning claim "Children 0-4" or "Children 5-12").

We compare food product innovations from the six leading grocers in the UK; Asda, Marks & Spencer, Morrisons, Sainsbury's, Tesco, and Waitrose. This "top six" was selected based on sales. Food products from the top six are then compared to national brands in these two product categories, including Kellogg's, Heinz, Nestle, and Weetabix.¹ In this setting, the national brands represent the "industry standards" against which private label products are compared.

We chose to examine food product innovations for several reasons. The products themselves, in terms of macronutrient values and positioning claims, provide a quantifiable way to evaluate the relationship between retailer, nutrition, and CSR claims. Product innovations as a sample group of retailer outputs are thought to be more sensitive to yearly trends and business decisions. Assuming product innovations reflect business objectives through nutrition changes, we are interested in determining the extent to which they represent and validate CSR claims.

To analyze macronutrient trends, we use seven evaluative criteria; sodium, fat, sugars, fiber, protein, carbohydrate, and energy (kcal). Each macronutrient is measured in grams per 100 gram (g/100g) serving. Because the main source of protein content in meals is various meat and animal products, we substitute saturated fat for sugars and carbohydrates. Our method of analysis involves finding the average, median, minimum, maximum, and standard deviation for each macronutrient, each year, for the private label products of each top retailer and the national competitor brands group. We also record the number of product innovations released each year and conduct a panel data analysis. Such cross-comparison reveals patterns in macronutrient values that suggest competitor- and industry-wide trends. In total, 6,307 products are examined in the study.

¹ For this statistical analysis, we treated the national brands as one group.

Results

As our structural approach is multi-tiered, so are our results. In this section, we compare the top six retailers individually, and then contrast the findings with the national group results. Meal centers and breakfast cereals are described separately within each level; conclusions about the two categories together will be drawn in the next section.

In the event that a meal center or breakfast cereal product lacked nutrition information, it is included in the product count but excluded from the macronutrient analysis. In this working paper, findings below only refer to results based on the averages of macronutrient content. Further revisions and updates will expand results to include information about the minimums, maximums, standard deviations, and distributions of the macronutrients.

Results: Prepared Meals

Among the six private retailers, 2,444 meal and meal center products were produced from 2005 to 2011. National brands released a total of 3,771 products. Table 1 breaks down the product count by top six retailer and national brands. Overall, the number of meal innovations declined. The greatest decline occurred in years 2007 through 2009 (recessionary period). Marks & Spencer and Tesco were leaders in the number of new products, while Waitrose trailed behind with lowest amount of innovations.

Company	2005	2006	2007	2008	2009	2010	2011
Asda	106	79	34	32	30	43	57
Marks & Spencer	140	129	100	73	37	36	76
Morrisons	52	34	13	9	24	28	67
Sainsbury's	132	69	26	21	36	37	80
Tesco	175	46	30	52	80	108	91
Waitrose	41	57	24	32	34	33	41
National	860	641	483	452	477	628	843

As outlined above, meals produced by the top six retailers are analyzed using six macronutrient categories: energy (kcal), fat, saturated fat, sodium, fiber, and protein. These product innovations are then compared to the national brands' (i.e. Kellogg's, Heinz, Kraft, etc.) Macronutrients in this analysis are measured and displayed in their respective unit of measure (g/100g). It is important to note that serving sizes vary among different types of meals due to

product type. A meal can be sized as an individual meal, with one or two servings, or as a “family style” meal with multiple servings. This variability should be taken into account when drawing conclusions about the data results.

Energy (kcal)

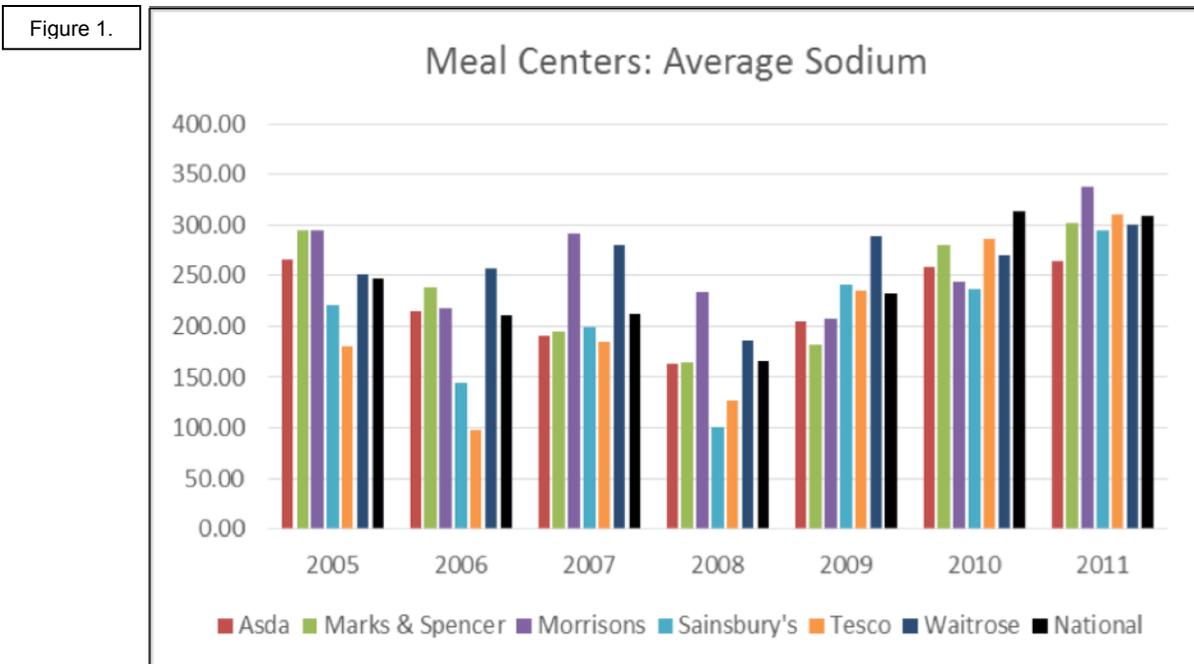
Between the years 2005 and 2011, macronutrient levels have converged across the six retailers and as compared with the national brands. For example, over the seven years, energy (kcal) levels increased. There is also evidence of movement toward homogenization. In 2005, energy varied between private label innovations by as much as 12 kcals—but in 2011, that variation was reduced to 3.7 kcals. Results from the energy analysis show that energy levels increased, on average, across the six private retailers by 14.7% and by 13.2% across the national brands group, narrowing the gap between the two.

Fat

In analyzing fat content, we found an overall decrease over the seven-year period, with the exception of Sainsbury’s, which increased by 18.1%. Marks & Spencer fat content decreased by 43%, while Tesco decreased by 4.4%. The national brands decreased by 9.8%. We find the data shows a distinct similarity between fat and saturated fat results. In both cases, Sainsbury’s was the only retailer to experience an increase in saturated fat content, while the five retailers and national brands decreased the saturated fat content of private label meals.

Sodium

Sodium averages also revealed interesting trends. As depicted by Figure 1, which shows



the averages for each of the six retailers and for the national brands group as a whole. Average sodium levels have become more homogenous across retailers and compared to national brands. Sodium overall has also increased over the time period. There was an initial decline, with private label and national brands decreasing at roughly the same rate in 2008, followed by an increase in 2009 and again in 2011. However, the standard deviation in 2011 was 22.13; in 2006 it varied the greatest amount at 55.96.

Fiber

Unlike other macronutrients, which decreased in 2008 and 2009, fiber trended upward over all years. Morrisons increased fiber by as much as 2g/100g, while Marks & Spencer increased slightly by 0.2g. National brands increased 1.6g, about 42%.

Protein

Protein averages also present evidence of convergence over time. The variation was greatest in 2006 at 1.2g/100g, but by 2010, it varied by only 0.2g. All other retailers, including the national brands, fluctuate by 0.2g/100g the same year. Protein is the macronutrient that resulted in greatest convergence across the six retailers and national brands over the period.

Results: Breakfast Cereal Products

Overall, from 2005 to 2011, breakfast cereal products follow a similar set of trends toward convergence, both among the six top retailers and as a group compared to national brand macronutrient levels. As described in the methods section, breakfast cereal products were evaluated with seven macronutrients variables: fat, sodium, carbohydrates, fiber, sugars, protein, and energy (kcal). Tracking macronutrients uncovered firm-specific trends for breakfast cereal products. Despite considerable variation in macronutrient content from year to year, 2010 and 2011 showed dramatic clustering of values among the top six retailers. Not only did the top six's values reach similar levels, they also got closer to the national brands—which for the most part remained fairly stable over the examined years. Macronutrient values described below represent average values (g/100g).

Products Released Each Year

Among the top six retailers, from 2005 to 2007, the market was largely dominated by one

firm each year, which produced between 40-50% of all new private label breakfast cereals. From 2008 to 2011, the share of new releases became more evenly distributed, although individual retailers were still producing over 25% of releases (Figure 2). All companies, besides Asda and Marks & Spencer, had their highest cereal production year in 2011.

The visuals below (Figure 2 and Table 2) depict some of these linear trends. Bolded numbers in Table 2 indicate which of the top six retailers produced the highest number of breakfast cereal products released that year. Figure 2 compares the top six breakfast product releases over 2005-2011 to the national brands.’ The total number of breakfast cereal products released by firms other than the top six increased substantially each year. As the graph illustrates, national brands shared a positive growth trend with the top six retailers. Highlights include

Figure 2.

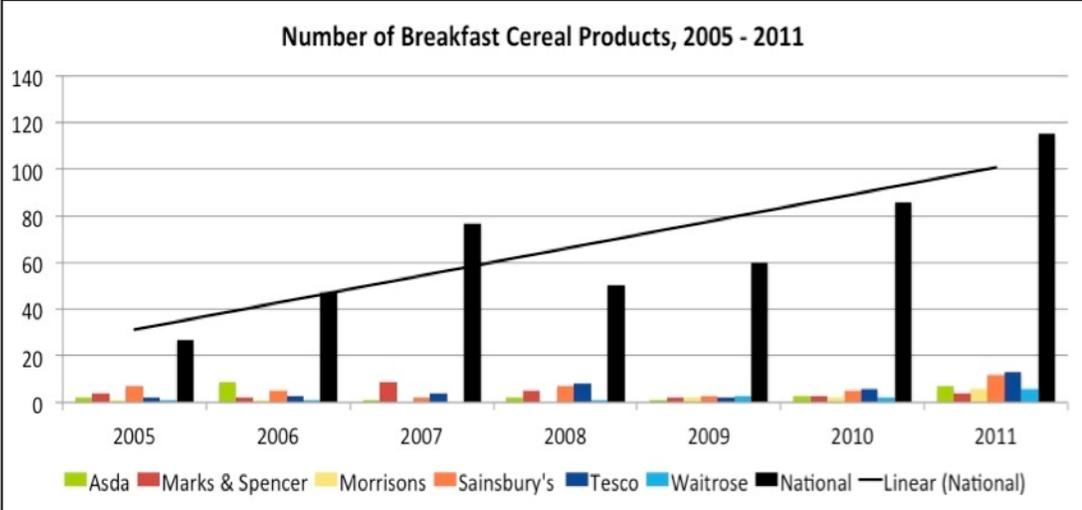


Table 2.

Number of Breakfast Cereal Products Released, 2005-2011							
Company	2005	2006	2007	2008	2009	2010	2011
Asda	2	9	1	2	1	3	7
Marks & Spencer	4	2	9	5	2	3	4
Morrisons	1	1	0	0	2	2	6
Sainsbury's	7	5	2	7	3	5	12
Tesco	2	3	4	8	2	6	13
Waitrose	1	1	0	1	3	2	6
National	27	47	77	50	60	86	115
Total	44	68	93	73	73	107	163

Sainsbury's and Tesco consistently producing more cereal product innovations than the majority of their competitors each year, with Morrisons and Waitrose having the most consistent growth trends. One of the more interesting and less obvious takeaways, however, involves a close

innovation relationship between Sainsbury's and Tesco: over the time period analyzed, for each year, product counts were consistently within 0-1 of the other firm. .

Fat

Overall fat averages increased in 2010 and 2011, in some cases even doubling or tripling from 2005 values. Within each brand there was year-to-year variability. Fat in Asda, Marks & Spencer, and Sainsbury's products all climbed slightly from 2005 to 2011. Fat content in Waitrose breakfast cereal products rose the most markedly and steadily over the years. However, the rate of long-term increase was not as steep as some of the other top six firms. Tesco had a slightly different story. In 2005, Tesco only released two new breakfast cereals, one of which contained 83.5g of fat, and one which contained 1g of fat. As a result, Tesco had an unusually high fat average in 2005. Investigation revealed the source: a breakfast cereal, called "Tesco Carb Control," made mostly out of nut products, which are naturally high in fat. Due to the high skew factor of this variable, particularly in proportion to the other fat values in the data set, Tesco was also analyzed without the carb control cereal. With the outlier removed, Tesco breakfast cereal products maintained a positive trendline for fat content. As for national brands, it is interesting to note that fat contents were consistent from year to year, and that in 2011 the top six retailers had converged among each other and the national brands.

Sodium

Of the seven macronutrients included in the breakfast cereal evaluations, sodium had the most variability, between retailers, national brands and over time. Such variability is best described using the range for the data set: > 0g Min., 595g Max., 63.56g Median, 112.46g Mean. After producing the highest average sodium level of all among the top six retailers in 2005, Asda reduced the sodium in its breakfast cereal products to less than 10g from 2006 to 2009. Although Asda sodium averages rose in 2010 and 2011, to 56.7g and 114g respectively, levels nonetheless remained in the medium-to-low end of the data set. Marks & Spencer also had an overall reduction, without any dramatic spikes over the timeframe. Morrisons' 2005 and 2007 sodium levels were >1g, but the 2006 average was 300g and the 2009 average was 167g. While 167g is not close to the highest sodium average in the sample (595 g, Asda 2005), there does not appear to be an overall trend for Morrisons' breakfast cereal products. Sainsbury's had similar results, with frequent fluctuations in sodium levels. Tesco products also experienced uneven sodium

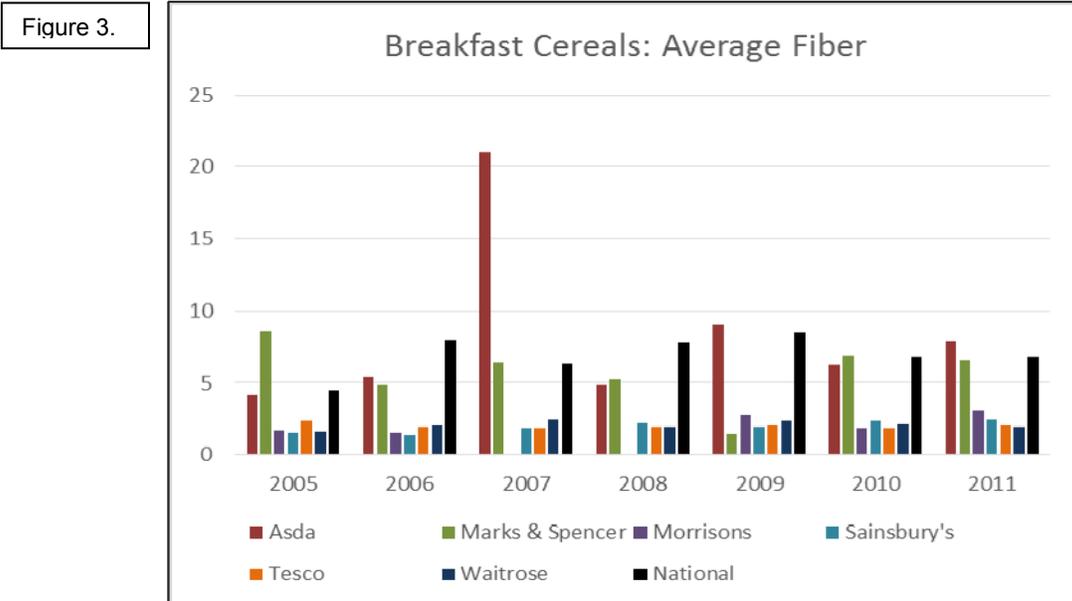
changes between each year, but the overall trend was positive. Sodium levels for Waitrose breakfast cereal products also fluctuated noticeably; plotted on a line graph, the values resemble two “peaks,” ending in 2011 with Waitrose’s second lowest sodium average.

Carbohydrates

Variation among carbohydrate content for the top six’s breakfast products as a group significantly decreased over time, suggesting convergence. Within each brand, however, average carbohydrate changes were often inconsistent from year to year. Values for Morrisons and Marks & Spencer, for example, fluctuated by as much as 10-20g each year; Waitrose had the widest range of annual changes, from 2.8g to 20g. Sainsbury’s carbohydrate averages was consistent (62.3g Min., 74.5g Max.). Despite this variation, some definitive trends still emerged. Average carbohydrate levels in Asda, Sainsbury’s and Morrisons products decreased slightly over time, while Tesco products (on average) report a carbohydrate increase. Variability from year to year in carbohydrate averages for national brands’ also decreased after 2008, with values staying between 65.1g and 70.2g. Only in 2007 did the national average fall significantly outside the top six’s averages. This is interesting because it suggests an industry-wide standardization and/or trend. Furthermore, in 2011, the top six and national brand averages are the most similar of all the years. This strengthens evidence of convergence among the products.

Fiber

Fiber analysis produced the most consistent and clear story of industry leaders. From



2005 to 2011, Asda, Marks & Spencer (excluding 2009), and the national brands produced breakfast cereal products containing average amounts of fiber nearly double that of their competitors' (Figure 3). The rest of the top six retailers produced cereals with lower and fairly homogenous fiber levels each year;. Although certain firms had divergent (positive or negative) trends, no changes were substantial when compared to the progress of the top three. In other words, the top three values mostly stayed together, and the other four mostly stayed together.

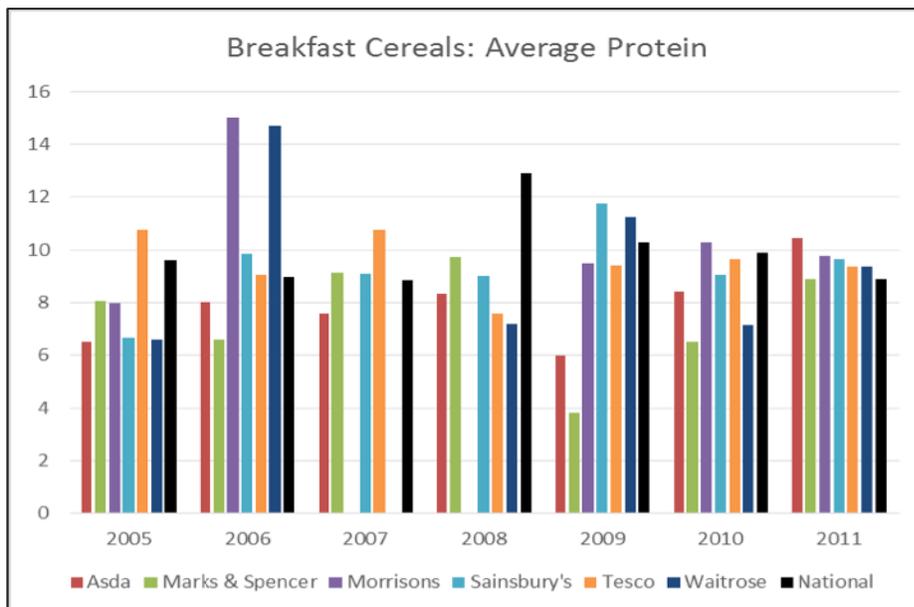
Sugars

Evaluating sugar content in breakfast cereals revealed a clear convergence for the retailers, most notably in 2010 and 2011. In 2010, all retailers' average sugar levels increased from the 2009 averages (except for Waitrose's, which only decreased by .6g. Then, in 2011, sugar averages for all retailers' products dropped by about 5g. These collective shifts become even more interesting when the national brands are taken into account—excluding 2005, yearly sugar averages for national brand breakfast cereal products remained within 3.7g of one another.

Protein

Of all the macronutrients, protein had the most significant convergence, as evidenced by its 2011 values (Figure 4). Aside from a spike in 2008, protein averages of national brand breakfast cereal products remained fairly constant over the timespan. Asda products an increase in protein, with the retailer's highest average in 2011, at 10.4g. Marks & Spencer protein levels

Figure 4.



jumped around from year to year, dipping to 3.8g in 2009 but then rising to 6.5g in 2010 and 8.88g in 2011. Morrisons consistently had high average protein values. However, among the top six, Sainsbury's was the most consistent in producing breakfast cereal products with high average levels of protein. Waitrose protein levels lagged behind its competitors for every year but 2006 and 2009. Interestingly, as the top six's averages become more standardized, they also begin to look more like the national brand averages.

Energy (kcal)

Although the changes to energy (measured in calories) between 2005 and 2011 are less dramatic than the other macronutrients, they are no less important. Between 2005 and 2011, calories in breakfast cereals produced by the top six retailers and by the national brand group also converged. Within this umbrella trend, several retailers actually decreased their average calorie content for breakfast cereals, including Asda, Marks & Spencer, and Tesco. For example, yearly averages for Marks & Spencer after 2008 were significantly lower than in 2005-2007, and in 2009, the Marks & Spencer average was the minimum value of the data set.

Children Positioning Claims

Children positioning claims were examined as a subset of meals and breakfast cereals. Our objective was to determine whether children positioning claim products followed the macronutrient trends described above. We examine the positioning claims (0-4 and 5-12) separately and as one group. Results show that for breakfast cereals, the number of children-oriented products nearly doubled in 2011 from previous years. There was also a significant increase in children product positioning claims in meals. Products that were not categorized as breakfast cereals but contained "cereal" in the product name were included in the counts and macronutrient measurements. Very few meals claimed they were designed for children (only 36 for the six retailers over the 2005 to 2011 time period). Indeed in 2005, only Sainsbury's produced a single product with the claim children 5-12. In 2006, the most products, 13, were produced with the claim children 5-12. Marks & Spencer was the retailer with the most product claims over all. Waitrose, on the other hand, had no children-specific claims.

Further development of this paper will provide more complete information about production numbers, macronutrient trends, and comparative results (treating the two

subcategories first as one group against which to compare top six and national products, then separately).

Conclusion

Our current conclusions show the number of breakfast cereals introduced increased and the number of meals decreased over the six year time period. Macronutrient trend analysis shows convergence among private retailers and national brands in both product categories and across all macronutrients. The macronutrient trends reported in this study indicate a strategic effort among retailers to more closely resemble national branded products in these two food categories. The six retailers, in conjunction with national brands, generally are improving the essential macronutrient levels in meals and breakfast cereals. There is also evidence that meal innovations have more variability than breakfast cereals, leading us to speculate that there may be less room for further innovation in cereal products. We have also identified a key shift in product release volume in 2010 and 2011, suggesting a push or fluctuation in motivation, whether fueled by efforts towards further convergence or other business strategies requires further investigation.. It is also interesting to note that as the number of meal center product innovations decline over time, breakfast cereals increase. Continuing questions for this research include:

- Are retailers leading the market, or following the national brands?
- Are private labels such as Tesco, consistently similar to national brands', "cooperating" or "competing" with national brands?
- "Children" products—the low volume produced each year prompts further questioning: is the amount that matters, or the quality of the products?
- No children's breakfast cereal or meal claims were made by Waitrose—are they really not producing any foods for this demographic, or are they just not labeling?