Food Products in the Retail Market: Conceptual Boundaries and Classifications

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Abstract. This study presents a literature review on the food products and their delimitations in the retail sector. Food categories are separated in the international literature in complex and multidimensional groups. We can see that some researchers divide food based on nutritional values and health issues, while others classify them in the international trade legislation based on fiscal and import regulation. The seasonality and taste are also categories considered for the division of food products. In this paper research will be conducted by analyzing various articles to determine the food classes in the retail industry. The main aspects to be addressed in our paper are the ones based on consumer perceptions when buying a food product in the market, more specifically in the retail shop. Hence the authors will analyze food categories in connection with their placement in the main retail shops, based on consumer buying behaviour. The principal groups in which the food products will be separated are based on freshness level, processed level, or the extent and function of industrial processing the food products have gone through, and finally, the type of packaging. Another important category the authors will address is the private label brand which has positioned itself on a separate classification. Results suggest that this kind of food classification is an important aspect to be used in retail food brands analysis and their positioning in consumers' minds.

Key words: food products, retail, food category, packaging
JEL classification: L11; Q1; M31.

1 Introduction

With the development of new processing technologies, new tastes and the evolution of information flow and globalization it is necessary to have in the food industry a well elaborated food terminology and classification in order to achieve improvements in communication between food and health professionals and the public. (Furst, Connors, Sobal, Bisogni, & Falk, 2000). Ireland and Møller have analyzed the international food classification and description and have found that it is problematic to share information regarding nutrition and food data between different countries and individuals, without a consistent foods database. (Ireland & Møller, 2000)

Furst et al. (2000) have taken into account the relationship between professionals and the public, or normal consumers. The classifications given to food by each group is often different than one another. (Furst, Connors, Sobal, Bisogni, & Falk, 2000) "Professionals such as nutritionists, food scientists, chefs and retailers may be imposed upon the general public in a way that is incongruent with classifications already present in the population." (Furst, Connors, Sobal, Bisogni, & Falk, 2000, p. 349)

Professionals usually have different comprehension and objectives when dealing with foods. Each party categorizes food based on their interests and field of work, using a an adapted language as well.

Wanda Polacchi (1986) has investigated the terminology in the food industry and has characterized it as being differing, inconsistent, and often incompatible. In her paper she has expressed the need of an international classification system possessing the following characteristics (Polacchi, 1986, p. 66):

- flexibility in accepting new terms and names;
- flexibility in retrieval of information;
- ease of use and understanding; and
- explicit recipe algorithms where necessary.
2 Current food classification systems

We can find in the dictionary that a food product is defined as being a material consisting essentially of protein, carbohydrate, and fat used in the body of an organism to sustain growth, repair, and vital processes and to furnish energy (http://www.britannica.com/EBchecked/topic/212568/food).

In his book Lagrange (1995) has defined a food product as being a product that meets the following three conditions:

- contains elements of nutrition (proteins, carbohydrates, fats etc.);
- to satisfy an appetite;
- to be accepted in the society as food.

(Lagrange, 1995)

Manole et al.(2003) asserts that the first classification of a food product is the source of origin of the product (Manole, Stoian, & Ion, 2003, p. 140):

- from the ground - vegetable, fruit etc.
- from animals - milk, eggs, meat etc.

Ireland and Møller have analyzed in their paper the International Food Classification systems and made a comparison between them. They started their study with the premise that adopting national or regional classification systems on an international scale is a very difficult task, almost impossible to be adapted in all the countries since food groups and perceptions may not be applicable to all cultures. (Ireland & Møller, 2000) (Legault et al., 2004)

Among the different classification systems presented some have been selected to be presented in this paper, the ones which were the closest to an international homogenized categorization. The selected systems are: The Food and Drugs Administration, The Codex Alimentarius Food Standards, The Harmonized Commodity Description and Coding System, Food Balance Sheets and other Food Classification Systems and Eurocode-2 Food Coding System.

2.1 The Food and Drugs Administration

The Food and Drug Administration (FDA) is an agency within the U.S. Department of Health and Human Services. It consists of the Office of the Commissioner and four directorates overseeing the core functions of the agency: Medical Products and Tobacco, Foods and Veterinary Medicine, Global Regulatory Operations and Policy, and Operations. (Food and Drug Administration) The Food and Drugs Administration is the responsible agency for protecting and promoting public health through the regulation and supervision of food safety.

We can see in Figure 1 the main food categories in which the Food and Drugs Administration splits food products.

2.2 Codex Alimentarius Food Standards

The Codex Alimentarius is a collection of internationally adopted food standards presented in a uniform matter (Joint FAO/WHO Codex Alimentarius Commission, Joint FAO/WHO Food Standards Programme, and World Health Organization, 2003) prepared by the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO), which constitutes Codex Alimentarius Commission. It includes standards for all the principal foods, whether processed, semi-processed or raw, for distribution to the consumer.

2.3 Eurocode-2 Food Coding System

A main European classification is the Eurocode 2 where food is mono-hierarchically classified into groups and subgroups in order to better serve dietary studies.

Because of national legal aspects as well as cultural and economic relevance of foods, the majority of databases, both at at a regional and national level, use country-specific classification systems and thus, food groups may be quite specific.
2.4 Harmonized Commodity Description and Coding System

This system is used in defining custom tariffs in foods.

2.5 Food Balance Sheets and other Food Classification Systems

This is also a national food watch system which analyzes the entry, production and exit of foods from the country. The food supply available for a definite period is the result of the total quantity of food stuff produced, added to the total quantity imported and adjusted to any change in stocks during this period. (Ireland & Møller, 2000)

The last two systems were chosen because they represent an important database in the importers' and distributors' (taxation and if accredited to sell the certain product).

2.6 Comparison of Food Classification Systems

Classification systems have been created for different purposes and reflect different legislations.

If we take Ireland and Møller's example regarding the cheese classification we can see that the "CIAA system (additive driven) first differentiates it as unripened, ripened, processed and analogue cheese. In Eurocode 2 (food consumption surveys), cheeses are first classed depending on their consistency (hard, soft, fresh), then according to their fat content. PROCOME (household budget surveys) simply classes all cheeses under '&cheese', and CCPR (residue and contaminant driven) under '&secondary milk' products'. (Ireland & Møller, 2000, p. 533)

As we can see in the given example the categories are totally incompatible and totally belies an international classification system. It is very difficult to form a classification compiling all the databases needs.

![Figure 1. FDA product categories](legault_brandt_mccabe_adler_brown_brecher_2004_food_and_drug_administration)
Therefore Ireland et al. (2002) have concluded in their paper that only at 'raw ingredient' level can food be compared. Prior to international analogy, detailed rules and interpretations for these conversions are essential. Thus, it is crucial to set up regulations for handling of semi-manufactured and processed foods. (Ireland & al., 2002)

3 Consumer classifications

From the consumers' perspective classifications are multidimensional, and include many organizing themes such as liked/disliked, healthy/unhealthy, seasonal/out of season, and others. In a changing and complicated environment, people assign characteristics to foods based on the physical, social and cultural settings they inhabit. (Furst, Connors, Sobal, Bisogni, & Falk, 2000). Normal consumers don't have the same knowledge about food and nutrition and do not see food products as professionals, whose classifications tend to be grounded in biology, chemistry, or commerce. (Legault, Brandt, McCabe, Adler, Brown, & Brecher, 2004) Food classifications arises from the consumers' environment based on various circumstances, times and cultures. Some classifications are accepted in different cultures and social categories by all the public, such as hot/cold, seasonal/not seasonal, but at the same time many classification differ, such as good/bad, permitted/forbidden, healthy/not healthy. (Furst, Connors, Sobal, Bisogni, & Falk, 2000)

In their study Furst et al. (2000) have identified a multiple levels of food classification. The levels of categorization can be seen in Figure 2, below and they are:

![Figure 2. Conceptual framework for the multiple levels of food classification (Furst, Connors, Sobal, Bisogni, & Falk, 2000, p. 337)](image-url)
All possible classifications - the category in which there are no limits to classification, it is totally up to the consumer to set his own classification. Culturally recognized classifications consist in all the classification which the consumer sees based on his cultural background. Different consumers from different cultures could classify the same product in this category or not, based on their cultural believes. Recently although, as a result of developing communication and globalization, products once considered representing a social culture group now became part of normal product groups, based on different classification sets. (Vanhonacker & al., 2010)

Socially significant classifications depend on the classifications inherited and shared by family members, friends, co-workers, health care providers and others in their social network.

Personally operational classifications. This classification depends mostly on the person analyzed. For example, in the expensive/fair price relationship, a person might change their point of view regarding a product based on their period in life

Multiple Categories in Classifications Except the ones above there are a multitude of other classification, Furst et al. have chosen just a few which kept repeating their selves. These dimensions can be seen in Figure 3 and they included: "healthy foods/unhealthy foods, cheap foods/expensive foods, familiar foods/different foods, fresh foods/processed foods, seasonal foods/out of season foods, foods convenient/foods not convenient, foods they try to avoid/ foods they try to include, and fancy foods/simple foods. These categories were often used in combination" (Furst, Connors, Sobal, Bisogni, & Falk, 2000)

*Figure 3. Frequently occurring food classification categories (Furst, Connors, Sobal, Bisogni, & Falk, 2000, p. 339)
The retailer classification

Because of their strong presence in the market, one very important grouping is given by the retailer’s classification of foods. First and foremost, an essential factor in classifying food products is based on their annual sales. If the product does not perform, it is placed in a group close to the initial category. As an example we can see the sampling plan of Legault et. al (2004), who in their sampling plan in analyzing nutrition of food categories have reached a final number of 194 product types by ranking products based on their sales within the retailer. (Legault, Brandt, McCabe, Adler, Brown, & Brecher, 2004)

Furthermore, in the same study Legault et al. (2004) have also analyzed only products sold in at least 10% of the stores selected for sampling. (Legault, Brandt, McCabe, Adler, Brown, & Brecher, 2004). It is visible the importance of a minimum market share in order to be considered as a group or a product category. If a product is not represented with satisfying numbers, retailers and commercial companies will not consider them as food groups.

Another aspect considered is the shelf life, logistics and product handling of the food product.

Monteiro et al. (2010) have assigned foodstuffs according to the extent and purpose of the industrial processing applied to them. Food processing is defined in their paper as "all methods and techniques used by the food, drink and associated industries to turn whole fresh foods into food products". (Monteiro, Levy, Claro, de Castro, & Cannon, 2010, p. 2040)

Three main groups are defined in their paper:

Group 1: unprocessed and minimally processed foods

The first group consists of unprocessed and minimally processed foods such as fresh meat and milk, grains, legumes, nuts, fruits and vegetables, teas, coffee, herb infusions, tap water and bottled spring water.

Group 2: processed culinary or food industry ingredients.

This group of products has gone through a physical and chemical process such as pressure, milling, refining, hydrogenation and hydrolysis. Monteiro et al. 2010 included in this group common food industry and culinary ingredients such as starches and flours, oils and fats, salt, and sugar and sweeteners, and, also, industrial ingredients such as high fructose corn syrup, lactose, and milk and soy proteins. Food products in this group are inedible by themselves.

Group 3: ultra-processed food products.

This group contains ultra-processed food products that are ready to eat or ready to heat with little or no preparation. They are prepared in a fashion to reduce microbial deterioration and achieve long shelf life. The processing is usually done by food manufacturers, caterers or food retailers. This group contains ready-to-eat snacks or products liable to be consumed as snacks or desserts, and pre-prepared ready-to-heat products created to replace home-prepared dishes and meals. (Monteiro, Levy, Claro, de Castro, & Cannon, 2010).

Manole et al. (2003) splits the food products into:

- non-perishable products and
- ultra fresh products.

The non perishable products are the ones with a longer shelf life (about six months) and the ultra fresh products have a shelf life varying from 12 hours to just a few days (Manole, Stoian, & Ion, 2003).

Rewe group, the German retail group, owner of Penny Market and Billa retail chains in Romania splits his products in the same measure, based on shelf life in combination with the product logistic. That is why the food categories are:

- Dry products to be situated on the shelf
- Dry products to be placed on a pallet (sugar, beverages)
- Fresh fruits and fresh vegetables
- Fresh Poultry
- Fresh meat
- Refrigerated products (with a shelf life of 1-4 weeks)

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Frozen products (Penny Market Romania, 2011)

Shaw et al. (1992) has analyzed in his paper the product sourcing at a United Kingdom retailer and has chosen the most important categories within the retailer's portfolio. They can be seen in Figure 4.

<table>
<thead>
<tr>
<th>Product group</th>
<th>Number of manufacturer brand products</th>
<th>Number of retailer brand products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacon</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Beer</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Canned meat</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Canned pasta</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Canned vegetables</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Cheese</td>
<td>35</td>
<td>7</td>
</tr>
<tr>
<td>Chilled desserts</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Crispbreads</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Coffee</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Continental sliced meats</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Delicatessen fish</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Frozen desserts</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Frozen lamb</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Frozen vegetables</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Health foods</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Mineral water</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Pasta</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Paté</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Salad dressing</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Traditional sliced meat</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Yogurts</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>162</strong></td>
<td><strong>76</strong></td>
</tr>
</tbody>
</table>

*Figure 4. Food categories at a retailer in the United Kingdom (Shaw, Dawson, & Blair, 1992)*

Traditional products, which were once considered as having an important position in the retailer's shelf has lost its importance in the last years. Due to the increasing globalization in food markets traditional foods are becoming more available and are not needed to be consumed only on special occasions (Vanhonacker & al., 2010)

Instead, the private label category needs to be taken into consideration as an important food group. We can see in Figure 4 that for 162 manufacturer brands there are 76 private label brands, and this was before the development of the last 20 years. Currently private label products have a market share of 30% in Europe's retailers and 18% in the United States (ter Braak, Dekimpe, & Geyskens, 2013), and this number is increasing (Lincoln & Thomassen, 2008). Therefore a great attention must be given to the development of this group.

5 Conclusions

An international classification system in the food industry would act as a great advantage in developing communication between professionals and regular consumers, and between professionals from different countries or cultures. As a result of the different meanings in each culture for a certain product and because of divergent interest between different institutions and between institutions and consumers, it is very hard to reach a unified international food database. Meanwhile it is essential to develop a complex classification that would, at least, harmonize most of professional interests regarding food products and nutrition. From a consumers' point of view the food product categories are based on their cultural, social and personal environment, but on the grounds that globalization in evolving, this environment will become more and more unified. The most important categorization seems to become the one dictated by sales and product lifespan. The reason behind this is that retailers are becoming a more influential part of our normal lives and the classification applied by retail chains is being adapted by their clients, the regular consumer, who is slowly changing his food habits based on retailer strategies. The new food classification will have as a fundamental factor the sales of the certain category and its future perspectives (as we have seen in the contradictory situation of traditional food versus the private label).
References


http://www.fda.gov/AboutFDA/Transparency/Basics/ucm192695.htm


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