

The methodological approach used by the Food Quality Observatory to establish the initial overview of sectoral studies

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1 Introduction

This report details the methodological approach used within the framework of the sectoral analyses conducted by the Food Quality Observatory (hereinafter referred to as the “Observatory”). These sectoral analyses aim to analyze certain food categories and monitor their evolution over time. These are part of the Observatory's mission, which is to monitor the evolution of the food supply to help improve its quality and accessibility.

More specifically, sectoral analyses combine data on a food category's nutritional composition as well as the information displayed on its product packaging with data relating to consumer purchasing behaviour. The current situation in Québec and Canada is scarcely known in this regard. In fact, few studies have looked at purchasing behaviour based on the nutritional composition of various processed foods. In such a context, the Observatory's work proves not only relevant but also very important in characterizing the quality of the processed food supply available in Québec and objectively monitoring its evolution over time. Such monitoring will support actions aimed at improving the nutritional quality of foods offered in Québec and will provide a better understanding of its impact on consumer purchasing behaviour.

This methodological report, therefore, details the various steps leading to the study of a food category, as well as the analyses that have been carried out.

2 Choice of food categories

The process of selecting the food categories to be studied results from an approach comprising different steps. The next sections detail the steps that made it possible to ensure a rigorous selection of food categories analyzed by the Observatory.

2.1 User consultation

A consultation with the Observatory's knowledge users (i.e., public health professionals, consumer representatives and bio-food industry leaders) was first carried out to ensure that the Observatory's work responds to real needs and confirms their social usefulness. It is a recognized integrated knowledge translation strategy that enables knowledge users to guide scientific programming from the onset of the work¹. A report outlining this consultation process is also available online². In summary, this consultation led to the proposal of various categories of foods of interest in relation to their social utility. These food categories were then discussed by the Observatory's scientific committee to validate their scientific relevance and prioritize them for subsequent analyses.

2.2 Criteria established by the scientific committee

Based on the results of the user consultation, the scientific committee first determined whether the proposed categories were linked to a nutritional challenge that could affect the population. These issues were validated through the results of the Canadian Community Health Survey – 2015 as well as by the literature highlighting certain food characteristics (e.g., composition, standards, etc.) and their issues related to population health^{3,4}. Then, the scientific committee ensured that the food categories to be prioritized represented a wide variety of foods.

Beyond these general guidelines, each of the food categories selected had to correspond to the following three specific criteria:

- 1) Demonstrate high variability regarding food quality (e.g., nutritional composition, list of ingredients, price).
- 2) Have the potential for improvement that could lead to a change in the food supply.
- 3) Have a high penetration rate across all households, which is reflected in consumption at the general

population level.

After analyzing the proposals put forth by the users' committee using the general guidelines and the three specific criteria, the scientific committee then recommended the categories of foods to be studied to the Observatory's steering committee. The latter completed a strategic reading to consider the related political and regulatory issues as well as to validate the proposals generated by this consultative process.

The scientific committee prioritized the categories of foods to be studied according to the following guidelines and criteria: the impact on health, the variability of nutritional quality, the rate of penetration in households, and the potential for product improvement.

2.3 Food categories selected

In order to create an overview of the food supply available in Québec, the Observatory has selected a total of 14 food categories, to date. These categories are presented in this table.

Table 1. Food categories selected by the Observatory

| Food Categories | |
|-------------------------|------------------|
| Breakfast cereals | Dairy desserts* |
| Sliced bread | Cookies |
| Sliced processed meats* | Sausages* |
| Ready-to-serve soups | Crackers |
| Granola bars | Snack foods |
| Frozen meals | Cheese products* |
| Pasta sauces | Pizzas |

**Includes plant-based substitutes.*

Once these food categories have been analyzed, an initial overview of the food supply will be generated, following which a procedure for monitoring food supply quality will be developed and carried out every four to five years.

3 Research objectives and steps

Generally speaking, the sectoral studies research objectives are as follows:

- 1) A-Identify the types of products available in Québec and;
B-Characterize the nutritional composition as well as the selling price per portion of the products offered and sold in Québec.
- 2) A-Verify to what extent the information displayed on the packaging and the selling price per portion are associated with the content of certain nutrients of interest in the different types of products offered and sold, and;
B- Verify to what extent the information on the packaging is simultaneously associated with the content of certain nutrients of interest in the products sold and their price per serving.
- 3) Examine the distribution of sales and nutrient contribution of products according to their types and the information displayed on the packaging.

To meet these research objectives, the following steps were implemented and are detailed in the following sections:



Figure 1. Steps of carrying out a sectoral **study**

Literature 4 review

Systematically, the methodology used for the literature review is the same for each sectoral study. The next sections outline the various steps required.

4.1 Methodology used

As part of the Observatory's sectoral studies, the main objective of the literature review is to check whether similar studies have been carried out here or elsewhere. If applicable, it is of interest to know from what angle these studies analyzed the food category in question. If no similar study is identified, the literature review enables us to know what aspects of this food category can explain its variability in terms of nutritional quality, impact on health and consumer purchasing behaviours. In addition, the information collected during the literature review also helps to determine which groupings (classifications – see next section) can be made. This means that groups of products can be compared with each other, rather than one product at a time.

Considering that the main objective of the literature review is intended to be global and not exhaustive, a “rapid review” type methodology was selected.

4.2 Rapid review

A rapid review is defined as being “*a form of knowledge synthesis in which aspects of the systematic review process are simplified or omitted in order to generate information in a short time*”⁵. The research strategy used in the context of sectoral analyses was developed in collaboration with a librarian from Université Laval. Three databases are queried via the OVID platform: FoodScience and Technology Abstracts, MEDLINE and PsycINFO. Google Scholar was also used to identify other scientific articles and grey literature documents. The only limits are that the publication dates of articles or other documents of interest must be within the last 20 years, and the texts must be in either English or French.

4.3 Search strategy

The keywords selected in this search strategy aim to cover different aspects of each objective and are separated into four blocks. A first block is linked to the category of foods being studied and is, therefore, variable. The three other research blocks are invariable and are as follows: the nutritional composition of the offer, the influence of information displayed on the front of the packaging, and consumer purchasing behaviour. Each of these three blocks is then linked to the first block – the one related to the food category. The following table shows the keywords used for each of the three invariable blocks.

Table 2. Examples of blocks and keywords used for the literature review of the Observatory's sectoral studies

| Block s | Subjects | Keywords |
|---|-------------------------|--|
| Food category under study | Breakfast cereals | "breakfast cereal*"; "ready-to-eat cereal*"; "RTE cereal*"; "céréales à déjeuner"; "céréales prêtes-à-manger" |
| Nutritional composition | Nutritive value | nutrient*; "nutriti* value"; "valeur nutriti*" |
| | | "nutriti* composition"; "composition nutriti*" |
| | | "nutriti* quality"; "qualité nutriti*" |
| | Diet food and nutrition | consumption; intake*; consommation; apport* nutriti*; intake; "apport nutriti*" |
| | Food quality | "food quality"; "qualité nutritionnelle" |
| Information displayed on the front of the packaging | Food labelling | label* |
| | | "nutritional information"; "nutrition fact*" |
| | | front-of-pack*; FOP |
| | | allégation*; claim* |
| | | "nutrition facttable*"; "tableau de valeur nutriti*"; "tableau de la valeur nutriti*"; |
| | | ingredient*; "liste d'ingrédients"; "liste des ingrédients" |
| | | pack*; emballage* |
| | | "nut* profil*"; "profil* nutriti*" |
| | organic*; biologique* | |
| | Marketing | natural; authentic; naturel; |
| Consumer purchasing behaviour | Food offer | market*; "food marketing"; "child* marketing"; child* "food offer"; "food supply"; "food diversity"; "offre alimentaire"; "diversité alimentaire" |
| | Food supply | purchas*; buy*; sale*; achat*; vente* |
| | | behavi*; comportement* |
| | | consumer*; consommateur* |
| | Accessibility | "food accessibility"; "food availability"; accessibilité Supermarket*; grocer*; supermarché*; épicerie*; |

The use of the asterisk enables the search engine to look for different variations of a word formed from different suffixes. Thus, by using the term "nutriti," it is possible to find words such as nutritive and nutrition.

For example, following the established research strategy, a search query entered in OVID combining Blocks 1 and 2 could be as follows:

("breakfast cereal" or "ready-to-eat cereal*" or "RTE cereal*") AND
 (nutrient* or "nutriti* value" or "nutriti* composition" or "nutriti* quality"
 or consumption or intake* or nutriti* or intake or "food quality")*

Note that searches carried out within the scientific literature and grey literature are done only within the titles and abstracts of articles or the titles only (if too many articles were found) to target the truly relevant documents as best as possible. Once the documents have been identified, they are selected according to their relevance to the research objectives. Relevant articles and documents are then classified according to the applicable research objective and then read and synthesized as an introduction for each report (overview of a food category). The same research professional carries out all of these steps.

5 Data collection

5.1 Systematic in-store collection

To meet the research objectives, an initial database on the nutritional composition of the food category under study was obtained through data collection in supermarkets (e.g., Métro, IGA, Provigo), in big box stores (e.g., Walmart, Costco) and in specialty grocery stores (e.g., Avril, Rachele-Béry). This data collection took place in Montreal and its surrounding areas (thanks to a collaboration agreement with *Protégez-vous*) and/or in Québec City and its surrounding areas when the Observatory itself was carrying out the data collection.

All the different products encountered for this food category were purchased during the first grocery store visit. At this time, the unique product code (UPC) of each product was noted in order to avoid omissions (two products may appear very similar but may vary in terms of ingredients or nutritional values). Throughout the collection, in addition to the UPC, the regular price was also noted at each point of sale visited. All rows in the store were examined to ensure that all potential products were identified. This included the organic food section, natural products, the area near the checkouts, the ends of rows, etc. Subsequently, other food stores were visited, targeting the different banners. Only new products encountered were purchased at this time, but prices were noted for all products, even those already purchased.

Once the saturation level was reached (no new products were found in the stores visited), each product was numbered (without hiding any information from the packaging) and then photographed. All sides of the product were photographed in order to capture all the information displayed on the packaging.

In addition to the nutritional composition, the list of ingredients and information on the packaging were captured.

In some cases, systematic in-store collection was proven to be impossible (e.g., restrictions linked to the COVID-19 pandemic). Therefore, an alternative data collection methodology using information available on the web was developed. Considering that this is not a usual methodology, it is only detailed in the reports for the food categories that used it.

5.2 Data entry

Once all the products were identified, the data was entered into an Excel file. The entry was double-coded to ensure the accuracy of the data and to prevent entry errors. The data entered originated from the information displayed on the product packaging (e.g., nutritional value table, list of ingredients). The nutritional

composition variables listed for sectoral analyses are: energy (kcal), fat (g), saturated fat (g), total sugars (g), fibre (g), protein (g) and sodium (mg). Certain micronutrients of interest may be added depending on the food category being studied (e.g., iron in sliced processed meats). The sales price per reference portion and the unit price were also documented by calculating the average of the prices observed in the different food stores visited. Note that the format of the Excel file used was developed in accordance with the *Food Label Information Program* (FLIP) platform developed by the University of Toronto, which enables data to be exported to this platform⁶. In addition to the Observatory's work in Québec, this platform is designed to list the nutritional composition of foods as well as the information displayed on the processed food packaging available in Ontario, in particular.

5.3 Food purchases

Sector analyses require the use of a second database linked to consumer food purchases. More specifically, this is Québec-based sales data for a given food category that is provided by the Nielsen company. The majority of the information found there originates from the optical scanning of products purchased at cash registers, representing purchases made in Québec's major grocery chains and drugstores (e.g., Sobeys, Metro, Loblaws [national brands only], Walmart [national brands only]). However, some of the information comes from a projection made from purchasing data from a panel of consumers. *Homescan* (i.e. 12,000 households across Canada, statistically representative of the population) completes the information for non-participating retailers, which is the case for the network of warehouse clubs (e.g., Costco) and dollar stores (e.g., Dollarama), among others. Lastly, since small chains (e.g., Marché Richelieu) cannot provide sales information for all of their stores, an audit was carried out by Nielsen to estimate the market they represent as accurately as possible. Convenience stores and gas stations are not covered by the database, but they represent only 3% of the entire market. It should also be noted that this database covers a period of 52 weeks. The variables analyzed for each product are total sales in Canadian dollars, sales in kilograms, and unit sales for the province for a year.

Sales data originates primarily from optical scanning of products purchased at cash registers and covers a period of 52 weeks.

6 Classification

For each of the food categories studied, the products are classified according to their respective attributes (e.g., type of processing, ingredients, etc.). These classifications make it possible to group similar products together and it thus becomes possible to compare product groups with each other, rather than one product at a time. In this way, the nutritional composition can be analyzed from different angles, consistent with the research objectives and the literature review on the subject. As an example, Table 3 presents the classifications carried out as part of the study on granola bars.

Table 3. Classification of granola bars according to their content and the packaging information

| Classifications | | Definitions |
|---------------------------------|--------------------------------|--|
| Ingredients | Fruits | Includes all fruits (e.g., strawberries, raisins), jams and vegetables. |
| | Nuts | Includes all nuts and seeds, including garnishes. Excludes spice seeds. |
| | Sweets | Includes chocolate (flavoured or not), honey, caramel, marshmallows, cookie dough, maple and nougat. |
| | Fruits and nuts | Contains fruits and nuts. |
| | Fruits and sweets | Contains fruits and sweets. |
| | Nuts and sweets | Contains nuts and sweets. |
| | Fruits, nuts and sweets | Contains fruits, nuts, and sweets. |
| Coating | Cereals only | Contains no fruit, nuts or sweets identified on the main side of the packaging. |
| | Complete | Fully-coated bar (includes all types of coating: chocolate, mocha, yogurt, etc.). |
| | Partial | Partially-coated bar. Includes coulis, glazes and creams. Excludes interior garnishes. |
| Texture | None | Bar without coating. |
| | Muffin | Muffin style, cake, pancake, brownies, rounded ends. |
| | Tender | Soft bar (without being soft like a muffin type bar), sticky, foldable. |
| Target customers | Crunchy | Crumbly, crispy, dry bar, square ends. |
| | Children | The packaging displays or mentions: <ul style="list-style-type: none"> - That it is a product for children; - A character/image/movie/program targeted to children; - An activity or promotion targeted to children; - A fun or amazing theme; - Use for lunch boxes or for school. |
| | Dieters | Intended in particular for people wishing to control their weight. Includes a satiating effect, a brand image and a statement emphasizing low caloric content. |
| | Athletic | Intended for athletic/active people or mentioning energy or protein bars or emphasizing the muscles. Includes trail mix. Excludes protein content claims. |
| Specific characteristics | General population | Without a specific target audience. |
| | Organic | When it is clearly stated on the packaging that it is an organic bar. |
| | Natural appearance | When a term on the package means less processed, fewer preservatives, natural/nature or a derivative term. Includes product name and branding. Excludes terms referring to the origins of ingredients or natural aroma/flavour. |
| Artificial or intense sweetener | Basic | No special characteristics. |
| | With | Contains aspartame, sucralose, maltitol, sorbitol, stevia or polydextrose. |
| | Without | Contains no artificial or intense sweeteners. |

The first classification is generally based on content. This makes it possible to characterize this category of foods in a descriptive manner. It also serves as a basis of comparison for Objective 1 to list the types of products offered on the market. Based on the literature review, additional classifications are then made according to the packaging information. Thus, they vary from one food category to another. However, some of them recur for all categories (e.g., special characteristics). In addition to contributing to research objectives, these classifications are also considered as potentially confounding factors that can affect statistical measurements. This is why they are taken into account when carrying out multivariate analyses (see section 8.2).

7 Data coupling

7.1 Data preparation

Before moving into data coupling, the databases must first be “cleaned.” In fact, for certain food categories, the same product comes in several sizes (e.g., breakfast cereals and dairy desserts). Thus, these products appear in the Nielsen database as many times as there are different sizes. The first step is to combine the sales of all the different sizes of the same product. This step is done manually.

On the other hand, it is important to identify aberrant nutritional data. To do this, all the data is placed in a box plot for each nutrient. That is, half of the data is included in the central box, the median is indicated by the vertical line in the box, the range of the quartiles is represented by horizontal lines, and the extreme data is individually identified by asterisks, where applicable. In this way, it is possible to identify extreme values and examine in depth whether they are plausible or errors. However, this method cannot identify possible errors if the values are not very high or low. When outliers are observed, the manufacturer is contacted to determine the exact value and to correct the database, if necessary.

7.2 Automatic matching with UPCs

The UPC is used to facilitate cross-referencing between the nutritional database and the sales database. This can be used to automatically combine nutritional and sales information for most of the products under study. Depending on the food categories analyzed at the time of writing this report, this method makes it possible to combine, on average, 75% of nutritional composition data with sales data.

On average, 75% of nutritional composition data can be automatically combined with sales data using the UPC code.

7.3 Manual matching with product names

When automatic matching is not possible (around 25% of the data), the data must be manually cross-referenced. This is performed through a manual check of product names. This part helps cross-reference approximately 5% of additional nutritional composition data with sales data. This leads to a total combined data (nutritional composition and sales) for approximately 80% of the products listed.

Note that the percentage of combined data varies depending on factors such as the presence of seasonal products (not retained by the Observatory), but also due to the fact that sales data for private label products from Walmart, Costco and Loblaws is not available in Nielsen databases.

In total, for the first ten categories of food studied by the Observatory, the sales volume of the products identified amounts to \$1.66 billion dollars. Compared to the sales volume of all of these food categories studied, which totals \$2.12 billion, this represents 78% coverage of the Québec market for these food categories.

Overall, the products analyzed by the Observatory represent 78% coverage of the Québec market for these food categories.

Statistical analyses

8.1 Content-based analyses

Before starting the statistical analyses, the nutritional data identified for each food (as indicated on the packaging) is converted into a basis common to the food category under study. For example, for sliced breads, everything is reduced to a portion of two slices and to a portion of 100 g. This makes it possible to compare products for the same reference portion (two slices) or the same weight (100 g).

To provide a general description of the nutritional composition and price per serving (i.e., food supply) of a given food category, means and standard deviations illustrating the distribution of each of these variables (Objective 1) are first calculated. Due to the strong non-normality of the data and their residuals when performing parametric analyses, non-parametric Kruskal-Wallis tests are performed to verify whether the differences between each type of content are significant. Subsequently, the descriptive analyses of Objective 1 are repeated with a weighting proportional to the products sold (in kg), which has the effect of taking into account what the Québec population buys (i.e., food purchases). Weighting the averages according to sales enables us to provide an overview of what Québécois buy and, therefore, what they can really consume by giving greater weight to the most popular products and less weight to those which are rarely purchased (see Figure 2).

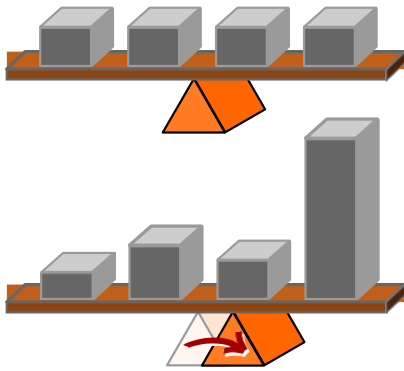


Figure 2. Illustration of the weighted average

The upper part of Figure 2 shows the calculation of the average without weighting. The weight assigned to the four products is the same regardless of the product's sales: the grey rectangles are all the same size. The average for a given nutrient is represented by the location of the pivot (orange prism) so that the board remains in balance. The lower part of Figure 2 represents the calculation of the average of this same nutrient but using weighted data. Using this example, it is possible to see that if a product is rich in a nutrient and this same product is widely sold, the weight attributed to this product will be greater (prism completely on the right). The pivot must, therefore, be moved to the right so that the board remains in balance. In this case, this nutrient's weighted average is higher than the unweighted average.

Beyond the absolute nutritional value presented per serving, it is also possible to image this same nutritional composition in a relative manner by comparing it with the daily value (DV) proposed by Health Canada. The 5% DV threshold generally represents a low quantity of a given nutrient for a reference serving, while the 15% threshold represents a high quantity. Concerning protein, since there is no daily value, the calculation was made using the nutritional reference intakes (i.e., 0.8g per kg of body weight per day, which represents the recommended nutritional intake)⁷. The average weight for a Canadian adult of approximately 75 kg was used from CCHS 2004 data⁸. Thus, the daily value was estimated at 60 g, and therefore, the 15% threshold was set at 9 g. It is important to note that, through its Healthy Eating Strategy⁹, Health Canada is considering the possibility of assigning a front-of-package warning symbol reflecting high levels of nutrients of public health concern (i.e., saturated fats, sugars and sodium). This symbol would then use the 15% DV threshold for the nutrients concerned. Consequently, the Observatory's sectoral analyses provide figures to illustrate what proportion of products in a given food category exceed Health Canada's recommended thresholds for these or other relevant nutrients of interest. An example of such a figure is shown below.

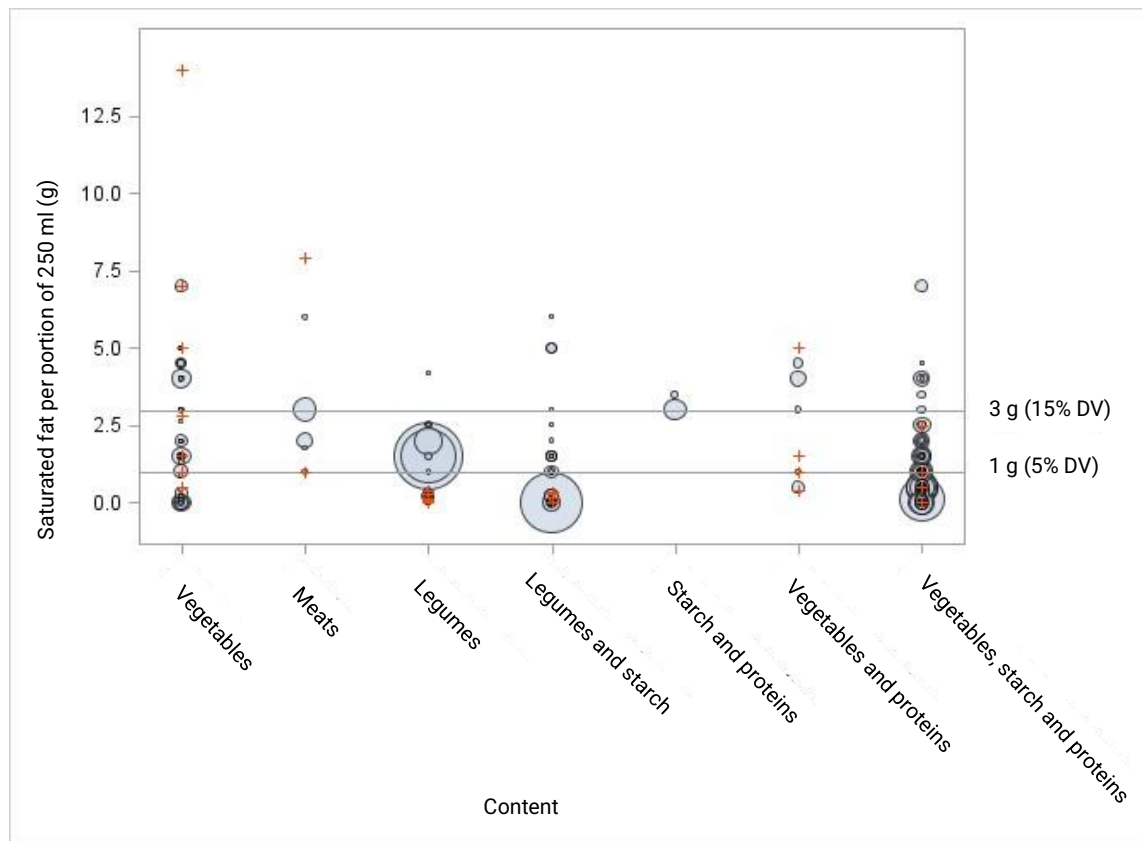


Figure 3. Saturated fat content of different ready-to-serve soups according to their content and sales volume per 250 ml portion

More specifically, types of products are on the X axis and the quantities of the nutrient in question are on the Y axis. Each product is represented by a circle. The bigger the circle, the higher the sales of that product. When no sales data is available for a product, the circle is replaced by a cross.

8.2 Analyses based on information displayed on the front of the packaging

To verify which information displayed on the packaging is most associated with the content of certain nutrients of interest and the price per serving of the food categories (Objective 2), univariate analyses for each nutrient and the sale price are first carried out, both for the offering and for the purchases.

Kruskal-Wallis tests are used for all analyses due to the non-normality of the residuals when using a standard analysis of variance. These analyses are once again repeated by weighting for the sales volume, which helps better represent what the Québec population buys. Then, multivariate analyses are performed on the weighted data by simultaneously considering the content and all the information available on the front of the packaging.

8.3 Sales breakdown and nutrient contribution

To interpret the results by considering the best-selling products (in kg) for each food category, a table indicating the total contribution in sales and nutrients is created. This table includes the 50 best-selling products over a period

of one year, and they are separated according to the type of product. See the example regarding dairy desserts presented in Table 4 below:

Table 4. Contribution of the 50 best-selling dairy desserts, according to their type

| Type | % of dairy desserts | % sales (\$) | % sales (kg) | % saturated fat contribution | % sugar contribution | % protein contribution |
|--------------------------|---------------------|--------------|--------------|------------------------------|----------------------|------------------------|
| Stirred yogurt (n=28) | 8.6 | 26.3 | 36 | 31.5 | 34.2 | 33.5 |
| Liquid yogurt (n=13) | 4.0 | 13.5 | 14.3 | 13.6 | 12.3 | 8.8 |
| Greek yogurt (n=4) | 1.2 | 5.8 | 3.9 | 3.6 | 4.4 | 8.2 |
| Dairy dessert (n=3) | 0.9 | 4.1 | 4.6 | 5.2 | 6.5 | 3.2 |
| Substitute dessert (n=1) | 0.3 | 0.9 | 0.6 | 0.5 | 0.7 | 0.5 |
| Firm yogurt (n=1) | 0.3 | 0.4 | 0.6 | 1.2 | 0.7 | 0.5 |
| Total (n=50) | 15.3 | 51.0 | 60.0 | 55.6 | 58.8 | 54.7 |

Lastly, to examine a food category's sales distribution and total nutritional intake according to the identified classifications (Objective 3), comparative graphs are produced. These illustrate the total contribution of nutrients as well as the sales volume of products and their variety (number of products) according to the different classifications. Here is an example of such a graph:

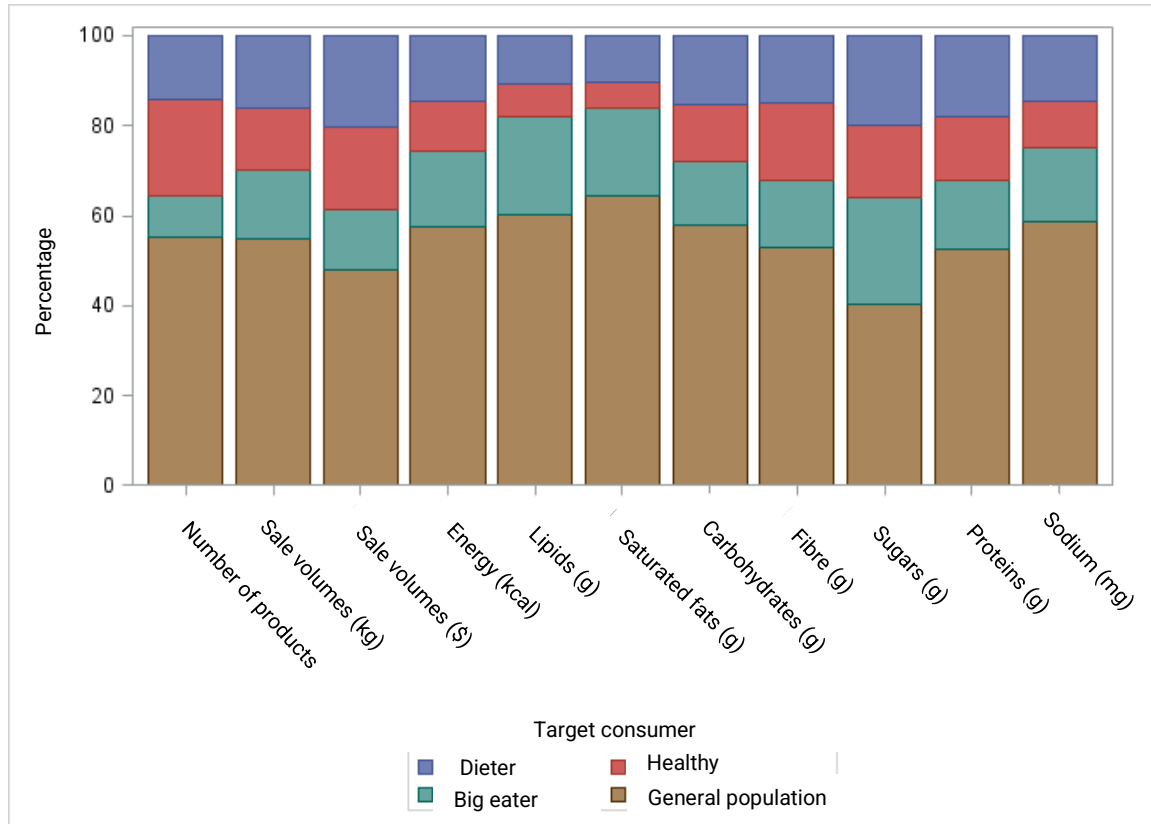


Figure 4. Contribution of frozen meals according to their target customers in relation to the entire offer

Such a graph provides an overview of each nutrient's contribution according to the classification under study for a given category. Purchase data is expressed in dollars (\$). Although also available in kilograms, analyses performed with either unit yielded generally similar results. The nutrient contribution (% of total contribution) is compared to the contribution to total sales (% of sales in kg) in the form of ratios. Only "nutrient contribution/contribution to total sales" ratios less than 0.75 (low contribution) or greater than 1.25 (high contribution) are considered to be contributions significant enough to be reported in the text. For example, in Figure 4, where the results are presented for the target customers for frozen meals, each bar is separated into four, i.e. one colour per target customer. Continuing with this example, the bar for saturated fat represents the contribution of each type of frozen meal (according to its target customers) to the total saturated fat provided by this food category. Therefore, it is possible to notice that frozen meals targeted to the health-conscious population (in red) occupy less space in the saturated fat bar than in the sales volume bar (in kg). It is, therefore, possible to interpret that frozen meals intended for this target customer contribute little to the saturated fats of this food category when compared to the sales of all frozen meals. In other words, meals targeting health-conscious people provide less saturated fat than their sales would suggest. The significance threshold was corrected for all statistical tests using the Bonferroni correction method to consider multiple comparisons.

Conclusion and future perspectives

The analysis of a food category enables us to obtain an overview reflecting the quality of the food offering and the purchases of products available in Québec. This also leads to the identification of general observations relating to the nutritional composition of foods as well as the information displayed on the packaging. Consequently, the Observatory's studies help identify areas for improvement and possible solutions to support innovation in the bio-food industries, as well as to support public health strategies in Québec.

The methodology used can be used again to monitor the evolution of these food categories for supply and sales in Québec. The Observatory will then develop a rigorous monitoring methodology, which will begin with a review of the literature to verify how such monitoring is carried out elsewhere in the world. Although certain methodological elements can be adopted without too many modifications, it is expected that other aspects will have to be adapted for monitoring food categories over the years. For example, when reformulating a product, if the ingredient list is significantly changed, the UPC must be changed, although the product name and branding may remain the same. Thus, a challenge envisaged will be to monitor products that do not have the same UPC code but actually represent the same product for which a reformulation has taken place.

Ultimately, the food supply characterization and monitoring system developed by the Observatory will make it possible to obtain an accurate and scalable picture of a wide range of processed products available and purchased by Québécois. With the intention of acting as a partner, the Observatory collaborates and will continue to collaborate with all the stakeholders involved, such as the bio-food industries, public health and consumer representatives. Ultimately, it is desirable to increase the proportion of food products with better nutritional value in the Québec market and make them accessible to everyone.

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