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ADVANTAGES AND LIMITATIONS OF THE FRONT-OF-PACKAGE (FOP) LABELING SYSTEMS IN GUIDING THE CONSUMERS' HEALTHY FOOD CHOICE

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Abstract

In the last decades, nutrition labels have provided an increasing amount of information about the nutritional value of a foodstuff, in a variety of patterns, having the main goal to help consumers in making healthier food choices.

Now, many questions appeared related to the effectiveness of nutrition information in guiding the consumer purchasing behaviour, by encouraging the healthy foods choice. It becomes increasingly clear that many consumers have difficulties in understanding the nutritional information, preferring a simpler way in providing this information, helping them in the rapid evaluation of the nutritional characteristics of a foodstuff.

In response to the obvious need to develop a more effective presentation of nutritional information, which convey this information in a simplified and systematic manner, manufacturers and retailers from different countries have created some systems for signalling the nutritional profile. For the nutritional information of greatest interest to be easily perceived by consumers, they have used various forms of graphical representation, that were marked on the front of individual packages (generically called "front of package" - FOP). Although created in order to facilitate healthy food choices, the effect of these FOP systems on consumers is now controversial.

Following a literature review, the paper highlights the main benefits and limitations of the widely used FOP systems in the European Union ("Traffic Light" and "Guideline Daily Amounts"). The paper presents also some suggestions for developing an optimal FOP system, standardized and adapted to consumers' needs.

Keywords: nutritional labelling, Front – of – Package systems, “Traffic Light”, „Guideline Daily Amounts”, consumer perception, food choice

JEL Classification: M 21, M31, P 36

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Introduction

In the evolution of nutritional label, the information content was constantly enriched; this being determined by various educational, socio-cultural and economic factors (Popescu and Popescu, 2008).

The starting point was the declaration of the three energetic components (proteins, carbohydrates, fats) and the energy conferred by them.

Since 1990, on the recommendation of Codex Alimentarius Commission, the EU Council adopted the Directive 90/496/EEC concerning the nutritional labelling, which stated that when the nutritional information are provided to consumers, this must be done in the form of two following models:

- The Group 1 (energy value and amounts of macronutrients that is protein, carbohydrates and fats);
- The Group 2 (energy value and amounts of macronutrients besides, sugars, saturated fat, fibre and sodium).

EU Regulation 1924/2006 states that the nutrition label is required only when food packages contain nutritional or health claims (article 7).

A step forward in consumer protection and in its orientation to a healthy diet can be considered the introduction, in 2011, of the declaration of nutrition information as a mandatory requirement, through the EU Regulation No. 1169 regarding the providing information on foods.

Mandatory nutritional information that must be declared at 100 g/100 ml of foodstuff or at serving size refers to:

- *energy value;*
- *quantities of fat, saturated fats, carbohydrates, sugars, protein and salt* (if applicable, a statement justifying the content of salt by the presence of natural sodium may occur in close proximity to the nutrition declaration).

The nutritional information above can be completed with the amounts of one or more of the following components: monounsaturated fatty acids, polyunsaturated fatty acids, polyols, starch, dietary fibre, vitamins and minerals present in the product in significant quantities.

In terms of practical ways of declaring the nutritional information, producers may choose between *a simple label*, which supposes to declare quantitatively (only in numbers) the nutritional information and *a complex label*, which requires the energy and key nutrients both quantitative and as a percentage (which indicate the coverage of recommended daily allowance) and also to mention the reference values of some nutrients, for a diet with 2000 kcal or 2500 kcal. This complex manner of declaration is most popular in the USA (Bobe and Procopie, 2011).

Although food labels offer an increasing amount of information about the nutritional value, in a variety of patterns, with the main purpose to help the consumer's healthy food choices, now appeared many questions about the effectiveness of nutritional information in guiding the purchasing behaviour.

The major obstacles in the correct use of the nutritional information could be considered: the lack of basic nutritional knowledge, the lack of cognitive skills required to use the nutrition labels in order to compare products and to interpret the nutrients in the context of the whole diet and, also, the lack of time to read labels in real purchasing situations (Wartella et al., 2011; Grunert, 2009).

So, it became obviously that many consumers have difficulties in understanding the complex nutritional information presented on labels. They prefer a simpler way to receive this information, considering it more helpful in the rapid evaluation of the nutritional characteristics of a foodstuff, so that this will enable them to make healthy choices (Lynam et al., 2011; Möser et al., 2010; Filip, 2011).

1. Advantages and limitations of the widely used FOP systems: "Traffic Light" (TL) and "Guideline Daily amounts" (GDA)

In response to the obvious need to develop a better way to present the nutritional information of a foodstuff, food manufacturers, retailers and non-profit organizations from different countries have created a series of signposting systems of nutritional profile. These systems have the main goal to provide the nutritional information to consumers, in a simplified and systematized format.

To be easier perceived by consumers, nutritional information was marked on the front of the package, using different symbols or formats. Therefore, these systems have acquired the generic name of Front-of-Package (FOP) systems and are also well distributed and used at international level.

The first FOP systems, which occurred in the late of '80, were based on a single symbol and were developed by non-profit's organizations. Such a symbol is, for example, "Heart Guide" (Fig. no. 1) created in 1987 by the American Heart Association (AHA) to signal to consumers that a foodstuff is "friendly" with heart. "Keyhole" symbol (Fig. no. 2) was developed in Sweden in 1989, to help consumers identify the healthier options when buying food and then was spread in Denmark and Norway, to help consumers identify the healthier options when buying foodstuffs (Wartella et al., 2011). These were followed by numerous other initiatives (Institute of Medicine of the National Academies, 2001).



Figure no. 1: "Heart Guide" Symbol



Figure no. 2: "Keyhole" Symbol

Since 2004, some food manufacturers began to develop their own FOP systems. Food retailers also participated in this process and they have developed their own systems, which they have used on their brands or in their supermarkets.

In the European Union are used voluntarily two FOP systems – "Traffic Light" (TL) and "Guideline Daily Amounts" (GDA) – each of them having both advantages and numerous limitations.

1.1 „Traffic Light” System

The "Traffic Light" system (TL) was developed in UK, in 2006, by the Food Standards Agency (FSA) and enjoyed the support of many non-profit organizations from the food field. In creating this system, the main objective of FSA was to help consumers in making healthy food choices and overcome the difficulties that consumers had with the previous nutrition label systems (Food Standards Agency, 2008). At present, the TL system is used voluntarily, especially in the UK, only by some manufacturers and retailers (some of them being Sainsbury and Waitrose).

The FOP labelling system, which uses colour coding of traffic lights, warns consumers about the high (red), moderate (yellow) or low (green) content of undesirable nutrients in foodstuffs (total fat, saturated fat, sugars and salt) (Fig. no. 3). The criteria for assigning the colour code were determined by the FSA (Borgmeier and Westenhoefer, 2009).



Figure no. 3: "Traffic Light" System

Source: British Nutrition Foundation, 2012

The "Traffic Light" is supported by numerous health organizations, which considered that it shows a clear and simple message to consumers at the point of sale, having the capacity to influence the healthy foodstuffs choice (Sacks et al., 2009).

The system is useful to all consumers' categories (regardless of age or sex or socio-economic strata), especially for those that were recommended to reduce the intake of fat, sugar or salt in the diet and can be a tool for forming healthy eating habits among children and adolescents.

As the nutritional values are declared for 100 g or 100 ml of foodstuff as opposed to a portion of consumption, the "Traffic Light" system does not allow handling the nutritional profile by the manufacturer.

In comprehensive reviews of the literature on consumer use and response to traffic light system, one the criticism addressed to this system is that it focuses only on the negative nutrients, which makes it inefficient when comparing foods from the same category, which contain also positive nutrients. In case that many foodstuffs have an equal combination of red and green colours, TL doesn't give a clear indication of which foodstuff is recommended.

Grunert and Wills (2007) note that consumers are more interested in some nutrition information like calories and fat, followed by salt and sugar; this means that information on nutrition principles do not all have the same weight in the choice of a foodstuff.

Balcome et al. (2010) and Hieke and Wilczynski (2012) note that consumers have a hierarchy of importance in terms of perception of the various colours: the consumers placed greater emphasis on a change in a product's nutrient characteristic from red to amber compared with a change from amber to green.

In addition, TL system doesn't provide guidance on the consumption frequency of a foodstuff in the overall diet. Indeed, Chandon and Wansink (2006) note that consumers who choose healthy foods according to nutrition labels, they are willing to compensate the choice with a sort of indulgence, producing a negative impact in terms of dietary intake.

Another important criticism against TL is that it may disadvantage certain categories of foodstuffs, for example dairy products, where it is difficult to avoid red colour for saturated fat, despite the presence of many beneficial nutrients (Wartella et al., 2011).

1.2. "Guideline Daily Amounts" System

The "Guideline Daily amounts" (GDA) was created by the Institute of Grocery Distribution (IGD) from UK and it enjoyed a great support from the food industry. The use of GDA system across Europe since 2006 was a voluntary initiative of the EU food industry representatives, gathered under the umbrella of the European Confederation of the Food and Drink Industries (CIAA). The initiative enjoyed the support of the European Commission and European Parliament, being considered a proof of the commitments undertaken by the partners of the social dialogue from the European Platform for Nutrition, Physical Activity and Health.

GDA system is a guide to how much energy and nutrients are present in a portion of a food or beverage. So the GDA label makes it easier for consumers to see what proportion of their daily nutritional needs is met by a particular food or drink and helps them to choose a balanced diet. The GDA system is intended to be a guide for consumers' orientation on the maximum amount of certain nutrients with negative impact on health, which they should consume daily. The aim of GDA is to provide typical energy and macronutrients intake levels that most people are advised to consume daily for a healthy diet (Fletcher, 2006).

Without using colour coding, GDA system provides information to consumers about the energy and also the content sugars, total fat and saturated fat and salt in a serving size, which is recommended by the manufacturer (CIAA (2006) recommends the serving size should reflect the amount of the product that can reasonably be expected to be consumed on an eating or drinking occasion). The GDA label shows also the contribution (in %) of the portion size to the reference values of energy, total fat, saturated fat, sugars and salt recommended for an adult (Sanitarium Health & Wellbeing, 2011) (Figure no. 4).

Reference values represent an estimate of energy and nutrients needs for healthy adults, based on international recommendations. The GDA percent (%) used in food labelling are calculated by taking into consideration the daily recommended values for an adult woman with medium level of activity, because it is considered an appropriate average for most

population needs: Calories - 2000 kcal, Protein - 50g, Carbohydrates - 270g, Sugars - 90g, Fat - 70g, Saturated fat - 20g, Fiber - 25g, Sodium/salt - 2.4 g/6g.

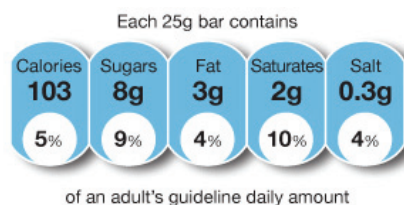


Figure no. 4: "Guideline Daily Amounts" System

Source: http://gda.ciaa.eu/custom_documents/

Most critics of the GDA system underlined the difficulty of understanding the nutritional information by consumers, particularly those with poor levels of education and pointed out that the scientific basis for the reference levels does not seem so clear.

The system is based on the numerical expression of energy and nutrients, without using any colour coding, so consumers should look carefully at the data, in order to make value judgments on foodstuffs.

Because the GDA system does not reflect the quality of nutrients contained in a foodstuff, focusing only on the quantitative aspect of the negative nutrients, most consumers could be confused (www.foodpolitics.com). Indeed, the GDAs are based on the nutrition requirements for an average adult of healthy weight and average activity level so several consumer segments can make uncorrected choices like children, pregnant woman and elderly people. Besides, the system is based on serving size set by the manufacturer, which is not consistent, thus favouring the handling of the nutritional profile of the foodstuff. Thus, especially for food products with high calories, like snacks and crisps, the displaying with a comparatively small portion may increase the consumers' confusion.

2. Secondary sources research regarding the consumer perception and understanding of FOP systems

K. Grunert and J. Wills (2007) realized a systematic review of 58 studies conducted in the 15 EU countries on how consumers perceive, understand, like and use the nutrition information on food labels. One of the main conclusions emerged from this review was that there is a widespread interest for nutrition information on food packages. Generally, consumers understand the link between food and health and most of them have an interest in using the nutritional information (women report more reading of nutrition labels than men).

The placement of nutrition information on the front of food packages, in order to supplement the more complex nutrition table on the back, is supported by consumers as a method of providing simplified and visible nutrition information (Kelly et al., 2009).

Front-of-pack (FOP) labels, which provide summary information on the healthiness of a foodstuff, widely used now across EU countries, are approached as means to help consumers in making informed food choices, considering that much more informed food choices will lead to a healthier diet.

Many food manufacturers and retailers from Europe voluntarily use these various schemes and many FOP labelling patterns now coexist in many countries and even in the same food retail chain. An audit assessing the penetration of FOP labels in some foodstuffs categories in the EU countries found that about 48% of the products contained FOP nutrition information (with the highest penetration of 82% in the UK) (Draper et al., 2011). But, there is only limited evidence regarding which FOP pattern is the best in helping consumers to differentiate between more or less healthy foodstuffs (Borgmeier and Westenhoefer, 2009).

Many market researches, realized all over the world, focused on the consumers' perception and understanding of the two most widely used FOP labels - "Traffic Light"(TL) and "Guideline Daily Amounts"(GDA).

The results from an UK market study on food labels, realized by European Food Information Council (EUFIC) in 2008, shows that only one in four consumers looks for nutrition information on foodstuffs' package in supermarkets and UK consumers spend around 25 seconds in adopting a purchase decision of a foodstuff. This study revealed a high awareness of consumers for both GDA and TL labelling systems. In terms of understanding, the GDA concept is good (with 89% of consumers correctly defining a guideline daily amount as a maximum rather than a target to reach). The understanding of the "Traffic Light" system seems to be characterized by some exaggeration of the meaning of the colours (73% of consumers thought that red colour indicated avoidance rather than the occasional consumption) and a lack of understanding that the system is applied per 100g (EUFIC, 2008).

The results of a study realized in Germany indicate that FOP labels help consumers to identify healthier foods better than the labels without a FOP symbol. But there are differences in the efficacy of the different FOP label formats to support the correct decision about the more healthy foodstuffs, especially when comparing different foodstuffs from the same category. This study shows that the "Traffic Light" label helps better the German consumers to identify healthier foods' option (Borgmeier and Westenhoefer, 2009).

A study realized in Australia tested the acceptability and effectiveness of FOP systems for Australian consumers. The study showed that TL system was the most effective in assisting consumers to identify healthier foods (using the TL system consumers were five times more capable to identify healthier foods compared with the GDA system). Australian consumers supported the introduction of consequent FOP food label (Kelly et al., 2009).

Another problem, emphasized by some researches (Schor et al., 2010), is represented by the coexistence of many FOP systems in the same market place, which can mislead the consumer.

A research of Grunert and Wills (2007) highlighted the idea that having many FOP systems in the same market could be confusing for consumers, particularly if the information contained in each is difficult to be compared by the consumers.

The above idea is supported by Draper et al. (2011), who showed that the lack of standardization in FOP labels (for example, in the use of colour in FOP schemes), causes confusion and can lead the consumers to incorrect conclusions.

Thus, the results of the analyzed researches strengthen the need for a standardized FOP system which, beyond providing information, will encourage comparison between foodstuffs and healthier food choices by consumers.

3. “Healthy Eating System” – a possible solution for optimizing the FOP nutritional label

Taking into account the results of a market research for understanding the consumer perception on the effectiveness of FOP systems in orientation for the healthiest food options, in 2011, the Sanitarium Health & Wellbeing company (which is one of the most trusted food brands in Australia and New Zealand), in cooperation with Public Health Association from Australia had proposed a new FOP labelling system, based on the strengths of the existing systems (Traffic Light and GDA), which was intended to overcome their limitations.

The new model, called "Healthy Eating System" (HES), uses colour coding and incorporates the following elements (Fig. no. 5):

- undesirable nutrients, associated with the increased risk of chronic diseases (saturated fat, sugars, salt);
- parameters with positive impact on health: whole ingredients and dietary fibre, in grams per 100 g of foodstuff (marked by two distinct icons, such as "fruit, vegetables, whole grains, nuts and legumes" and "fibre").

Thus, by including parameters related to whole ingredients and fibre, the system highlights also the items with positive impact on health, answering at the most important criticisms of the "Traffic Light" system.

In addition, the "Healthy Eating System" includes a general dietary advice for consumers, which may result in: "eat often", "eat occasionally" or "eat sparingly". These recommendations are based on nutritional criteria imposed by FSANZ (Food Standards Australia & New Zealand).



Figure no. 5: Exemple of label: “Healthy Eating System”

Source: Sanitarium Health & Wellbeing, 2011

Due to its suggestive design, the "Healthy Eating System" nutritional label provides the following advantages, compared to other two systems described above (Sanitarium Health & Wellbeing, 2011):

- informs consumers about the consumption frequency of certain foodstuffs in order to better meet the dietary guidelines;

- provides consumers the ability to discriminate qualitatively between foodstuffs that have similar levels of undesirable components, but different levels of nutrients with positive impact.

- educates consumers to associate the different foods to a frequent or occasional consumption.

A potential criticism that could be address to this system it refers at the fact that it includes information regarding the content of some ingredients, which are currently not covered by the labelling requirement.

Conclusions

Generally, consumers have favourable opinions regarding FOP nutritional labels considered to be helpful in making healthy food choices at the supermarket.

Research realized in different countries to highlight the consumer perception on the effectiveness of FOP nutritional labelling in the choice of healthy food shows that they have many advantages, but also numerous limitations.

Therefore, it is necessary to continue the research in this area, for developing an optimal FOP nutritional labelling adapted to consumers' needs. An optimal FOP should not require from consumer an advanced knowledge of nutrition and high cognitive effort for interpretation. Besides, should be easy to use it in a practical situation of purchase, when consumer must choose from a wide variety of products and take the purchasing decision in a short time.

Therefore, we consider that an optimal FOP system should satisfy the following requirements:

- To attract consumers' attention, to be understandable and useful to consumers at the point of sale, through an attractive graphic design, using colours and contrast (Constantinescu, 2011);

- To be adapted to the public health policies and current dietary guidelines, which are primarily intended to reduce the incidence of chronic diseases among the population, by reducing the consumption of saturated fats and trans fats, salt and sugars;

- To guide consumers on how to integrate a foodstuff in the overall diet, through the presentation of the beneficial components of foodstuff, along with the items associated with the increasing risk of chronic diseases, and also by suggesting the appropriate amount and consumption frequency of a foodstuff;

- To provide guidance on whether a foodstuff contains reasonable amounts of components considered harmful to health if consumed over a certain threshold or excess (saturated and trans fats, salt and added sugar). An idea supported by American researchers (Wartella et al., 2011) is to put on the labels some so-called "nutritional points" (from 0 to 3), which will alert consumers about the acceptable amount of the undesirable components.

Specifically, a foodstuff may earn one point for an acceptable level of sodium, one point for an acceptable level of saturated fat and/or trans and one point for an acceptable level of sugar. If all negative components are present in a foodstuff in amounts that exceed the maximum threshold, then that foodstuff will not be eligible for any points. Thus, foodstuffs may be marked from zero to maximum three "nutritional points", which could be useful to consumer in avoiding those foodstuffs containing negative nutrients over the recommended limits;

- To be used mandatory, so that by marking it to all packaged foodstuffs, to allow consumers to compare both products in the same category and products belonging to different categories.

Although, in general, consumers support these FOP systems, considering it an aid for shopping, however the coexistence of several FOP systems in the same market creates confusion in the consumers' minds or lead to misinterpretation of the nutritional information.

But, the label impact in promoting healthy food choices could be enforced by achieving greater consistency in the format of FOP nutritional label. Besides, nutrition criteria are used both for FOP labelling system both for single-summary label (e.g. Smart Choices for cereal in USA).

The use of FOP nutritional labels brings benefits not only to consumers, but also to food manufacturers and retailers who implement these systems, because it has noticed an increase of sales over time for the products that FOP label indicated as a "healthier choice" (Hersey et al., 2011). In fact, producers who sell their products according with recommendations for healthy eating, may profit from a first mover advantage and push other producers to make the same.

In order to achieve these goals, also the policy makers should set up a mandatory regulation framework to promote simplified FOP labels to make the consumer enable to choice healthier foodstuffs.

A mandatory and standardized FOP system, besides helping consumer in food choice and purchase decision, it could also drive producers to modify their products and improve the quality and also the nutritional profile of foodstuffs, in order to be more appropriate to the dietary guidelines, which will bring a further important benefit for consumers' health and quality of life (Negrea, 2008).

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