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Food Labelled Information: An Empirical Analysis of Consumer Preferences

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ABSTRACT

This paper aims at analysing which kinds of currently labelled information are of interest and actually used by consumers, and which additional kinds could improve consumer choices. We investigate the attitude of consumers with respect to innovative strategies for the diffusion of product information, as smart-labels for mobile-phones. The empirical analysis was organised in focus groups followed by a survey on 240 consumers. Results show that the most important nutritional claims are vitamins, energy and fat content. Consumers show a high interest in the origin of the products, GMOs, environmental impact, animal welfare and type of breeding

Keywords: food labelling, consumer preferences, food product attributes, focus group, survey.

JEL: Q18; D12; I18

1   Introduction

Over the last decade the interest in issues connected to health and the environment has grown among consumers, impacting their food consumption choices. The problems related to intolerance, allergies, food-related diseases, overweight and obesity are rapidly increasing (European Commission 2007). In addition, the consequences of environmental degradation and pollution have increased the awareness of consumers related to the impacts of everyday choices. Indeed, environmental recommendations are gradually assuming a more important role, affecting consumer behaviour regarding food choices. At the same time, in the last fifteen years food products have been involved in various episodes of food poisoning and scares (McEachern and Schroder 2004, Grunert 2005). Consumers are increasingly careful about what they eat, and, on the supply side, food companies are adopting strategies aimed at satisfying new market demands connected to food products.

For these reasons, consumer interest towards food knowledge is growing and an important role is played by information. The theoretical theory at the basis of our analysis is indeed the economics of information (Stigler 1961, Akerlof 1970). More specifically, among the different sources of information available to the consumer, labelling can support customers in making choices connected to their preferences in terms of qualitative features by reducing information asymmetry and, thus, improving economic efficiency (Verbeke and Ward 2006, Grebitus et al. 2010, Menapace et al. 2011).

In industrialized countries, legislation on labelled information, that can affect consumers in capturing specific attributes of food products, is aimed at avoiding opportunistic behaviour by producers. Indeed, the new EU Regulation No. 1169/2011, published in October 2011, establishes a set of rules concerning mandatory information, nutritional facts and graphical standards for food product labelling in the EU.

At the same time, adding voluntary additional information may represent a tool to differentiate products

and to communicate quality attributes to the consumer (Golan et al. 2000). Nevertheless, the space available on packaging is limited and, therefore, some information cannot be reported even if it is important for consumers (Tonsor 2011).

On the other hand, an excess of claims on food packaging can lead to a situation of information overloading for consumers (Wansink et al. 2004). This overloading represents a potential source of noise for consumers, and it may prevent them from making optimal decisions. Time-related issues may also deter consumers to carefully read all the information available on food product labels (Nayga 2000, Drichoutis et al. 2005a).

Moreover, different segments of consumers are characterised by different specific needs in terms of information on attributes of food products. In this sense, it is possible to suppose a latent demand for personalised information. At the same time, on the supply side, companies should understand which are the most important kinds of information for consumers (Cacciolatti et al., 2012). Some of these can be reported on the product labels and some other can be diffused through alternative tools. This paper was developed in the context of a research project concerning the development of a smart label on food products to be read by mobile phones.

The aim of this paper is to analyse which kinds of currently labelled information are mainly used by consumers and which additional types could be requested. Moreover, we investigate the attitude of consumers with respect to innovative strategies for the diffusion of product information. The final aim is to gather information for the development of a smart label for mobile phones. This would allow consumers to access additional information on food products that is now not available, and to receive personalised information that is of actual interest to them.

The paper is organized in six sections. In section 2, we describe previous literature findings on consumer preferences related to food labels. In section 3, we present the methodology used for the analysis. Section 4 examines the results of the focus groups, whereas section 5 reports the results of the *vis-a-vis* survey. The concluding remarks are drawn in the final section.

2   Consumer preferences for food information and product attributes

Many studies have investigated the relationship between consumer preferences for food products and labelled information, trying to understand the determinants of consumer choices related to the information available and consumer knowledge (Bender and Derby 1992, Caswell and Mojduszka 1996, Wansink et al. 2004, Drichoutis et al. 2005a). Indeed, the food market, as those for other goods, is characterised by imperfect and multifaceted information (Stigler 1961, Akerlof 1970), and a crucial issue is to comprehend how consumers search and evaluate the quality of food products during the purchasing decision process.

In general terms, not all consumers use labelled information. The use of this information is favoured by the being able to gain a benefit that balances the costs of understanding the labelled information (Nayga 2000, Drichoutis et al. 2005a, Stranieri et al., 2010). Individual differences, like education, nutritional knowledge, income, age and gender can affect the purchasing behaviour and, at same time, the preferences for different kinds of information (Nayga 2000, Drichoutis et al. 2005a).

Analysing the literature we were able to identify several categories of attributes that interest mainly different types of consumers with different preferences (Figure 1).

The attributes that most commonly influence consumer choices are related to very immediate signals like product price and brand. Consumers that base their choices mainly on price are often characterised by a low income (Glanz et al. 1998, Drewnowski and Darmon 2005). Instead, those that consider brand as a crucial signal in their purchasing process often belong to families with children, and also tend to pay more attention to food quality rather than to price (Revoredo-Giha et al., 2011). Following some empirical studies, consumers who attribute greater importance to price are less likely to use nutrition information (Drichoutis et al. 2005b) or claims related to quality assurance schemes connected to food safety issues (Fearne et al. 2001).

Another type of information that plays a very important role in consumer choices is represented by the food safety characteristics like expiry dates, and the presence of specific ingredients and additives. In particular, consumers seem to pay attention to the presence of Genetically-Modified Organisms (GMOs), absence of pesticides, and ingredients that can lead to allergies or intolerances. Therefore, these kinds of information can be viewed as proxies for food safety (Caswell et al. 2002, Stranieri et al. 2010).

Nutritional aspects are another set of attributes that interest consumers. In particular, an important

segment of consumers that look at nutrition claims is that of old women (Byrd-Bredbenner and Kiefer 2000) and people with specific dietary habits (Nayga et al. 1998). Indeed, old people appreciate risk reducing strategies more than younger consumers (Drichoutis et al. 2005a, Todd and Variyam 2008, Stranieri et al. 2010). Moreover, highly educated consumers seem to be more able at using nutritional information due to a greater capability to comprehend and interpret this kind of information (Mitchell and Boustani 1993, Wang et al. 1995, Nayga et al. 1998, Govindasamy and Italia 1999). Overweight people and those who are intolerant or allergic to particular food ingredients are also interested in these attributes, as they have specific nutritional needs related their diet conditions. Instead, obesity does not seem to have an effect (Drichoutis et al. 2008).
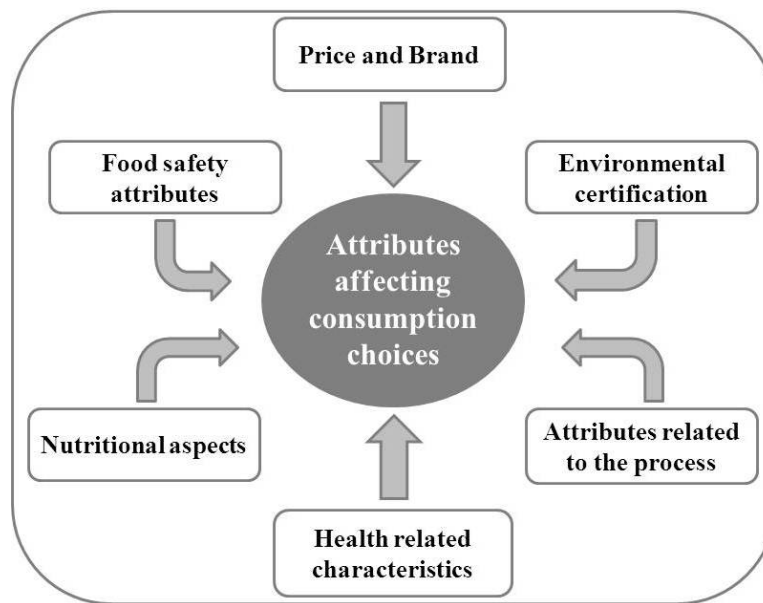

Figure 1. Conceptual framework: attributes and related information affecting consumption choices

Moreover, consumer interest towards attributes concerning health-related characteristics is recently growing (Wansink et al. 2004). These seem to be important mostly to middle-aged men and women: especially, older individuals show a particular interest in the presence of health-related information on food labels. This may be connected to the greater risk of disease because of their age (Todd and Variyam 2008). These consumers also tend to read nutrition information such as calories, fat content, cholesterol and sodium.

Process characteristics are also becoming increasingly important to consumers. These include the origin of the product, the type of breeding, and practices connected to organic agriculture (McEachern and Schroder 2004, Banterle and Stranieri 2008, Haghiri et al. 2009, Grebitus et al. 2010, Menapace et al. 2011).

Moreover, the presence of ecological certifications is starting to shape the choices of certain groups of people (Johnston et al. 2001, Kemp et al. 2010, Tait et al. 2011). Consumers who look for information dealing with environmental issues, like carbon emissions, water usage, type of packaging and food miles, show a willingness to pay for this kind of certification (Johnston et al. 2001, Tait et al. 2011). Often they are young consumers with high income and a high level of education.

This short review shows that several studies analyse the relation between attribute information and consumers choices concerning food products. In this context, it is not clear which kinds of information are the most interesting for consumers and what is the optimal 'amount' of information that should be placed on labels. Indeed, a high amount of labelled information can reduce information asymmetry between consumer and producers and, consequently, potential opportunistic behaviour by producers. On the other hand, an information surplus can represent a potential source of threat for consumer optimal choices, as it may discourage label use and lead to information overloading.

The aim of our analysis is to add to this topic by evaluating consumer interest with respect to different types of information, already present on food packaging or of additional kinds.

3   Methodological issues

The empirical analysis of consumer interest on food attributes and their related claims has been carried out through three focus groups (Phase I) and a survey on a larger sample (Phase II). The analysis focusses on information that is normally found on labels and on new types of information that could be added to it.

Data for the first phase were collected through three focus groups conducted in May and June 2011 in Milan, Italy. Each session involved 12 participants (six men and six women) with a total of 36 adult consumers. The focus groups were facilitated by a moderator and lasted about two hours each. The aim of the focus groups was to identify the needs, expectations, and problems of consumers with respect to information on food products.

Participants were screened to ensure that they were adults who have complete (or substantial) responsibility for grocery shopping for their household. They were selected on the basis of their socio-economic condition in order to choose participants in line with the characteristics of consumer segments that, from the economic literature, appear to be more interested to the different attribute categories of food products.

Following the conceptual framework outlined in figure 1, we have considered the following variables as proxies of the different categories of food attributes, except for price and brand which are not analysed because they are largely evaluated in the literature:

- Food safety attributes: presence/absence of GMOs, integrated pest management product (pesticides);
- Nutritional aspects: energy, fat, sugar, vitamin, fibre, sodium content;
- Health related characteristics: functional foods, probiotics, food properties;
- Attributes related to the process: origin of product, animal welfare, breeding, organic agriculture, fair-trade product;
- Ecological certification: carbon foot print, water saving, packaging, food miles.

In addition to these, we have analysed also other variables like recipes, general curiosities, historical curiosities, didactics information, non-food uses, food knowledge information, retailer information.

In Table 1, the variables considered are classified on the basis of their current availability on the product label. Table 2 reports the description of the types of information that are not currently present on food labels that we consider.

The discussion of the focus group was structured in three steps. The first step aimed at evaluating the importance for the purchasing process attributed by consumers to different sets of information currently available on food labels. Even if the focus group is a qualitative method to collect information about consumers, after the discussion we asked the participants to rate their preferences for each of the attributes reported in Table 1 in order to quantify them.

Table 1.
Set of variables used in the analysis

	Currently available	**Currently unavailable**
FOOD SAFETY ATTRIBUTES	GMOs Pesticides	
NUTRITIONAL ASPECTS	Energy content Fat content Sugar content Vitamin content Fibre content Sodium content	
HEALTH RELATED CHARACTERISTICS	Functional foods Probiotics	Food properties
ATTRIBUTES RELATED TO THE PROCESS	Origin of product Organic Agriculture Fair trade product	Animal welfare Breeding
ENVIRONMENTAL CERTIFICATION		Carbon footprint Water saving Packaging Food miles
OTHER INFORMATION	Recipes	General curiosities Historical curiosities Didactics information Non-food uses Food knowledge information Retailer information

The second step of the discussion continued with a set of questions regarding information that are currently unavailable on food labels and we asked participants to rank their interest in receiving greater details on the types of information reported in Table 2. The level of interest was measured through a seven point Likert scale, where 1 corresponds to the minimum level of interest.

The third step of the focus group discussion was dedicated to consumer interest towards the possibility of using a smart label. The aim was to assess whether consumers would:

- spend more time to inquire about food products if they had the possibility to easily access, even from home, additional information;
- pay more for a food product with immediate, convenient, personalized, and updated information through the smart label;
- prefer to receive information on their smart phone or to read it directly in the store.

Table 2.

Description of the information currently unavailable on food labels

Variable name	Description
HEALTH RELATED CHARACTERISTICS	
Food properties	Presence of antioxidants or psychoactive compounds (e.g. chocolate) or vasoactive (coffee). What is their effect on the organism, how they act and what other foods contain them, etc.
ATTRIBUTES RELATED TO THE PROCESS	
Animal welfare	Animal quality of life.
Breeding	Kind of breeding.
ENVIRONMENTAL CERTIFICATION	
Carbon footprint	The impact that human activities have on the environment, and in particular climate change. It relates to the amount of greenhouse gases emitted into the atmosphere.
Water saving	Water conservation refers to reducing the usage of water and to recycling waste water for different purposes such as cleaning, manufacturing, and agricultural irrigation.
Packaging	Sustainable packaging, recyclable materials and reusable packages.
Food miles	Term which refers to the distance for which food is transported from the time of its production until it reaches the consumer. Food miles are one factor used when assessing the environmental impact of food products.
OTHER INFORMATION	
General curiosities	For example: What is the amount of grapes used to make 1 bottle of wine? How much flour is used to make bread? Etc.
Historical curiosities	For example: How the saffron turned out edible? Etc.
Didactics information	For example: What are GMOs? Oganic Agriculture? Etc.
Non-food uses	For example: How to use cucumbers as face masks, chamomile as shampoo for hair, etc.
Food Knowledge information	How to combine legumes and grains, eating fruits and vegetables 5 times a day, etc.
Retailer information	Address and references of local producers on typical products.

Data for the second phase of the analysis was collected through a survey based on an ad hoc questionnaire, pretested on a small sample of 40 consumers. 240 consumers, which are in charge of their household grocery shopping, were selected in front of 12 supermarkets and 6 hypermarkets in Milan. The selection of the retail stores was based on random sampling stratified with respect to geographical distribution. More specifically, we listed all available retail stores in the Milan area according to their postcode. We then extracted a random number between zero and the sampling fraction to identify the first retail store. The remaining stores were selected adding to this number the sampling fraction. Taking into account the size of the retail stores, 10 consumers were recruited at each supermarket and 20 at each hypermarket. Consumers were randomly approached; to try to reach different kind of consumers, the survey was distributed over different daily time segments.

The answers to the questions of the survey were arranged in a multiple-choice format based on a Likert scale from 1 to 5, except for gender and age. The first set of variables is related to the socio-demographic conditions of the respondent: age, gender, level of education and income. Then, we analyse the types of information that are currently available on food product labels, and those that are not available, but could be added on smart labels if interest by consumers is found to be high enough.

4 Phase I: Focus groups

4.1 Focus group sample description

The group of participants in the three focus groups had the following socio-demographic characteristics: 33% of the respondents were aged between 20-35 years, 36% between 36-50, and 31% between 51-66.

Referring to the level of education, 42% of the respondents had a university degree, 41% had a high school diploma, and 17% had a middle school diploma.

Most respondents (53%) had an average monthly household income between 1000 and 2000 €, 25% had an income between 2000 and 3000 €/month, 19% had an income higher than 3000 €/month, and only 3%

had a monthly income lower than 1000 €.

Finally, the larger part of the interviewed were office workers of either the private or the public sector (25% for each), 17% were retired, while the remainder was distributed as follows: 8% housewives, 8% temporary workers, 6% managers, 6% students, 3% factory workers and 3% entrepreneurs.

4.2 Focus group results

To evaluate also quantitatively which types of information influence the purchasing decisions, after the discussion, participants were asked to indicate, choosing from a given list, which kinds of information currently available on food packaging they take into account. Results are reported in Figure 2 that depicts the average percentage of participants that stated their use of the various types of information available on food products. The horizontal bar indicates the mean value across focus groups, while the vertical line reports the minimum and maximum values obtained in the focus groups to highlight the variability in the results.
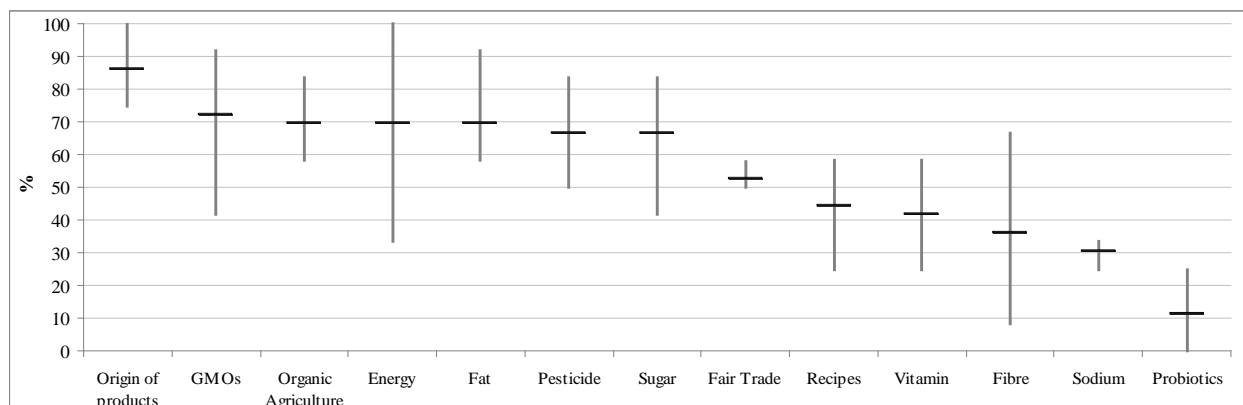

Figure 2. Attribute information that influence purchasing decisions (percentage of participants)

The origin of the product, which is read by 86% of respondents, has emerged as the most important kind of information for the consumers that took part in our focus groups. This is followed by a group of product attributes that received similar levels of stated use: the presence or absence of GMOs (that is used by 72% of the sample), the organic agriculture derivation (69%), the energy content (69%), fat content (69%), the derivation from integrated-pest management agriculture (67%), and the sugar content (67%).

Compared to the previously described types of information, the fair-trade characteristics of the product's chain (53%), the presence of recipes (44%), and the vitamin (42%), fibre (36%) or sodium (31%) content received on average lower attention. Probiotic foods seem to be, by far, less of interest among consumers (11%).

More in detail, if we look at the information on nutritional aspects of food products, we find that consumers are more careful to energy, fat, and sugar content. This suggests that, for what concerns the nutritional properties, consumers consider these claims crucial for making healthier choices, whereas consumers use less the contents of vitamins, fibre and sodium information.

Moreover, together with a large consciousness related to product's origin, we found a high interest for the presence/absence of GMOs and for pesticides, which highlights how consumers pay attention to food safety, and for organic agriculture, also related to these issues. Indeed, the discussion showed a diffused scepticism with respect to GMOs and to foreign food products, especially for those imported from non-EU countries, as there is a lower level of trust in their legislation and controls.

In the second step of the implementation of the focus groups, a list of information not currently available on food packaging was presented to participants. They were asked to state their level of interest on each item of this list on a Likert scale from 1 to 7.

The results, reported in Figure 3, show a greater consumer interest for the information regarding animal welfare (that on average obtained a score of 6.0) and type of breeding (5.5). In particular, concerning the latter information, consumers would like to obtain more details on the diet of the animals and on the intensive/extensive type of farming. These kinds of information are perceived as evidence of higher quality of a product. Consumers associate these indications especially with particular kinds of products, such as meat and eggs, due to the fact that these products are (and have been) more susceptible to

problems connected to food safety.

The possibility of a label that shows the product's food miles is considered positively by most of the participants (5.3). This attribute is not considered as the primary source for discrimination between products, but as additional information that can help consumers in their choice.
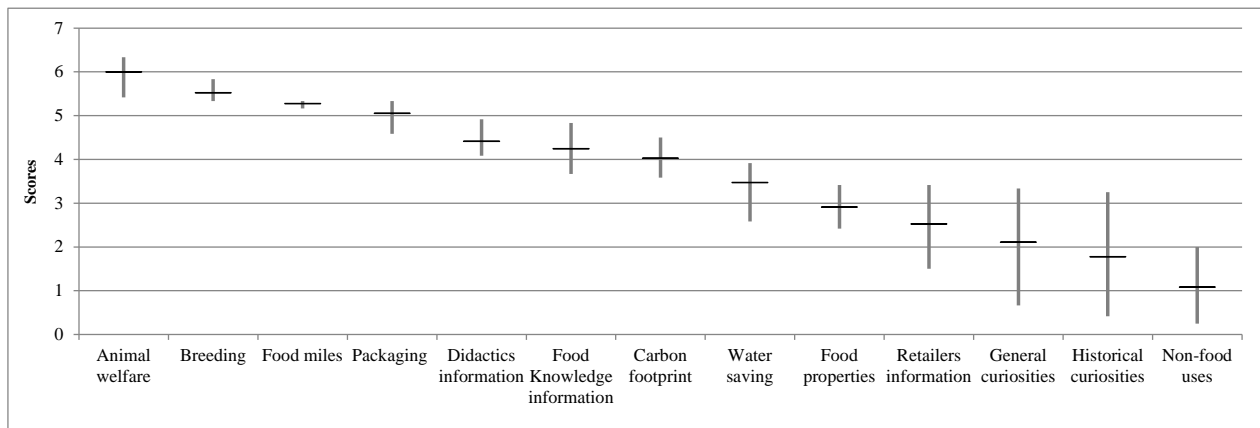

Figure 3. Interest in additional information expressed by three focus groups (%**)**

Food miles are important for the consumer especially for fresh products such as milk, eggs, fruit, and vegetables that deteriorate more rapidly. Consumers of our panel associate food miles mainly to territoriality, this explains the preference towards typical Italian products, as opposed to foreign ones, and the consumption of seasonal food products.

The fourth kind of information that received, on average, a higher percentage of interest (5.1) is the packaging material, the reason being its impact on the environment. Consumers prefer good quality products with simple packaging, and would like clear symbols for disposal indications.

The respondents show quite an interest about didactics (4.4) and food knowledge information (4.3). However, some consumers prefer to get this information from other sources, such as specific websites.

The information referred to the carbon footprint has received an average score of 4, even if it is not perceived as primary information necessary for the choice of a food product, as it is not related to food safety and quality. This information is evaluated as environmental ethics information. The lower level of interest for the carbon footprint, compared to the information on food miles and packaging, could possibly be explained by the lack of knowledge and awareness on the effects of carbon emissions for most of the participants.

The information about water savings during the production process (3.5) is not considered very interesting by the participants to our focus groups. Moreover, the interest towards several indications such as food properties (2.9), retailer information (2.5), general curiosities (2.1), historical curiosities (1.8), and non-food uses (1.1) is quite low.

The aim of the third step of each focus group was to investigate the attitudes of consumers towards so-called 'smart labels'. The discussion showed how consumers would like to receive immediate and simple information, like, for example, figurative icons that indicate particular food characteristics. This would simplify the process of information gathering and could increase the interest of the consumer towards the product. Another interesting aspect that emerged from the discussion is the fact that consumers care about the source of the information they receive; indeed they require the intervention of third parties to guarantee the truthfulness of the information received, preferably from a certified source.

Regarding the possibility to spend more time to inquire about food products, 81% of respondents would be prepared to do it if the information was easily accessible. This encourages the promotion of smart labels. A smart label would, in fact, allow consumers to receive information on their smart phones directly, to read it in any moment, and to have the time to evaluate it. Furthermore, this type of label could be used to create personal profiles that would allow consumers to select only the information they would actually like to receive.

Regarding the way to receive this additional information, 67% of participants considers more useful and convenient to have the service directly on mobile phones. This also allows to overcome the issues related to the lack of time for information reading due to daily life and work. By contrast, 33% of respondents would prefer to use the smart label in the store directly, reading the information while purchasing.

5   Phase II: Survey

5.1 Survey sample description

The survey was conducted on 240 consumers of the Milan population randomly approached at the selected retail stores. The resulting sample is composed by 54.6% of women and 45.4% of men. For what concerns the age segments, the classes that are mostly represented are those from 55 to 64 and over 65 years of age (around 20% each). The other classes are distributed in the following way: 35-44 years constitute the 18% of the sample, 25-34 the 17%, 45-54 the 15%, and 18-24 the 10%. From the data of the Italian Central Institute of Statistics (ISTAT), we can see that this age distribution is in line with that of Milan.

Moreover, with respect to household income, the sample is distributed as depicted in Figure 4. The central class of income between 1500-3000 € net per month is the most represented in our analysis, constituting 42.9% of the consumers interviewed. This is in line with the household income distribution in the region of Milan (Percoco 2010). For what concerns the extreme classes, the high income one is more represented than the low income class (10.4% and 4.6%, respectively); while for the intermediate classes the relation is inverted, the 800-1500 €/month constitutes 24.2% of the sample, while the 3000-5000 €/month 17.9%.
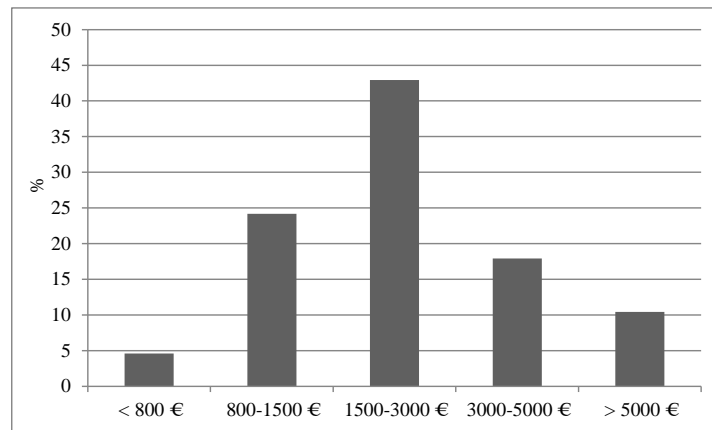

Figure 4. Income distribution of our sample of consumers

Regarding the level of education, 35% of participants have a degree or a PhD, 43% has high school diploma, and 23% has a secondary or primary level education.

Table 3 depicts all the variables used in this second phase of the analysis reporting their description, scale, mean and standard deviation.

5.2 Survey results

For what concerns the interest regarding labelled nutritional and health aspects (Figure 5), the results we obtained showed a different importance given to these attributes in the larger sample, compared to that of the focus groups, as the most significant nutritional aspects refers to the content of vitamins (40% of our sample values this information to be important or very important). This may be related to the fact that vitamins are quite topical in advertising and in other types of messages aimed at promoting food knowledge. The other types of information that receive high interest, in order of importance, are the fat (36.7%), energy (34.6%), fibre (34.6%), and sugar (34.2%) contents. Indeed, the first two are usually those that consumers associate with weight problems the most. Instead, the characteristics that receive the lowest level of attention are the presence of probiotics (28%) and the content of sodium, which is considered to be important or very important information only by 25.9% of respondents.

Table 3.
Survey variable description

| Variable name	Scale	Description	Obs	Mean	SD
SOCIO-DEMOGRAPHIC CONDITIONS					
Gender	dummy (0-1)	1 female, 0 male	240	0.55	0.50
Age	scale (1-6)	The interviewee's age group (18-24; 25-34; 35-44; 45-54; 55-64; >64)	240	3.81	1.64
Education	scale (1-5)	Education levels (primary school, secondary school, higher education, degree, post degree)	240	3.12	0.88
Income	scale (1-5)	Household income (< 800€, 800-1500€, 1500-3000€, 3000-5000€, >5000€)	240	3.05	1.01
ATTRIBUTES AFFECTING CONSUMPTION CHOICHES					
Food safety attributes					
GMOs	scale (1-5)	Level of interest on GMOs (unimportant=1, very important=5)	240	3.10	1.76
Nutritional aspects					
Energy content	scale (1-5)	Level of interest on energy content (unimportant=1, very important=5)	240	2.81	1.48
Fat content	scale (1-5)	Level of interest on fat content (unimportant=1, very important=5)	240	2.95	1.47
Sugar content	scale (1-5)	Level of interest on sugar content (unimportant=1, very important=5)	240	2.76	1.43
Vitamin content	scale (1-5)	Level of interest on vitamin content (unimportant=1, very important=5)	240	2.95	1.52
Fibre content	scale (1-5)	Level of interest on fibre content (unimportant=1, very important=5)	240	2.84	1.44
Sodium content	scale (1-5)	Level of interest on sodium content (unimportant=1, very important=5)	240	2.46	1.41
Health related characteristics					
Probiotics	scale (1-5)	Level of interest on information about probiotics (unimportant=1, very important=5)	240	2.46	1.50
Food properties	scale (1-5)	Level of interest on information about food properties (unimportant=1, very important=5)	240	3.00	1.62
Attributes related to the process					
Origin of products	scale (1-5)	Level of interest on the origin of products (unimportant=1, very important=5)	240	3.18	1.70
Animal welfare	scale (1-5)	Level of interest on information about animal welfare (unimportant=1, very important=5)	240	3.08	1.69
Breeding	scale (1-5)	Level of interest on information about breeding (unimportant=1, very important=5)	240	3.12	1.72
Organic Agriculture	scale (1-5)	Level of interest on information about organic agriculture (unimportant=1, very important=5)	240	2.90	1.72
Fair trade	scale (1-5)	Level of interest on information about fair trade products (unimportant=1, very important=5)	240	2.84	1.67
Environmental certification					
Environmental impact	scale (1-5)	Level of interest on the environmental impact (unimportant=1, very important=5)	240	3.15	1.73
Other information					
Recipes	scale (1-5)	Level of interest on information about recipes (unimportant=1, very important=5)	240	2.43	1.58
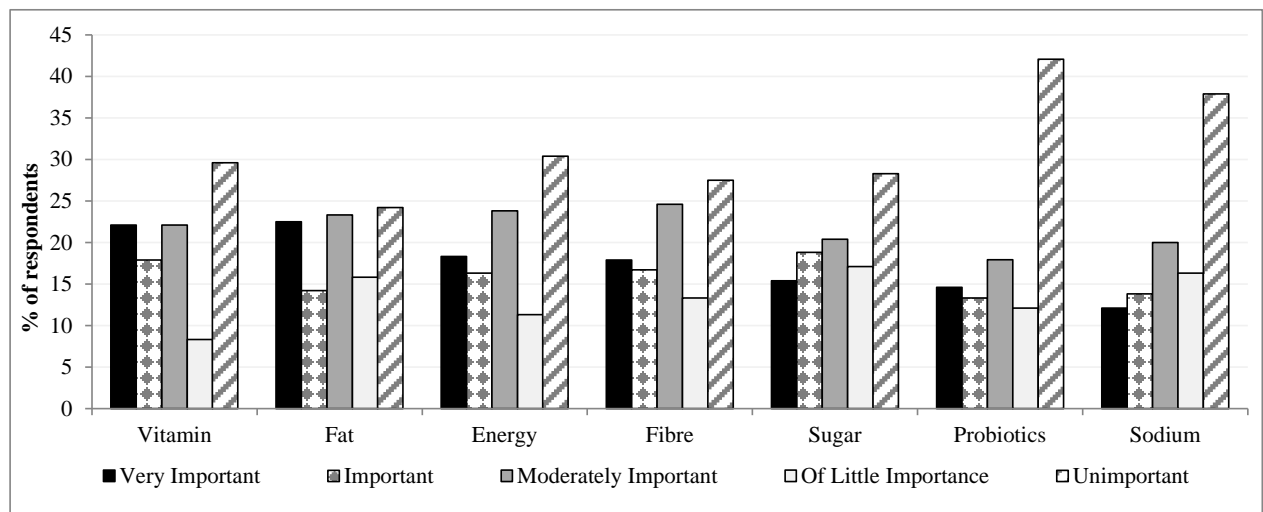
Figure 5. Level of interest on nutritional and health aspects from the survey

If we look at the information regarding other attributes that are currently present on food product labels, we find that those that are viewed as being the most interesting are: the origin of the product (that is considered to be important or very important by 50% of respondents) and the presence of GMOs (48%), suggesting a high level of concern devoted to attributes that relate to the production process and to food safety (Figure 6).
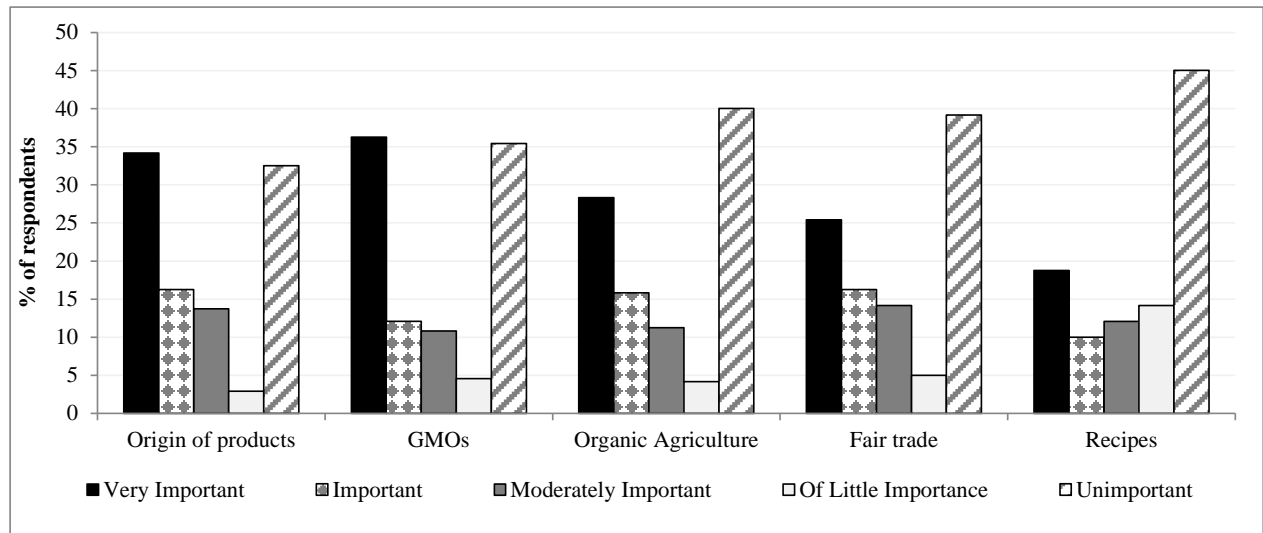
Figure 6. Level of interest on information currently present about food product labels from the survey

Slightly lower levels of importance are given to information regarding organic agriculture derivation (44%), and fair trade (42%). The presence of recipes (29%) is found to be the type of information that least interests consumers in our sample. Note how the latter is the only attribute of this list that is not related to food safety or ethical aspects.

For what concerns the other types of information that are currently not present (or not widespread) on labels (Figure 7), we found that the kind of information mostly valued by consumers concerns the environmental impact of the product (that refers to carbon footprint, water saving, packaging, and food miles). Indeed, 52% of our sample considers this type of information to be important or very important.
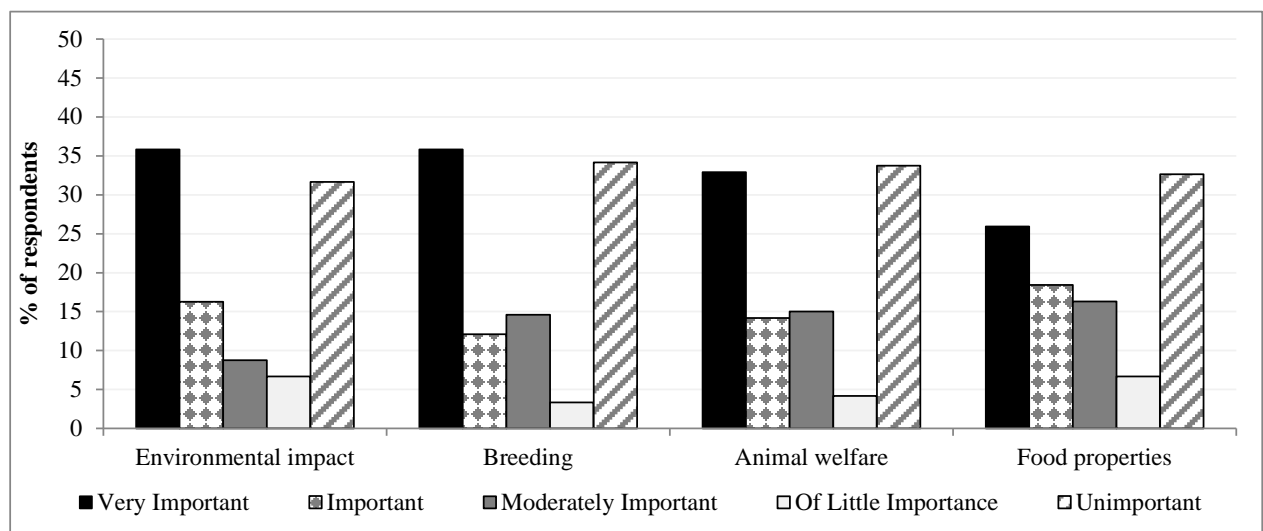

Figure 7. Level of interest on new types of information about food product labels from the survey

This is followed closely by type of breeding (that is considered as important or very important information by 48% of respondents) and animal welfare (47%) that are valued quite similarly. Information about specific food properties of the product instead are considered important by 44% of the respondents.

These results confirm the attention given to products of animal origin and to environmental or ethical aspects. These attributes could also be associated to a perceived higher level of quality.

5.3 Comparison of the results

In the last phase of our research, we compare the results of the previous two phases of the analysis in order to highlight the most robust results in terms of consumer interest and use of different types of labelled information. Related to the attributes connected with food safety, both phases of the analysis indicate a large interest in the presence of GMOs in food products.

For what concerns the nutritional and health aspects, we found that in the focus group analysis energy content was, on average, the most used information (though the variability across the three discussion groups was quite high), followed by fat and sugar content. In the survey analysis, instead, the most important one relates to the vitamin content, even if fat, energy, fibre, and sugar content follow closely behind. What emerges from both phases of the analysis is a limited use of information referring to sodium content and a scarce interest for probiotics. A limited willingness to pay for probiotics is confirmed by Veneziani et al. (2012). The low interest for sodium content highlights a problem of consumer awareness regarding the importance of limiting the sodium intake. This is instead confirmed by studies that show how an excess use of sodium is one of the main factors related to the insurgence of overweight or obesity (Boumtje et al. 2005).

With respect to the other types of information currently present on food labels, both phases of the analysis highlight similar results regarding the importance given by consumers to the information about the production process and food safety (such as product origin, organic farming and GMOs). These insights are in line with recent literature on this topic (Roitner-Schobesberger et al. 2008, Stranieri et al. 2010).

Referring to the attributes that are often not present on food packaging, the results of both phases are also quite similar. The main difference regards the information on environmental impact that in the survey analysis shows a higher importance for consumers with respect to the answers in the focus groups. This is coherent with the fact that in the latter the environmental impact was divided into four different kinds of information. In any case, breading and animal welfare receive good scores in both phases of the analysis. The results of the survey are in line with the findings of the Eurobarometer study on the attitudes of Italians regarding eco-labels (European Commission 2009).

In general, most of the results of the focus groups are confirmed also in the survey. The dissimilarities may be due to the different sample sizes and elicitation methods.

6   Concluding remarks

The aim of this paper was to analyse which kinds of currently labelled information are of interest and actually used by consumers, and which additional kinds could improve consumer choices. In our analysis we did not take into consideration price and brand, as these have been analysed extensively in the literature.

With regard to the use of currently available nutritional aspects, our analysis highlights how the information that are mostly used by consumers are vitamins, energy and fat content, that are currently very present in advertisement and awareness campaigns. Instead, the nutritional aspect that is less used by consumers is the one that refers to the content of sodium. Given the importance of paying attention to this attribute, a possible implication of the results of our research could be the promotion of awareness campaigns on the correct levels of sodium intake for a balanced diet. Another kind of information that received a low score from consumers is the one connected to probiotics. This is probably due to consumer inability to properly understand the function of probiotics in the diet. Therefore, another implication of our analysis is connected to the promotion of awareness about the usefulness of these products.

Our results also revealed that, among the currently available labelled information on food products, consumers show the highest interest towards statements like origin of product and presence or absence of GMOs. This outcome confirms the results of several studies concerning the attention paid by consumers for the food product origin, process and food safety attributes. What emerges is a diffused distrust towards genetically modified organisms. This may come from a low level of in-depth knowledge regarding these organisms and the quite negative campaigns that have been promoted by opponents. The scepticism also regards imported food products that are viewed as being of lower quality with respect to those made in Italy, but this result could reflect a "home-bias" that could be connected to Italian case specificities. Moreover, these two kinds of scepticisms could be related by a lower level of trust in the regulatory and control mechanisms of non-EU countries.

Among the information that are now unavailable on food products, those that obtained major interest were information regarding the environmental impact, animal welfare and type of breeding. It is

interesting to note that the consumer is particularly interested in additional information regarding products of animal origin. Probably, this is related to the fact that the latest food scares involved these kinds of products and these have induced the consumer to require more guarantees.

The greater interest expressed towards environmental certification, attributes related to the process and food safety seems to confirm the emerging trends among society that highlight also in other sectors an increasing awareness of consumers related to environmental impact and production processes. Moreover, in the context of food consumption, recent food scares have induced consumers to be more concerned about food safety. These categories of information should therefore be given more space on food labels.

Another important aspect emerged regards the propensity of consumers to spend more time in getting information about what they eat. Due to the fact that time is a strong issue in everyday life, consumers would like information to be simple and easy to read, and welcome the possibility to receive personalized services. In this context, the source of the information of innovative labelling services is very important. Indeed, consumers require the information to come from third parties that can certify and guarantee the truthfulness of claims.

The added value of our analysis is that of having jointly empirically investigated, via vis-à-vis interviews, the interest towards different kind of attributes. The greater limit is that we base our analysis on stated preferences and on a specific geographic sample. Future work will focus on the identification of the different characteristics that are common to consumers with specific interests in relation to the information on food labels.

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