

# Factors affecting consumer attitudes towards food products with sustainable attributes

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**Abstract:** Sustainable food consumption is a core policy objective of the new millennium in the national and international agenda, as a consequence, the attention towards sustainable consumption has significantly increased in the last decade. However, the consumer attitudes and buying behaviours of sustainable food are still not completely understood. In this context, this paper aims to investigate the factors affecting consumers' attitudes towards food products with sustainable attributes. The first part of the work presents an overview of the theoretical concepts of sustainable consumption. Subsequently, the results of an empirical analysis with a sample of 300 consumers aimed at assessing factors' affecting consumer attitudes towards food products with sustainable attributes, such as Organic, Fair Trade and typical products, are presented. The results presented in this paper are valuable for both producers in the formulation of marketing strategies and for public institutions in the planning of the programs of education and information for the promotion of sustainable consumption.

**Key words:** consumer behaviour, factor analysis, sustainable food

The emergence of new lifestyles and new ethics underpinning consumer choices highlighted the need to deepen the knowledge of the consumer in order to analyze the needs, attitudes, expectations and behaviour. In fact, more sustainable consumption patterns should be part of the solution to the sustainability problem (De Bakker and Dagevos 2012). Thus, it is important to analyse and categorize in what ways and to what extent food consumers can contribute to a more sustainable world (Verain et al. 2012). Specifically, in-depth knowledge of the determinants that influence food demand is also an indispensable element in orienting strategies for the promotion of sustainable food.

Sustainable food consumption is becoming an important aspect of sustainable development, particularly in the contemporary Western societies (Abeliotis et al. 2010). The global food system makes a significant contribution to climate changing greenhouse gas emissions with all stages in the supply chain, from agricultural production through processing, distribution, retailing, home food preparation and waste, playing a part. It also gives rise to other major environmental impacts, including the biodiversity loss and water extraction and pollution (Garnett 2013; Scarpato and Simeone 2013). Moreover, the existence of a billion people suffering from hunger and overweight or obese, pose the food consumption

patterns at the centre of the debate on sustainability. This awareness is turning, in advanced countries, a greater sensitivity shown by the consumers with respect to issues such as public health, quality of life, protection of natural resources and biodiversity, resulting in food choices of increasingly marked orientation towards sustainability and generating new demand dynamics, more selective and demanding (Briamonte and Hinna 2008).

The need to promote the food sustainable consumption patterns was recognized expressly by the Food and Agriculture Organization (FAO) with the Scientific Symposium on Biodiversity and Sustainable Diets, organized in 2010. This Symposium was undertaken in preparation for the Rio+20, and thus provided a consensus definition of Sustainable Diets: '*Sustainable Diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources.*'

Actually, there is not an agreed *definition* of sustainable food consumption. Probably the most encompassing attempt is that introduced by the UK Sustainable Development Commission (2005; 2009),

defining “sustainable food and drink” as that which is safe, healthy, and nutritious for consumers in shops, restaurants, schools, hospitals, and so forth; can meet the needs of the less well off at a global scale; provides a viable livelihood for farmers, processors, and retailers whose employees enjoy a safe and hygienic working environment; respects the biophysical and environmental limits in its production and processing while reducing energy consumption and improving the wider environment; respects the highest standards of animal health and welfare compatible with the production of affordable food for all sectors of society; and supports rural economies and the diversity of rural culture, in particular by emphasizing local products that minimize food miles.

In the last decades, several studies on sustainable food consumption have been reported on a broad variety of topics, including the environment, Fair Trade and typical products (e.g. Grunert and Juhl 1995; Reynolds 2002; Barr and Gilg 2006; Vanhonacker et al. 2013). Most of the studies regarding environmentally friendly food choices were mainly focusing on organic food products (Janssen et al. 2009; Thøgersen 2010).

On the other hand the studies on Fair Trade (Reynolds 2002) were especially conducted on fair prices for goods and services as well as working conditions. The European market for fairly traded products is growing, with bananas, coffee, orange juice, tea, and chocolate most often sold (FLO 2006, 2010, 2011). All of these products have been marketed in several Western European countries since the 1980s and 1990s (Oosterveer and Sonnenfeld 2012).

Consumers use extrinsic cues like the price, brand, labels, production methods, and country or region of origin to evaluate the perceived quality of food products. Recent food crises have heightened the consumers’ awareness of product quality and risks (Dekhili et al. 2011). Consequently, to provide reassuring cues, the producers stress the importance of geographic origin or terrain in their marketing strategies (Aurier et al. 2004). As a consequence, this has led to a widespread use of origin labels and promotion efforts (Papadopoulos 2004).

Grunert in a recent paper (2011) states that consumers have, through their food choices, a major role in bringing about a more sustainable food production. However, this presupposes that the differences in sustainability are communicated to consumers. Even

if food products are eco-labelled and the consumers are motivated to support sustainability, a number of potential barriers may prevent the consumers from using the information to make sustainable choices.

Despite several papers investigating the profile of sustainable consumers, a thorough understanding of the determinants of consumer decision-making towards sustainable food, and the specific role of the individual characteristics like confidence and values is still missing (Veermier and Verbeke 2008).

In this context, this paper aims to explore the factors affecting the consumers’ attitudes towards sustainability in food choices, with a particular reference to organic, Fair Trade and typical food products. Results presented in this exploratory study are valuable for both producers in the formulation of marketing strategies, and for public institutions in the planning of programs of education and information for the promotion of sustainable consumption.

## MATERIAL AND METHODS

In order to explore the consumers’ attitudes towards sustainable attributes in food products, a questionnaire was developed based on the previous literature (Seyfang 2008; Gielissen 2011; Vecchio and Annunziata 2013). The final questionnaire, comprising 32 questions, was sub-divided into three sections respectively dedicated to the analysis of: food habits and lifestyle; attitudes and purchasing behaviour with respect to sustainable food such as organic, Fair Trade and typical food; the socio-demographic profile of the interviewed. The questionnaire was administered to a sample of 300 consumers, responsible for family shopping, living in the South of Italy<sup>1</sup>. To determine the sample, a simple sampling technique was used; setting 0.95 as the level of confidence, for an infinite population, 300 personal interviews were carried out, with the sample error being fixed at 5.5%.

Face-to-face interviews were conducted in the Campania region, outside the modern distribution chain outlets on different days of the week.

Data generated in this way were submitted to a descriptive analysis in order to obtain an overview of the frequency of responses. Subsequently, the Factorial Analysis was applied to carry out a simultaneous analysis of the complex information provided by a large number of variables and turns the initial

<sup>1</sup>Campania is one of the most densely populated regions of Southern Italy, with five provinces and 5 813 542 residents that placed it as the first region in Italy for the population density.

variable into a reduced number of artificial variables or factors explaining a high percentage of the information included in the original variables. Data were analyzed using the SPSS version 15.

Taking into account the socio-demographic variables (Table 1), the interviewees display the predominant presence of women (53%) aged between 45–54 year old (19%), married (54%), who live in families consisting of an average of 3 individuals, holding a secondary school diploma (42%) and employees in the private sector (28%).

Table 1. Sample demographics

		Sample	Campania population
Sex	Male	47	48.5
	Female	53	51.5
Age	18–24	15	13.2
	25–34	16	14.9
	35–44	18	15.4
	45–54	19	16.3
	55–64	18	13.6
	>65	15	14.4
	Marital status	Single	28
Married		54	
Separated		12	
Family size	Single	19	
	2	27	
	3	32	
	4	16	
Education	> 4	6	
	Middle school degree	8	
	High school degree	42	
	Bachelor's degree	36	
	Master/Phd	14	
	Student	8	
	Employee in public administration	26	
Occupation	Employee in private sector	28	
	Unemployed	6	
	Self-employed	14	
	Housewife	16	
	Other	2	

## RESULTS

With reference to the attributes that influence the interviewees' food choices, our data show that the consumers tend to pay a particular attention to some attributes such as the appearance and taste, which is considered very important in 27% of cases, price and the brand, as well as the convenience in using. Also the indication of origin is considered an important attribute; similarly the PDO-PGI certifications are considered important in 32% of cases. On the contrary, the presence of social and environmental certifications are considered less important attributes, while the least important attributes are the recyclable packaging and the indication of food miles (Figure 1).

The analysis of food habits was carried out by proposing the respondents 14 statements representing some experience and credence attributes that motivate the consumers to make their general food choices. The respondents are instructed to rate the importance of each item on a 5-point scale (1 = "not at all important", 5 = "very important"). Table 2 shows that the respondents consider essential that the food they eat on a typical day helps to keep them healthy, does not contain any GM components but also tastes good.

Similarly, the analysis of lifestyle has been realized by offering the respondents a set of 5 items with respect to which he/she was asked to indicate how it would mirror their daily habits. From the analysis of these variable, it emerged that in most cases the respondents were paying a particular attention to the reduction of the food waste (about 30% say they do so every day), to the collection of waste (about 38% say they do so every day), the use of public transportations in alternative to car or the use of car pool (25% declare to do it every day) and to the purchase of food at the local shops. However, the use of recycled materials seems to be still not widespread.

With reference to the organic, Fair Trade and typical products, firstly we tested the interviewee's level of information about these products and the frequency with which they consume them. With reference to the first aspect, Figure 2 shows that the Fair Trade products are not well known, while the respondents are quite aware of organic products (38%), and they state to be very well informed about typical and traditional products (31%).

Obviously, the level of knowledge of such products displayed by the respondents reflects their purchase frequency. Fair Trade products are the least purchased, respectively 22% of respondents stated that they had never consumed these products, while 36% said they

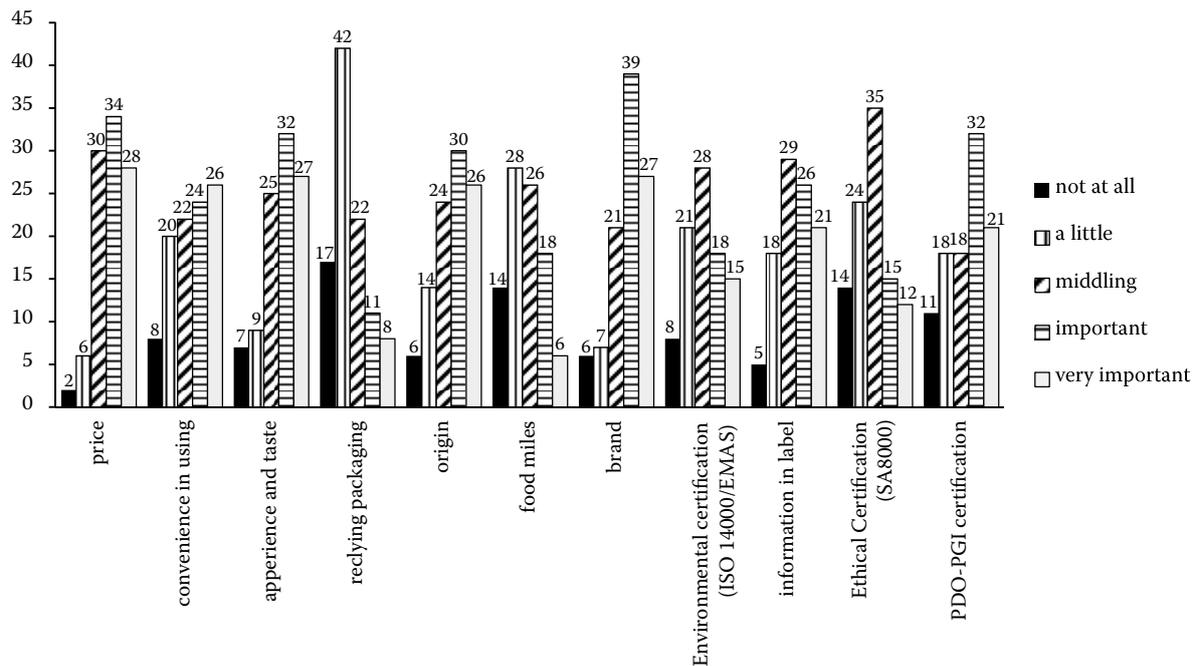


Figure 1. Attributes that influence the consumers choice

rarely buy them. With regard to organic products, on the other hand, a greater percentage claims to buy them often (30%) followed by those who buy them occasionally (25%). Similar results were also reported for the typical and traditional products (Figure 2).

Subsequently, the familiarity of respondents with the logos usually present on the labels of the Fair Trade, organic and typical products was tested showing the

simulated consumer labels. The results highlight, once again, a little familiarity with the FT logo, that only 12% of respondents claimed to know quite well, while the logos related to the PDO are more familiar to consumers, in fact 24% of respondents claimed to know them very well.

Then they were asked to indicate the degree of confidence attributed to different sources of infor-

Table 2. Food habits

“It is important that the food I eat on a typical day”	Not at all	A little	Middling	Quite important	Very important
Is produced in a way that animals’ rights have been respected	18	28	26	16	12
Is packaged in an environmentally friendly way	16	25	24	21	14
Is locally produced to support local farmers	12	18	22	27	21
Is produced in full respect of human rights	1	11	35	28	25
Has the country of origin clearly marked	7	12	37	28	16
Comes from countries I approve of politically	16	32	21	22	9
Tastes good	–	6	18	40	36
Is good value for money	–	5	13	38	44
Is made without the exploitation of women and children	2	4	31	36	27
Is grown using sustainable agricultural practices	6	13	37	30	14
Is made with organic ingredients	15	21	24	25	15
Is made locally to reduce the environmental impact	14	20	16	26	24
Does not contain GM components	2	8	25	31	34
Keeps me healthy	–	3	27	32	38

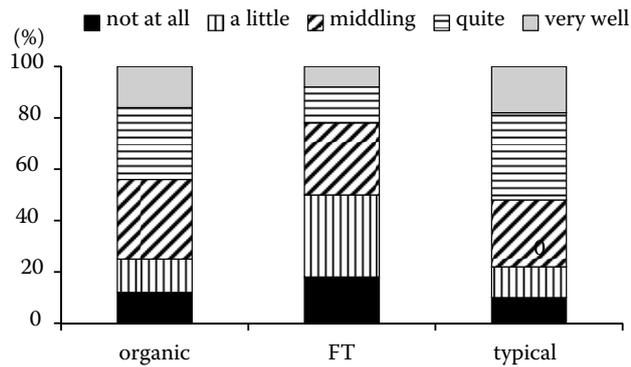


Figure 2. Level of information about organic, FT and typical products

mation. The respondents say they trust mostly to the information collected in the specialized retail outlets (34%) or through the public information campaigns (33%), the information supplied by the certification bodies (32%) and information generated by consumers associations (32%). On the contrary, the most negative opinions regards the distribution channels (16%), the information given by relatives and friends (12%), and the information on label (5%).

Further, the respondents were asked to indicate the main reasons that lead them to purchase the three types of products, taking into account only those who declared to purchase each category.

With reference to organic products, it emerges that 42% of respondents claimed to buy them mainly

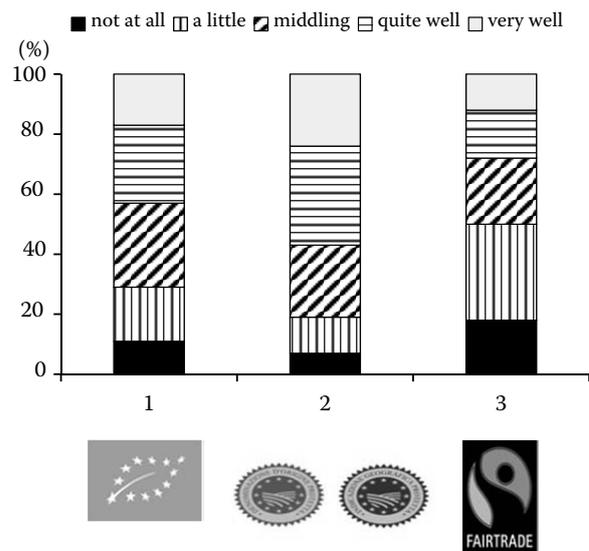


Figure 3. Degree of knowledge of the products logo

because they do not contain substances harmful to their health, while 36% stated to consume them in order to protect the environment, and finally 12% of the interviewees declared to buy these products for hedonistic reasons.

With regard to the Fair Trade products, those respondents who declared to buy them claim to do it because they consider them to be ethically correct (48%), as well as because they ensure the respect for the rights of workers (42%), while the percentage

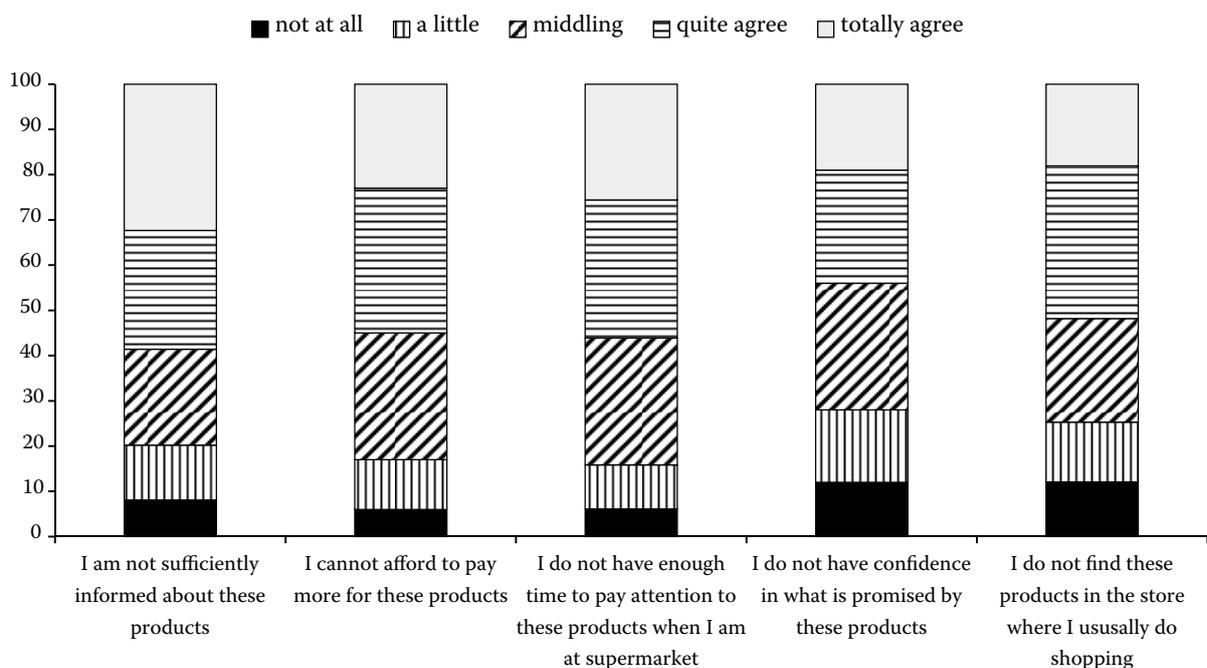


Figure 4. Reasons to not purchase

of those who claim to purchase them for pleasure is only 5%.

With respect to typical products, a vast majority claims to purchase them because they are more genuine (32%) followed by those who claim to buy them because they are better than the others (26%). It should be emphasized that only in 10% of cases, the consumers have declared to purchase them to support the local development (Figure 3).

Analyzing the different reasons provided by the consumers, it emerges that the responsible motivations stand out in particular for those who claim to buy the products of Fair Trade, while for the organic and typical products, there prevail hedonistic motivations.

More interesting aspects emerge from the analysis of the reasons that limit the purchase frequencies of the different product categories mentioned. In this regard, we asked the respondents to express their level of agreement with five statements regarding the main reasons for not purchasing the products, which emerged from other similar works in the literature (Renard 2003; Padel and Foster 2005; Kutnohorská and Tomšík 2013).

The analysis of the results shows that the main reason that limits the purchase of these product is the low level of information available in the market, but also the limited availability of time when the consumers are shopping. It is important to highlight that there is also a lack of confidence in what has been promised by these products and that the consumers find it difficult to find these products in the GDO stores.

## FACTOR ANALYSIS

In the literature, attitude is defined as *a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour* (Eagly and Chaiken 1993). Since attitudes strongly affect the food choice behaviour, they can be used to explain the consumers' food choices. For this purpose, similar to other studies in the literature (Vecchio and Annunziata 2013), the factor analysis was used to group different variables that affect the consumer attitudes towards sustainable food into independent subsets. The principle component analysis (PCA) describes the variance of the multivariate set of data by means of non correlated variables.

The selection of the variables to submit to factorial reduction was made on the basis of the correlations existing amongst the original variables, verified using

the Bartlett's test for sphericity while the choice of the factors was made on the basis of the eigenvalue criterion, as well as considering the cumulated variance explained by the factors taken together (Table 3). A correlation matrix by pairs of variables was built using the Pearson's correlation coefficient. Based upon the cross-tabulation outcomes, the variables that were mostly and more significantly inter-related and used in the factorial analysis were selected. For factors extraction the principal components methods (Hotelling 1993) was used with the varimax rotation. The ideal number of factors was determined through the Kaiser's method (1960), keeping the factors with self-values greater than one, i.e. with an information content higher than the individual variable observed.

The principal components analysis revealed the existence of three factors that play a determinant role in influencing the consumers' perceptions of sustainability in food products, explaining 69% of the original variance: personal values in food shopping, perceived barriers, confidence in information.

The first factor summarizes a set of variables referring to the degree of importance that the consumers confer to different characteristics of product or process when buying food products. This factor included several statements related to the respondents' opinions about some variables connected with the sustainability aspect in food products (e.g. respect of human rights; the respect to animal welfare; environmental impact; etc.) but also some variables related to the attributes affecting the food choices and lifestyle. For these reasons, these factor represent the consumers' personal values in food shopping.

Considering the variance explained by each factor, it is clear from Table 3 that this factor is what the most affects the attitude toward sustainable products, explaining 30.8% of the original variance.

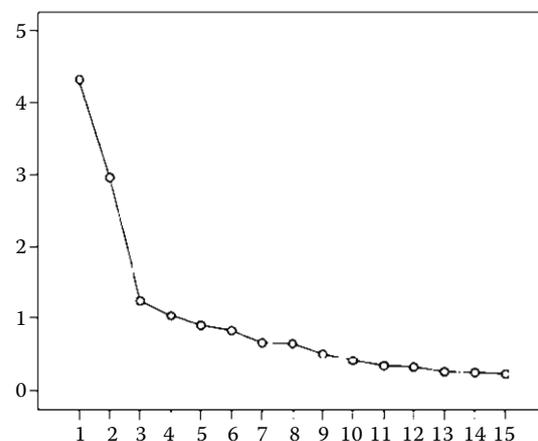


Figure 5. Scree Plot of eigenvalue

Table 3. Regression factor scores

	Factor 1	Factor 2	Factor 3	Com <sup>*</sup>
Has been produced in a way that animals' rights have been respected	0.686	0.111	0.423	0.803
Is packaged in an environmentally friendly way	0.721	0.109	0.336	0.541
Is locally produced to support local farmers	0.733	0.044	0.321	0.792
It was carried out in full respect of human rights	0.642	-0.122	0.288	0.679
Is made without the exploitation of women and children	0.534	-0.089	0.308	0.562
Is made locally to reduce the environmental impact	0.611	0.166	0.246	0.601
I make the collection of waste	0.506	0.201	0.222	0.664
I prefer use public transport or car pool	0.512	0.133	0.305	0.598
Generally I use recycled materials	0.501	0.198	0.241	0.609
I avoid wasting food	0.519	0.283	0.208	0.811
Degree of logos' knowledge (average of 3)	-0.024	0.166	0.422	0.762
Knowledge of organic, Fair Trade and Typical products (average of 3)				
Confidence in the information on the label	-0.033	0.202	0.863	0.827
Confidence toward Certification Bodies	0.011	0.212	0.733	0.743
Confidence in information generated by consumers associations	-0.120	0.107	0.704	0.721
Confidence in information from public campaigns	0.131	0.139	0.852	0.792
I am not sufficiently informed about these products	0.261	0.502	-0.011	0.806
I cannot afford to pay more for these products	0.201	0.616	-0.046	0.802
I do not have enough time to pay attention to these products when I am at supermarket	0.184	0.547	0.142	0.812
I do not have confidence in what is promised by these products	0.143	0.496	0.063	0.763
I do not find these products in the store where I usually do shopping	-0.041	0.502	0.089	0.694
%Variance	30.8	22.6	15.3	
% Cumulated variance	30.8	53,4	68.7	

\*Communality denotes the amount of variance of each variable explained by the factorial solution. Small values denote variables that are not particularly useful for the factorial solution and can then be excluded.

The second factor, instead, summarizes a set of variables related to the not buying motivation of organic, FT and typical products, so this factor refers to what the consumers perceive as a barrier to sustainable food choices, and it is represent in terms of variance explaining the second factor in influencing the consumers' attitudes towards sustainable foods. This factor includes variables such the price acceptability and products availability that play a relevant role in limiting the consumers' attitudes towards these foods.

The third factor summarizes a set of variables referred to the respondents' knowledge and information about the organic, FT and typical products and their degree of confidence attributed to different sources of information. These latter variables are those that have a greater weight in determining this factor, so

it is impossible to interpret it as the degree of confidence in information. This factor explains the 15.3% of the total variance (Figure 5).

## DISCUSSION AND CONCLUSION

Food consumption is a major issue in the politics of sustainable consumption and production because of its impact on the environment, the individual and public health, social cohesion, and the economy (Reisch et al. 2013; Scarpato 2013). This awareness has encouraged in the last years the development of an extensive literature about the issues of sustainable consumption (De Pelsmacker et al. 2003; Vermeir and Verbeke 2006, 2008; Vanhonacker et al. 2012;

Vecchio and Annunziata 2013; Cembalo et al. 2013; Pomarici and Vecchio 2014).

The topics of these studies range from the environmental sustainability, with a particular reference to the organic food products (Fotopoulos and Chrysoschoidis 2001; Thøgersen 2010; Van Loo and Alali 2012) food miles (Kemp et al. 2010), the carbon foot-print (Gedema and Oglethorpe 2011), and the water footprint (Khan 2009) recyclable packaging (van Birgelen et al. 2009) to social sustainability with a particular reference to the Fair Trade products, the respect of human rights (De Pelsmacker et al. 2007; Mariani and Viganò 2013), the animal welfare (de Boer and Cornelissen 2002; Vecchio and Annunziata 2012), the local food to support local farmers (Zepeda and Deal 2009).

A common result from these studies is that European consumers claim to be particularly concerned to the issues of sustainability in their purchasing choices, however, the translation into the actual responsible food choice and consumption seems more difficult (Chatzidakis et al. 2007; de Boer et al. 2007; Krystallis et al. 2009; Bray et al. 2010; de Barcellos et al. 2011).

Also, the main results that emerge from our study show that although the consumers seem very interested in the different attributes that determine the environmental and social sustainability of food products, in the act of buying they pay more attention to the variables such as the brand and price, as well as by the safety and healthiness of the products purchased, while the environmental and social attributes are still considered secondary.

The application of the PCA has identified three factors that affect the consumer attitudes towards sustainable food: the personal values in food shopping, the perceived barriers, and the confidence in information. The variables included in the first factor reflect the respondents lifestyle and personal value in food choices, such as their interest in the environmental and social impact of food or their habits in relation to the daily life, the activities more ethical and ecological, such as avoiding the waste of food or making the collection of waste, which play a central role in the determination of the greater or lesser propensity towards sustainable food as confirmed by other studies related to organic or local foods (Gil et al. 2000; Chrysoschoidis and Krystallis 2005; Bernabéu et al. 2008).

The second factor refers to different variables that limit consumers in their sustainable food choices, such as price, availability and time pressure. Some of these barriers to sustainable food choices have

already been highlighted in other studies carried out in several European countries. De Pelsmacker and Janssen (2007), for example, identified the price acceptability to be significantly related to buying the Fair Trade products in Belgium, while Wier et al. (2001) showed that the price premium was shown to influence buying organic food. Similar results were also shown by several studies carried out in Italy related both to organic (Gracia and de Magistris 2008) and Fair Trade product (Bellucci et al. 2012).

Several studies have also shown that the level of the perceived availability influences buying of sustainable food products (Vermeir and Verbeke 2006; De Pelsmacker et al. 2006). Limited availability of these product is often linked to a non-continuous presence of these products in supermarkets or to their inadequate visibility in the shop (De Pelsmacker et al. 2007; Annunziata et al. 2011), but also to the limited presence of the local food shops such as the farmers' markets (Vannoppen et al. 2001; Vermeir and Verbeke 2006). There should be highlighted, however, a trend that is being developed in particular in Italy in the recent years, the so-called Solidarity Purchasing Group which represents a very interesting alternative food chains that contribute to promote the consumption of sustainable products such as the organic, Fair Trade and local foods (Migliore et al. 2012).

With reference to the third factor, *confidence in information*, it should be noted how the ethical, environmental and social attributes of food are the credence attributes (Darby and Karni 1973), which means that the consumers cannot evaluate it personally. However, the benefits of responsible products are often poorly communicated to consumers, so that they are unable to make informed purchasing decisions. Our study confirms the results from different researches that have already shown the distrust in the certification body or the governmental control systems, particularly in Europe after some consecutive food safety crises (Jensen and Sandoe 2002; Nilsson et al. 2004). As a consequence, according to Vermiere and Verbeke (2008), the consumers, who are not confident about logos, labels or claimed product availability, are not inclined to translating their positive attitude into a behavioural intention.

Undoubtedly, in this context also the lack of information represents a significant obstacle to the widespread practice of sustainable food consumption (Vermeir and Verbeke 2004; Vecchio and Annunziata 2013). It is important to highlight that, as showed by many studies, there is also a lack of knowledge and confusion regarding the concept of sustainable food

choices and the corresponding logos and labelling (Grunert et al. 2013; Pelletier et al. 2013).

In conclusion, the results of this study show that despite the positive attitude shown by the consumers to products characterized by sustainability attributes, there are still several factors that limit the transformation of this attitude in the real acts of purchase. Our empirical findings suggest that in order to promote the adoption of sustainable food consumption models, both firms and policy makers should increase the consumer involvement, inform the consumers about the product availability, promote more effectively the possible benefits of sustainable food product and increase social pressure to promote more sustainable lifestyles. Further efforts should be made to increase the visibility and availability of these products, perhaps by stimulating and supporting the creation of alternative food networks that perform the dual function of encouraging the spread of products with sustainable attributes, such as the local and organic foods, and stimulating the environmental and social solidarity.

Undoubtedly, the regional extension of survey may represent a limitation for the generalization of the results presented. In this regard, a further research is needed in order to expand the territorial character of the sample, to make it nationally representative and to highlight the role of the territorial origin in influencing the attitudes towards sustainable food.

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