

Different consumer behaviours for organic food in Tunisia. A cluster analysis application

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1. Introduction

Food consumption in Tunisia is evolving. Trends in food supplies show that the country is engaging in a nutrition transition. Supplies largely overstep population energy needs. Cereals, oil and sweeteners, provide three-quarters of the energy supply. Although the diet is rich in energy, there is a simultaneous increase in fruit and vegetable consumption. Consequently, the food diversification index is improving (FAO, 2015).

New trends were due to a combination of economic, socio-demographic factors, and markets liberalization (Laajimi *et al.*, 2003). Having recently undergone a steady and rapid economic development, the growth of disposable income, rapid urbanization, and rise of active female population have led to a marked increase in food demand (Lampietti *et al.*, 2011) and have radically changed lifestyle and consumer behaviour. But also agriculture and food manufacturing development, diversification of food supply (local or imported), and the increase in supermarkets and catering and media influence (Hanson and Chahed, 2012) have accelerated these changes.

Abstract

In recent years, both politics and the literature have shown considerable interest in organic farming with a view to sustaining healthy and environmentally-friendly consumption. Currently, organic consumption has increased almost everywhere and has extended even in countries that were initially producers and suppliers for western countries. Tunisia is one of the countries that have only recently shown an interest in organics. Our objective was therefore to identify organic consumers in Tunisia, carrying out a cluster analysis on a sample of 370 consumers. Five different consumer types were identified. Among them, regular consumers (25%) and promising consumers (36%) revealed the greatest awareness of the benefits related to organic foods and are those who can contribute to expanding the organic market, although marketing innovations are necessary to make organic foods available at affordable prices especially to promising organic consumers.

Keywords: food consumer's attitude, organic food, consumer segmentation, cluster analysis, Tunisia.

Résumé

Ces dernières années, aussi bien la politique que la littérature ont accordé une attention particulière à l'agriculture biologique en vue d'encourager une consommation saine et éco-compatible. A l'heure actuelle, la consommation de produits biologiques a augmenté presque partout et s'est affirmée même dans les pays qui, au début, se limitaient à produire et à exporter vers les pays occidentaux. La Tunisie est l'un de ces pays qui ont montré un certain intérêt à l'égard de l'agriculture biologique tout récemment. Par conséquent, notre objectif était de classer les consommateurs biologiques tunisiens à travers une analyse de cluster sur un échantillon de 370 consommateurs. Cinq différents types de consommateurs ont ainsi été identifiés. Parmi eux, les consommateurs réguliers (25%) et les consommateurs prometteurs (36%) se sont avérés être les plus conscients des bienfaits dérivant de la consommation de produits biologiques et capables de contribuer à l'expansion du marché biologique, même si des innovations de marketing sont nécessaires pour offrir sur le marché des produits biologiques à des prix abordables, surtout pour les consommateurs biologiques prometteurs.

Mots-clés: attitudes des consommateurs à l'égard des produits alimentaires, produits biologiques, segmentation des consommateurs, analyse de cluster, Tunisie.

Currently, there are roughly 280 modern food retail outlets: 2 hypermarkets, 180 supermarkets and 100 superettes. However, modern retailers represent only 18% of the retail industry. Small grocery shops made up of a relatively dense network of more than 200,000 outlets are still dominating the Tunisian retailing structure (Chahed, 2012). Differently from what is happening in other countries in nutrition transition, a study made in Tunisia asserts that a slight improvement in diet quality can be observed among those people who use supermarkets regularly (Tessier *et al.*, 2008).

The aim of this article is to investigate whether a solid and stable base exists in Tunisia for buying organic food. In next paragraph a detailed description of food habits

evolution in Tunisia is presented with particular attention to the weight of organic products in food consumption. Also a selected review of literature on organic consumer segmentation is given. Paragraph 3 is devoted to the applied methodology. Results of the Tunisian organic consumers survey are presented (4) and discussed (5). This article closes with some concluding remarks and some comments on food policy perspectives in Tunisia.

2. Literature review

Evolution of food consumption in Tunisia

Food expenditure represents a high percentage of the family budget, as in most developing countries, but in 25

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years the share of food expenses in the Tunisian household budget has decreased from 42% in 1980 to 35% in 2005. However, in absolute terms, spending on food consumption in terms of real prices continues to rise by 5.2% per year, on average, and food is still the first item of expenditure followed by the housing costs (23%) and transport and communications (14%) (INS, 2005). This reflects the increase in consumed quantities and the relative increase in manufactured products from agro-food industries in comparison to non-processed products and increased demand for food of quality.

Tunisian consumers are price-conscious buyers (Hanson and Chahed, 2012), especially in the inner area of the country. The price increase of food items recorded at the end of 2010 was among the factors that prompted the riots, especially in neglected regions, despite governmental efforts to maintain low prices through subsidizing prices of major food commodities. According to the Tunisian National Statistics Institute (Hanson and Chahed, 2012), prices of food items increased by 3.6% in 2011.

The evolution of food consumption in Tunisia is not only related to the amount of food expenses but to the whole pattern of food consumption. A more diversified and caloric food model has been replacing the traditional Arabic Mediterranean diet characterized by excessive consumption of cereal grains and no pork consumption. This development is particularly evident for urban people of higher income level (Dhehibi and Gil, 2003). In the last thirty years, cereal consumption has declined – although it is still high in rural areas (Khaldi *et al.*, 2007) – whereas consumption of animal products, fruit, vegetables, oils and fat is increasing. Demand is more diversified both in terms of quantity and quality. Other remarkable changes are evident in cereal consumption: declining consumption of durum wheat against an increase in soft wheat, decrease in semolina traditionally used in the home-made bread, increase in the consumption of bread and bakery products. Concerning animal products, increased meat consumption is mainly due to the growth of poultry consumption, related to its affordable prices and to the development of the poultry sector in Tunisia. Consumption of sheep meat has also increased whereas beef consumption has decreased because of the increase in the price of beef meat (Dhraief *et al.*, 2012; Dhraief and Khaldi, 2012). Consumption of milk and dairy products has also increased (Laajimi *et al.*, 2003; Khaldi *et al.*, 2006; Dhehibi and Laajimi, 2009; Srairi *et al.*, 2013), together with consumption of fish, because consumers are becoming more and more health-conscious (INS, 2005) and milk and fish are largely considered as a healthy choice (Dhraief *et al.*, 2011). Health-conscious motivations have also determined increasing diversification in fruit and vegetables consumption.

Consumption of high-value products (processed vegetables, fresh fish, meat, poultry and dairy products) is expected to increase in the foreseeable future. This trend also ap-

plies to products that used to be considered luxury goods, such as salty and sweet snacks, fruit juices or fresh fruit which are becoming increasingly popular (Hanson and Chahed, 2012).

Some changes concern also the origin of the products. The consumption of traditional or domestically produced products (fresh vegetables, fruit) has decreased as a consequence of the improved standard of living, as well as of the subsidies granted to imports of some products during the last years. Tunisia's spending on subsidized commodities has increased six-fold since 2010, from 950 million Tunisian dinars (600 million dollars) to 6 billion dinars (4 billion dollars) in 2014 – roughly 20% of all public spending.

A number of Tunisian food demand studies have measured the influence of traditional economic variables, such as income and prices. Fewer authors have investigated some socio-demographic variables like the Tunisian growing young population which is a further factor for change (Dhehibi and Laajimi, 2009). It represents a large part of population (55 per cent of total population is under the age of 30) and is more open to western-style food products. In addition, about 6 million tourists visit Tunisia annually and offer opportunities of selling highly processed food products. Concern about health is a main food choice criteria. The increase in the burden of chronic diseases linked to the nutrition transition and associated dietary and lifestyle changes is of growing concern in south and east Mediterranean countries (Aounallah-Skhiri *et al.*, 2011). Other important factors, such as the nutritious quality and the nutrient content of food, have also been shown to determine consumer choices (Hanson and Chahed, 2012). Concern for food safety (hygiene, conservation), appreciation of internal and external quality attributes (freshness, healthiness and safety of the products), and concern about fraud are also becoming of great interest to the Tunisian consumer (Khaldi *et al.*, 2006; Dhraief and Khaldi, 2012). Therefore, the well-known brand and trust in the point of sale become important criteria for food choice. In general, the shop owner, referred to as 'Attar', knows very well his clientele and often accepts to sell goods on credit (Hanson and Chahed, 2012). Imported products are generally highly recognized among consumers and institutional services for quality and safety (Hanson and Chahed, 2012).

Organic agriculture in Tunisia

In describing historical and projected food consumption patterns in Tunisia, trends in organic foods supply and demand need to be mentioned in order to provide a more comprehensive picture of food consumption in Tunisia.

Organic agriculture started to develop about 40 years ago. The interest in organic farming stems from the awareness of unsustainability of the production systems often adopted in the country. Tunisians are concerned about intensive agricultural practices that generate risks for the environment and human health. Therefore, interest in organic products forms part of a wider trend of sustainable consumption

quite widespread in developed economies (Abeliotis *et al.*, 2010). Remarkable development occurred in the second half of the '90s when organic products caught on due both to good access opportunities to the European markets for dates and olive oil regarded as being easily converted to organic. Export opportunities and inclusion of the national legislation in the list of equivalent third countries by EU in 2009 and by Switzerland in 2011 were among the main factors enhancing Tunisian positioning in foreign markets. Moreover, from 1999 to 2005 the national legal framework was completed to enhance conversion and crop diversification. Since then, the long-standing commitment of the government and public institutions has played a significant role in the growth of the organic sector through: 1) a dedicated ministerial department – *Direction Générale de l'Agriculture Biologique* (DGAB); 2) a number of active research, advice and training structures including, among others, the pioneer *Centre Technique pour l'Agriculture Biologique* (CTAB); 3) the establishment of the national label for organic products – Bio Tunisia; 4) the latest national strategy for the period 2010-2016; 5) a strategic vision that interestingly combines three complementary courses of action for the long-term organic sector development: i) the first aiming at creating sustainable organic value chains; ii) the second aiming at the creation of a pilot model area of integrated development; iii) and the third aiming at the integration of organic issues into national environmental protection and public health policies. It is also worth mentioning the role of the international cooperation that has contributed to the implementation of regulatory frameworks, to capacity building and to the elaboration of the national action plan, in order to respond to the government's needs. According to the latest available data from DGAB, in 2013 total organic area amounted to almost 222,000 hectares, of which 73% massively grown with olive trees. A small area (just over 400 hectares) is grown with arable crops, essentially cereals and vegetables. Unfortunately, in 2013 organic land areas are still far behind the ambitious crop targets fixed for 2016, especially for cereals and vegetables (Maamer and Amara, 2014), which explains the limited availability of domestic organic food supply on the market.

The experience of organic food consumption in Tunisia is quite recent and very short. Tunisia, the same as other countries in the world, is starting developing internal local organic markets (Willer and Lernoud, 2014).

The first experiences of organic food sales were the result of government' interventions and of the initiative of enterprising producers who supplied even small amounts of local organic products in a context of unorganized domestic organic supply chain (Sgaravizzi, 2009). Logistics is still difficult because producers are scattered and the wholesale stage is virtually inexistent. Retail outlets are numbered: one specialized shop and a weekly market in Tunis, small organic corners in some supermarkets and malls, a consumer group in Sfax. Therefore, not only is the consistency

of retail points inadequate but assortments as well are too small, and prices remain quite high. Although some retailers have started to sell organic, they mainly deal with imported organic foods. Imported products are generally highly recognized by consumers and institutional services for their quality and safety but they are more expensive and thus of limited affordability.

Despite several attempts made in recent years to develop the domestic organic market, the Tunisian organic food sector is still at the starting point at the local level. Things are at a standstill. The market cannot develop because there is no product; farmers do not produce because they are afraid that there might be no market, not so much for lack of interest but rather for limited willingness to pay (wtp).

However, organic consumers, though few and occasional, do exist and they demand organic foods. The objective of this research is thus to consider them by grouping organic buyers having different attitudes and behaviours. To address this main goal, literature on organic consumer segmentation was collected and analysed. In particular, only those studies applying the cluster methodology were considered in order to follow a similar approach for the segmentation of Tunisian organic consumers. In contrast to the vast number of organic consumer studies carried out in mature and developed markets, much less research has been specifically conducted in South Mediterranean developing countries. Therefore, the current study aims to provide an overview of Tunisian organic consumer segmentation regarding organic food consumption.

Selected literature review on organic consumer segmentation

In developed economies, organic products are becoming more diversified and there is growing interest in additional attributes to the "organic quality". In developing countries consumers are still at the stage of searching "organic certified products". Consequently, feelings and opinions towards organic food are much less sophisticated than in mature and developed organic markets.

Regardless of the country of origin, consumer segmentation studies assert that today's food consumption cannot exclusively be explained by socio-demographic factors, such as income and age, but it needs a broader socio-cultural and social-psychological perspective. In this regard, the concept of food lifestyles provides perspective in addition to socio-demographic characteristics (Verain *et al.*, 2012). In general, in organic food consumer segmentation studies socio-demographic characteristics have mainly been used as profiling variables. Gender, age and education were the most frequently included socio-demographic variables, but the results were somewhat ambiguous (Verain *et al.*, 2012). This finding is in line with Dagevos (2005) and Diamantopoulos *et al.* (2003).

Findings indicate that the most frequently identified consumer segments with regard to organic food consumption were:

- non-buyers, occasional buyers and regular buyers (Grunert and Juhl, 1995);
- explorers – involved in food purchasing, independents – with the lowest frequency of organic purchase, health conscious buyers – who attribute healthy characteristics to organic foods, and loyal organic buyers – those who are very involved with the organic quality and have the highest frequency of purchase (Chryssohoidis and Krystallis, 2005);
- unlikely consumers – with no organic purchasing propensity, likely consumers – with low organic purchasing frequency and scarce care for their health but with lower interest in environmental issues than organic food consumers – with high organic purchasing frequency and concerns for health (Gil *et al.*, 2000);
- high consumers – who show more positive attitudes and beliefs toward the consumption of organic fruit and vegetables, having higher consumption frequencies than non-consumers were identified in Saba and Messina (2003);
- Nie and Zepeda (2011, 2012) found that adventurous consumers are the most likely to be organic food shoppers because of health-consciousness and environmental motivations and lifestyle, conversely rational consumers were less likely than adventurous consumers to purchase organic and local foods and are more price sensitive, conservative uninvolved and careless consumers are less active organic shoppers;
- out of five consumer types identified in Schäfer *et al.*, (2011), three of them are more related to organic consumption: post-materialists who attach high importance to health and environment and are likely to purchase organic food for eating at home and at restaurants, home-centred traditionalists who are socially engaged and interested in health issues, and up-to-date privileged with high human and financial resources who are very interested in the newest technology trends concerning consumption habits;
- regular organic product consumers were more highly educated with an overall healthy profile than the other four clusters identified by Kesse-Guyot *et al.*, (2013), 3 of which are non-consumers for different reasons and the fourth group is occasional organic consumers;
- in De Olivera Lima-Filho (2012) 4 clusters were identified: organic consumers belong to the convinced user segment, in addition to indifferent sick, occasional user and aware rich non-user. Organic products were found to be better evaluated in accordance with increasing levels of education, income and frequency of consumption;
- five clusters were found in Krystallis *et al.* (2008). Although the present survey has not a particularly strong discriminating power among regular and occasional organic consumers and non-buyers – as it usually happens in markets with limited consumer familiarity with organics, like the Greek market – three out of five clusters

with higher percentage of regular organic buyers exhibit higher similarity with societal values;

- finally, unlikely organic consumers, likely consumers – who show a leaning for natural food consumption and occasionally buy organic food but are not properly healthy people – and organic consumers – having a high wtp for organic foods – were reported in Sanjuan *et al.* (2003).

There is evidence that price is an important factor to consider when performing sustainable food segmentation. It might be a barrier to green purchases although it is also possible that price-oriented consumers are careless about the environment. In addition to price, health appears to be another important factor in sustainability segmentation.

3. Materials and method

To highlight the distinguishing features of different groups of Tunisian organic consumers, a fact-finding questionnaire-based investigation was carried out to survey their food consumption characteristics and attitude toward organic consumption. Once the data were collected, multivariate statistical analysis was performed in order to segment the sample into significant profiles of the consumer behaviours and to have full understanding of the variability expressed by the features highlighted in the direct survey.

The survey addressed a sample of Tunisian consumers in 2 different locations, Tunis, the capital, and Sousse, another main town. In line with Zepeda and Nie (2012) and in order to make interpretation of the results easier, sampling was restricted only to those who purchase organic food. Moreover, only food shoppers were included. Gender was not considered since, according to Zepeda and Li (2006, 2007), it was not found to be significant. The questionnaire survey was carried out in March and April 2013 by a Master student trained at IAMB. The student was instructed to conduct the survey in proximity of supermarkets selling organic foods and along the road close to points of sales of organic foods; completion of the questionnaire took approximately 30 min. The questionnaire was intended to collect the socio-economic features of consumers and to get a first impression of consumption orientations and behaviour, knowledge of organic foods and willingness to pay for organic products. Socio-demographic data included age, education, family size, number of children younger than 5 years, profession of the head of family (as a proxy of the household income). Consumption orientations and behaviour were elicited by questions related to food purchasing criteria, places of purchase, type of personality of the principal shopper in the household. With regard to organic consumption behaviour, different variables were investigated, starting from the level of knowledge of organic agriculture, frequency of purchase, types of purchased products, place of purchase, buying motivations, up to quantification of the amount of the premium price that consumers are willing to pay for organic foods. Multivariate analysis had a double step:

- a principal component analysis
- a cluster analysis.

4. Results

Out of the 445 interviewees, 75 questionnaires filled in by those who have no knowledge of organic foods were excluded. The 370 interviewees were thus grouped into 2 groups: 154 non-consumers of organic foods, and 216 organic buyers included in the multivariate analysis (Tables 1-2-3).

variables	pooled sample	organic consumers	not organic consumers
<i>Age</i>			
< 25	27,0	32,4	17,8
26 - 35	37,3	38,4	37,5
36 - 45	21,1	17,6	26,3
> 45	14,6	11,6	18,4
<i>Education</i>			
< high school diploma	5,0	1,9	1,9
High school	22,8	12,5	30,5
Post-secondary graduate	72,2	85,6	67,5
<i>Occupation of head of family</i>			
unknow	22,2	21,3	20,8
retired	6,8	5,6	5,8
worker	9,8	6,9	8,4
clerk	28,9	28,7	32,5
self-employed	10,7	9,3	11,1
executive manager	21,6	28,2	21,4
<i>Family members</i>			
single	6,0	3,3	8,5
couple	7,9	6,2	8,5
3 - 4	44,0	44,2	45,7
5 - 6	32,4	36,2	29,4
more than 7	9,7	10,1	7,9
<i>Children younger than 5 (num)</i>			
no children	35,3	47,9	16,2
1	51,5	42,7	59,5
2	11,8	8,4	21,6
> 2	1,4	1,0	2,7
<i>Consumer personality</i>			
spiritual	0,9	1,4	0,6
ecologist	4,3	2,8	6,5
friendly	7,1	7,9	8,4
innovator	3,6	5,1	2,7
hedonist	17,1	13,9	22,7
healthy eating	36,7	44,8	26,6
traditional	30,3	24,1	32,5
<i>Food purchasing criteria</i>			
perceived quality		21,8	17,5
brand		3,7	6,5
"natural"		8,8	2,6
"local"		3,2	9,7
price		62,5	63,6
<i>Food purchasing place</i>			
traditional shops (bakery, butchery,...)	18,0	18,1	18,4
hypermarket	14,0	16,9	12,4
supermarket	25,3	28,0	24,0
grocery	11,4	9,7	12,0
direct sales	3,8	4,9	3,3
market	16,7	12,1	18,2
close to home	10,9	10,3	11,6
<i>Organic product knowledge</i>			
wrong	3,8	2,8	5,2
vague	38,1	33,3	44,8
correct	58,1	63,9	50,0

The principal component analysis highlighted that the matrix was built upon the growing order of factor loadings. Higher (factor loadings mainly affect the interpretation of the component. From Table 4 of the total variance ex-

Table 2 - Buying behaviour of organic consumer (%).

<i>Reason to purchase organic</i>	
environmentally friendly	6,0
local development	2,8
organoleptic quality	7,9
innovative product	6,9
healthy and guaranteed	76,4
<i>Place to purchase organic</i>	
Internet	0,5
organic fair	3,2
at farm	32,0
local market	5,1
specialized shop	5,6
supermarket	53,6
<i>Type of organic products bought</i>	
fruit	19,3
vegetables	19,3
meat	4,3
eggs	11,8
cereal and pasta	3,7
olive oil	17,7
milk	6,0
honey	17,9
<i>Willingness to pay</i>	
none	18,3
up to 5% more	49,2
up to 10% more	23,2
up to 25% more	9,2
<i>Willingness to increase organic purchases in the future</i>	
no	13,3
yes	86,7
<i>Reasons to increase organic purchase</i>	
promotion	6,6
services	5,0
assortment	23,4
availability	19,7
low price	45,3
<i>Reasons not to increase organic purchase</i>	
high price	50,0
low quality	6,3
product unavailability	12,5
point of purchase unavailability	6,3
bad packaging	12,5
no interest	12,6

Table 3 - *Buying behaviour of not organic consumer in the future (%)*.

<i>Reasons not to buy organic now</i>	
low quality	5,2
unavailability	27,5
no interest	27,5
high price	39,8
<i>Willingness to buy organic in the future</i>	
no	21,6
yes	78,4
<i>Reasons to buy organic in the future</i>	
promotion	5,0
services	5,8
assortment	15,8
unavailability	19,2
low price	54,2
<i>Willingness to pay for organic in the future</i>	
none	27,3
up to 5% more	44,8
up to 10% more	22,7
up to 25% more	5,2
<i>Reasons not to buy organic in the future</i>	
high price	21,2
low quality	9,1
product unavailability	6,1
point of purchase unavailability	9,1
bad packaging	15,2
no interest	53,6

plained we found 5 main components with eigenvalue > 1. According to factor loading of each variable for each component (by combining the variables loading on each component) (Table 5) an explanation of the selected 5 components is given in the following. The first component highlights that a great professional profile together with high social status are at the basis of current and future good willingness to pay. The second component intercepts consumers' worries with regard to two main attributes of organic foods: healthiness and safety, which mainly derive from an excellent knowledge of organic foods. In the third

Table 4 - *Total variance explained.*

Component	Initial eigenvalues		
	Total	% of variance	cumulative %
1	1,64	16,42	16,42
2	1,28	12,80	29,23
3	1,19	11,92	41,15
4	1,10	11,01	52,16
5	1,02	10,24	62,39
6	0,93	9,30	71,69
7	0,88	8,79	80,48
8	0,74	7,40	87,88
9	0,69	6,86	94,74
10	0,53	5,26	100,00

component, good awareness in addition to food choice criteria of localness determine a good propensity to purchase local food. Therefore, organic food is perceived as a locally produced food, with good quality and safety. The fourth component principally concerns the cultural level and young age. In fact, high education and good knowledge of organic foods in addition to innovation propensity and idealism that typically belong to young age are able to influence purchase choice. The last one is linked to the family size. In the case of large family, the propensity to buy is reduced, and the occasionality of organic purchases makes the consumer more willing to pay a higher price to purchase organic foods.

Therefore, the most important variables to define the purchasing behaviour of organic foods are income availability, knowledge of organic foods combined with high education, link with the territory as an indicator of naturalness and food quality and, finally, social attributes of family. The next step in multivariate analysis is to use *the five main components* as segmentation variables in the cluster procedure. Cluster analysis produces five segments of organic food consumers (Table 6). Each segment was characterized taking into ac-

Table 5 - *Correlation matrix (factor loading of each variable).*

component 1	component 2	component 3	component 4	component 5					
occupation	0,72	future organic purchase	0,66	reason to buy organic	0,76	education	0,79	wtp	0,45
age	0,56	reason to buy food	0,59	organic knowledge	0,56	organic knowledge	0,18	family size	0,43
wtp	0,52	family size	0,51	future organic purchase	0,14	future organic purchase	0,16	education	0,32
frequency to buy organic	0,44	organic knowledge	0,37	wtp	0,13	reason to buy food	0,02	reason to buy organic	0,16
future organic purchase	0,35	reason to buy organic	0,08	age	0,12	frequency to buy organic	0,01	occupation	0,13
reason to buy food	0,29	wtp	-0,01	frequency to buy organic	0,10	wtp	0,00	age	0,00
education	0,27	education	-0,14	education	0,10	occupation	-0,12	future organic purchase	-0,01
organic knowledge	0,05	frequency to buy organic	-0,16	occupation	0,00	reason to buy organic	-0,19	reason to buy food	-0,17
family size	-0,15	occupation	-0,17	family size	-0,07	family size	-0,31	organic knowledge	-0,37
reason to buy organic	-0,21	age	-0,17	reason to buy food	-0,47	age	-0,52	frequency to buy organic	-0,57

Table 6 - Final clusters' centers and labelling.

	Cluster				
	1	2	3	4	5
component 1	0,66	-0,55	-1,06	0,63	-0,26
component 2	0,14	0,49	-2,63	-0,26	0,36
component 3	-0,54	-0,18	-0,41	0,81	-0,17
component 4	-0,29	0,59	-0,21	0,22	-2,07
component 5	1,20	-0,13	0,14	-0,34	-1,09
cluster label	snob	promising	confused	regular	weak

count: consumers' socio economic characteristics; personality characteristics; factors related to attitudes toward food; factors related to attitudes toward organic food products; consumption level and purchasing behaviour toward organic food products.

The first cluster is labelled "snob". The main components that contributed to the cluster definition are economic availability and low purchasing frequency, in addition to a special propensity for the appreciation of the healthy attributes of organic foods. Consumers in this segment are young, have high education, a remarkable professional profile, are part of a family of 4-5 members with no children or at most one child. They show a leaning for healthy food consumption, but with occasional purchases of organic foods and an averaged wtp of about 10%, although one of the main purchase criteria is price. Consumers think they have a good knowledge of organic agriculture, but indeed two thirds of them have a confused knowledge of it. Organic foods are mainly bought at the supermarket and rarely directly from producers. They are preferred in view of their characteristics of safety and organic quality. The first segment accounts for 19% of the sample.

The components characterizing the second cluster are linked firstly to the high cultural profile of the consumers included in this segment, and secondly to their health eating personality. They might both improve organic consumption and their economic situation, which conversely hamper organic food purchases. For this reason, the segment is labelled "promising". Consumers in this segment are young, with a high degree of education, and live with their parents. With regard to their propensity to buy food, these consumers care about the price as a main criteria, whereas other criteria are less important.

Their personality is especially sensitive to the healthy and hedonistic attributes of food products. The fact that almost all people belonging to the cluster have a university degree showed itself in their excellent knowledge both of organic attributes and organic definition, which in most cases are diffused by word of mouth. Most of them buy organic foods because they consider them safe and trust the organic certification, although they seldom buy them. Their favourite place of purchase are supermarkets and their wtp is up to

5%. However, their wtp is quite influenced by the socioeconomic characteristics of people belonging to this segment: young age, student or with no income, living with the family; their wtp thus depends on family resources and not on personal incomes. Ultimately, their being considered as promising consumers is referred to the possibility that by gaining their autonomy in income they will confirm their positive attitude towards organic consumption declared in the questionnaire. It is a price-oriented

segment that values organic foods but that may consider price as a barrier to organic purchases. Promising consumers represent 36% of the sample.

The third segment accounts for just 6% of respondents. This is clearly the group which is most confused about organic food consumption. It is thus referred to as "confused consumers". The components describing this cluster exhibit a negative correlation. The strong negative value of the healthy attributes of organic products highlight a strong contradiction with the common perception of organic food; this aspect is confirmed by the high percentage of consumers who have a limited knowledge of organic agriculture; moreover more than 60% give a wrong definition. Consumers included in this segment have a traditional personality that pushes them to care more about price as a food criteria as well as safety and organic guarantee. But indeed, as previously explained, the purchase frequency of organic foods is very low. In relation to age and education, consumers are very similar to those included in the second segment. With respect to income, there is a greater number of consumers with a remarkable professional profile that entails higher income. All consumers belonging to this segment exhibit a very low willingness to pay, which reflects their incapacity to recognize the value added of organic foods.

The fourth cluster includes a bit more of a quarter of the sample. It includes people who show a leaning for healthy and traditional food consumption, who buy organic products because they are safe and guaranteed, who are quite aware of their characteristics, and prefer to buy them from the organic producer or in supermarkets, and they are thus called "regular". Moreover, consumers' willingness to pay and their interest in locally produced foods are thus instrumental for rural development. Consumers included in this segment are aged between 26 and 35, with a university degree and a good job; most of them live with the family with 4-5 members half of which having only 1 child. Their wtp is up to 5%. For this reason only price can be a barrier to organic purchase.

The fifth cluster represents 10% of organic buyers. It is formed by interviewees showing both economic weakness – because most of them have a low professional profile –

and cultural weakness – because nobody has a degree; therefore, this segment is referred to as “weak consumers”. They are worried about health but they do not know much about organic foods. They seldom buy them in supermarkets; they prefer them mainly because organic foods are perceived as safe and guaranteed. The positive value of the healthy consumers of the group is maybe a consequence of promotional organic purchases that might have given them the opportunity to buy organic foods at a lower price and thus to appreciate their healthy and safe properties. But the combination of low cultural profile, middle level education and low income reduces their willingness to pay and leads to occasional purchases only. Age does not influence these consumers’ attitude, whereas belonging to families with 4-5 members plays a role and price consideration is a major criteria.

5. Discussion

The first significant data is the confirmation of a considerable demand, at least numerically speaking (25% of the interviewees). Regular consumers exhibit the typical characteristics reported in the literature on organic consumption: they are healthy consumers, prefer local organic production, have a broad knowledge of organic foods and prefer to buy them in supermarket or directly from the producer. The analysis of data does not reveal a significant environmental dimension in purchase motivations. This is due to the low perception of environmental damages caused by intensive agricultural techniques which mitigate the capacity of appreciating the sustainability of organic practices. This behaviour still remains a peculiarity of the whole sample of interviewees. Consequently, selfish motivations, like healthiness and safety, do prevail in purchases. They are the only cluster showing a marked preference (36% of the cluster) for the direct channel that should be our target in order to boost sales of organic foods in direct channels.

The possibility of increasing numerical demand of organic foods is actually linked to the group of promising consumers (36% of the sample) whose “cultural” characteristics do correspond to the organic consumer type, especially referring to the safety of organics as an indicator of the concern for food hygiene guaranteed by organic certification. Nevertheless, their weakness, especially related to income, jeopardizes the purchase of organics. For promising consumers we should thus aim at sales promotions since the sale price remains a critical issue.

The remaining part of the sample (39%) represents a pool of consumers whose organic consumption is still difficult to consolidate. For half of them, the Snobs, though having adequate income to pay for organic foods and though concerned with health aspects of food, the low propensity to purchase organic (85% of the group rarely buys it) is undermined by poor knowledge of the quality of organics, of certification and relevant quality guarantee (60% declares they fully know organic but only 27% ticks the right answer of the organic food definition in the questionnaire. We

should assess if the marketing education action, aimed at raising their organic food awareness, risks to be ineffective due to the attitude of alleged knowledge that the group declares to have. On the other hand, it is not excluded that if they acquire a better knowledge of these products they might buy them more frequently. The same problem of poor knowledge also arises for the confused consumers who are poorly health conscious and for whom affordability is an issue. The last segment of this residual group, the weak, refers to unaware occasionality of purchases that are only made if price is affordable rather than for cultural motivations.

6. Conclusions

The results of our survey confirms that the domestic market for Tunisian organic products faces some challenges. Some general remarks are formulated in the following. First of all, attitudes toward organic look quite weak for consumers and mainly for producers and distributors. In the most optimistic scenario, the final demand is restricted to about 60% of consumers. Only a massive communication marketing strategy, mainly addressed to healthy eating, might extend potential final demand up to 80% of consumers. Moreover, complexity of food choice by the interviewed consumers proved to be less evident (in fact, clusters are poorly diversified in terms of attitude, perceptions, opinions), differently from what happens in wealthier societies where, due to “the frightening complexity of food choice, consumers’ food considerations are very complex” (Rozin, 2007). This leads us to consider not only the differentiation aspects resulting from the cluster analysis but also to highlight common features within the whole sample: the health-consciousness aspect in particular, which is prevailing and more motivating in organic purchasing, and price consideration, which is a fundamental driver in purchase preferences. On the other hand, the results of our analysis emphasize the need to adjust organic food prices.

It is not excluded that the limited amount of supply, and a highly disaggregated one, might be an additional barrier to the development of the organic market in Tunisia. Actions to face these challenges might raise the local and foreign buyers’ interest. Therefore, the major objective of policy makers should be to promote the involvement of both farmers and processors, through adequate measures to support conversion and industrial investment. To re-launch the organic sector the following actions still apply: improving supply (a critical issue for processors), re-launching the agro-food industry, developing the distribution and export circuits and boosting / revitalising professional entities (Sgaravizzi, 2009). This is in line with the institutional approach to the organic sector development in Tunisia which appears to be strictly devoted to foster the organic production growth with the aim of creating a competitive advantage for organic food producers. Although some initiatives involved and were addressed to consumers, their profound goals was totally commercial. Both the claim of environ-

mental support and organic food healthiness were limited to be the content of marketing promotion on the benefit of organic food. According to Ghozzi-Nekhili & Kamoun-Chouk (2012) it would be welcomed that governmental supportive initiatives were directed at implementing the leverage that will encourage the sustainability of food consumption entailing the change in consumer behavior. To this end although individual motivations play an important role, the existence of policies working at improving food culture and the ecological awareness of the society may constitute a stronger impulse towards increasing access to organic food.

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