



DETERMINANTS OF ORGANIC FOOD CONSUMPTION IN EGYPT

MOHAMED M.A.¹, CHYMIS A.² AND SHELABY A.A.^{1*}

¹Department of Agricultural Economics, Faculty of Agriculture, Fayoum University, Fayoum, Egypt.

²Centre of Planning and Economic Research (KEPE), Athens, Greece.

*Corresponding Author: Email- aas07@fayoum.edu.eg

Received: August 09, 2012; Accepted: August 14, 2012

Abstract

Purpose: the objective of this paper is to explore consumers' attitudes towards organic food in the capital of Egypt; moreover, there is a need to identify the motivations and barriers towards organic food consumption, as well as the willingness to pay for these products.

Methodology: to achieve the purpose of this study, a field research - interview approach was selected. Data was collected through a questionnaire that targeted three groups of people in Cairo city: students at the Faculty of Agriculture at Cairo University, staff of the Faculty of Agriculture at Cairo University, and consumers of Carrefour hypermarket. Respondents were asked to fill in the questionnaire during a face-to-face interview.

Findings: health concern is the first motivation of organic food consumers in Egypt; moreover, it is the first motivation for which consumers are willing to pay an extra premium for organic food over the price of conventional food. High prices of organic products and distrust of organic products' genuineness are the major barriers towards organic food consumption.

Limitations: future studies in the field of organic food consumption will be more valuable if a broader survey takes place taking into consideration the population from all over the country. More places in Egypt need to be chosen, with other cities and people from all levels included (high class areas, people in popular areas, farmers in rural areas), in order to generalize the results.

Originality: this paper is one of few researches focusing on organic food consumption in Egypt.

Keywords- Organic agriculture, Egypt, organic food consumption, willingness to pay.

Citation: Mohamed M.A., Chymis A. and Shelaby A.A. (2012) Determinants of Organic Food Consumption in Egypt. International Journal of Economics and Business Modeling, ISSN:0976-531X & E-ISSN:0976-5352, Volume 3, Issue 3, pp.-183-191.

Copyright: Copyright©2012 First Author, Second Author. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

Introduction

In earlier decades, policy makers, farmers and industry were more concerned to produce more and more in order to feed the millions of population and get us out of the danger of famine. Usually poor people seek food to survive; they are concerned about how to satisfy these physiological needs. As people get richer, they have the choice of asking for healthier food than just food, going up in the hierarchy of needs, and they look forward to safety needs [16]. Attaining safe and high quality food comes to be a necessity and they become interested to know more about methods of food production that make food safer and healthier. To answer the question why the demand of organic food rose rapidly in developed countries, we can say that consumers in these countries who are richer than others became increasingly concerned about food quality and nutrition issues, procuring safe food that keeps them and their fam-

ilies in a good health [5]. As for Egypt, there is an increasing supply market of organic food gained from its significance as a safe-production, high quality food and its positive environmental influences. The supply market is growing at a much quicker rate than organic food consumption. Organic food consumption in Egypt is still very narrow and there are few outlets of organic food concentrated in the capital through big hypermarkets and supermarkets.

The Market of Organic Food in Egypt

Egyptian farmers were the first to use manure and the agricultural cycle, planning cultivation at the right time to avoid harmful agricultural pests. The total certified organic agricultural land in Egypt is 40,000 ha in 2008 in comparison with 14,165 ha in 2006 [20]; this land shares 1.1% of total agricultural land [19]. The number of organic farms in Egypt was 460 in 2006 [20], and increased to 1000

farms in 2007 [1]. This means that the number of organic farms in Egypt doubled in one year as a consequence of high revenue that was generated by organic agriculture; therefore, farmers get encouraged to adapt the organic agriculture methods [1]. The Egyptian domestic market of organic foods is still thin [20], this is pursuant to the high prices of these products in comparison with conventional food prices and the low levels of income that limit people to buy organic produce. The reasons for low domestic consumption of organic food can be illustrated in the following:

- High prices of organic food, which limit the majority of people in a developing country such as Egypt to buy it,
- Low levels of income,
- Few outlets of organic food in Egypt, concentrating only in big supermarkets and hypermarkets
- Lack of awareness of the importance of organic agriculture and its products and the differences between organic food and conventional food.

A few specialized shops exist in Egypt and most organic products take separate shelves in the big supermarkets such as Metro and Carrefour which sell mostly vegetables and fruits [20]. The local demand of organic food is expected to grow in the coming years as a result of growing concerns over health and environmental issues as well as increasing individual incomes [1].

Consumers' Attitudes Towards Organic Food

There are many motivations that drive consumers to buy organic food such as health concern, environmental concern, food quality and safety and tasty food. Padel and Foster (2005) argued that the primary reason for consumers to invest in organic foods is health concerns. People wishing for a balanced life and healthy food favour organic food. Furthermore, consumers who prefer a healthy and balanced diet tend to have more environmentally friendly behaviour, and believe that organic food is healthier and it helps environmental preservation better than conventional food [9]. Environmental and health concerns are considered strong factors in both attitudes and consumption of organic food. Older consumers and families with children show higher curiosity for organic consumption as a result of these concerns [2,6,11,17]. High quality and food safety are of high importance for many buyers. There is evidence that organic food corresponds to higher quality standards and pesticide elimination. Unlike conventional food products, there are two factors prompting people to purchase organic products: the absence of chemicals and genetically modified organisms (GMOs) and the need for high quality ethics [11]. Croatians, for instance, rank high quality as a second significant attribute for organic food consumption behind health concerns [13]. Food safety is also regarded as a primary concern for consumers to purchase organic food [17]. One of the major motives for consumers to buy organic food is the belief it has a superior taste to conventional food, elderly and frequent buyers thought that organic foods are tasty and this is a great motive for them to buy organic products. Also, women, more often than men, consider that organic products taste better [13]. Pellegrini and Farinello (2009) stated that one in two consumers in Italy believe that organic food tastes better than conventional food.

There are many barriers of organic food consumption such as high price, availability, appearance and trust that food is really organic. Organic food prices remain the major obstacle for most consumers purchasing organic [7,10,13,14,17,18,]. Appearance of organic products is considered an obstacle for consumers to purchase them. The study of Radman (2005) indicated that organic food consumers in Croatia are generally dissatisfied with the appearance of organic products. They indicate that organic food does not last for a long time on supermarket shelves like conventional food. Additionally, consumers in larger households consider product appearance an important factor that influences their intention to purchase organic food. Non-buyers are also affected by the less attractive appearance which is perceived as lower quality, especially with the high prices for these products [17]. Trust among consumers is another very fundamental issue.

The majority of studies showed that organic fruits and vegetables are the main product category consumed more frequently [10,11,13,17]. Indeed, in Egypt, most organic products sold in supermarkets are vegetables and fruits [20].

Methodology and Data Analysis

Primary quantitative method was used, and quantitative data was collected from Cairo, the capital of Egypt. Interviews with 200 respondents took place. Three groups of respondents were selected. The first group is students, selected from Cairo University, Faculty of Agriculture; the second group is the staff from the Faculty of Agriculture, at Cairo University and the third group was consumers of the Carrefour hypermarket (the biggest hypermarket in Cairo city with an organic food section).

The questionnaire consists of two parts. Part one refers to general demographics information such as age, gender, education level, number of persons in the house, yearly income, employment status, and presence of children in the household. Part two contains questions regarding preferences related to organic food, willingness to pay for organic food, barriers towards organic food consumption and consumers' opinions about locally grown organic food products. The 5-point Likert scale is used to answer the questions related to consumers' motivations and barriers towards organic food, willingness to pay and consumers' opinions about locally grown organic food products. Respondents indicate their degree of agreement or disagreement between the ranges of 'strongly agree' to 'strongly disagree'. Before analysis, the data was coded and collected in Excel sheets. SPSS package was used to analyze the collected data. In this research we used descriptive analysis by using the tools of descriptive statistics such as frequencies and percentages, linear regression is used to test the relationship between variables, the independent variable(s) and the dependent variable.

Results

Demographic Distribution

The sample was composed of 200 respondents; we have a large percentage of young people, approximately 78% of respondents under 40 years old. A yearly income of 7070\$ and more is considered a high income for specific jobs such as professors in universities.

Table 1- Frequency distribution of demographic characteristics

Demographic characteristics		Frequency	%
Age	Less than 24 years old	93	46
	24-40 years old	64	32
	More than 40 years old	43	22
Gender	Male	137	68.5
	Female	63	31.5
Income level	Less than 2357\$	94	47
	Between 2357\$-4715\$	58	29
	Between 4715\$-7070\$	23	11
	More than 7070\$	25	13
Number of persons in the household	Only me	1	0.5
	2	20	10
	3	24	12
	4	55	27.5
Number of children in the household	More than 4	100	50
	None	95	47.5
	1	53	26.5
	2	25	12.5
Education level	3	14	7
	More than 3	13	6.5
	No school	0	0
	Primary school	0	0
	High school	95	47
Employment status	University degree	44	22
	Master degree or more	61	31
	Unemployed	2	1
	Student	74	37
	Student and work part-time	3	1.5
	Work full-time	106	53
Self-employed	Work part-time	2	1
	Self-employed	13	6.5

Purchasing Behavior

Respondents were asked if they purchase organic food or not, (136 respondents) 68% do not purchase organic food, while the rest 64 (32%) do. 51.5% of the organic buyers (33 of 64 respondents) buy organic food once or less than once a month, 31.3% every two weeks and 17.2% once a week. In comparison with the results of Fotopoulos and Krystallis (2002) which indicated that 57% of organic buyers in Greece buy it once per month or less, 34.5% buy once per week and 8.5% more than once per week. Hence, the percentage of regular consumers in other studies was high (more than once per week or once per week), this result is logical since we talk about developing country in comparison a developed country such as Greece. According to the literature, although 68% seems to be low in comparison with other studies (73% non-buyers) [4], the percentage of regular organic food buyers in the present study is low in comparison with the same studies, so this show the low level of organic preference in Egypt. Taking into consideration the significant effect of factors such as education level and specific income levels, these factors played a big role to increase the percentage of organic food buyers within the study.

Organic food consumption at least in our case is still small if we compare it with other studies that showed a high percentage of regular organic buyers in comparison with the present study. This may be the reflection of higher income in these countries and the organization of the organic market which may be more developed and it can be easier to find organic food in more stores.

Consumers were asked to determine who makes the decision of organic food purchases: 49% of respondents said that they make

this decision by themselves (87% were males and 13% females), 28% make this decision with another person (the majority said that they make the decision with their wife, father or mother) and 23% said that someone else makes the decision of organic food purchase in the household. On the one hand, some studies in developed countries showed that women tend to buy organic food more than men do and the decision for organic food purchase is also made by them [3,4,10,13]. Sandalidou et al. (2002) showed that there is no effect of gender on organic food consumption in Greece. It can be illustrated that there is no clear agreement among studies that there are differences between men and women according to organic food consumption; moreover, studies which advocated that women buy organic food more than men do; only depended on high percentages of women buying organic food in comparison with men. Another important factor to mention in an Arab country such as Egypt is culture: most food consumption decisions are made by men since they control the purchasing power and they buy home needs by themselves so the result is expected to differ from studies especially in this cultural factor.

Table 2- Purchase behaviour of respondents who buy organic food

Purchasing behaviour		Frequency	%
Organic food purchase	Do not buy organic food	136	68
	Buy less than once in a month	21	10.5
	Buy once a month	12	10
	Buy once every two weeks	20	6
	Buy once a week	11	5.5
Decision of organic food purchase (only for respondents who buy organic)	Me	31	49
	Together	15	23
	Another person	18	28
	Medicinal and aromatic plants	23	36
	Milk and dairy products	15	24
Product category that is consumed more frequently (only for respondents who buy organic)	Fresh vegetables	13	20
	Fresh fruits	6	9
	Eggs	3	5
	Cereals	2	3
	Baby foods	2	3
	Oils	0	0
	Meat and meat products	0	0
Place of purchase	Directly from farm	4	6
	Supermarkets	37	58
	Organic shops	0	0
	Hypermarket	23	36

In the present study, purchasers were asked to determine which product category they consume more frequently: 36% consume medicinal and aromatic plants more frequently, followed by 24% with milk and dairy products. Another 20% consume mostly fresh vegetables, with 9% for fresh fruits. Consumers of eggs follow at 5%, with cereals and baby foods at 3% each. None of the respondents consume organic meat and meat products or organic oil. Unlike the previous results, the majority of studies showed that organic fruits and vegetables are the main product category consumed more frequently [10,13,14,17]. Moreover, in Egypt, most organic products sold in supermarkets are vegetables and fruits [20]. Padel and Foster (2004) showed that respondents did not mention that they buy organic meat (Fig. 1). People are accustomed to buy organic medicinal and aromatic plants from the pharmacy as medicine for specific pains or they buy them from small supermarkets where these products have specific labels of company-produced organic food such as SEKEM in Egypt. Another reason of purchas-

ing organic medicinal and aromatic plants is that they are easily found everywhere at a suitable price in the Egyptian market. As for organic meat and oils, respondents mentioned that these products are not available even in the big supermarkets such as Carrefour and Metro. Moreover, most respondents are not convinced that real organic meat or oils exist.

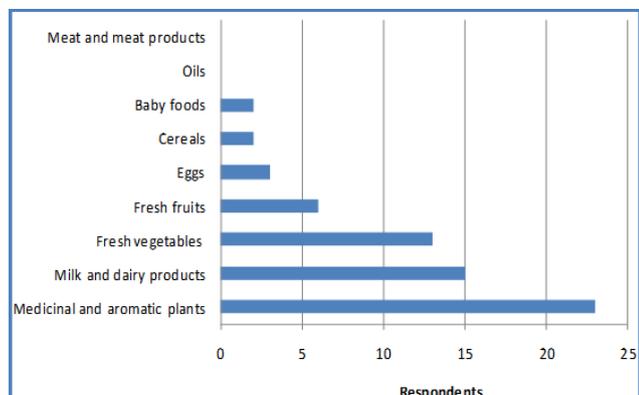


Fig. 1- Organic food category purchased more frequently

Of organic food purchasers: 58% buy organic food from supermarkets, 36% from hypermarkets; followed by 6% who get their organic food directly from farms (these consumers said that they live in rural areas or have their own land there to grow organic foods). Padel and Foster (2004) indicated that supermarkets are the first place for consumers to buy organic food. Organic food supply in Egypt is concentrated in big supermarkets such as Carrefour and Metro in Cairo city [20]. The organic agriculture movement firstly started in the European countries and there are many organic shops in these countries. Moreover, it is a tradition in European countries such as Italy, Greece and Spain to have a small piece of land in their homes where they grow organic foods. In Egypt, this tradition does not exist and there are no areas around homes to grow organic food. Organic agricultural land in Egypt is distributed in the rural areas in small farms. Although there are a few organic shops in Egypt, no respondents said that they buy organic food from organic shops. Respondents indicated that they are not familiar with those shops as a result of there being very few of them. Moreover, most of them implied that they buy organic food usually when buying other conventional food from supermarkets.

Organic Consumer Identity in Relation With Organic Food Consumption

Gender

Women who purchase organic food represent 25% of their total number, whereas men who buy organic food represent 35%. Chi-Square was used to test if there are significant differences between men and women regarding purchasing decision. The calculated output value of Chi-Square (χ^2) is 1.84, which is not significant at the 10% level of normality (the value of Chi-Square (χ^2) probability in the table at 10% level of normality and 1 degree of freedom is 2.706). As mentioned before, there is no complete agreement between studies that there is a difference between men and women regarding organic food purchasing. Some studies illustrated that woman buy organic food more than men do. Moreover, they depended on a high proportion of women buying organic food more than men [4,10,13], whereas others showed that there is no effect

of gender on organic food purchasing [15]. In the present study, although there is no significance, there are a high proportion of men buying organic food more than women. Our results are in contrast to those of Fotopoulos and Krystallis (2002), Padel and Foster (2004), and Radman (2005), which indicated that women buy organic food more than men do. Another important point to corroborate our result is that approximately 50% of women in the sample are students and housewives, so they depend totally on men to manage the home's needs in food. Moreover, there is the cultural factor that we mentioned before which makes men in an Arab country such as Egypt take the responsibility of food purchasing and control the purchasing power too. The cultural factor can be broken down into two components: 1) the mentality that men decide what the woman will buy in the shop, 2) the fact that not many women work so they are not financially independent. It can be concluded that men show a greater propensity to buy organic food more than women in the present study probably because of culturally based reasons.

Table 3- Gender distribution among organic consumers

Gender Distribution	Buying Decision		Total number of respondents
	Buy organic food Respondents	Do not buy organic food Respondents	
Men	48	89	137
Women	16	47	63
Total	64	136	200

Chi-Square (χ^2) = 1.84 (not significant) - (Source: Own calculation)

Presence of Children in Household

Respondents with children in the sample represent 53% (105 respondents of 200); these respondents are divided into three groups: respondents with one child in the household (53), respondents with two (25) and respondents with three or more children (27). Respondents without children in the household represent 47% (95 respondents of 200). The calculated output value of Chi-square (χ^2) is 0.47, not significant at the 10% level of normality (value of Chi-Square (χ^2) probability at 10% level of normality and 3 degrees of freedom is 6.251) (Table 4). Studies showed that there is a high proportion of householders with children buying organic food more than those without children; the presence of children in the household is considered an influential factor which affects consumers' organic food attitudes and buying behaviour [4,13]. Although Chi-Square does not show any significance, approximately 55% of those who buy organic have children (35 of 64 respondents) whereas 51.5% of those who do not buy have children (70 of 136 respondents). Moreover, respondents with children who buy organic food represent 33.3% of their total number in the sample (35 of 105 respondents) whereas respondents without children who buy organic food represent 30.5% (29 of 95 respondents). Our results are consistent with other studies; we can see that there is a higher probability of buying organic food when there are children in the household. Another interesting result is that families with 1-2 children (34% and 36% respectively of their total number in the sample) show an inclination to buy organic food more than families with 3 or more (30% of their total number in the sample). This reflects the fact that as the number of people increases in the household, the share of each person from family budget will decrease. Thus, as the number of children increases, coupled with the fact that most people in a country such as Egypt have low in-

comes, the budget will firstly target the conventional rather than organic food as a consequence of the higher prices of the latter products.

Table 4- Presence of children in household among organic consumers

Presence of children	Buying decision				Total number of respondents
	Buy organic food Respondents	%	Do not buy organic food Respondents	%	
Respondents with children in household	(35 of 64 respondents)	55%	(70 of 136 respondents)	51.50%	
Respondents with one child in household	18	34%	35	66%	53
Respondents with two children in household	9	36%	16	64%	25
Respondents with three children or more	8	30%	19	70%	27
Respondents with children	35	33.30%	70	66.70%	105
Respondents without children in household	29	30.50%	66	69.50%	95
Total	64	32%	136	68%	200

Chi-Square (χ^2) = 0.47 (not significant) - (Source: Own calculation)

Education Level

High school graduates who buy organic food represent 25% of the sample, whereas university graduates represent 36% and respondents with a master degree or higher represent 39%. The calculated output value of Chi-Square (χ^2) is 3.88, not significant at the 10% level of normality (value of Chi-Square (χ^2) probability at 10% level of normality and 2 degrees of freedom is 4.605). According to this statistical measure, there is no significant effect of education level on purchasing decision. Although chi-Square does not show any significance, its value is high and it approaches significance more than in the previous cases. It is also clear that as the education level increases, organic choice increases too. The percentage increases from 25%, 36% to 39% as education level increases from high school, university degree to master degree or higher (Table 5) respectively. Our results are consistent with other studies; education level affects organic food consumption. Most of studies showed that there is a high proportion of highly educated people to buy organic food than others do [4,11,13,17]. The higher the education level, the higher the knowledge about the importance of organic food, therefore, the positive the attitude towards it.

Table 5- Education level among organic consumers

Education level	Buying decision				Total number of respondents
	Buy organic food	Do not buy organic food	Buy organic food	Do not buy organic food	
All educated respondents	(64 of 200 respondents) 32%	(136 of 200 respondents) 68%			
High school	24	25%	71	75%	95
University degree	16	36%	28	64%	44
Master degree or higher	24	39%	37	61%	61
Total	64	32%	136	68%	200

Chi-Square (χ^2) = 3.88 (not significant) - (Source: Own calculation)

Age

Respondents under 24 years old who buy organic food represent 24% of the sample, whereas respondents between 24-40 years old represent 37% and those more than 40 years old represent 42%. The calculated output value of Chi-square (χ^2) is 5.79, significant

at the 10% level of normality (value of Chi-Square (χ^2) probability at 10% level of normality and 2 degrees of freedom is 4.605). Among respondents who buy organic food, there are significant differences between age groups regarding organic food consumption (Table 6). Davies et al. (1995) showed that there are no significant differences between age groups regarding organic food consumption. Other studies did not show if there are differences between age groups but concentrated on what every group was concerned about; for example, older people believe organic food tastes better and they are more concerned about health issues while young people are concerned about environmental issues [13,17]. In the present study, older people showed a high propensity towards organic food consumption. The percentage of people buying organic food increases from 24%, 37% to 42% as age increases.

Table 6- Age distribution among organic consumers

Age	Buying decision				Total number of respondents
	Buy organic food	Do not buy organic food	Buy organic food	Do not buy organic food	
Less than 24 years old	22	24%	71	76%	93
Between 24-40 years old	24	37%	40	63%	64
More than 40 years old	18	42%	25	58%	43
Total	64	32%	136	68%	200

Chi-Square (χ^2)= 5.79 (significant at 10%) - (Source: Own calculation)

Income

Respondents with less than 2357\$ income per year who buy organic food represent 24% of the sample, respondents with 2357\$-4714\$ represent 29%, respondents with 4715\$-7070\$ represent 39% and finally respondents with more than 7070\$ per year represent 60%. The calculated output value of Chi-square (χ^2) is 12.19, very significant at the 1% level of normality (value of Chi-Square (χ^2) probability at 1% level of normality and 3 degrees of freedom is 11.345). Among respondents who buy organic food, there is a significant effect of income on the purchasing decision of organic food (Table 7). Our results are consistent with other studies that indicated that individual income significantly affects organic food consumption [3,10,17]. The majority of people in a developing country such as Egypt have low incomes, so they attempt to firstly cover the essential needs that do not cost a lot. As it is well known, organic food has a much higher price than its conventional counterparts, so only high-income earners are able to buy these products and as income increases, the proportion of organic food consumption will increase. It is clear that there are large differences in the percentages of people who buy organic food as income increases from one level to another: 24%, 29%, 39% and 60% respectively. Linear regression results showed that, among demographic factors such as gender, age, income, presence of children and education level, only income level significantly affects organic food purchasing decision (p- value is 0.0001, significant at 1% level of normality and R2 counts at approximately 10%). None of the other demographic factors are significant even at the 25% level of normality. It is very fundamental to stress that the majority of those who are more than 40 years old have a master degree or higher (30 of 43 respondents, representing 70%). Moreover, approximately the same percentage have more than 7070\$ as a yearly income (the highest income according to the sample). So it is indicated that

both income and education level seriously affect organic food consumption and most of these significant differences between age levels according to Chi-square results are a result of high income and education level for older respondents.

Table 7- Income distribution among organic consumers

Income	Buying decision				Total number of respondents
	Buy organic food		Do not buy organic food		
Less than 2357\$	23	24%	71	76%	94
Between 2357\$-4714\$	17	29%	41	71%	58
Between 4715\$-7070\$	9	39%	14	61%	23
More than 7070\$	15	60%	10	40%	25
Total	64	32%	136	68%	200

Chi-Square (χ^2) = 12.19 ***(very significant) - (Source: Own calculation)

Motivations towards Organic Food Consumption

Organic food purchasers were asked to mark ten statements using a 5-point Likert scale ranging from 'strongly agree' to 'strongly disagree'. These statements represent the motivations behind organic food purchase. "Healthy food for me and my family" comes in first place as a motive for consumers to purchase organic food, with 99.5%, consistent with other studies which showed that the first motivation of organic consumers is the health concern [9,10]. Respondents think that organic food is healthy for them and their families, and keeps them healthy as a consequence of not using additives and pesticides during the process of production. "Safe food" comes in second place with 98.4%. Food safety is one of the major concerns for consumers to purchase organic food [17]. Respondents claim that organic produce is totally safe in comparison with conventional food. They perceive that safety standards are applied in every phase of production, handling, packaging, marketing and distribution to the consumers. "Organic agriculture preserves the natural environment" and "Fewer pesticides and residuals" come in third place with 95.3% each.

Table 8- Consumers' motivations towards organic food

Statement	Generally agree		Neutral		Generally disagree		Total marks	Average*	Weighted %**	Rank
	F	%	F	%	F	%				
Healthy for me and my family	63	98.4	1	1.6	0	0	191	3	99.5	1
Safe food	61	95.3	3	4.7	0	0	189	3	98.4	2
Organic agriculture preserves natural environment	57	89.1	5	7.8	2	3.1	183	2.9	95.3	3
Fewer pesticides and residuals	56	87.5	7	10.9	1	1.6	183	2.9	95.3	3
High quality food	55	85.9	8	12.5	1	1.6	182	2.8	94.8	4
Encourage organic movement in Egypt	53	82.8	9	14.1	2	3.1	179	2.8	93.2	5
Does not have GMOs	43	67.2	14	21.9	7	10.9	164	2.6	85.4	6
Organic foods taste better	35	54.7	22	34.4	7	10.9	156	2.4	81.3	7
Support local farmers	31	48.4	24	37.5	9	14.1	150	2.3	78.1	8
It is fashionable to consume	7	10.9	4	6.3	53	82.8	82	1.3	42.7	9
Relative strength of overall motivations = 86.41%							1659	86.40%		

* Average= (Total marks/64)

** Weighted percentage% = (Total marks/192(64*3))*100

Tsakiridou et al. (2008) showed also that environment concern is the third motive for consumers to buy organic food after safety and health concerns. "High quality food" comes in fourth place with 94.8%. Pellegrini and Farinello (2009) illustrated that one of two main motivations of consumers to buy organic food is that it is high quality food; respondents believe that organic food is produced without GMOs and it contains more nutrients and fewer food additives. The relative strength of the overall motivations is 86.41%, which means that our measure is adequately strong to measure consumers' motivations towards organic food (Table 8).

A linear regression was done to test if factors such as income, age, presence of children in the household and education level affect the motivations towards organic food. According to the Likert scale, from 'strongly agree' to 'strongly disagree', each statement in the ten motivations takes a grade from one to five (strongly agree takes 5 points and strongly disagree takes one point) according to respondents' agreement; the sum of all the grades of the ten statements of motivations for every respondent was put as one number and so on for all respondents. So, we calculated only one regression with demographic factors of respondents. The results showed that only three factors importantly affecting motivations, these factors are age, income level and presence of children in the household. As Table 9 shows, regression analysis indicates that age, income level and presence of children in the household account for 25% of the explained variances for the consumers' motivations towards organic food. Age and income are significant at 1%, whereas presence of children is significant at 10%. It is found that the standardized regression coefficients of the independent variables (age, income and presence of children) are significantly greater than zero (b= -0.427, p-value 0.004; b= 0.495, p-value 0.001; b= 0.191, p-value 0.104).

The regression equation represents the relationship between age (X1), income level (X2), presence of children (X3) (independent variables) and motivations towards organic foods (Y) (dependent variable). There is a positive relationship between income and presence of children (independent variables) and motivations towards organic food (dependent variable), as individual income increases; having children in the household means motivations towards organic food consumption will increase. There is a negative relationship between age (independent variable) and motivations towards organic food consumption (dependent variable); young respondents showed high motivations towards organic food consumption more than older respondents. As age increases, motivations towards organic food consumption decrease. There is no relationship between the motivation towards organic food and its consumption; young people showed high motivations towards organic food although the results above showed that older respondents buy organic food more than the young do. Our results implied that organic food consumption among older people is highly affected by income and education level. Moreover, most older respondents (especially highly educated people) have a distrust about Egyptian organic agriculture, that it really preserves health and environment, does not have pesticides and GMOs etc, so they gave lower grades according to the Likert scale and their agreements with organic food motivations.

Table 9- Regression results of the effects of age and income level on consumers' motivations towards organic foods

	Standardized Coefficients	Sig. p- value	R ²	Adjusted R ²
X1 (Age)	-0.427	0.004	25	21.4
X2 (Income)	0.495	0.001		
X3 (presence of children)	0.191	0.104		

$$Y = 36.95 - 0.124 X1 + 0.0017 X2 + 1.67 X3 + 3.89$$

Where;

- Y= Motivations,
- X1= Age,
- X2= Income,
- X3= Presence of children.
- 3.89= Error term

Willingness to Pay for Organic Food

Only consumers who buy organic food (64 respondents of 200) were asked if they are willing to pay an extra price above the regular price of conventional food for organic produce. Of the organic food purchasers, 80% are willing to pay an extra price for organic food above the regular price of conventional food while 20% are not willing to do so (these respondents implied that although they sometimes buy organic food, they are not willing to pay an extra price for it above the regular price of conventional food if they become regular consumers, i.e. buy organic food continuously).

Respondents, who are willing to pay an extra price for organic food above the price of conventional counterparts, were asked to determine which percentage they are willing to pay. Nearly half the respondents (49%) are willing to pay an extra percentage between 5-10%, 23% are willing to pay less than 5%, 14% are willing to pay an extra percentage between 10-15%. 6% are willing to pay an extra percentage between 20-25%, 4% between 15-20% and just 4% are willing to pay more than 25% (Fig. 2). Radman (2005) indicated that 7.5% of Croatian consumers would not pay an extra price for organic food and nearly half (46%) would pay an extra price between 11-20% extra. Consumers in a developed country such as Croatia who would pay the extra price for organic food (11-20% in comparison to 5-10% in Egypt) are twice as many as in Egypt.

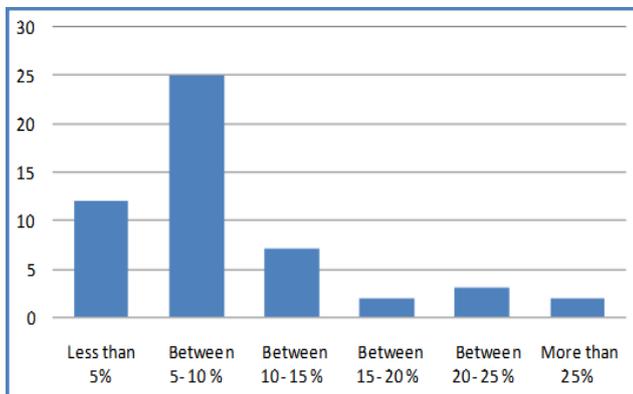


Fig. 2- Percentage payment for organic food

Among demographic factors, individual income has an important effect on willingness to pay. Most respondents (59%) are willing to pay less than 5% for organic food if they have an income of less

than 2357\$ per year. This is the lowest income among respondents; therefore, this explains why they are only ready to pay this small percentage. 28% of those willing to pay 5-10% have less than 2357\$ per year, 28% more than 7070\$ per year and 24% have between 4715\$-7070\$ per year. Half the respondents (50%) from those willing to pay an extra price of more than 25% are in the 4715\$-7070\$ income bracket. It is obvious that individual income affects the willingness to pay for organic food among respondents.

Respondents willing to pay an extra percentage for organic food above the price of conventional food were asked to mark motivations that they will pay for. "Healthy food" is the first motivation for consumers to pay extra with 99.3%, consistent with the results of other studies [13], followed by "Safe food" with 98%. "High quality food" comes in third place with 94.8%. Radman (2005) also indicated that quality aspects come in third rank according to willingness to pay extra prices for organic food; Krystallis and Chryssohoidis (2005) indicated that food quality and security are the first motivation of consumers' willingness to pay for organic food. Although consumers consider taste a motive for willingness to pay, they rank it last, unlike other studies. This result is also consistent with the results of consumers' motivations towards organic food, as discussed previously; its weighted percentage was 81.3%, almost the same as for willingness to pay (83%). The relative strength of the overall motivations is 90.5% (Table 10).

Table 10- Motivations for consumers' willingness to pay an extra percentage for organic food Barriers towards Organic Food Consumption

Statement	Generally agree		Neutral		Generally disagree		Total marks	Average*	Weighted %**	Rank
	F	%	F	%	F	%				
Healthy food	50	98	1	2	0	0	152	3	99.3	1
Safe food	48	94.1	3	5.9	0	0	150	2.9	98	2
High quality food	44	86.3	6	11.8	1	2	145	2.8	94.8	3
Encourage organic movement in Egypt	31	60.8	16	31.4	4	7.8	129	2.5	84.3	4
Support local organic products	31	60.8	15	29.4	5	9.8	128	2.5	83.7	5
Tasty food	30	58.8	16	31.4	5	9.8	127	2.5	83	6
Relative strength of overall motivations = 90.50%							831		90.50%	

*Average= (Total marks/51)

** Weighted percentage% = (Total marks/153(51*3))*100

All 200 respondents were asked to determine the barriers that prevent them from buying (or buying more in the case of organic buyers) organic food. They were asked to mark nine statements on a scale of 'strongly agree' to 'strongly disagree'. As Table 11 shows, "High price" is the first barrier for consumers not to buy organic food, consistent with the results of other studies which indicated that the high price of organic food is still a major barrier of organic food consumption [7,10,14,17,18,] followed by "Trust that products are really organic": respondents do not trust that organic products in the Egyptian market are really organic, produced, processed, handled and marketed according to organic agriculture protocol. Moreover, some of them do not trust or think that there is a real difference between organic and conventional food, nor that it is high quality safe food.

Consumers believe they would buy (or buy more) organic food if they could trust that these products are really organic. This result is consistent with Pivato et al. (2008) who indicated that consumers'

trust about organic products will lead them to purchase these products. "Low income" is the fourth barrier to organic food consumption with 94.3% respondents, connected with their low income, with high prices of organic food in comparison with conventional food. Many studies indicated that there is an important effect of income on organic food consumption and low incomes are considered one of the most important barriers that keep consumers away from organic food consumption [3,10,17].

Moreover, in the present study, it is found that income significantly affects organic food consumption. The last barrier of organic food consumption is "Availability of products" with 83.5%. Respondents claim that although these products are available only in a few outlets, they can reach them as they live in the capital, and they are more concerned about high prices and the issue of trust that products are really organic. The relative strength of the overall barriers is 91.2% (Table 11).

Table 11- Barriers to organic food consumption

Statement	Generally agree		Neutral		Generally disagree		Total marks	Aver- age*	Weighted %**	Rank
	F	%	F	%	F	%				
High price	187	93.5	12	6	1	0.5	586	2.9	97.7	1
Trust that products are really organic	179	89.5	18	9	3	1.5	576	2.9	96	2
Uncertified organic products	172	86	23	11.5	5	2.5	567	2.8	94.5	3
Low income	169	84.5	28	14	3	1.5	566	2.8	94.3	4
Unrecognizable organic label	167	83.5	25	12.5	8	4	559	2.8	93.2	5
Less organic food from origin	144	72	48	24	8	4	536	2.7	89.3	6
Appearance of products	135	67.5	55	27.5	10	5	525	2.6	87.5	7
Lack of information about organic food	127	63.5	56	28	17	8.5	510	2.6	85	8
Availability of products	124	62	53	26.5	23	11.5	501	2.5	83.5	9
Relative strength of overall barriers = 91.2%							4926		91.20%	

*Average = (Total marks/200)

** Weighted percentage% = (Total marks/600)*100

Discussion

In the present study, approximately 68% of respondents never buy organic foods while 32% buy organic food. Although 32% seems to be high in comparison with other studies in developed countries, most organic buyers are not regular consumers and they buy these products occasionally. Another point to be considered is the effect of education and specific income levels which play an important role in increasing the percentage of organic food buyers, even if they are not regular buyers. The results indicate that the proportion of organic food buyers increases among those who have a high level of income and education. Both income and education levels in the sample are high and do not reflect the average income and education levels in Egypt.

The results showed that organic medicinal and aromatic plants are purchased more frequently by respondents. This is in contrast to the results of other studies which indicated that organic vegetables and fruits are the main product category consumed more frequently [10,11,13,17]. People consume medicinal and aromatic plants from a medicinal prospective. Another reason for purchasing is that it

can be easily found everywhere at a suitable price in the Egyptian market. Another important reason is the Egyptian culture where people used to use medicinal and aromatic plants for traditional receipts for cure. As for organic meat and oils, respondents mentioned that these products are not available even in the big supermarkets. Moreover, most respondents are not convinced that real organic meat or oils exist. According to the place of purchase, most consumers are accustomed to buying these products from big supermarkets.

The results showed that there is an important difference according to income levels and age among those who buy organic food. Both age and income level significantly affect organic food consumption. This reflects the fact that income levels of people in a developing country such as Egypt are low in general, and few people have high incomes that would enable them to buy these products more often than others. Older people buy organic food more often than young people. The majority of the respondents are more than 40 years old (elder people) have Master degree or more (30 out of 43 respondents represent 70%) and most of them (the same percentage, 70%) have more than 7070\$ as a yearly income; moreover, only income level has a significant effect on the decision of organic food purchase. This indicates that age may not be as important a factor as it shows.

The present study showed that there is a high proportion of men buying organic food more than women, unlike other studies that indicated that women buy organic food more than men do [4,10,13]. This is a consequence of men controlling purchasing power and taking the decisions of food choice.

Although the presence of children and education level are not significant according to the Chi-square results, there is a high proportion of buying organic food when families have children in the household; respondents with children buy organic food more than those without children, and this result is consistent with the findings of other studies [4,10]. Moreover, there is a high motivation to buy organic food among those who have 1-2 children, more than those who have 3 or more children in the household. The percentage of buying organic also increases as education level increases from high school, university degree to master degree or higher; this result is in line with other studies' findings [4,11,13,17].

Based on the present research, it was found that the first motivation of organic food consumption is health concerns, and the second motivation is that organic food is considered safer than conventional food. The third motivation is that organic food preserves the natural environment, but consumers do not consider that organic food consumption is fashionable. Consumers are willing to pay an extra percentage above the regular price for the health concern in the first place, followed by the safety concern. This is consistent with the results of consumers' motivations towards organic food. Moreover, it is found that individual income has an important effect on willingness to pay for organic food. Those willing to pay high percentages are those with high income levels. Motivations towards organic food consumption are significantly affected by individual income, age and presence of children in the household. There is a negative relationship between age and motivation towards organic foods; young people show high motivation towards organic food consumption than old people do. There is a

positive relationship between individual income, presence of children and motivations towards organic foods; as individual income increases as well as having children in the household, motivations towards organic foods increase.

The high price of organic food is still the major barrier for consumers. Another barrier is the issue of trust; respondents do not trust that organic products in the Egyptian markets are really organic, produced and handled according to organic agriculture principles and regulations. Moreover, there is distrust concerning whether organic food is really different from conventional counterparts regarding quality and safety. As a third reason, respondents indicated that they do not buy organic food because most organic products are uncertified or have an unknown brand. Moreover the low income levels make it even harder for them to buy them.

Conclusion and Recommendations

In this research, we have tried to draw a picture about organic food consumption in a developing country such as Egypt, but of course we cannot generalize our results to the whole Egypt or even Cairo City which was selected for the sample of the study. In our conclusion we can emphasize the following: Among respondents, the first motivation that makes people buy organic food is the health concern and it is also the first motivation that they are willing to pay extra price for. The high price, distrust that products are really organic, uncertified organic products and low incomes remain major factors to make people avoid buying or never even purchase organic food, or not continuously purchase it (for those who buy organic food). Resulting from the study, we can recommend the following to increase organic food consumption and to also increase consumers' trust about organic food:

- more suitable prices for organic food according to income levels in Egypt will bring more new consumers and increase the frequency of purchase.
- Promotion through the media about the importance of organic agriculture and its positive impacts on people, environment and the whole society will be a good policy for many people to know more about organic agriculture and to increase organic food consumption.

Acknowledgments

We acknowledge with thanks the Mediterranean Agronomic Institute of Chania (M.A.I.Ch) where the original work of this paper took place.

References

[1] Abouleish H. (2007) *Organic Agriculture and Food Utilisation - an Egyptian Case Study*.

[2] Chen M. (2009) *British Food Journal*, 111(2), 165-178.

[3] Davies A., Titterington A.J. and Cochrane C. (1995) *British Food Journal*, 97(10), 17-23.

[4] Fotopoulos C. and Krystallis A. (2002) *British Food Journal*, 104(9), 730-765.

[5] Gil J.M., Gracia A. and Sanchez M. (2000) *The International Food and Agribusiness Management Review*, 3(2), 207-226.

[6] Grankvist G. and Biel A. (2001) *Journal of Environmental Psychology*, 21(4), 405-410.

[7] Hill H. and Lynchehaun F. (2002) *British Food Journal*, 104(7), 526-542.

[8] Krystallis A. and Chryssohoidis G. (2005) *British Food Journal*, 107(5), 320-343.

[9] Magistris T. and Gracia A. (2008) *British Food Journal*, 110(9), 929-947.

[10] Padel S. and Foster C. (2005) *British Food Journal*, 107(8), 606-625.

[11] Pellegrini G. and Farinello F. (2009) *British Food Journal*, 111(9), 948-974.

[12] Pivato S., Misani N. and Tencati A. (2008) *Business Ethics: A European Review*, 17(1), 3-12.

[13] Radman M. (2005) *British Food Journal*, 107(4), 263-273.

[14] Roddy G., Cowan C.A. and Hutchinson G. (1996) *Journal of International Consumer Marketing*, 9(2), 41-63.

[15] Sandalidou E., Baourakis G. and Siskos Y. (2002) *British Food Journal*, 104(3/4/5), 391-406.

[16] Statt D.A. (1997) *Understanding the Consumer: A Psychological Approach*, Macmillan, United Kingdom, UK.

[17] Tsakiridou E., Boutsouki C., Zotos Y. and Mattas K. (2008) *International Journal of Retail & Distribution Management*, 36(2), 158-175.

[18] Wier H. and Calverley C. (2002) *British Food Journal*, 104(1), 45-62.

[19] Willer H. and Lukas K. (2010) *The World of Organic Agriculture. Statistics and Emerging Trends 2010*.

[20] Willer H., Yussefi M. and Sorensen N. (2008) *The World of Organic Agriculture. Statistics and Emerging Trends 2008*.