



THE NEXUS BETWEEN DEMOGRAPHIC CHARACTERISTICS OF EGYPTIAN CONSUMERS AND GREEN PRODUCT PURCHASE DECISION

Mostafa Ahmed Shalash

PhD, Fellowship, MBA

Faculty of Financial & Administrative Sciences

Pharos University, Alexandria, Egypt

m.shalash@pua.edu.eg

Abstract

With the growing environmental awareness and increasing knowledge of environmental problems and the damage they may cause to society and human health, it has become imperative for Egyptian companies to keep pace with this trend to ensure sustainable development and grantee a better life quality for the future generations. This trend puts a bigger pressure on the Egyptian companies to choose more sustainable solutions and provide green products to consumers. As a result, the consumers will have a significant impact on the businesses and its profits, which makes it more important for Egyptian companies to produce eco-friendly products in order to keep and attract more customers. Therefore, it is important to study issues related to green marketing. One of these important issues is standing on the determinants of purchase green products especially demographic determinants. So, the main objective of this study is to find out the influence of demographic characteristics of Egyptian consumers on green product purchase decision, and are there differences between Egyptian consumers regarding to their demographic characteristics and purchasing green products decision?. The importance of this research is that it will increase the perception of marketing companies regarding the demographic factors that affect the decisions of Egyptian consumers towards purchasing green products and assist the marketing managers to adopt appropriate strategies that meet Egyptian consumers' needs of such products. The findings indicate that all demographic characteristics have significant



effects on green purchase decision for Egyptian consumers. In other words, the green product purchase decision of Egyptian consumers is influenced by their gender, age, income, and education level.

Keywords: Demographic characteristics, Green products, Green marketing, Green consumer

INTRODUCTION

In recent years, environmental issues have drawn attention from various parties and have emerged as one of the main issues in societies. And as a result, green products have got more attention during the latest years and the availability of such products is increasing in many stores. In addition, governments in most countries as well as Egypt have implemented many policies to reduce the environmental harm done by consumption. One of these policies is manufacturing green products and motivates consumers to purchase it. Because of growing awareness of environmental issues, the Egyptian consumer has become fully aware of the necessity to buy green products because of their many positive effects on the environment and on the consumer himself as well (Shalash, 2021).

Change is a very natural phenomenon of nature and same is applicable for the human. Change in consumer behavior has many reasons such as change in income, life-style, difference in age, education level which are all called demographic characteristics. Changing consumer behavior positively towards green products leads to the increasing demand of it and consequently increasing the interest by green marketing in general (Reddy, 2017). In a world of increasing production and consumption, if environmental issues are not taken seriously and if our limited resources are not used efficiently, we will face several major problems in the near future (Seyrek and Gul, 2017). Therefore, it is important to study issues related to green marketing. One of these issues is investigating how demographic characteristics influence the green product purchase decision?.

Rapid economic growth along with increased consumption worldwide in the past few decades has degraded the environment through over-consumption and overuse of natural resources (Jaiswal and Kant, 2018). This has resulted in consumers in all over the world to become increasingly concerned about the environment which has led to a change in their purchasing attitudes to the extent that consumers now prefer to purchase green products more than they did before. So, it would be useful for companies to investigate the impact of demographic characteristics on the green products purchase decision.

Since green products are very important for Egyptian business sustainability and one of the reasons for grantee a better life for future generations. So, this study will attempt to shed

light on the demographic characteristics and their relation to the decision of purchasing green products by Egyptian consumers. This of course will increase Egyptian producers' knowledge of many details about the demographic determinants of green product customers, and as a result, they will seek to produce the products that are best suited to the needs of these customers.

GREEN MARKETING

There is growing interest among the consumers all over the world regarding protection of environment. Worldwide evidence indicates people are concerned about the environment and they began to change their behavior with the aim of reducing negative environmental impacts. As a result, green marketing has emerged as an important concept to achieve the balance between customers' needs on one hand and preserving the environment on the other hand. Moreover, many of companies have used green marketing strategies as competitive advantage by offering recyclable, renewable, and reusable differentiated products to their customers (Patel, 2016).

According to Pride and Ferrell (1993), green marketing refers to organizations' efforts at designing, promoting, pricing, and distributing products that will not harm the environment. Polansky (1994) stated that the green marketing consists of all activities designed to generate and facilitate any exchanges intended to satisfy human needs and wants with minimal detrimental impact on the natural environment. De Craecker and De Wulf (2009) defined green marketing as the process of developing products and services that satisfy customers wants and needs for quality, performance, affordable pricing and convenience without having a detrimental input on the environment. Manju (2012) referred to green marketing as it is a holistic concept wherein the production, marketing, consumption and disposal of product in a manner that is less detrimental to the environment.

According to the American Marketing Association, green marketing is the marketing of products that are presumed to be environmentally safe, involves developing and promoting products and services that satisfy customers wants and needs for quality, performance, affordable pricing and convenience without having a detrimental inputs on the environment. Seyrek (2017) stated that the green marketing aims to reduce the amount of harm given to the environment through using less energy and recycling the resources used, while providing the same performance as traditional marketing.

We can conclude that green marketing is one of the most important business strategies that helps in ensuring sustainable development by saving and rationally utilize the limited resources (Li and Cai, 2009). As sustainable development implies that satisfying needs is done without destroying the benefits of the future, green marketing has to change the classical

marketing concept in order to contribute to it. This change must include product modification, changes in the production process, packaging changes, as well as changes in advertising and promotion with the aim of offering a green product that does not contain harmful ingredients and does not pollute the environment (Domazet and Jovanović, 2016).

GREEN PRODUCT

Green product concept has emerged as sustainable tool to balance between the business activities and protection of our natural environment. Fan and Zeng (2011) argued that the green product is not limited to the last object only but involves all the elements of the product such as the materials it used, the production design, the production process, the package of the product, etc.. The same concept was mentioned by Mishra and Sharma (2014), they stated that the greenness of the product does not mean the final product only, but it takes place over its complete life-cycle from purchasing raw material to manufacturing, storage, transportation, usage and post-usage activities.

According to Follows and Jobber (2000), green products are products that satisfy needs and wants of the consumer and also serve to benefit the environment in the long run. Goh and Wahid, 2015 defined green products as those products that are recyclable, have longer life, better quality, energy efficient, result in cost savings, and made of materials that can be recycled. Alsmadi (2007) stated that green products are those that use environmentally friendly materials, minimum energy and resource consumption, and recyclable. Danciu (2013) stated that the green product is an item or service that minimizes its negative impact on resource use and environment and maximizes its positive impact on the society at each stage of its life cycle. These two objectives became a big challenge for producers; the more they succeed to achieve these objectives, the more sustainable the products become. Eneizan et al., (2016) pointed out the main purpose of producing green products is the prevention, reduction, and elimination of the detrimental environmental effects. Tseng and Hung (2013) defined the green product as it is the product that designed to reduce the consumption of natural resources required and minimize the negative environmental impacts through the whole life-cycles of this product. Tomasin et al., (2013) refer to green products as those that reduce the harmful impact on the environment and increase the usage of 6R concept of recover, reuse, recycle, redesign, reduce, and remanufacture.

Green products are different from traditional ones because they are produced from materials that do not pollute the environment and are healthier for consumers. Costs that associated with green products may be relatively high. Nevertheless, these costs are justifiable because all activities associated with such products (i.e. Packaging, wrapping, and even the

product manufacturing itself) are significantly aid in preserving the environment (Arseculeratne and Yazdanifard, 2014). Danciu (2013) argued that the consumption of green products leads to improve the consumers' health and increase the labor capacity and life expectance and consequently provide a stable foundation for a better life for current and future generations.

GREEN CONSUMER

Generally, green consumption refers to a kind of consumption behavior which minimizes the negative impact of consumption on the environment in the whole process of purchase, use, and even the product disposal (Sheng et al., 2019). Elkington (1994) defined green consumer as one who avoids products that are likely to endanger the health of the consumer himself or others, cause significant damage to the environment during manufacture, consume a large amount of energy, involve cruelty to animals, or adversely affect other countries. Sabri and Wijekoon (2020) stated that the green consumer is someone who is aware of his or her obligation to protect the environment by selectively purchasing green products or services.

Tseng and Hung (2013) pointed out that green consumers are highly motivated to change their buying behavior for better life and are willing to pay relatively higher prices for those products and services to save the planet from environmental damage. Previous studies concluded that green consumers tend to purchase green products and services to meet their needs and wants and also to preserve the environment.

DEMOGRAPHIC CHARACTERISTICS

Demographics are statistical data that researchers use to study groups of humans. A demographic refers to distinct characteristics of a population. Researchers use demographic analysis to analyze whole societies or just groups of people. Some examples of demographics are age, gender, education, income, nationality,...etc. Demographic segmentation explains how researchers divide a market into smaller groups according to age, gender, family income, qualification, marital status, and so on. Demographic segmentation simplifies the analysis of consumers and then helps marketing managers in setting the appropriate strategy for the market. Thus, it is one of the more popular methods of marketing segmentation compared with other segmentation techniques such as geographic segmentation, behavioral segmentation or psychographic segmentation since it is easy to access the details required for demographic characteristics. Definitely, dividing the target customers will help the marketing managers and marketing policy makers to design an accurate marketing plan that will yield productive results.

Gender

Gender is an important factor to conduct market segmentation. Every gender has specific characteristics that are distinct and influence the purchase decision. It is very natural for males and females to have different likes and dislikes. Based on gender's preferences, marketers can develop marketing strategies that targets certain gender to get better business results. In one research conducted by Teng and Ow (2014), they showed that female consumers have a higher purchase intention for an environmentally friendly product compared with male consumers.

Lee (2009) investigated the impact of gender differences among Hong Kong consumers, in terms of their green purchase behavior. Lee showed that female consumers have higher scores for environmental attitude, environmental concern, perceived seriousness of environmental problems, perceived environmental responsibility, and green purchase behavior. In one research conducted by Roberts (1996), it was found that gender had an impact on ecological consumer behavior; females showed more likely as the average consumer to use green products. The research that conducted by Laroche et al. (2001) showed that females were more willing to buy environmentally friendly products. Loureiro et al. (2002) also found that females were willing to pay more for environmentally friendly products.

On contrast, some studies found that the "gender" variable did not have any significant impact on purchasing green products decision (Ansar, 2013; Rezai et al., 2012; Singh and Bansal, 2012). In addition, Sinnappan and Rahman (2011) noted in their study that gender has no impact regarding to green purchase behavior in Malaysia.

In this context, due to this difference in judgment on the importance of the gender variable as one of the variables that affect the green product purchasing decision, the researcher proposes this factor to be tested as one of the determinants of purchasing green products by Egyptian consumer.

Age

Age is one of the most common demographic segments as each age group has its own characteristics, needs, and has specific requirements which will be completely different from the needs and requirements of other age groups. Since each age group has specific requirements, organizations can develop marketing strategies based on these requirements to obtain valid and accurate results.

The results of previous researches related to age as a determining factor for purchasing green products were different to a great extent. For example, the studying results of Sinnappan and Rahman (2011) revealed that age has a significant relationship with green product

purchasing; Younger consumers have stronger attitude towards green product purchasing compared with older people. In another study was conducted by Chen (2013) for Chinese consumers' attitude towards green product purchase, Chen showed that most of the respondents who expressed interest in green purchase behavior were younger consumers and students. Also, in one study conducted by Chan (1996) on purchasing behavior of Canadian and Hong Kong consumers, he found that younger consumers were more likely to respond to products that are environmentally friendly. In addition, Straughan and Roberts (1999) found the age is a variable that has been regarded as a useful basis for market segmentation; it has been established that younger individuals are more sensitive to environmental issues.

On contrast, in one study conducted by Tobler et al. (2011) on the green food consumption of Swiss consumers, this study demonstrated that the older respondents have a greater desire to purchase green products. Also, the result of a survey completed by ICOM Information and Communications found that consumers over 55 years of age were the most users of green products in the United States.

In this context, due to this difference in judgment on the importance of the age variable as one of the variables affecting the green product purchasing decision, the researcher nominates this factor to be tested as one of the determinants of purchasing green products by Egyptian consumer.

Income Level

It is generally believed that income has a positive effect on consumption rate and consumer behavior (Rezai et al., 2012). This effect increases when we talk about green products. In other words, individuals who have a higher income level are willing to pay the additional costs related to purchasing green products (Fisher et al., 2012; Kim et al., 2012; Rezai et al., 2012). Johnson & Onwuegbuzie (2004) argued that the low income consumers normally buy the cheapest product. Hence, it is predicted that the low income consumers will not prefer to purchase the green products. Supporting this assumption, the results of Yin et al. (2010) revealed that there is a positive relationship between Chinese consumers' income and their willingness to purchase green products. Another study conducted by Rezai et al. (2012) showed that the income has a strong influence on consumers' intention regarding green food consumption. In addition, the study that was conducted by Do Paco et al. (2009) found that consumers with higher income levels were more likely to show environmentally friendly behaviors.

As expected, results of studies on income were not homogeneous. In one study by Ansar (2013) on the Pakistan consumer, the results revealed that the income was insignificantly associated with green products purchasing decision.

Considering the different results of previous researches on the income level factor, the researcher nominates this demographic factor to be tested as one of the demographic determinants for purchasing green products by Egyptian consumer.

Education Level

Education level is one of the important factors for consumers to be more concerned with environmental issues (Nguyen, 2014). Previous studies have shown the importance of education in motivating consumers to buy green products, it revealed that consumers with higher education are more knowledgeable about green products and know the benefits of green products. In addition, many studies found that consumers with a higher level of education were more likely to exhibit environmentally friendly behavior (Chen, 2013; Paul and Rana, 2012; Rezai et al., 2012; Teng et al., 2011). In one study of Rezai et al. (2012), they found that there is a positive relationship between education level factor from one side and consumer awareness of green foods concept, green society, and environmental awareness from another side. In one study was conducted by Chan (1996) on buying behavior of Canadian and Hong Kong consumers revealed that more educated consumers were more likely to respond to products that are environmentally friendly. Diamantopoulos et al., 2003 argued that the higher the educational level and social class, the greater the environmental knowledge.

On the contrary, some studies showed that there was no relationship between education level and consumer green purchase behavior. The study that was conducted by Fisher et al. (2012) among US consumers provided an empirical support that their education level has no relationship with purchasing green products. Similar results were conducted in China by Yin et al. (2010), their study showed that the education level of consumers has no significant effect on consumer intention to buy organic food. Also, in one study conducted by Ansar (2013), he proved that the education variable is not significantly associated with purchasing green products behavior.

Based on the previous clarification, the researcher nominates this demographic factor to be tested as one of the determinants of purchasing green products by Egyptian consumer.

Green Product Purchase Decision

Recently, the study of consumers' motives for purchasing green products has received great attention from researchers because it is beneficial for companies to understand the factors

that influence consumers' behaviors to purchase such products. Moreover, consumers are becoming more aware and concerned about the environmental impacts of the products they buy (Makeower, 2009). There were various studies related to determining the factors associated with purchasing green products. Some of these studies dealt with the impact of certain factors on purchasing green products such as product price, brand perceptions, social influence, and peer pressure. Other studies dealt with another factors such as consumer attitude, environmental concern, green product knowledge, environmental responsibility and the impact of these factors on purchasing green products (Goh & Wahid, 2015). Roberts (1996) found the green purchasing is affected by age, education, and income but he noticed that results vary from study to another. Therefore, he concluded that further researches on demographics and its impact on green purchasing behavior are required. A similar study on demographics and green consumption was conducted by Diamantopoulos et al. (2003). This study concluded to inconsistencies in findings, and then the need for more studies about the relationship between demographics and all aspects of environmental awareness.

In one study conducted by Tan and Lau (2010), they found no significant difference between male and female students' attitudes concerning green products. However, another study conducted by Rezai et al. (2011) found that females are more likely to purchase green product than males, while in another study conducted by Hu et al. (2010) revealed that there is no significant differences between the genders in their intention to purchase a green product. In another study conducted by Schubert et al. (2010), they found younger people tend to purchase organic foods, while in another study, Hu et al. (2010) found that older people tend to be more environmentally friendly and have a higher intention to purchase green products. Ali et al. (2011) concluded that consumers who are educated have a positive attitude regarding green products and are willing to buy green products by higher price. In another study conducted by Shamsi and Siddiqui (2017), they concluded that except for educational qualification, other demographic variables such as age, gender, and income have no impact on consumers regarding green products purchase decision.

Because of the varying research results related to demographic factors and their impact on green products purchase decision, and due to demographic factors have not been sufficiently studied especially among Egyptian consumers. Therefore, this study will focus on demographic factors; gender, age, income level, and education level to investigate the impact of these factors on green product purchase decision for Egyptian consumers. To this end, the following figure will illustrate the proposed conceptual model that depicts the aforementioned demographic factors and its impact on green product purchase decision for Egyptian consumers.

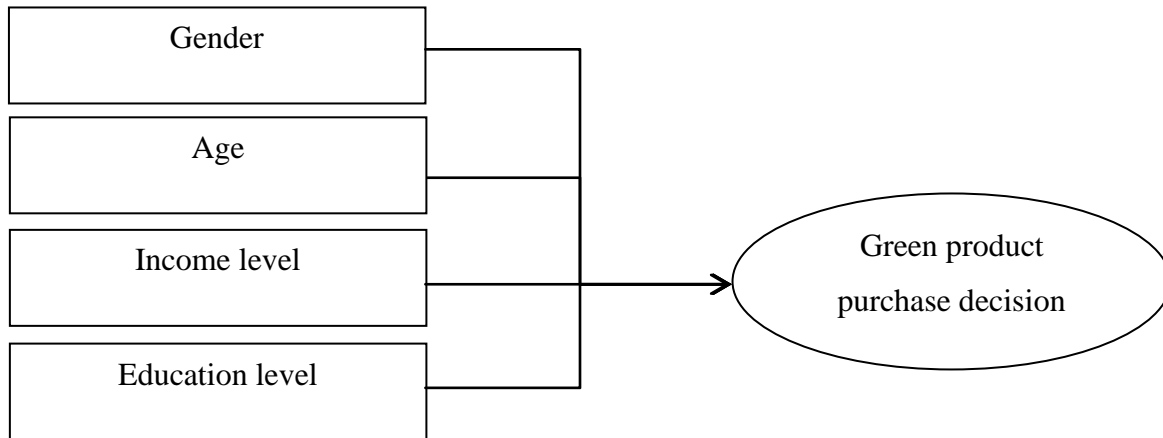


Figure 1: The proposed conceptual model

METHODOLOGY

This study was conducted in two stages. Stage one involved a pilot study which was conducted on 30 questionnaires to refine the data gathering instrument. In this stage, the following statistical procedures were executed.

Ensuring the Validity

Validity is the extent to which the questionnaire accurately measures what it is supposed to measure (Carmines and Zeller, 1979). Eriksson and Wiedersheim (1997) defined the validity as: “the ability of a scale or instrument to measure what is intended to be measured”. In this research, content validity has been applied to ensure the validity of questionnaire; the questionnaires were dispatched to practitioners and professionals to be evaluated by those different groups. The pilot study was conducted with the reviewed version of the questionnaire among thirty green products consumers, who ensured that the questionnaire is appropriate and the statements are generally understandable. Based on this information, the questionnaire is finalized.

Ensuring the Reliability

Reliability is the internal consistency of the questionnaire. In other words, it is the extent to which the questionnaire yields the same results on repeated trials under the same conditions (Carmines and Zeller, 1979). The questionnaire is considered reliable when the same or similar scores are obtained in repeated testing with the same group of respondents (Miller, 2005). In this research, Cronbach's alpha coefficient for internal consistency technique is used to ensure

the reliability of questionnaire (Nunnally and Bernstein, 1994; Gliem & Gliem, 2003). The results of Cronbach's alpha are depicted in table 1.

Table 1: Reliability test

Cronbach's alpha coefficient	N of items
.813	16

Cronbach's alpha reliability coefficient normally ranges between 0 and 1. The closer Cronbach's alpha coefficient is to 1.0, the greater the internal consistency of the items in the scale (Gliem and Gliem, 2003). In general, if the value of Cronbach's Alpha is less than 0.60, the scale is considered to be poor while scores that exceed 0.60 to 0.70 are acceptable (Tabachnick and Fidell, 2007). Values of 0.7 and above are usually considered adequate values of coefficient alpha (Nunnally and Bernstein, 1994), while Gliem (2003) mentioned that the alpha reliability coefficient of .8 is a reasonable goal. In our study, Cronbach's alpha reliability coefficient = .813 which means this questionnaire is highly reliable. In other words, its items have relatively high internal consistency and can be used for analytical purposes.

The Sample and Data Collection

After ensuring the validity and reliability of the questionnaire, the researcher starts stage two which involved distribution of 350 surveys to a random sample of green products consumers. The researcher determined the estimated sample size by using the statistical application EpilInfo. The proposed questionnaire was divided into two parts. In the first part, the respondent was asked to show to what extent does he or she believe that the written sentence correspond to him by using five point Likert scale ranging from 1 indicating strongly disagree to 5 indicating strongly agree. In the second part, the respondent was asked to answer some questions such about his demographic characteristics; age, gender, income level, and education level. The objective of this part is to collect information about the demographic characteristics of consumers of green products and then link this part to the first part of the questionnaire when applying statistical analysis to reach significant and meaningful results. The usable observations collected were 316 respondents with a response rate of 90.28%. The descriptive statistics about demographic characteristics of the respondents are given in Table 2.

Table 2: Demographic characteristics of the respondents

Characteristic	Number of Respondents	Percentages (%)
Gender		
Female	154	48.73
Male	162	51.27
Age		
21-40 years old	187	59.18
41-60 years old	110	34.81
Above 60 years old	19	6.01
Income level		
2000-less than 6000 L.E	210	66.46
6000-less than 10000 L.E	97	30.70
10000 L.E and above	9	2.84
Education level		
Uneducated	21	6.65
Completed compulsory education	149	47.15
Undergraduate degree	130	41.14
Postgraduate degree	16	5.06

Table 2 shows the descriptive statistics for all respondents. It reveals that 48.73% of the respondents are female while 51.27% are male. The majority of the respondents are young people, 59.18 % of them are at age between 21:40 years old. Most of the respondents have a monthly income between 2000 and less than 6000 L.E., they formed 66.46% of total respondents. 30.70% have monthly income between 6000 L.E. and less than 10000 L.E. Only 2.84% of respondents earn monthly income 10000 L.E. and above. Considering their education level, most of the respondents are completed the compulsory education; they formed 47.15% of total respondents.

Analytical Approach Adopted

In the following sections, Independent Samples t-test to compare Egyptian consumers regarding to their green products purchase decision based on their gender will be used. Also, One-Way ANOVA analysis will be conducted to discover the differences among groups in each of the remaining demographic characteristic. For more analysis and to determine which groups are different, the Post Hoc Test will be executed. In addition, the descriptive statistical analysis

will be performed to analyze the collected data and demographic characteristics of the respondents.

ANALYSIS

Independent Samples t-test for Gender Factor

In this study, the researcher wants to compare Egyptian consumers regarding to their green products purchase decision based on their gender. For this purpose, two Independent samples t-test will be performed. Before performing Independent samples t-test, the researcher conducted Levene's test for equality of variance to check the assumption of homogeneity of variances. Skaik (2015) stated that the assumption of variance homogeneity must be met to ensure the correct use of t-test. The results of Levene's test and Independent samples t-test are depicted in table 3.

Table 3: Independent Samples T-Test

	Gender	N	Mean	Levene's Test for Equality of Variances		t-test for Equality of Means		
				F	Sig.	t	df	Sig. (2-tailed)
Green product purchase decision	Female	154	3.7886	.015	.831	2.037	314	.043
	Male	162	3.6212					

The results of Levene's test indicate that the two samples are equal in variance which means the variance of the population from which the first sample was drawn is equal to the variance of the population from which the second sample was drawn. In other words, the homogeneity of variances assumption was met.

There is a statistically significant difference is found between female and male regarding green product purchase decision. Egyptian female consumers showed that they are more concerned than Egyptian male consumers regarding to green products purchase decision.

One-Way ANOVA Analysis

This technique is used to discover the differences among groups (more than two groups) in one variable. In our study, we want to discover whether there is a statistically significant difference between different respondent's age, Income level, and education level in terms of green purchase decision for Egyptian consumers. For this purpose, One-way ANOVA analysis will be conducted for each of the remaining denoted demographics characteristics; age, income level, and education level for Egyptian consumers.

One-Way ANOVA for Age

According to Kim and Cribbie (2017), the valid use of ANOVA procedure requires that the population variances are equal. So, before performing ANOVA test, the researcher conducted Levene's test for equality of variance to ensure that the assumption of homogeneity of variances is met and consequently ensuring the correct use of ANOVA test. The results of descriptive analysis for age factor and ANOVA test are depicted in tables 4 and 5 respectively.

Table 4: Descriptive analysis for demographic characteristic "Consumer age"

Age group	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
21-40 years old	187	3.8689	.78073	.17911	2.00	5.00
41-60 years old	110	3.5715	.82817	.07896	1.83	5.00
Above 60 years old	19	3.2609	1.00235	.07330	1.50	4.83
Total	316	3.4056	.94890	.05338	1.50	5.00

Table 5: ANOVA results for demographic characteristic "Consumer age"

Sample	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	11.026	2	5.513	6.330	.002
Within Groups	272.606	313	.871		
Total	283.632	315			

Results drawn from table 5 show that there is statistically significant difference among Egyptian consumers at different ages regarding to green product purchase decision. For more analysis to determine which groups are different, the researcher conducted Post Hoc Test to find out which age group is more interested in purchasing green products. The results of this test are depicted in table 6.

Table 6: Post Hoc Test - Multiple Comparisons

age group (I)	age group (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
(1) 21-40 years old	(2) 41-60 years old	-.31069*	.11214	.006	-.5313	-.0900
	(3) Above 60 years old	-.60809*	.22471	.007	-1.0502	-.1659
(2) 41-60 years old	(1) 21-40 years old	.31069*	.11214	.006	.0900	.5313
	(3) Above 60 years old	-.29740	.23186	.201	-.7536	.1588

(3) Above 60 years old	(1) 21-40 years old	.60809*	.22471	.007	.1659	1.0502	Table 6...
	(2) 41-60 years old	.29740	.23186	.201	-.1588	.7536	

*. The mean difference is significant at the 0.05 level.

The results of Post Hoc Test show that the green purchasing decision of Egyptian consumers aged 21-40 is statistically different from both Egyptian consumers 41-60 age group and above 60 age group. On the other hand, 41-60 age group and above 60 age group are not statistically different in terms of green purchasing decision. From the mean values of green purchasing decision, it is seen that 21-40 age group is more interested in purchasing green products than both 41-60 age group and above 60 age group.

One-Way ANOVA for Income Level

The results of descriptive analysis for income level factor and ANOVA test are depicted in tables 7 and 8 respectively.

Table 7: Descriptive analysis for demographic characteristic "Consumer income level"

Income level	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
2000-less than 6000	210	3.3007	.99843	.06890	1.50	5.00
6000-less than 10000	97	3.5929	.80274	.08151	2.00	5.00
10000 L.E and above	9	3.9444	.68242	.22747	2.67	4.67
Total	316	3.4087	.94660	.05325	1.50	5.00

Table 8: ANOVA results for demographic characteristic "Consumer income level"

sample	Sum of	df	Mean Square	F	Sig.
Between Groups	8.325	2	4.162	4.756	.009
Within Groups	273.930	313	.875		
Total	282.255	315			

Results drawn from table 8 show that there is statistically significant difference among Egyptian consumers regarding to green purchase decision according to income level. For more analysis to determine which groups are different, the researcher conducted Post Hoc Test to find out which income level group is more interested in purchasing green products. The results of this test are depicted in table 9.

Table 9: Post Hoc Test - Multiple Comparisons

Income level group (I)	Income level group (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
(1) 2000-less than 6000 L.E	(2) 6000-less than 6000 L.E	-.29222*	.11485	.011	-.5182	-.0662
	(3) 10000 L.E and above	-.64378*	.31845	.044	-1.2703	-.0172
(2) 6000-less than 10000 L.E	(1) 2000-less than 6000 L.E	.29222*	.11485	.011	.0662	.5182
	(3) 10000 L.E and above	-.35156	.32598	.282	-.9930	.2898
(3) 10000 L.E and above	(1) 2000-less than 6000 L.E	.64378*	.31845	.044	.0172	1.2703
	(2) 6000-less than 10000 L.E	.35156	.32598	.282	-.2898	.9930

*. The mean difference is significant at the 0.05 level.

The results of Post Hoc Test show that the green purchasing decision of group 1 is statistically different from both group 2 and group 3 regarding to income level. On the other hand, group 2 and group 3 are not statistically different in terms of green purchasing decision. From the mean values of green purchase decision, it is seen that Egyptian consumers who earn 10000 L.E and above are more interested in purchasing green products than both group 1 and group 2.

One-Way ANOVA for Education Level

The results of descriptive analysis for education level factor and ANOVA test are depicted in tables 10 and 11 respectively.

Table 10: Descriptive analysis for demographic characteristic "Consumer education level"

Education level	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Uneducated	21	3.0952	.62746	.13692	1.83	4.17
Completed compulsory	149	3.5000	.87049	.07131	1.83	5.00
Undergraduate degree	130	3.5270	.89892	.07884	1.83	5.00
Postgraduate degree	16	4.1781	.50334	.12583	3.33	5.00
Total	316	3.5185	.87077	.04898	1.83	5.00

Table 11: ANOVA results for demographic characteristic “Consumer education level”

Sample	Sum Squares	of df	Mean Square	F	Sig.
Between Groups	10.784	3	3.595	4.918	.031
Within Groups	228.060	312	.731		
Total	238.845	315			

Results drawn from table 11 show that there is statistically significant difference among Egyptian consumers regarding to green purchase decision according to their education level. For more analysis to determine which groups are different, the researcher conducted Post Hoc Test to find out which education level group is more interested in purchasing green products. The results of this test are depicted in tables 12.

Table 12: Post Hoc Test - Multiple Comparisons

Education level group (I)	Education level group (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
(1) Uneducated	(2) Completed compulsory education	-.40476*	.19928	.043	-.7969	-.0127
	(3) Undergraduate degree	-.43176*	.20107	.033	-.8274	-.0361
	(4) Postgraduate degree	-1.08289*	.28371	.000	-1.6411	-.5247
(2) Completed compulsory education	(1) Uneducated	.40476*	.19928	.043	.0127	.7969
	(3) Undergraduate degree	-.02700	.10261	.793	-.2289	.1749
	(4) Postgraduate degree	-.67812*	.22492	.003	-1.1207	-.2356
(3) Undergraduate degree	(1) Uneducated	.43176*	.20107	.033	.0361	.8274
	(2) Completed compulsory education	.02700	.10261	.793	-.1749	.2289
	(4) Postgraduate degree	-.65112*	.22651	.004	-1.0968	-.2054
(4) Postgraduate degree	(1) Uneducated	1.08289*	.28371	.000	.5247	1.6411
	(2) Completed compulsory education	.67812*	.22492	.003	.2356	1.1207
	(3) Undergraduate degree	.65112*	.22651	.004	.2054	1.0968

*. The mean difference is significant at the 0.05 level.

The results of Post Hoc Test show that the green purchasing decision of group 1 is statistically different from group 2, group 3, and group 4 regarding to education level. On the other hand, group 2 and group 3 are not statistically different in terms of green purchasing

decision. From the mean values of green purchasing decision, it is seen that Egyptian consumers who highly educated are more interested in purchasing green products compared with those with lower education.

CONCLUSION

The main objective of this study is to find out the influence of demographic characteristics (gender, age, income, and education) of Egyptian consumers on green product purchase decision. In other words, are there differences between Egyptian consumers regarding to their demographic characteristics and green products purchase decision?

We firstly looked at the consumers' gender to investigate if there is a significant difference between male and female regarding green product purchasing decision. T-test results revealed that there is a statistically significant difference between females and males in this regard. The results of the descriptive statistics showed that Egyptian female consumers are more interested in purchasing green products compared with male consumers. These results shed light on the potential market segment that should be targeted by marketers and so do green products producers in Egypt.

Consumer age is another demographic characteristic that was analyzed. The results of ANOVA indicated that there are significant differences between Egyptian consumers regarding to their ages and green products purchasing decision. Young consumers are more interested in purchasing green products compared with older people. It seems that young consumers are willing to accept new and innovative ideas including the idea of purchasing green products. Therefore, it would be useful from a marketing point of view to target this group of consumers to focus on when promoting the green products.

Results proved that income is a vital and crucial factor in guiding Egyptian consumers towards purchasing green products. The results showed that consumers with higher incomes are more interested in buying green products compared with consumers with low income. This may be due to the fact that all costs associated with green products are relatively high and as a result, this category of consumers is willing to pay such additional costs as long as these products have a positive impact on society, environment, and health.

Also, results showed that education level is an important factor that supports green product purchase decision. The study revealed that Egyptian consumers who highly educated are more interested in purchasing green products compared with those with lower education. This is because consumers with higher education are more knowledgeable about green products and its benefits, and as a result, they are highly oriented towards purchasing such products.

STRATEGIC IMPLICATIONS

This study highlights that Egyptian females have a more positive attitude compared with males regarding to green product purchasing, and the Egyptian young consumers (age group of 21–40) have a higher level of intention towards purchasing green products. In addition, income and education are shown to have a significant impact on purchasing green products decision. Therefore, marketers should select their target consumers based on age, gender, income, and education and use appropriate advertising media to reach this group.

Moreover, this study allows the marketing managers and marketing policy makers to gain a comprehensive understanding of the Egyptian green consumer behavior issues, thereby formulating and implementing strategies for each consumer category and designing advertising campaigns to attract the target groups, which of course, leads to a better opportunity to improve customer satisfaction and retain them.

RECOMMENDATIONS

- The concept of green marketing is crucial for achieving sustainable development. So, it is important to study issues related to green marketing to ensure the sustainability of the environment. One of the important issues in green marketing field is standing on the factors of purchasing green products. From these factors, consumers' demographic characteristics. Therefore, the researcher strongly recommend marketing managers to identify the demographic characteristics of their customers carefully and finding out the impact of these demographic characteristics on their decisions regarding purchasing green products so that they can segment the market, and then they can better meet their customer's needs.
- As long as the study showed that Egyptian female consumers are more interested in purchasing green products compared with male consumers. Therefore, it is necessary to draw the attention of the marketing managers to focus on this category when they are promoting a new green product. Also, the study revealed that Egyptian consumers between ages of 21 and 40 years are more interested in purchasing green products than the older age. Therefore, it would be useful to target this consumer segment in green marketing activities by offering green products that suit this age group, and advertising for green products should focus on this age group.
- Marketing managers and marketing policy makers must investigate the demographic characteristics of their consumers, and then they can determine consumer categories who are most likely to purchase green products, thereby formulating and implementing strategies for each customer category, which gives a better understanding to know the potential

customers to provide their needs and serve them in a better way, which leads to increasing their customer satisfaction and retain them.

- This study has provided an insight into the trend of purchasing green products by Egyptian consumer by examining the relationship between demographic characteristics and green products purchasing decision. According to the results of this study, firms should adopt promotional methods that aim to influence the purchasing behavior of potential green customers based on their demographic characteristics.

REFERENCES

- Ali, A., Khan, A., Ahmed, I., & Shahzad, W. (2011). Determinants of Pakistani Consumers' Green Purchase Behavior: Some Insights from a Developing Country. *International Journal of Business and Social Science*, 2(3), 217-226.
- Alsmadi, S. (2007). Green Marketing and the Concern over the Environment: Measuring Environmental Consciousness of Jordanian Consumers. *Journal of Promotion Management*, 13(3-4), 339-361.
- Ansar, N. (2013). Impact of Green Marketing on Consumer Purchase Intention. *Mediterranean Journal of Social Sciences*, 4(11), 650-655.
- Arseculeratne, D., & Yazdanifard, R. (2014). How Green Marketing Can Create a Sustainable Competitive Advantage for a Business?. *International Business Research*, 7(1), 130-137.
- Carmines, G. & Zeller, A. (1979). *Reliability and Validity Assessment*. Sage Publications Inc.
- Chan, T. (1996) Concerns for Environmental Issues and Consumer Purchase Preferences: A two-Country Study. *Journal of International Consumer Marketing*, 9(1), 43 – 55.
- Chen, L. (2013). A study of Green Purchase Intention Comparing with Collectivistic (Chinese) and Individualistic (American) Consumers in Shanghai, China. *Information Management and Business Review*, 5(7), 342-346.
- Danciu, V. (2013). The Contribution of Sustainable Marketing to Sustainable Development. *Management & Marketing Challenges for the Knowledge Society*, 8(2), 385-400.
- De Craecker, F., & De Wulf, L. (2009). Integration of Green Marketing within the Automotive Industry-A case study of four car manufacturers on the Belgian market. Doctoral dissertation, Halmstad University.
- Diamantopoulos, A., Schlegelmilch, B., Sinkovics, R., and Bohlen, G. (2003). Can Socio-Demographics Still Play a Role in Profiling Green Consumers? A review of the evidence and an empirical investigation. *Journal of Business Research*, 56(6), 465 – 480.
- Domazet, I. and Jovanović, O. (2016). Environment and Technogenic Pollution Sources. *Ecologica*, 23(83), 529-533.
- Do Paco, A., & Raposo, M. (2009). Green' Segmentation: an Application to the Portuguese consumer Market. *Marketing Intelligence & Planning*, 27(3), 364 – 379.
- Elkington, J. (1994). Towards the Sustainable Corporation: Win-Win Business Strategies for Sustainable Development. *California Management Review*, 36, 90-100.
- Eneizan, B., Wahab, K., Sharif, Z., & Obaid, T. (2016). Effects of Green Marketing Strategy on the Financial and Non-Financial Performance of Firms: A Conceptual Paper. *Arabian Journal of Business and Management Review*, 5(12), 14-27.
- Eriksson, L. & Wiedersheim, F. (1997). *Att Utreda, Forska och Rapportera*. Malmö: Liber Ekonomi.
- Fan, H., & Zeng, L. (2011). Implementation of Green Marketing Strategy in China: A study of the green Food Industry. M.Sc. Thesis, University of Gavle, China.
- Fisher, C., Bashyal, S., & Bachman, B. (2012). Demographic Impacts on Environmentally Friendly Purchase Behaviors. *Journal of Targeting, Measurement and Analysis for Marketing*, 20, 172-184
- Follows, B., & Jobber, D. (2000). Environmentally Responsible Purchase Behavior: a Test of a Consumer Model. *European Journal of Marketing*, 34(5), 723-746.

- Gliem, A. & Gliem, R. (2003). Calculating, interpreting, and reporting Cronbach's Alpha Reliability Coefficient for Likert-Type Scales. Midwest Research to Practice Conference in Adult, Continuing, and Community Education, 82-88.
- Goh, Y., & Wahid, N. (2015). A Review on Green Purchase Behavior Trend of Malaysian Consumers. *Asian Social Science*, 11(2), 103-110.
- Hu, H., Parsa, H., & Self, J. (2010). The Dynamics of Green Restaurant Patronage. *Cornell Hospitality Quarterly*, 51(3), 344-362.
- Jaiswal, D., & Kant, R. (2018). Green Purchasing Behavior: A Conceptual Framework and Empirical Investigation of Indian Consumers. *Journal of Retailing and Consumer Services*, 41, 60–69.
- Johnson, R., & Onwuegbuzie, A. (2004). Mixed Methods Research: A Research Paradigm Whose Time has Come. *Educational Researcher*, 33(7), 14-26.
- Kim, Y., Palakurthi, R., & Hancer, M. (2012). The Environmentally Friendly Programs in Hotels and Customers' Intention to Stay: an Online Survey Approach. *International Journal of Hospitality and Tourism Administration*, 13(3), 195–214.
- Kim, J., & Cribbie, A. (2017). ANOVA and the Variance Homogeneity Assumption: Exploring a Better Gatekeeper. *British Journal of Mathematical and Statistical Psychology*, 71, 1-12.
- Laroche, M., Bergeron, J., & Forleo, G. (2001). Targeting Consumers Who are Willing to Pay More for Environmentally Friendly Products. *Journal of Consumer Marketing*, 18(6), 503 – 520.
- Lee, S. (2009). How do online reviews affect purchasing intention?. *African Journal of Business Management*, 3(10), 576-581.
- Li, H., & Cai, W. (2009). Green Marketing and Sustainable Development of Garment Industry-A Game between Cost and Profit. *International Journal of Business and Management*, 3(12), 81-85.
- Loureiro, M., McCluskey, J., & Mittlehammer, R. (2002). Will Consumers Pay a Premium for Eco-Labeled Apples?. *Journal of Consumer Affairs*, 36(2), 203 – 219.
- Makeower, J. (2009). *Strategies for the Green Economy: Opportunities and Challenges in the New World of Business*. New York: McGraw-Hill.
- Manju, (2012). Green Marketing: New Hopes and Challenges. *Journal of Multidisciplinary Research*, 1(9), 40-47.
- Miller, J. (2005). *Reliability and Validity*. Graduate Research Methods, Western International University.
- Mishra, P., & Sharma, P. (2014). Green Marketing: Challenges and Opportunities for Business. *Management Edge*, 7(1), 78-86.
- Nguyen, T. (2014). Understanding Vietnamese Consumers' Purchase Intentions toward Green Electronic Products in Ho Chi Minh City. *Proc. of the First Asia-Pacific Conf. on Global Business, Economics, Finance and Social Sciences*.
- Nunnally, J. & Bernstein, H. (1994). *Psychometric Theory* (3rd ed.). New York: The McGraw-Hill.
- Paul, J., & Rana, J. (2012). Consumer Behavior and Purchase Intention for Organic Food. *Journal of Consumer Marketing*, 29(6), 412–422.
- Patel, B. (2016). Green Marketing: As Tool for Sustainable Development. *Journal of Business and Management*, 18(8), 139-142.
- Polonsky, J. (1994). An Introduction to Green Marketing. *Electronic Green Journal*, 1(2), 1-10.
- Pride, W., & Ferrell, O. (1993). *Marketing-Concepts and Strategies* (8th ed.). Houghton- Mifflin: Boston, MA.
- Reddy, D. (2017). A study on Impact of Green Marketing on Sustainable Development (With Reference to Khammam District). *National Conference on Marketing and Sustainable Development*, October, 86-106
- Rezai, G., Mohamed, Z., & Shamsudin, M. (2011). Malaysian Consumer's Perception Towards Purchasing Organically Produces Vegetable. *Proceedings of the 2nd International Conference on Business and Economics Research*, 1774-1783.
- Rezai, G., Teng, P., & Mohamed, Z.(2012). Consumers' Awareness and Consumption Intention towards Green Foods. *African Journal of Business Management*, 6(12), 4496–4503.
- Roberts, J. (1996). Green Consumers in the 1990s: Profile and Implications for Advertising. *Journal of Business Research*, 36(3), 217 – 231.

- Sabri, M., & Wijekoon, R. (2020). *Green Consumer and Marketing*. (1st ed.). Indonesia: IPB Press Printing.
- Schubert, F., Kandampully, J., Solnet, D., & Kralj, A. (2010). Exploring Consumer Perceptions of Green Restaurants in the US. *Tourism and Hospitality Research*, 10(4), 286-300.
- Seyrek, H., & Gul, M. (2017). Factors Affecting Green Purchasing Behavior: A Study of Turkish Consumers. *International Journal of Academic Research in Business and Social Sciences*, 7(1), 306-319.
- Shalash, M. (2021). The Impact of Adopting Green Marketing Mix Strategy on Customer Satisfaction in Egypt Market. *International Journal of Economics, Commerce and Management*, 4(3), 37-52. Available online at <http://ijecm.co.uk/wp-content/uploads/2021/03/933.pdf>
- Shamsi, M., & Siddiqui, Z. (2017). Green Product and Consumer Behavior: An Analytical Study. *Social Sciences & Humanities*, 25(4), 1545-1554.
- Sheng, G., Xie, F., Gong, S., & Pan, H. (2019). The Role of Cultural Values in Green Purchasing Intention: Empirical Evidence from Chinese Consumers. *International IJC*, 43, 315–326.
- Singh, A., & Bansal, M. (2012). Green Marketing: A Study of Consumer Attitude and Environmental Concern. *Indian Journal of Commerce*, 65(2), 273–283.
- Sinnappan, P., & Rahman, A. (2011). Antecedents of Green Purchasing Behavior among Malaysian Consumers. *International Business Management*, 5(3), 129–139.
- Skaik, Y. (2015). The Bread and Butter of Statistical Analysis “t-test”: uses and misuses. *Pakistan Journal of Medical Sciences*, 31(6), 1558–1560.
- Straughan, R. , & Roberts, J. (1999). Environmental Segmentation Alternatives: a Look at Green Consumer Behavior in the New Millennium. *Journal of Consumer Marketing*, 16, 558–575.
- Tabachnick, B., & Fidell, L. (2007). *Using Multivariate Statistics* (5th ed.). Boston: Pearson Education.
- Tan, B., & Lau, T. (2010). Attitudes towards the Environment and Green Products. *Management Science and Engineering*, 4(2), 27-39.
- Teng, P., Rezai, G., & Mohamed, Z. (2011). Consumers’ intention to purchase green foods in Malaysia. *Management and Service*, 14, 112–118.
- Teng, P., & Ow, M. (2014). Consumers Awareness and Purchase Intention Towards environmental Friendly Food Products. 5th Int. Conf. on Business and Economic Research Proceeding, 904-912.
- Tobler, C., Visschers, V., & Siegrist, M. (2011). Eating Green. Consumers’ Willingness to Adopt Ecological Food Consumption Behaviors. *Appetite*, 57(3), 674–682.
- Tomasin, L., Pereira, G., Borchardt, M., & Sellitto, M. (2013). How Can The Sales of Green Products in the Brazilian Supply Chain be Increased?. *Journal of Cleaner Production*, 47, 274-282.
- Tseng, S., & Hung, S. (2013). A Framework Identifying the Gaps Between Customers’ Expectations and Their Perceptions in Green Products. *Journal of Cleaner Production*, 59, 174-184.
- Yin, S., Wu, L., & Du, L. (2010). Consumers’ Purchase Intention of Organic Food in China. *Journal of the Science of Food and Agriculture*, 90(8), 1361–1367.