Factors Affecting the Consumers Decision Behavior of Buying Green Products

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Abstract

Objective: The study tackles the factors affecting customer’s behavior in making decisions regarding the purchase of eco-environmental-friendly-energy-saving green appliances in countries that moved to clean energy.

Methodology: The study follows the mixed-method approach by reviewing previous studies and analyzing collected data from study instruments that had been designed based on review results. The statistics were performed such as the mean and the standard deviation for all items in the questionnaire. ANOVA test was performed to determine the difference in the purchase decision for green products according to demographic characteristics. Exploratory Factor Analysis (EFA) was performed to improve the strength of the factors extracted from the questionnaire. Multiple regression analyses were performed to examine the relationship between Purchase Decision for green products and other factors. Finally, Confirmatory Factor analysis (CFA) was used for confirming the (EFA) result and the sample includes 232 customers of the electric appliances exhibits.

Results: Findings revealed that there is a strong positive correlation between the social, cultural, personal and psychological variables and the purchase decision taken by the consumer. Meanwhile, the psychological factors are the most effective in the decision-making process of purchase followed by the consumers’ place of residence (desert or mountainous). In addition, the social factor plays a critical role in making decisions about purchasing green products. However, cultural factors played a significant role in this regard. The study indicates that the least effective factors are personal factors, the energy consumption rate, and the monthly income.

Limitations: Study limitations include the targeted markets only that of rich-oil countries exclusively Saudi Arabia, and focused in the use of air conditioner machines. The time limitation is 2018-2019.

Practical implications: The study is useful as a roadmap for interested people in the field of energy and marketing inside oil countries and the era after oil utilization or within current decades of decreasing environmental effects done by burning oil and its’ driven materials.

Keywords: Intention to purchase; consumer behavior- marketing; green products; energy-saving environment; decision making.

JEL codes: M21, M31.

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影响消费者选购生态产品决策的因素

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研究目的：本研究目的为探讨影响消费者选购环保家庭电子产品决策的各种因素。环保家电为帮助使用可再生能源的国家节省能源的家庭电器。

分析方法：本研究使用混合方式进行，其中包括事前文献查阅及综合各文献所得的结论的分析。问卷中的项目都是使用平均绝对偏差及标准差来进行统计。我们也进行了方差分析（ANOVA）来确定消费者购买环保产品的决策因应人口分布特征不同而引起的差异，以探索性因子分析（EFA）来优化加强从问卷中提取出来之因素的效力，以多元回归分析来检查消费者对环保产品的购买决策与其他因素的关系。最后，以验证性因子分析（CFA）来确定结果（AFE）。研究抽样访问了232位前往家电展览之人士。

研究结论：研究结果显示，社会、文化、个人以及心理方面的各种变量与消费者的购买决策有着紧密的正向关系。其中，心理因素对购买决策的影响是最大的，其次是消费的居住地点（沙漠或多山地区）。除此以外，社会因素在消费者作购买环保产品的决定时也有着不可或缺的角色。可是，文化因素却在过往对购买决策有重要影响。因此，研究结果指出，在众多因素中，个人因素，如能源消耗量和每月收入，对选购环保产品的决定上的影响是较为低的。

研究限制：本研究的限制包括：研究的市场只集中在石油资源丰富的国家——沙特阿拉伯，抽样范围仅限于使用空调的对象，和时间上的限制——2018年到2019年。

实际应用：本研究可以给有意在石油国家从事能源产业和市场营销的人士，石油时代以后的能源产业发展，或是最近减少石油及其推进材料燃烧时对环境所带来的影响的几十年作一指南。

关键词：购买意向、消费者行为——销售、环保产品、节省能源的环境、决策。

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1. Introduction

According to the global economy risks of consuming natural resources, trends of marketing went faster to increase the commercial development of eco-friendly products with cheap expenses, low maintenance cost, high quality, and environment design (Balsalobre-Lorente, Shahbaz, Roubaud, & Farhani, 2018; Palmer, Tate, Wadud, & Nellthorp, 2018; Pauziah & Mulyana, 2018). Due to time acceleration in this area of the economy, many countries, including countries with an oil-based economy, have shifted to renewable energy (Wüstenhagen & Boehnke, 2017). This study explores factors of the growing supply of environment eco–friendly green products coupled with the purchase desire of consumers who have a trend towards preserving resources and environment when buying such products. Therefore, individuals and organizations do more efforts to provide awareness to encourage consumers to buy green products. The study aims to examine if there is a correlation between the independent variables such as cultural, social, personal, psychological factors, and the quality of the product. Moreover, to determine whether the independent variables affect customer’s behavior when making decisions about purchasing green products.

2. Literature Review

The factors influencing the consumer’s orientation toward the purchase of green products vary (Aschemann-Witzel & Zielke, 2017; A. Singh & Verma, 2017). While some of them are theoretical or practical, certain factors are managed in the form of organizations and some are influenced by the green products market or by the dominant culture or personal views (Nguyen, Lobo, & Greenland, 2017). Therefore, this study is an attempt to identify several various criteria and factors that could create a trend towards increasing or decreasing the efficiency of the green products market or influencing the consumer to make a purchase decision for environmental-friendly products. To study the consumers’ behavior in making purchase decisions, organizations seek to identify its work environment and factors affecting its operations in addition to the characteristics of their customers (Karimi, Papamichail, & Holland, 2015). Through the competition among organizations, a large number of organizations have realized that green marketing is a market opportunity that provides a competitive and perhaps a sustainable advantage for organizations (Ottman, 2017; Teece, 2018). With the growing environmental awareness among customers, the governmental and private entities have called for green marketing (Ottman, 2017; Ramanathan, Ramanathan, & Zhang, 2016).

2.1. Green Marketing

The concept of green marketing is as a process that includes various functions between stakeholders to keep a balanced activity between business and consumers in
marketing theory (Guo, Huy, & Xiao, 2017; Kilbourne, 1998; Ryan, 2016). Green marketing as a new field defines the concept of targeted marketing, which is influenced by many factors to be planned through a deliberate strategy to achieve some goals (De Mooij, 2013; Edwards, 2018; Korhonen, Honkasalo, & Seppälä, 2018; Wilardjo, 2011). Marketing professionals and experts have not set a comprehensive definition of green marketing or related sales and purchase as well as marketing theories and strategies (Jardat, 2018). The majority of studies link stakeholders and product type, quality and use within the concept of market reputation and competition inside firms, level of functionality during the industrial phase (Kim, 2018; Ryoo, Lee, Jeon, & Choi, 2018; Cova, 2019).

2.2. Green Products Marketing

The green market activities are associated with the environmental trend of increasing the market share for the organization and achieving a competitive advantage as well as profits for a long period in the market compared to other approaches which seek to achieve short-term profits using marketing strategies that affect customers (Banerjee, 2017; Marinova, Annandale, & Phillimore, 2008). Marketers must identify the mechanism implemented by the consumer to buy a commodity or a service and what basic steps are taken by the consumer until the decision on buying a certain product is made (Ağan, Kuzey, Acar, & Açıkgoz, 2016; Jorge, 2018). Therefore, the organizations face an increase in supplying new products and a shrinkage in the time the products are available in the market in addition to more awareness about customer’s preference of products and services of various options available and the technology used in the production process (Suki & Suki, 2019). This has made the organizations and, especially, the marketing areas start studying and investigating the factors affecting the customer’s behavior in buying green products, identifying the changes that could affect this behavior, and how the purchase decision is made (Ramya & Ali, 2016). The organizations adopt the green marketing strategy to identify the factors that affect the customers who incline to purchase and own environment-friendly-energy-saving green appliances such as cultural, social-psychological, and personal factors (Testa, Russo, Cornwell, McDonald, & Reich, 2018). Green marketing as defined by Marinova et al. (2008) denotes is one of the indicators of the environmental sustainability. Vogtlander, Bijma, and Brezet (2002) considered sustainability as a complex process of eliminating the contradiction between an organization and its customer’s perception about value and price. On the other hand, Singh (2014) defined it as a concept that encompasses manufacturing and recycling products using the least harmful process. According to Soonthonsmai (2007) Suki, Suki, and Azman (2016) green marketing has to do with the activities and processes implemented by companies that care about the environment when providing environment-friendly products and services and ensure community satisfaction. To ensure competitive advantages, companies should implement green
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market strategies to promote consumers awareness and to minimize threats to the environment (Chen, 2010; Isaak, 2016). Ağan et al. (2016) categorized green product marketing as a conventional product that has undergone some major modifications to ensure that it meets the needs of the green customer and ensures that it does not produce waste. Song and Yu (2018) defined the green product as any product that is designed and produced according to many criteria for protecting the environment and minimizing the attrition of natural resources while preserving the original performance features. Hammond, Keeney, and Raiffa (2015) Ferrell, Fraedrich, and Ferrell (2015) defined the purchase decision and its process as a dilemma of comparing choices available and selecting the most appropriate option to solve a certain problem while having the purchase ability to buy. Nam, Dong, and Lee (2017) aimed to identify customers’ intention to buy green sportswear. The results of the study found a significant impact of expectations, perceptions, and attitudes on the intention of customers to buy green sportswear. The study recommended that retailers should develop effective marketing strategies for this sector to meet the values and needs of potential customers. On the other hand, Wang, Wang, Yang, Wang, and Li (2018) study showed that participants are ready to protect the environment, support research on green products and gain more information on green products. The findings revealed that eco-friendly companies have an impact on consumers to make decisions on purchasing green products. The study recommended marketing experts to improve effective marketing strategies for green products. Yong, Ariffin, Nee, and Wahid (2017) study indicated that when consumers decide to buy green cars they would have the purchasing power to buy such cars. The study revealed also that family and friends have great influence in buying eco-friendly cars and that people who have a great interest in protecting the environment are the potential category for buying green vehicles. Nguyen et al. (2017) conducted a study on cultural factors and their impact on the purchase of green products. The study revealed that consumers who have a positive relationship with the community they live in, tend to have a green purchasing behavior because of their positive attitudes and principles of maintaining the environment. The study recommended that marketers should provide messages that benefit communities in the long run that eco-friendly products are very important for environmental protection.

2.3. Consumers Decision-Making Behavior

Komaladewi and Indika (2017) implemented a study in the western Java region of Indonesia. They revealed that the middle class decides on buying environmental-friendly cars being influenced by two factors, namely social reference and low cost of these cars. In a study Kumar and Ghodeswar (2015) conducted in Mumbai, India, respondents show a desire to protect the environment, realize environmental responsibilities, and conduct research and learn about green product information for its importance in supporting and protecting the environment. The results indicate
the importance of marketing green products and developing effective strategies that emphasize the social and environmental importance of green products in achieving customer satisfaction. Attia and Farrag (2017) tried to determine the impact of lifestyle, values, and demographics on consumer behavior in making a green purchasing decision. The results of the study indicated that the lifestyle has a positive effect on green purchasing behavior, while the values and demographics do not affect green purchasing behavior. Meanwhile, Barry and Damar-Ladkoo (2016) highlighted consumer behavior towards buying environmental cars like hybrid cars. The study was conducted on ordinary car users in Mauritius who have information and experience about the features and fuel expenses of such cars. A survey was distributed and the response was 100%. The objective of the survey was to obtain valuable information about the introduction and spread of hybrid vehicles, the factors influencing the purchase of environmental vehicles, the desired benefits of owning a hybrid car, and the relationship between the age brackets and owning hybrid cars. One result of the study was that hybrid vehicles do not affect consumers in Mauritius compared to its impact on international markets. The study also indicated that future generations in Mauritius are interested in owning environmental-friendly cars. Moreover, in an early stage, Rojas-de-Gracia and Alarcón-Urbistondo (2018) analyzed several independent factors as well as the elements of marketing, the purchase orientation and how such factors affect consumer behavior towards the electrical appliances market in the city of Basra-of Iraq. After analysis, the study revealed that the social and physical factors and the marketing mix are strongly correlated and have an impact on consumer purchasing behavior. The study helped retailers and producers to understand and work to satisfy the purchasing behavior. But in a study conducted by Wang (2014) on 1866 participants from Taiwan showed that the characteristics of consumers have a positive correlation on the green purchasing behavior compared to social factors. Several models of green consumer behavior have sought to explain the relationship between the trend towards the purchase of green products and the individual behaviors associated with green consumption based on traditional theories and methods. Moreover, several obstacles have emerged against the development of an optimal model capable of predicting the behavior of the green consumer. The findings of such studies have indicated that social factors have a direct positive impact based on green consumption and that the tangible benefits of green products such as their impact on the environment and the economy positively affect the green purchasing behavior and the consumers’ acceptability of green product advertisements. However, corporate commercials and ads have a relatively less effective as they focus more on price and quantity of consumption without dealing with environmental issues and their solutions (Do Paço, Shiel, & Alves, 2019). Biswas and Roy (2015) indicated that the social values have a dominant influence on the consumer’s adoption of sustainable behavior in the selection and preference process among a range of green products since the consumption values vary greatly among consumers who show a various array of preferences for green products. Moreover, the experience factor also plays a critical role for those who are experienced in buying
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Renwick, Redman, and Maguire (2013) investigated the relationship between the green intellectual capital and its financing and the management of green human resources. The findings indicated that the green human capital and its finance directly affect the management of green human resources. This indicates an impact on skills, perception, and the ability to manage in a direct interactive environment the tangible factors and the intellectual capital, which supports that the behavior, as an output of the thinking process, is influenced by the factors affecting the thinking process itself as the case in making a purchase decision of a green product. It is affected by what the client intellectually deals with. Under the intellectual capital of the marketers falls the cognitive abilities and the acquired skills of convincing the customer to make a purchase decision or in the written, visual, and audio ads and presentations that have a direct impact on determining the customer’s decision-making behavior. Bombiak and Marciniuk-Kluska (2018) indicated that the competitive environment has a critical role in motivating companies to support the marketing capacity of green products and the growth of their market. This growth, in turn, leads to the superior performance of companies in the financial and environmental sectors since the internal practices and the green market management systems as well as the supply chains such as exporting, distributing and importing, are important factors in creating a competitive environment among the various manufacturers of green products. Li, Ye, Sheu, and Yang (2018) explored that marketing decision-makers should consider this issue since the competitive environment presses these companies to adopt marketing policies that support green production and distribution. It supports the provision of the best service to the consumer who in turn is affected by the level of service, the production quality and the market reputation of companies in terms of making a green purchase decision, especially when the production relates to policies of environment conservation, reducing the spending, increasing the efficiency of the green product and the environmental performance, although the environmental aspect has not been successful in supplying companies with a large finance due to the research spending and adopting policies supporting green production compared to their financial return in the near term. Dagiliūtė, Liobikienė, and Minelgaitė (2018) found out that in the academic university track, it has a significant impact on the community and could play a key role in providing sustainability in terms of awareness and a qualified human resource which in turn influences the behavior of students as consumers and his/her impact on his/her family and society in making a green purchase decision. The findings of the study indicated that the green college students often agree that their university presents itself as an environmental-friendly one through the environmental information provided in the awareness activities, with a significant reduction in the impact of advertisements on the dissemination of sustainable information and the trend towards providing services that rely on its energy sources, infrastructure on a university campus that uses green products and spreads awareness on green products.
2.4. Green Marketing Quality and Environmental Effects

Li, Zhao, Zhang, Chen, and Cao (2018) attempted to establishing recognition of the impact of the quality of services related to green innovation and the scientific research activity to help companies facing increasing pressure from decision-makers, fiscal policy, business plans, and market expansions to integrate green management with their business practices. Moreover, the study indicated that the quality management exerts significant negative effects on the implementation of green technological innovation for companies and innovation in the field of green management due to the strictness and rigidity of their service requirements to protect the highly competitive companies in their national market to compete globally. Moreover, it proves that environmental regulation eases a lot of the passive effects of quality management on innovation and creativity in green management and the field of green technology. Wang, Yuen, Wong, and Teo (2018) indicated that consumers have a desire to reduce the gravity of concerns caused by environmental companies in terms of the products they are going to buy because of the injustice they find in services distribution when they go to buy green products. This affects the sales market and the consumer desire to buy specific products associated with temporary effects that drive consumers to buy in a fixed time and go for to what is termed as the “green consumerism.” To identify the level of fairness in the services of green services, the study indicated that the profit rate which a marketer gets from the consumer influences the frame of reference of the consumer about the marketer or the company and will create suspicions about the integrity of the company and the quality of the products or services. This supports the effect of a just service distribution on the understanding on how the consumer values the product and thus affects his/her purchasing decision.

The study indicated that the company’s and consumers’ environmental commitment towards the purchase of green products plays an active regulatory role in deepening the consumers’ awareness of justice. The behavioral response of consumers to green services is also influenced by the effectiveness of corporate green initiatives based on the consumer’s own integrity concept, which has become an area of market and manufacturing risk that the company should be aware of, either as a green marketer or towards a consumer’s sense of fairness in the service distribution as a source of testing the integrity of his/her purchasing trends. Ma, Zhang, Hong, and Xu (2018) in another study, found out that the financial cost of the product and its pricing played a key role in determining the consumer prices in the green market. The study revealed two different producers and discussed their relationship with the retail market and the distribution of costs to predict the optimal pricing for fungible products. The study investigated also the effect of green investment and flexibility of prices on green products in the field of green manufacturing in the retail and wholesale market. The study indicated that green manufacturing could bring a market profit to the green manufacturing company.
3. Methodology

The study adopted the mixed-analytical approach by:

1. Reviewing previous studies related to the topic.
2. Utilizing results to develop a test-based hypothesis to determine factors influencing purchasing behavior.
3. Designing a survey as a study tool to collect data.

3.1. Study Tool

The study adopted a questionnaire prepared by adapting previous study tools of Pickett-Baker and Ozaki (2008) and Yang, Zhao, Luo, Wen, and Dong (2018). The content has been revised and modified according to the study sample and community circumstances as well as the cultural limitations of the community. The survey consisted of two parts. The first part addresses the demographic variables, and the second part tackles factors expected to affect the purchasing behavior. Meanwhile, the community and sample of the study included the consumers residing in Kingdom of Saudi Arabia of both genders, while the sample was limited to those interested in purchasing electrical products, specifically the environment-friendly air conditioners. Meanwhile, the selected sample has received the questionnaire printed and some of them registered their phone numbers via companies’ data of electrical devices marketing services and they periodically receive emails and messages from those companies to retrieve their feedback on services quality. Therefore, the companies received formal letter from scientific research deanship in Northern Border University to help authors to distribute the questionnaire as google form document via companies websites and their messages’ service which extremely facilitated author’s mission to collect data as well as sales centers belongs to those companies aimed to help the author in distributing the hard-copy among customers and consumers, then all data were collected and merged to be in one excel sheet used to analyze data statistically. The total number of respondents who filled in the survey fully and properly was 232. This is due to the nature of the climate and weather in Saudi Arabia, which requires the availability of air conditioners with modern technical specifications and high manufacturing quality that contributes to the provision of the required service at the lowest cost and for the longest duration of use, and without compromising the surrounding environment in a negative way.

3.2. Consistency and Reliability

The statistical survey was distributed to a group of marketing, management, and environmental specialists whose observations were modified before the survey was checked and distributed in its final form, which was consistent with the subject
matter of the study. Besides, a biometric study was also conducted on a random sample of anonymous consumers who responded to the questionnaire and made observations on them, noting that the questions were designed electronically and sent through social media to some respondents. After the survey, it was found that there were substantial modifications associated with the level of income and its location in the Saudi governorates, the price of electric air conditioners, the consumption rate, the quality of the product and its need for maintenance, which were considered important demographic variables, while the observations were focused on the idea that personal and psychological factors are interrelated.

3.3. Research Hypotheses

The study assumes a major premise which states that there is a statistically significant correlation between cultural, social, psychological and personal factors and their impact on the decision to purchase the green product by the consumer and that this is attributable to both income level, dwelling area, the current monthly consumption rate (K/Watt), the nature of the geographical region. Many sub-hypotheses have been subdivided and tested using SPSS and the assumptions were developed in the following sub-hypothesis:

H1: There is a statistically significant relationship between cultural factors and the decision to purchase a green product.

H2: There is a statistically significant relationship between social factors and the decision to purchase a green product.

H3: There is a statistically significant relationship between personal factors and the decision to purchase a green product.

H4: There is a statistically significant relationship between the psychological factors and the decision to purchase a green product.

4. Statistical Analysis

4.1. Demographic Characteristics

Table (1) presents the demographic data for participants, which shows that the highest percent of the sample had more than 12000 RS by 47% of the total sample, also the highest percent of the sample had Housing space more than 180 square meters- big enough for (8) person and above with percent 58.2%. Monthly consumption for the current air conditioners, 49.1% of the total sample had more than 1500 kW/month. About Nature of the geographical area, 46.1% of the total sample living in the desert, followed by 41.8% who living at mountainous, while 12.1% living in Coastal-marine often.
Table 1. Distribution of sample according to Demographics data (N=232)

| Demographics data                          | Freq. | Percent |
|-------------------------------------------|-------|---------|
| Income level                              |       |         |
| Less than 6000 RS                         | 58    | 25.0    |
| From 600 to 12000 RS                      | 65    | 28.0    |
| More than 12000 RS                        | 109   | 47.0    |
| Housing space                             |       |         |
| Less than (100 square meters)- small enough for (3) person | 21 | 9.1 |
| Less than (101 to 180 square meters) - medium enough for (4 to 7) person | 76 | 32.8 |
| More than 180 square meters- big enough for (8) person and above | 135 | 58.2 |
| Monthly consumption for the current air conditioners |       |         |
| Less than 750 kW/month                    | 36    | 15.5    |
| From 750 to 1500 kW/month                 | 82    | 35.3    |
| More than 1500 kW/month                   | 114   | 49.1    |
| Nature of the geographical area           |       |         |
| Coastal / marine often                    | 28    | 12.1    |
| Often mountainous                         | 97    | 41.8    |
| Often desert                              | 107   | 46.1    |

4.2. Purchase Decision According to Demographic Characteristics

To determine the difference in the purchase decision for green products according to demographic characteristics, one-way ANOVA test was performed, which conclude that there is a significant statistical difference in the purchase decision for green products among groups (p < 0.05), see table 2.

Table 2. ANOVA results

| Variables               | Ranges                                      | N  | Mean  | Std. Deviation | F    | P-value |
|-------------------------|----------------------------------------------|----|-------|----------------|------|---------|
| Income                  | Less than 6000 RS                            | 58 | 3.2816| 1.09900        | 10.806 | 0.000  |
|                         | From 600 to 12000 RS                         | 65 | 3.5385| .94224         |       |         |
|                         | More than 12000 RS                           | 109| 3.9327| .73532         |       |         |
|                         | Total                                        | 232| 3.6595| .93381         |       |         |
| Housing space           | Less than (100 meters²)                      | 21 | 2.8413| 1.29794        | 18.972 | 0.000  |
|                         | Less than (101 to 180 square meters²)        | 76 | 3.4079| .95777         |       |         |
|                         | More than 180 square meters- big enough for (8) person and above | 135 | 3.9284| .72435         |       |         |
|                         | Total                                        | 232| 3.6595| .93381         |       |         |
The highest mean score for purchase decision for green products among groups was for participants who had income level more than 12000 RS by mean (3.9327) out of (5), who had more than 180 square meters- big enough for (8) person and above by mean (3.9284), who had more than 1500 kW/month by mean (4), and who living in often desert by mean (3.8754). Meanwhile. The following plots clarifying the results above. See figure 1.

Table 2. (Continuation)

| Variables                           | Ranges                        | N  | Mean   | Std. Deviation | F     | P-value |
|-------------------------------------|-------------------------------|----|--------|----------------|-------|---------|
| Monthly consumption for the current air conditioners | Less than 750 kW/month       | 36 | 2.8333 | 1.01262        | 27.312| 0.000   |
|                                      | From 750 to 1500 kW/month    | 82 | 3.5488 | .89100         |       |         |
|                                      | More than 1500 kW/month      | 114| 4.0000 | .74337         |       |         |
|                                      | Total                         | 232| 3.6595 | .93381         |       |         |
| Nature of the geographical area     | Coastal / marine often       | 28 | 2.8452 | 1.06760        | 15.161| 0.000   |
|                                      | Often mountainous             | 97 | 3.6564 | .90836         |       |         |
|                                      | Often desert                 | 107| 3.8754 | .80032         |       |         |
|                                      | Total                         | 232| 3.6595 | .93381         |       |         |
4.3. Factor Analysis

Exploratory Factor Analysis (EFA) was performed with (1) as the Eigenvalue to improve the strength of the factors. Then, (5) factors were extracted when the rotation converged in their iterations. The (5) factors were Culture factors, Social factors, Personal factors, Psychological factors and Purchase Decision for green products. The questionnaire was composed by 23 question, 3 items were categorized as Purchase Decision for green products and the remaining 20 categorized under factors, five items for each factor. See table 3.
**Table 3. Rotated Component Matrix**

|                      | Component | 1   | 2   | 3   | 4   | 5   |
|----------------------|-----------|-----|-----|-----|-----|-----|
| My culture influences my purchase of a green product |           | .674|
| The educational level I have reached affects my purchase of green products |           | .706|
| The prevailing culture is flexible and seeks to develop means and tools of service and green well-being |           | .744|
| The abundance of cultural programs organized by companies to raise awareness of the importance of the green product of the national economy and the environment |           | .664|
| The contemporary lifestyle makes me need to buy green products |           | .724|
| Most segments of society prefer to buy green products |           | .697|
| Reference groups (coworkers, traders) influence a green purchasing decision |           | .639|
| The family has a strong influence in promoting the decision to buy a green product |           | .775|
| My social centrality is important to make me buy green products |           | .624|
| The nature of the house and the size of the space to receive the guests need a green product of high quality |           | .581|
| My physical situation is proportional to the cost of buying green products |           | .545|
| The nature of my personality (Emile to experience what is new) prompted me to buy green products |           | .784|
| The age range I ordered affects my decision to buy a green product |           | .791|
| I always want to buy a green product that does not require a lot of periodic maintenance |           | .710|
| My desire to provide monthly energy consumption drives me to buy a green product |           | .672|
| Motivation and personal awareness of the environmental importance is key to decision to buy a green product |           | .613|
| Best buy green products to realize that it keeps the environment |           | .751|
| My positive experience of an environmentally friendly product drives me to buy a green product in the future |           | .708|
| Consumers’ talk about energy saving and its cost has fueled a curious acquisition of a green product |           | .658|
| I trust using a green product for high standards of safety in design from raw material to sustainable operation |           | .724|
| I have a desire to purchase and purchase environmentally friendly green products |           | .681|

Electronic copy available at: https://ssrn.com/abstract=3495492
4.4. Reliability Analysis

The Cronbach alpha for the five factors was computed, as presented in table 4 below:

| Factors                        | No. of item | Cronbach alpha |
|--------------------------------|-------------|----------------|
| Cultural Factors               | 5           | 0.820          |
| Social Factors                 | 5           | 0.801          |
| Personal Factors               | 5           | 0.788          |
| Psychological Factors          | 5           | 0.821          |
| Purchase Decision for green products | 3           | 0.898          |

The calculated Cronbach’s Alpha ranged between (0.788) and (0.898), these results indicate good reliability for the factors, Cranach’s alpha ranges from $r = 0$ to 1, with $r = 0.7$ or greater considered as sufficiently reliable based on Nunnally and Bernstein (1994).

4.5. The Statistic for EFA Factors

In this section we review the statistics of Mean and Std. Deviation for the five factors according to 5-point Likert scale interval from which (Never and Rarely)
classified as low level with mean score < 2.60, (Sometimes) classified as a moderate with mean score [2.60:3.39] and (Always and Often) classified as a high level with mean score > 3.40. See table 5 below:

Table 5. Statistical Analysis of Cultural Factors

| Paragraphs                                                                 | Mean    | Std. Deviation |
|---------------------------------------------------------------------------|---------|----------------|
| My culture influences my purchase of a green product                      | 3.5991  | 1.15418        |
| The educational level I have reached affects my purchase of green products| 3.4440  | 1.14202        |
| The prevailing culture is flexible and seeks to develop means and tools of service and green well-being | 3.5345  | 1.14288        |
| The abundance of cultural programs organized by companies to raise awareness of the importance of the green product of the national economy and the environment | 3.3405  | 1.12064        |
| The contemporary lifestyle makes me need to buy green products            | 3.4310  | 1.11444        |
| Overall Cultural Factors                                                  | 3.4698  | 0.86557        |

The five paragraphs of cultural factors exhibited score ranging between (3.3405) and (3.5991) with total mean score (3.4698) out of (5) and St. D (0.86557) which was considered (High level) according to 5- Likert scale interval; since (3.4698) greater than (3.40). See table 5 above.

Table 6. Statistical Analysis of Social Factors

| Paragraphs                                                                 | Mean    | Std. Deviation |
|---------------------------------------------------------------------------|---------|----------------|
| Most segments of society prefer to buy green products                      | 3.3491  | 1.15605        |
| Reference groups (coworkers, traders) influence a green purchasing decision | 3.4698  | 1.02309        |
| The family has a strong influence in promoting the decision to buy a green product | 3.6121  | 1.05495        |
| My social centrality is important to make me buy green products            | 3.3879  | 1.06719        |
| The nature of the house and the size of the space to receive the guests need a green product of high quality | 3.5043  | 1.19522        |
| Overall Social Factors                                                    | 3.4647  | .82144         |

The five paragraphs of Social factors had mean score ranging between (3.3491) and (3.6121) with total mean score (3.4647) out of (5) and St. D (1.19522) which consider (High level) according to 5- Likert scale interval; since (3.4647) greater than (3.40). See table 6 above.
Table 7. Statistical Analysis of Personal Factors

| Paragraphs                                                                 | Mean  | Std. Deviation |
|---------------------------------------------------------------------------|-------|----------------|
| My physical situation is proportional to the cost of buying green products | 3.3707| 1.10904        |
| The nature of my personality (Emile to experience what is new) prompted me to buy green products | 3.3879| 1.09522        |
| The age range I ordered affects my decision to buy a green product         | 3.4353| 1.15288        |
| I always want to buy a green product that does not require a lot of periodic maintenance | 3.4569| 1.10796        |
| My desire to provide monthly energy consumption drives me to buy a green product | 3.5733| 1.12191        |
| Overall Personal Factors                                                  | 3.4448| .82245         |

The five paragraphs of Personal factors had mean score ranging between (3.3707) and (3.5733) with total mean score (3.4448) out of (5) and St. D (0. 82245) which consider (High level) according to 5- Likert scale interval; since (3. 4448) greater than (3.40). See table 7 above.

Table 8. Statistical Analysis of Psychological Factors

| Paragraphs                                                                 | Mean  | Std. Deviation |
|---------------------------------------------------------------------------|-------|----------------|
| Motivation and personal awareness of the environment importance is key to decision of buy a green product | 3.6379| 1.08430        |
| Best buy green products to realize that it keeps the environment           | 3.6466| 1.11078        |
| My positive experience of an environmentally friendly product drives me to buy a green product in the future | 3.7328| 1.08399        |
| Consumers’ talk about energy saving and its cost has fueled a curious acquisition of a green product | 3.6940| 1.16454        |
| I trust using a green product for high standards of safety in design from raw material to sustainable operation. | 3.5862| 1.14770        |
| Psychological Factors                                                     | 3.4698| 0.86557        |

The five paragraphs of psychological factors had mean score ranging between (3.5862) and (3.7328) with total mean score (3.4698) out of (5) and St. D (1.14770) which consider (High level) according to 5- Likert scale interval; since (3.4698) greater than (3.40). See table 8 above.
Table 9. Statistical Analysis of Purchase Decision for green products

| Paragraphs                                                                 | Mean  | Std. Deviation |
|----------------------------------------------------------------------------|-------|----------------|
| I have a desire to purchase and purchase environmentally friendly green products | 3.5733 | 1.00379        |
| If green products are available and I have the right to choose, I will choose to buy environmentally friendly green products | 3.7155 | 1.01338        |
| I take decision to replace environmentally friendly products with eco-friendly green products | 3.6897 | 1.05612        |
| Purchase Decision for green products                                       | 3.6595 | 0.93381        |

The three paragraphs of the factor of (Purchase Decision for green products) had mean score ranging between (3.5733) and (3.7155) with total mean score (3.6595) out of (5) and St. D (0.93381) which consider (High level) according to 5- Likert scale interval; since (3.6595) greater than (3.40). See table 9 above.

4.6. Multiple Regression Analyses

In order to examine the relationship between Purchase Decision for green products and other factors such as demographic data and the four factors out of (EFA), multiple regression analyses were employed. The variables (Income level, Housing space, and Monthly consumption for the current air conditioners, Nature of the geographical area, Cultural Factors, Social Factors, Personal Factors, and Psychological Factors) were used as independent variables with (Purchase Decision) as a dependent variable. The regression model was fitted, the model explains 54.6% of the variance with (Purchase Decision) and was found to be significant (F = 33.509, sig = 0.000), as in model summary. See table 10.

Table 10. Model Summary

|                          |       |
|--------------------------|-------|
| R                        | 0.739 |
| R Square                 | 0.546 |
| F Value                  | 33.509|
| Significance             | 0.000 |

Based on table 11 below; a Beta coefficient of the variables are compared as follows:
Factors Affecting the Consumers Decision Behavior of Buying Green Products

Table 11. Regression Model Coefficients

| Model               | Unstandardized Coefficients | Standardized Coefficients | t    | Sig. | Collinearity Statistics |
|---------------------|----------------------------|---------------------------|------|------|-------------------------|
| (Constant)          | .661                       | -2.369                    | .019 | .019 |                         |
| Income              | .139                       | .122                      | 2.601| .010 | .918                    |
| Housing area        | .220                       | .155                      | 3.049| .003 | .791                    |
| Consumption         | .140                       | .110                      | 2.084| .038 | .731                    |
| Geography           | .143                       | .105                      | 2.123| .035 | .837                    |
| Cultural Factors    | .200                       | .185                      | 3.166| .002 | .594                    |
| Social Factors      | .215                       | .189                      | 3.215| .001 | .590                    |
| Personal Factors    | .158                       | .139                      | 2.695| .008 | .762                    |
| Psychological Factors| .224                      | .205                      | 3.609| .000 | .634                    |

When the Beta Coefficients of the variables are compared, the highest effect was for Psychological Factors which measured 0.224 followed by Housing area which measured 0.220, followed by Social Factors which measured 0.210, followed by Cultural Factors which measured 0.20. The results of the regression model demonstrated that there was a significant relationship between Purchase Decision and all predictors. This can be inferred from the (t) value and its associated (p-value) which had values (<0.05). The predictors in the model explain 0.546 of variations in Purchase Decision (please refer R^2 value) showing the strength of a relationship between Purchase Decision and the factors. To verify the existence of the mentioned relationship, the absence of multicollinearity is checked by conducting correlations among the dependent variables. We found that dependent variables moderately related, without any correlation over (0.80), which conclude that there is no multicollinearity with (VIF <3) and (Tolerance <1). The result revealed the VIF factor of the model indicating no value – the existence of multicollinearity problem.

4.7. Regression Residual Charts

Checking the assumptions for regression analysis is that the residuals are normally distributed, using the normal probability plot of the residuals which performing linear regression analysis, satisfying the assumptions. Normal Probability Plots showing residuals that are distributed normally; so we can trust the results of the regression analysis. Check the following figures.

Electronic copy available at: https://ssrn.com/abstract=3495492
Figure 2. Regression Residual

![Histogram](image)

Dependent Variable: Purchase.Decision

- Mean: 1.9E-15
- Std. Dev: 0.903
- N: 232

Figure 3. Normal Regression

![Normal P-P Plot of Regression Standardized Residual](image)

Dependent Variable: Purchase.Decision

- Expected Cum Prob
- Observed Cum Prob
4.8. Confirmatory Factor Analysis (CFA)

Confirmatory Factor analysis (CFA) used for confirming (EFA) result using AMOS v.23, since (EFA) may include an error in the correlation between variables but (CFA) does not (i.e., the error is a separate term in the equation). So, that is why using CFA to determine the validity of our model. The Root Mean Square Error of Approximation (RMSE) was (0.000 <0.08), Goodness of Fit (GFI = 1 >0.95), Comparative Fit Index (CFI =1 > 0.90), Normed Fit Index (NFI=1>0.95), Root Mean Square Residual (RMR= 0.000<0.08); these measures conclude a good predictive model. Maximum Likelihood Estimates for predictors are shown in Table 12 below:

Table 12. Maximum Likelihood Estimates

| Path                | Estimate | S.E. | C.R. | P       |
|---------------------|----------|------|------|---------|
| Purchase Decision   | Cultural Factors | .200 | .062 | 3.223   | .001**  |
| Purchase Decision   | Personal Factors | .158 | .058 | 2.743   | .006**  |
| Purchase Decision   | Consumption | .140 | .066 | 2.121   | .034*   |
| Purchase Decision   | Geography  | .143 | .066 | 2.161   | .031*   |
| Purchase Decision   | Housing Space | .220 | .071 | 3.103   | .002**  |
| Purchase Decision   | Social Factors | .215 | .066 | 3.272   | .001**  |
| Purchase Decision   | Psychological Factors | .224 | .061 | 3.673   | ***     |
| Purchase Decision   | Income     | .139 | .053 | 2.647   | .008**  |

*Significant at 0.05 level, **Significant at 0.01 level, *** *Significant at 0.001 level.

4.9. Path Analysis Model

Next diagram shows the Beta Coefficients for all predictor variables in the model.
5. Discussion

The results show that the four independent variables have a direct impact on the consumer’s decision to purchase energy-efficient air conditioners based on renewable power sources. The middle-income class, with a salary of more than 12,000 Saudi Riyals per month represents a large proportion of the randomly selected sample of the customers of electrical energy-efficient and environmental-friendly air conditioners. The majority of the sample respondents live in large houses of more than 180 square meters in size, which requires that these houses have good heating in winter and good cooling in summer. The majority of responses in the study sample revealed that respondents live in mountain areas in summer with a moderate weather in summer seasons and very cold in winter while other respondents live in a very hot desert in summer and mild to cold in the winter season, which requires the availability of air conditioners compatible with the needs of the population, their financial capacities and the requirements of increased heating and cooling due to the high frequency of population and urban growth. By testing the multiple regression values based on

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the fact that the demographic variables are not measurable and the four independent variables. Items were concluded in terms of the purchase decisions, the relationship between them all, the degree of correlation, and the percentage of the error. It has been shown that all the data have achieved high consistency in terms of the consistency of the study tool and that there is a relationship with a significant positive correlation between the independent variables and the dependent variable related to the consumer’s decision to purchase. The psychological factors ranked first in determining the purchase decision followed by the location of the mountain or desert areas of residence, and then the psychological factors replayed another important role in the context of making a purchase decision for energy-efficient and environmentally-friendly appliances, followed by the cultural factors. The personal factors, monthly electricity consumption and income levels were considered to be less influential in the consumer decision-making due to the fact that the daily human need to provide tools and accessories that enable him to continue performing his vital functions and daily living events which are more important than any other factors affecting the level of income and the consumption rate. Consumption could be a significant factor if energy prices continue to rise. This will inevitably affect the monthly electricity bill and urge the majority of the population to opt for eco-friendly and green appliances, which are based on renewable and alternative energy sources such as air conditioners and other appliances. Based on the analysis of the Cronbach Alpha for the four independent factors (cultural, social, personal and psychological) in addition to the decision to buy green products which was the highest value by 0.898, the Saudi consumer has a deep awareness of buying environmental-friendly products and avoiding products that has some doubts about its impact on the environment. This awareness is the result of organizations‘ responsibility to the environment by developing marketing programs and launching campaigns that have earned the Saudi consumer deep knowledge of how to select, buy, and differentiate between products and choose the right one. The process of analyzing cultural factors revealed a correlation between cultural factors and the process of buying green products. The mean of the first question was the highest in comparison with the rest of the questions. The question is “My culture influences my decision to buy a green product.” Therefore, for the organizations to increase the demand for products, the marketer must recognize the differences and changes that occur in the culture of societies because these changes are considered as a marketing opportunity. Moreover, marketers should take into consideration the sub-cultures where they exist in every society. In the KSA, the inhabitants of villages differ from those of the cities, and the inhabitants of the desert regions differ from the mountainous or the coastal areas. This leads to a difference in the purchase process. This requires marketers to analyze these cultures to meet the needs of these cultures of green products. The lowest percentage was in the response of question 4, which requires manufacturing organizations that produce such products (energy-saving air conditioners) to provide intensive marketing programs and campaigns to inform the targeted group about the benefits of acquiring such type of products and what they provide from an economic
point of view in terms of the consumption rate and the savings upon paying the utility bills. In reality, this is what the Saudi consumer is looking for. Although the tariff of energy has recently increased, the organizations should consider it as an opportunity to market itself by intensifying this type of promotional campaigns to increase the turnout rate (Energy-saving air conditioners) within Saudi markets and reduce the consumption of products that rely on fossil fuels, thereby reducing combustion and emissions from sources of oil and gas conversion to electric power. Table (6) shows the social factors. The analysis process indicated that there is a positive effect of such factors on the decision of purchasing environmental-friendly green products. The first question indicated that all community groups prefer to buy energy-saving air conditioners. This question received the lowest mean of 3.3491. This requires the organizations that produce these products to recognize this group and to opt for a promotional approach that can reach and convince this community group by instilling the benefits of these products in the minds of this community group. Moreover, the percentage could guide the analysis to the average value because the majority of those who want to buy green products are encouraged by the savings they will get. Another indication is that the majority of the community groups know little about the function and performance of the environmental-friendly products and how they work. As for question 3 correlated with this variable, it has got the highest percentage of the average 3.6121. This supports the premise of Rojas-de-Gracia and Alarcón-Urbistondo (2018) that the family is considered one of the primary groups which have a more effective impact on the individual in terms of the decision-making process than other groups. Personal factors have an impact on the process of buying green products (energy-saving air conditioners) where it turns out that the lowest percentage of questions of this variable is a question no. (1) With an average of 3.3707. Therefore, the organizations manufacturing such energy-saving air conditioners recommend the implementation of the marketing concept which focuses on identifying the needs and desires of consumers first then manufacturing the goods and services that satisfy such needs and desires while taking into account their financial capabilities and the quality of the goods and diversifying goods in terms of quality and price to meet the purchasing power of all segments of the community. The manufacturing companies also recommend the provision of after-sales services including regular maintenance of these products to attract customers who have concerns and hesitance to acquire such goods due to maintenance operations. The psychological factors have had an impact on the decision to buy energy-saving air conditioners. Based on the analysis, question no 5 had the lowest percentage. This means that consumers who want to buy green products with international standards of safety. This requires organizations to focus on the safety of goods in addition to a guarantee that gives the buyer confidence in the product and increases sales. As for question no 3, which states that the people who tried this type of air conditioners are willing to buy such products in the future. This confirms the awareness of the Saudi consumer about the benefits of using clean, environmental-friendly products. To promote market service for consumers, the organizations must establish
a relationship with these customers, keep customer data, contact them, and visit them to confirm their care about such customers. This brings loyalty to the customer. This will increase the buyers’ loyalty to the product and encourage them to purchase more products. This type of customers also assists in the promotion of these products through the word of mouth, which is an important process that increases the demand of other customers on the product or the manufacturing organization especially eco-friendly and energy-efficient products, which do not require harmful energy sources and with a clean high quality performance needed by communities of different segments and activities.

Conclusion

Based on results it was clear that all hypotheses were accepted and there is a strong correlation between the four examined factors and consumer decision to buy green products. Meanwhile, this indicates the importance of further studies to handle the suitable product for each branch of consumers based on geographical area to develop the eco-friendly environmental green product that meets consumers’ demands and help investment sector to grow up quickly especially after new vision of kingdom of Saudi Arabia 2030 that attempt to be independent of using oil for producing power and energy side by side enhancing income of citizens and increase the social responsibilities to natural environment in various geographical areas.

The study is useful as a roadmap for interested people in the field of energy and marketing inside oil countries and the era after oil utilization or within current decades of decreasing environmental effects which were done by burning oil and its’ driven materials.

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