

Assessing sustainability marketing from macromarketing perspective: a multistakeholder approach

Assessing
sustainability
marketing

287

Soha Abutaleb and Noha El-Bassiouny

Department of Marketing, German University in Cairo, Cairo, Egypt

Received 28 February 2019
Revised 22 September 2019
Accepted 31 January 2020

Abstract

Purpose – The paper examines three main stakeholders in the market and their roles toward achieving sustainability marketing. Those stakeholders are consumers, companies and policymakers. The current study is examining consumers' attitudes toward sustainability marketing and their purchase intentions of sustainable products through the use of theory of planned behavior. The paper is also examining the role of companies and policymakers in encouraging consumers to consider sustainability in their purchasing decisions.

Design/methodology/approach – Concurrent research study is applied, where qualitative and quantitative research methods are conducted at the same time for different purposes with equal weights. Qualitative interviews were applied with fast-moving consumer goods companies and policymakers, while quantitative surveys were applied with Egyptian consumers.

Findings – The results showed that companies are taking serious and effective steps in transforming their marketing strategies into sustainable marketing ones. The government role is still limited as there are no strict laws and regulations that force companies and factories in Egypt to develop sustainability marketing strategies. Consumers' attitudes were highly affected by firms' sustainable practices as well as subjective norms that led to influencing their intentions toward purchasing sustainable products.

Originality/value – Although the topic of sustainability marketing is considered by a plenty of researchers in the academic discipline, there are no studies that have combined the main three stakeholders' roles in achieving sustainability marketing in one study. The study highlights the impact of government role and firms' role on consumers' attitudes and purchase intentions toward sustainable products, especially convenient products. This was done through the adoption of the theory of planned behavior.

Keywords Sustainable development, Sustainability marketing, Macromarketing, Theory of planned behavior

Paper type Research paper

1. Introduction

Sustainable development is defined as “development that meets the needs of current generations without compromising the ability of future generations to meet their own needs” (WCED, 1987, p. 24). According to Munier (2005), sustainability is considered a vision for the future that provides a set of values and moral philosophies that guide people's actions. Both definitions focus on the importance of considering future generations. In fact, the definition of sustainability is always linked to environmental sustainability; however, it also includes social and economic issues (Kumar *et al.*, 2012).

Sustainability is not an option anymore; it is claimed to be an obligation for companies to consider in their operational tasks and marketing strategies. Companies need to have a holistic approach to achieve sustainable marketing rather than simply performing traditional marketing strategies that focus on the functional level only. It must involve eco-efficient strategies to reduce wastes, materials and energy use. Sustainable marketing should be viewed as a corporate philosophy (Lim, 2016). According to Hunt (2017), marketing must be viewed as a concept within and a support for achieving sustainable development. Hence, sustainability should be implanted within a company's values, principles and mission, as well as when developing the marketing practices known as the marketing mix (Rudwaska, 2019).



World Journal of
Entrepreneurship, Management
and Sustainable Development
Vol. 16 No. 4, 2020
pp. 287-305
© Emerald Publishing Limited
2042-5961
DOI 10.1108/WJEMSD-02-2019-0017

Over the last two decades, studying the relationship between sustainability and marketing has been of a growing interest among marketers and researchers. [Jones et al. \(2008\)](#) believe that marketing concept is the contrary of sustainability. Marketing is defined as the main reason for consumption behaviors, while sustainability refers to meeting present-generation needs and wants without disabling future generations from meeting their own ([World Commission on Environment and Development, 1987](#)). Furthermore, marketing practices have been criticized for the false claims that companies have become sustainable and environmentally friendly for the sake of manipulating consumers for business gains. However, sustainability is associated with positive moral principles that focus on sustainable and long relationships with customers, society and the environment ([Rudwaska, 2019](#)). Therefore, it became important to integrate marketing with sustainability through considering macromarketing ([Ferdous, 2010](#)).

Macromarketing refers to the study of marketing and social systems through considering the impact of marketing practices on the society and the impact of society on marketing ([Hunt, 1981](#)). The most essential unit of analysis in macromarketing is the study of whole market players rather than focusing on the corporate or the customer only ([Mittelstaedt et al., 2006](#)). In other words, it looks at the perspective of the whole market and the heterogeneous marketing system through considering various stakeholders ([El-Bassiouny et al., 2017](#)). Macromarketing has a different aim from micromarketing, in which micromarketing is focusing solely on individual perspective and seeking for short-term benefits. Macromarketing is examining marketing ideas through a larger scale than micromarketing; it considers markets as a one system with heterogeneous market participants that have consequences far beyond the borders of firms ([Peterson and Lunde, 2016](#)).

[Prothero et al. \(2011\)](#) believe that considering macromarketing is important in achieving sustainable transformation of consumption, production and policies. This transformation will be achieved when marketers start reexamining their extensive use of scarce and natural resources and consumers start to adjust their unsustainable lifestyles and purchase behaviors. In order for a company to thrive in a changed environment and create competitive advantage, they should not only look for short-term gains and making money, but they should also consider the increase in bargaining power of other stakeholders and that the market is not tolerant anymore as Internet and social media emerged, hence the market became well-informed more than ever ([Johnson et al., 2018](#)). Companies need to believe in the fact that a sustainable relationship with the society and the environment is stronger than only focusing on financial success ([Rudwaska, 2019](#)).

Sustainability marketing is defined as delivering value to customers in an ethical and ecologically oriented manner ([Belz and Peattie, 2009](#)). It was mentioned by [Charter et al. \(2002\)](#) that sustainability marketing's main concern is the creation and production of sustainable products that satisfy customers and other stakeholders. This is through delivering high sustainable value to the society and the environment as well. Sustainability marketing is about building strong sustainable relationships with customers, society and the natural environment. It is the integration of marketing practices with the triple bottom line. The triple bottom is focusing on three main dimensions, which are the economic goals of firms, valuing environmental issues and concerning equity for future generations ([Bedek, 2011](#)).

2. Research aim and motivation

Attitudes toward new consumption patterns have arisen in recent years; consumers now became aware about their ecological, societal and developmental impact ([Hamari et al., 2015](#)). Changes in societies and their members are affecting consumers to start considering consumption patterns that lead to sustainable development. The appreciation of the

environment and social impact, population growth, global warming and increase in people's awareness of sustainability led consumers to seek for new sustainable consumption behaviors (Pizzol *et al.*, 2017).

Varadarajan (2016) and Hogevoid and Svensson (2012) claimed that sustainability and environmental protection are considered a shared responsibility between market stakeholders, which are consumers, governments, corporations and other market participants. Research suggests that companies embedding sustainability in their business models are creating sustainable relationships between customers leading to an increase in their profitability (Rudwaska, 2019).

Over the last decades, people have witnessed various challenges all over the globe such as population increase, economic recessions and global poverty that threaten the quality of life. The combination of these factors had a severe negative impact on environment degradation to an extent that 60% of the world's ecosystem was deteriorated (WRI, 2005). On the other hand, marketers are still treating these challenges as "externalities" and are not taking them into consideration in their marketing activities. Marketers believe that customers are the only important force that shapes their marketing strategies in order to satisfy their needs and wants. Regarding other forces such as the social, environmental or technological, they are viewed as barriers to their marketing practices (Belz and Peattie, 2009).

Marketers are assuming that there is an endless supply of resources and materials. This assumption has led to several drastic environmental challenges that were mentioned by Professor Walter George Scott in 2005. Those challenges include a change in the ozone layer's structure, an irreversible change in the atmosphere composition, soil degradation, an increase in air and water pollution, depletion of natural resources such as copper, oil and timber and decrease in the availability of freshwater. Marketers need to stop assuming that encouraging unlimited consumption is good and that the planet's resources and the Earth's carrying capacity for wastes are unlimited (Kotler, 2011).

The aim of current study is to examine sustainability marketing from macromarketing perspective and how it cascades on different stakeholders. The aim of the paper is divided as follows. Firstly, the paper is focusing on examining the role of government in applying sustainability marketing in companies and encouraging consumers to consider sustainable consumption. Secondly, the paper is examining the fast-moving consumer goods (FMCGs) companies' role in transforming their traditional marketing strategies into sustainable marketing ones. Thirdly, the paper is examining consumers' attitudes toward (1) purchasing sustainable products, (2) firms' sustainable practices and (3) government's role in encouraging sustainability marketing.

The current study is focusing on FMCGs such as food, body care and laundry products. Those types of products are convenient, in which consumers are frequently purchasing it with little comparison. They are characterized by its extensive distribution, moderate prices and low customer involvement (Kotler and Armstrong, 2008). Seven main research questions have been derived in the current study. They fall under the umbrella of understanding the concept of sustainability marketing from macromarketing perspective and how it cascades on stakeholders.

- Mj RQ1.* What is the role of public policies toward FMCGs companies to apply sustainability marketing strategies?
- Mj RQ2.* What is the role of public policies toward encouraging consumers' sustainable consumption and purchase of sustainable products?
- Mj RQ3.* What is the role of FMCGs companies toward achieving sustainability marketing strategies?

- Mj RQ4.* What is the relationship between environmental protection, food safety concern, health consciousness, perceived value and eco-labeling and consumers' attitudes toward purchasing sustainable products?
- Mj RQ5.* What is the effect of consumers' attitudes toward firms' sustainability marketing mix and government's role on their purchase intention of sustainable products?
- Mj RQ6.* What is the effect of attitudes, subjective norms and perceived consumer effectiveness (PCE) on consumers' purchase intention and buying behavior of sustainable products?
- Mj RQ7.* Does attitudes play as a mediator between the five main predictors of sustainable consumption and purchase intention of sustainable products?

3. Research context

There has been a substantial growth toward sustainable markets over the recent years all over the world. Several studies were conducted in the United Kingdom, Europe, Australia and the United States include several reasons for the sustainable shift. The reasons include: concern for health, moral and religious motives, quality and safety of products and finally environmental consciousness (Michaelidou and Hassan, 2008). In developed countries, the increase in environmental protection and concern occurred because of the perceived risks by all market participants: companies, government, consumers and investors. On the other hand, less developed countries such as Egypt are less aware and perceive environmental problems in a different way. The government in Egypt is not focusing on implementing actual policies for environmental protection, neither focusing on the roots of Egypt's environmental crisis and trying to work on solving them (Rice, 2006).

Egypt is considered one of the countries that are host to many environmental and social problems (Tantawi *et al.*, 2009; Ghorab and Shalaby, 2016). There are various challenges and problems facing Egypt. These challenges are the inefficiencies in development and performance of Egyptian cities, adoption of unsustainable policies and technologies. In the next few years, Egypt will be facing a major challenge, which is the significant increase in population. These challenges will be enlarged until it researches a dangerous level on human being (Ghorab and Shalaby, 2016).

It was claimed by Motavalli in 2005 that Egypt is one of the developing countries that is highly contributing to the environmental degradation all over the globe. This was supported by a report done by the MSEA (2005) that supports Motavalli's claims. Firstly, Egypt is suffering from all types of pollution such as the air, water and soil pollution. Secondly, harmful wastes disposal by its consumers and degradation of coastal zones and coral reefs. Thirdly, there is a change in climate that is negatively impacting the agriculture in Egypt. One major consequence of air pollution is health problems. Air pollution can cause severe respiratory and cardiovascular diseases, negative impact on child growth and premature death. It was claimed that mortality rates are annually increasing since 2008 in Egyptian cities (Abo-Ali and Thomas, 2011).

4. Theoretical background and hypotheses development

4.1 *The predictors of consumers' attitudes toward purchasing sustainable products*

Blackwell *et al.* (2006) believe that attitude represents the favorableness and unfavorableness of an individual toward their sustainable product purchasing decisions (Moser, 2015). Schultz and Zelezny (2000) added that environmental attitudes entrenched from consumers' self-concept and the feeling of an individual to be an integral part of the natural environment.

Moreover, [Kalafatis et al. \(1999\)](#) said that environmental consciousness is reflected in increased intention to purchasing sustainable products. Respectively, it has been proposed that a high level of environmental concern means engagement in sustainable consumption behavior. The aforementioned claims were supported through various studies executed between 1989 and 1990 that revealed a dramatic increase in the number of consumers who claim that they consider environmental issues and sustainable products ([Kalafatis et al., 1999](#); [Kim and Chung, 2011](#)). Therefore, the following hypothesis was set forth:

H4.1. Environmental protection positively and directly influences consumers' attitudes toward purchasing sustainable products.

Research revealed that there are some measures of specific attitudes such as judgments about products or certain behaviors that are more effective than general measures. A consumer survey conducted by [Mainieri et al. \(1997\)](#) incorporated health and eco-labels as the two personal dimensions that proved to impact consumers' attitudes toward sustainable products.

Also, it was found that consumers who purchase sustainable products consider the physical risks associated with this product. One main physical risk is food safety concern, as consumers consider the addition of pesticides, additives and preservatives in the products they purchase ([Yee et al., 2005](#)). [Schifferstein and Oude Ophuis \(1998\)](#) and [Krystallis et al. \(2006\)](#) claimed that consumers are willing to pay more money for safe products that maintain their physical well-being ([Michaelidou and Hassan, 2008](#)). Therefore, the following three hypotheses were developed:

H4.2. Food safety concern positively and directly influences consumers' attitudes toward purchasing sustainable products.

H4.3. Health consciousness positively and directly influences consumers' attitudes toward purchasing sustainable products.

H4.4. Eco-labeling positively and directly influences consumers' attitudes toward purchasing sustainable products

Customer perceived value is the ultimate result of marketing activities and is a first-order element in relationship marketing. It refers to the trade-offs made by customers between perceived benefits and costs. It is claimed by [Sweeney and Soutar \(2001\)](#) that perceived value is reflecting consumers' past experiences. Some studies treated customer perceived value as a dependent measure for purchase behavior rather than a driver, while other studies revealed that it is predictor variable. There is evidence to suggest that consumers become price- and quality-sensitive when purchasing sustainable products ([Eid and El-Gohary, 2014](#)).

Perceived value is considered a subjective construct in several senses as it differs between customers in different cultures and at different moments and situations. Perceived value is experienced before the moment of purchase, at the moment of purchase, usage time and after use. According to [Gardial et al. \(1994\)](#), the influencing factors that affect consumers' behavior are price and quality ([Sanchez et al., 2006](#); [Appleby et al., 2012](#)). Therefore, the following research hypothesis was developed:

H4.5. Level of perceived value positively and directly influences consumers' attitudes toward purchasing sustainable products.

4.2 Consumers' attitudes toward sustainability marketing mix and government role and its impact on their purchase intention of sustainable products

Environmentally conscious consumers seek sustainable products as a solution to their problems. Sustainable products are defined as products that satisfy consumers' needs as well

as enhance the social and environmental performance along the whole life cycle. According to [Belz and Peattie \(2012\)](#), there are a significant number of consumers who care about the natural environment and the human beings involved in the production processes. Consumers are seeking products that are socially and environmentally friendly, organic, healthy, natural and free from artificial tastes.

Another findings revealed that one of the attributes consumers may consider when they purchase sustainable products is price. Price is considered an influencing element for consumers to consider sustainable/green products. Despite the fact that sustainable/green products are more expensive than regular/ordinary products, it is not considered a barrier. The analysis done by [Grankvist and Biel \(2001\)](#) declared that price does not play a significant role in influencing consumers' purchase of sustainable products.

Consumers may believe in the importance of being environmentally friendly and paying more for sustainable products; however, Bei and Simpson's study in 1995 suggested that marketers have to motivate consumers to act in a sustainable manner. Motivation could be through well communication with consumers about the positive impact of purchasing sustainable products on the environment welfare and through suitable advertising campaigns aiming at changing attitudes and behaviors in a sustainable manner. These advertising campaigns will influence the unwilling consumers through changing their perception in a more positive manner. Marketers will focus on the convenience of sustainable products and educate them about its social and environmental positive impacts ([Laroche et al., 2001](#)).

Finally, one of the main determinants of consumers' attitudes toward sustainable products is availability. Place or availability is an element that refers to the ease or the difficulty of consuming a product. Where consumers could have significant intention to purchase sustainable products, however, it may be impossible due to low availability. As reported by [De Pelsmacker et al. \(2003\)](#), sustainable products are somehow limited in shops or inadequately promoted by companies. A recent research showed that 52% of consumers are interested in purchasing sustainable products, but they did not owing to availability ([Vermeir and Verbeke, 2006](#)). Based on what mentioned, the following hypotheses were developed:

- H5.1. Consumers' attitudes toward sustainable products significantly influence their purchase intention.
- H5.2. Consumers' attitudes toward prices significantly influence their purchase intention.
- H5.3. Consumers' attitudes toward advertising significantly influence their purchase intention.
- H5.4. Consumers' attitudes toward convenience significantly influence their purchase intention.

According to a report presented by [Chyong et al. \(2006\)](#), there is a significant relationship between the government's role toward sustainable development and consumers' attitude toward sustainable products. Consumers may have ecological and environmental concerns, but believe that it is the government's role in achieving sustainability. According to a study by [Gallup and Newport \(1990\)](#), consumers deem that the government is the responsible party in preserving the environment. Accordingly, this could alter consumers' attitudes to consider and purchase sustainable products. Moreover, consumers who witness the government spending on environmental causes are the ones who are willing to pay premium for sustainable products ([Chen and Chai, 2010](#)). Therefore, in order to determine the impact of government's role toward sustainability marketing on consumers' purchase intention, the researchers developed the following hypothesis:

H5.5. Consumers' attitudes toward government's role significantly influence their purchase intention of sustainable products.

4.3 Consumers' purchase intention toward sustainable products in light of the theory of planned behavior

Ajzen (1985) explained attitudes toward behavior as personal interpretations of liking and disliking performing a certain behavior. Accordingly, an individual is expected to carry out a certain behavior if she/he has positive attitude. Plenty of studies support the positive relationship between consumers' attitudes and behavioral intentions for sustainable purchasing (Kalafatais, 1999; Kim and Chung, 2011).

H6.1. Consumers' attitudes toward sustainable products significantly influence their purchase intentions of sustainable products.

Subjective norms manifest an individual's perceived social pressure to operate a certain behavior. If consumers place confidence on people who are convincing them that sustainable products are beneficial, consumers will have more intention to purchase them (Kim and Chung, 2011). A research conducted by Bamberg (2003) and Kalafatis *et al.* (1999) revealed a strong relationship between subjective norms and purchase intention of sustainable products (Kim and Chung, 2011). Therefore, the following hypothesis is developed:

H6.2. Subjective norms significantly influence consumers' purchase intention of sustainable products.

Researchers associated PCE with various constructs such as perceived change in perception and responsibility (Antil, 1984; Webster, 1975). Most of the researchers investigated the relationship between PCE and other attitudinal measures as need for regulation and socially conscious consumption. However, only very few showed the impact of PCE on behavior. A study conducted by Straughan and Roberts in 1999, concentrating on the impact of PCE on environmentally conscious consumer behavior, revealed that PCE is a crucial indicator in determining environmental behavior. The researchers demonstrated that if any respondent is highly concerned by the environmental problems, no action will be taken unless he/she believes that they are effective to the environment (McDonald and Oates, 2006).

H6.3. PCE significantly influences consumers' purchase intention toward sustainable products.

According to Michaelidou and Hassan (2008), food safety concern and health consciousness were found to significantly impact attitudes and purchase intention of sustainable products. The study has tested the mediation role of attitudes between the predictor variables (food safety and health consciousness) and purchase intention. Therefore, the researchers decided to test the mediation role of attitudes between the five predictor variables under study and purchase intention. The mediation effect of attitudes will be tested using structural equation model (SEM) through AMOS 24. The conceptual framework that presents the aforementioned relationships is presented in Figure 1.

5. Methods and data

The methodology section highlights the research methods conducted for the current study, the description of the target populations, sampling techniques applied and the instrument development.

5.1 The mixed research design

Regarding the current study, the researchers have applied a partially mixed concurrent equal-status research design. This means that both research approaches are used, at the same

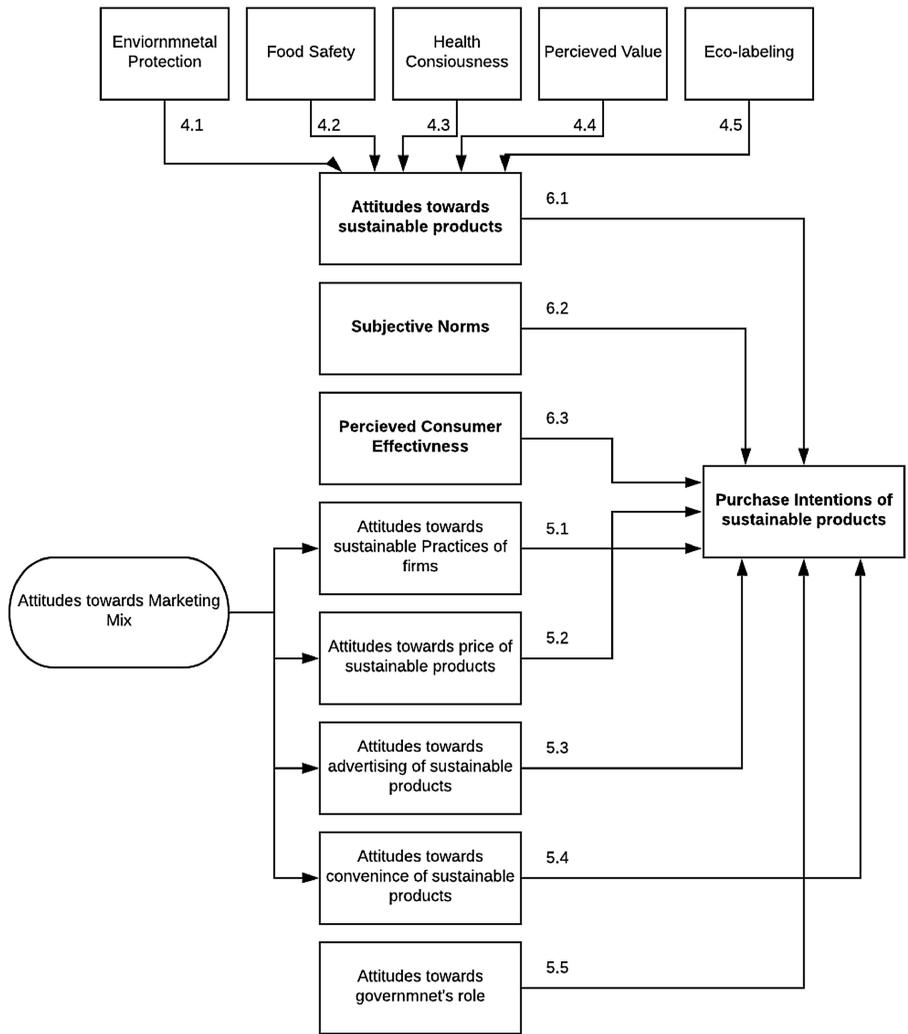


Figure 1. Conceptual framework (developed by researchers)

time, with approximately equal weights and not used with each other across the research stages (Leech and Onwuegbuzie, 2009). Qualitative methods are applied using in-depth interviews to answer the first three research questions in the current study. There are two major target populations; the first one is all consumer protection agencies (CPA) in Egypt. Those populations are cooperating with the government, more specifically, the Egyptian Ministry of Supply and Internal Trade that will help the researchers to obtain the information needed. The second target population is managers working in marketing and sustainable development departments in FMCGs in Egypt. They are chosen based on their job titles and their experience in the field.

The sampling technique used for the qualitative research is judgmental sampling. Quantitative methods are applied using surveys to answer the other major research questions. The consumers' target population is young adults with age range of 18–30 years

old. Those target audience are reasonably assumed to constitute the main market of sustainable products in the future (Vermeir and Verbeke, 2006). Also, they must have a minimum level of awareness and education regarding the topic of sustainability to aid the researchers to determine their attitudes and behavioral intentions toward sustainable products (Vermeir and Verbeke, 2006). The sampling techniques applied are convenience and snowball sampling.

5.2 Instrument development

The researchers developed interview guides for both public policymakers and marketing managers at FMCGs based on the literature review. Regarding the questionnaires, Table 1 summarizes all the scales used for the current study with their sources.

6. Data analysis and results

After the discussion of the methodology, this part will discuss the final results the researchers revealed from the qualitative and quantitative researches. Tables 2 and 3 summarize the qualitative results followed by quantitative ones.

Moving to the quantitative results, descriptive analysis for the sample was applied. The sample size of the current study consisted of 360 respondents in Egypt, in which 74.2% were females and 25.8% were males. The educational background was acceptable, with 85.6% university students and bachelor degree holders, 12.8% master's degree holders and 1.7% PhD holders. The respondents were divided into three age groups: 18–21 (73.3%), 22–25 (25.3%) and 26–30 (1.4%).

Regarding the validity and reliability of scales, confirmatory factor analysis and internal consistency were used. Tables 4 and 5 show the summary of the validity and the reliability tests for the current study. Figure 2 shows the factor loadings for all the items under study represented in a pooled measurement model. The measurement model tests for construct validity. Construct validity is achieved when the fitness indexes reach the required level; hence, the items used in measuring their respective latent constructs are valid (Awang, 2012). All fit indexes reached their required level; therefore, the measurement model is fit. The pooled measurement model is presented in Figure 2.

Regression analysis was applied to test the relationships between variables under study. Hair *et al.* (2006, p. 177) stated that “the objective of regression analysis is to predict a single

| Scale name | Source |
|----------------------------------|-----------------------------------|
| Environmental protection | Chen and Chai (2010) |
| Food safety concern | Michaelidou and Hassan (2008) |
| Health consciousness | Gould (1998) |
| Eco-labeling | Tanner and Kast (2003) |
| Level of perceived value | Eid and El-Gohary (2014) |
| Sustainable practice | Haws <i>et al.</i> (2010) |
| Price | Gaski and Etzel (1985) |
| Advertising | Obermiller and Spangenberg (1998) |
| Convenience | Developed by researchers |
| Attitudes | Chen and Chai (2010) |
| Subjective norms | Khalek and Ismail (2015) |
| Perceived consumer effectiveness | Ellen <i>et al.</i> (1991) |
| Purchase intentions | Kolkailah <i>et al.</i> (2012) |
| Government's role | Chen and Chai (2010) |

Table 1.
Survey scales and sources

Table 2.
Summary of CPA's
interviews' main
insights

| Title of interviewee and sector | Main insights |
|--|---|
| <i>Member of board of directors in the CPA</i> Governmental Organization | -Under the supervision of the Ministry of Supply and Internal Trade, several laws and regulations were formulated to guarantee consumers' rights in having a sustainable living -It helps in increasing their awareness toward their environmental and social roles and rights -The CPA considers other topics such as sustainable consumption, collection of information and deceptive advertising |
| <i>Executive Director of CPA</i> Governmental Organization | -It works on solving consumers' problems such as product safety, pricing, labeling, availability and convenience of sustainable products -It was mentioned that only certain and niche segment in Egypt considers purchasing sustainable products -The interviewee mentioned that sustainability requires a high level of education, knowledge, awareness and affordability to consider its importance in our lives and this level is not obtainable in most segments |
| <i>Misleading ads and deceptive marketing activities Director</i> Governmental Organizational | -The CPA is working on setting up training sessions for consumers to introduce to them the importance of sustainable development and how to work individually and in groups to achieve it -These sessions help consumers to sustain their consumption of products in general and convenient products in specific -The emergence of social media tools has a significant impact in increasing consumers' awareness toward sustainability. It eases the role of the CPA to communicate with consumers |

dependent variable from the knowledge of one or more independent variables". [Table 6](#) shows a summary table for the R^2 , the significance and the part coefficients values for the linear regression analysis.

Regarding the path analysis, the researchers' main purpose is to analyze the model fit indices for the structural model as shown in [Table 7](#). The table presents the common fit indices that aid the researchers to determine whether the whole model fit with the data under study or not. The results showed that the model has a good fit as all the indices exceeded/reached the minimum level of acceptance. The structural model is presented in [Figure 3](#).

The second purpose of the path analysis is to indicate the direct and the indirect relation between the five predictors of attitudes and purchase intention of sustainable products. The researcher aims to determine whether consumer attitudes act as a mediator in the current study or not. There are two common cases of mediation in any study; the first case is called "partial mediation" and the second case is called "complete mediation" ([Awang, 2012](#)). [Table 8](#) summarizes the type of mediation that attitudes have on the aforementioned predictors and purchase intention of sustainable products. Results showed that attitudes are partially mediating the relationships between environmental protection and eco-labeling with purchase intentions of sustainable products. Regarding the relationships between food safety concern, health consciousness and perceived value with purchase intentions, it is completely mediated by attitudes.

7. Conclusion and implications

The current study is considering the topic of sustainability marketing in Egypt, as there is no study that tackled this topic in the Egyptian context to date. The current research sought to answer seven major research questions. The results of the qualitative research showed that

Table 3.
Summary for
companies interviews
main insights

| Title of interviewee | Insights |
|---|--|
| <i>Regional Sustainable Supply Chain Manager at Procter and Gamble</i> Multinational Company | <ul style="list-style-type: none"> -Corporate sustainability department in P&G ensures that their marketing strategies are sustainable and making profits at the same time -P&G studies the life cycle of its products to have a deep understanding of the impact of these products on the environment and improve it. For instance, Tide purclean product is the first liquid laundry detergent with 65% of its ingredients coming from plants and renewable resources and still effective as the old one even when using energy-saving cold water -P&G had many school visits to teach children the concept of sustainability and how to apply it in their daily lives' activities -They have built more than 50 classroom schools in rural areas in Egypt and building clinics for underserved people |
| <i>Brand Manager of Lipton at Unilever</i> Multinational Company | <ul style="list-style-type: none"> -Unilever aims to provide their consumers all over the globe with sustainable products in which they feel good and get more out of life -Sustainability is divided in the company into three main pillars. The first pillar is enhancing lifehood for the community, the second pillar is reducing environmental impact and the third pillar is health and well-being of consumers -Their food products are all full of vitamins and minerals and aim to reduce saturated fats, salts and calories. Also, Unilever is working on reducing and sustaining consumers' water and energy consumption through their products. It succeeded in minimizing the water used in the manufacturing processes as well as the water used by consumers -Moreover, around half of their raw materials are from agriculture and forestry, as they are aiming to make their crops 100% sustainable |
| <i>Sales and Marketing Manager at Henkel</i> Multinational Company | <ul style="list-style-type: none"> -Henkel is committed to apply sustainability with all its aspects in their business as it is following the strategy of "achieving more with less" -An example for a liquid detergent that is produced from renewable raw materials that use up to 80% less energy in its production process. This detergent is able to perform efficiently with cold water; hence, consumers can save more energy and contribute in reducing CO₂ by 2m metric tons per year -Henkel has been working on educating children through its e-learning global programs and school visits |

| Index name | Value |
|----------------|-------|
| CFI | 0.999 |
| NFI | 0.909 |
| GFI | 0.900 |
| AGFI | 0.850 |
| RMSEA | 0.001 |
| <i>p</i> value | 0.615 |

Table 4.
Summary of goodness-of-fit indices for CFA

WJEMSD
16,4

298

Table 5.

Cronbach's alpha
reliability measures

| Scale name | Source |
|----------------------------------|--------|
| Environmental protection | 0.720 |
| Food safety concern | 0.655 |
| Health consciousness | 0.789 |
| Eco-labeling | 0.654 |
| Level of perceived value | 0.596 |
| Sustainable practice | 0.850 |
| Price | 0.818 |
| Advertising | 0.970 |
| Convenience | 0.684 |
| Attitudes | 0.884 |
| Subjective norms | 0.805 |
| Perceived consumer effectiveness | 0.539 |
| Purchase intentions | 0.787 |
| Government's role | 0.667 |

there is a problem regarding the sustainable laws and regulations in Egypt. The companies stated that the Egyptian government has a major role to encourage consumers' sustainable consumptions. This can be through setting fierce regulations, creating campaigns to increase knowledge and awareness regarding sustainability and setting penalties for consuming more energy and water. According to the quantitative results, attitudes toward firms' sustainable practices and subjective norms were the most effective predictors of Egyptian consumers' purchase intention of sustainable products. On the other hand, the results showed that prices and advertising of sustainable products are not significant predictors of consumers' purchase intention of sustainable products as well as the government's role. Finally, there are moderate effects of attitudes toward sustainable products, attitudes toward convenience and PCE in predicting purchase intention. In light of the study results, marketing managers are advised to address consumers' attitudes and behavioral intentions toward sustainable products to boost their sustainable purchase behavior. The results enable companies and marketing practitioners to determine the main reasons behind consumers' "attitude-behavior" gap.

A clear link between sustainable practices of companies, prices, convenience of sustainable products and consumers' purchase intention was found. Regarding communication, it was found that communicating sustainable information is not a prominent predictor for consumers' purchase intention of sustainable products in the current context. Companies must reconsider their pricing strategies and balance between providing customers with high value for products, maintaining a fair level of profits for the business and preserving the environment. Also, marketers have to communicate with their consumers the impact of their sustainable consumption on the environment and the society. This is considered a reward to motivate them to continue purchasing sustainable products and reduce the negative impact of PCE on their purchase intention.

8. Directions for future research

The current study was focusing on FMCGs providing convenient products only, where other types of products and industries were ruled out of the study. Hence, future research should consider other shopping and complex product types, as it could have a significant impact on the environment. Moreover, due to time constraints, a few numbers of companies were interviewed, so it is suggested that interviewing more companies could lead to more insights about the sustainability marketing strategies and the barriers hindering them to achieve it. Regarding the quantitative research population, the study constrained to include young

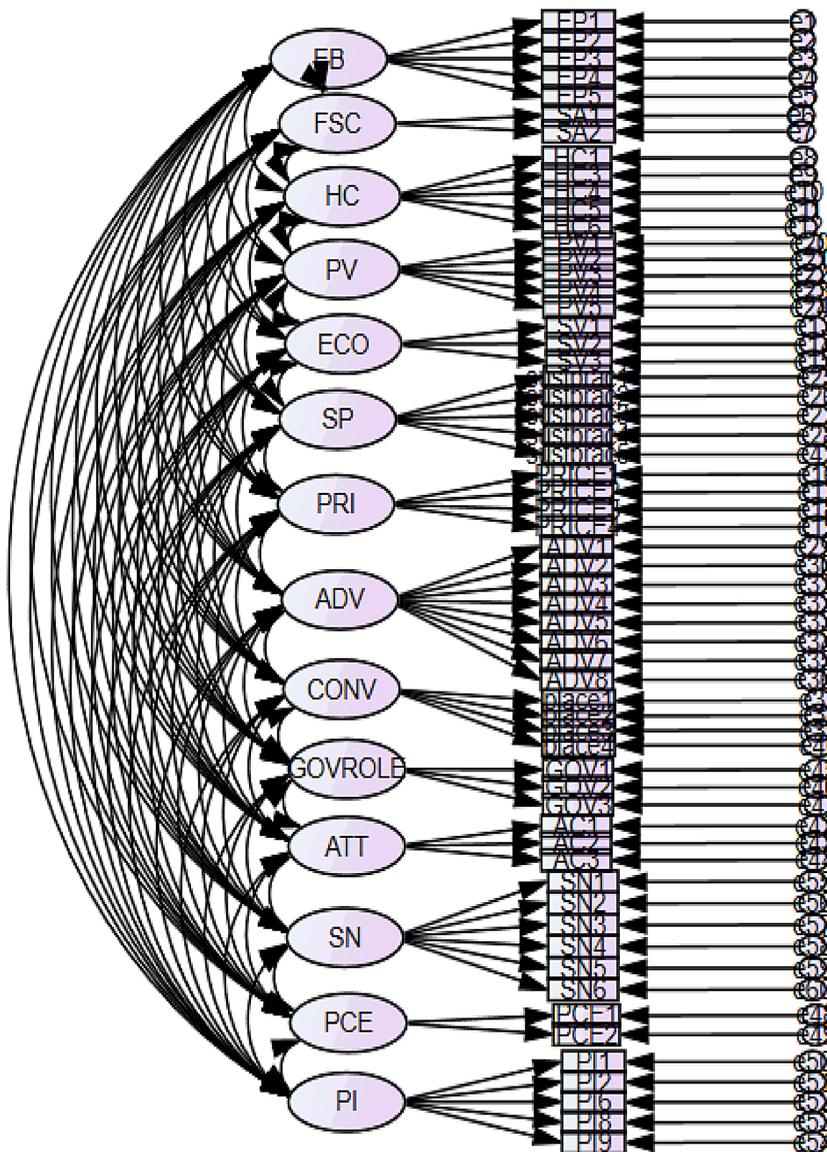


Figure 2. Pooled measurement model

adults only, where other age groups such as teenagers and adults were not included. Hence, it will be fruitful for future research to investigate the attitudes and behavioral intentions of other age groups toward sustainable products. Finally, regarding the generalization of the findings, although the model is based on the theory of planned behavior, which has proven to be an acceptable model for explaining human behavior, yet the research is conducted in Egypt. Therefore, this limits the research findings only to similar contexts to Egypt to be generalized in. Consumers' attitudes and behaviors, subjective norms and perceived behavioral control are all affected by different contexts in terms of culture differences, beliefs

| Hypothesis statement | Sig. value | R ² | Part-coefficient value | Hypothesis accepted/rejected |
|--|------------|----------------|------------------------|------------------------------|
| H4.1: Environmental protection is positively and directly impacting consumers' attitudes toward sustainable products | 0.000 | 0.142 | 0.377 | Accepted |
| H4.2: Food safety concern is positively and directly impacting consumers' attitudes toward sustainable products | 0.000 | 0.063 | 0.251 | Accepted |
| H4.3: Health consciousness is positively and directly impacting consumers' attitudes toward sustainable products | 0.000 | 0.065 | 0.254 | Accepted |
| H4.4: Eco-labeling is positively and directly impacting consumers' attitudes toward sustainable products | 0.985 | 0.000 | 0.001 | Rejected |
| H4.5: Level of perceived value is positively and directly impacting consumers' attitudes toward sustainable products | 0.004 | 0.022 | 0.150 | Accepted |
| H5.1: Consumers' attitudes toward sustainable practice of firms significantly influence purchase intention of sustainable products | 0.000 | 0.311 | 0.558 | Accepted |
| H5.2: Consumers' attitudes toward prices significantly influence purchase intention of sustainable products | 0.045 | 0.011 | 0.106 | Accepted |
| H5.3: Consumers' attitudes toward advertising significantly influence purchase intention of sustainable products | 0.076 | 0.009 | 0.094 | Rejected |
| H5.4: Consumers' attitudes toward convenience significantly influence purchase intention of sustainable products | 0.018 | 0.016 | 0.125 | Accepted |
| H5.5: Consumers' attitudes toward government's role significantly influence purchase Intention | 0.000 | 0.079 | 0.282 | Accepted |
| H7.1: Consumers' attitudes toward sustainable products significantly influence purchase intention of sustainable products | 0.000 | 0.194 | 0.441 | Accepted |
| H7.2: Subjective norms significantly influence purchase intention of sustainable products | 0.000 | 0.205 | 0.453 | Accepted |
| Perceived consumer effectiveness significantly influences purchase intention of sustainable products | 0.022 | 0.015 | 0.121 | Accepted |
| H7.4: Purchase intention significantly influences consumers' buying behavior of sustainable products | 0.000 | 0.326 | 0.571 | Accepted |

Table 6.
Summary of regression analysis results

| Index name | Value |
|----------------|-------|
| CFI | 0.980 |
| NFI | 0.947 |
| GFI | 0.975 |
| AGFI | 0.936 |
| RMSEA | 0.036 |
| <i>p</i> value | 0.022 |

Table 7.
Fit indices assessment for the structural model

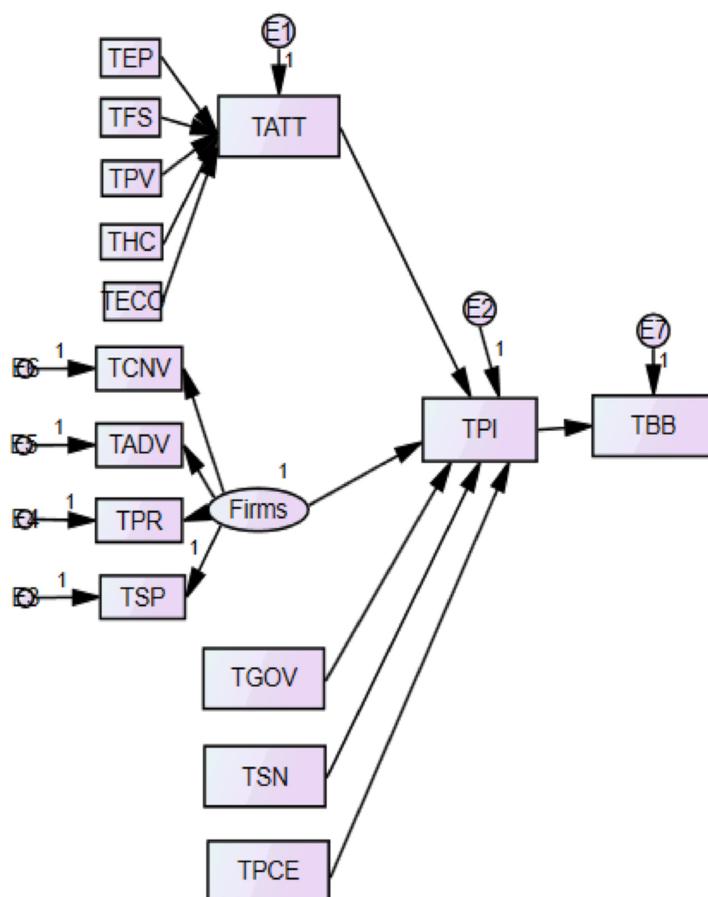


Figure 3. Structural model

| Variable name | Total effect | Direct effect | Indirect effect | Sig. values | Mediation level |
|--------------------------|--------------|---------------|-----------------|-------------|-----------------|
| Environmental protection | 0.168 | 0.136 | 0.032 | 0.035 | Partial |
| Food safety concern | 0.157 | 0.150 | 0.007 | 0.128 | Complete |
| Health consciousness | 0.176 | 0.163 | 0.122 | 0.310 | Complete |
| Perceived value | 0.235 | 0.243 | 0.008 | 0.217 | Complete |
| Eco-labeling | 0.213 | 0.204 | 0.009 | 0.000 | Partial |

Table 8. Total, direct and indirect effects of attitude predictors on purchase intention

and experiences. Hence, it is recommended that different cultures and contexts should be further investigated.

References

Abou-Ali, H. and Thomas, A. (2011), "Regulating traffic to reduce air pollution in greater cairo, Egypt", Working Paper 664, Economic Research Forum, Faculty of Economics and Political Science, Cairo University.

- Ajzen, I. (1985), "From intentions to actions: a theory of planned behavior", in Kuhl, J. and Beckman, J. (Eds), *Action-control: From Cognition to Behavior*, Vol. 4 No. 2, pp. 11-39.
- Antil, J.H. (1984), "Socially responsible consumers: profile and implications for public policy", *Journal of Macromarketing*, Vol. 4 No. 2, pp. 18-39.
- Appleby, C., Costanigro, M., Thilmany, D. and Menke, S. (2012), "Measuring consumer willingness to pay for low-sulfite wine: a conjoint analysis", American Association of Wine Economics Working Papers, p. 117.
- Awang, Z. (2012), "Structural equation modeling using AMOS graphic", Penerbit Universiti Teknologi MARA.
- Bamberg, S. (2003), "How does environmental concern influence specific environmentally related behaviors? A new answer to an old question", *Journal of Environmental Psychology*, Vol. 23 No. 1, pp. 21-32.
- Bedeck, A. (2011), "Sustainability marketing strategies: examples of best practices in Croatia", *The International Journal of Management Cases*, Vol. 13 No. 2, pp. 33-43.
- Bei, L.T. and Simpson, E.M. (1995), "The determinants of consumers' purchase decisions for recycled products: an application of acquisition-transaction utility theory", *Advances in Consumer Research*, Vol. 22, pp. 257-261.
- Belz, F.M. and Peattie, K. (2009), *Sustainable Marketing: A Global Perspective*, Wiley, West Sussex.
- Belz, F.M. and Peattie, K. (2012), *Sustainability Marketing*, John Wiley and Sons, Southern Gate.
- Blackwell, R.D., Miniard, P.W. and Engel, J.F. (2006), *Consumer Behavior*, Thomson South-Western, Mason, OH.
- Charter, M., Peattie, K., Ottman, J. and Polonsky, M.J. (2002), "Marketing and sustainability", Cardiff: Centre for Business Relationships, Accountability, Sustainability and Society (BRASS), Cardiff.
- Chen, T.B. and Chai, L.T. (2010), "Attitude towards the environment and green products: consumers' perspective", *Management Science and Engineering*, Vol. 4 No. 2, pp. 27-39.
- Chyong, H.T., Phang, G., Hasan, H. and Buncha, M.R. (2006), "Going green: a study of consumers' willingness to pay for green products in Kota Kinabalu", *International Journal of Business and Society*, Vol. 7 No. 2, pp. 40-54.
- De Pelsmacker, P., Driesen, L. and Rayp, G. (2003), "Are fair trade labels good business? Ethics and coffee buying intentions", *Journal of Consumer Affairs*, Vol. 39 No. 2, pp. 1-20.
- Eid, R. and El-Gohary, H. (2014), "Muslim tourist perceived value in the hospitality and tourism industry", *Journal of Travel Research*, Vol. 54 No. 6, pp. 774-787.
- El-Bassiouny, N.M., Wilson, J.A. and Esmat, S. (2017), "An Islamic macromarketing perspective on sustainability", *Journal of Islamic Marketing*, Vol. 8 No. 2, pp. 187-203.
- Ellen, P.S., Wiener, J.L. and Cobb-Walgreen, C. (1991), "The role of perceived consumer effectiveness in motivating environmentally conscious behaviors", *Journal of Public Policy and Marketing*, Vol. 10 No. 2, pp. 102-117.
- Ferdous, A.S. (2010), "Applying the theory of planned behavior to explain marketing managers' perspectives on sustainable marketing", *Journal of International Consumer Marketing*, Vol. 2 No. 4, pp. 313-325.
- Gallup, G. and Newport, F. (1990), "Americans strongly in tune with the purpose of Earth Day 1990", *Gallup Poll Monthly*, April, pp. 5-14.
- Gardial, S.F., Clemons, D.S., Woodruff, R.B., Schumann, D.W. and Burns, M.J. (1994), "Comparing consumer's recall of prepurchase and postpurchase product evaluation experiences", *Journal of Consumer Research*, Vol. 20, pp. 548-560.
- Gaski, J.F. and Etzel, M.J. (1985), "A proposal for a global, longitudinal measures of national consumer sentiment toward marketing practice", *Advances in Consumer Research*, Vol. 12, pp. 65-70.

- Ghorab, H.K. and Shalaby, H.A. (2016), "Eco and Green cities as new approaches for planning and developing cities in Egypt", *Alexandria Engineering Journal*, Vol. 55 No. 1, pp. 495-503.
- Gould, S.J. (1988), "Consumer attitudes toward health and health care: a differential perspective", *Journal of Consumer Affairs*, Vol. 22 No. 1, pp. 96-118.
- Grankvist, G. and Biel, A. (2001), "The importance of beliefs and purchase criteria in the choice of eco-labeled food products", *Journal of Environmental Psychology*, Vol. 21 No. 4, pp. 405-410.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2006), *Multivariate Data Analysis*, 6th ed., Pearson Prentice Hall, New Jersey.
- Hamari, J., Sjöklint, M. and Ukkonen, A. (2015), "The sharing economy: why people participate in collaborative consumption", *Journal of the Association for Information and Science Technology*, Vol. 67 No. 9, pp. 2047-2059.
- Haws, K.L., Winterich, K.P. and Naylor, R.W. (2010), "Seeing the world through green-tinted glasses: motivated reasoning and consumer response to environmentally friendly products", *Journal of Macromarketing*, Vol. 5 No. 2, pp. 18-39.
- Hogevold, N.M. and Svensson, G. (2012), "A business sustainability model: a European case study", *Journal of Business and Industrial Marketing*, Vol. 27 No. 2, pp. 142-151.
- Hunt, S.D. (2017), "Strategic marketing, sustainability, the triple bottom line, and resource-advantage (R-A) theory: securing the foundations of strategic marketing theory and research", *Academy of Marketing Science Review*, Vol. 7, pp. 52-66.
- Johnson, M., Redlbacher, F. and Schaltegger, S. (2018), "Stakeholder engagement for corporate sustainability: a comparative analysis of B2C and B2B companies", in Welford, R. (Ed.), *Corporate Social Responsibility and Environmental Management*, John Wiley & Sons, University of Technology, Sydney.
- Jones, P., Clarke-Hill, C., Comfort, D. and Hillier, D. (2008), "Marketing and sustainability", *Marketing Intelligence and Planning*, Vol. 26 No. 2, pp. 123-130.
- Kalafatis, S.P., Pollard, M., East, R. and Tsogas, M.H. (1999), "Green marketing and Ajzen's theory of planned behaviour: a cross-market examination", *Journal of Consumer Marketing*, Vol. 16 No. 5, pp. 441-460.
- Khalek, A.A. and Ismail, S.H.S. (2015), "Why are we eating halal-using the theory of planned behavior in predicting halal food consumption among generation Y in Malaysia", *International Journal of Social Science and Humanity*, Vol. 5 No. 7, p. 608.
- Kim, Y.H. and Chung, J.E. (2011), "Consumer purchase intention for organic personal care products", *Journal of Consumer Marketing*, Vol. 28 No. 1, pp. 40-47.
- Kolkailah, S.K., Abou Aish, E. and El-Bassiouny, N. (2012), "The impact of corporate social responsibility initiatives on consumers' behavioral intentions in the Egyptian market", *International Journal of Consumer Studies*, Vol. 36 No. 4, pp. 369-384.
- Kotler, P. (2011), "Reinventing marketing to manage the environmental imperative", *Journal of Marketing*, Vol. 75 No. 4, pp. 132-135.
- Krystallis, A., Fotopoulos, C. and Zotos, Y. (2006), "Organic consumers' profile and their willingness to pay (WTP) for selected organic food products in Greece", *Journal of International Consumer Marketing*, Vol. 19 No. 1, pp. 81-106.
- Kumar, V., Rahman, Z., Kazmi, A.A. and Goyal, P. (2012), "Evolution of sustainability as marketing strategy: beginning of new era", *Procedia-Social and Behavioral Sciences*, Vol. 37, pp. 482-489.
- Laroche, M., Bergeron, J. and Barbaro-Forleo, G. (2001), "Targeting consumers who are willing to pay more for environmentally friendly products", *Journal of Consumer Marketing*, Vol. 18 No. 6, pp. 503-520.
- Leech, N.L. and Onwuegbuzie, A.J. (2009), "A typology of mixed methods research design", *Quality and Quantity*, Vol. 43, pp. 265-275.

- Lim, W.M. (2016), "A blueprint for sustainability marketing: defining its conceptual boundaries for progress", *Marketing Theory*, Vol. 16, No. 2, pp. 232-249.
- Mainieri, T., Barnett, E.G., Valdero, T.R., Unipan, J.B. and Oskamp, S. (1997), "Green buying: the influence of environmental concern on consumer behavior", *The Journal of Social Psychology*, Vol. 137, pp. 189-204.
- McDonald, S. and Oates, C.J. (2006), "Sustainability: consumer perceptions and marketing strategies", *Business Strategy and the Environment*, Vol. 15 No. 3, pp. 157-170.
- Michaelidou, N. and Hassan, L.M. (2008), "The role of health consciousness, food safety concern and ethical identity on attitudes and intentions towards organic food", *International Journal of Consumer Studies*, Vol. 32 No. 2, pp. 163-170.
- Mittelstaedt, J.D., Kilbourne, W.E. and Mittelstaedt, R.A. (2006), "Macromarketing as agorology: macromarketing theory and the study of the agora", *Journal of Macromarketing*, Vol. 26 No. 2, pp. 131-142.
- Moser, A.K. (2015), "Thinking green, buying green? Drivers of pro-environmental purchasing behavior", *Journal of Consumer Marketing*, Vol. 32 No. 3, pp. 167-175.
- Motavalli, J. (2005), "Cities of the future: today's "mega-cities" are overcrowded and environmentally stressed", *The Environmental Magazine*, CT.
- Munier, N. (2005), *Introduction to Sustainability: Road to a Better Future*, Springer, Netherlands.
- Obermiller, C. and Spangenberg, E. (1998), "Development of a scale to measure skepticism toward advertising", *Journal of Consumer Psychology*, Vol. 7 No. 2, pp. 159-86.
- Peterson, M. and Lunde, M.B. (2016), "Turning to sustainable business practices: a macromarketing perspective", *Marketing In and for a Sustainable Society*, pp. 103-137.
- Pizzol, D.H., de Almeida, O.S. and do Soares, C.M. (2017), "Collaborative consumption: a proposed scale for measuring the construct applied to a carsharing setting", *Sustainability*, Vol. 9 No. 5, p. 703.
- Prothero, A., Dobscha, S., Freund, J., Kilbourne, W.E., Luchs, M.G., Ozanne, L.K. and Thøgersen, J. (2011), "Sustainable consumption: opportunities for consumer research and public policy", *Journal of Public Policy and Marketing*, Vol. 30 No. 1, pp. 31-38.
- Rice, G. (2006), "Pro-environmental behavior in Egypt: is there a role for Islamic environmental ethics?", *Journal of Business Ethics*, Vol. 65 No. 4, pp. 373-390.
- Rudawska, E. (2019), "Sustainable marketing strategy in food and drink industry: a comparative analysis of B2B and B2C SMEs operating in Europe", *Journal of Business and Industrial Marketing*, Vol. 34 No. 4, pp. 875-890.
- Sanchez, J., Callarisa, L., Rodriguez, R.M. and Moliner, M.A. (2006), "Perceived value of the purchase of a tourism product", *Tourism management*, Vol. 27 No. 3, pp. 394-409.
- Schifferstein, H.N. and Ophuis, P.A.O. (1998), "Health-related determinants of organic food consumption in The Netherlands", *Food Quality and Preference*, Vol. 9 No. 3, pp. 119-133.
- Schultz, P.W. and Zeleny, L.C. (2000), "Promoting environmentalism", *Journal of Social Issues*, Vol. 56, pp. 443-457.
- Sweeney, J.C. and Soutar, G. (2001), "Consumer perceived value: the development of multiple item scale", *Journal of Retailing*, Vol. 77 No. 2, pp. 203-220.
- Tantawi, P.I., O'Shaughnessy, N.J., Gad, K.A. and Ragheb, M.A.S. (2009), "Green consciousness of consumers in a developing country: a study of Egyptian consumers", *Contemporary Management Research*, Vol. 5 No. 1.
- Varadarajan, R. (2016), "Sustainability and marketing: concurrent pursuit of a smaller environmental footprint and a larger market footprint", *Marketing in and for a Sustainable Society (Review of Marketing Research)*, Emerald Group Publishing, Vol. 13, pp. 1-27, available at: <https://doi.org/10.1108/S1548-64352016000013009>.

- Vermeir, I. and Verbeke, W. (2006), "Sustainable food consumption: exploring the consumer "attitude-behavioral intention" gap", *Journal of Agricultural and Environmental Ethics*, Vol. 19 No. 2, pp. 169-194.
- WCED, U. (1987), *Our Common Future*, World Commission on Environment and Development, Oxford University Press.
- Webster, F.E. (1975), "Determining the characteristics of the socially conscious consumer", *Journal of Consumer Research*, Vol. 2, pp. 188-196.
- WRI (2005), *Ecosystems and Human Well-Being: Synthesis Report (Millennium Ecosystem Assessment)*, World Resource Institute, Washington, DC.
- Yee, W.M.S., Yeung, R.M.W. and Morris, J. (2005), "Food safety: building consumer trust in livestock farmers for potential purchase behavior", *British Food Journal*, Vol. 107 Nos 10-11, pp. 841-854.

Further reading

- Ajzen, I. (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, Vol. 50 No. 2, pp. 179-21.
- Bridges, C.M. and Wilhelm, W.B. (2008), "Going beyond green: the "why and how" of integrating sustainability into the marketing curriculum", *Journal of Marketing Education*, Vol. 30 No. 1, pp. 33-46.
- Chabowski, B.R., Mena, J.A. and Gonzalez-Padron, T.L. (2011), "The structure of sustainability research in marketing, 1958-2008: a basis for future research opportunities", *Journal of the Academy of Marketing Science*, Vol. 39 No. 1, pp. 55-70.
- D'Souza, C., Taghian, M. and Khosla, R. (2007), "Examination of environmental beliefs and its impact on the influence of price, quality and demographic characteristics with respect to green purchase intention", *Journal of Targeting, Measurement and Analysis for Marketing*, Vol. 15 No. 2, pp. 69-78.
- Eggert, A. and Ulaga, W. (2002), "Customer perceived value: a substitute for satisfaction in business markets?", *The Journal of Business and Industrial Marketing*, Vol. 17 Nos 2/3, pp. 107-118.
- Kotler, P. and Armstrong, G. (2008), *Principles of Marketing*, Pearson: Prentice Hall, Upper Saddle River, New Jersey.
- Pirages, D.C. and Ehrlich, P.R. (1974), *Social Response to Environmental Imperatives*, W.H. Freeman, San Francisco.
- Verbeke, W. (2007), "Consumer attitudes toward genetic modification and sustainability: implications for the future of biorenewables", *Biofuels, Bioproducts and Biorefining*, Vol. 1 No. 3, pp. 215-225.

Corresponding author

Soha Abutaleb can be contacted at: soha.hamed@guc.edu.eg

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com

Reproduced with permission of copyright owner. Further reproduction prohibited without permission.