

A qualitative examination of urban vs rural sustainable consumption behaviours of energy and water consumers in the emerging Egyptian market

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Abstract

Purpose – The study aims to investigate the differences among urban and rural consumers in terms of their energy and water sustainable consumption behaviour levels and drivers and also empirically blueprint conceptual frameworks highlighting urban and rural consumer drivers to consume sustainably.

Design/methodology/approach – This research follows an exploratory design using a qualitative approach; 14 in-depth interviews followed by one focus group were conducted with urban consumers; on the other hand, 18 in-depth interviews followed by one focus group were conducted with rural consumers.

Findings – The findings show that no differences exist among urban and rural consumers in terms of both their sustainable consumption levels and their drivers to consume sustainably; such findings were encapsulated in the form of one conceptual framework pertinent to both urban and rural consumers; it has the following relevant factors: consumers' attitudes toward conservation, subjective norms, perceived behavioural control, self-preference, public media influence, perceived economic value and perceived moral obligation to be relevant antecedents of conservation behaviour, which – in turn – drives sustainable purchase behaviours with the moderating effect of socio-demographic variables.

Originality/value – This paper contributes to extant literature as it provides evidence for the drivers of sustainable consumption behaviours of urban versus rural consumers in emerging countries; it also tentatively answers the question of whether the socio-demographic variables infer a difference in consumers' sustainable consumption; finally, it studies sustainable consumption from a novel perspective with a focus on the relationship between its two pillars.

Keywords Sustainable marketing, Sustainable consumption behaviour, Green consumption behaviour, Resource conservation, Sustainable purchase behaviour

Paper type Research paper

Introduction

The essentiality of research into sustainable consumption as a stream of applied social science cannot be overestimated, this is due to the urgency to integrate environmental



sustainability with economic growth and welfare for sustained development, whereas energy and water scarcity in Egypt have emerged to become one of its main challenges, where in the recent years, the residential sector has been a focus of worldwide studies on energy conservation and public policies, due to the fact that the irrational use of energy has led to massive pollution, climate change and unsustainable development (Bilgen and Sarıkaya, 2018; Guo *et al.*, 2018; Jia *et al.*, 2018; Nahiduzzaman *et al.*, 2018). On the other hand, the issue of water scarcity has become an international one where minimizing the negative effect of resident's behaviour on the water metabolism of homes has been the subject of many recent researches (Eon *et al.*, 2018). No natural resource may prove to be more critical to human health and well-being than water (Knuth *et al.*, 2018). According to The World Bank Group (2016), around two-thirds of countries around the world will be water-stressed by 2025, and 2.4 billion people will face absolute water scarcity, it also mentioned that feeding the world will require 30 to 45 per cent more water in 2030.

In light of the increase in total demand on energy and water coupled with the importance of conservation and efficient management of Egypt's water resources for the future development of its GDP and economy, this research addresses those challenges by investigating the underlying factors behind energy and water sustainable consumption behaviours, whereas studies conducted on sustainable consumption in Egypt focused on only one of the two pillars (sustainable purchases) with no regard to conservation behaviour and had minimal to no focus on energy and water (El-Nazer, 2015; Mostafa, 2007; Shaban and El-bassiouny, 2015). Thus, the research context was chosen to extend extant research to a new market and compare results. On the other hand, minimal previous researches were found to have investigated whether conservation behaviours may lead to purchase behaviours, although it was highlighted in Gilg *et al.* (2005), Han and Sean (2018), Hara *et al.* (2015) and Kneebone *et al.* (2018) that one of the behaviours can act as a proxy for the other.

This study serves to qualitatively investigate whether urban consumers differ in their levels of sustainable consumption than rural consumers; identify the potentially different factors associated with Egyptian urban and rural consumers' energy and water sustainable consumption behaviours in terms of conservation and purchase behaviours to see if there any other factors that were not identified by the previous literature (especially because most previous studies are conducted in developed countries); and identify the differences amongst them, thus empirically blueprinting conceptual frameworks highlighting the factors influencing their sustainable consumption.

Qualitative studies are necessary to augment previous studies' results to develop a more comprehensive and contingent framework for sustainable consumption behaviour to explain consumer behaviour in emerging markets like Egypt whose consumers' socioeconomic backgrounds are different than those of consumers in Anglo-Saxon countries. This indicates that consumer behaviour theories and models based on consumers from developed countries might not be appropriate to explain consumer behaviour in emerging markets as found in the results of previous studies which also indicate the importance of environmental studies in emerging economies (Khare, 2015; Khattab and Mahrous, 2016; Mahrous, 2019; Mahrous and Kotb, 2014; Yarimoglu and Binboga, 2019). The paper is organized as follows; first, the researcher portrays the theoretical background on which she stands, second, an elaboration of the methodology of this research is made, third, the results and their discussion are presented, and finally, the conclusion and implications for theory and practice are developed.

Background

Sustainable consumption behaviour

The term Sustainable Development was coined in 1989 by The World Commission report on Environment and development (p. 24), (as cited in [Bilgen and Sankaya, 2018](#); [Cooke and Fielding, 2010](#); [Maniatis, 2015](#); [Seifi, 2013](#)) and it was defined as “development which meets the needs of the present without compromising the ability of the future generation to meet their own needs”. Almost five years after (in 1994), The Norwegian Ministry for the Environment defined the term Sustainable Consumption in the Oslo symposium on Sustainable Consumption as:

[. . .] the use of Goods and services that respond to basic needs and bring a better Quality of life, while minimizing the use of natural resources, of Toxic materials and emissions of waste and pollutants over the lifecycle, so as not to jeopardize the needs of future generations (as cited in [Cairo et al., 2012](#); [de Moura et al., 2012](#); [Paul et al., 2016](#); [Wang et al., 2014](#)).

Contemporary research uses the words *sustainable consumption behaviour*, *green consumer behaviour*, *green consumption behaviour*, *ecologically concerned behaviour* and *pro-environmental behaviour* to indicate similar meanings. The following table presents the similar definitions for these terms in chronological order. This paper adopts [Biswas and Roy's \(2015\)](#) definition of Sustainable consumption behaviour as it clearly encompasses both pillars of sustainable consumption behaviour, viz. conservation and sustainable purchases, it also aligns with the United Nations Sustainable Development Goal 12, which entails Responsible consumption and production ([Pradhan et al., 2017](#)). [Biswas and Roy \(2015\)](#) define sustainable consumption as “the pattern of reduced consumption of natural resources, changing lifestyle and consumption of environment-friendly products to meet the present needs and aspirations of the future generations” ([Table I](#)).

Sustainable consumption is categorized by several researchers in the field of behavioural research on energy and water consumption to include two pillars, namely, conservation behaviour (habitual sustainable consumption behaviour or curtailment), and sustainable purchase behaviour (energy-efficiency). An agreement was found to exist between different authors and agencies on both pillars of sustainable consumption, while they are related as they are both energy-use reduction techniques, the first pillar, i.e. conservation behaviour is the reduced habitual actions intended to conserve energy which humans make without thinking while requiring minimal structural adjustments. The second pillar, i.e. sustainable purchase behaviour, on the other hand was referred to as a type of behaviour that usually involves long-term changes, technical and financial investments to be made, and requires more effort to be conducted ([Barr et al., 2005](#); [Lesic et al., 2018](#); [Sharaf and Perumal, 2018](#); [United States Energy Information Administration, 2015](#); [Yang et al., 2016](#)).

Energy consumption in Egypt

According to the [International Energy Agency \(2015\)](#) report, Egypt has been suffering from a decline in Energy production due to shortages in natural gas supply and oil production being unable to keep up with the energy demand. In 2013, the Egyptian government spent 120bn Egyptian pounds on fuel subsidies, which equals 7 per cent of the GDP, which led to some subsidy reforms causing a 10-50 per cent price increase on residential electricity prices ([Clarke, 2014](#)).

The 2014/2015 annual report for the [Egyptian Electric Holding Company \(2015\)](#) states that the main consumer of electricity in Egypt is the residential sector which accounts for 44.2 per cent of the total consumption, followed by the industrial sector (26.2 per cent). The consumption of the residential sector has been steadily increasing in the recent years, which

Author(s)	Term	Definition
Kinnear et al. (1974)	Ecologically conscious consumers	the people who concern more about ecology. They specified two dimensions of ecologically conscious behaviors such as consumers' attitudes, which must clarify concern for ecology and purchase behaviors, which should be consistent with the ecology system
Webster (1975)	Ecologically conscious consumer	a consumer that takes into account the public consequences of his or her private consumption or who tries to use his or her purchasing power to promote social change
The Norwegian Ministry for the Environment in the Oslo symposium on Sustainable Consumption (1994) cited in Caeiro et al. (2012) , de Moura et al. (2012) , Paul et al. (2016) , Wang et al. (2014)	Sustainable consumption	the use of Goods and services that respond to basic needs and bring a better Quality of life, while minimizing the use of natural resources, of Toxic materials and emissions of waste and pollutants over the lifecycle, so as not to jeopardize the needs of future generations"
Roberts (1996)	Ecologically conscious consumers	individuals who seek to consume only products that cause the least - or do not exercise any - impact on the environment
Roberts and Bacon (1997)	Ecologically conscious consumers	are the consumers who avoid buying harmful products to the environment
Stern (2000)	Pro-environmental behaviour	is the extent to which the behavior changes the availability of materials or energy from the environment, alters the structure and dynamics of ecosystems or the biosphere itself.
Gilg et al. (2005)	Green consumption	includes the simple day-to-day principles of reduced purchasing, lower consumption and less pollution
Haron et al. (2005)	Sustainable consumption	is the careful act of acquiring, utilizing and disposing the goods which are concerned for social and environmental welfare.
Hailes (2007)	Green consumers	a consumer who associates the act of purchasing or consuming products with the possibility of acting in accordance with environmental preservation

(continued)

Table I.
Alternative terms
and definitions for
sustainable
consumption

Table I.

Author(s)	Term	Definition
Moisander (2007)	Green consumerism	“a particular form of socially conscious or socially responsible consumer behavior that encompasses an environmentalist viewpoint”
Peattie and Collins (2009)	Sustainable consumption	“is the consumption practice that meets individuals’ current wants and needs without sabotaging the needs of future generations. In epitome, it advocates to fulfil the needs and wants wisely and forbids being extravagant in expenditure.”
Steg et al. (2014)	Pro-environmental behaviour	“any action that enhances the quality of the environment”
Biswas and Roy (2015)	Sustainable consumption behaviour	“the pattern of reduced consumption of natural resources, changing lifestyle and consumption of environment-friendly products to meet the present needs and aspirations of the future generations”

calls for research into the reasons behind such increase and possible policies which can be followed to put an end to it.

The share of renewable energy sources in Egypt’s primary energy is approximately 10 per cent due to the utilization of hydro-resources from the River Nile. This is quite high compared to the Mediterranean countries. The River Nile -being the only significant source of surface water in Egypt- serves as an excellent source of hydro-power. It was estimated that about 90 per cent of the Nile hydro-power potential has already been utilized, with the remaining available resources expected to be utilized in the future through hydropower stations in Nag Hamadi and Assuit Barrages ([Karakosta and Psarras, 2013](#)).

Water consumption in Egypt

[EcoMENA \(2016\)](#) announced in an article that Egypt faces an annual deficit for water of around 7 billion cubic metres, they also mentioned that the United Nations is warning that the country could run out of water by 2025. According to the World Bank Group statistics, the domestic (residential) sector’s water consumption in Egypt has increased from 6.33 per cent in 1997 to 7.76 per cent in 2014, while the industrial sector’s consumption of water has decreased from 7.52 per cent in 1997 to 5.86 per cent in 2014.

[The Egyptian Ministry of Water and Irrigation’s \(2014\)](#) report on water scarcity in Egypt demonstrated that the agricultural sector contributes about 20 per cent to Gross Domestic Product (GDP) in the Egyptian economy, and provides about 40 per cent of total employment. Such sector consumes over 85 per cent of the total demand on water. This is one of the main reasons why the urgency of the matter under study cannot be over-emphasized.

In view of such increase in the domestic demand on water supply, and the fact that the development of Egypt's economy strongly depends on its ability to conserve and manage its water resources, a need for research has arose.

Literature review and research questions

Urban versus rural sustainable consumption behaviour

The reviewed literature has agreed that there is a difference among urban and rural consumers when it comes to sustainable consumption behaviour, such difference was either labelled *Area of living, place of domicile, or geographical location*. Hori *et al.* (2013) reported that there are significant differences among the urban versus rural consumer lifestyles, where rural areas are likely to remain stable with traditional lifestyles, on the other hand, urban areas undergo periods of rapid population concentration, such difference between areas is extremely important when it comes to policy formulation. Khare (2015) indicated that urban consumers are more likely to make sustainable purchases than rural consumers, while Nair (2015) stated that most studies observed that urban residents were more concerned about the environment than rural residents, and Frederiks *et al.* (2015) stated that rural areas in general have higher levels of energy use than urban areas. Therefore, we can conclude the agreement of previous literature on the higher likelihood of urban consumers to consume sustainably than rural consumers.

RQ1a. Do urban consumers exhibit higher sustainable consumption behaviour than rural consumers?

RQ1b. Do urban consumers differ in their drivers to consume sustainably than rural consumers?

Theoretical frameworks used in explaining sustainable consumption behaviour

The researcher has categorized several theories used by previous researchers to explain both behaviours into the following: The social cognitive theory, value models, and intention models. The Social Cognitive theory (Bandura, 1986) was used by Lin and Hsu (2015) to successfully predict both habitual and purchase-related behaviours. Value models were to include the Theory of Consumption Values (Sheth *et al.*, 1991) used by Biswas and Roy (2015) to predict purchase-related behaviour, the Theory of Perceived Value (Zeithaml, 1988) used by Butler *et al.* (2016) to explain habitual conservation behaviours, and the Value-Belief-Norm theory (Stern *et al.*, 1999) used by Fornara *et al.* (2016) to explain purchase-related behaviours. Intention models were to include both the theory of reasoned action (Ajzen *et al.*, 1980) used by Seligman *et al.* (1990) to explain habitual behaviours, and the theory of planned behaviour (Ajzen, 1991) used by Dixon *et al.* (2015), Lowe *et al.* (2015) and Allen and Marquart-pyatt (2018) to investigate habitual conservation behaviours, it was also used to investigate purchase behaviours by Lao (2014). That being so, the theory of planned behaviour was found to be the most widely used theory to explain both behaviours. A study conducted by Kaiser, Hübner, and Bogner (2005) primarily aiming to contrast the Value-Belief-Norm (VBN) theory with the Theory of Planned Behaviour (TPB) pertaining to their ability in explaining conservation behaviour, the TPB's explanatory power accounted for 95 per cent of individuals' conservation behaviour and the VBN's personal norms accounted for 64 per cent of individuals' such behaviour, this shows the remarkable predictability of the TPB in predicting conservation behaviour. Hence, we can conclude that the Theory of Planned behaviour has a very high predictive ability for both sustainable consumption behaviours. From this, we can ask the following research questions:

- RQ2a.* Is there a positive relationship between attitudes toward energy conservation and energy conservation behaviours?
- RQ2b.* Is there a positive relationship between attitudes toward water conservation and water conservation behaviours?
- RQ2c.* Is there a positive relationship between subjective norms and energy conservation behaviours?
- RQ2d.* Is there a positive relationship between subjective norms and water conservation behaviours?
- RQ2e.* Is there a positive relationship between perceived behavioural control over energy conservation and energy conservation behaviours?
- RQ2f.* Is there a positive relationship between perceived behavioural control over water conservation and water conservation behaviours?

Other variables tested by previous researchers were found to be of relevance pertaining to the Egyptian consumer; such as the following: self-preference, conceptualized by [Lin and Hsu \(2015\)](#) as “the preference of one’s self to others”, public media influence, perceived economic value, conceptualized by [Sheth et al. \(1991\)](#) in the theory of consumption values to include perceived quality and price, and perceived moral obligation, conceptualized by [Lowe et al. \(2015\)](#) as the degree of moral responsibility that an individual feels towards performing a particular behaviour, consequently, the following relationships were assumed:

- RQ3a.* Is there a negative relationship between self-preference and energy conservation behaviours?
- RQ3b.* Is there a negative relationship between self-preference and water conservation behaviours?
- RQ4a.* Is there no relationship between public media influence and energy conservation behaviours?
- RQ4b.* Is there no relationship between public media influence and water conservation behaviours?
- RQ5a.* Is there a positive relationship between the perceived economic value and energy conservation behaviours?
- RQ5b.* Is there a positive relationship between the perceived economic value and water conservation behaviours?
- RQ6a.* Is there a positive relationship between the perceived moral obligation and energy conservation behaviours?
- RQ6b.* Is there a positive relationship between the perceived moral obligation and water conservation behaviours?

The two pillars of sustainable consumption namely; conservation and sustainable purchase behaviours have commonly been studied separately, where most researches focused on the latter behaviour. In this study, based on [Gilg et al.’s \(2005\)](#) implicit statement that a relationship between conservation behaviours and sustainable purchase behaviours exists,

a relationship is suggested to exist between conservation behaviours and sustainable purchase behaviours, thus, the following question was posed:

- RQ7a.* Is there a relationship between energy conservation behaviours and energy-efficient purchase behaviours?
- RQ7b.* Is there a relationship between water conservation behaviours and water-efficient purchase behaviours?

Previous studies have revealed that certain demographic characteristics are associated with consumers who are doing their fair share of energy or water conservation (Barr *et al.*, 2005; Frederiks *et al.*, 2015; Hori *et al.*, 2013; Khare, 2015; Knuth *et al.*, 2018; Luzzio and Lemke, 2013; Nair, 2015; Robinson *et al.*, 1979; Vicente-Molina *et al.*, 2018). The following socio-demographic variables identified by previous researchers were found to be of great relevance pertinent to the Egyptian consumer: income level, household size, and home-ownership. Income level was found to be a predictor where habitual conservation behaviours were found to be most likely taken up by individuals with lower income levels, yet purchasing activities are more likely to be taken up by individuals with higher income levels (Barr *et al.*, 2005). Household size was found to be relevant when explaining sustainable consumption behaviours where Frederiks *et al.* (2015) stated that larger families were found to typically consume more energy compared to smaller families due to the fact that they possess and/or use more energy-intensive appliances, have more disposable income to spend on energy, have greater energy demands and requirements, a study by Knuth *et al.*'s (2018) also found that indoor water usage was largely correlated with household size. Home-ownership, i.e. owner-occupied vs. rented was found to be relevant when explaining sustainable consumption behaviours where it affects the purchase-related conservation behaviours of individuals positively, yet affects the habitual conservation behaviours negatively (Barr *et al.*, 2005). To that end, the role of socio-demographic variables could not be overlooked as moderators of the relationship between conservation and purchase behaviours. Hence, the following relationships were proposed:

- RQ8a.* Do the socio-demographic variables (income level, household size, and home-ownership) moderate the relationship between energy conservation behaviours and energy-efficient purchase behaviours?
- RQ8b.* Do the socio-demographic variables (income level, household size, and home-ownership) moderate the relationship between water conservation behaviours and water-efficient purchase behaviours?

Methodology

In light of the reasons mentioned in the introduction and the level of importance that such scarce resources occupy in Egypt, the research setting was chosen to be both urban and rural Egypt. The research context is new of its kind to some of the marketing concepts being studied as the researcher has found no previous research studying conservation behaviour in the Egyptian context. The researcher believes that studying the Egyptian consumers can provide new insights and results, given the different cultural nature of the Egyptian consumer, and the lack of awareness that the Egyptian consumer may exhibit with regard to the energy and water problems of today's economy.

The research population was determined to include consumers residing in Cairo and Giza with access to electricity and water, and who take part in decision-making with regards to

making residential appliance purchases and conservation of energy and water resources., this selection was made due to the following three reasons; first, the most widely used sampling unit in previous research was simply adults, or people over 18 years old, second, this research studies the residential sustainable consumption behaviour of energy and water resources, accordingly consumers who take part in the decision making of appliance purchases at their homes and conserve energy and water resources are the ones who should be studied, third, Some homes in Egypt do not have access to energy or water, so it's important to include only those who have access to such utilities since the context of this research is the residential energy and water sectors in Egypt. The population size can roughly be estimated by dividing the total number of Egyptian citizens living in Cairo and Giza (9,678,390 + 8,785,618 = 18,464,008) – as indicated by CAPMAS (2018) – by the average household size [4.3 members as per [Central agency for public mobilization and statistics \(CAPMAS\) \(2014\)](#)] resulting in an estimation of 4.3 million Egyptian households, subtracting 4.6 per cent of which who have no water connections in their dwelling nor building ([CAPMAS, 2014](#); [The World Bank Group, 2015](#)), giving a rough estimation of the research population size to be 4.1 million consumers.

This research uses a qualitative research methodology; in-depth interviews followed by focus groups because it is the recommended methodology for such type of research approach (exploratory). The reasons behind choosing the interview method were its ability to capture a large volume of information and allow for further clarification via probing respondents ([Malhotra, 2010](#)). These interviews were followed by one focus group, which permits the interaction and group dynamics and discussions for further elaboration and explanations to make sure the research has not omitted important items, the information collected was reviewed, organized and analyzed to gain insights and develop the conceptual framework ([Vogt et al., 2014](#)).

On one hand, 14 in-depth interviews followed by one focus group of twelve participants were conducted with urban consumers; on the other hand, 18 in-depth interviews followed by one focus group of eight participants were conducted with rural consumers. The interviews lasted between 20 and 30 min, while the focus groups took about 60 min. The number of conducted interviews and focus groups was based on the theoretical sampling process, which means that the data that had been collected, coded and analyzed guided the further sampling until no new data could be discovered ([Vogt et al., 2014](#)).

Results and discussion

Results

The question “Do you take part in the decision making of new appliance purchases in your home?” was used at first to indicate whether the interviewed individuals belonged to the research population, after making sure they do in fact belong to the population, they were asked “Do you usually consider resource conservation throughout your consumption of energy and/or water? Why?” as an opening question to the rest of the interview where the researcher used a laddering technique throughout a semi-structured interviewing guide, respondents’ answers to that question determined the course of the rest of the interview questions. The answers of both urban and rural consumers were quite similar to that question, where most respondents indicated that they do consider conserving both energy and water resources. Most of the urban and rural respondents had been subjected to the mass-media campaigns promoting resource conservation and started mentioning advertised benefits of conservation, such as saving money and protecting their off-spring from having to suffer from drought.

The interview guide included the following specific questions: Would you prefer your personal convenience (such as time or effort saving) over conservation or vice versa? Why? Do you think the media has helped with your awareness with regard to the importance of conservation of energy and/or water? Do you think that conservation of energy and/or water can help you save money spent on bills? Do you have a moral obligation toward conserving resources? Do you think energy and/or water conservation is a good thing? Do you feel good about yourself when you practise energy and/or water conservation? Can you easily practise conservation of energy and/or water? Do the people close to you practise conservation of energy and/or water? If yes, do they expect you to practise conservation as well? Would you consider buying an energy-efficient and/or water-efficient new appliance?

The researcher found that the water and energy conservation behaviour is one of familiarity within both the urban and rural Egyptian household, yet, when it comes to sustainable purchases, both consumers were only familiar with energy-efficient appliance purchases, and were not very familiar with water-efficient purchases. Both urban and rural consumers seemed to have similar levels of interest and self-reported practice of sustainable consumption. It was also implied that individuals with high self-preference are not as motivated to engage in conservation behaviour as individuals with lower levels of self-preference are. Such exploratory work has also shown a tentative assumption that both the urban and rural Egyptian consumer's conservation behaviours were affected by the awareness campaigns they were subjected to in the form of TV advertisements displayed during Egyptian Series, radio advertisements, and billboards, and that the Perceived Economic Value of conservation behaviour seemed to be of importance to the participants when it came to their conservation behaviours, where all of the respondents stated that if they were to conserve energy and water, it would be due to the financial savings this would offer them. It was also tentatively shown that consumers' perceived moral obligation (conceptualized by [Lowe et al. \(2015\)](#) as the degree of moral responsibility that an individual feels towards performing a particular behaviour) might be a predictor of their conservation behaviour, whereas many of the respondents mentioned feeling a patriotic or religious obligation toward conservation saying sentences like "it's the least I can do for my country", and "Allah has ordered us not to waste his blessings" while referring to energy and water resources.

Consumers' attitudes and perceived abilities (behavioural control) toward sustainable consumption were shown to play a role in determining whether or not they would engage in such sustainable consumption behaviours, where many of those who followed a conservatory consumption mentioned that they found it easy to reduce their consumption using simple routines, while those who were not as motivated to engage in sustainable consumption found it very difficult to reduce their consumption levels, and said they felt it would obstruct their normal lives. It was also tentatively shown that consumers' social (subjective) norms did influence their consumption patterns, where most respondents denied the effect of the social groups to which they belong on their consumption behaviours.

This research has also shown a difference in conservation and purchase behaviours when it came to the following socio-demographic variables: income level, household size and home-ownership; consumers with lower income levels seemed to engage in conservation behaviours yet less sustainable purchases due to the massive price increase caused by the floating of the Egyptian pound; consumers with larger household sizes seem to prefer conservation of resources rather than careless consumption; and consumers living in an owned rather than rented dwelling seem to invest more in sustainable purchases and have showed more interest in conserving those two resources. It seemed from the convenience sample used in this research that consumers did not show any difference with regards to

their area of living (urban versus rural) or the type of resource being discussed (energy versus water).

Ensuing these tentative findings; the researcher added the variables (self-preference, public-media influence, perceived economic value, perceived moral obligation, attitudes towards conservation, subjective norms and perceived behavioural control) into consideration as antecedents of conservation behaviour, and considered the socio-demographic variables (i.e. income level, household size and home-ownership) as moderators for the relationship between conservation behaviour and sustainable purchase behaviour.

Discussion

The researcher has uncovered an alignment between the findings of this exploratory research and the findings of the previous literature for all of the research questions, except for the difference between urban and rural citizens' sustainable consumption behaviours where Frederiks *et al.* (2015), Khare (2015), and Nair (2015) reported differences among them, and the relationship between public media influence and conservation behaviour, where a tentative positive relationship was found to exist unlike the results of Lin and Hsu (2015) which indicated no significant relationship. This exploratory research has resulted in the formation of one conceptual framework (Figure 1), that works for both urban and rural citizens.

Conclusion and implications for theory and practice

This article represents the first phase of a multiple-phase project. The objectives of the first phase were to qualitatively investigate whether urban consumers differ in their levels of sustainable consumption than rural consumers, identify the factors associated with Egyptian urban and rural consumers' energy and water sustainable consumption behaviours in terms of conservation and purchase behaviours to see if there any other factors that were not identified by the previous literature (especially because most previous studies are conducted in developed countries), and to identify the differences amongst them, thus empirically blueprinting conceptual frameworks highlighting the factors influencing their sustainable consumption. The next phase will focus on quantitatively testing the conceptual framework to identify whether descriptive research will confirm such assumptions or not. By further following this study with a

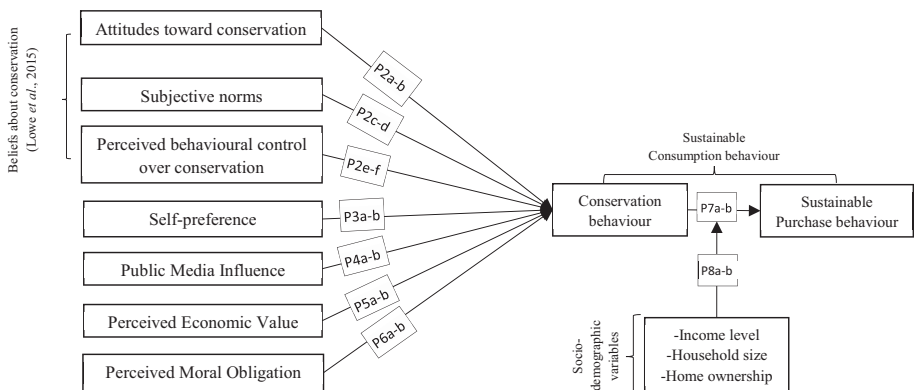


Figure 1.
Conceptual
framework

quantitative one, this research will be able to give generalizable and conclusive results, hence – to conduct the following phase of this study – the researcher presents the results of this research in terms of research propositions (P) which are presented in the conceptual framework (Figure 1).

This study has found that both urban and rural consumers exhibit similar levels of Sustainable Consumption Behaviours (P1a), it has also served to develop one conceptual framework that highlights the most relevant factors pertaining to the Egyptian urban and rural consumers (P1b), as follows: Consumers' attitudes toward conservation (P2a-b), subjective norms (P2c-d), perceived behavioural control (P2e-f), self-preference (P3a-b), public media influence (P4a-b), perceived economic value (P5a-b), perceived moral obligation (P6a-b) into consideration as antecedents of conservation behaviour, which in return precedes sustainable purchase behaviours (P7a-b) with the moderating effect of socio-demographic variables, namely, income level, household size and home-ownership (P8a-b).

Although a quantitative study is able to give more generalizable and conclusive results, nevertheless, the exploratory nature of this research has some proper implications of its own. The implications are categorized into theoretical and empirical implications; first are theoretical implications which include the development of a more comprehensive and contingent framework for sustainable consumption behaviour owing to the qualitative nature of this study which helped to augment the results of previous studies. This research also provides a proper explanation of consumer behaviour in emerging markets like Egypt whose consumers' socioeconomic backgrounds are different than those of consumers in Anglo-Saxon countries, where the results of previous studies conducted in emerging markets indicate unique results, moreover, many authors indicate the importance of conducting environmental studies in emerging economies (Khare, 2015; Khattab and Mahrous, 2016; Mahrous, 2019; Mahrous and Kotb, 2014; Yarimoglu and Binboga, 2019).

Second are empirical implications; with the ever-increasing interests of consumers' in sustainable and more environmentally-friendly lifestyles, Egypt's decline in energy production, along with the increasing residential demand on water and its scarcity, it has become of great importance that marketers and policymakers in Egypt understand the antecedents of consumers' sustainable consumption to put an end to the ever-increasing demand, and steadily declining supply, consequently empirical implications can be segregated into two main areas, implications for marketers and implications for policymakers; the understanding of sustainable consumption motivations is vital for a marketing strategy's formulation and subsequent success, accordingly, marketers of energy-efficient products can utilize the results of this research by better understanding what the consumer needs and drivers for making sustainable purchases are, where they could use such information in their sustainable products' conception, segmentation of sustainable product consumers, and tailoring marketing communications and promotional campaigns to their different needs. On the other hand, by understanding the antecedents and drivers for sustainable consumption behaviour, policymakers should be able to better alter consumers' consumption patterns of water and energy based on addressing such human behavioural drivers leading to higher levels of energy and water-efficiency. Public policymakers could possibly eliminate the importing and domestic production of appliances that are not sustainable, so that producers are faced with no way but improve the sustainability of appliances, and consumers are left with no alternatives than to purchase sustainable products.

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