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Factors Affecting Purchase Intention Toward Solar System in Lebanon

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ABSTRACT

Solar system technology plays a critical role in the creation of income generating activities, better health care, and contact to a contemporary and powerful bright source that could allow workers and people to work and study longer hours. Lebanon attempts to expand its countrywide electrical networks have been hindered by the absence of evaluating and organizational changes in the control industry, despite national initiatives backed by donors.

This research aimed to investigate the impact of the five following factors environmental concern, environmental awareness, government initiative, technology anxiety and cost concern on the purchase intention of solar system. A quantitative approach was used, and data was gathered online using Google Forms. Survey questionnaire were distributed to Lebanese citizens from a variety of backgrounds. Only 300 of the 350 respondents were collected. The data has been analyzed by using statistical software SPSS, including reliability and validity assessments of the measurements and hypothesis testing results. The results showed that all hypotheses are positively related expect the association between technology anxiety and purchase intention of solar system. However, the study also revealed several limitations and identified potential directions for future research.

Keywords: Environmental Concern, Environmental Awareness, Government Initiative, Technology Anxiety, Cost Concerns, and Purchasing Intention.

1. Introduction:

The distribution of energy is crucial for growth and is an important support of the nations' maintainable energy. However, around 1.2 billion persons worldwide witnessed an absence of electricity, which bounds their chances for improving their wellbeing. Access to electricity is important for socio-economic development, including enhanced income, productivity, and employment. Poor households in most countries face challenges in accessing quality energy services and have limited ability to pay for them. Developed countries efforts to be supporter to expand electricity in poor nations are slow due to inadequate electric generation and source, consequential from the absence of value and institutional reforms in the energy industries. Despite these challenges, substitute sources of electricity generation such as solar system provide a practical substitute to conventional approaches to electricity (Shoeibi et al., 2022).

The absence of electricity is considered a significant impediment to growth, particularly in Lebanon. Providing modern energy sources like electricity for lighting, cooking, and other industrial activities would pose considerable challenges. In Lebanon, poor families have inadequate admission to and financial capacity to pay for adequate energy services. This implies that Lebanese people can afford and utilize the power that is now available. Lebanon attempts to expand its countrywide electrical networks have been hindered by the absence of pricing and institutional changes in the power industry, despite national initiatives backed by donors (Alstone, 2015).

Solar energy has emerged as a viable option to the more traditional methods of electrification due to the rapid advancement of technology in this area. As a means of reaching universal electrification in underdeveloped countries, a decentralized solar system-based energy generating mechanism has gained popularity in recent years (Samad et al., 2013). Even though solar home system has been acknowledged for decades, little study has been done on how and when to promote them in a specific solar system. In the literature, there are a few studies examining the factors that lead to the early adoption of solar system technology (Lay, Ondraczek & Stoeber, 2012). Household income and

other factors like price and technology have a significant role. Any price assistance for decreasing the cost of solar system acquisition and maintenance looks to be a possibility for speeding solar system adoption in impoverished nations.

There are significant obstacles to overcome the electricity in developing nations. An absence of funds, a deficiency of political will, and conflicting national agendas make it difficult to take proactive steps to resolve electricity problems. When compared to other renewable energy sources like solar system, solar offers the highest potential for producing low-cost electrical electricity. In order to achieve a sustainable future, solar energy has the greatest capacity. When petrol prices have been increased during the past several years, coal-fired power production has switched dramatically toward energy renewable (Daniela-Abigail et al., 2022).

Consumers are not aware of the importance of participating in green energy programs and are not motivated to do so even if they get financial compensation for doing so (Kim & Choi, 2005). In Lebanon customers' understanding of the long-term effects of buying ecologically friendly items is still lacking (Gurau & Ranchhod, 2005). In addition, the government's plan is not encouraging the adoption of solar system and this will not make buyers understand the value of green goods (Schelly et al., 2012). Customers are not persuaded to adopt green goods, which reduces environmental degradation, as part of the company's responsibilities (Matti & Nebiker, 2014).

Despite some recent improvements, Lebanon's renewable energy commitment and supporting legislation remain inadequate. There is a noticeable lack of political will among public decision-makers when it comes to addressing environmental or sustainable development challenges. This is a significant hindrance to the growth of the solar energy market, according to the government assistance. The adoption of renewable energy is not a top priority for the government due to the country's political instability and security concerns (Thornton, 2016). Moreover, the lack of technology use and awareness in Lebanon is causing technology anxiety, which is hindering the adoption of solar systems. The government's failure to conduct awareness campaigns on

solar technology has resulted in the absence of knowledge among the Lebanese people. This lack of information, coupled with the country's economic crisis, has caused people to view the solar system as a risky investment (Sugita et al., 2019).

Accordingly, this paper will investigate the factors affecting the acceptance of solar system in Lebanese context. Therefore, this study will focus on five essential parts. First part represents the theoretical background which includes the theories related to purchase intention in order to better understand the consumer behavior toward purchase intention. These theories are Theory of Planned Behavior (TPB) and Diffusion of Innovation Theory (DIT). Subsequently, the second part discusses the variables conceptualization which constitutes the diverse definitions and the variables used in this study. The third part represents the literature review and hypothesis development. Followed by the data analysis, discussions and the final part represents the conclusions, limitations and future research.

2. Theoretical Background

In this research, the researcher will discuss the two following theories, theory of planned behavior (TPB) and diffusion of innovation theory (DIT).

2.1 The Theory of Planned Behaviour

Theory of Planned Behavior (TPB), which is an extension of TRA advanced by Ajzen in 1991; also claims that behavioral intention is the highest influential predictor of behavior. Ajzen (1991) argued that intentions to perform behaviors of diverse types can be expected with great precision from attitudes toward the behavior, subjective norms and perceived behavioral control PBC (which is the new added predictor affected by beliefs about resources and obstacles that interfere performing a behavior); and these intentions with perceptions of behavioral control, will together explain a considerable variance in real behavior. In addition, there are fundamental determinants which can be categorized to: behavioral beliefs impacting attitudes toward the behavior, normative beliefs which constitute the original causes of

subjective norms and control beliefs which establish the roots for perceptions of behavioral control.

2.2 Diffusion of Innovation Theory (DIT)

Introducing new ideas, goods, or technology to people of one's own culture is referred to as "diffusion of innovations" (DIT) (Rogers, 2010). DIT is highly reliant on innovation, communication routes, the social system, and temporal considerations to guarantee diffusion is accomplished. DIT dissemination depends on these variables. A new concept or invention may only spread to a critical mass if it is effectively communicated (Rogers, 2010). An innovative idea can only be adopted by the general public with the help of the social structure.

As a result, Rogers (2010) outlined the five steps of the innovation process as: knowledge, persuasion, choice, execution, and confirmation. People's adoption of innovation may be influenced by both good and negative characteristics of the product. Individuals may adopt or acquire solar panels because of the perceived product advantage and aesthetics (positive assessments), or they may be motivated by the cost and upkeep involved (negative evaluations). DIT theories are widely accepted for forecasting customers' deliberate behavior toward new items, including those using green energy. The researcher proposed that the variables from DIT will help to investigate how people perceive government policy and the costs associated with it. Both factors and theories would lead to a greater understanding behind the concept of purchasing the solar system.

2.3 Variables' Conceptualization

This section will define each of the dependent and independent variables.

2.3.1 Environmental concern

Takala (1991) have defined environmental concern as an appraisal of, or an attitude toward facts or one's behavior that has ramifications for

the environment. It could also refer to a more general attitude or value positioning (Stern, 1992).

Environmental concern is defined as every individual who is concerned about environmental quality because they are concerned about the health of others. Moreover, Stern (1992) identified that environmental concern is a result of some deeper source, such as underlying religious views or post-materialistic worth.

The definition of environmental concern is to educate consumers about the importance of participating in green energy programs and to motivate them even if they get no financial compensation for doing so (Schelly et al., 2012). Customers' growing reliance on green energy goods is being attributed in part to environmental concerns, which are seen as a primary motivator for them to make such investments. Consumers' attitudes, beliefs, economic considerations, and social impact are all considered to anticipate a broad range of consumer behavior when it comes to adopting home solar systems (Chen, 2013). Environmental concern is defined as a precursor to a diversity of highly specific concepts, including environmental knowledge, principles, and willingness to pay (WTP), in the majority of relevant literature (Delistavrou & Tilikidou, 2022).

2.3.2 Environmental awareness

Environmental awareness has gained in popularity in recent years. Environmental awareness involves being conscious of the potential hazards to the natural environment and identifying actions that can contribute to or prevent these hazards. Going green can manifest in various forms, but it centers around prioritizing the natural environment and making eco-friendly business decisions. Examples include choosing a glass or ceramic water bottle instead of a plastic one, or using all-natural hair care products instead of hazardous aerosol sprays (Gadenne et al., 2009).

In addition, environmental awareness is defined as customers go through a sequence of steps in information, conviction, choice and confirmation before they are ready to embrace a new product or

service. The acceptance or rejection of an invention occurs when the customer becomes aware of the innovation (Schoch et al., 2009). Environmental awareness is also defined as being aware of the natural environment and making decisions that are healthy for the world is precisely what the phrase indicates (Kim et al., 2020).

2.3.3 Government Initiative

Government initiative is defined as both the government revenues (i.e. taxes) needed to run the facility and the existing earnings should take a back seat. In the bioenergy economy, governments often have a role in shaping policies that influence the actions of individuals and businesses. When it comes to their own finances, families prioritize utility, which might include financial prosperity, whereas businesses are primarily motivated by cost and profit considerations. The government's ability to influence these elements via taxation, subsidies, and regulation is undeniable. Common methods of assisting new businesses in their early stages entail adjusting either the pricing or the volume of resources invested (Maseh & Katuu, 2017). The term government initiative refers to the potential to own a manufacturing plant in the bioenergy sector where inside a provincial or state-owned energy firm is another (Ushakov et al., 2019). The government has to properly organize solar system to coincide with the incentives of businesses, financial institutions, and consumers in order to successfully install solar system, provide enough funding, and guide independent research in the right path. Customers inexperienced with solar energy system may have been the initial target of the incentives (Kim et al., 2020)

In the event of market failure or where such intervention will promote social welfare, government action is warranted. Therefore, a government should only include bioenergy into the manufacturing process if doing so improves the general public's well-being (Daniela-Abigail et al., 2022).

2.3.4 Technology anxiety

Technology anxiety refers to a wide range of unease and trepidation about using and mastering new technologies. For example, losing vital data or making errors when utilizing technology, this may be concerned about the negative implications (Compeau & Higgins, 1995). The term technology anxiety has been used to describe the temporary state that results from environmental stressors, while general technology anxiety has been used to describe the general fear that people have when using technology. Thus, the notion is a more generalizable one that may be used outside of the corporate world. Even more importantly, the concept of technology anxiety enables us to examine the progress of negative feelings and dread as a result from the application of a certain technology (Meuter et al., 2003).

Furthermore, anxiety over technology has been recognized as a factor in people's reluctance to adopt new technologies and as a roadblock to their adoption. In addition, TISA (Technology Induced State Anxiety) is a term used to describe a negative attitude toward technology that has an impact on the way people interact with it (Mokyr et al., 2015).

Technophobia and technostress are defined as a long-lasting unpleasant emotional response to technology, may also be produced by anxiety which is a general distressful condition brought about by technology (Nimrod, 2020).

2.3.5 Cost concerns

Cost concern in the context of solar energy refers to the total expenses involved, encompassing the initial investment required for setting up the solar system and the ongoing maintenance costs (Rogers, 2010). The higher the benefit-cost ratio, the more inclined people are to adopt renewable energy sources. This is particularly true for solar energy, where the initial investment for implementing renewable energy solutions can be relatively high (Rogers, 2010).

The fees associated with a solar system encompass a comprehensive view of both the initial setup costs and the recurring expenses. The cost factor plays a pivotal role in influencing customers' acceptance of

innovative technologies. For new technologies to be widely adopted, they must offer a fair and reasonable pricing (Bandara & Amarasena, 2020). Concerns have been raised by customers in solar system literature regarding the upfront investment, maintenance, and additional service charges. Prospective customers are worried about the costs involved in installation, repairs, and maintenance, along with the overall rising cost of power (Ushakov et al., 2019).

2.3.6 Intention to purchase solar system

Purchase intention refers to the client's willingness to acquire a particular product or service (Rizwan, 2014). It serves as an indicator of the respondent's attitude towards making a purchase decision (Aliyev, 2021). Additionally, purchase intentions play a crucial role in marketing and are considered valuable for devising marketing strategies and promotions. Essentially, intent marketing, or marketing based on intentions, revolves around promoting products and services based on customers' intentions or their expressed interest in accepting, acquiring, or using a specific product or service, which may or may not have been explicitly communicated by the company or brand (Goutam, 2022).

3. Literature Review and Hypothesis Development

Literature review shows the previous studies related to the intention to purchase solar system in order to develop hypothesis to test the influence of different constructs.

3.1 The relationship between environmental concern and intention to purchase solar system

Solar adoption behavior is influenced by environmental concerns, which are well-known (Kollmuss & Agyeman 2002). However, environmental concern has an indirect influence on behavior because of its impact on individual values, which in turn affects the individual's motivation to engage in the behavior (Maartensson & Loi, 2022; Klöckner & Matthies, 2004).

There is a positive relationship between environmental concern and solar system (Shah & Bhatt, 2022; Saraireh, 2023; Klabi & Binzafrah, 2022; Zameer & Yasmeen, 2022; Harun et al., 2022). Consumers who are concerned about the environment are more likely to buy renewable energy (Ho & Huynh, 2022). Environmentalists and individuals who believe they have a duty to safeguard the environment are more likely to support the usage of renewable energy (Daniela-Abigail, 2020). According to Tan et al., (2022), if a person cares about the environment, they will be more likely to choose green goods. In addition, consumer understanding of renewable energy is positively influenced by environmental concern (Li et al., 2022). Moreover, environmentally concerned customers are highly engaged in green purchasing behavior (Lee, 2022). Environment concern among customers are on the rise, as people shift their purchasing habits to include more environmentally friendly products and services (Patwary, 2023). However, there is a negative relationship between environmental concern and purchase intention toward solar system (Asif, 2022). Thus, the hypothesis will be formulated as follows:

H1: A positive significant relationship between environmental concern and purchase intention toward solar system.

2.4.2 The relationship between environmental awareness and intention to purchase solar system

A household survey was carried out by Pothitou et al. (2016) to assess the impact of ENK and energy problem awareness on prospective PR environmental behavior. According to a research (Zografakis et al., 2010; Asif, 2022) persons who care more about the environment are more inclined to purchase renewable energy.

Consumers' purchase choices are starting to change as they become more conscious of products' effects on the environment (Laroche et al., 2001). According to Zameer and Yasmeen (2022), customers who have a high level of environmental knowledge and care are more inclined to purchase ecologically friendly items. The desire to acquire a solar system and environmental awareness are positively correlated

(Wang et al., 2022; Abeysekera, et al., 2022; Su et al., 2022; Krisdayanti & Widodo, 2022; Le et al., 2022; Eberle et al., 2022).

Thus, the hypothesis will be formulated as follows:

H2: A positive significant relationship between environmental awareness and purchase intention toward solar system.

2.4.3 The relationship between government initiative and intention to purchase solar system

The strong government commitment to greener products makes the consumer more eager to adopt a solar lighting system by considered the government as a trustworthy part (Ushakov et al., 2019). Government assistance for monitoring policies, financing, subsidies and other promotional efforts is critical in promoting the use of solar system (Pathak & Sharma, 2022; Atulkar, 2022). The solar system adoption is on the rise; when the government's initiative provides financial incentives and education on the benefits of solar system usage. Thus, the role of government leads for the usage of solar system (Khan & Nazir, 2022; Hyysalo et al., 2022). A positive relationship between government initiative and purchase intention toward solar system (Qader et al., 2023). Thus, the hypothesis will be formulated as follows:

H3: A positive significant relationship between government initiative and purchase intention toward solar system.

2.4.4 The relationship between technology anxiety and intention to purchase solar system

Daniela-Abigail et al. (2022) demonstrated that people who are uneasy about new technology are less likely to accept them. Some researchers (Schettino et al., 2022; Daramola, 2022; Rosen et al., 2022) have proposed that there is a negative link between customer readiness to make a purchase and technological apprehension, which may restrict the advantages of the expanding computerization of society. According to Ushakov et al.(2019), there is a negative link between technological

dread and the willingness to purchase, which suggests that many consumers hold off on making a solar energy investment due to technology anxiety. Thus, the hypothesis will be formulated as follows:

H4: A negative significant relationship between technology anxiety and purchase intention toward solar system.

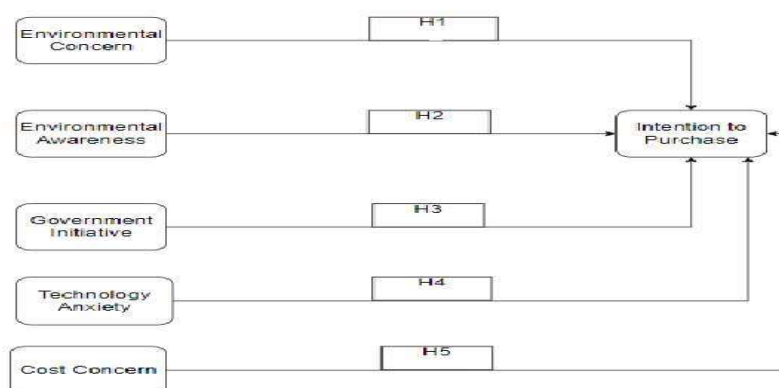
2.4.5 The relationship between cost concern and intention to purchase solar system

The adoption of technology and cost are found to have a direct and substantial link (Schulte et al., 2022; Kumar & Kaushik, 2022; Elahi, et al., 2022; Zeng, et al., 2022). Individuals are more inclined to employ renewable energy sources when the benefit-cost ratio is higher. This also happens frequently while utilizing solar electricity. The basic minimum cost may be higher for projects including renewable energy. So, the following will be the formulation of the hypothesis:

H5: A positive significant relationship between cost concern and purchase intention toward solar system.

2.5. Conceptual framework:

After reviewing the previous literature and developing the current study hypotheses, the researcher developed the current research model as follow:



3. Research Methodology

Using Google Docs to distribute surveys and SPSS to analyze the data, this study takes a quantitative approach. A Likert scale was used to measure how strongly linked individuals agreed or disagreed with items on a five-point scale in the questionnaire.

3.1 Research Population, Sampling Technique and Sample Size

All members in Lebanese citizens are considered part of the target population.

Due to the researcher has access to the population, they are using convenience sampling to choose a sample. Employees from a variety of backgrounds filled out the survey questions for this study. Only 300 of the 350 respondents who were asked to participate in the survey actually showed up in Lebanese contexts.

3.6 Measurement of Variables

The main aim of this research is to examine the factors which motivate customers to buy solar system. The measurement of the dependent and independent variable is represented in the following table:

Table1: Variable conceptualization

Variable	Number of Questions	Reference
Environmental concern	4 items according to likert scale	Xu et al., (2021).
Environmental Awareness	4 items according to likert scale	Kesari et al., (2021)
Government Initiative	3 items according to likert scale	Kesari et al., (2021)
Technology Anxiety	3 items according to likert scale	Liu et al., (2020)
Cost Concern	3 items according to likert scale	Liu et al., (2020)
	4 items according to likert scale	Fathima et al., (2022).

4. Descriptive Statistics

The data was organized and the correlations between variables were described using the SPSS version 20.

4.1 Demographic Variables

Table 2: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	142	47.3	47.3	47.3
	Male	158	52.7	52.7	100.0
	Total	300	100.0	100.0	

Source: SPSS version 20

The table above, which presumably contains data related to respondents. The table likely shows information about respondents categorized by gender. The data is based on a survey or study where respondents were asked questions or provided information. In the "females" column, there are 142 respondents and in the "males" column, there are 158 respondents.

Table 3: Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30	160	53.3	53.3	53.3
	30-40	74	24.7	24.7	78.0
	40-50	58	19.3	19.3	97.3
	50+	8	2.7	2.7	100.0
	Total	300	100.0	100.0	

Source: SPSS version 20

According to the aforementioned table, 160 respondents are between the ages of 20 and 30 years old, 74 respondents are between the ages of 30 and 40, 58 respondents are between the ages of 40 and 50, and 8 respondents are beyond 50.

Table 4: Marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Divorced	8	2.7	2.7	2.7
	In a relationship	8	2.7	2.7	5.3
	Married	116	38.7	38.7	44.0
	Single	168	56.0	56.0	100.0
	Total	300	100.0	100.0	

Source: SPSS version 20

In the table above, it can be seen that 168 respondents are single, 116 respondents are married, 8 respondents are in relationships, and 8 respondents are divorced.

Table 5: Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 000 000 - 4 000 000	34	11.3	11.3	11.3
	15 000 000 - 30 000 000	70	25.7	25.7	16.0
	30 000 000+ LBP	40	13.3	13.3	48.0
	4 000 000 - 8 000 000 LBP	74	24.7	24.7	72.7
	8 000 000 - 15 000 000	82	27.4	27.4	89.3
	Total	300	100.0	100.0	

Source: SPSS version 20

Referring to the above table, it can be noted that 34 respondents have a salary between 1,000,000 and 4,000,000 and 14 respondents have a salary between 15,000,000 and 30,000,000, 40 respondents have above 30,000,000 LBP salary, 74 respondents have between 4,000,000 and 8,000,000 salary and 85 respondents have between 8,000,000 and 15,000,000 LBP.

4.2. Reliability

Table 6: Cronbach Alpha

	Extraction
Environmental Concern	.790
Environmental Awareness	.749
Government Initiative	.784
Technology Anxiety	.757
Cost Concern	.747
Intention to Purchase	.754

Source: SPSS version 20

The study uses a statistic called Cronbach Alpha to assess the correctness of the gathered data based on the validity and reliability table findings. As a general rule, the Cronbach Alpha value is used to establish whether or not data is legitimate: if it is less than 0.5, the data is not valid; if it is between 0.5 and 0.7, the data is valid but biased; and if it is larger than 0.7, the data is entirely genuine.

The results obtained from the analysis indicate the following Cronbach

Alpha scores for each variable: "Environmental Concern" achieved a Cronbach Alpha of 0.790, "Environmental Awareness" scored 0.749, "Government Initiatives" obtained 0.784, "Technology Anxiety" recorded a Cronbach Alpha of 0.757, "Cost Concern" scored 0.747, and finally, "Intention to Purchase" achieved a Cronbach Alpha of 0.754.

As all the Cronbach Alpha values are above 0.7, it can be concluded that all the variables are statistically validated.

4.3. Validity Analysis

The data produced by an instrument must properly and meaningfully represent a theoretical idea in order to be considered dependable. Or to put it another way, the statistics must consider every significant component. Conclusions must be accurate and suitable once the evidence has been confirmed (Mohajan, 2017). A research becomes more credible when a variety of facts are used to support it (Yin, 2003).

Table 7: Validity Test

Factor	KMO	P-Value
Environmental Concern	.801	0.011
Environmental Awareness	.703	0.012
Government Initiative	.693	0.015
Technology Anxiety	.772	0.035
Cost Concerns	.785	0.026
Intention to Purchase Solar System	.789	0.025

Source: Author Work

To ascertain whether or not our data sets were appropriate for this investigation, KMO and Barlett's validity tests were used. When conducting surveys based on this statistic, a correlation matrix or a correspondence method should be utilized. A characteristic's accuracy must be greater than 0.6 and its KMO variance must be between 0.000 and 1.0 in order for it to be deemed accurate. This table shows that all of the study's variables had values greater than or equal to 0.06. As a result, all of the variables looked at may be used in future research.

4.4. Pearson Correlations

Table 8: Pearson Correlations

		Correlations					
		Environment al Concern	Environmental Awareness	Government Initiative	Technology Anxiety	Cost Concerns	Intention to Purchase
Environmental Concern	Pearson Correlation	1	.645**	.660**	.595**	.628**	.083
	Sig. (2-tailed)		.000	.000	.000	.000	.151
	N	300	300	300	300	300	300
Environmental Awareness	Pearson Correlation	.645**	1	.698**	.421**	.731**	.086
	Sig. (2-tailed)	.000		.000	.000	.000	.139
	N	300	300	300	300	300	300
Government Initiative	Pearson Correlation	.660**	.698**	1	.518**	.633**	.033
	Sig. (2-tailed)	.000	.000		.000	.000	.568
	N	300	300	300	300	300	300
Technology Anxiety	Pearson Correlation	.595**	.421**	.518**	1	.587**	.176**
	Sig. (2-tailed)	.000	.000	.000		.000	.002
	N	300	300	300	300	300	300
Cost Concerns	Pearson Correlation	.628**	.731**	.633**	.587**	1	.351**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	300	300	300	300	300	300
Intention to Purchase	Pearson Correlation	.083	.086	.033	.176**	.351**	1
	Sig. (2-tailed)	.151	.139	.568	.002	.000	
	N	300	300	300	300	300	300

Source: SPSS version 20

The following connections have been addressed in the above Table:

It can be noticed that cost concerns and intention to purchase solar system are positively correlated with Pearson Coefficient of 0.351. Technology anxiety and intention to purchase showed a Pearson Coefficient of 0.176. However, government initiative and intention to purchase showed a positive weak correlation with Pearson Coefficient of 0.033.

It can also be noted that the correlation between environmental concerns and environmental awareness showed a moderate to strong positive correlation with Pearson Coefficient of 0.645. In addition, government initiative and environmental concerns also showed a Pearson coefficient of 0.698 indicating a moderate to strong positive correlation.

Environmental awareness and cost concerns on the other hand, showed a strong positive correlation since their Pearson coefficient indicated 0.731.

According to the Pearson Coefficient, there is a 0.595 connection between technology anxiety and environmental concern indicating a moderate positive association.

4.5. Regression Analysis

Table 9: Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.514 ^a	.264	.251	1.012
a. Predictors: (Constant), Environmental Concern, Environmental Awareness, Government Initiative, Technology Anxiety, Cost Concerns, Intention to Purchase Solar System.				

Using the aforementioned model as a guide, it can be seen that the addressed independent variables, which are: environmental concern, environmental awareness, government initiative, technology anxiety,

and cost concerns, scored R (0.514), indicating that there is a strong 51.4% correlation between these variables and the intention to purchase. In other words, the aforementioned independent variables likely to have a 51.4% influence on the desire to acquire solar systems, while 66.5% of the independent variables are not considered by this model. However, this model's R² value of 26.4% indicates that changes in the aforementioned independent variables account for 26.4% of the variation in respondents' intentions to buy solar systems.

The aforementioned model analyses the association between the dependent variable, Intention to Buy Solar Systems, and the independent variables, Environmental Concern, Environmental Awareness, Government Initiative, Technology Anxiety, and Cost Concerns. All of the aforementioned independent factors have significance levels that are lower than 0.05, indicating a substantial association between these independent variables and intention turnover.

The alternative hypothesis, according to which there is a relationship between the dependent variable, the intention to purchase a solar system, and the independent variables, environmental concern, environmental awareness, government initiative, technology anxiety, and cost concerns, will be accepted.

4.12 Hypothesis Validation

Table 10: Hypothesis Validation Summary Table

Variable	Hypothesis	Validation
Environmental concern	H1: There is relationship between environmental concern and intention to purchase solar system.	Accepted
Environmental awareness	H2: There is relationship between environmental awareness and intention to purchase solar system.	Accepted
Government initiative	H3: There is relationship between government initiative and intention to purchase solar system.	Accepted
Technology anxiety	H4: There is no relationship between technology anxiety and intention to purchase solar system.	Rejected
Cost concerns	H5: There is relationship between cost concern and intention to purchase solar system.	Accepted

Source: Author Work

5. Discussion of Findings

Based on the study's results, the relationship between environmental concern and purchase intentions toward solar system is positively related. Thus, H1 is supported. The results are in line with the literature review (Kollmuss & Agyeman 2002; Maartensson & Loi, 2022; Klöckner & Matthies 2004; Shah & Bhatt, 2022; Saraireh, 2023; Klabi & Binzafrah, 2022; Zameer & Yasmeen, 2022; Harun et al., 2022; Ho & Huynh, 2022; Daniela-Abigail, 2020; Tan et al., 2022; Li et al., 2022; Lee, 2022; Patwary, 2023). However, this finding contradicts the study of Asif, (2022). This means that people who are more concerned about the environment tend to have stronger environmental values, and these values can influence their purchasing decisions. When people's values align with environmentally-friendly products or practices, they are more likely to purchase them. In addition, these results mean that people who are more environmentally concerned often feel a sense of responsibility to act in ways that are consistent with their values. This

can translate into a greater willingness to purchase environmentally friendly products or support businesses that prioritize sustainability. As people become more aware of the impact of their actions on the environment, they may be more likely to seek out products and services that have a smaller environmental footprint. This can lead to a higher intention to purchase environmentally-friendly options.

Based on the study's results, the relationship between environmental awareness and purchase intentions toward solar system is positively related. Thus, H2 is supported. These results are in line with the literature review (Pothitou et al., 2016; Zografakis et al., 2010; Asif, 2022; Laroche et al., 2001; Zameer & Yasmeen, 2022; Wang et al., 2022; Abeysekera, et al., 2022; Su et al., 2022; Krisdayanti & Widodo, 2022; Le et al., 2022; Eberle et al., 2022). This means that Environmental awareness is often accompanied by knowledge about the benefits of renewable energy sources such as solar power. People who are more informed about the positive impact of solar systems on the environment are more likely to consider purchasing them, as they recognize the long-term benefits of investing in such systems. In addition to the environmental benefits, solar systems can also provide economic benefits to homeowners and businesses, such as reduced energy bills and potential tax incentives. Individuals with greater environmental awareness may be more likely to consider these benefits and make a purchase based on the cost savings and return on investment.

Based on the study's results, the relationship between government initiative and purchase intentions toward solar system is positively related. Thus, H3 is supported. The results are in line with the literature review (Ushakov et al., 2019; Pathak & Sharma, 2022; Atulkar, 2022; Khan & Nazir, 2022; Hyysalo et al., 2022; Qader et al., 2023). This means that the government plays a crucial part in advancing solar energy. These policies are more widely accepted and encourage customers to utilize solar systems since they rely significantly on government incentives. When the government takes the lead on solar energy, more people are likely to embrace the system. Correlation between government action and interest in purchasing a solar energy system.

Based on the study's results, the relationship between technology anxiety and purchase intentions toward solar system is negatively related. Thus, H4 is not supported. The results are in line with the literature review (Daniela-Abigail et al., 2022; Schettino et al., 2022; Daramola, 2022; Rosen et al., 2022; Ushakov et al., 2019). This means that individuals with technology anxiety may be intimidated by this complexity and unfamiliarity of the solar systems. This can lead to be less likely to consider purchasing a solar system if they feel overwhelmed by the technical aspects. In addition, individuals may be more hesitant to take risks or try new things such as solar system.

Based on the study's results, the relationship between cost concern and purchase intentions toward solar system is positively related. Thus, H5 is supported. The results are in line with the literature review (Schulte et al., 2022; Kumar & Kaushik, 2022; Elahi, et al., 2022; Zeng et al., 2022). This means that when the benefit-to-cost ratio of solar system is high, people are more likely to make the change. Similarly, this is a typical case for solar power.

5.1. Theoretical implications

The findings of this study emphasize the significance of environmental beliefs and values in selecting renewable energy sources. This implies that initiatives to raise environmental knowledge and concern may be successful in encouraging the use of solar power systems. The results further emphasize the significance of perceived risk and complexity in technology adoption. This shows that efforts to promote adoption among people with technology anxiety may benefit from treatments designed to lessen complexity and boost confidence in solar systems. Additionally, this research aids academics in their understanding of consumer attitudes about solar system purchases. The study's findings aid academics in figuring out the variables that influence solar system buying intentions.

5.3 Managerial Implications

This research has important implications for businesses, stakeholders, and government authorities as it investigates what influences consumers' decisions to invest in solar energy. The research sheds the light on the factors that leads to the purchase of solar system that is both sustainable and long-term. These results may be used by managers and policymakers to propose ways to improve solar system via solar system components.

The marketers should increase awareness and education about the environmental and financial benefits of solar systems. They should target both individuals and communities to create a culture of solar adoption and promote its benefits. In addition, the decision makers should create solar systems to be more user-friendly and less complex to increase adoption rates. This can be achieved by simplifying the installation process, providing clear instructions, and offering user-friendly interfaces for monitoring and managing the systems.

Marketers should provide clear information on the performance and maintenance requirements of the system, consumers can make informed decisions and have confidence in the product of solar systems. Managers should provide the solar system with low cost that can help to make solar systems more affordable and reduce the financial burden for consumers.

5.4 Limitations and Future Research

The current investigation contains limitations. To begin, the sample size is small, which reduces the reliability of the overall findings. As a result, the future study has to employ a larger sample size more than 300 people to acquire reliable results. Second, the data was collected nationally and did not differentiate between rural and urban areas. Differences in awareness, wealth, and education may exist between urban and rural communities. Future Research in the countryside is one solution for overcoming this limitation in future investigations. The inclusion of this crucial piece of information in future studies might significantly enrich the existing body of knowledge from a Lebanese perspective.

5.6 Conclusion

This study attempts to examine the variables influencing solar system buying intentions in Lebanon. based on a variety of comprehensive frameworks, ideas, and psychological models. Environmental concern, environmental awareness, government initiative, technological anxiety, and cost concerns are the causes listed in that order. The findings indicated that, with the exception of the association between technological anxiety and desire to buy a solar system, all hypotheses are positively correlated. The theory of planned behavior (TPB) and the diffusion of innovation theory (DIT) were both revalidated by this study.

References:

- Abeysekera, I., Manalang, L., David, R., & Grace Guiao, B. (2022). Accounting for Environmental Awareness on Green Purchase Intention and Behaviour: Evidence from the Philippines. *Sustainability*, 14(19), 12565.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211.
- Aliyev, T. (2021). Investigating the effects of celebrity and influencer endorsement on attitude toward perfumes and buying intention. *Economic and social development: Book of proceedings*, 218-227.
- Liu, K., Chen, Y., Wu, D., Lin, R., Wang, Z., & Pan, L. (2020). Effects of progressive muscle relaxation on anxiety and sleep quality in patients with COVID-19. *Complementary therapies in clinical practice*, 39, 101132.
- Alstone, P. M. (2015). *Connections beyond the margins of the power grid Information technology and the evolution of off-grid solar electricity in the developing world*. University of California, Berkeley.
- Asif, M. H., Zhongfu, T., Ahmad, B., Irfan, M., Razzaq, A., & Ameer, W. (2022). Influencing factors of consumers' buying intention of solar energy: a structural equation modeling approach. *Environmental Science and Pollution Research*, 1-16.
- Atulkar, S. (2022). Purchase intention of Indian customers: a study on solar PV technology. *International Journal of Energy Sector Management*.
- Bandara, U. C., & Amarasena, T. S. M. (2020). Impact of perceived ease of use, awareness and perceived cost on intention to use solar energy technology in Sri Lanka.
- Cabraal, R. A., Barnes, D. F., & Agarwal, S. G. (2005). Productive uses of energy for rural development. *Annu. Rev. Environ. Resour.*, 30, 117-144.
- Chen, L. (2013). A study of green purchase intention comparing with collectivistic (Chinese) and individualistic (American) consumers in Shanghai, China. *Information Management and Business Review*, 5(7), 342-346.

- Compeau, D. R., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS quarterly*, 189-211.
- Daniela-Abigail, H. L., Tariq, R., El Mekaoui, A., Bassam, A., De Lille, M. V., Ricalde, L. J., & Riech, I. (2022). Does recycling solar panels make this renewable resource sustainable? Evidence supported by environmental, economic, and social dimensions. *Sustainable Cities and Society*, 77, 103539.
- Daramola, F. O. (2022). Command secondary school teachers' attitude towards information and communication technology facilities for instruction. *Indonesian Journal of Multidiciplinary Research*, 2(2), 389-400.
- Delistavrou, A., & Tilikidou, I. (2022). Environmental unconcern and recycled paper products purchase: The moderating role of environmental knowledge. *International Journal of Innovation and Technology Management*, 19(05), 2241002.
- Eberle, L., Milan, G. S., Borchardt, M., Pereira, G. M., & Graciola, A. P. (2022). Determinants and moderators of organic food purchase intention. *Food Quality and Preference*, 100, 104609.
- Elahi, E., Khalid, Z., & Zhang, Z. (2022). Understanding farmers' intention and willingness to install renewable energy technology: A solution to reduce the environmental emissions of agriculture. *Applied Energy*, 309, 118459.
- Gadenne, D. L., Kennedy, J., & McKeiver, C. (2009). An empirical study of environmental awareness and practices in SMEs. *Journal of Business Ethics*, 84, 45-63.
- Goutam, D., Ganguli, S., & Gopalakrishna, B. V. (2022). Technology readiness and e-service quality–impact on purchase intention and loyalty. *Marketing Intelligence & Planning*, 40(2), 242-255.
- Fathima MS, A., Batcha, H. M., & Alam, A. S. (2022). Factors affecting consumer purchase intention for buying solar energy products. *International Journal of Energy Sector Management*.
- Gurău, C., & Ranchhod, A. (2005). International green marketing: A comparative study of British and Romanian firms. *International marketing review*.

- Harun, S. A., Fauzi, M. A., & Sulaiman, N. S. (2022). Examining consumer's purchasing behavior of energy-efficient appliance through the lenses of theory of planned behavior and environmental factors. *Management of Environmental Quality: An International Journal*.
- Ho, T. T., & Huynh, C. M. (2022). Green Purchase Intention: An Investigation from Vietnamese Young Consumers.
- Hyysalo, S., Heiskanen, E., Lukkarinen, J., Matschoss, K., Jalas, M., Kivimaa, P., ... & Primmer, E. (2022). Market intermediation and its embeddedness—Lessons from the Finnish energy transition. *Environmental Innovation and Societal Transitions*, 42, 184-200.
- Khan, A., & Nazir, N. (2022). MOTIVES FOR AND BARRIERS TO CONSUMERS' BEHAVIOR TOWARDS ADOPTABILITY OF SOLAR ENERGY: A CASE STUDY OF DISTRICT PESHAWAR. *Pakistan Journal of Social Research*, 4(04), 480-493.
- Kim, J. Y., Lee, K., Coates, N. E., Moses, D., Nguyen, T. Q., Dante, M., & Heeger, A. J. (2007). Efficient tandem polymer solar cells fabricated by all-solution processing. *Science*, 317(5835), 222-225. □ Kim, S. E., Harish, S. P., Kennedy, R., Jin, X., & Urpelainen, J. (2020). Environmental degradation and public opinion: The case of air pollution in Vietnam. *The Journal of Environment & Development*, 29(2), 196-222.
- Klabi, F., & Binzafrah, F. (2022). The Mechanisms for Influencing Green Purchase Intention by Environmental Concern: The Roles of Self-Green Image Congruence and Green Brand Trust. *South Asian Journal of Management*, 16(1), 76-101.
- Klöckner, C. A., & Richter, I. (2022). Business as Usual Forever? Psychological Mechanisms of Inaction and How Disruptive Communication Might Help. In *Disruptive Environmental Communication* (pp. 19-42). Cham: Springer International Publishing.
- Kollmuss, A., and Agyeman, J. (2002). Mind the gap: why do people act environmentally and what are the barriers to proenvironmental behavior? *Environ. Educ. Res.* 8, 239–260. doi: 10.1080/13504620220145401

- Krisdayanti, K., & Widodo, A. (2022). Green marketing and purchase intention of green product: The role of environmental awareness. *Jurnal Manajemen Strategi dan Aplikasi Bisnis*, 5(2), 205-216.
- Kesari, B., Atulkar, S., & Pandey, S. (2021). Consumer purchasing behaviour towards eco-environment residential photovoltaic solar lighting systems. *Global Business Review*, 22(1), 236-254.
- Kumar, V., & Kaushik, A. K. (2022). Solar rooftop adoption among Indian households: a structural equation modeling analysis. *Journal of Social Marketing*, (ahead-of-print).
- Laroche, M., Bergeron, J., & Barbaro-Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of consumer marketing*, 18(6), 503-520.
- Lay, J., Ondraczek, J., & Stoeber, J. (2012). Petroleum in the energy transition: Evidence on solar home systems and lighting-fuel choice in Kenya. *GIGA Working Papers*.
- Le, M. H., & Nguyen, P. M. (2022). Integrating the theory of planned behavior and the norm activation model to investigate organic food purchase intention: evidence from Vietnam. *Sustainability*, 14(2), 816.
- Lee, J. (2022). The impact of green marketing strategies on sales volume of green cars.
- Li, Y., Wang, B., & Cui, M. (2022). Environmental Concern, Environmental Knowledge, and Residents' Water Conservation Behavior: Evidence from China. *Water*, 14(13), 2087.
- Maartensson, H., & Loi, N. M. (2022). Exploring the relationships between risk perception, behavioural willingness, and constructive hope in pro-environmental behaviour. *Environmental Education Research*, 28(4), 600-613.
- Maseh, E., & Katuu, S. (2017). The Kenyan judiciary's open government initiative: prospects and challenges. *Journal of Science and Technology Policy Management*, 8(1), 76-94.
- Matti, E. K., & Nebiker, S. (2014). Geometry and colour based classification of urban point cloud scenes using a supervised selforganizing map. *Photogrammetrie-Fernerkundung-Geoinformation*, 161-173.

- Meuter, M. L., Ostrom, A. L., Bitner, M. J., & Roundtree, R. (2003). The influence of technology anxiety on consumer use and experiences with self-service technologies. *Journal of Business Research*, 56(11), 899-906.
- Xu, X., Lan, L., Shen, J., Sun, Y., & Lian, Z. (2021). Five hypotheses concerned with bedroom environment and sleep quality: A questionnaire survey in Shanghai city, China. *Building and Environment*, 205, 108252.
- Mokyr, J., Vickers, C., & Ziebarth, N. L. (2015). The history of technological anxiety and the future of economic growth: Is this time different?. *Journal of economic perspectives*, 29(3), 31-50.
- Nimrod, G. (2020). Aging well in the digital age: Technology in processes of selective optimization with compensation. *The Journals of Gerontology: Series B*, 75(9), 2008-2017.
- Pathak, K., & Sharma, V. (2022). Urban 'Prosumers' of Solar Energy: Exploring the Mediating Role of Government Initiatives. *Vision*, 09722629221130610.
- Patwary, A. K. (2023). Examining environmentally responsible behaviour, environmental beliefs and conservation commitment of tourists: a path towards responsible consumption and production in tourism. *Environmental Science and Pollution Research*, 30(3), 5815-5824.
- Pothitou, M., Kolios, A. J., Varga, L., & Gu, S. (2016). A framework for targeting household energy savings through habitual behavioural change. *International Journal of Sustainable Energy*, 35(7), 686700.
- Qader, W., Dar, R. A., & Rashid, I. (2023). Phytolith particulate matter and its potential human and environmental effects. *Environmental Pollution*, 121541.
- Rizwan, M., Qayyum, M., Qadeer, W., & Javed, M. (2014). The impact on branded product on consumer purchase intentions. *Journal of public Administration and Governance*, 4(3), 57-74.
- Rogers, E. M. (2010). *Diffusion of innovations*. Simon and Schuster.
- Rosen, M., Betz, L. T., Montag, C., Kannen, C., & Kambeitz, J. (2022). Transdiagnostic psychopathology in a help-seeking

population of an early recognition center for mental disorders: protocol for an experience sampling study. *JMIR Research Protocols*, 11(8), e35206.

- Samad, H. A., Khandker, S. R., Asaduzzaman, M., & Yunusd, M. (2013). The benefits of solar home systems: an analysis from Bangladesh. *World Bank Policy Research Working Paper*, (6724).
- Saraireh, S. (2023). Green purchasing, environmental concern, and subjective knowledge in Saudi Arabia: The moderating effect of green skepticism. *Uncertain Supply Chain Management*, 11(1), 77-86.
- Schelly, C., Cross, J. E., Franzen, W., Hall, P., & Reeve, S. (2012). How to go green: Creating a conservation culture in a public high school through education, modeling, and communication. *The Journal of Environmental Education*, 43(3), 143-161.
- Schettino, G., Marino, L., & Capone, V. (2022). Technology-Enhanced Learning and Well-being: a Contribution to the Validation of a Measure to Assess University Students' Technostress in the Italian Context. *International Journal of Mental Health and Addiction*, 1-15.
- Schoch, C. L., Sung, G. H., López-Giráldez, F., Townsend, J. P., Miadlikowska, J., Hofstetter, V., ... & Spatafora, J. W. (2009). The Ascomycota tree of life: a phylum-wide phylogeny clarifies the origin and evolution of fundamental reproductive and ecological traits. *Systematic biology*, 58(2), 224-239.
- Schulte, E., Scheller, F., Sloot, D., & Bruckner, T. (2022). A metaanalysis of residential PV adoption: The important role of perceived benefits, intentions and antecedents in solar energy acceptance. *Energy Research & Social Science*, 84, 102339.
- Shah, D., & Bhatt, D. V. (2022). Examine the mediating role of environmental concern and perceived benefit on adoption of Green Accounting with the Emerging Economy Perspective. *International Journal of Special Education*, 37(3), 5243-5259.
- Shoeibi, S., Kargarsharifabad, H., Sadi, M., Arabkoohsar, A., & Mirjalily, S. A. A. (2022). A review on using thermoelectric cooling, heating, and electricity generators in solar energy

- applications. *Sustainable Energy Technologies and Assessments*, 52, 102105.
- Stern, P. C. (1992). Psychological dimensions of global environmental change. *Annual review of psychology*.
 - Su, Y., Khaskheli, A., Raza, S. A., & Yousufi, S. Q. (2022). How health consciousness and social consciousness affect young consumers purchase intention towards organic foods. *Management of Environmental Quality: An International Journal*, (ahead-of-print).
 - Sugita, S., Honda, R., Morota, T., Kameda, S., Sawada, H., Tatsumi, E., ... & Tsuda, Y. (2019). The geomorphology, color, and thermal properties of Ryugu: Implications for parent-body processes. *Science*, 364(6437), eaaw0422.
 - Takala, M. (1991). Environmental awareness and human activity. *International Journal of psychology*, 26(5), 585-597.
 - Tan, Z., Sadiq, B., Bashir, T., Mahmood, H., & Rasool, Y. (2022). Investigating the Impact of Green Marketing Components on Purchase Intention: The Mediating Role of Brand Image and Brand Trust. *Sustainability*, 14(10), 5939.
 - Thornton, J. V. (2016). Theodore Dwight Woolsey. *The Catholic Lawyer*, 3(4), 14.
 - Ushakov, D. S., Akulich, O. V., Hajiyeu, H. A., & Sakenov, N. A. (2019). Taxation efficiency of modern employment administration. *Public Policy and Administration*, 18(4), 395-404.
 - Wang, C., Yao, X., Sinha, P. N., Su, H., & Lee, Y. K. (2022). Why do government policy and environmental awareness matter in predicting NEVs purchase intention? Moderating role of education level. *Cities*, 131, 103904.
 - Zameer, H., & Yasmeen, H. (2022). Green innovation and environmental awareness driven green purchase intentions. *Marketing Intelligence & Planning*, (ahead-of-print).
 - Zeng, S., Tanveer, A., Fu, X., Gu, Y., & Irfan, M. (2022). Modeling the influence of critical factors on the adoption of green energy technologies. *Renewable and Sustainable Energy Reviews*, 168, 112817.
 - Zografakis, N., Sifaki, E., Pagalou, M., Nikitaki, G., Psarakis, V., & Tsagarakis, K. P. (2010). Assessment of public acceptance and willingness to pay for renewable energy sources in Crete. *Renewable and sustainable energy reviews*, 14(3), 1088-1095.