Impact of Economic Status on Perceived Buying Intention of University Professors towards the Energy Efficient Appliances in India

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Keywords
Energy Efficient Appliances, Green Behaviour, Green Skepticism, Green Product Paradox, PLS-SEM, Economic Status, Attitude

Abstract

This study investigates the nuanced interplay between economic status and perceived buying intention toward energy-efficient appliances among university professors in India, a demographic characterized by high educational attainment and environmental awareness. Grounded in the Theory of Planned Behaviour (TPB), the research extends the traditional framework by integrating environmental concern and environmental knowledge are responsible for shaping consumers' attitude, and by testing economic status as a moderating variable. Using a cross-sectional design and data from 300 respondents employed in higher education institutions, the study applies Partial Least Squares Structural Equation Modelling (PLS-SEM) to evaluate the strength and significance of relationships among constructs.

Contrary to conventional economic theory, the findings reveal that economic status does not significantly influence purchase intention, challenging the assumption that affordability is a primary barrier to green consumption. Instead, environmental concern and environmental knowledge emerge as dominant predictors of consumer attitude, which in turn strongly drives purchase intention ($\beta = 0.694$, $p < 0.001$). The moderation analysis further confirms that the interaction between economic status and attitude has an insignificant effect on purchase intention ($\beta = -0.026$, $p = 0.864$), suggesting that intrinsic motivation and environmental consciousness override the income-based constraints in this context.

The study also uncovers that subjective norms and eco-label knowledge do not significantly shape consumer attitude, hinting at a latent skepticism or limited trust in external cues such as labelling and peer influence. This finding diverges from prior literature and raises questions about the efficacy of green marketing and labelling strategies in influencing educated consumers. Reliability and validity metrics – including high Cronbach's alpha, AVE, and HTMT ratios – affirm the robustness of the measurement model, while R^2 values indicate that attitude explains nearly 60% of the variance in purchase intention.

Practically, the research underscores the importance of fostering environmental knowledge and concern through targeted educational and policy interventions, rather than relying solely on economic incentives or labelling schemes. The results advocate for a shift in marketing and policy focus, from price subsidies to awareness campaigns and moral framing, to enhance adoption of energy-efficient technologies. The study also calls for a re-evaluation of demand-side assumptions in sustainability discourse, especially in contexts where consumers exhibit high intrinsic motivation.

By isolating economic status as a non-significant moderator, this work contributes a critical perspective to the green consumer behavior literature and opens avenues for future research on behavioral segmentation, longitudinal analysis, and alternative indicators of economic capacity. It also offers actionable insights for policymakers and marketers aiming to accelerate India's transition toward sustainable consumption, particularly within the educated and environmentally conscious segments of society.

Introduction

The energy utilization especially in urban areas is very high compared to its rural counterparts, primarily due to high population density. However, the inadequate supply of energy and the excessive demand sometimes create a mismatch between these two market forces, and to bridge this gap, excessive pressure has to be put on natural resources (Li et al. 2019). In this case, the use of energy-efficient electronic appliances can help reduce the pressure on non-renewable natural resources, but the prices of the energy-efficient products are comparatively much higher than the less energy-efficient products (Barbarossa & Pastore, 2015; Nguyen et al. 2014).

This behaviour is also termed as green product paradox (Longoni et al. 2014). Motivation at a broader level can help shape the buying behavior of the masses (Gogil and Gigol, 2022), initiatives like subsidies given by the governments to some extent can help give a head start, but its impact is not long-lasting (Li et al. 2019). The consumers' green trust is also affected by negative experiences, the condition when consumers' perception of a green product turns out to be wrong, it is known as greenwashing and leads to green skepticism (Gigol and Gigol, 2022). A green product is defined based on its properties involving natural ingredients, grown originally, recyclable, reusable, chemical-free, pollution-less, and not tested on animals (Mishra & Sharma, 2010). The most commonly used indicator laid by the United Nations i.e. 3R; is Reduce, Reuse, and Recycle. (Janssen & Jager, 2002) has defined green products as "products that are less harmful to the environment and promote social well-being and having a superiority over traditional products".

Having said that, several factors determine consumer behaviour towards energy-efficient appliances. As per the Theory of Planned Behaviour (TPB), the attitude of the consumer is constituted by the Behavioural aspect, Effective aspect, and Cognitive aspect (Blum and Naylor, 1968). The theory of planned behaviour takes into account the psychological aspect of a consumer's behaviour but does not deal with the economic aspect i.e. economic status of the consumer. So, how important a consumer's economic status is when it comes to the pro-environmental consumption decision?

Literature review

The sustainability that is defined in its broadest form by the sustainable development goals (SDG, 2016) highlights the need for responsible consumption and production (12th Goal of SDG), and climate action (13th Goal of SDG). It suggests more sensible buying that causes no or least damage to the environment. Although, the sustainability goals ask for a transition in economies in terms of energy production, but still in most of the developing nations energy is being produced from non-renewable natural resources such as coal (Hossian et al., 2022). Studies have suggested ways in which energy can be saved and conserved so that there is less pressure on the resources and ultimately contributing to saving the environment (Li et. al, 2019; Hossain et. al, 2022; Safarzynska et. al, 2011). In this regard, economies across the world are shifting to non-conventional sources of energy such as solar energy, wind energy, and nuclear energy as well. However, the cost involved is one of the major impediments in this particular transition.

Countries are exploring new sources of energy, and the United Kingdom serves as an example, as it continues to research on nuclear energy, but the market for nuclear and non-conventional energy *per se* is limited, specifically from the investors' point of view, so by avoiding the higher cost of transition the investors are persistent with the use of coal for electricity generation (Safarzynska et. al, 2011). On the contrary, Bangladesh is investing in fossil fuels for electricity generation, which is not a sustainable practice, but the cost associated with transitioning to renewable energy persistently forces Bangladesh to continue investing in fossil fuels (Hossain et. al, 2022). So economies with limited resources and less renewable energy potential can aim for energy conservation by promoting the consumption of energy-efficient products (Luthra and Deshwal, 2022; Li et. al, 2019). However, it is very difficult to understand the consumer's behaviour, especially towards energy-efficient electronic appliances which are beneficial in the long run, but cost higher at the time of purchase, along with the price component many factors determine consumer's willingness to purchase energy-efficient appliances including the psychological factors like environmental knowledge and environment concern (Zhang et. al, 2022; Hossain et. al, 2022; Gigol and Gigol, 2022; Li et. al, 2021; Taufique and Vaithainathan, 2018).

The factors that affect the consumers' willingness to purchase energy-efficient appliances can be understood by taking the theory of planned behavior as a base (Hossain et. al, 2022; Li et. al, 2021; Li et. al, 2019). Environmental knowledge is treated as the important factor that shapes the consumers' behavior to purchase energy-efficient appliances. The studies have used environmental knowledge and environmental concern as the mediating factors that shape consumers' behavior in this regard (Hossain et. al, 2022; Zhang et. al, 2022; Kinelski et. al, 2022). Environmental concern is an outcome of environmental knowledge, however, environmental awareness can be advertised on various platforms including social media which can help develop environmental concern among the masses (Kinelski et. al, 2022). Environmental knowledge is detrimental to environmental concern, however, attitude, green trust, and eco-labels work as mediators in shaping pro-environmental behavior (PEB) (Hossain et. al, 2022). In light of the theory of planned behavior and consumers' willingness to purchase energy-efficient home appliances, the ethnic norms (Tan, 2013), Price (Wang et. al, 2018), Environmental knowledge, and Environmental concerns are detrimental (Hossain et. al, 2022).

In China, household electric energy consumption increased by 468 billion kWh from 2005 to 2015, an increase of 162%. Carbon emissions increased by 5.8% from 2014 to 2015, and household carbon emissions accounted for 11.6% of the total domestic carbon emissions, where about 70% of household carbon emissions are produced by household appliances (Li et. al, 2019). Households are thus, the major prospects for energy conservation, the factors that govern the buying decision of the energy-efficient appliance depend on many factors such as income, price, environmental knowledge, and concern, etc. however, in some studies, the role of subsidies has been highlighted, but the impact of subsidies on consumers' decision is not long term and thus cannot be taken as determining factor in this case (Li et. al, 2019). In a nutshell, the issue of energy conservation, environment protection, and reduction of carbon footprint, all require effort toward the same goal of a sustainable future, by cutting on the use of conventional sources of energy generation and much-needed transition to modern or non-conventional sources of energy such as Solar Energy and Green hydrogen, etc.

Research Gap

The literature provides a rich theoretical base for the Theory of Planned Behaviour (TPB). However, most of the studies have used the TPB model with slight changes in it. In this specific work, the researcher added environmental concern and environmental knowledge and analysed its mediating effect on attitude and also showed the direct impact of environmental knowledge and environmental concern on willingness to purchase energy-efficient appliances (Li et. al, 2019). In a similar study, environmental knowledge and eco-label knowledge were used as mediating variables that determined attitude and green trust and also captured the direct impact on pro-environmental behaviour (Hossain et. al, 2022). Another work showed how environmental concern and environmental knowledge shape attitude along with subjective norms and perceived behavioural control (PCB) and ultimately determines the purchase intention of the consumer (Yadav and Pathak, 2016). Similarly, the attitude towards the environment along with subjective norms and perceived consumer effectiveness shapes the behavioural intention of the consumer and ultimately determines ecologically conscious consumer behaviour (Taufique and Vaithianathan, 2018).

It is apparent that the majority of the studies have incorporated environmental knowledge and concern as mediating variables that shape consumers' attitude that ultimately determines the willingness to purchase energy-efficient appliances, however, there is no such study where exclusively the influence of economic factors were focused. Income plays a detrimental role in determining the consumer's expenditure, theories from the fundamental Psychological law of consumption of J. M. Keynes (1936) to the Absolute Income Hypothesis of J. R. Hicks (Theory of Value and Capital, 1936) and the Life Cycle Hypothesis of Franco Modigliani (1966). Psychological factors like attitude and purchase intention are relevant, but the mere desire cannot be treated as a demand until a basic condition of willingness and capability to pay for the product is not met.

Environmental factors can shape the consumers' attitudes and can motivate a person to develop pro-environmental behaviour along with the knowledge of eco-labels that helps in developing green trust towards the products and companies at the border level (Hossain et. al, 2022; Li et. al, 2019; Taufique and Vaithianathan, 2016). Surprisingly, all the studies have talked about the non-income factors that motivate a

person to develop pro-environmental, but mere environmental knowledge cannot convert the desire to buy an energy-efficient appliance into demand, for demand, there is a requirement of necessary purchasing power. So, it all comes down to a consumer's purchasing power and environmental knowledge and environmental concern that can best determine the Pro-environmental behaviour of a consumer.

Theoretical Underpinnings

The model uses four independent variables; subjective norms, Environment knowledge, Environment concern, and eco-label knowledge. These independent variables form a higher-order construct i.e. attitude. However, the study also establishes that apart from the cognitive, affective, and behavioral aspects of attitude, the economic status of the consumers also determines the purchase intention. The study uses the economic status of the consumers as a moderator that affects the influence of attitude on purchase intention.

Figure_1 represents the theoretical model representing the subjective norms, environment knowledge, environment concern, and eco-label knowledge as the independent variables, attitude as a higher-order construct, economic status as the moderator, and purchase intention as the dependent variable. The model explains the route assigned for the accomplishment of the proposed analysis and in this regard, the researcher would: - 1. Examine the socio-economic profile of the respondents, 2. Analyze the impact of

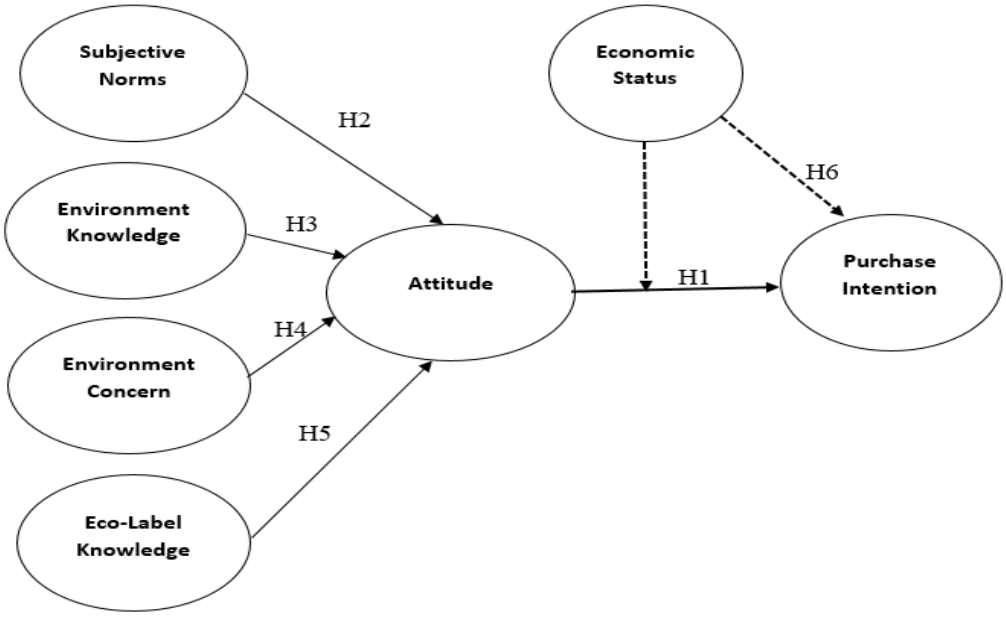

Figure 1Theoretical Model of Green Behaviour of University Professors towards Energy Efficient Appliances

individual exogenous variables on the consumer's attitude, 3. Examine the significance of attitude in determining the purchase intention of the consumer, and 4. Examine the significance of consumers' economic status in determining the purchase intention of the consumers.

Research Methodology

The study follows a cross-sectional study design and uses primary data, collected with the help of a questionnaire formed as a Google form. The respondent were individuals working at the higher education level viz; College/University (both Government and Private). The researcher collected data from 300 respondents, through various means such as emails, LinkedIn posts, Social Media surveys etc. It is a contemporary research work and attempts to generate practical knowledge regarding the consumer's behaviour towards energy-efficient appliances.

Data Analysis Technique

The study applied Partial Least Squares – Structural Equation Modelling (PLS-SEM) as a second-generation data analysis technique (Hair et al, 2021). The author however used *Smart*PLS-4.9.1 software to perform SEM-PLS (Hair et al, 2021).

Socio-Economic Profile of the sample population

Source: Author's Computation.

Table 1 Socio-Economic Profile of the Sample Population

Background Characteristics	Sub-category	Count	Percent
Gender of the respondent	Male	195	65.00
	Female	105	35.00
Qualification of the respondent	BA/BSc	30	10.00
	MA/MSc	89	29.67
	Professional Degree	53	17.67
	PHD	128	42.67
Income Taxpayer	Yes	184	61.33
	No	116	38.67
Employment status	Government Job	71	23.66
	Private Job	229	76.34
Income slab	0-2.5 lac	69	23.00
	2.5 lac - 5 lac	83	27.67
	5 lac - 10 lac	79	26.33
	10 lac above	69	23.00

Table 1 represents the socioeconomic profile of the sample population. The study collected data from 300 respondents working in a higher education institution. Out of the total sample population, 65 percent are males and 35 percent are female. As per the qualification, the majority of the sample population has a Ph.D. in various disciplines, while only 10 percent sample population has an undergraduate degree, This can be used as a piece of evidence that the sample population is well-educated and well-informed as all the respondents are College graduate and are working in the higher education sector. The majority of the sample population pays income tax, which indicates better economic status. As far as employment status is concerned, the majority are working in private institutions (Private Universities or Colleges). The majority of the sample population earns more than 0.5 million in a year.

The present work is based on a sub-strata of the population, contrary to the studies that used the general population for analysis. The primary reason for the selection of a target audience is to provide specific findings for the people in the working age group, who are well aware of the importance of the environment as they are working in an academic setup (university/college) since the focus of the present investigation is restricted to the working population on the contrary to the available literature where researchers have used population i.e above 18 years (Zhang, 2022). However, for the present case, this does not qualify as the appropriate age group as at 18 years an individual will not be able to get employment in an academic setup.

In a nutshell, the sample represents the characteristics of a well-educated, well-informed, economically well-off population. Although it is a targeted study of the people working in the higher education sector and their behaviour towards energy-efficient appliances, as far as the present work is concerned, the sample is the best fit.

Data Analysis and Discussion

The section represents the analysis of the sample data and the useful inferences about consumer behaviour towards energy-efficient appliances. The collected data were coded to simplify the analysis, the coding was done in SPSS package. The construct attitude was coded as ATT, and the items were coded as

ATT1, ATT2, ATT3, and ATT4 representing the items that constitute consumers' attitudes. Similarly, Subjective Norms were coded as SN and the items from SN1 to SN7, environment concern as EC and the items as EC1 to EC7, eco-label knowledge as ELK and items as ELK1 to ELK3, environment knowledge as EK and items as EK1 to EK7, and purchase intention as PI with items coded as PI1 to PI3. The smart PLS-4 was used to analyze the collected data of 300 working employees in higher education departments such as universities and colleges.

The overall reliability of the constructs ranges between 0.898 and 0.957, showing that the composite reliability (CR) is very high. The Average Variance Extracted (AVE) ranges between 0.688 and 0.957 indicating that the convergent validity in the present case is higher and more than 68 percent variation is explained by the construct. The present study also used the Heterotrait-Monotrait Ratio (HTMT) to measure the convergent/scale validity, and the values are well below 0.85 which indicates greater scale validity. The results are further explained in the table 2 to 7. Table 5 shows the R-square values for the dependent variable which is purchase intention for energy-efficient appliances, and the higher order construct i.e. Attitude. The observed R-square and adjusted R-Square values were 0.597 and 0.591 respectively, which indicate a good model fit and also explain the effect of attitude on the purchase intention of the consumers for energy-efficient appliances.

Table 2. Distribution of Factor Loadings, Reliability, AVE, and Composite Reliability Values Based on Measurement Model Analysis

Constructs	Items	Factor Loadings	Cronbach's alpha	AVE	CR
Attitude	A1	0.752	0.849	0.688	0.898
	A2	0.852			
	A3	0.849			
	A4	0.860			
Environment Concern	EC1	0.844	0.926	0.771	0.944
	EC2	0.922			
	EC3	0.901			
	EC4	0.884			
	EC7	0.837			
Environment Knowledge	EK1	0.818	0.943	0.713	0.943
	EK2	0.817			
	EK3	0.762			
	EK4	0.810			
	EK5	0.858			
	EK6	0.903			
	EK7	0.898			
Eco-label Knowledge	ELK1	0.946	0.932	0.880	0.957
	ELK2	0.933			
	ELK3	0.935			
Purchase Intention	PI1	0.844	0.870	0.794	0.920
	PI2	0.910			
	PI3	0.917			
Subjective Norms	SN1	0.903	0.940	0.802	0.953
	SN2	0.870			
	SN3	0.917			
	SN5	0.930			
	SN7	0.853			

Source: Author's Computation.

Table 2 shows that the factor loading of all the items of the latent variable is above 0.75 and as a result, the correlation between the corresponding indicators and latent variables is very high. The individual indicators capture the phenomenon to more than 75 percent. The Cronbach's alpha is above 0.7 and supports the claim of high correlation among the corresponding items of the concerned latent variables. The high value of Cronbach's alpha is an indication of higher internal consistency. The Average Variance Extracted (AVE) is also above 0.5 and explains that more than 50 percent of the variation is explained by the indicators for the corresponding latent variables. The composite reliability is also well above 0.85 and explains higher overall reliability.

Table 3 Heterotrait - Monotrait Ratio (HTMT) – Matrix of Constructs

	ATT	ELK	EC	EK	PI	SN
ATT		0.662	0.662	0.574	0.769	0.133
ELK	0.662		0.760	0.584	0.812	0.136
EC	0.662	0.760		0.526	0.778	0.097
EK	0.574	0.584	0.526		0.618	0.473
PI	0.769	0.812	0.778	0.618		0.26
SN	0.133	0.136	0.097	0.473	0.26	

Source: Author Computation

Table 3 represents that the matrix of the HTMT ratio has all the values below 0.85, which is an indication of discriminant validity. The values confirm that the constructs are not correlated to each other and are distinct and unique. It is also an indication of the scale validity that the instrument used for collecting responses uses appropriate items and constructs, hence ensuring higher internal consistency of the measurement model.

Table 4 Distribution of Collinearity Statistics (VIF) based on Items

Items	VIF
A1	1.736
A2	2.255
A3	2.014
A4	2.096
EC1	2.395
EC2	4.262
EC3	3.477
EC4	3.016
EC7	2.412
EK1	2.177
EK2	2.708
EK3	2.350
EK4	2.814
EK5	3.549
EK6	4.303
EK7	4.156
ELK1	4.090
ELK2	3.591
ELK3	3.901

PI1	1.963
PI2	2.545
PI3	2.782
SN1	3.753
SN2	3.452
SN3	4.307
SN5	3.709
SN7	2.867

Source: Author's Computation

Table 4 represents that there is no high collinearity among the indicators and all the VIF values are below 5 representing moderate multicollinearity, which implies that there is a presence of slight multicollinearity among the items that captures different phenomena, but still not problematic. As there is no case of severe multicollinearity (VIF< 5), the model can be further analyzed for inferences (**reference indicating moderate multicollinearity**).

Table 5 Distribution of R Square values of Dependent variable and Independent Variable

Independent and Dependent Variable	R-square	R-square adjusted
Attitude	0.5969	0.5914
Purchase Intention	0.4592	0.4574

Source: Author's Computation

Table 5 represents the R-square values of purchase intention (dependent variable), and attitude (independent variable/ higher-order construct). The values represent a high value of the coefficient of determination for both the Higher-order construct (independent variable) and dependent variable.

Table 6 (Direct Relationship) Path Coefficients: Mean, STDEV, T values, P Values

Construct Relationship	beta	stdev	t value	p-value	2.5%	97.5%
ATT -> PI	0.694	0.143	6.221	0.000	0.438	0.863
ENV Concern -> Attitude	0.597	0.055	10.716	0.000	0.478	0.697
ENV Knowledge -> Attitude	0.229	0.038	6.091	0.000	0.149	0.297
Eco Label Knowledge -› ATT	0.055	0.740	0.074	0.460	-0.088	0.202
Economic Status -> PI	-0.030	0.338	0.089	0.735	-0.211	0.144
Subjective Norms -> ATT	-0.037	0.821	0.045	0.412	-0.122	0.056

Source: Author's Computation

Table 6 represents the path coefficients/slope coefficients, sample mean, standard deviation, t values, and p values. The beta coefficient value of attitude and purchase intention is 0.694 which implies a strong causal relationship, with a t-value of 6.221, and a p-value of 0.000 indicating that the value is highly significant. Similarly, the beta value of environment concern and attitude has a t-value of 10.716 and a p-value of 0.000 representing the value is highly significant. The environment knowledge and its direct relationship with the dependent variable is also significant with a t-value of 6.091 and a p-value of 0.000. On the contrary, the relationship shared by eco-label knowledge, subjective norms, and economic status on purchase intention was found insignificant.

In a nutshell, environmental concern, and environmental knowledge are the major determinant of attitude, and attitude further affects the Purchase Intention. The complete model estimates are represented in Figure 2.

Table 7 Moderation relationship: mean, stdev, t values, p Values

Interaction Variables	beta	Stdev	t-value	p-values	2.5%	97.5%
ES x ATT -› PI	-0.026	0.151	0.171	0.864	-0.293	0.297

Source: Author's Computation

Table_7 represents the moderation analysis, and the sample mean, standard deviation, t-values, and p values. The interaction term economic status (ES) x attitude (ATT) -› purchase intention (PI) and its relationship is insignificant with a t-value of 0.171 and a P value of 0.864 that is above 0.05. In a nutshell, environmental concern and environmental knowledge positively affect the attitude of the consumer and attitude determines the purchase intention of the consumers toward energy-efficient appliances. Notably, the economic status has an insignificant impact on the consumer's decision making which goes against the law of demand that states the product with a higher price will be less desired by the consumers, but in the present case, the economic status of the consumer has no significant impact on the consumes' psychology as the consumers across income groups reveal the same preference i.e. to go for the purchase of the energy-efficient appliance, irrespective of economic status.

In a nutshell, the consumers are well aware of the benefits of energy-efficient appliances and are willing to pay higher prices as economic status negatively affects the consumers' attitude, but the impact is insignificant.

Moderation Analysis

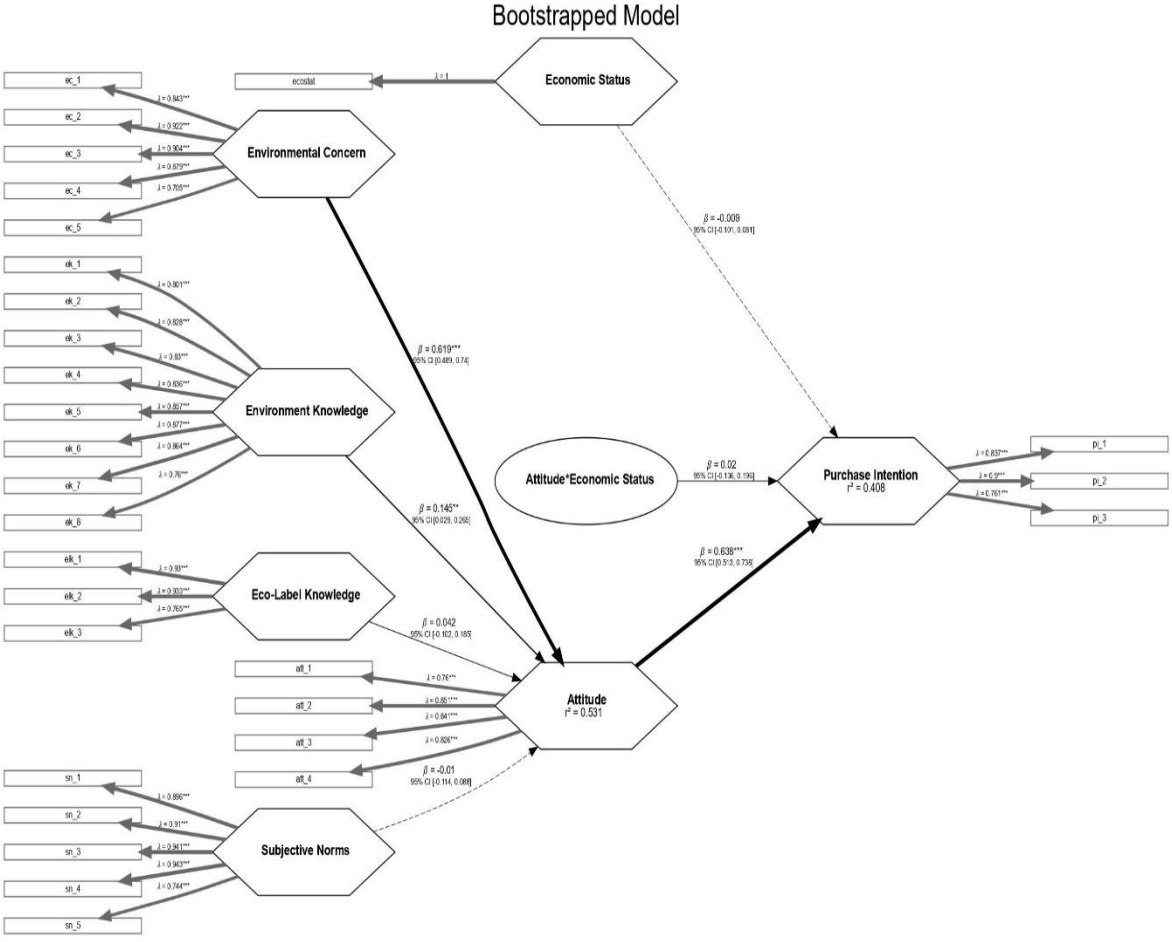

Figure 2 Structural Model of Consumer Behaviour towards Energy Efficient Appliances

The figure_2 represents the structural model with all the measured values. The constructs of Subjective norms, environmental knowledge, environmental concern, and Eco-label knowledge are the exogenous variables (independent). Attitude is the higher-order construct that constitutes SN, EK, ELK, and EC that

further affects the value of the dependent variable i.e. purchase intention. The economic status of the consumers is the moderator that moderates the effect of attitude on purchase intention. The arrows going from the independent variables to their corresponding items (indicators) indicate that these are reflective constructs. The values represented by the arrows, stand for factor loading and since all the values are above 0.7 represent a very high correlation between the indicators, in other words, the items collectively measure the same phenomenon. Similarly, the arrows going from the independent variables to the higher order construct (attitude) represent the path values or beta coefficients, for its significance the author calculated the t-value and p-value and found that environment knowledge and environment concern have a significant relationship with attitude, while subjective norms and eco-label knowledge have no significant relationship with attitude.

Attitude is the higher-order construct and the economic status of the consumer is the moderator that, in the present case, works as a constraint that impedes the effect of attitude on purchase intention. The r^2 value represents that the relationship between attitude and purchase intention is highly significant and the attitude is capable of explaining the 60 percent change in purchase intention, hence the model fit is high. However, the beta value of economic status is -0.026 and its p-value is 0.864 which is higher than 0.05. So, the effect of the interaction variable on purchase intention is insignificant. In conclusion, it is the attitude that strongly determines the purchase intention of the consumers than their economic status, when energy-efficient appliances are concerned.

Slope Analysis

The three approximately parallel lines suggest that the moderator economic status (ECO) has a relatively consistent effect on the relationship between attitude (ATT) and purchase intention (PI). The lack of significant interaction implies that the effect of ATT on PI does not vary substantially across different levels of the moderator. All lines show a positive slope, indicating that attitude (ATT) increases, and

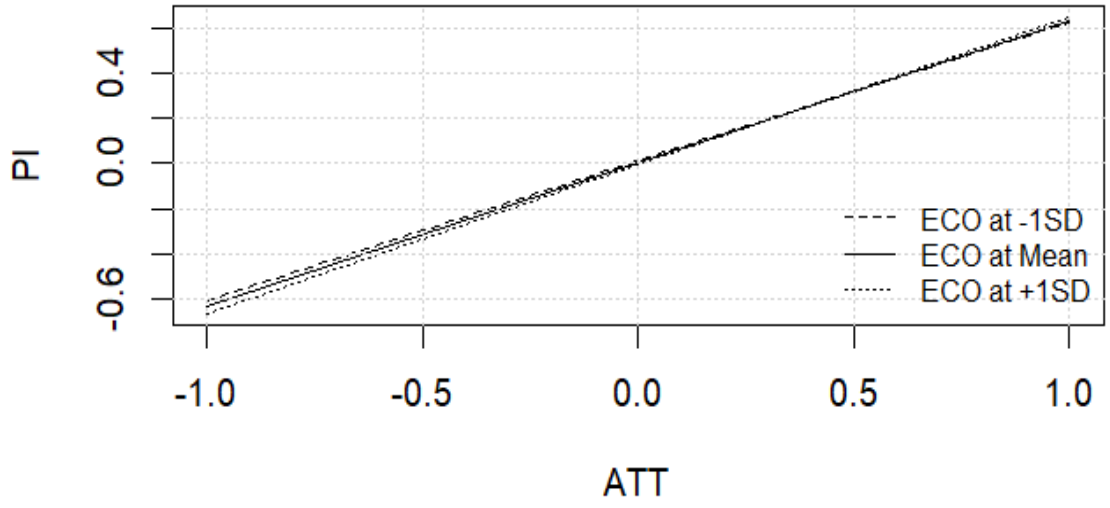

Figure 3 Slope Analysis of the Bootstrapped Model

purchase intention (PI) also increases, regardless of the level of the moderator, economic status (ECO). The steepness of the slope seems similar across the three lines, supporting the idea that the moderating effect is minimal or not strong enough to manifest differences in the slopes. The plot suggests that the independent variable attitude (ATT) positively influences the dependent variable purchase intention (PI). Abidingly across all levels of the moderator economic status (ECO).The moderation effect of economic status (ECO) is insignificant.

Practical Implications

India is one of the fastest-growing economies in the world and with increasing GDP and output, the energy demand is also increasing very rapidly. India needs to find ways in which the increasing energy demand could be fulfilled, the population is becoming aware of the benefits of buying energy-efficient appliances, and they are aware of the fact that long-term savings on electricity bills will help them reduce their electricity expenditure. The relationship shared by the exogenous variables states that it is the environmental knowledge and environmental concern that shape the Attitude of the customers and ultimately determine their purchase intentions, in other words, people who are motivated to participate in environmental protection will push their limits to purchase energy-efficient/ eco-friendly products (Zhang et al., 2022). The beta coefficient value of 0.694 represents that Attitude explains around 70 percent change in Purchase intention. The Subjective Norms and Eco-label knowledge have no significant relationship with Attitude. So, it is the environmental knowledge and environmental concern that determines Purchase Intention in the present case.

H1 is supported, as the path coefficient of Attitude is 0.694 and is also significant with a t-value of 6.221, and its null hypothesis can be rejected with a P value of 0.00. The path coefficient value of environmental knowledge and environmental concern shows a significant relationship with Attitude and hence H3 and H4 are supported. On the contrary, the relationship of subjective norms and eco-label knowledge with attitude is insignificant, as a result, H2 and H5 are not supported. The subjective norms are the opinions made based on the surroundings and as a result, they impact the attitude, however in this case the relationship is insignificant, which is in sync with the literature (Taufique et al., 2018). Similarly, the results suggest that eco-label knowledge has less role in shaping the attitude of the consumers (insignificant), which represents some prevalence of green skepticism among the sample population, surprisingly the results are in contrast to the literature (Hossain et al., 2022). Although the values are insignificant, it cannot be straight away concluded that it is greenwashing or green skepticism (Gigol and Gigol, 2022).

Environment knowledge and environmental concerns shape the attitude of the consumers' which has a stronger effect on purchase intention than the economic status of the consumers, so the marketing agencies can further use this relationship to motivate the customers in a much more effective manner. Intrinsically motivated consumers tend to purchase green products/energy-efficient appliances, as they consider it a moral obligation to be sensitive towards the environment. The R^2 value for attitude as 0.597, represents a good model fit.

Furthermore, the study captures the influence of the economic status of the consumers on their decision-making for energy-efficient products. It is apparent that economic status has a deterring impact on purchase intention, but its impact is not significant. The beta coefficient value of the interaction value of economic status (ES) x attitude (ATT) -› purchase intention (PI) is -0.026 with a p-value of 0.864. The study also claims that environmental concern and environmental knowledge are the primary factors that shape the attitude of consumers toward energy-efficient appliances.

Summary of the Findings

The present work is a contribution to the existing literature available on green consumer behavior. The study focuses on the cognitive aspect of attitude, attitude is composed of cognitive, effective, and behavioral aspects of a human's psychology (Blum and Naylor, 1968). The theoretical model suggests that subjective norms, environmental knowledge, environmental concern, and eco-label knowledge shape the attitude of the consumers and further determine the consumer's purchase intention toward energy-efficient appliances. The model attempts to capture the impact of interaction variables (moderator) on the purchase intention, and the results indicate that the relationship between environmental knowledge, and environmental concern with attitude is significant and it is evident that both environmental knowledge and environment concern shape the attitude of the consumers. On the contrary, the subjective norms and eco-label knowledge represent an insignificant relationship with attitude. Furthermore, the influence of economic status (moderator) of the consumers is insignificant, in other words, the individual who is intrinsically motivated to purchase eco-friendly/energy-efficient appliances may push their economic barriers to ensure no or less damage to the environment (Taufique, 2018).

The r^2, HTMT, VIF, AVE, Cronbach's alpha, composite reliability (CR), t-value, and corresponding p-value indicate that Attitude explains around 60 percent change in purchase intention and can be considered the most important factor in determining the purchase intention of the consumer, The HTMT values are less than 0.85 indicating the high discriminant validity, The values of VIF are between greater than 1 and less than 5 which indicates moderate multicollinearity. Similarly, the AVE values are above 0.5 indicating high reliability, and the Cronbach's alpha value is also above 0.7 indicating high internal consistency. The composite reliability value is also above 0.7, which is well above the threshold value. In a nutshell, it is apparent that environmental knowledge and environmental concern shape the consumers' attitude, and attitude determines the purchase intention towards energy-efficient appliances.

Limitations and Future Research

The present work is an addition to the existing literature, however, there are some limitations of the study as well. The author used the economic status of the respondents based on the asset score index (ASI) values by dividing the data into two segments where 0 is assigned to the households with less than average number of consumer durables from the asset score index, and 1 was assigned to the households with equal or greater than average assets scores. Furthermore, authors may use gender as a moderator and can evaluate the gender differences in purchase intention toward energy-efficient appliances. Another limitation that the present study has is that it uses primary data collected at a point in time, and to get more reliable results, the authors might consider using the panel data for future research work. It was also observed that the asset score index values have failed to capture the actual impact of the income component on the consumers' buying behaviour and for future research, the author may use per capita consumption expenditure as an indicator for the Economic Status component. Last but not least, the author selected an employee working at a higher education level such as a college/university in India as the respondent. However, that is a purposively selected group of respondents, but the authors' in future attempts can use a more representative sample of the society i.e. more general population.

Conclusion

Consumers who are well aware of the importance of the environment are buying energy-efficient appliances believing it contributes to a sustainable future. The overall analysis indicates that those who are more concerned about the environment and have environmental knowledge have shown pro-environmental behaviour while making a consumption decision. Surprisingly, for the consumers who are highly self-motivated to buy energy-efficient appliances, in their case the impact of economic status was found insignificant, which implies that self-motivated people firmly believe that they are making the right decision by purchasing the energy-efficient appliances, and their decision is independent of their economic status. The graphical representation of the interaction variable suggests the same, that the people within low and high-income status are showing not much deviation in their preference towards energy-efficient appliances. The subjective norms and eco-label knowledge have an insignificant influence on the consumer's decision-making, as far as energy-efficient appliances are concerned.

Policy Suggestions and Scope for Future Research

The present work emphasizes the factors that govern the purchase intention of consumers towards energy-efficient appliances. The author found that it is the cognitive aspect of attitude that determines the purchase intention. The income component was tested for its moderation effect on purchase intention and it was found that the economic status of the consumers does not play a detrimental role in measuring the purchase intention. The analysis suggests that consumers who have completed higher education and are working at the University/College are well aware of the benefits of energy-efficient appliances. However, the price of the energy-efficient appliance is the major obstacle in this regard. To resolve this issue; green marketing, subsidies, Tax reduction, and easy finance can prove helpful. These facilities will further motivate consumers to purchase energy-efficient appliances and in turn, will reduce the carbon footprint. Understanding green behaviour and the factors that govern the decision-making of the consumer is a very broad field, as numerous factors contribute to shaping the consumer's behaviour. The present analysis is a partial analysis of some selected factors that affect the consumer's decision, for further advancement, future

research can incorporate other factors of equal importance and can conduct a general analysis of the consumer's behaviour towards energy-efficient appliances.

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