



Hungarian University of Agriculture and Life Sciences

**"Consumers' Pro-environmental and Sustainable Consumption Behavior in
Climate Change Mitigation"**

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Doctoral (Ph.D.) dissertation

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I. Table of Contents

I.	INTRODUCTION.....	1
1.1	RESEARCH BACKGROUND	1
1.2	PROBLEM STATEMENT	3
1.3	SIGNIFICANCE OF THE STUDY	6
II.	RESEARCH OBJECTIVES	8
2.1	RESEARCH QUESTION	9
2.2	HYPOTHESES DEVELOPMENT	9
2.3	STRUCTURE OF THE DISSERTATION	12
III.	LITERATURE REVIEW.....	13
3.1	ORIGIN AND A BRIEF HISTORY OF ENVIRONMENTAL MARKETING/ GREEN MARKETING	13
3.2	DEFINITION OF GREEN OR ENVIRONMENTAL MARKETING.....	14
3.3	ENVIRONMENTAL MARKETING VS TRADITIONAL MARKETING	15
3.4	GREEN OR SUSTAINABLE PRODUCTS	16
3.5	GREEN CONSUMER	18
3.6	PRO-ENVIRONMENTAL BEHAVIOR (PEB).....	18
3.7	SUSTAINABLE CONSUMPTION BEHAVIOR (SCB).....	19
3.8	THE STUDY IS BASED ON THE DEFINITION OF SUSTAINABLE CONSUMPTION BEHAVIOR (SCB)	20
3.9	SUSTAINABLE CONSUMPTION BEHAVIOR	21
3.9.1	<i>General Sustainable Consumption Behavior (eco-friendly/green products)</i>	22
3.9.2	<i>Sustainable Food Consumption Behavior (organic food)</i>	22
3.9.3	<i>Sustainable Energy Consumption Behavior (energy-efficient products)</i>	22
3.9.4	<i>Recycling & Resource conservation behavior (RRCB)</i>	22
3.10	THEORETICAL ORIENTATION	30
3.10.1	<i>Theory of planned behavior (TPB)</i>	31
3.10.2	<i>Attitude-Behavior-Context (ABC) theory</i>	32
3.10.3	<i>Integration of Theory of Planned Behavior (TPB) and Attitude-Behavior-Context (ABC)</i>	34
3.11	DEFINITION OF STUDY CONSTRUCTS	38
3.12	ATTITUDE (AT).....	40
3.13	SUBJECTIVE NORMS (SN)	41
3.14	PERCEIVED BEHAVIORAL CONTROL (PBC)	42
3.15	GREEN PERCEIVED VALUES (GPV)	43
3.16	ECOLOGICAL MOTIVES (EM).....	45
3.16.1	<i>Environmental Knowledge (EK)</i>	45
3.16.2	<i>Climate Concern (CC)</i>	46
3.17	POSITIVE MOTIVES (PM)	47
3.17.1	<i>Green marketing tools (GMT)</i>	47
3.17.2	<i>Green Trust (GT)</i>	49
3.17.3	<i>Government support (GS)</i>	50
3.17.4	<i>Green words-of-mouth (GWoM)</i>	51
3.18	NEGATIVE MOTIVES (NM)	52
3.18.1	<i>High Price Sensitivity (HPS)</i>	52
3.18.2	<i>Greenwashing Concern (GWC)</i>	53
IV.	METHODOLOGY	55
4.1	STUDY LOCATION AND CONTEXTS	55
4.2	DATA COLLECTION AND SAMPLE	56
4.3	MEASUREMENT OF CONSTRUCTS	56
4.4	DATA ANALYSIS PROCEDURE AND STATISTICAL METHODS	60

4.4.1	<i>Data analysis</i>	60
4.4.2	<i>Data preparation and coding</i>	60
4.4.3	<i>Model Specification and data analysis</i>	61
4.4.4	<i>Research Procedure Flowchart</i>	66
4.5	PILOT STUDY	67
4.6	COMMON METHOD BIAS (CMB)	69
V.	RESULTS AND DISCUSSION	70
5.1	DEMOGRAPHIC PROFILE OF THE RESPONDENTS	70
5.2	SUSTAINABLE CONSUMPTION HABITS	71
5.3	ITEM STATISTICS	74
5.4	MEASUREMENT MODEL EVALUATION (OUTER MODEL)	76
5.4.1	<i>Convergent Validity and internal consistency reliability</i>	76
5.4.2	<i>Construct and indicator reliability</i>	78
5.4.3	<i>Discriminant Validity</i>	83
5.5	STRUCTURAL MODEL (INNER MODEL) AND HYPOTHESIS TESTING	86
5.5.1	<i>Coefficient of determination (R²)</i>	86
5.5.2	<i>f² Values (Effect size)</i>	87
5.5.3	<i>Q² Values (Predictive Relevance of Model)</i>	88
5.5.4	<i>Model Fit Assessment</i>	89
5.5.5	<i>Hypothesis and Bootstrapping Testing</i>	89
5.5.6	<i>Testing for Mediation: indirect and total effects</i>	92
5.5.7	<i>Testing for moderation effects</i>	93
5.5.8	<i>Importance-Performance Map Analysis</i>	97
5.6	RESULTS OF NECESSARY CONDITION ANALYSIS (NCA)	98
5.6.1	<i>Effect size and significance testing</i>	99
5.6.2	<i>Bottleneck analysis</i>	101
5.7	DISCUSSION OF THE FINDINGS	102
VI.	CONCLUSION AND RECOMMENDATIONS	108
6.1	CONCLUSIONS	108
6.2	IMPLICATIONS	112
6.2.1	<i>Theoretical implication</i>	112
6.2.2	<i>Managerial Implication</i>	113
6.2.3	<i>Policy implication</i>	116
VII.	NEW SCIENTIFIC RESULTS	119
VIII.	SUMMARY	121
IX.	APPENDICES	124

LIST OF TABLES

Table 1 Evolution of green marketing over the past thirty years	14
Table 2 Traditional Vs. Environmental Marketing	15
Table 3 Benefits offered by green products	17
Table 4 Types of green products list	21
Table 5 Previous empirical research on pro-environmental and sustainable consumption behavior (2010-2022).....	24
Table 6 Definition of variables/constructs	38
Table 7 Measurement constructs and items	58
Table 8 Types of questionnaire items and its codes	61
Table 9 Demographic profile	71
Table 10 how environmental related lecture or modules influence sustainable consumption behavior.....	73
Table 11 Results of the normal distribution	74
Table 12 The evaluation of the measurement model (construct reliability & validity)	77
Table 13 The evaluation of the measurement model-outer loading using Confirmatory Composite Analysis.....	79
Table 14 The evaluation of the measurement model (variance inflation factor)	81
Table 15 The evaluation of the measurement model (construct reliability & validity) after removing items.....	82
Table 16 Discriminant validity (Fornell-Larcker criterion)	84
Table 17 Discriminant validity (Heterotrait-monotrait ratio-Matrix)	85
Table 18 R Square values of endogenous variables	86
Table 19 f Square values and effects size	87
Table 20 Findings of model fit.....	89
Table 21 Model fit assessment	89
Table 22 The effects of the structural model (P value and T value)	91
Table 23 Results of the mediating investigation (indirect and total effects).....	93
Table 24 The results of moderation investigation	94
Table 25 Summary of the hypotheses test.....	96
Table 26 Construct of performances for SCB	98
Table 27 The results of effect size and significance test.....	100
Table 28 NCA effect sizes and accuracy	101
Table 29 Bottleneck table (percentages) for SCB	102
Table 30 Cronbach alpha and KMO values	140
Table 31 Overall KMO and Bartlett's Sphericity Test	141
Table 32 Preliminary results of factor analysis (Item communalities)	141
Table 33 Findings of model fit (Q ² predict and RMSE-PLS).....	146
Table 34 Construct of performances for SCB	146

LIST OF FIGURES

Figure 1 proposed framework with hypotheses	11
Figure 2 Theory of Planned Behavior	32
Figure 3 Attitude-Behavior-Context (ABC) Model	34
Figure 4 Theoretical framework of the TPB-ABC integration model	37
Figure 5 Graphical presentation of formative and reflective construct	63
Figure 6 The inner and outer model of the proposed research framework (reflective and formative model)	64
Figure 7 Relationship regarding the necessity of condition	66
Figure 8 Research flowchart	67
Figure 9 Sustainable consumption habits of young consumers in Bangladesh	72
Figure 10 The results of the structural model, path coefficients (p value), and R-square values	92
Figure 11 The results of the moderation effects of ecological motives	95
Figure 12 Performances score for SCB (GPB & RRCB)	143
Figure 13 Illustrates scatterplots along with ceiling lines.	145

ABBREVIATIONS

ABC	Attitude-Behavior-Context
EU	European Union
GPB	Green Purchase Behavior
GPI	Green Purchase Intention
GWoM	Green Words-of-Mouth
NCA	Necessity Condition Analysis
PBC	Perceived Behavioral Control
PEB	Pro-environmental Behavior
QoL	Quality of Life
RRCB	Recycling & Resource Conservation Behavior
SCB	Sustainable Consumption Behavior
SEM	Structural Equation Model
SDGs	Sustainable Development Goals
TCV	Theory of Consumption Value
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
UN	United Nation
WoM	Words-of-Mouth

I. INTRODUCTION

1.1 Research Background

In the twenty-first century, several environmental challenges, such as global warming, adverse effects of greenhouse gas emissions, water, and air pollution, and the overarching problem of worldwide climate change, are the major global issues. Climate change has emerged as one of the most severe global threats in recent decades, impacting both human societies and environment in numerous detrimental ways (IPCC, 2021). Most scientists and researchers believe that limiting climate change is essential to maintaining the standard of living on Earth (RIPPLE ET AL., 2017). According to IPCC scientists, human-caused climate change has contributed to a wide range of meteorological and climatic extremes in different parts of the world, requiring immediate action. "Strong, rapid, and persistent reductions in greenhouse gas emissions, as well as reaching net-zero carbon dioxide (CO₂) emissions, have the potential to keep climate stability, improved air quality, and health benefits in a short period" (IPCC, expert PANMAO ZHAI, 2021, p. 3). The United Nations Climate Change Conference (COP26) recently raised some environmental issues to combat climate change. Human beings are getting dangerously close to points where health, safety, ecosystems, property, and infrastructure are at risk. The agenda of COP26 set a goal of achieving global net-zero emissions by 2050 and limiting global warming to 1.5 degrees Celsius. It motivates countries to finance clean, renewable energy sources and shift toward sustainable consumption habits (COP26, 2021).

On the other hand, it is widely known that businesses globally are polluting the environment by generating waste and CO₂. In the world where people's needs are endless, but resources are not. Thus, marketers must utilize resources properly. Previous studies explain that marketers can meet their goals without wasting valuable resources (DANGELICO & VOCALELLI, 2017; NEKMAHMUD & FEKETE-FARKAS, 2020). Therefore, many companies are starting to apply environmental marketing strategies to make their products environmentally friendly and promote those products to make consumers happy and earn profit in the long run and ensure a better quality of life (QoL) and society (MARTÍNEZ-ESPIÑEIRA ET AL., 2014). Environmental marketing or green marketing has become an essential trend in modern business, which is more applied in developed countries than lower and middle-income countries (HASAN ET AL., 2019). Environmental marketing is getting more popular because people are paying more attention to environmental sustainability (DANGELICO & VOCALELLI, 2017; SIU ET AL., 2019). Environmental marketing encourages using eco-friendly products like refillable, ozone-friendly, healthy food, phosphate-free goods, and recyclable products. It also involves using

environmentally friendly methods to meet consumers needs and protect the environment and society (PIRES ET AL., 2020).

In recent times, academic and consumer market research has concentrated on understanding how consumers engage in pro-environmental, sustainable and eco-friendly behavior to help combat climate change (RAMKISSOON, 2020). Some studies (KRONROD ET AL., 2012; YUE ET AL., 2020) suggest that global environmental challenges can be addressed by making consumers responsible and consuming more eco-friendly products to reduce environmental harm. Therefore, environmental scientists and activists expect companies to ensure sustainable production and consumption. Thus, individuals need to adopt pro-environmental behavior (PEB) and sustainable consumption behavior (SCB) practices. Pro-environmental behavior refers as 'behavior that consciously seeks to reduce the negative impacts of their actions on the environment and build the world (KOLLMUSS & AGYEMAN, 2002, p. 240). Sustainable production involves looking at the whole cycle of production, using, disposing of, and recycling products instead of just how much gets used (WANG ET AL., 2019). Sustainable consumption is not about consuming less but consuming differently (QIN & SONG, 2022). Furthermore, sustainable consumption practices involve purchasing and consuming products in an environmentally responsible manner. Both sustainable production and sustainable consumption behavior are essential components of sustainable development (NEKMAHMUD ET AL., 2022). Sustainable production and consumption are part of the Sustainable Development Goals (SDGs) and focus on reducing negative environmental and health effects while encouraging eco-friendly lifestyles (UNITED NATIONS, 2015)¹. At the same time, increasing consumer engagement in pro-environmental behavior (PEB) and sustainable consumption behavior (SCB) reduces negative ecological impacts (ASLAM ET AL., 2020; HOSSAIN, NEKMAHMUD & FEKETE-FARKAS, 2022). To minimize CO₂ emissions and limit global climate change, it is essential to encourage pro-environmental behavior (VAN VALKENGOED, ABRAHAMSE & STEG, 2022) and sustainable consumption behavior. In previous studies, consumers' sustainable consumption behavior related to organic food, energy-efficient household products, green products, green transportation, and recyclable and reusable products has been shown to reduce environmental and climate change impacts. For example, the green products context (HWANG, 2022; NEKMAHMUD & FEKETE-FARKAS, 2020; OGIEMWONYI, 2022) stated that green products and organic food are becoming popular among consumers to reduce the environmental impact on health. As per the INTERNATIONAL ENERGY AGENCY (IEA)² in 2019, the residential sector used about 21% of the world's total energy consumption in 2017. Thus, energy-efficient products can significantly reduce household

¹ <https://sdgs.un.org/goals>

² <https://www.iea.org/reports/world-energy-outlook-2019>

energy consumption, carbon emissions, and environmental sustainability. By using energy-efficient appliances, household consumers can play a crucial role in conserving energy (ABU-ELSAMEN ET AL., 2019; HOSSAIN, FEKETE-FARKAS & NEKMAHMUD, 2022). Furthermore, consumer resource and conservation behavior, e.g., reducing water and electricity consumption, turning lights off in unused rooms, and using one's own bag when shopping, can support global climate change mitigation. Thus, it is urgent to know how consumers' sustainable consumption behavior supports mitigating climate change and protecting environmental issues. To fill these research gaps, this study examined consumers' sustainable consumption behaviors of green purchases and recycling & resource conservation behaviors.

I use the terms 'environmentally friendly products' and 'green products' interchangeably throughout the dissertation. The term 'to be *green*' is defined as participating in environmentally friendly actions, encompassing activities such as purchasing and using green products (POLONSKY, 2011). I define *green products* as 'products that consumers perceive to be environmentally friendly, whether due to the materials used, the production process, packaging, promotion, and so on' (JOHNSTONE & TAN, 2015A, P. 312). At the same time, I define '*pro-environmental behavior*' as any action or behavior that promotes or supports the environment's well-being. I also define '*sustainable consumption behavior*' as socially and environmentally responsible actions when efficiently purchasing, utilizing and disposing of goods and services. I also encourage considering the total quality of life and preserving future generations' well-being. In this study, I categorize two sections of sustainable consumption behavior, including green purchase behavior and recycling & resource conservation behavior.

1.2 Problem Statement

One of the most significant challenges people face today is environmental degradation caused by unsustainable consumption patterns. Sustainable consumption patterns are a major concern across the globe. Scientists, researchers, journalists, and politicians share concerns about the environment's future. They claim that current consumption patterns are unsustainable. As a result, global environmental challenges and unsustainable consumption patterns can only be solved if consumers take responsibility for mitigating environmental hazards by purchasing more environmentally friendly items. Thus, this study attempts to investigate consumers' pro-environmental and sustainable consumption behavior, which helps mitigate climate change issues.

In 2015, the United Nations Sustainable Development Summit endorsed 17 SDGs to achieve a better sustainable future. These goals cover various aspects such as poverty, hunger, health,

education, gender equality, water, sanitation, energy, environment, climate change, and social justice. Among these, SDG12 is particularly important, as it strives to promote sustainable production and consumption patterns. SDG12 is the most critical goal in creating a more sustainable environment for individuals, communities, and the planet. After that, this research is worthy of knowing the influence factors that motivate consumers to adopt sustainable consumption behavior to support climate change mitigation. This research considers particular problems which the United Nations SDGs have mentioned as providing safe, nutritious, and sufficient food all year round (TG2.1), ensuring sustainable consumption and production patterns (G12), reducing substantially waste generation through prevention, reduction, recycling, and reuse (TG-12.5), implementing the 10-year framework of programs on sustainable production and consumption (TG12.1).

Besides the United Nations, other organizations, e.g., the European Commission, are concerned about environmental and sustainable consumption issues. Therefore, The European Union (EU) introduced the European Green Deal, a plan designed to establish sustainable products as the standard within the EU. This initiative seeks to encourage circular business models and empower consumers to embrace eco-friendly practices during the transition. As a result of these new regulations, products must meet criteria like being environmentally friendly, long-lasting, reusable, repairable, upgradable, easy to maintain, refurbishable, recyclable, and energy and resource-efficient (EUROPEAN COMMISSION, 2021)³. These global issues need to be solved through sustainable production and consumption.

Past research has shown that the primary causes of current ecological and environmental challenges are population growth and overconsumption. Excessive consumption negatively impacts the environment (CHEN & HUNG, 2016). People's activities are mainly negatively affected by environmental and climate issues. Alterations in our consumption patterns will substantially affect our ecological footprint (NEKMAHMUD & FEKETE-FARKAS, 2020). By consuming environmentally-friendly and natural resource-based products and services, we can reduce greenhouse gas (GHG) emissions while establishing a sustainable economy and lifestyle worldwide. Pro-environmental behavior, sustainable production and consumption can help to reduce environmental problems. Therefore, this study tries to identify the key influential factors, influence path, and decision-making mechanisms that are affecting consumers' attitudes and sustainable consumption behavior.

³ <https://www.consilium.europa.eu/en/policies/green-deal/>

Earlier studies have primarily concentrated on investigating the factors influencing green purchase intentions, pro-environmental behaviors and sustainable consumption behaviors in developed countries, e.g., the USA (CHO, 2019; KANG ET AL., 2017), Australia (GADENNE ET AL., 2011), EU (SAARI ET AL., 2021), Italy (TESTA ET AL., 2016), Spain (GÓMEZ-LLANOS ET AL., 2020), and some developing countries, e.g., India (PAUL ET AL., 2016), China (ALI ET AL., 2020), Turkey, South Africa, and so on. Still, there is a lack of studies on pro-environmental and sustainable consumption behaviors in developing countries. Despite this, Bangladesh is in the infant stage of investigating environmental concerns compared to other developing economies. Bangladesh is selected for this study since it is well known that the environmental issues of Bangladesh are poorly managed. Bangladesh is among the fastest-growing vulnerable nations globally regarding climate and environmental challenges (WORLD BANK, 2020)⁴. Energy, food, and resource conservation sectors are facing several challenges. For the government to achieve sustainable economic growth, it must address this environmental challenge. Moreover, for political reasons, Bangladesh was a late adopter of the Green Revolution (HEADEY & HODDINOTT, 2016). Bangladesh's government strives to achieve the Sustainable Development Goals (SDGs) by 2030. On the other hand, different industries, including textile, leather, agricultural, food manufacturing, plastics, cosmetics, and so on, produce environmentally friendly products to fulfill the needs of particular green consumer groups. Green items are gradually being included in company product lines in Bangladesh. Alongside, over the past few decades, consumer awareness regarding the environment has increased, leading them to actively pursue products or services labeled as "green" or "ecologically sustainable" (OGIEMWONYI, 2022; SAARI ET AL., 2021; SADIQ ET AL., 2022). This research also investigates which motives influence consumers' sustainable consumption in Bangladesh. The poor management of environmental issues and the fastest-growing economy, quality of life, income, expenditure, ecological awareness, and lifestyle make Bangladesh an ideal study (WARIS & AHMED, 2020). Therefore, environmental marketing can support the achievement of the SDGs, e.g., ensuring sustainable food production, food security, improving nutrition, using energy-efficient products, and sustainable tourism in Bangladesh—the study attention to well-educated and young consumers in Bangladesh to understand their sustainable consumption behavior. According to UNFPA (2022), 27 percent (47.6 million) of the total population in Bangladesh are young (10-24 years)⁵. So, it's crucial to grasp how young, educated individuals view environmental actions and choices to buy green products.

⁴ <https://www.worldbank.org/en/country/bangladesh/overview>

⁵ <https://www.unfpa.org/data/world-population/BD>

The young generation are the future consumers and voices of society, and they tend to care more about social and environmental problems (JOSHI & RAHMAN, 2017).

To enhance our knowledge in the environmental marketing field, it is crucial to gain a deeper understanding of consumers' pro-environmental and sustainable consumption behaviors, particularly concerning green products. This study aims to address this research gap and develop an integrated model based on the theory of planned behavior (TPB) and attitude-behavior-context (ABC) model, which measures the same consumer sustainable consumption of green products and resource conservation behavior within a single model.

1.3 Significance of the study

This study aims to investigate the influential critical factors and decision-making mechanisms that are affecting consumers' attitudes and sustainable consumption behavior. There are only a few studies on sustainable consumption behavior in Bangladesh. Still, there is a lack of understanding and awareness regarding green products. More information about green products will assist consumers in improving cognitive attitudes about green products (RAHMAN & REYNOLDS, 2019). The primary objective of this research is to assess the sustainable consumption habits of young consumers in Bangladesh. This research concentrates explicitly on consumers who have previously bought green products. Consequently, this study aims to bridge the research gap by reviewing the literature on green consumption and investigating the factors that impact consumers' decisions regarding sustainable consumption in Bangladesh. According to my knowledge, this is the first empirical study that measures consumers' sustainable consumption behavior in Bangladesh. This study first developed an integrated model that measures the same consumer's sustainable consumption behavior of green products and recycling & resource conservation behavior in the single model.

Additionally, the objective of this research is to make contributions to existing theories. The study achieves this by introducing a novel conceptual framework that builds upon the concepts of the Theory of Planned Behavior (TPB) and the Attitude-Behavior-Context (ABC) model. Most previous studies applied the TPB to measure pro-environmental and sustainable consumption behavior. Only a few studies used the attitude-behavior-context model to examine sustainable consumption behavior (MASEEH ET AL., 2022; QIN & SONG, 2022; SADIQ ET AL., 2022; WARIS & AHMED, 2020). Yet, studies investigating consumer sustainable consumption behavior and climate change mitigation are still in their infancy. My previous research focused on green purchases and sustainable consumption behavior in a developed country context. In this

study, I aim to make a valuable contribution by addressing these research gaps and offering a thorough understanding of the two dimensions of sustainable consumption behaviors. After the critical analysis of the TPB and ABC theory, I attempt to build a new research model that incorporates both internal and external contextual motivation to investigate the influencing factors and decision-making mechanisms of sustainable consumption behaviors and analyze heterogeneity among different types of sustainable consumption behaviors.

This study has complemented SEM (Structural equation modeling) with (Necessary condition analysis) NCA to further investigate the relationship between internal and external influential constructs of consumers' sustainable consumption behaviors as noble methodological contributions in the marketing and consumer psychology.

This research offers valuable insights in theory and practice for comprehending consumers' eco-friendly purchase attitudes and behaviors in a developing nation. Gaining insight into the attitudes and buying habits of young people regarding eco-friendly purchases would empower marketers and manufacturers to more effectively adapt to consumer preferences, resulting in improved, more secure, and healthier products.

II. RESEARCH OBJECTIVES

This Chapter presents the major and sub-research objectives, research questions, hypothesis development, proposed framework, and dissertation structure.

Based on the research problems and research gaps, the main objectives of this study are: To identify the key influential factors, influence path, and decision-making mechanisms that are affecting Young consumers' attitudes and sustainable consumption behavior (SCB); To develop an integrated model that measures the two sections of sustainable consumption behaviors, including green purchase behavior, and recycling & resource conservation behavior. Besides the main objectives, a few sub-objectives have been provided to understand the research better:

1. To analyze the literature regarding the consumer's pro-environmental and sustainable consumption behavior for green products and recycling & resource-conservation products.
2. To develop a new and validate integrated model for measuring consumers' sustainable consumption behavior based on the theory of planned behavior (TPB) and attitude-behavior-context (ABC) model.
3. To apply the proposed integrated model to examine the Young consumers' sustainable consumption behavior in Bangladesh.
4. To investigate how ecological motives, positive motives, and negative motives influence consumer attitudes and sustainable consumption behavior.
5. To examine the moderating effect of ecological motives on the interaction between dependent and independent variables.
6. To validate the proposed conceptual framework using the combined approaches of the structural equation model (SEM) and the Necessity condition analysis (NCA).

2.1 Research Question

Based on the research objectives, this research answers the following questions:

1. What are the main factors of sustainable consumption behavior that are affecting the Young consumers' purchase decision of green products in Bangladesh?
2. What are the motivations for changing behavior towards sustainable consumption in Bangladesh?
3. What are the relationships among the variables of the proposed model for green purchase behavior and recycling & resource conservation behavior?
4. What are the current consumers' sustainable consumption behaviors in purchasing green products and recycling & resource conservation behavior in Bangladesh?

2.2 Hypotheses Development

The study comprises the following hypotheses to examine the direct effects of the variables.

Hypothesis 1a: Attitude has a positive and significant effect on green purchase behavior

Hypothesis 1b: Attitude has a positive and significant effect on recycling & resources conservation behavior

Hypothesis 2a: Subjective norm has a positive and significant effect on green purchase behavior

Hypothesis 2b: Subjective norm has a positive and significant effect on recycling & resources conservation behavior

Hypothesis 3a: Perceived behavior control has a positive and significant effect on green purchase behavior

Hypothesis 3b: Perceived behavior control has a positive and significant effect on recycling & resources conservation behavior

Hypothesis 4a: Green perceived value positively influences consumers' green purchase behavior

Hypothesis 4b: Green perceived value positively influences consumers' recycling & resources conservation behavior

Hypothesis 5a: Ecological motives positively influence consumers' attitudes toward sustainable consumption behavior

Hypothesis 5b: Ecological motives positively influence consumers' green purchase behavior

Hypothesis 5c: Ecological motives positively influence consumers' recycling & resource conservation behavior

Hypothesis 6a: Positive motives have a positive and significant effect on consumer attitude toward sustainable consumption behavior

Hypothesis 6b: Positive motives have a positive and significant impact on green purchase behavior

Hypothesis 6c: Positive motives have a positive and significant impact on recycling & resources conservation behavior

Hypothesis 7a: Negative motives have negatively and significant effect on consumer attitude toward sustainable consumption behavior

Hypothesis 7b: Negative motives have negatively and significant impact on green purchase behavior

Hypothesis 7c: Negative motives have negatively and significant impact on recycling & resources conservation behavior

This research aims to examine consumers' sustainable consumption behavior and observe how internal and external contextual motives actively influence consumers' sustainable consumption behavior. This study proposes a theoretical framework for evaluating consumers' sustainable consumption behavior by integrating the theory of planned behavior (TPB) and attitude-behavior-context (ABC) with additional variables (perceived value, ecological motives, positive motives and negative motives). Based on the theories, literature and proposed hypotheses, the conceptual framework is presented in Figure 1. The research framework illustrates the interaction between the independent variables (attitude, subjective norms, perceived behavioral control, perceived value, ecological motives, positive motives, and negative motives), dependent variables (consumer green purchase behavior and recycling & resources conservation behavior), the mediating (ecological motives, positive motives, and negative motives). Figure 1 also presents the details of formative and reflective constructs with proposed hypotheses. Whereas climate concern and environmental knowledge combined to shape the formative construct known as ecological motives. Meanwhile, green marketing tools, green trust, government support, and positive word-of-mouth contribute to the formative construct of positive motives. On the other hand, high price sensitivity and concern about greenwashing are integrated into the formative construct of negative motives. Finally, two sections, green purchasing behavior, and recycling & resource conservation behavior, have been incorporated into the broader sustainable consumption behavior (SCB) field. Building upon a thorough evaluation of TPB and ABC theory, this study shows a novel conceptual framework to researchers for seeking a more profound comprehension of consumers' engagement in sustainable practices, including the consumption of green products and behavior related to recycling and resource conservation.

External contextual motives

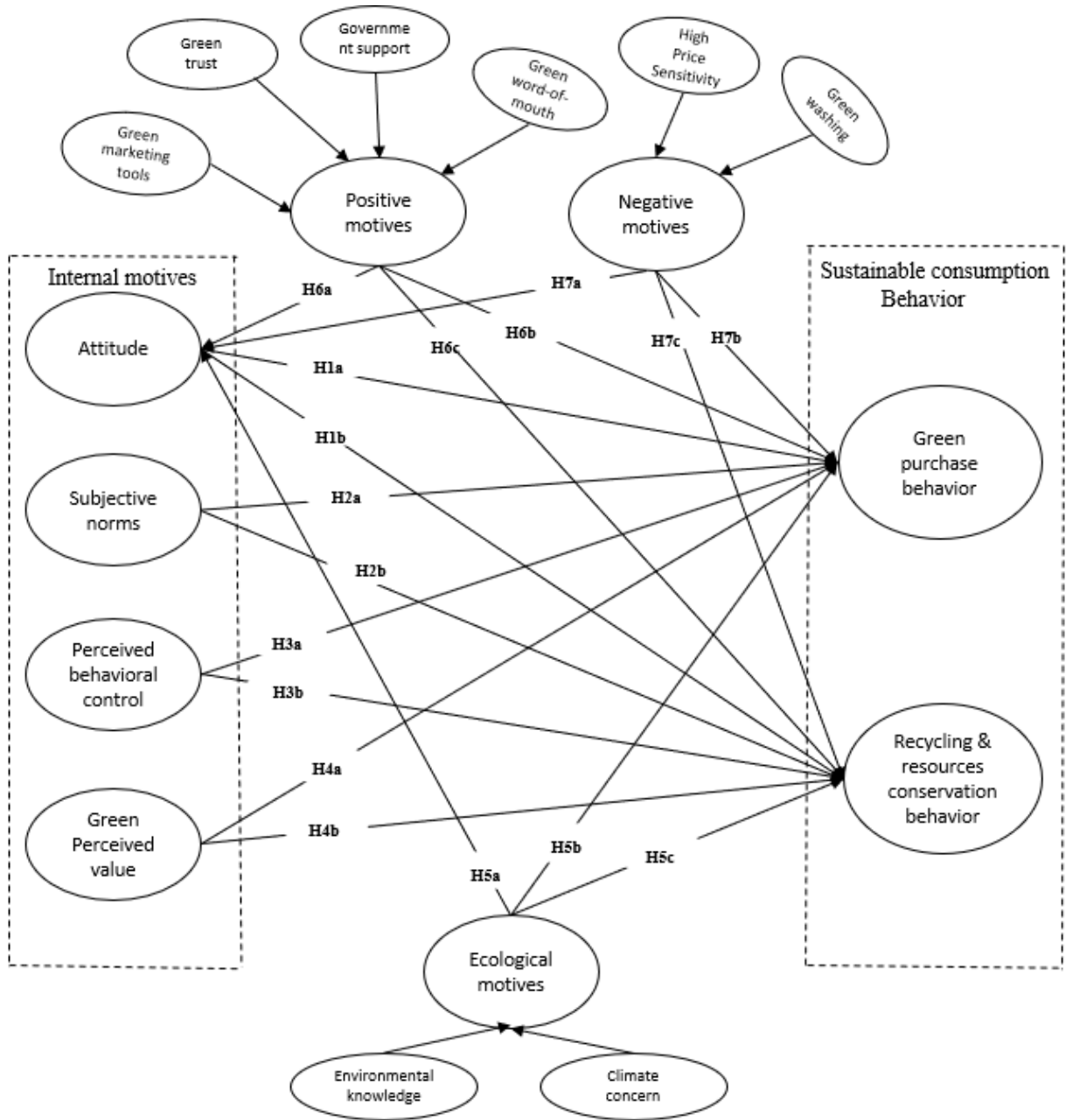


Figure 1 proposed framework with hypotheses

(Source: Authors' own construction)

2.3 Structure of the Dissertation

This dissertation is presented in a structured way and includes seven key sections. These are the introduction, objectives, literature review, method, findings analysis and discussion, conclusion and implication, and novel scientific results and contributions.

*First Chapter, **Introduction*** presents the research background, research gap problems statement, and significance of the study.

*Second Chapter, **Research objective*** presents the major and sub-research objectives, research questions, hypothesis development, proposed framework, and dissertation structure.

*Third Chapter, **Literature review*** summarizes the existing literature on environmental marketing, the history of environmental marketing, sustainable products, green consumerism, pro-environmental and sustainable consumption behavior. Furthermore, this section also describes sustainable consumption behavior based on previous empirical studies (2010-2022) and theories (TPB and ABC) and explains the core constructs of the model.

*Fourth Chapter, **Methodology*** provides an in-depth description of the materials and methods employed in conducting the research. This section explains the study context, sampling methods, questionnaire development, research tools, and statistical analysis techniques.

*Fifth Chapter, **Results and Discussion*** offers a thorough overview of the data's characteristics and provides an in-depth presentation of the major findings. This section presents the results of statistical tests, measurement & structural models, hypothesis testing, mediating & moderating effects, and IPM analysis. Further, it gives the results of NCA, effect size and significance testing, and bottleneck analysis. This section concludes with a detailed discussion of the results.

*Sixth Chapter, **Conclusion and Recommendation*** present the study's conclusion, theoretical, managerial, and policy implications and limitations, and future research directions.

*Seventh Chapter, **New Scientific Results*** presents novel findings and contributions. There are seven novel contributions of this study aligned with the study's questions, objectives, and hypotheses.

III. LITERATURE REVIEW

This Chapter summarizes the current literature, supporting the proposed study model and conducting a critical review of the foundational theories and review of existing empirical studies. The first part of this Chapter describes an overview of the existing literature on environmental marketing, the history of environmental marketing, sustainable products, green consumerism, pro-environmental behavior, and sustainable consumption. The second part also describes sustainable consumption behavior based on previous empirical studies (2010-2022). The third part discusses the theory of planned behavior (TPB) and the attitude-behavior-context (ABC) model. Finally, this Chapter explains the core constructs of the model.

3.1 Origin and a brief history of environmental marketing/ green marketing

Environmental marketing, often called green or ecological marketing, existed in the late 1980s and early 1990s. It initially started in Europe, where certain products were identified as environmentally harmful. The roots of green marketing can be traced back to the 1960s when environmental consciousness began to grow (FELDMAN, 1971). The first-ever workshop on 'ecological marketing' took place in Texas (US) in 1975, marking the recognition of the importance of promoting environmentally friendly products for the first time. Green marketing was indeed given some attention in the 1970s, but it was not until the late 1980s that the concept of green marketing gained prominence. Its origins can be traced back to Europe in the early 1980s when certain manufactured products were found to have detrimental effects on the natural environment. As a result, manufacturers started introducing new "green" products with less environmental impact. Green marketing has become a significant phenomenon in today's market, gaining importance in developing and developed countries. It is considered a vital strategy for promoting sustainable development. Since its beginning, green marketing has undergone various stages of development.

According to PEATTIE (2001), the development of green marketing can be divided into three distinct phases. The first phase, known as "Ecological" green marketing, was primarily focused on addressing environmental issues and finding solutions to environmental problems through marketing activities. The second phase, "Environmental" green marketing, shifted its attention towards clean technology. This phase involved the creation of innovative products designed to address pollution and waste-related concerns. The third phase, "Sustainable" green marketing, emerged in the late 1990s and early 2000s.

In contrast, the late 1980s marked the initial stage of green marketing, when "green marketing" was first introduced and discussed within the industry (PEATTIE & CRANE, 2005).

Table 1 Evolution of green marketing over the past thirty years

Stage	Decade	Most important activities in green marketing history
1 st stage	1980s	introduce ecological products; green consumption was very low
2 nd stage	Early– 1990s	high concern for green issues; relatively low consumption of green products; companies began to actively engage in reducing their consumption of raw materials and minimizing waste; corporate efforts also focused on recycling, enhancing energy efficiency, and incorporating corporate social responsibility
3 rd stage	Late 1990s	production processes change, technology & resource utilization; total quality management has integrated to environmental issues; sustainability marketing.
4 th stage	2000	green products and services are offered; 'sustainable green marketing' term has been introduced; both companies and consumers are increasingly adopting eco-friendliness and go-green concept
5 th stage	2020	environmentally friendly products are becoming more and more popular; green products are available in the market and focus on climate change mitigation issues; organic food due to more conscious about health issues; consumers are aware about purchasing green products; government policy and support to produce green products; recycling, and resource conservation behavior; circular economy; 3R (reduce, reuse and recycling); sustainable energy consumption; green transportation; sustainable consumption behavior; net zero carbon emission

Sources: (SOLVALIER, 2010) and Authors' own explanation

3.2 Definition of Green or Environmental Marketing

American Marketing Association (AMA) in 1975 stated that marketing of products that are assumed to be environmentally safe and friendly is called green marketing. Green marketing, also known as environmental marketing, eco-marketing, social marketing, organic marketing, and sustainability marketing, does not have a single fixed definition. However, most definitions of green marketing focus on ecological awareness as a critical element (GROENING ET AL., 2018; PIRES ET AL., 2020). Business organizations employ green marketing to promote, design,

distribute, and price products to minimize their negative impact on the environment (Pires et al., 2020). Many authors have defined green marketing (DANGELICO & VOCALELLI, 2017; PEATTIE & CRANE, 2005; PRAKASH & PATHAK, 2017). For example, "Green marketing also ties closely with issues of industrial ecology and environmental sustainability, such as extended producer liability, life-cycle analysis, material use, resource flows, and eco-efficiency" (PRAKASH, 2002, p. 285). The primary objective of green marketing is to emphasize the significance of environmental protection to consumers while they are using the product.

World-recognized marketing scholars such as (CHARTER & POLONSKY, 2017; DANGELICO & VOCALELLI, 2017; KOTLER & ARMSTRONG, 2018) have highlighted the advantages of green marketing. These benefits include providing eco-friendly advantages, gaining a competitive edge through a positive environmental impact, increasing awareness of environmental and social issues, ensuring sustainable long-term growth with profitability, enhancing energy efficiency and recyclability, and promoting corporate social responsibility (CSR). Green marketing also plays a significant role in helping countries, particularly those classified as Least Developed Countries (LDCs) like Bangladesh, to progress towards achieving SDGs and their associated indicators.

3.3 Environmental Marketing vs Traditional Marketing

Traditional marketing primarily concentrates on achieving consumer satisfaction and maximizing the company's profits. In contrast, green marketing goes beyond profit and customer satisfaction by also addressing the environmental impact of the company's activities (CHAMORRO & BAÑEGIL, 2006). Environmental marketing generates environmental benefits by raising consumer awareness and encouraging environmentally responsible choices (CHARTER & POLONSKY, 2017; NEKMAHMUD ET AL., 2022). Environmental or Green marketing differs significantly from traditional marketing, as shown in Table 2.

Table 2 Traditional Vs. Environmental Marketing

	Traditional marketing	Environmental marketing
Objectives	achieving customer satisfaction and firm's objectives	achieving customer satisfaction, firm's goals, and minimizing ecological negative impact
Parties involved	firms and customers	firms, customers, and environment
Corporate responsibility	economical responsibility	social responsibility
Marketing decisions	from production or manufacture to product utilization	manufacturing to consumption of the product

Green groups	pressure	confrontation or passive attitude	open relationship and collaboration
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Sources: (CHAMORRO & BAÑEGIL, 2006, P. 13)

3.4 Green or sustainable products

The green or sustainable product has been manufactured in a manner that has no adverse impacts on nature. Green products and production mainly encompass categories such as "green product," "environmentally friendly product," and "nature-friendly product." These classifications emphasize specific criteria like the use of recyclable materials, production with recycled content, minimal environmental pollution, absence of harm to wildlife (e.g., no animal testing for cosmetics), biodegradability, and considerations for consumer health (KIRGIZ, 2016)

Many marketing scholars (OTTOMAN & BOOKS, 1998; KATT & MEIXNER, 2020) have attempted to define green products. The terms "green" and "environmental products" are commonly used to describe products naturally made from non-toxic materials, often incorporating recycled components, and may also have eco-friendly packaging. Moreover, PEATTIE AND BUILDING, (2001) defined "a product as 'green' "when its environmental and societal performance, in production, use, and disposal, significantly improves and compared to conventional or competitive product offerings." Green products are frequently considered healthier and safer than conventional products (HONG ET AL., 2020). Additionally, it reduces natural resource consumption and minimizes the negative impacts on the product's life cycle (KETELSEN ET AL., 2020). Repair, recondition, re-manufacture, reuse, reduce, and recycle are developing processes of a green product (PRAKASH, 2002; CHARTER, 2017).

According to MANGUN & THURSTON (2002) and MASSAWE & GEISER (2012), green products have the following qualities: low energy consumption, eco-friendly packaging, recyclability, non-toxic materials, adherence to fair trade principles, energy efficiency, biodegradability (ease of dissolution or decomposition in soil, air, and water), low volatile organic compounds, and recyclability.

"Green food encompasses natural food items which are free from artificial chemicals such as fertilizers, herbicides, pesticides, antibiotics, and genetically modified organisms" (RANA & PAUL, 2017, P. 158). Green food is often regarded as superior to regular food products (QI & PLOEGER, 2019) because it is considered healthier and more environmentally friendly compared to conventional products. Table 3 presents the several benefits of green products.

Table 3 Benefits offered by green products

SL. No.	Type of products	Benefits
1.	Household cleaning products	These products typically contain biodegradable ingredients, are beneficial for health, avoid harmful substances, enhance air quality, and promote reduced packaging waste.
2.	Organically grown food	These products include beneficial nutrients produced using eco-friendly practices with fewer pesticides and reduced chemical and hazardous materials levels.
3.	Eco-friendly electronic products	These products are energy-efficient, offer cost benefits, have a longer shelf life, save money, reduce electronic waste (e-waste), and produce fewer harmful emissions.
4.	Eco-friendly vehicles	These products have a low operating cost, reduce noise pollution, contribute to a cleaner environment, produce fewer hazardous gases, lower carbon emissions, offer cost-effectiveness, and provide long-term benefits.
5.	Recyclable bags	These products help conserve energy during manufacturing, reduce waste, promote sustainable usage, minimize the use of oil in manufacturing, lower pollution, and reduce plastic waste.
6.	Eco-friendly kitchenware	These products offer a healthy lifestyle, reduce microplastic intake while consuming food, are a healthy option for cooking, minimize wastage, support long-term sustainable use, are made of recyclable materials, reduce plastic waste, and are durable and sustainable.
7.	Sustainable clothing	Sustainable or eco-friendly clothing helps decrease waste, lower carbon emissions, mitigate water pollution, conserve water, and advocate for ethical labor practices.
8.	Eco-friendly cosmetics	These products protect the health, safeguard the environment, have fewer side effects, are rich in nutrients, are free of toxic chemicals, incorporate natural flavors and fragrances, use organic oils, are beneficial for hair and skin, involve minimal packaging, produce less waste, and are biodegradable.
9.	Eco-friendly building materials	These products are water-efficient energy-efficient, have lower operational costs, require minimal maintenance, contribute to improved environmental quality, and promote better health.
10.	Zero-waste packaging	These products provide packaging in which every material is either recyclable or reusable. This approach contributes to environmental conservation and results in zero waste and biodegradability.

Source: (FARHEEN, 2020, p. 156) and Authors' own explanation

3.5 Green Consumer

Green consumer is the key contributor to environmental marketing and strategies (PEATTIE & BUILDING, 2001). Green consumers are individuals who willingly and actively choose products that are environmentally friendly and meet their needs (SANA, 2020). A green consumer consistently avoids using products that can harm living organisms, engages in unethical experiments involving animals or humans, and consumes excessive amounts of renewable energy. Moreover, green consumers prioritize product quality, price, and brand value, which embrace environmental concern and protection (PIRES ET AL., 2020). Likewise, green consumerism is closely associated with green consumption, involving environmentally friendly and sustainable buying practices. In developed countries, consumers are altering their behavior and beginning to embrace eco-friendly consumption practices to reduce the adverse environmental impact of their choices (PIRES ET AL., 2020). Thus, green consumption can contribute to environmental sustainability (NEKMAHMUD ET AL., 2022).

3.6 Pro-environmental Behavior (PEB)

Researchers have used a range of interchangeable terminology to describe environmental concern behavior, including pro-environmental behavior, environmentally friendly behavior, environmentally significant behavior, environmentally sustainable behavior, and green behavior. This term broadly refers to any action or behavior that promotes or supports the environment's well-being. Recycling, reducing energy consumption, conserving water, and using environmentally friendly products are examples of pro-environmental behaviors (NEKMAHMUD, ET AL., 2022). KOLLMUSS AND AGYEMAN (2002, p. 240) define pro-environmental behavior as 'behavior that consciously seeks to reduce the negative impacts of their actions on the environment and build the world. This definition incorporates two dimensions of primary environmental behavior, identified by STERN (2000): environmental impact and environmental intent. Firstly, environmental impact refers to the observable impacts of behavior on the availability of natural resources and the structure of ecosystems. Secondly, environmental intent relates to the conscious intention behind the behavior, suggesting a deliberate effort and behavioral intention to bring about positive environmental changes (NGUYEN, LOBO, & NGUYEN, 2018). Pro-environmental behavior refers to activities and behaviors undertaken by individuals or groups to decrease their negative influence on the natural environment and the built (human-made) environment. It denotes a dedication to environmental sustainability and can take many forms, from personal choices and lifestyle adjustments to more extensive community engagement and governmental initiatives (UDALL ET AL., 2020; NGUYEN, LOBO &

NGUYEN, 2018). According to STERN ET AL. (1999), pro-environmental behavior can be categorized into two domains: public and private spheres. The public sphere involves environmental activism (environmental organization), good citizenship (e.g., petitioning on environmental issues), and support for environmental-related policies. The private sector emphasizes consumer research, which includes purchasing, sustainable consumption, and disposal of environmentally hazardous personal and household products (STERN, 1999; NGUYEN, LOBO & NGUYEN, 2018). To minimize CO₂ emissions and limit global climate change, it is essential to encourage pro-environmental behavior (VAN VALKENGOED, ABRAHAMSE & STEG, 2022).

3.7 Sustainable Consumption Behavior (SCB)

Research on green consumer behavior first emerged in the 1970s, and there was a notable increase in research interest in environmental issues during the 1990s (HARTMANN & APAOLAZA IBÁÑEZ, 2006). Green consumption involves the consumption of goods and services in a way that does not have negative impact on the environment or culture (United Nations Decade, 2005-2014). According to BELZ AND PEATTIE (2009), sustainable consumption behavior, or sustainable consumer behavior, refers to the intention of consumers to enhance both social and environmental aspects while also fulfilling their needs. Moreover, JANIKOWSKI (2000) classified sustainable consumer behavior into four principles: selection, minimization, maximizing, and segregation. It includes the behavior of choosing environmentally friendly products and services (selection), minimizing the range of consumption (minimization), maximizing functionality and extending the life of the product (maximization), and segregating and recollecting the waste for recycling or reusing purpose (segregation). Sustainable consumer behavior is a specialized field within consumer behavior that examines the reasons by which consumers incorporate environmental considerations into their buying choices. Sustainable consumption was initially proposed by the Oslo Symposium as an overarching concept that encompasses various aspects, including meeting essential needs, enhancing the quality of life (QoL), optimizing resource utilization, and reducing waste.

Sustainable consumption behavior (SCB) aims to fulfil current needs without threatening the capacity of future generations to fulfil their own needs (LIU ET AL., 2016) and aims to protect the environment. The concept of SCB is extensive and encompasses environmental, economic, and social dimensions. Its goal is to reduce waste and energy consumption while enhancing the well-being of both producers and consumers through environmentally friendly production and consumption processes (HAWN ET AL., 2018). SCB also encompass voluntary actions related to ethics, green purchasing, and green consumption.

In the existing literature, various definitions of SCB have been proposed. For instance, DONG ET AL. (2012) stated that it encompasses activities like green purchases, reuse, and recycling.

Moreover, GENG ET AL. (2017) offered a product life cycle perspective when defining SCB, which includes factors related to the purchase, use, treatment, and disposal of products. This approach is shared by other scholars like (WANG ET AL., 2014), who also utilize the product life cycle framework to examine SCB from different angles. In this definition, environmental sustainability behavior aligns with the concept of green purchasing behavior as proposed by (GENG ET AL., 2017) whereas reusability encompasses elements of both reuse and recycling, embodying the idea of sustainability through product longevity and responsible disposal. Therefore, sustainable consumption behavior encompasses not only green purchasing behavior but also reuse and recycling behavior. In essence, it combines these various aspects into a comprehensive approach to responsible consumption.

SCB encompasses a wide range of forms and practices, including energy-saving behavior food consumption choices, green products purchase, and responsible product disposal (WANG ET AL., 2011; NEKMAHMUD ET AL., 2022). These diverse forms collectively contribute to a more sustainable approach to consumption.

3.8 The study is based on the definition of Sustainable consumption behavior (SCB)

The Oslo Symposium on Sustainable Consumption (1994) provided a comprehensive definition of sustainable consumption behavior which describes the use of goods and services that meet basic needs and improve quality of life while consuming fewer natural resources, fewer toxic substances, and producing less waste and fewer pollutants throughout their life cycle. This strategy tries to protect future generations' needs.

The United Nations Environment Programme defines sustainable consumption as the use of material goods, energy, and intangible services in a way that has the least environmental impact. This method ensures that human needs are satisfied not only now, but also in a way that preserves resources and the environment for future generations.

Sustainable consumption involves establishing sensible consuming habits in which individuals must consider the post-consumption effects on the environment, quality-of-life, and future generations. It refers to the act of avoiding overindulging in the purchase and careful use of goods and services that satisfy basic needs (QUOQUAB ET AL., 2019).

Sustainable consumption includes actions that are both socially and environmentally responsible when purchasing, utilizing, and disposing of goods and services. It encourages the consideration

of total quality of life through careful and responsible consumption practices, as well as the efficient use of goods and services. The concept of sustainability is multifaceted, with three important aspects: (a) *improving quality of life*, (b) *caring for environmental well-being*, and (c) *preserving future generations' well-being*.

The abovementioned definitions of SCB are considered in this study. I am conducting this study on how to identify the key influential factors, influence path, and decision-making mechanisms that are affecting consumers' attitudes and sustainable consumption behavior. Moreover, this study develops an integrated model that measures the two sections of SCB, including 1) green purchase behavior, and 2) recycling & resource conservation behavior. Table 4 shows the daily use of consumers' green products/environmentally friendly products, which includes two sections of consumers' sustainable consumption behavior.

Table 4 Types of green products list

Type of green products	Example of Daily use of green consumer product
Organic food or organically grown food	offer several nutrients and benefits, as organic food is cultivated using environmentally friendly practices with minimal pesticide usage. Organic food also contains fewer harmful chemicals and hazardous materials.
General eco-friendly products	household cleaning products, sustainable clothing, eco-friendly cosmetics, biodegradable products
Eco-friendly electronic products	energy efficient, longer shelf life, cost benefits, reduces e-waste, produces less harmful emissions
Recycling, reuse, and resources conservation	recyclable bags, reusable cloths, eco-friendly packages, Zero-waste packaging, less water use, less use of electricity e.g., turn off the lights, recycling used appliances

Sources: Authors' own explanation

3.9 Sustainable Consumption Behavior

Sustainable consumption behavior can be categorized into four groups based on the types of products: general sustainable consumption (eco-friendly/green products); sustainable food consumption (organic food), sustainable energy consumption (energy-efficient products) and recycling & resource conservation behavior.

3.9.1 General Sustainable Consumption Behavior (eco-friendly/green products)

General sustainable consumer behavior includes green purchase behavior of household cleaning products, sustainable clothing, eco-friendly cosmetics, biodegradable products, and reusable products.

3.9.2 Sustainable Food Consumption Behavior (organic food)

Sustainable food consumption refers to consuming organic or locally sourced foods that take fewer resources during production. This involves organic farming without the use of artificial fertilizers or pesticides, as well as choosing foods that are fewer miles in local food consumption and can be healthier and more nutritious (LUCIA ET AL., 2017). Besides production, it also involves minimizing food waste (EVANS ET AL., 2017). Prior studies have emphasized organic and locally sourced foods as sustainable options. These foods are seen as healthier, fresher, and better for the environment while contributing to the local economy (DE-MAGISTRIS & GRACIA, 2016). Consumer organic foods are characterized by their beneficial nutrients, eco-friendly production methods with fewer pesticides, and reduced chemicals and hazardous materials.

3.9.3 Sustainable Energy Consumption Behavior (energy-efficient products)

Energy consumption sustainability is defined as decreasing energy usage while improving energy efficiency (OWEN & GARNIATI, 2016). Sustainable energy consumption entails buying energy-efficient products that lower energy consumption and expenses while enhancing energy efficiency (HOSSAIN, NEKMAHMUD & FEKETE-FARKAS, 2022). Adopting energy-efficient household appliances (EEHA) entails using sustainable energy sources within homes and taking steps to prevent energy wastage in a broader sense. These energy-saving appliances contribute to advancing low-carbon economies by conserving valuable energy resources (ZHAO ET AL., 2022; ZHOU ET AL., 2022). Households can produce substantial levels of greenhouse gas (GHG) emissions through their energy use, consumption of goods, and utilization of services (BAIOCCHI ET AL., 2010). According to my previous studies, purchasing energy-efficient products with less environmental impact is considered sustainable or green consumption (HOSSAIN, FEKETE-FARKAS & NEKMAHMUD, 2022; HOSSAIN, NEKMAHMUD & FEKETE-FARKAS, 2022).

3.9.4 Recycling & Resource conservation behavior (RRCB)

One significant contribution to sustainability is the recycling of used products. Recycling plays a vital role in environmental responsibility by promoting the conservation of natural resources and reducing the volume of solid waste generated (ARI & YILMAZ, 2016). Recycling conserves natural resources, saves energy in manufacturing, reduces pollution, and lowers the greenhouse effect and acid rain (OSKAMP, 1995). Reducing, reusing, and recycling are three approaches to solving the waste problem (e.g., U.S. EPA, 1992). According to OSKAMP (1995), the concept of

"Reduce" involves minimizing the use of products from the outset, such as reducing packaging, conserving water, and consuming less electricity by, for instance, turning off lights when not needed. "Reuse" pertains to repetitively utilizing the same items, like refilling milk bottles or selling pre-owned clothing, cars, computers, and similar items. Lastly, "Recycling" encompasses the procedure of crafting new products from materials that have been recycled, such as creating new paper, glass bottles, aluminum cans, or even producing asphalt from recycled rubber tires.

Similarly, resource conservation means reducing solid waste production, overall resource consumption, and utilizing recovered resources. Resource conservation means the reduced consumption of electricity, natural gas, and natural resources, e.g., water and energy (LIU ET AL., 2021). Resource conservation behavior means reducing the use of water, energy, and raw materials. According to WILSON ET AL. (1998), resource conservation means achieving more with less. It refers to managing natural resources for maximum benefit to present and future generations.

Recycling and resource conservation behavior include using recyclable bags, reusable cloths, eco-friendly packages, zero-waste packaging, less water use, and less use of electricity, e.g., turning off the lights and recycling used appliances.

Table 5 summarizes the previous 12 years of empirical research on pro-environmental and sustainable consumption behavior.

Table 5 Previous empirical research on pro-environmental and sustainable consumption behavior (2010-2022)

Author & Years	Purpose/Aims	Geography & valid samples	Applying theory	Methods	Products categories	Factors with significant direct	Factors with insignificant effect
(SUN ET AL., 2022)	<ul style="list-style-type: none"> to measure the negative and positive drivers of green buying 	China (638)	social dilemma theory, psychological egoism theory	Hierarchical regression analysis	general green products	<ul style="list-style-type: none"> moral obligations, green self-identity, environmental concern & social pressure → GPI 	perceived cost and price sensitivity → GPI
(OGIEMWONY, 2022)	<ul style="list-style-type: none"> to identify the influencing factors of GPB of Y generation 	Nigeria (300)	TPB	PLS-SEM	general green products	<ul style="list-style-type: none"> green behavior control, environmental awareness, trust, green product value, green price sensitivity → green behavior 	
(HWANG, 2022)	<ul style="list-style-type: none"> to examine the gap between the consumers' subjective propensity to exhibit sustainable consumption attitudes and actual behavior 	Korea (422)	conventional consumption value theory	Regression analysis	general green products		
(LUO ET AL., 2022)	<ul style="list-style-type: none"> to explore the relationship among consumers' perceived value, satisfaction, and purchase intention of energy-saving products 	China (399)	theory of perceived value, appraisal-emotional response-coping theory	SEM	energy-saving products	<ul style="list-style-type: none"> functional value, emotional value, conditional value, green value → consumer satisfaction 	<ul style="list-style-type: none"> social value → consumer satisfaction
(LIAO & XING, 2022)	<ul style="list-style-type: none"> to measure residents' plastic recycling behaviors 	China (803)	TPB	SEM	plastic	<ul style="list-style-type: none"> social capital (trust, social norms and social networks) → plastic recycling behavior personal norms & attitudes are mediators between social capital and PRB 	<ul style="list-style-type: none"> perceived behavioral control weakens the effect of social norms on PRB
(WAN ET AL., 2022)	<ul style="list-style-type: none"> to evaluate the effects of place dependence and place identity on recycling intention 	Hong Kong (1071)	TPB	SEM	recyclable products	experiential attitude, instrumental attitude, PBC → recycling intentions	<ul style="list-style-type: none"> subjective norms → recycling intention

(SALOM ET AL., 2021)	<ul style="list-style-type: none"> to examine prior purchase experiences of GPI 	Brazil (185)	TPB	SEM	general green products	<ul style="list-style-type: none"> green attitude →GPIs 	<ul style="list-style-type: none"> previous purchase experiences, environmental consciousness →GPI
(WANG & LI, 2021)	<ul style="list-style-type: none"> to examine the repurchase intention of energy-efficient products 	Taiwan (400)		SEM	energy-efficient products	<ul style="list-style-type: none"> need for social approval, attitudes → repurchase intention 	<ul style="list-style-type: none"> need for uniqueness → repurchase intention
(ASLAM ET AL., 2020)	<ul style="list-style-type: none"> to find the influence factors of purchase intentions for energy-efficient household appliances 	Pakistan (291)	TPB	PLS-SEM	energy-smart household appliances	<ul style="list-style-type: none"> attitude, PBC, subjective norms, moral norms, environmental concern → PI 	<ul style="list-style-type: none"> subjective norms & environmental knowledge → PI
(YUE ET AL., 2021)	<ul style="list-style-type: none"> to investigate the impact of perceived value on GPI 	China (745)	TCV, double-entry mental accounting theory	SEM	energy-efficient appliance	<ul style="list-style-type: none"> perceived benefits (functional value, social value, emotional value, green value) → green consumption 	<ul style="list-style-type: none"> perceived sacrifices (economic risk, time risk) → green consumption
(IDREES ET AL., 2021)	<ul style="list-style-type: none"> to understand consumers' purchase intention of energy-efficient appliances 	Pakistan (373)	TPB	PLS-SEM	energy-efficient appliance	<ul style="list-style-type: none"> altruism, knowledge of eco-label, attitude, subjective norm, PEB → PI 	
(AYAR, 2021)	<ul style="list-style-type: none"> to identify consumers factors affecting SCB 	Turkey (384)	TPB	SEM	general green products	<ul style="list-style-type: none"> attitude, subjective norm, PBC, altruistic values → SCI; intention →SCB 	<ul style="list-style-type: none"> PBC → SCB
(CHAO ET AL., 2021)	<ul style="list-style-type: none"> to understand the factors influencing recycling behavior in college students 	Taiwan (523)	TPB	PLS-SEM	recyclable products	<ul style="list-style-type: none"> environmental concern, motivation, interpersonal altruism, place attachment → recycling behavior motivation, place attachment → interpersonal altruism 	
(LUO ET AL., 2020)	<ul style="list-style-type: none"> to investigate how green advertising skepticism affects GPI through social media 	China (685)	stimulus-organism-response model	SEM	general green products	<ul style="list-style-type: none"> perceived information utility → GPI 	<ul style="list-style-type: none"> green advertising skepticism → GPI
(ZHANG ET AL., 2020)	<ul style="list-style-type: none"> to explore consumers' willingness to pay premium price for energy-saving appliances 	China (327)	TPB, consumer perceived value		energy-saving appliances	<ul style="list-style-type: none"> perceived quality, price, emotional, and environmental values, perceived effectiveness of energy efficiency labeling 	<ul style="list-style-type: none"> social value, environmental awareness, and media

						<p>institutional mechanisms and personal norms → purchase attitude.</p> <ul style="list-style-type: none"> control variables (education, age, income, gender) 	<p>publicity → purchase attitude</p>
(ISSOCK ISSOCK ET AL., 2020)	<ul style="list-style-type: none"> to examine the importance of relationship marketing and customer trust in energy-efficiency labels in social marketing 	South Africa (517)	commitment–trust theory	SEM	electronic appliances	<ul style="list-style-type: none"> satisfaction, environmental attitude, perceived quality, perceived price → customer trust in energy-efficient labels trust in energy-efficient labels → PI & loyalty 	<ul style="list-style-type: none"> environmental Knowledge, social influence → customer trust in energy-efficient labels
(HAMEED & KHAN, 2020)	<ul style="list-style-type: none"> to investigate the extended role of goal-framing theory to predict SCB 	Pakistan (418)	goal-framing theory	PLS-SEM	home appliances (air conditioners)	<ul style="list-style-type: none"> normative motivation, hedonic motivation → PI sustainable products hedonic motivation, purchase intention → SPB 	<ul style="list-style-type: none"> gain motivation → PI sustainable products & SPB normative motivations → SPB
(GÓMEZ-LLANOS ET AL., 2020)	<ul style="list-style-type: none"> to evaluate consumers' awareness and perception of sustainable water consumption 	Spain (472)	NAM	PLS-SEM	water	<ul style="list-style-type: none"> water consumption services, indirect domestic water consumption, direct domestic water consumption → sustainable water consumption behavior 	
(WANG ET AL., 2019)	<ul style="list-style-type: none"> to explore the influencing factors of consumers' purchase of energy-saving household appliances 	China (369)	NAM, TPB	SEM	energy-saving household	<ul style="list-style-type: none"> label reference willingness, attitude, personal norms, subjective norms → PI 	<ul style="list-style-type: none"> behavior control → PI
(ABU-ELSAMEN ET AL., 2019)	<ul style="list-style-type: none"> to examine factors affecting the intention to purchase energy-saving products 	Jordan (474)	TRA	SEM	energy-saving household	<ul style="list-style-type: none"> attitude, environmental awareness, subjective norms → PI 	<ul style="list-style-type: none"> perceived performance risk, perceived financial. risk → PI
(CHO, 2019)	<ul style="list-style-type: none"> to examine factors influencing students' campus recycling intention and actual recycling behavior 	USA (434)	TPB, model of goal-directed behavior, self-determination theory	SEM		<ul style="list-style-type: none"> self-determined motivation, attitude, PBC, negative anticipated emotion → recycling intention 	<ul style="list-style-type: none"> recycling intention, self-determined motivation → actual recycling behavior

(ARLI ET AL., 2018)	<ul style="list-style-type: none"> to explore the roles of consumers' perceived willingness to be green effects and GPI 	Indonesia (916)	TPB	SEM	household products	<ul style="list-style-type: none"> attitude, subjective norm, perceived behavioral control, pro-environmental self-identity, ethical obligation, and consumers' readiness → GPI 	<ul style="list-style-type: none"> perceived sense of responsibility → GPI subjective norm, ethical obligation → perceived readiness to be green
(ZHANG ET AL., 2018)	<ul style="list-style-type: none"> to explore the mechanisms of factors affecting urban household energy-saving behavior 	China (297)		SEM	energy-saving household	<ul style="list-style-type: none"> external influencing factors, individual subjective characteristic behaviors → energy-saving behavior values (individual subjective factors and quality), external influencing factors → energy-saving behavior 	
(ISSOCK ISSOCK ET AL., 2018)	<ul style="list-style-type: none"> to examine the key drivers of consumers' attention to energy-efficiency labels 	South Africa (440)	Signaling theory, the attitude-to-behavior theory	SEM	home appliance	<ul style="list-style-type: none"> environmental concern, environmental attitude, product quality, social norms, environmental trust → PI 	<ul style="list-style-type: none"> subjective environmental knowledge, product price → PI
(NGUYEN ET AL., 2018)	<ul style="list-style-type: none"> to examine young consumers' green purchase behavior in emerging market 	Vietnam (289)	TPB and extended models, NAM, value-belief-norm model	Multivariate statistic	energy efficient household appliances	<ul style="list-style-type: none"> knowledge, attitudes, personal norms, environmental self-identity, and perceived barriers → GPB 	<ul style="list-style-type: none"> subjective social norms and warm glow → GPB
(TAN ET AL., 2017)	<ul style="list-style-type: none"> to examine the determinants of GPI for energy-efficient household appliances by applying the moral extension of TPB 	Malaysia (210)	TPB	SEM	energy-efficient household appliances	<ul style="list-style-type: none"> attitudes, PBC, moral norms → PI 	<ul style="list-style-type: none"> subjective norms, environmental concern, environmental knowledge → PI
(PARK & KWON, 2017)	<ul style="list-style-type: none"> to examine the motivations of consumers' energy-saving purchase behavior 	South Korea (1050)	TPB, general model of perceived value	SEM	energy-saving products	<ul style="list-style-type: none"> perceived benefit (social responsibility, environmental Knowledge) → perceived value perceived risk (perceived cost) → perceived value perceived value → purchase intention → actual usage 	<ul style="list-style-type: none"> trust → perceived risk

(NGUYEN ET AL., 2017)	<ul style="list-style-type: none"> to develop a unique values, knowledge, attitudes, and behavior model 	Vietnam (682)	Values, knowledge, attitudes and behaviors (VKAB)	SEM	energy efficient household appliances	<ul style="list-style-type: none"> egoistic, biospheric, altruistic, knowledge, →attitude environmental protection, egoistic, biospheric, altruistic, knowledge →attitude 	
(NGUYEN ET AL., 2017B)	<ul style="list-style-type: none"> to investigate how consumers' altruistic values influence their PEB of energy-efficient behavior 	Vietnam (682)	TPB, VBN theory	hypothetic-deductive approach, SEM	energy efficient household appliances	<ul style="list-style-type: none"> personal norms, environmental attitudes, subjective social norms, perceived barriers → PB 	
(KANG ET AL., 2017)	<ul style="list-style-type: none"> to measure consumers' sustainable water consumption behavior 	USA (825)	TPB	SEM	water	<ul style="list-style-type: none"> sustainable water consumption attitude, subjective norms, PBC, moral obligation → sustainable water consumption behavior 	<ul style="list-style-type: none"> utilitarian water belief, ecological water belief, water resource concern → sustainable water consumption behavior
(POŠKUS & ŽUKAUSKIENĖ, 2017)	<ul style="list-style-type: none"> to predict adolescents' recycling behavior 	Lithuania (612)	TPB	SEM			
(NGUYEN ET AL., 2016)	<ul style="list-style-type: none"> to measure PEB of energy-efficient household appliances. 	Vietnam (682)	TPB	SEM	energy efficient household appliances	<ul style="list-style-type: none"> biospheric values PEB by enhancing consumers' attitudes towards environmental protection subjective norms, environmental self-identity by mitigating their perceived inconvenience associated with eco-friendly products 	
(TESTA ET AL., 2016)	<ul style="list-style-type: none"> to determine factors of curtailment and purchasing energy-related behavior 	Italy (213)		SEM	energy-saving products	<ul style="list-style-type: none"> personal norms, trust in private company, trust in friends & family, personal capabilities → PB personal norms, trust in friends & family, personal capabilities → curtailment behavior 	<ul style="list-style-type: none"> trust in government, trust in NGO → PB trust in government, trust in NGO, trust in private company → curtailment behavior

(ARI & YILMAZ, 2016)	<ul style="list-style-type: none"> to measure housewives' recycling behavior 	Turkey (400)	TPB	SEM	household recycling	<ul style="list-style-type: none"> subjective norms, PBC → recycling intention PBC → recycling behavior 	<ul style="list-style-type: none"> attitude → recycling intention
(WANG ET AL., 2014B)	<ul style="list-style-type: none"> to measure influencing factors of SCB 	China (1403)	TPB	Descriptive analysis, path analysis	general green products	<ul style="list-style-type: none"> environmental knowledge, responsibility, value, sensitivity, perceived behavioral control, response efficacy, perception of consequence, → behavior intention & SCB 	
(LEARY ET AL., 2014)	<ul style="list-style-type: none"> to measure environmental concern, perceived marketplace influence, and SCB 	USA, 460		SEM	general green products	<ul style="list-style-type: none"> environmental consciousness → perceived marketplace influences, post-consumption, energy efficiency, and eco-conscious buying behavior 	
(GADENNE ET AL., 2011)	<ul style="list-style-type: none"> to develop a conceptual framework of consumer EB to identify how consumers' environmental beliefs and attitudes influence on energy saving behavior 	Australia (218)		MANOVA		<ul style="list-style-type: none"> environmental norms, general environmental beliefs, drivers of environmental behavior, social / community influence → EB attitudes 	<ul style="list-style-type: none"> environmental barriers → EB attitudes environmental behavior attitudes → EB
(PINTO ET AL., 2011)	<ul style="list-style-type: none"> to evaluate how personal values influence environmentally responsible water consumption 	Brazil (400)		multivariate analysis	water	<ul style="list-style-type: none"> gender, age, personal values, and social values → responsible water consumption environmental awareness and values → wasteful 	<ul style="list-style-type: none"> education, higher education → ERC

3.10 Theoretical Orientation

Researchers (NGUYEN ET AL., 2018; ABU-ELSAMEN ET AL., 2019; WANG ET AL., 2019; OGIEMWONY, 2022; LUO ET AL., 2020) have previously explored sustainable consumption behavior through various theoretical frameworks, including theory of reasoned action (FISHBEIN & AJZEN, 1975), theory of planned behavior (AJZEN, 1991), signaling theory (SPENCE, 1973), value-belief-norm theory (STERN, 2000), theory of consumption value (SHETH ET AL., 1991) norm activation model (SCHWART, 1997) and stimulus-organism-response model (MEHRABIAN & RUSSELL, 1974). Their investigations have often focused on specific products or contexts, such as organic food, environmentally friendly products, energy-efficient appliances, eco-conscious hotels, water consumption practices, and recyclable products. The majority of previous studies applied theory of planned behavior to measure consumer sustainable consumption behavior. In my earlier study (NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022), we combined the theory of planned behavior and consumption values to explore sustainable consumption and choice behavior of European tourists. We extended theory of planned behavior and consumption values theories by adding green trust and environmental knowledge variables into the theoretical framework. In my other study (HOSSAIN, FEKETE-FARKAS & NEKMAHMUD, 2022), I applied theory of reasoned action and planned behavior to assess consumer purchasing behavior related to energy-efficient appliances in a developing country. We have employed those theories to understand how consumers make choices and contribute to sustainable energy consumption. Moreover, we extended the TPB with moral norms. My recently published paper (NEKMAHMUD, ET AL., 2022) introduces a novel model for assessing consumers' intentions to make environmentally friendly purchases through social media. The model expands upon the TPB by incorporating additional variables, specifically green thinking, social media usage patterns, and the impact of social media marketing strategies. In another working paper, I applied psychological distance theory with TPB to measure the pro-environmental behavior of climate change mitigation.

However, studies on consumer sustainable consumption with theories are in their infancy. Therefore, I have chosen to synthesize the theory of planned behavior (TPB) and attitude-behavior-context (ABC) models in the same framework. This integration will serve as the foundation for a novel research model, addressing these research gaps and providing a comprehensive understanding of sustainable consumption's two sections (green purchase behavior and recycling & resource conservation behavior).

3.10.1 Theory of planned behavior (TPB)

Theory of Planned Behavior, developed by (AJZEN, 1991), represents an extended model that addresses the weakness of the Theory of Reasoned Action (TRA), which was also proposed by (AJZEN & FISHBEIN, 1977; AJZEN & FISHBEIN, 1980). TPB is a psychological theory that connects beliefs to behavior. TPB investigates the relationships between beliefs, attitudes, behavioral intentions, and behaviors in various human domains (AJZEN, 1991). Further, BOLDERO (1995) argued that TPB offers a comprehensive framework for understanding the decision-making factors that influence consumers' engagement with and purchase of environmentally friendly products. TPB comprises three key variables: attitude, subjective norm, and perceived behavioral control as mentioned in Figure 2. Attitude reflects "the extent to which a person holds a favorable or unfavorable evaluation or appraisal of the behavior; subjective norm refers to 'the perceived social pressure to perform or not to perform the behavior.' Moreover, subjective norm describes an individual's perception of how their behavior is influenced by societal factors or the opinions of others, and perceived behavioral control (PBC) denotes 'the perceived ease or difficulty of performing the behaviors' (Ajzen, 1991, p. 188). This theory argues that intention results from individual attitudes and subjective norms (AJZEN, 1991; NEKMAHMUD & FEKETE-FARKAS, 2020). The theory is commonly applied in behavioral science, e.g., psychology, green purchase behavior, breastfeeding, energy consumption, organic food consumption, physical fitness, tourist activity or tourist behavior, and environmental, mental behavior (AHMAD & ZHANG, 2020; NEKMAHMUD, 2020, 2020B, WANG ET AL., 2020). TPB is effectively implemented for understanding and predicting a broad spectrum of consumer intentions and behaviors (CHOI & JOHNSON, 2019; WANG ET AL., 2020). Scholars have successfully (AHMAD & ZHANG, 2020; NEKMAHMUD, 2020) employed the TPB to predict consumer choices in various contexts, including food and product selection. For example, TPB has been utilized to anticipate consumers' intentions to purchase environmentally friendly or organic food products (NEKMAHMUD & FEKETE-FARKAS, 2020; SULTAN ET AL., 2020; NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022). In addition to food and product choices, some scholars have also applied the TPB to measure tourists' environmentally friendly or "green" purchase behavior in the context of tourism and travel (GAUTAM, 2020; NEKMAHMUD, 2020).

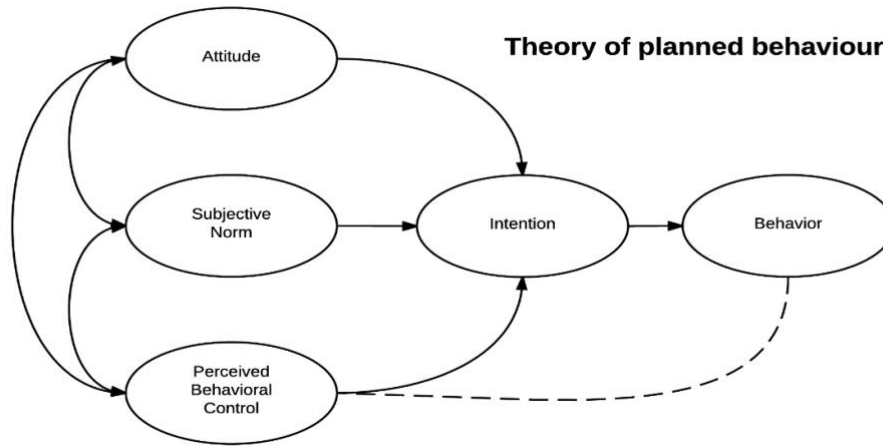


Figure 2 Theory of Planned Behavior

(Sources: AJZEN, 1991)

3.10.2 Attitude-Behavior-Context (ABC) theory

Attitude-Behavior-Context (ABC) theory was introduced by (STERN, 2000) or (GUAGNANO ET AL., 1995). In contrast, behavior is dependent on external conditions (context), i.e., "all external sources of support or opposition to behavior, which can be physical, financial, legal, or social" (GUAGNANO ET AL., 1995A, P. 702). Scholars OSKAMP & STERN (1987) stated that there are causal relationships between external and internal factors that lead to environmental benefits. According to GUAGNANO ET AL. (1995), pro-environmental behavior (B) is further determined by the interactions/combination of inner environmental attitudes (A) and external contextual factors (C) as mentioned in Figure 3. Consumer purchase intention and behavior also depend on particular content, which varies on the external condition (GROENING ET AL., 2018). For this reason, ABC theory is appropriate for environmental marketing and context. Previously, a few studies have widely used ABC theory as the critical fundamental theory on sustainable consumption behavior (QIN & SONG, 2022), such as climate warming, green consumption, waste recycling, organic food, pro-environmental behavior (YADAV ET AL., 2019; MASEEH ET AL., 2022; SADIQ ET AL., 2022; XING ET AL., 2022). Their studies suggested that consumers are motivated to adopt sustainable consumption behaviors through attitudinal and contextual factors.

Within the ABC theory, contextual factors encompass the specific circumstances and conditions that influence individual or group consumers. These contextual factors can contain

various elements, such as environmental conditions, government regulations, external incentives, community norms, physical or ideological challenges of specific actions (e.g., religious beliefs), and pressure from interest groups. These contextual factors significantly shape and guide consumer behavior toward sustainability and other desired outcomes (MASEEH ET AL., 2022; STERN, 2000). For example, the high energy cost is a prime example of a contextual factor that significantly impacts individuals' decisions and behaviors related to energy consumption (BLACK ET AL., 1985). Similarly, in sustainable consumption, ecological concern is considered an external factor affecting consumer attitude and green purchase behavior (MASEEH ET AL., 2022). Nevertheless, attitudinal factors reflect a person's beliefs, values, and norms that affect his or her behavior (MASEEH ET AL., 2022; STERN, 2000). For example, perceptions of risk are considered attitudinal factors contributing to individuals' unpleasant outcomes (MASEEH ET AL., 2022). Prior research in consumer behavior has identified a range of attitudinal and contextual factors, including interpersonal influences, personal values and emotions, advertising, physical surroundings, institutional considerations, and temporal viewpoints, which contribute to an understanding of how consumers respond in terms of their behaviors (YADAV ET AL., 2019). This research highlights the significance of both attitudinal and contextual factors as driving forces behind consumers' adoption of pro-environmental and sustainable consumption behaviors.

Based on the ABC theory, this study identifies several contextual and attitudinal factors, e.g., environmental knowledge, ecological concern, positive context (marketing tools, perceived value, green trust, positive GWoM government support/policy), and negative context (high price sensitivity, greenwashing concern), which are directly and indirectly influenced consumer sustainable consumption behavior.

Given the discussion mentioned earlier, I believe that ABC theory is the most appropriate for investigating sustainable consumer consumption.

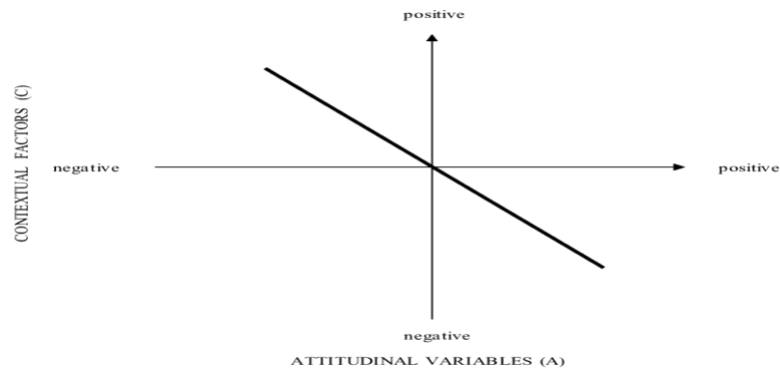


Figure 3 Attitude-Behavior-Context (ABC) Model

(Source: STERN, 2000, p.8)

3.10.3 Integration of Theory of Planned Behavior (TPB) and Attitude-Behavior-Context (ABC)

The stimulus-organism-response theory (MEHRABIAN & RUSSELL, 1974), social impact theory (LATANÉ, 1981), norm activation model (SCHWART, 1997), theory of reasoned action (FISHBEIN & AJZEN, 1975), and theory of consumption value (SHETH ET AL., 1991) are focused on individuals and inadequate range contexts to determine green purchase intentions and behavior. These theories have limitations in accurately forecasting a broad spectrum of sustainable consumer behaviors. Those theories individually could not integrate the missing essential factors that influence consumer SCB and lead to climate change mitigation. There are still missing mechanisms to measure SCB. Over the past few decades, TPB has found widespread application in the field of pro-environmental behavioral science, e.g., environmental psychology, environmentally friendly purchasing, sustainable consumption, and organic food consumption (CHEN & PENG, 2012; NEKMAHMUD, 2020). TPB includes three variables: attitude, subjective norm, and perceived behavioral control (AJZEN, 1991). According to TPB, intention and behavior are the outcome of individual attitudes, and subjective norms refer to an individual's viewpoint of behavior under the influence of society (NEKMAHMUD & FEKETE-FARKAS, 2020B; VERMA & CHANDRA, 2018). These three variables (attitude, subjective norm, and perceived behavioral control) are essential in determining consumer sustainable purchase intention and SCB. Previous studies confirmed a strong relationship between purchase intention and behavior (AJZEN & FISHBEIN, 2005). KANCHANAPIBUL ET AL. (2014) confirmed that green purchase intention frequently drives purchasing behavior for human health and environmental concerns. Some scholars (WIEDERHOLD & MARTINEZ, 2018; ARLI ET AL., 2018;

ALBAYRAK ET AL., 2013) suggested that the TPB constructs, i.e., attitudes, perceived behavior control, and subjective norms, are the predictors of green purchase behavior (SHARMA, ASWAL & PAUL, 2023). Therefore, this study focused on measuring the SCB of the young generation who have already experienced purchasing green products; thus, we did not consider the purchasing intention variable in the proposed model. Moreover, earlier studies of pro-environmental behavior applied constructs of the TPB model, and they connected attitude, subjective norms, and perceived behavior control with the actual behavior (NGUYEN ET AL., 2018; KANG ET AL., 2017; QIN & SONG, 2022). Their studies also omitted purchase intention from their proposed model to better explain the consumers' actual sustainable consumption behavior.

Most of the research focused on explaining the intention to engage in a wide range of pro-environmental behavior (ARLI ET AL., 2018; IDREES ET AL., 2021; NEKMAHMUD ET AL., 2022). These studies have taken a proactive approach in departing from the original model to provide more comprehensive explanations for behaviors such as the purchase of energy-efficient household products, green products, and recycling (WANG ET AL., 2019; ARLI ET AL., 2018; IDREES ET AL., 2021; CHO, 2019). Similarly, in this study, I moved assertively away from the original TPB model and efforts to better explain the actual consumer-sustainable consumption behavior of green products and recycling & resource conservation behavior. Moreover, in the ABC model, behavior depends on external or internal conditions (context) and attitude. According to GUAGNANO ET AL. (1995), pro-environmental behavior (B) is further determined by the interactions/combination of inner environmental attitudes (A) and external contextual factors (C) consumer (GROENING ET AL., 2018). Therefore, this study did not consider the sustainable purchase intention in the proposed model by integrating TPB and ABC theories.

Conversely, ABC theory is more appropriate for the environmental marketing context (QIN & SONG, 2022). This study identifies several contextual factors, e.g., ecological context (environmental knowledge, climate concern), positive context (marketing tools, green trust, government support/policy), and negative context (high price sensitivity, greenwashing concern), which are directly and indirectly influenced consumer sustainable consumption behavior.

Some scholars criticize both TPB and ABC theories. For instance, TPB did not consider the role of an individual's emotions in shaping intentions and decision-making, and it overlooks

the importance of addressing human needs before taking action (NEKMAHMUD ET AL., 2022; NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022; SUSSMAN & GIFFORD, 2019). TPB failed to establish the causal relationship between external and internal factors of SCB. The ABC model is the most appropriate for integrating with the TPB in those cases. According to SADIQ ET AL. (2022), the ABC theory is the most suitable choice with the TPB model for this study for several reasons:

1) It is a well-established theory within the consumer behavior literature and has been applied effectively to understand pro-environmental behavior in previous research studies (ERTZ ET AL., 2016; GOH & BALAJI, 2016).

2) ABC theory offers valuable insights into addressing the attitude-behavior gap, a prominent issue in pro-environmental behavior research. It is often observed that individuals' attitudes do not always translate directly into their behaviors, particularly in contexts such as organic product purchases. This gap between attitude and behavior has been highlighted in prior studies (MCNEILL & MOORE, 2015).

3) The theory also emphasizes the importance of contextual factors, which are recognized as strong predictors of consumers' decision-making processes related to environmentally friendly choices and purchase behavior.

Previous research has overlooked the role of these contextual factors in shaping green consumer behavior (GUO ET AL., 2018). Nevertheless, when it comes to predicting environmental behavior concerning a particular issue, research suggests that having an attitude specifically related to that issue is a more reliable predictor than possessing a general attitude toward the natural environment (FIELDING ET AL., 2012). These attitudes can vary significantly among individuals and across cultural and racial contexts (ZHAO ET AL., 2014). As a result, findings in the field of green marketing can be challenging due to these variations in attitude-behavior-context relationships.

Still, it does not explain the relationships between external and internal factors that lead to SCB. To overcome these research gaps, we combined TPB and ABC to judge the effectiveness of consumers' sustainable consumption behavior by adding external variables such as environmental knowledge, climate concern, green marketing tools, green trust, government supports, GWoM, price sensitivity and greenwashing concern. In this study, I incorporated green marketing tools, green trust, government support, GWoM as positive external motives.

Simultaneously, I have considered price sensitivity and greenwashing concerns combined as negative external motives. This comprehensive integration aims to better understand the consumers' positive and negative reasons for adopting sustainable consumption behavior. To summarize, three variables of TPB have been used to predict a range of internal behaviors, and contextual factors of the ABC model are often employed to identify consumers' actual purchase behavior. Understanding the importance of contextual factors is crucial, as it enhances the explanatory power of an individual's "attitude" in predicting their behavior. In the context of pro-environmental behavior, purchasing situations are contextual factors that can significantly influence consumers' actual purchase behavior (SADIQ ET AL., 2022).

To the best of my knowledge, none of the studies incorporated all variables of two theories (ABC-TPB) in their proposed model. Therefore, my study effort is to bridge this research gap by examining the impact of all these variables and other variables on SCB. To comprehensively analyze the factors influencing consumers' SCB, a combined approach of the TPB and ABC models is employed in this study. This integrated approach allows for exploring the mechanisms behind SCB, considering both internal and external factors. It aims to assess the effectiveness of consumers' sustainable consumption practices by considering a broader range of influences. Figure 4 presents the integrated theories of TPB and ABC.

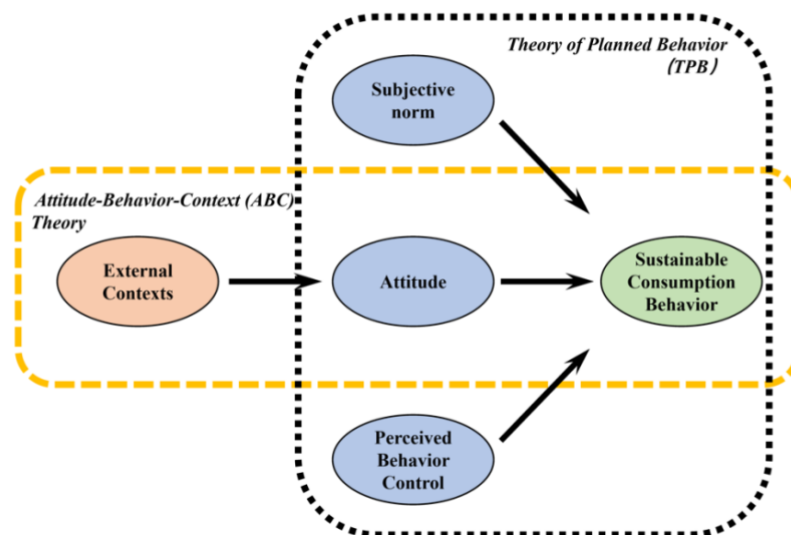


Figure 4 Theoretical framework of the TPB-ABC integration model

(Source: QIN & SONG, 2022, p.3)

3.11 Definition of study constructs

Table 6 briefly describes the dependent and independent constructs for this study which are integrated into the proposed model.

Table 6 Definition of variables/constructs

	Constructs	Definition	Sources
Internal Motives			
	Attitude	"Attitude" refers to how an individual positively or negatively assesses their purchasing behavior towards products or services.	(CHEN & DENG, 2016)
	Subjective norms	"Subjective norms" represent the perceived social pressures an individual feels regarding whether to perform or refrain from a particular behavior.	(AJZEN, 1991; AJZENFISHBEI, 1980)
	Perceived behavior control	"Perceived behavior control" refers to an individual's perception of the difficulty or ease of performing a specific behavior.	(AJZEN, 1991; AJZEN & FISHBEIN, 1980)
	Perceived value	"Perceived value" is the comprehensive evaluation of a product's utility based on an individual's perception of what they receive about what they give or invest.	(ZEITHAML, 1983)
External Contextual Motives			
Ecological motives	Environmental knowledge	"Environmental knowledge" is the extent of awareness and understanding an individual possesses regarding natural environments, encompassing matters related to environmental preservation and ecosystems.	(LO & FRYXELL, 2003)
	Ecological concern	"Environmental/ecological concern" can be described as consumers' perception of the significance of environmental issues in terms of their impact on the well-being and welfare of the nation.	(BICKART & RUTH, 2012)
Positive motives	Green marketing tools	<p><i>Eco-labels</i></p> <p>"Eco-labels" are a means by which consumers can simplify their decision-making process when choosing environmentally friendly products. They also inform consumers about how products are manufactured in an environmentally responsible manner.</p> <p><i>Environmental advertisement</i></p> <p>"Environmental advertisement," often called green advertising, is any form of advertising that directly or indirectly addresses the connection between a product or</p>	<p>(REX & BAUMANN, 2007)</p> <p>(RAHBAR & WAHID, 2011)</p>

		<p>service and the natural environment. This type of advertising may promote a green lifestyle, with or without emphasizing a specific product or service, or it may aim to portray a company as environmentally responsible.</p> <p><i>Eco-brand</i></p> <p>Eco-brand is defined as a name, symbol, or design of harmless products for the environment. The features of eco-brands help consumers distinguish from other non-green products</p>	
	Green WoM	"Green WoM" can be defined as the degree to which consumers anticipate hearing positive environmental messages about a product or brand from their friends, family members, and colleagues.	
	Government support/ policy	Government has a crucial role in influencing consumers to purchase green products. It is significantly possible to motivate people's purchase intentions of green products if the government supports green production and sustainable consumption	(NEKMAHMUD & FEKETE-FARKAS, 2020)
	Green trust	"Green trust" can be defined as the willingness of consumers to purchase and trust environmentally sustainable products, which is influenced by factors such as the product's performance, reliability, effectiveness, credibility, and past experiences with its qualities.	(AMIN & TARUN, 2020; HARRIS & GOODE, 2010)
Negative motives	Greenwashing	Greenwashing means when an organization intentionally misleads or cheats its customers with false green claims or green marketing about its environmental actions and impacts to repair its public reputation or enhance its public image	(DELMAS & BURBANO, 2011; LYON & MONTGOMERY, 2015; MARQUIS ET AL., 2016)
	Price sensitivity	Price sensitivity is the effect of price differences in products and services on consumer buying behavior.	(MONROE, 1973)
Sustainable Consumption Behavior			
Dependable variables	Green purchase behavior	Sustainable green purchase behavior means purchasing and consuming environmentally friendly products, including green purchase behavior of organic food, eco-friendly/green products, household cleaning products, sustainable clothing, eco-friendly cosmetics, biodegradable products, and reusable products.	

	Recycling & resource conservation	"Recycling is the process of creating new products from recycled materials (new paper, glass bottles, aluminum cans, asphalt from recycled rubber tires, etc.)." "Resource conservation means reducing energy consumption, natural gas, and natural resources, e.g., water and energy."	(LIU ET AL., 2021; OSKAMP, 1995)
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Internal motives

Internal motives influence consumers to decide to purchase green products. The engagement of consumers' sustainable consumption reflects their internal motivations and the choices they make regarding their consumption patterns (QIN & SONG, 2022). When a person is faced with multiple options, their internal motivations influence their behavior decisions. In addition, it is the most fundamental psychological factor that shapes an individual's behavior (TRIVEDI ET AL., 2015). Therefore, the three main elements of the TPB model (attitude, subjective norms, perceived behavior control) and perceived value are considered as the internal motive for sustainable consumption behavior. This study identifies how internal motives and individual choices determine the consumer's sustainable consumption behavior.

3.12 Attitude (AT)

In the TPB model, attitude (AT) is an important antecedent, which emphasizes evaluating a particular behavior (AJZEN, 1991). "Attitude" refers to the degree to which an individual positively or negatively considers their purchasing behavior regarding products or services (CHEN & DENG, 2016). A study (EAGLY & CHAIKEN, 2007) described attitude as a psychological process that impacts whether a person has a favorable or unfavorable inclination toward a given product or object.

Attitude is the most important internal motivation factor, directly influencing consumer purchase intention and behavior. Previous research YADAV & PATHAK (2017) found a notable correlation between individuals' attitudes and their inclination to engage in environmentally friendly purchasing behavior. Developing positive attitudes towards environmentally friendly products has the potential to stimulate consumer engagement and play a crucial role in advancing a sustainable future for the country. Recently, (AYAR, 2021) examined to identify consumer factors affecting sustainable consumption behavior in Turkey and found that attitude has a significantly positive correlation with sustainable consumption intention. Moreover, ARLI ET AL. (2018) examined consumer green purchase intention in Indonesia and hypothesized the relationship between the attitude toward green products and green purchase intention. They find that attitude influences consumers to purchase green

products. Similarly, some scholars agreed with previous studies that a favorable attitude significantly affects green products and leads to SCB, e.g. (VERMA & CHANDRA, 2018). In household energy-efficient products, attitude is strongly associated with consumer energy-efficient purchase behavior (NGUYEN ET AL., 2018) in developing and developed countries. In my recent study in Europe, tourists' environmental attitude has a strong association with sustainable consumption while traveling in different tourist cities in Europe (NEKMAHMUD ET AL., 2022). The argument has been made in some research, e.g., (REX & BAUMANN, 2007), that individuals who exhibit more significant concern for the environment and climate are more likely to participate in pro-environmental actions actively. Literature (NEKMAHMUD ET AL., 2022; TAUFIQUE & VAITHIANATHAN, 2018) has demonstrated that environmental attitude is one of the most influential factors shaping determinants of green purchase behavior. A positive attitude towards the environment has been positively proven to increase the desire to experience and indulge in nature as well as the desire to purchase environmentally friendly products and local goods during travels (NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022; SUNG ET AL., 2021). Regarding water conservation, KANG ET AL. (2017) found that sustainable water conservation attitudes impact consumers to minimize water usage and encourage sustainable water consumption behavior. Nevertheless, ARI & YILMAZ (2016) found that attitude has no significant impact on recycling intention or behavior among homemakers in Turkey.

3.13 Subjective Norms (SN)

Subjective norm (SN) is the second most important determinant of the TPB model. Subjective norm refers to the social pressure exerted on an individual to engage in a specific action or behavior (AJZEN & FISHBEIN, 1980). SN represents an individual's perception of the social pressure regarding whether to perform or abstain from a specific behavior (AJZEN, 1991). In 1987, McClelland introduced the theory of needs, positing that individuals tend to exhibit behavior that gains approval from their social circle due to the inherent inclination to seek interpersonal connections and group affiliation (MCCLELLAND, 1987). Previous research has found a substantial and positive link between subjective norms and purchase intention (AL-SWIDI ET AL., 2014).

In contrast, many studies have found no evidence of a favorable link between subjective norms and green purchase intention (PAUL ET AL., 2016). My recent research has confirmed that SN plays a significant role in predicting sustainable green product consumption and acts as a

motivating factor for consumers to participate in pro-environmental behaviors (HOSSAIN, FEKETE-FARKAS & NEKMAHMUD, 2022; NEKMAHMUD ET AL., 2022). Previously, most studies found that subjective norm encourages consumers to purchase green products (ARLI ET AL., 2018). For example, AYAR (2021) examined Turkish consumers' sustainable consumption behavior by applying the TPB and found that subjective norms significantly influence consumers' sustainable consumption of green products.

Studies by (ABU-ELSAMEN ET AL., 2019; WARIS & AHMED, 2020) show that subjective norms have significant predictors for the purchase intention of energy-efficient appliances. Personal norms (NGUYEN ET AL., 2018) and subjective social norms (NGUYEN ET AL., 2017) influence energy-efficient appliances or sustainable purchase behavior. However, the results of some studies are not the same, where subjective norms do not affect the intention to purchase energy-efficient household appliances in Malaysia (TAN ET AL., 2017) and Pakistan (ASLAM ET AL., 2020).

In my previous study, I explored the European and non-European tourists' sustainable consumption values and choice behavior regarding green purchases in Europe, where results show that subjective norms have significant positive relations with green purchase intention (NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022). Moreover, KANG ET AL., (2017) examined consumers' sustainable water consumption behavior in the USA. They found that the subjective norm positively correlates with sustainable water consumption behavior. Similarly, ARI & YILMAZ (2016) stated that subjective norm strongly influences homemakers' recycling behavior in Turkey. Nevertheless, WAN ET AL. (2022) failed to support the positive association between subjective norms and recycling intentions in Hong Kong. In light of the above discussion, subjective norm significantly correlates with consumers' sustainable consumption behavior on green purchase behavior and recycling & conservation products.

3.14 Perceived Behavioral Control (PBC)

Perceived behavioral control (PBC) is defined as the perceived difficulty or ease of performing a particular behavior (AJZEN & FISHBEIN, 1980). PBC highlights acquiring resources and prospects, such as skills and collaboration with others (STERN, 2000). Previous research, e.g., (PAUL ET AL., 2016), has shown a link between PBC and green purchase intention. They demonstrated that PBC has significant effect on green purchase intention. However, an individual's purchase intention toward eco-friendly products is negatively influenced by

perceived inconvenience in executing particular behaviors (BARBAROSSA & DE PELSMACKER, 2016).

According to my previous study, PBC relates to individuals having the necessary means and know-how, such as the capacity to afford energy-efficient household appliances and the determination to do so. For instance, they might opt for energy-saving appliances, even if they cost slightly high. PBC, on its own, can forecast a person's intention to buy environmentally friendly products (HOSSAIN, FEKETE-FARKAS & NEKMAHMUD, 2022). Therefore, when people believe that they have limited control over a particular behavior, it tends to result in lower intentions to engage in that behavior, even if they have positive attitudes and receive encouragement from others (AL-SWIDI ET AL., 2014). Further, AYAR (2021) explored that PBC has a significant association with consumer sustainable consumption behavior of green products. Similarly, a strong correlation exists between consumer PBC and SCB in Indonesia (ARLI ET AL., 2018) and China (WANG ET AL., 2014). In the tourism sector, I found in my research that PBC has significantly influenced green purchase behavior (NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022). Regarding the recycling and resource conservation studies, WAN ET AL. (2022) confirmed that PBC significantly influences consumer recycling intentions to purchase recyclable household products. Similarly, in the context of conservation, KANG ET AL., (2017) demonstrated that the PBC significantly contributes to sustainable water consumption behavior in the USA.

3.15 Green Perceived Values (GPV)

Perceived value is defined as a comprehensive evaluation of a product's usefulness and considering what one receives compared to what one gives in return (ZEITHAML, 1988). Perceived value drives consumers to purchase particular products among different product categories. Perceived value represents how consumers perception about product attributes like performance, quality, and reliability (GAN & WANG, 2017). Similarly, green perceived value refers to what is received and given according to consumer environmental desires, consumers' green needs, and sustainable expectations (OGIEMWONYI, 2022). According to my previous research (NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022), consumers' green purchase behavior depends on product-perceived values, such as environmental value, functional value, emotional or social value, and health value. The cost of green products is generally higher than traditional products. Environmental marketing focuses on green perceived value, which positively impacts the environment and health. Mainly, green consumers purchase environmental or sustainable products that improve the environment.

Buying green products is increased due to their health benefits (OGIEMWONYI, 2022). Previous studies validate the perceived value of green products with green purchase intention and behavior (AHMAD & ZHANG, 2020; OGIEMWONYI, 2022; YADAV & PATHAK, 2017). Relatively limited research has been conducted on green perceived value with sustainable consumption behavior. A previous study OGIEMWONYI (2022) focused on connecting the relationship between green product value and green purchase behavior of the Y generation in Nigeria. They found that green product value significantly influences green purchase behavior.

Similarly, YADAV & PATHAK (2017) stated that consumers' perceived value plays a crucial role in their purchasing decisions. Consumers are more willing to purchase a product with a higher perceived value. They found that perceived value has a significant positive relationship with green purchase intention in the developing country context. A study (AHMAD & ZHANG, 2020) stated that perceived green value strongly correlates with Chinese consumers' green purchase intention. They also stated that green products' quality and performance are higher than non-green products, thus enhancing their green value and driving consumers to purchase. Nevertheless, CHIU ET AL. (2014) examined how perceived value influences environmentally responsible behavior in ecotourism. The path results exhibited that perceived value is significantly associated with ecologically responsible behavior. The intention to buy green products will remain at a bottom level if consumers perceive green value as comparatively lower. Customers will not own the products/services if they do not receive value for money, regardless of their current satisfaction level. Ultimately, consumers will seek other products that offer better value for money (AHMAD & ZHANG, 2020). The perceived values of green products (e.g., organic food, energy-efficient products, recyclable products) have influenced consumers' sustainable consumption behavior.

External Contextual Motives

External contextual motives constitute a component of the contextual factors of ABC theory. External contextual motives refer to the features of sustainable products that influence consumers to purchase. When consumers adopt a particular behavior, individuals are influenced by external factors. External factors encompass various elements such as green marketing tools (such as eco-labels, eco-advertisements, and eco-brands), government regulations, legal and institutional aspects, material incentives and costs, technological limitations, level of trust in green initiatives, pricing, greenwashing, and presence of

infrastructure that facilitates the desired behavior (STERN, 2000). External contextual motives impact customers' psychological concerns and influence their attitudes and behavior (QIN & SONG, 2022). A study by QIN & SONG (2022) examined consumer SCB in China, where the external context includes advertising and communication education, government regulation, financial incentives, and cost. They confirmed that positive and negative external factors influence consumers' attitudes and SCB. Similarly, researchers have found that external context plays a substantial role in either facilitating or obstructing the implementation of SCB (QI & PLOEGER, 2019).

This research has categorized external contextual factors into two distinct motives: 1) positive motives and 2) negative motives. Positive motives include green marketing tools, green trust, government support, and positive green word-of-mouth, which can significantly influence consumers' attitudes and SCB. Negative motives have price sensitivity and Greenwashing, which negatively motivate consumers' attitudes and SCB.

3.16 Ecological Motives (EM)

Ecological motives are the key issues that influence SCB. Ecological motives, directly and indirectly, affect consumers' decision to purchase green products and recycling & resource conservation behavior. Ecological motives include environmental knowledge and awareness of climate change and natural resource depletion issues. Ecological motives help to improve the consumers' attitude and ultimately impact SCB.

3.16.1 Environmental Knowledge (EK)

Environmental knowledge (EK) refers to the degree of individual awareness and concern regarding natural environments, e.g., ecological conservation and ecosystems (LO & FRYXELL, 2003). The Elaboration Likelihood Model (ELM), proposed by (PETTY & CACIOPPO, 1986), offers insight into the connection between environmental knowledge and attitudes. Their research showed that individuals with higher environmental knowledge tend to favor green products more. Consumer decisions to choose environmentally friendly products can be significantly influenced by the amount of information they possess about the environment (NEKMAHMUD ET AL., 2022). Similarly, more profound environmental knowledge positively impacts consumer attitudes and willingness to purchase green products (TAUFIQUE ET AL., 2017). Nevertheless, scholars (KALLGREN & WOOD, 1986; KOLLMUSS & AGYEMAN, 2002) have argued that one doesn't necessarily need environmental knowledge to engage in pro-environmental behavior. They suggest that only a

small portion of such behavior is directly influenced by environmental knowledge, supporting the knowledge attitude–behavior model (KALLGREN & WOOD, 1986). However, consumers pay attention to their chosen products and make decisions based on their learning. The level of environmental knowledge among consumers has been shown to affect their attitudes toward purchasing green products (TAUFIQUE ET AL., 2017; NEKMAHMUD & FEKETE-FARKAS, 2021). Previous research has also demonstrated that environmental knowledge can drive the adoption of sustainable consumption behavior, especially concerning energy-efficient products (LI ET AL., 2021). A study by GAUTAM (2020) verified that tourists' environmental knowledge positively relates to green attitudes. Tourists' knowledge of environmental issues plays a crucial role in predicting their GPB (CHEUNG & TO, 2019). Therefore, environmental knowledge has a notable impact on promoting sustainable consumption, encouraging the purchase of green products, and fostering participation in pro-environmental activities (TARIQ ET AL., 2019). Recently, SAARI ET AL. (2021) investigated consumer SCB in Europe, where they found that environmental knowledge has significantly influenced consumer SCB. Similarly, studies (WANG ET AL., 2014B; PAUL ET AL., 2016) on which factors influence consumer SCB. They found that environmental knowledge positively influences consumer SCB. Therefore, this study considers environmental knowledge as a key ecological motive influencing consumers' SCB.

3.16.2 Climate Concern (CC)

Green products highly motivate consumers who care about environmental issues (NEKMAHMUD & FEKETE-FARKAS, 2020; PAUL ET AL., 2016). Consumers are more likely to buy environmentally friendly products if they care about the environment and climate issues. Consumer climate concerns can mitigate the adverse outcomes of pro-environmental actions (NEKMAHMUD & FEKETE-FARKAS, 2020).

Previous studies in the green marketing context stated that environmental consciousness substantially impacts behavioral intentions (NEKMAHMUD & FEKETE-FARKAS, 2020). Further, DE SILVA ET AL. (2021) studied ecological consciousness among Chinese and American consumers. Their study shows that green purchasing intentions are significantly correlated with environmental consciousness. Previous scholars e.g., YADAV & PATHAK (2016) have found that environmental concern plays a significant role in influencing consumers' decision-making processes, particularly when it comes to green products. Currently, young and educated consumers exhibit heightened environmental anxiety. They are emotionally invested in and sensitive to the efforts required to protect the environment and

have a strong attachment to their country. Similarly, recent research by (OGIEMWONYI, 2022; SUN ET AL., 2022; SUN ET AL., 2022) has shown that environmental or climate concerns are closely linked to ecological purchasing behavior and positive attitudes toward environmental and social benefits, which in turn positively affect their SCB.

In the context of SCB of energy-efficient products, past research has demonstrated that climate concern impacts the intention to purchase energy-efficient appliances in developing countries (ASLAM ET AL., 2020; ISSOCK ISSOCK ET AL., 2018)—for example, ABU-ELSAMEN ET AL. (2019) examined the consumer contextual factors that are affecting the intention to purchase energy-saving products. Moreover, their study found that environmental awareness affects energy-saving household products.

In the context of recycling & resource conservation behavior, CHAO ET AL. (2021) examined the recycling behavior of young college students in Taiwan, and they found environmental concerns positively affect consumer recycling behavior and help to reduce the negative environmental impacts and mitigate the climate change issue. Previous studies (STERN, 1999; LEARY ET AL., 2014) showed that climate concern is another important ecological motive influencing consumers' SCB. A consumer who is highly aware and worried about the environment are more likely to adopt sustainable consumption behavior. Therefore, this study considers environmental concern as a key ecological motive influencing consumers' SCB and an essential factor in the TPB-ABC integral model.

3.17 Positive Motives (PM)

The external contextual motives of environmental marketing, such as green marketing tools (eco-labels, eco-advertising, eco-brands), green trust, government support of green products, and positive green words of mouth can positively influence the likelihood of individuals engaging in SCB (STERN, 1999). These external positive factors continuously affect consumer attitude and SCB (QIN & SONG, 2022).

3.17.1 Green marketing tools (GMT)

Marketing tools and strategies may depend on the specific market, consumer concerns and preferences, as well as environmental issues. There are three key green marketing tools: eco-labels, eco-advertising, and eco-branding. These tools assist consumers in distinguishing between environmentally friendly and conventional products. This research considers three green marketing tools as the understanding of consumers' knowledge of how these tools influence consumers' SCB and support for climate change mitigation.

Eco-label: Eco-label is the primary tool of green marketing that helps consumers know about green or sustainable products. Using eco-labeling is a new concept in environmental marketing that enables consumers to learn more about the ecological impact of the products they buy (WARIS & AHMED, 2020). As a result of the eco-label, consumers can learn about green products that are less harmful to the environment and are safer for them to use (HOSSAIN, NEKMAHMUD & FEKETE-FARKAS, 2022; THØGERSEN, 2010). A previous study by RAHBAR & WAHID (2011) examined consumers' understanding of eco-label meaning, trust in eco-label messages, and recognition of various labels. They stated that eco-labels have a significant influence on consumers' purchase decisions. General environmental knowledge is inadequate for predicting and assessing consumer pro-environmental behavior (HOSSAIN, NEKMAHMUD & FEKETE-FARKAS, 2022). Therefore, particular knowledge is required to encourage consumers to engage in pro-environmental behavior. Eco-label provides the correct information about products' actual environmental and health functions, enabling consumers to purchase green products (RAZIUDDIN ET AL., 2016; WU ET AL., 2022). Moreover, WU ET AL. (2022) found that having knowledge about eco-labels enhances consumer trust in energy-efficient home appliances and positively impacts their environmental attitudes and pro-environmental behavior (TAUFIQUE ET AL., 2017). My recent study examined how eco-label knowledge influences consumers' pro-environmental behavior for energy-efficient household appliances in Bangladesh (HOSSAIN, NEKMAHMUD & FEKETE-FARKAS, 2022). The path results show that eco-label positively influences consumer purchasing of energy-efficient products and pro-environmental behavior. Nevertheless, a study RAHBAR & WAHID (2011) found that Malaysia's eco-label effect on the actual purchase behavior of green products was insignificant. As a result, this study considers eco-label knowledge as a positive motive to establish how this factor indirectly influence SCB.

Eco-advertisement: Many companies use environmental advertisements to introduce their environmentally-friendly products to consumers. They encourage public awareness, keep attention to environmental problems, and improve the global green movement. Green advertisements aim to influence the purchasing behavior of consumers by encouraging them to buy environmentally-friendly products (RAHBAR & WAHID, 2011). According to scholar DAVIS (1994), environmental advertising typically comprises three elements. The first element involves the advertisement beginning with a statement expressing corporate concern for ecology. Secondly, it describes how the corporation's procedures have been changed to demonstrate its concern and commitment to the environment; thirdly, it provides details about

the corporation's involvement in environmental activities and its achievements. Eco-advertisement promotes green consumer products, e.g., organic food, light bulbs, detergents, batteries, refrigerators, air conditioners, TV, and so on (CHAN, 2004). Similarly, CHAN (2004) stated that perceived credibility, relevance, education level, and media type positively affect Chinese consumers' green purchase intentions and behavior.

Eco-branding: RAHBAR & WAHID (2011) defines the eco-brand as a name, symbol, or design of harmless products for the environment. The features of eco-brands help consumers distinguish from other non-green products. In their study, RAHBAR & WAHID (2011) investigated the influence of green marketing on consumers' purchasing behavior. They found that most Malaysian consumers are not only aware of eco-brands but also associate them with reliable indicators of product quality. Their research reveals a positive and substantial connection between eco-branding and consumers' actual purchase behavior. Considering the benefits of green brands will lead to a shift in buying behavior towards environmentally friendly products. Those who identify themselves as environmentally conscious customers prefer purchasing green products to satisfy their emotional needs. Similarly, CHIN ET AL. (2018) measured the relationship between eco-brand and green purchasing behavior in Rural tourism. The results proved that eco-brands significantly influence consumer green purchasing behavior in Malaysia.

3.17.2 Green Trust (GT)

Green Trust (GT) is the most important component of environmental marketing (NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022). In my previous study, we found that consumers' long-term purchase intentions, behaviors, and sustainable consumption behavior are influenced most by the green trust or energy-saving trust (AMIN & TARUN, 2020; HOSSAIN, NEKMAHMUD & FEKETE-FARKAS, 2022). Green trust is defined as consumers are more likely to purchase and depend on environmentally sustainable products if they feel they have been proven effective, reliable, credible, and trustworthy in the past (AMIN & TARUN, 2020; RAHBAR & WAHID, 2011). Consumer trust in a product or service is a critical factor significantly affecting their purchase attitudes, intentions, and subsequent behaviors. Trust also plays a pivotal role in shaping long-term customer behavior and purchasing patterns, as emphasized by (LEE ET AL., 2010). Green trust has been shown to impact consumer purchasing decisions in the context of green products. My recent studies (SUNG ET AL., 2021; NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022) have identified that green trust stands out as the most crucial factor influencing consumers to make

purchases of green products, energy-saving products, green hotels, and recyclable products. For example, green trust exhibits a notable and positive correlation with consumer pro-environmental behavior, particularly concerning the use of energy-efficient household appliances in Bangladesh. Recent studies by (AMIN & TARUN, 2020; SUNG ET AL., 2021) have noted that green trust plays a paramount role in shaping consumers' intentions to purchase environmentally friendly products. It also serves as an intermediary between consumption values and green purchase intentions. However, it's worth noting that consumers might sometimes have reservations about trusting green products due to concerns about excessive exaggeration and lack of clarity (KALAFATIS ET AL., 1999). For example, my recent study investigated tourists' sustainable consumption values and choice behavior regarding green purchases (NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022). We found that green trust positively correlates with non-European tourists' intention to purchase green products. On the other hand, our study also found an insignificant relationship between green trust and green purchase behavior. We suggest green advertising and quality products and services can boost European tourists' trust. Sustainable consumption behavior of recycling and conservation context, LIAO & XING (2022) explored the residents' plastic recycling behaviors in China. The result proved that social capital (trust, social norms, and social networks) significantly influences plastic recycling behavior. Therefore, this research considers green trust the most critical factor in shaping sustainable consumption behavior in developed and developing countries.

3.17.3 Government support (GS)

Government policy can induce consumers' green purchase intention (DING ET AL., 2022). For example, the EU policies on sustainable products, eco-design legislation, and energy labeling guidelines significantly contribute to improving product sustainability and energy efficiency (EUROPEAN COMMISSION, 2022)⁶. The Green VAT legislation in the EU encourages eco-friendly and sustainable products and services (EUROPEAN UNION, 2022)⁶. According to Green VAT legislation, EU members could actively support climate and environmental protection by reducing the tax rate for organic, sustainable production, and environmentally friendly products in Europe. Also, EU member countries would provide incentives for businesses to invest in research and produce in an environmentally friendly manner. People can support climate protection through their consumption behavior by adopting

⁶ https://citizens-initiative.europa.eu/initiatives/details/2021/000011_en

green VATs, which are practical and effective ways to make a subtle offer to society (EUROPEAN UNION, 2022)^{6,7}. In EU countries, tax incentives have been justified as a source of environmental benefits because they reduce greenhouse gas emissions. Similarly, the Chinese government's incentives for new energy vehicles influence consumers' choices and increase sales. China's incentive programs for new energy vehicles affect consumer choices and help to increase sales of new energy vehicles (SHUM, 2020). Incentive policies for sustainable purchases also stimulate individuals' desire to make sustainable purchases. Government has a key role in motivating consumers to purchase green products (NEKMAHMUD & FEKETE-FARKAS, 2020). It is significantly possible to motivate people's purchase intentions and behavior of green products if the government supports green production and sustainable consumption.

3.17.4 Green words-of-mouth (GVoM)

'Word-of-mouth' (VoM) refers to the exchange of information, either formally or informally, among individuals about a brand, product, organization, or service. This communication occurs between consumers and various parties, including channels, product or service creators, experts, friends, and family members (KUMAR ET AL., 2007). Consumers are eager to get environmental-related information regarding green products and services to their friends (KRONROD ET AL., 2012). This research focused on a novel construct of Green VoM (GVoM), which is the degree to which consumers believe in positive environmental messages about a product or brand when these messages come from friends, family members, or colleagues. After purchasing green products, consumers may share information about those products with others and influence others to purchase green products (ROMÁN-AUGUSTO ET AL., 2022). Products with a positive GVoM and consumer trust affect the purchasing decisions of other consumers (GUERREIRO & PACHECO, 2021). For example, when consumers are unsure about green items, they are more likely to gain trust from the product review and purchase those with high and positive GWOM (CHEN ET AL., 2014). GVoM has a substantial effect on long-term and short-term product decisions, as well as consumer risk-taking (PRENDERGAST ET AL., 2010). A previous study (GUERREIRO & PACHECO, 2021) found that GVoM significantly influences green purchasing intention in Portugal. In contrast, ROMÁN-AUGUSTO ET AL. (2022) found that GVoM did not demonstrate a significant association with the intention to purchase green products among consumers in Peru.

⁷ <https://greenvat.org/en/>

Most scholars found that green purchase intention is directly influenced by GVoM. Consumers are obtaining green product information from social media or online; if they get positive reviews of GVoM, they are interested in buying the product. If they receive negative information about green products, they decline to accept them (PRENDERGAST ET AL., 2010; ROMÁN-AUGUSTO ET AL., 2022).

Based on the above literature, external positive motives (e.g., green marketing tools, green trust, government support, and green word-of-mouth) significantly affect consumers' attitudes and SCB.

3.18 Negative Motives (NM)

The external contextual motives of environmental marketing, e.g., high price and greenwash of green products, can negatively influence the likelihood of individuals engaging in SCB (STERN, 1999). As per the ABC model, People are more inclined to consider negative contextual factors if they perceive a behavior to be time-consuming, costly, or difficult to perform (GUAGNANO ET AL., 1995). QIN & SONG (2022) stated that negative contextual factors such as expensive, time-consuming, facility availability, and implantation have influenced consumer attitudes and SCB. Similarly, time and effort are barriers to engaging consumers in sustainable consumption. This study considers high price sensitivity and greenwashing concerns as important factors that negatively influence consumer attitudes and SCB.

3.18.1 High Price Sensitivity (HPS)

Price sensitivity is the effect of price differences in products and services on consumer buying behavior (MONROE, 1973). Consumers are always given great importance on price and cost savings in their purchasing behavior. Consumers who emphasize the importance of price in their purchasing decisions are often more sensitive to price changes, even if they are quite small (NOH ET AL., 2013). The reasonable price difference between regular and environmentally friendly products could be the main reason why consumers avoid the latter despite their environmental value (PEATTIE, 2001). Consumers like to compare prices before purchasing environmentally friendly products to assess value for money and check price transparency. Therefore, small price increases lead to fewer purchases of environmentally friendly products, even though consumers are optimistic about the product category. A study by OGIEMWONYI (2022) examined the factors affecting young consumers' purchase behavior of green products in Nigeria. Their research findings affirmed that price sensitivity regarding environmentally

friendly products significantly impacts the green behavior of Generation Y individuals. Despite the high price sensitivity of green products, Nigerian consumers, who are low-income, patronize and prefer the products. Generation Y is a true-blue consumer and will pay more for a quality product. Prices are important to consumers, and green products may be desirable, but they may not be willing to pay higher costs for them. Price sensitivity can emerge as a significant obstacle for particular consumers unless they are presented with promotions or discounts.

Nevertheless, SUN & WANG (2020) confirmed that price consciousness negatively influences Chinese consumers' green purchase intentions. Similarly, ZHANG ET AL. (2020) again researched to understand consumers' green purchase behavior in China, where they claim that perceived cost and price sensitivity negatively influence consumer green purchase intentions.

In the context of SCB of energy-efficient appliance products, according to ZHANG ET AL. (2020), consumers perceive energy-saving appliances' price to be worth paying by considering the quality and function of the product. In addition to reducing their electricity bills, these appliances are also cost-effective. Thus, there is a favorable relationship between perceived value and price and consumer attitudes toward purchasing energy-efficient appliances. Another study by (ISSOCK ISSOCK ET AL., 2018) stated that the price of 'green' products is a crucial marketing signal influencing consumer trust. In South Africa, the price of green products has a detrimental impact on consumer purchases of home appliances.

Grounded on the literature, price is the key barrier to adopting sustainable consumption behavior. Consumption of green products is discouraged if they are expensive. Therefore, this study considers consumers' price sensitivity as a negative motive to purchase sustainable consumption behavior in the proposed model.

3.18.2 Greenwashing Concern (GWC)

Greenwashing means when an organization deliberately misleads or cheats its customers with false green claims or green marketing about its environmental actions and impacts to repair its public reputation or enhance its public image (LYON & MONTGOMERY, 2015; MARQUIS ET AL., 2016). Greenwashing happens when firms' products have poor environmental performance and low quality, but firms frequently provide customers with extensive information about their positive environmental performance. Greenwashing has become a research hotspot in recent years due to increased literature e.g. (DELMAS & BURBANO, 2011). Further, DELMAS & BURBANO (2011) classified firms into several types: vocal green

firms, silent green firms, silent brown firms, and greenwashing firms. Similarly, SEELE & GATTI (2017) classified greenwashing firms as false green-washing firms, potential greenwashing firms, and no greenwashing. It is important to note that greenwashing not only negatively impacts firms' reputations and financial performance (LEONIDOU ET AL., 2013) but also affects the interest of consumers, investors, regulators, environmental protection departments, and even society as a whole (GUO ET AL., 2017). Greenwashing destroys the trust in green products and badly impacts all other reputed companies. In general, consumers willingly purchase particular green products with a good environmental reputation. Therefore, if firms use greenwashing to deceive consumers, they will not establish trust and long-term relationships with the firms. Greenwashing will ultimately reduce consumer purchase intention to other firms (LEONIDOU ET AL., 2013). Moreover, inaccurate or misleading green information can confuse consumers when they seek genuinely eco-friendly products. This may make them more cautious in their future purchases and motivated to avoid falling victim to greenwashing tactics (ZHANG ET AL., 2018). Previously, some scholars used greenwashing as a moderator in the TPB and TRA model. For example, (GOH & BALAJI, 2016; RAUSCH & KOPPLIN, 2021) studied consumers' purchase intentions and behavior regarding sustainable clothing. The study used greenwashing concern as a moderating variable in the TPB model. They find consumers' greenwashing concerns negatively moderate the relationship between perceived environmental knowledge, attitude, subjective norms, and environmental concern with purchase intention for sustainable clothes. Scholar ZHANG ET AL. (2018) evaluated how Chinese consumers' greenwashing perceptions influence their green purchasing intentions in the battery industry. The results find that the perception of greenwashing by consumers negatively and directly impacts green purchasing intentions and indirectly impacts the GWoM of companies. Moreover, GOH & BALAJI (2016) investigated the impact of green skepticism on green purchase behavior within an emerging economy. They discovered that green skepticism directly negatively influences green purchase intention. Furthermore, this negative influence also occurs indirectly through its impact on environmental concern and knowledge. Moreover, future purchase intentions are negatively affected by greenwashing. Therefore, greenwashing can be the main barrier to adopting SCB.

Based on the above literature, external negative motives (e.g., price sensitivity and greenwashing concern) significantly affect consumers' attitudes and SCB.

IV. METHODOLOGY

This Chapter provides an in-depth description of the materials, methods, and statistics used in conducting the research. The first part of this Chapter describes study location, data collection and sample, measurement of constructs, and questionnaire development. The second part explains the model specification and data analysis, formative and reflective construct of structural equation modeling (SEM), and Necessary condition analysis (NCA). Finally, this Chapter summarizes the pilot study and validation of the questionnaire.

4.1 Study Location and Contexts

This study was conducted in an emerging and developing country context. The study location is Bangladesh, an emerging economy and over-populated country of 167.9 million people (WORLD ECONOMICS, 2022)⁸, which is greatly challenged to ensure sustainability in each sector for its people. For example, in the health context, Bangladesh's people are less health conscious and suffer from nutrition. Organic food can offer better food quality and ensure nutrition. The organic food concept is very new for the consumers of Bangladesh. Similarly, consumer sustainable consumption behavior of using recycled products reducing water and electricity consumption will reduce CO₂ and help climate change mitigation.

Over the past decade, Bangladesh has experienced significant economic growth, with the GDP growth rate rising from 5.05% in 2009 to 7.1% in 2023 (STATISTA, 2022). This economic growth has led to improved quality of life (QoL), increased income, and greater expenditure, resulting in changing lifestyles among its residents. Alongside this economic development, consumer environmental awareness has been on the rise, with a growing demand for "green" or "environmentally friendly" products and services (HAN ET AL., 2010). Bangladesh has been trying to adopt green production practices and promote environmentally friendly production, primarily targeting specific class segments, if not the mass market (SARKAR & ITOHARA, 2008). While the number of green product producers in Bangladesh may not be extensive, a noticeable upward trend indicates a growing interest in sustainability and environmentally friendly practices. Therefore, I selected the study location in Bangladesh. It is essential to know Generation Y consumers' pro-environmental and sustainable consumption behavior to meet the SDGs in Bangladesh and contribute to mitigating climate change.

⁸ <https://www.worldeconomics.com/Demographics/Population/Bangladesh.aspx>

4.2 Data Collection and Sample

A structured survey questionnaire was employed to gather data from "Y consumers" who have prior experience buying environmentally friendly items like organic and locally sourced food, recyclable and reusable products, energy-efficient household items, and similar products.

Respondents were 20- 30 years old. The research focused on young consumers because they are more adept at participating in the survey due to their heightened awareness and inclination to purchase eco-friendly products. Following the selection criteria, data was gathered via an online survey. The questionnaires were distributed to a large group of respondents, applying a convenience sampling method over four months from October 2022 to February 2023.

I asked participants whether they had prior involvement in purchasing eco-friendly products. They were then permitted access to complete questions if their response was yes. To gather data from Bangladesh, Google Forms was employed to conduct surveys through social media channels, e.g., Facebook and email. The popularity of online surveys is on the rise due to their rapidity, high response rates, and cost-effectiveness, as mentioned by (WU, ZHAO & FILS-AIME, 2022). To ensure a comprehensive geographic representation of the Bangladeshi population, we surveyed seven Universities in five major cities (divisions).

To collect data from those universities, I contacted faculty members of those institutions and asked them to share the online questionnaire with their students. Moreover, it posted Google form questionnaires to the social media groups of those universities because it is more convenient to reach the respondents. As a result, it was received 1530 respondents from the institutions. Data that were incomplete, irrelevant, or missing, age below 20 years and above 31 years of respondents were omitted from the analysis. Thus, 1344 valid responses were finally used for statistical analysis. HAIR ET AL. (2010) recommended the criteria for determining the sample size for the structural equation model. HAIR ET AL. (2014) stated that the sample size should be at least ten times the parameter/items. Since this analysis included 54 items (54x10), the sample size 540 was at least needed to run the Structure equation model. This study considered 1344 sample sizes from Bangladesh, filling the study criteria.

4.3 Measurement of Constructs

To measure sustainable consumption behavior, I consider constructs in the proposed model, including constructs of the TPB and ABC model. For instance, attitude, subjective norms, perceived behavior control, perceived value, ecological, positive, and negative motives. This

study utilizes a quantitative methodology, employing a self-administered survey questionnaire divided into three sections. The first section focused on collecting socio-demographic information, such as gender, age, educational background, nationality, and income level.

The second part had general questions about the respondent's sustainable consumption habits. Respondents were asked whether they buy organic/bio food, buy energy-saving household appliances, carry their own bag while shopping, use recyclable and reusable products, turn off the tap when soaping up/cleaning teeth/ washing dishes, or turn lights off in unused rooms and so on. Those questions are taken from previous studies (GILG, BARR & FORD, 2005; NAZ, 2022). I calculated respondents' sustainable consumption habits using a 5-point Likert scale ranging from Never (1) to Always (5). In this part, the respondents were also asked if they studied modules related to sustainable consumption behavior and climate change issues as part of their coursework and how that environmental-related module/lecture is helping to change their attitude and behavior toward environmental protection.

The final section of the questionnaire consisted of fourteen constructs encompassing 54 items that delved into consumers' SCB of green products, recycling, & resource conservation behavior. All these constructs and items were adopted from existing literature. Table 7 presents the measurement constructs and scales with literature sources.

All the items within the constructs were evaluated using a "five-point Likert scale," where respondents could express with ranging from "strongly disagree" (1) to "strongly agree" (5). As a result, the Likert scale is extensively appropriate in marketing studies, and the current study used it to measure consumer sustainable consumption behavior for climate change mitigation.

The survey questionnaire was developed in English. I used the survey questionnaire in English and did not convert it into Bengali because some of the terms used in environmental terminology are difficult to convey to respondents in their national language. Furthermore, the respondents of this study were university students, and their program was in English instruction. The author proofreads and modifies the questionnaire to make it more understandable for the respondents.

Table 7 Measurement constructs and items

Constructs	Items	Items descriptions	Sources
Environmental knowledge	EK1	I have good knowledge about sustainable consumption and environmental issues	(JOSHI & RAHMAN, 2017; MOSTAFA, 2007)
	EK2	EK2: I know about the sustainability or environmentally friendly symbols/signs used on product packages	
	EK3	I am knowledgeable about sustainable consumption (e.g., green products, organic food, or energy-saving products)	
Climate concern	CC1	I am very worried about the effects of the world's climate change	(JOSHI & RAHMAN, 2017; MOSTAFA, 2007)
	CC2	I am willing to reduce my consumption to protect against climate change	
	CC3	Major political and social changes are necessary to protect the natural environment and climate change	
Attitude	AT1	I believe that sustainable consumption behavior will help in reducing pollution and improving the environment	(JAISWAL & KANT, 2018; NEKMAHMUD, ET AL., 2022; WANG ET AL., 2018)
	AT2	I believe that sustainable consumption will reduce the waste of natural resources	
	AT3	I believe that sustainable consumption by me will help in conserving natural resources	
	AT4	I feel good/satisfied about myself when I am involved in sustainable consumption	
Subjective norms	SN1	My family expects me to engage in sustainable consumption, for example purchasing environmentally-friendly products	(WANG ET AL., 2018)
	SN2	My friends/neighbors encourage me to adopt sustainable consumption behavior	
	SN3	My society expects me to engage in sustainable consumption behavior	
Perceived behavior control	PBC1	I have knowledge, information, opportunities, and willingness to purchase environmentally-friendly products and adopt sustainable consumption behavior	(CHEUNG & TO, 2019;NEKMAHMUD ET AL., 2022; SUN & WANG, 2020)
	PBC2	I can make my own decisions about purchasing environmentally-friendly products	
	PBC3	I can afford to purchase environmentally-friendly products	
Green perceived value	GPV1	I think the quality of environmentally-friendly products would be reliable and good quality	(AWUNI & DU, 2016; NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022; WANG ET AL., 2018)
	GPV2	Environmentally-friendly products offer good value/price for me	
	GPV 3	I think sustainable consumption behavior makes me feel good and creates a good image in other people's eyes	
	GPV4	I think sustainable consumption offer more environmental benefit than non-green products	
	GPV5	Sustainable consumption behavior offers more health benefits than non-green products	
Green marketing tools (advertising, eco-label & eco-brand)	GMT1	Environmental advertisement enhances my knowledge about green/sustainable products	(CHI, 2021; CHIN ET AL., 2018)
	GMT2	Environmental advertisements guide customers in making awareness of green purchasing decisions and sustainable consumption	

	GMT3	I am aware of the eco-label	
	GMT4	The eco-label/ logo is easily identifiable to me	
	GMT5	I am aware of the eco-brands	
	GMT6	Eco-brand is a symbol of product reliability and trustworthy	
Green trust	GT1	I think environmentally-friendly products are generally reliable and trustworthy	(CHEN, 2010)
	GT2	Environmentally-friendly products meet my expectations regarding environmental issues	
	GT3	I feel that environmentally-friendly products keep promises and commitments to environmental safety and protection	
Government support	GS1	Government rules and regulations make me tend toward sustainable consumption	(DING ET AL., 2022)
	GS2	Government is strongly supporting the development of sustainable consumption	
	GS3	Government encourages people to purchase environmentally-friendly products and adopt sustainable consumption	
Green word-of-mouth	GWoM1	Due to environmental image, sustainable consumption habits are highly recommended by others (e.g., sports person, actors, singers, influencer person)	(D'SOUZA ET AL., 2007; ZHANG ET AL., 2018)
	GWoM2	Due to its environmental performance, environmentally-friendly products have received positive feedback	
	GWoM3	Social media (e.g., Facebook) have enhanced knowledge about sustainable consumption and environmentally-friendly products	
	GWoM4	Newspapers, Magazines, and social media reviews are good sources of promoting environmental issues	
High price sensitivity	HPS1	The environmentally-friendly products are not reasonably price	(TREGEAR ET AL., 1994)
	HPS2	I am willing to spend extra money to purchase environmentally-friendly products that have good quality	
	HPS3	I think the prices of environmentally-friendly products are in line with the value of the products	
	HPS4	Price is not an important factor when I decide to buy environmentally-friendly products	
Greenwashing concern	GWC1	I am concerned that green products are not produced with environmentally friendly materials in sustainable ways	(ZHANG ET AL., 2018)
	GWC2	I am concerned that environmentally-friendly products are only pretending/misrepresent their green image	
Green purchase behavior	GPB1	I often buy organic food that contains no or fewer chemical ingredients	(CHEUNG & TO, 2019; SUN & WANG, 2020; WANG ET AL., 2018)
	GPB2	I prefer organic food over non-organic food when the product quality is similar	
	GPB3	I tend to buy environmentally-friendly/sustainable products	
	GPB4	I often buy products that use recycled/recyclable packaging	
	GPB5	I try to buy energy-saving household appliances that don't harm the environment	

	GPB6	I have purchased energy-saving household appliances because they use less electricity than other non-energy-saving products	
	GPB7	I hope to use energy-saving products as much as possible	
Recycling and resource conservation behavior	RRCB1	I am willing to recycle used appliances	(QIN & SONG, 2022; RAMAYAH ET AL., 2012)
	RRCB2	I am willing to recycle used clothes	
	RRCB3	I intend to reduce water consumption (Turn off the tap when soaping up/cleaning teeth/ washing dishes)	
	RRCB4	I am willing to save energy when it is possible, e.g., by turning off the lights	

4.4 Data analysis procedure and statistical methods

4.4.1 Data analysis

This study used statistical methods to analyze the primary data. It has been applied both inferential and descriptive statistical methods. SPSS 27 version was used to measure the descriptive statistics. Partial least square structural equation modeling (PLS-SEM) was applied to test the hypotheses using SmartPLS (v4.0.9.6). Further, the Necessary Condition Analysis (NCA) technique was also applied to identify necessary conditions by using the latest version of SmartPLS (v4.0.9.6). Necessary condition analysis (NCA) (DUL, 2016) is based on the logic that certain conditions are necessary (but not sufficient) to achieve a specific outcome. Microsoft Excel has been used to draw stacked charts to understand the consumer's SCB.

4.4.2 Data preparation and coding

The initial phase involved getting the data ready for the final analysis. This process commenced by transforming Google Forms data into Excel's CSV file format. Several steps were involved, such as dealing with missing values, coding, editing, removing outliers, and checking for normality (ANDERSON ET AL., 2010). To finalize the data sets, I clean the data sets by deleting the missing values.

Numerical values coded online questionnaires. The questionnaire underwent a thorough review and correction process to address errors, omissions, and readability issues and ensure consistency. Table 8 shows the codes indicated to the items of the questionnaire.

Table 8 Types of questionnaire items and its codes

Questions/items	Coding
Likert scale-based questions	Strongly Disagree– 1 Disagree – 2 Neutral – 3 Agree – 4 Strongly Agree – 5
Gender	Male – 1 Female – 2
Education	Bachelor – 1 Master– 2 PhD – 3
Age	20-25 – 1 26-30 – 2
Sustainable Habits	Never – 1 Rarely – 2 Sometimes– 3 Usually– 4 Always – 5

Source: Author’s own work

4.4.3 Model Specification and data analysis

To investigate the proposed framework, the combination of the Partial least squares–Structural Equation Modeling (PLS-SEM) and Necessary Condition Analysis (NCA) technique was applied to understand consumer SCB deeply.

Partial Least Square-Based Structural Equation Modeling

I employed the partial least squares–structural equation modeling (PLS-SEM) method to examine the proposed framework. PLS-SEM has garnered substantial attention across multiple fields, including marketing, consumer behavior, strategic management, and management information systems (HAIR ET AL., 2012). The growing popularity of PLS-SEM is due to its effectiveness in addressing modeling challenges common in social sciences, like non-normal data and complex models. Researchers using PLS-SEM aim for highly predictive models with robust causal explanations (HAIR ET AL., 2018). Moreover, HAIR ET AL. (2014) referred to many research objectives to classify when and why to use PLS-SEM.

1. PLS-SEM is employed in cases of small sample sizes, non-normal data, and structural indicators.
2. It is well-suited for complicated models.
3. It is more suitable than traditional SEM (HAIR ET AL., 2012) and can evaluate multiple mediation effects within a model (RINGLE, WENDE & BECKER, 2022).

The primary goals of utilizing PLS-SEM in this study include uncovering latent variables with multiple items, scrutinizing complex model structures and variations, as well as effectively assessing complex theoretical models with limited empirical data. Consequently, PLS-SEM proves suitable for this study, serving as a valuable tool for validating and testing the conceptual model.

Formative and Reflective Measurements SEM requires accurate measurement model specification. In PLS-SEM, two models are known: the outer and inner models. The outer model relates to the associations between constructs and the items used to measure them, while the inner model deals with the relationships among the latent constructs. Measures are also known as scale items, and they can be classified as being influenced by the latent variables (reflective) or influencing the latent variables (formative) (FREEZE & RASCHKE, 2007). In the formative paradigm, the items establish the variables, and the communication path is from the items to the latent variable (HAIR ET AL., 2014). The measurement items are applied to create the construct.

Reflective constructs are defined as elements reflected as a result of the construct. In the reflective model, each item represents the latent variable, and the influence or direction in this model flows from the latent variable towards its constituent elements. Figure 5 depicts formative and reflective constructs.

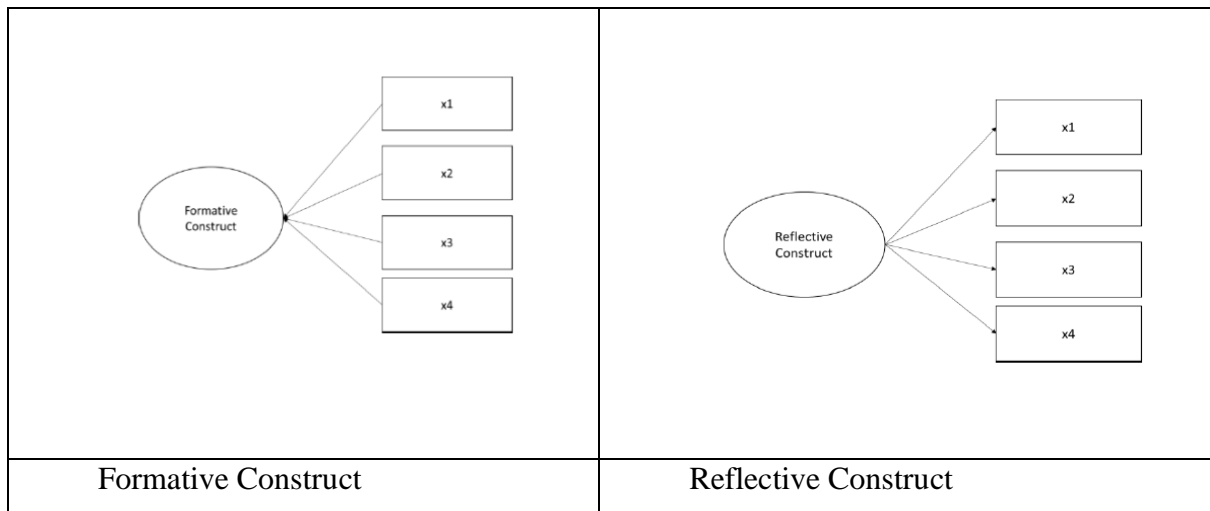


Figure 5 Graphical presentation of formative and reflective construct

(Author's construction based on FREEZE & RASCHKE, 2007)

This study was used by integrating formative and reflective measurement models. In SEM, the inner model shows the relationships among the different latent variables (attitude, subjective norms, perceived behavioral control, perceived value, ecological motives, positive motives, negative motives, and sustainable consumption). Nevertheless, the outer model illustrates the connections between the model's latent variables and the associated indicators. In this study, each item represents the latent variable of attitude, subjective norms, perceived behavioral control, perceived value, and sustainable consumption (GPB, RRCB) as a reflective model. Nevertheless, items of green marketing tools, green trust, government support, and positive green word of mouth establish their latent variables of positive motive as formative models. High price sensitivity and greenwashing concerns establish the latent variable of negative motive. Similarly, environmental knowledge and climate concerns established the ecological motives as a formative model in the proposed conceptual framework. Figure 6 shows the proposed conceptual framework indicating the formative and reflective constructs.

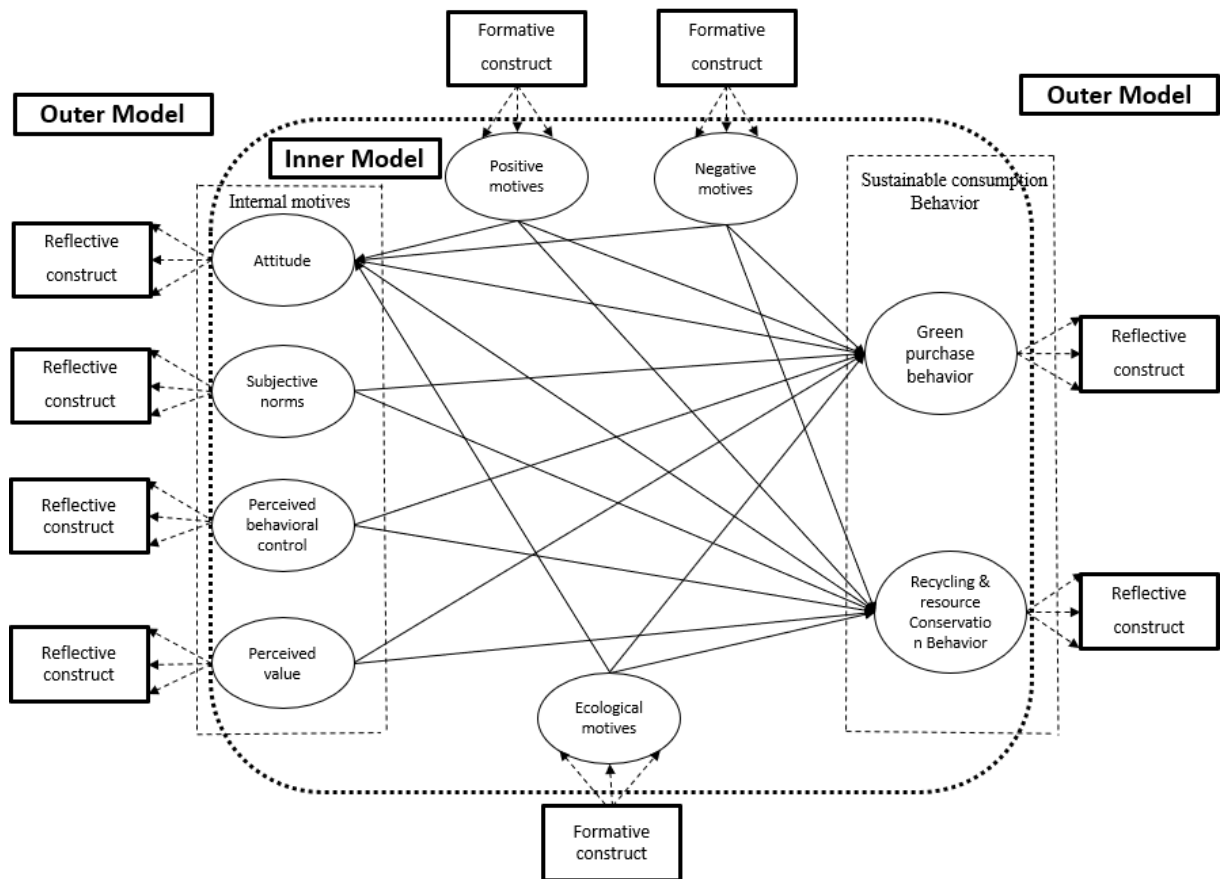


Figure 6 The inner and outer model of the proposed research framework (reflective and formative model)

(Source: Authors' own construction)

Necessary condition analysis (NCA)

Necessary Condition Analysis (NCA) is an innovative approach and analytical method used to identify essential prerequisites (DUL, 2016; DUL ET AL., 2020). Dul first introduced the NCA method in 2016 (DUL, 2016). The NCA data analysis tool was designed to use necessary logic to enhance conventional analytical methods such as correlation, multiple regression, and structural equation modeling (DUL ET AL., 2021; RICHTER ET AL., 2020). Necessary condition analysis (DUL, 2016; DUL ET AL., 2020) is based on the logic that certain conditions are necessary (but insufficient) to achieve a specific outcome. In contrast to these regressions and SEM techniques, NCA attempts to predict the absence of an outcome rather than its presence (DUL, 2022). NCA can determine which predictors are necessary and to what extent each predictor is required in order to attain a particular degree of outcome. The researchers benefit from NCA in two ways: 1) NCA can calculate ceiling lines and bottleneck

tables, which aid in visualizing and interpreting the relationships between predictor and outcome variables. 2) NCA calculates parameters like the accuracy of the ceiling line and the effect sizes associated with necessary conditions, and it incorporates significance testing to prevent calculation errors (DUL, 2016; SUKHOV ET AL., 2022). NCA is employed to plot the values of the predictor (X-axis) and the values of the outcome (Y-axis) in each observed case. Figure 7 shows scatterplots with a ceiling line drawn between zones with observations and without observations. Ceiling lines can be drawn using many different kinds of techniques.

Currently, two recommended techniques are Ceiling Envelopment - Free Disposal Hull (CE-FDH) and Ceiling Regression - Free Disposal Hull (CR-FDH). The CE-FDH technique involves the placement of a piecewise linear envelope along the upper-left observations. It implies that the ceiling is non-decreasing, resulting in a step function that does not decrease. On the other hand, CR-FDH smooths the piecewise linear function obtained using CE techniques by employing Ordinary Least Squares (OLS) regression through the upper-left corners of the piecewise linear function. CR-FDH essentially creates a line that runs through the sides of the CE-FDH approach. The percentage of cases that fall on or below the ceiling line determines a ceiling line's accuracy (c-accuracy). The c-accuracy of the CR-FDH line is below 100%. It is recommended to use CE-FDH for necessary conditions that are dichotomous or discrete with only a few levels, especially when the ceiling pattern is irregular (SUKHOV ET AL., 2022).

On the other hand, CR-FDH is recommended for necessary conditions that are discrete with multiple levels or continuous, particularly when the ceiling is assumed to follow a linear pattern. A bottleneck table is a visual representation of the ceiling line that summarizes how much predictor X constraints result from Y. A bottleneck technique assists in defining the threshold levels of necessary conditions required to achieve a specific level of outcomes. NCA employs an effects size measure to determine the magnitude of the hypothesized necessary condition. The effect size (d) measure is represented by a ratio of the area containing observations (S) to the area containing no observations (C) and is expressed as follows: $d = C/S$ (DUL, 2016; SUKHOV ET AL., 2022).

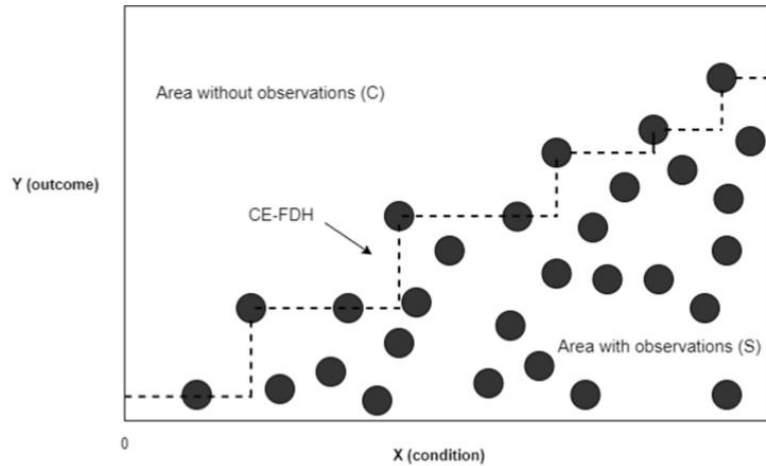


Figure 7 Relationship regarding the necessity of condition

X for outcome Y using the ceiling envelopment with free disposal hull (CE-FDH)

(Sources: SUKHOV ET AL., 2022)

4.4.4 Research Procedure Flowchart

This study represents a mixture of conclusive and exploratory research approaches. The research flowchart refers to the framework and sequential procedure for conducting a research study. It encompasses the strategy for investigation, quantity and sources of data, and gathering of information (MALHOTRA, 2019). I followed step-by-step guidelines of flow charts using PLS-SEM for analyzing the structural equation modeling, hypothesis testing, and measurement model. The steps are rooted in the techniques outlined in the influential paper 'A Primer on Partial Least Squares Structural Equation Modeling' by (HAIR ET AL., 2014), widely regarded as a foundational reference for PLS-SEM methodology. Therefore, HAIR ET AL. (2014) stated that the standard papers on methodology should consider PLS-SEM and NCA the following steps, as seen in Figure 8, and depict the research flowchart used in this study to conduct the research.

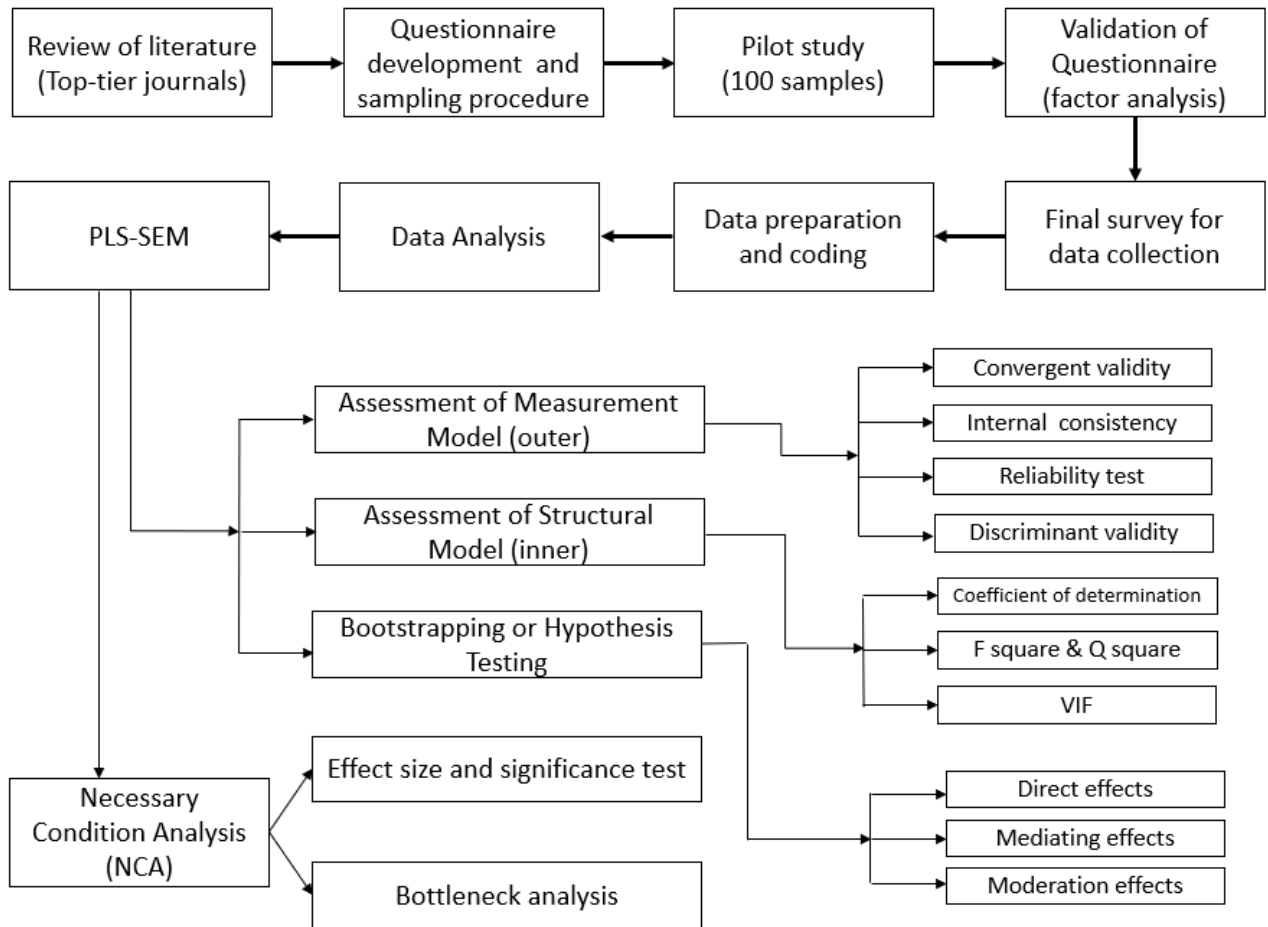


Figure 8 Research flowchart

(Sources: authors' own construction)

4.5 Pilot Study

Before finalizing the questionnaire, a pilot test was carried out to confirm that the information regarding the scenarios of SCB had been effectively communicated to the respondents. Additionally, the questionnaire was verified through exploratory factor analysis (EFA) and confirmatory composite analysis (CCA).

Validation and Reliability of the Questionnaire

The questionnaire was validated using face, construct, and construct validity criteria. To ensure that our measurements and questions were relevant, I asked experts in the field for their input. They reviewed the items of all constructs in the questionnaire. I valued their opinions, and after considering their feedback, I made a final version of the questionnaire. Moreover, I was considered to interview four green product experts to validate the items of constructs. The questionnaire was adjusted to incorporate their suggestions.

The construct and criterion validity of the constructs under investigation had already been confirmed through prior literature support. It was considered literature from top-tier journals with highly cited scholars and their papers.

Nonetheless, preliminary factor analysis was carried out to improve construct validity. Factor analysis was conducted using SPSS version 27. I distributed the questionnaire to more than 100 participants to assess as a pilot project or pretesting. Considering the number of constructs, it was chosen to collect data for a pilot study using approximately 100 samples for this study. Before conducting the main survey, a pilot study was carried out to assess the reliability of the survey instrument. The results of Cronbach's alpha show that the value of Cronbach's alpha varies from 0.752 to 0.927 (See **appendix-B, Table 30**), which suggests that the factors are highly reliable, as a Cronbach's alpha ranging from 0 to 1 with a value of 0.7 or higher is generally considered satisfactory (NUNNALLY, 1994). Therefore, the results of the pilot study proved that the design of the questionnaire will help in fulfilling the study's research hypotheses and theoretical goals.

The Kaiser-Meyer-Olkin (KMO) test was also employed to evaluate data adequacy and suitability for factor analysis. According to (HAIR ET AL., 2010), the high KMO value will range from 0.5 to 1.0, indicating that the sample is appropriate to use as EFA. The pilot results show that each construct's KMO value range is 0.696 to 0.865, except for the greenwashing concern value (0.500), which is also acceptable (See **Appendix-B, Table 30**). Because all values of KMO are above 0.5 and confirm the adequacy of the sample.

Bartlett's test of sphericity (BTS) had been employed to assess the hypothesis that the variables are uncorrelated. The results of Bartlett's test of sphericity show that the chi-square value of 6456.008 is significant at 0.001%. The significant values of BTS ($p < 0.05$) indicated a low correlation between the variables. The p-value in the present study is 0.00, indicating that the correlation matrix of the research constructs does not resemble an identity matrix, indicating that the variables are interconnected and suitable for further investigation. (See **the Appendix-B Table 31**).

After meeting the KMO factor adequacy and Bartlett's test of sphericity criteria, an exploratory factor analysis was conducted with communalities. The communalities were examined to exclude factors that might affect the data. Results show that the communalities of all the objects

under consideration have now ranged from 0.575 to 0.892, and each item has a value greater than 0.40. Hence, no item was deleted at this stage (See **Appendix-B Table 32**).

As a result of the pilot project findings, I proceeded with the entire survey data collection without eliminating any item from the construct, and the final data for the PLS-SEM analysis was prepared.

4.6 Common method bias (CMB)

The survey design and administration follow the guidelines (PODSAKOFF ET AL., 2003) to minimize the potential for common method variance (CMV) bias. Harman's single-factor test was used by loading all variables into one factor in EFA (explanatory factor analysis) in order to measure CMV. All items employed in the study were subjected to unrotated factor analysis in SPSS 27. The results show that variables have explained 35.0% of a single factor, less than 50% of the ideal values (PODSAKOFF ET AL., 2003), and CMV did not find current research.

In addition, it has been also applied to test the common method bias (CMB) (PODSAKOFF ET AL., 2003) due to the collected data from the online and face-to-face surveys and assessed through a complete collinearity assessment approach (KOCK, 2015). Table 17 reveals that the correlation value (r) between constructs is less than 0.9, indicating that CMB is not a concern in the study model (RASOOLIMANESH ET AL., 2017). As a result, CMB has no impact on both data collection processes and does not pose a significant risk to the validity of research findings. The data are assumed to be free from common method bias.

Furthermore, the VIF (Variance Inflation Factor) values for each item range between 1.00 to 4.00 (KOCK, 2015, PP7), as mentioned in Table 14. As a result, according to FORNELL & LARCKER (1981), Common Method Bias (CMB) does not appear to constitute a substantial risk to the validity of the research findings.

V. RESULTS AND DISCUSSION

This Chapter offers a detailed overview of the data's characteristics and presents an in-depth presentation of the major findings. The first part of the Chapter provides the demographic and socioeconomic profile and sustainable consumption habits of Y consumers in Bangladesh. The second part will present the results of statistical tests, measurement model (outer model) and structural model (inner model), hypothesis testing, mediating-moderating effects, and importance-performance map analysis. The third part will present the Necessary Condition Analysis (NCA) results, effect size, and bottleneck analysis. Finally, this Chapter concludes with a detailed discussion of the results by comparing previous studies and context.

5.1 Demographic Profile of the Respondents

This section discusses the descriptive statistics for the respondents' various socio-demographic features. In the first section of the questionnaire, participants were requested to provide information regarding their gender, age, educational background, and monthly spending budget to collect socio-demographic data. Table 9 presents the demographic profile of respondents. In this study, 1344 respondents were gathered for final analysis where 66% (n = 888) percentage of respondents were male, and 34% (n = 456) percentage of respondents were female. 88 percent were 20–25 years old (n = 1182), and 12 percent were 25–30 years old (n = 161).

The results also show that the majority 87% of respondents are pursuing a Bachelor's education (n = 1176) and 13 % of the respondents belong to the category of Master's education (n = 234). In Bangladesh, young individuals with higher educational degrees (graduates) are more inclined to purchase green products as they tend to be more environmentally aware and knowledgeable about such products.

Results show that the budget for monthly expenses whereas 36% of respondents spend money for 41-70 USD for their monthly consumption (n = 492). 25% of respondents spend money for less than 40 USD (n = 336), 15% of respondents spend money for 71-100 USD (n = 204), 15% of respondents spend money for more than 150 USD (n = 192), and 9% of respondent spend money for 101-130 USD for their monthly consumption habits (n = 120).

Table 9 Demographic profile

N= 1344			
	Characteristics	Frequency	Percentage
Gender	Female	456	34.00
	Male	888	66.00
Age	21-25 years	1182	88.00
	26-30 years	162	12.00
Education	Undergraduate/Bachelor	1176	87.00
	Postgraduate/Mater's	234	13.00
Budget for monthly expenses	less than 40 USD	336	25.00
	41-70 USD	492	36.00
	71-100 USD	204	15.00
	101-130 USD	120	9.00
	More 150 USD	192	15.00

Source: Author's own work by Excel

5.2 Sustainable consumption habits

Figure 9 presents the percentage of the sustainable consumption habits of respondents in Bangladesh. To measure the degree of adopting sustainable practices, they have been asked how often they follow sustainable habits in their everyday life. Six sustainable habits-related questions were asked to respondents to understand their daily consumption habits. They were asked whether they carry their own bag while shopping, buy organic/bio food, buy energy-saving household appliances, use recyclable and reusable products, turn off the tap when soaping up/cleaning teeth/ washing dishes, or turn lights off in unused rooms. The survey utilized a five-point Likert scale, with respondents providing ratings ranging from "never" to "always," designated as 1 to 5, to measure their responses to the questions and adapted from the studies (GILG, BARR & FORD, 2005; NAZ, 2022). Through these questions, the researcher aimed to scrutinize respondents' habits and assess the extent to which they engage in environmentally friendly practices in their everyday activities. The respondent's habits will tell much about their behavior and attitude regarding how much they care about the environment. According to their responses, almost 42% of respondents sometimes buy organic

food, and 14% always love to buy organic food. Round 43% repurchase energy-saving household appliances. 28% of respondents said that they carry their own bags when going shopping, and 33% of respondents sometimes use their own bags to go shopping. Results also show that 57% of respondents said to turn off the tap when soaping up/cleaning teeth/ washing dishes, and 67% turn lights off in unused rooms. Only 13% of respondents use recyclable and reusable products, and 43% sometimes use recyclable and reusable products.

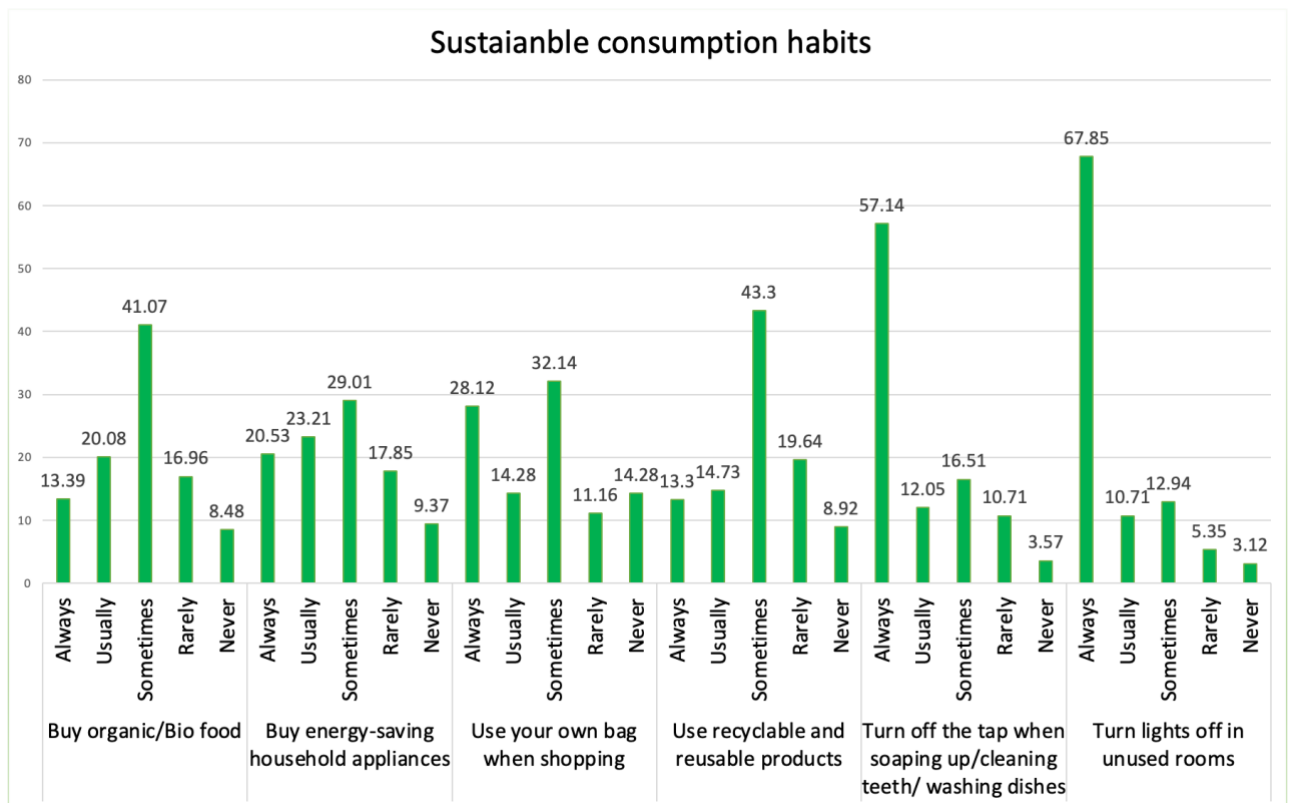


Figure 9 Sustainable consumption habits of young consumers in Bangladesh

Source: Author's own work by Excel

Table 10 shows how environmental lectures or modules influence sustainable consumption. 54% of respondents believe that environmental-related modules/courses/lectures always provide sufficient knowledge to understand ecological and climate issues. 65% of respondents stated that studying environmental-related modules/lessons is always helping them change their behavior/attitude toward environmental protection.

Table 10 how environmental related lecture or modules influence sustainable consumption behavior

	Frequency	Percentages
I study sustainable consumption behaviors or environmental & climate change issues-related modules during my studying		
Yes	1002	74.0
No	342	26.0
Those environmental-related modules/courses/lectures provide sufficient knowledge to understand environmental and climate issues.		
Always	348	26.0
Usually	384	28.0
Sometimes	444	33.0
Rarely	108	8.0
Never	60	5.0
I think studying those environmental-related modules/lectures is helping me change my behavior/attitude toward environmental protection		
Always	438	33.0
Usually	432	32.0
Sometimes	342	25.0
Rarely	84	6.0
Never	48	4.0

Source: Author's own work by Excel

5.3 Item Statistics

To confirm that the data utilized for analysis was suitable, measures of central tendency, such as the mean and median, along with measures of variability, including the standard deviation, kurtosis, and skewness, were examined, and confirmed. A dataset can exhibit a normal univariate distribution if its skewness and kurtosis values are within the range of +/-2 (GEORGE & MALLERY, 2012). The mean, median, standard deviation, excess kurtosis, and skewness of the independent variables for sustainable consumption behavior are presented in Table 11. The mean, median, standard deviation, skewness, and excess kurtosis for all items under examination were all within the indicated threshold levels. Additionally, it was confirmed that there were no significant outliers in the dataset. Once the possibility of extreme outliers was eliminated, the validity of both the measurement and structural models was evaluated.

Table 11 Results of the normal distribution

Items	Mean	Median	Standard deviation	Excess kurtosis	Skewness
AT1	4.138	4	1.075	1.769	-1.487
AT2	4.062	4	1.011	0.8	-1.11
AT3	4.031	4	0.975	1.602	-1.25
AT4	4.054	4	0.999	1.101	-1.158
SN1	3.696	4	0.939	0.551	-0.724
SN2	3.424	4	0.974	-0.331	-0.496
SN3	3.42	4	1.023	-0.468	-0.333
PBC1	3.763	4	0.983	0.557	-0.839
PBC2	3.982	4	0.93	1.016	-0.996
PBC3	3.705	4	0.988	0.348	-0.747
GPV1	3.871	4	0.989	0.798	-0.957
GPV2	3.705	4	0.96	0.091	-0.655
GPV3	3.978	4	0.863	0.959	-0.874
GPV4	4.022	4	0.942	0.666	-0.942
GPV5	4.085	4	0.953	1.192	-1.1
EK1	3.665	4	0.93	0.677	-0.687
EK2	3.603	4	0.977	0.061	-0.635

EK3	3.804	4	1.016	0.422	-0.877
CC1	4.246	4	0.885	1.773	-1.273
CC2	3.969	4	0.933	1.204	-1.029
CC3	4.04	4	1.023	1.274	-1.231
GMT1	3.915	4	1.012	0.774	-1.02
GMT2	4.076	4	0.935	1.763	-1.268
GMT3	3.786	4	0.958	0.362	-0.81
GMT4	3.696	4	0.981	0.208	-0.671
GMT5	3.705	4	0.97	0.202	-0.707
GMT6	3.866	4	0.935	0.697	-0.878
GT1	3.839	4	1.005	0.769	-0.969
GT2	3.808	4	0.965	0.769	-0.95
GT3	3.911	4	0.992	0.783	-1.003
GS1	3.232	3	1.048	-0.591	-0.218
GS2	3.353	3	1.104	-0.492	-0.331
GS3	3.357	4	1.113	-0.623	-0.368
GWoM1	3.638	4	0.972	0.164	-0.655
GWoM2	3.812	4	0.916	1.116	-1.014
GWoM3	3.83	4	0.939	0.601	-0.855
GWoM4	3.929	4	0.933	1.329	-1.114
HPS1	2.455	2	1.017	-0.12	0.504
HPS2	2.375	2	0.988	0.161	0.67
HPS3	2.371	2	0.917	0.044	0.559
HPS4	2.527	2	1.161	-0.841	0.372
GWC1	2.612	3	0.998	-0.296	0.378
GWC2	2.58	2	1.058	-0.492	0.378
GPB1	3.835	4	1.002	0.147	-0.811
GPB2	3.844	4	1.051	-0.249	-0.77
GPB3	4.125	4	0.937	1.905	-1.328
GPB4	3.879	4	0.935	0.814	-0.94
GPB5	3.996	4	0.909	0.791	-0.956
GPB6	3.996	4	0.889	1.858	-1.137
GPB7	4.054	4	0.924	1.132	-1.091

GPBT1	3.786	4	0.925	0.826	-0.884
GPBT2	3.835	4	0.938	0.128	-0.707
GPBT3	4.022	4	1.015	0.898	-1.121
RRCB1	3.902	4	0.986	0.861	-1.033
RRCB2	3.723	4	0.988	-0.01	-0.701
RRCB3	3.973	4	0.906	1.821	-1.21
RRCB4	4.192	4	0.873	1.79	-1.269

Source: Author's own work based on SmartPLS results

5.4 Measurement model evaluation (outer model)

Before testing the hypothesis, measurement model evaluation has been examined in the proposed model. The measurement model's reliability and construct validity were assessed through the application of Partial Least Squares (PLS) (HAIR ET AL., 2014). This measurement model was carried out to calculate four evaluations e.g., convergent validity, internal consistency, discriminant validity, and indicator reliability (HAIR ET AL., 2014).

5.4.1 Convergent Validity and internal consistency reliability

Table 12 displays the outer loadings, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) values. Cronbach's alpha and T composite reliability were consistently used to confirm the reliability and internal consistency of the constructs in the dataset. According to ANDERSON ET AL. (2010), there will be no problems with reliability issues if Cronbach's alpha values of all constructs are higher than 0.70. The results show that all constructs of Cronbach's alpha values are higher than the threshold value of 0.70, and the values range of Cronbach's alpha are 0.779 to 0.908 which indicates that data are good and reliable. Moreover, to assess construct validity, composite reliability scores were employed. Composite Reliability (CR) was utilized to establish convergent validity, in addition to Average Variance Extracted (AVE) and internal consistency reliability (FORNELL & LARCKER, 1981). The values range of CR from 0.781 to 0.912 exceeded the ideal value of 0.70 and indicated strong reliability between processes.

Convergent validity was assessed using multiple measures, including composite reliability, standardized factor loadings, and average variance extracted (AVE). Average Variance Explained (AVE) is a useful metric for evaluating convergent validity. As per Fornell and

Larcker's guidelines, convergent validity is established when the Average Variance Extracted (AVE) values for each item within the model are greater than 0.50. Table 12 shows that all constructs except for RRCB meet this criterion, as the AVE value of RRCB is 0.468, slightly below the recommended threshold of 0.50. Consequently, it is advisable to remove items with lower outer loading values for RRCB.

Table 12 The evaluation of the measurement model (construct reliability & validity)

Constructs	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Attitude	0.908	0.912	0.935	0.784
Subjective norms	0.825	0.864	0.893	0.735
Perceived behavioral control	0.807	0.831	0.885	0.721
Green Perceived value	0.864	0.869	0.902	0.648
Ecological motives				
Environmental knowledge	0.839	0.842	0.903	0.756
Climate concern	0.779	0.781	0.872	0.694
Positive motives				
Green marketing tools	0.891	0.891	0.917	0.647
Green trust	0.862	0.863	0.916	0.784
Government supports	0.883	0.890	0.927	0.81
Green WoM	0.823	0.823	0.883	0.653
Negative Motives				

High price sensitivity	0.804	0.810	0.873	0.633
Green washing concern	0.803	0.804	0.910	0.835
Green purchase behavior	0.905	0.909	0.925	0.64
Recycling and resources conservation behavior	0.833	0.864	0.872	0.468

Source: Author's own work based on SmartPLS results

5.4.2 Construct and indicator reliability

The reliability of the constructs was assessed by utilizing data from the outer loadings. Factor loading scores were calculated for every measurement within each construct to predict the reliability of the indicators. According to FORNELL & LARCKER (1981), the minimum cut-off value of the outer loading is 0.50 which indicates a reliable construct. The threshold for outer loadings is set at 0.5, implying that any item with a loading score below 0.5 should be removed or deleted from the analysis but this study considered all outer loadings above 0.70. In this study, the outer loadings of each item are above 0.70, and outer loadings of four (4) items are below 0.70. In this study, four (4) items were deleted for failing to meet the loading standard requirement, which is less than 0.70, these being: an item of government support (GS1: "Government rules and regulations make me tend toward sustainable consumption" with loading 0.545; GS2: "Government is strongly supporting the development of sustainable consumption" with loading 0.60), Green word-of-mouth (GWoM3: "Social media e.g., Facebook have enhanced knowledge about environmentally-friendly products" with loading 0.695; GWoM4: "Newspapers, Magazines, and social media reviews are good sources of promoting environmental issues" with loading 0.678).

After removing the lower values of outer loading 4 items, I ran the model again where Table 13 shows the loading of each item exceeds the optimum value of 0.70 (HAIR ET AL., 2021)

Table 13 The evaluation of the measurement model-outer loading using Confirmatory Composite Analysis

Items	AT	SN	PBC	GPV	EK	HPS	GMT	GT	GS	GWoM	HPS	GWC	GPB	RRCB
AT1	0.907													
AT2	0.886													
AT3	0.872													
AT4	0.876													
SN1		0.871												
SN2		0.850												
SN3		0.852												
PBC1			0.862											
PBC2			0.894											
PBC3			0.787											
GPV1				0.825										
GPV2				0.733										
GPV3				0.840										
GPV4				0.789										
GPV5				0.835										
EK1					0.890									
EK2					0.854									
EK3					0.864									
CC1						0.851								
CC2						0.845								
CC3						0.802								
GMT1							0.749							
GMT2							0.807							
GMT3							0.818							

GMT4	0.778							
GMT5	0.819							
GMT6	0.853							
GT1		0.867						
GT2		0.906						
GT3		0.883						
GS3			1.000					
GWoM1				0.879				
GWoM2				0.895				
HPS1					0.677			
HPS2					0.837			
HPS3					0.848			
HPS4					0.810			
GWC1						0.918		
GWC2						0.910		
GPB1							0.720	
GPB2							0.747	
GPB3							0.859	
GPB4							0.755	
GPB5							0.824	
GPB6							0.868	
GPB7							0.813	
RRCB1								0.887
RRCB2								0.728
RRCB3								0.874
RRCB4								0.870

Source: Author's own work based on SmartPLS results

Table 14 show the value of the variance inflation factor (VIF). The value of the VIF is below 3.00 for each item. Only two (2) items are above 3.00 and less than 5.00. Thus, the range of VIF for each item is from 1.496 to 3.203, lower than the threshold value of 5.00 (HAIR ET AL., 2017), which indicates that the structural model has no negative effects, and there is no evidence of multicollinearity among the items or predictor components. The model has no CMB (common method bias) (ANDERSON & GERBING, 1988; KOCK, 2015; RASOOLIMANESH ET AL., 2017). Therefore, each construct statistically explains satisfactory discriminant validity.

Table 14 The evaluation of the measurement model (variance inflation factor)

Items	VIF	Items	VIF
AT1	3.203	GT1	2.035
AT2	2.742	GT2	2.757
AT3	2.663	GT3	2.199
AT4	2.669	GS3	1.498
SN1	1.642	GWoM1	1.952
SN2	2.016	GWoM2	1.495
SN3	2.201	HPS1	1.294
PBC1	1.772	HPS2	2.001
PBC2	2.029	HPS3	2.044
PBC3	1.625	HPS4	1.799
GPV1	2.151	GWC1	2.076
GPV2	1.734	GWC2	1.936
GPV3	2.235	GPB1	1.73
GPV4	2.072	GPB2	1.906
GPV5	2.264	GPB3	2.707
EK1	2.127	GPB4	1.956
EK2	1.944	GPB5	2.402
EK3	2.009	GPB6	3.073
CC1	1.705	GPB7	2.49
CC2	1.774	RRCB1	2.704
CC3	1.496	RRCB2	1.703
GMT1	2.364	RRCB3	2.783

GMT1	2.012	RRCB4	2.548
GMT2	2.298		
GMT3	2.61		
GMT4	2.575		
GMT5	2.35		
GMT6	2.509		

Source: Author's own work based on SmartPLS results

After removing the lower values of outer loading, the convergent validity was again assessed. I have again run the PLS factor analysis, whereas all latent variables of AVE exceeded 0.50, indicating satisfactory convergent validity (ANDERSON & GERBING, 1988). However, after removing four items GS1, GS2, GWoM3, and GWoM4 the composite reliability and average variance extracted increases specially RRCB (0.709). Therefore, these results indicate solid reliability between all constructs and robust reliability with error-free (HAIR ET AL., 2014). Consequently, the model given above is thought to be well-fitting, reliable, and valid. As a result, these items were eliminated prior to hypothesis testing. Table 15 presents the convergent reliability values for final hypothesis test.

Table 15 The evaluation of the measurement model (construct reliability & validity) after removing items

Constructs	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
Attitude	0.908	0.935	0.784
Subjective norms	0.825	0.893	0.736
Perceived behavioral control	0.807	0.885	0.72
Green perceived value	0.864	0.902	0.649
Ecological motives			
Environmental knowledge	0.839	0.903	0.756
Climate concern	0.779	0.872	0.694
Positive motives			
Green marketing tools	0.891	0.917	0.647
Green trust	0.862	0.916	0.784

GWoM	0.73	0.881	0.787
Negative Motives			
High price sensitivity	0.804	0.873	0.633
Green washing concern	0.803	0.91	0.835
Green purchase behavior	0.905	0.925	0.64
Recycling and resources conservation behavior	0.862	0.907	0.709

Source: Author's own work based on SmartPLS results

5.4.3 Discriminant Validity

Tables 16 and 17 shows discriminant validity where it was applied the correlations' Fornell-Larcker Criterion and heterotrait-monotrait ratio (HTMT) respectively (HENSELER ET AL., 2015). Discriminant validity is confirmed when the square root of the Average Variance Extracted (AVE) for each construct is greater than the correlations with all other constructs. This validation is confirmed using two techniques: the Fornell-Larcker criterion and HTMT, proposed respectively by (HENSELER ET AL., 2015).

The results are satisfactory with Fornell-Larcker criterion that the square root of the AVE of on-diagonal values is higher than the AVE of off-diagonal values in the model. Table 16 presents that the square root of all constructs of the AVE of on-diagonal values is higher than the AVE of off-diagonal values in the model and the measurement model is statically acceptable.

According to HENSELER ET AL. (2015), the HTMT value between two constructs must be less than 0.90. Table 17 shows that all the HTMT ratios range are 0.435 to 0.722 which are below 0.850 and another the threshold value of <0.90 (HAIR ET AL., 2021; HENSELER ET AL., 2015). Thus, the measurement model is statically acceptable discriminant validity based on both criteria.

Table 16 Discriminant validity (Fornell-Larcker criterion)

Fornell-Larcker criterion														
Constructs	AT	CC	EK	GMT	GPB	GPS	GPV	GS	GT	GWC	GWoM	PBC	RRCB	SN
AT	0.885													
CC	0.608	0.833												
EK	0.436	0.496	0.870											
GMT	0.474	0.577	0.487	0.805										
GPB	0.453	0.542	0.446	0.577	0.800									
GPS	-0.464	-0.429	-0.366	-0.521	-0.625	0.796								
GPV	0.517	0.586	0.414	0.665	0.680	-0.599	0.805							
GS	0.182	0.213	0.219	0.406	0.392	-0.411	0.404	1.000						
GT	0.448	0.478	0.399	0.584	0.620	-0.617	0.696	0.454	0.885					
GWC	-0.284	-0.306	-0.286	-0.346	-0.470	0.541	-0.396	-0.356	-0.398	0.914				
GWoM	0.458	0.502	0.429	0.533	0.567	-0.596	0.594	0.468	0.636	-0.476	0.887			
PBC	0.546	0.530	0.488	0.651	0.556	-0.484	0.682	0.287	0.500	-0.375	0.492	0.849		
RRCB	0.516	0.623	0.448	0.589	0.654	-0.557	0.636	0.282	0.510	-0.387	0.548	0.575	0.842	
SN	0.449	0.425	0.354	0.606	0.404	-0.455	0.509	0.393	0.419	-0.366	0.440	0.554	0.502	0.858

Notes: correlation is significant at the 0.05 level (2-tailed).

Source: Author's own work based on SmartPLS results

Table 17 Discriminant validity (Heterotrait-monotrait ratio-Matrix)

Heterotrait-monotrait ratio (HTMT) - Matrix														
	AT	CC	EK	GMT	GPB	GPS	GPV	GS	GT	GWC	GWoM	PBC	RRCB	SN
AT														
CC	0.720													
EK	0.499	0.611												
GMT	0.524	0.689	0.562											
GPB	0.498	0.642	0.511	0.641										
GPS	0.541	0.543	0.445	0.613	0.736									
GPV	0.580	0.713	0.486	0.754	0.763	0.722								
GS	0.193	0.240	0.240	0.429	0.411	0.456	0.435							
GT	0.505	0.584	0.469	0.662	0.700	0.739	0.807	0.489						
GWC	0.330	0.386	0.347	0.409	0.551	0.676	0.476	0.397	0.477					
GWoM	0.560	0.661	0.543	0.658	0.694	0.775	0.743	0.550	0.801	0.622				
PBC	0.622	0.662	0.582	0.762	0.634	0.594	0.819	0.326	0.595	0.461	0.635			
RRCB	0.575	0.754	0.521	0.668	0.737	0.672	0.730	0.309	0.592	0.467	0.686	0.677		
SN	0.505	0.513	0.409	0.703	0.446	0.536	0.591	0.434	0.487	0.442	0.559	0.676	0.575	

Source: Author's own work based on SmartPLS result

5.5 Structural model (inner model) and Hypothesis Testing

The structural model represents the second stage of the Partial Least Squares (PLS) process, employed to test the research hypotheses. This stage involves evaluating three key aspects: Cross-validation communality and redundancy indices; R^2 values of endogenous variables; Standardized Root Mean Square Residuals (SRMR)(HAIR ET AL., 2017). R^2 is employed to evaluate the model's consistency across different samples.

The structural model (inner model) was analyzed based on examining the predictive relevance of the model by Q^2 values, assessing effect sizes on endogenous variables through f^2 values, and the coefficient of determination (R^2), collinearity diagnostic by VIF values, and the significance of the path coefficients (β).

5.5.1 Coefficient of determination (R^2)

Table 18 shows the R square values of endogenous variables. R^2 is utilized to evaluate the model's sample consistency. According to HAIR ET AL. (2010), R^2 and goodness of fit must be greater than 0.1 for a structural model to be valid. According to RASOOLIMANESH ET AL. (2016), an R^2 value of more than 20% is deemed noteworthy for consumer behavior, marketing, tourism, and psychological studies. The model clarifies 58 % for GPB (Adjusted $R^2 = 0.586$), 55% for RRCB (Adjusted $R^2 = 0.559$), and 43% for AT (Adjusted $R^2 = 0.435$). Based on the R^2 value, our all constructs exceed 20%, and it has consistency.

Table 18 R Square values of endogenous variables

Constructs	R-square	R-square adjusted
Attitude	0.436	0.435
Green purchase behavior	0.588	0.586
Recycling & resource conservation behavior	0.559	0.557

Source: Author's own work based on SmartPLS results

It should be noted that the R^2 value is only demonstrated for the model's endogenous variables. Furthermore, R^2 values of “0.436 (AT), imply “medium, and 0.588 (GPB), and 0.559 (RRCB),” imply “high” model prediction accuracy, respectively (BOUND ET AL., 1995). Human behavior is not as predictable as other processes. In behavioral sciences, R^2 is typically less than 50%.

5.5.2 f² Values (Effect size)

Cohen's f² calculates the effect size for each path model by calculating for the change in R² when a particular variable is removed from the model. The f² effect size is determined as follows: $f^2 = (R^2 \text{ original} - R^2 \text{ omitted}) / (1 - R^2 \text{ original})$. COHEN (1988) defines f² values as 0.02 for a small effect size, 0.15 for a medium impact size, and 0.35 for a large effect size. Moreover, according to (KHALILZADEH & TASCI, 2017), estimate Cohen's effect sizes should be 0.01 for small effects, 0.06 for medium effects, and 0.14 for large effects.

Table 19 shows the f² values and effect size for sustainable consumption behavior. The findings demonstrate that, according to Cohen's classification, the effect size of ecological motives has more than 0.211 on consumers' attitudes, indicating a significant high effect relationship between them. Nevertheless, negative motives have a strong effect (0.106) on GPB.

Moreover, ecological motive has medium effect size on GPB and RRCB. Negative motives have also medium effect size on RRCB. Positive and negative motive has small effect size on consumer attitude towards eco-friendly products. Positive motives have very small and week effects size on consumer RRCB. Positive motives have medium effects size on green purchase behavior.

Nevertheless, attitude, subjective norms, and perceived behavioral control have small effect sizes on GPB, and RRCB because all those constructs have less than 0.02, indicating a significant small effect and relationship between them. The values that are not in boldface indicate that they have no or little effect on the dependent variable.

Table 19 f Square values and effects size

Constructs	Attitude	Green purchase behavior	Recycling & resource conservation behavior
Attitude		0.001	0.002
Subjective norms		0.009	0.012
Perceived behavior control		0.004	0.024

Ecological motives	0.211	0.030	0.084
Positive motives	0.013	0.024	0.006
Negative motives	0.022	0.106	0.030

Source: Author's own work based on SmartPLS results

5.5.3 Q² Values (Predictive Relevance of Model)

PLS uses the blindfold technique to predict test performance, whereas Q² predicted acceptable endogenous construct values that were higher than zero. Table 18 shows that all items of endogenous construct values exceed the threshold value of zero. The predicted values for Q² items range from 0.430 to 0.583, which is acceptable. The results show that the endogenous construct values also exceed the threshold value zero e.g., 0.430 for attitude, 0.583 for green purchase behavior and 0.553 for recycling & resource conservation behavior.

Thus, the model (Stone-Geiger test, Q²) was found to be methodologically valid (Stone-Geiger test, Q²) (CHIN, 1998) and indicated a medium to large scale and showed (pseudo) out-of-sample prediction accuracy (HAIR ET AL., 2019).

The Gaussian copula approach was utilized in the analysis. This approach is used when addressing independent variables that may be susceptible to endogeneity issues and exhibit non-normal distributions. The results reveal that none of the copula terms exhibit statistical significance at the 1% level of significance. This outcome underscores the reliability of the PLS-SEM results and implies that the estimated coefficients do not introduce any concerns related to endogeneity (PARK & GUPTA, 2012). Table 20 presents the findings for Q² and model predictive power.

The root-mean-square error (RMSE) is one of the most widely used to assess a model's predictive capability. According to SHMUELI ET AL. (2019), when a significant proportion (or an equal number) of indicators in the PLS-SEM analysis demonstrate reduced prediction errors compared to a linear regression model (LM) used as a benchmark, it implies that the model holds a moderate level of predictive capability.

Table 20 and **Appendix-C Table 33** also show that most RMSE-PLS values have higher and smaller prediction errors compared to the RMSE-LM values (SHMUELI ET AL., 2019) on an indicator level. As a result, the model offers a medium predictive ability for GPB and RRCB's major target construct.

Table 20 Findings of model fit

Constructs	Q ² predict	PLS-SEM_RMSE	PLS-SEM_MAE
Attitude	0.430	0.756	0.522
Green purchase behavior	0.583	0.648	0.475
Recycling & resource conservation behavior	0.553	0.670	0.505

Source: Author's own work based on SmartPLS results

5.5.4 Model Fit Assessment

Table 21 shows the standardized root mean square residual (SRMR); a measure employed to assess model fit (HENSELER ET AL. 2015). In this research model, the SRMR score was calculated to be 0.057. This score falls below the commonly accepted threshold of 0.08, as suggested by (HAIR ET AL., 2017). This result indicates that the model is considered to have an acceptable and good fit to the data.

Table 21 Model fit assessment

	Saturated model	Estimated model
SRMR (Standardized root mean square residual)	0.057	0.061

Source: Author's own work based on SmartPLS results

5.5.5 Hypothesis and Bootstrapping Testing

Table 22 and Figure 10 present the effects of the path coefficients, and t statistics. After evaluating the measurement model to establish reliability and validity, the proposed theoretical model's soundness was confirmed. Subsequently, the predictive relevance of the structural model was assessed. The data was then used to investigate the structural model as well as all hypotheses. PLS-SEM and bootstrapping methods were applied to test the hypotheses. Bootstrapping is a non-parametric technique that employs resampling methods to measure the significance of Partial Least Squares (PLS) coefficients, as explained by (HAIR ET AL., 2022).

The bootstrapping method, along with p values and t statistics, can be used to evaluate the significance of the path coefficients.

I tested hypotheses using a two-tailed approach at a 95% confidence level. To explore these hypotheses, I employed bootstrapping with 10,000 sub-samples. I opted for a no-sign adjustment preference and utilized a bias-corrected and accelerated (BCa) bootstrap confidence interval followed by (AGUIRRE-URRETA & RÖNKKÖ, 2018).

There are seventeen hypotheses were developed for the investigation of the research model. As a result, the hypothesis can be accepted or rejected by calculating the statistical significance of each path coefficient. Results demonstrate that all hypothesized associations are statistically significant. According to HAIR ET AL. (2017, P. 156), "the path coefficient can be regarded significant if its value is not zero in the absence of the confidence interval."

Table 22 shows the results of the hypotheses for consumer sustainable consumption behavior. The results reveal that fifteen hypotheses are supported, and two hypotheses are rejected.

The outcomes of the path coefficients and t values are indicators that attitude has a negative relationship with GPB ($\beta = -0.031$, t-value = 1.107, $p > 0.05$) and RRCB ($\beta = 0.035$, t-value = 1.256, $p > 0.05$). Therefore, H1a and H1b are rejected. Subjective norm has a significantly influence on GPB ($\beta = -0.079$, t-value = 3.648, $p < 0.001$) and RRCB ($\beta = 0.093$, t-value = 3.773, $p < 0.001$). So, H2a and H2b are supported.

Perceived behavioral control has a positive and significant effect on green purchase behavior ($\beta = 0.064$, t-value = 2.365, $p < 0.05$) and RRCB ($\beta = 0.070$, t-value = 2.459, $p < 0.05$) Thus, H3a and H3b are supported.

The path results show that green perceived value has a positive significant influence on GPB ($\beta = 0.270$, t-value = 7.829, $p < 0.001$), and RRCB ($\beta = 0.176$, t-value = 4.740, $p < 0.001$). Therefore, H4a, and H4b are supported.

Ecological motive has positive and significant influence on attitude ($\beta = 0.464$, t-value = 11.446, $p < 0.001$), GPB ($\beta = 0.169$, t-value = 5.388, $p < 0.001$), and RRCB ($\beta = 0.290$, t-value = 9.450, $p < 0.001$). Thus, H5a, H5b, and H5c are supported.

Positive motive has positive and significant effects on consumer attitude ($\beta = 0.136$, t-value = 3.018, $p < 0.05$), GPB ($\beta = 0.189$, t-value = 5.658, $p < 0.001$), and RRCB ($\beta = 0.097$, t-value = 2.684, $p < 0.05$). Thus, H6a, H6b and H6c are supported.

Finally, the bootstrapping paths show that negative motive has negative impact and influence on attitude ($\beta = -0.152$, $t\text{-value} = 3.185$, $p < 0.001$). Therefore, H7a is supported. Moreover, negative motive has negative and significant influence on GPB ($\beta = -0.293$, $t\text{-value} = 11.099$, $p < 0.001$) and RRCB ($\beta = -0.162$, $t\text{-value} = 5.481$, $p < 0.001$). Thus, H7b and H7c are also supported. Table 25 summarize the hypothesis results.

Table 22 The effects of the structural model (P value and T value)

HN	Relationships	Std β	mean (M)	Standard deviation	T statistics	P values	2.5%	97.5%	Results
1a	AT -> GPB	-0.031	-0.031	0.028	1.107	0.268	-0.086	0.025	Not supported
1b	AT -> RRCB	0.035	0.036	0.028	1.256	0.209	-0.017	0.093	Not supported
2a	SN -> GPB	-0.079	-0.079	0.022	3.648	0.000*	-0.122	-0.037	Supported
2b	SN -> RRCB	0.093	0.093	0.025	3.773	0.000*	0.045	0.142	Supported
3a	PBC -> GPB	0.064	0.064	0.027	2.365	0.018	0.013	0.118	Supported
3b	PBC -> RRCB	0.070	0.070	0.029	2.459	0.014	0.013	0.126	Supported
4a	GPV -> GPB	0.270	0.269	0.034	7.829	0.000*	0.202	0.336	Supported
4b	GPV -> RRCB	0.176	0.175	0.037	4.740	0.000*	0.104	0.250	Supported
5a	EM -> AT	0.464	0.462	0.041	11.446	0.000*	0.381	0.539	Supported
5b	EM -> GPB	0.169	0.168	0.031	5.388	0.000*	0.107	0.229	Supported
5c	EM -> RRCB	0.290	0.289	0.031	9.450	0.000*	0.228	0.348	Supported
6a	PM -> AT	0.136	0.140	0.045	3.018	0.003**	0.054	0.229	Supported
6b	PM -> GPB	0.189	0.190	0.033	5.658	0.000*	0.124	0.254	Supported
6c	PM -> RRCB	0.097	0.099	0.036	2.684	0.007**	0.029	0.170	Supported
7a	NM -> AT	-0.152	-0.150	0.048	3.185	0.001*	-0.242	-0.056	Supported
7b	NM -> GPB	-0.293	-0.292	0.026	11.099	0.000*	-0.343	-0.240	Supported
7c	NM -> RRCB	-0.162	-0.161	0.030	5.481	0.000*	-0.218	-0.103	Supported

Note: *P<0.001**P<0.05

Source: Author's own work based on SmartPLS results

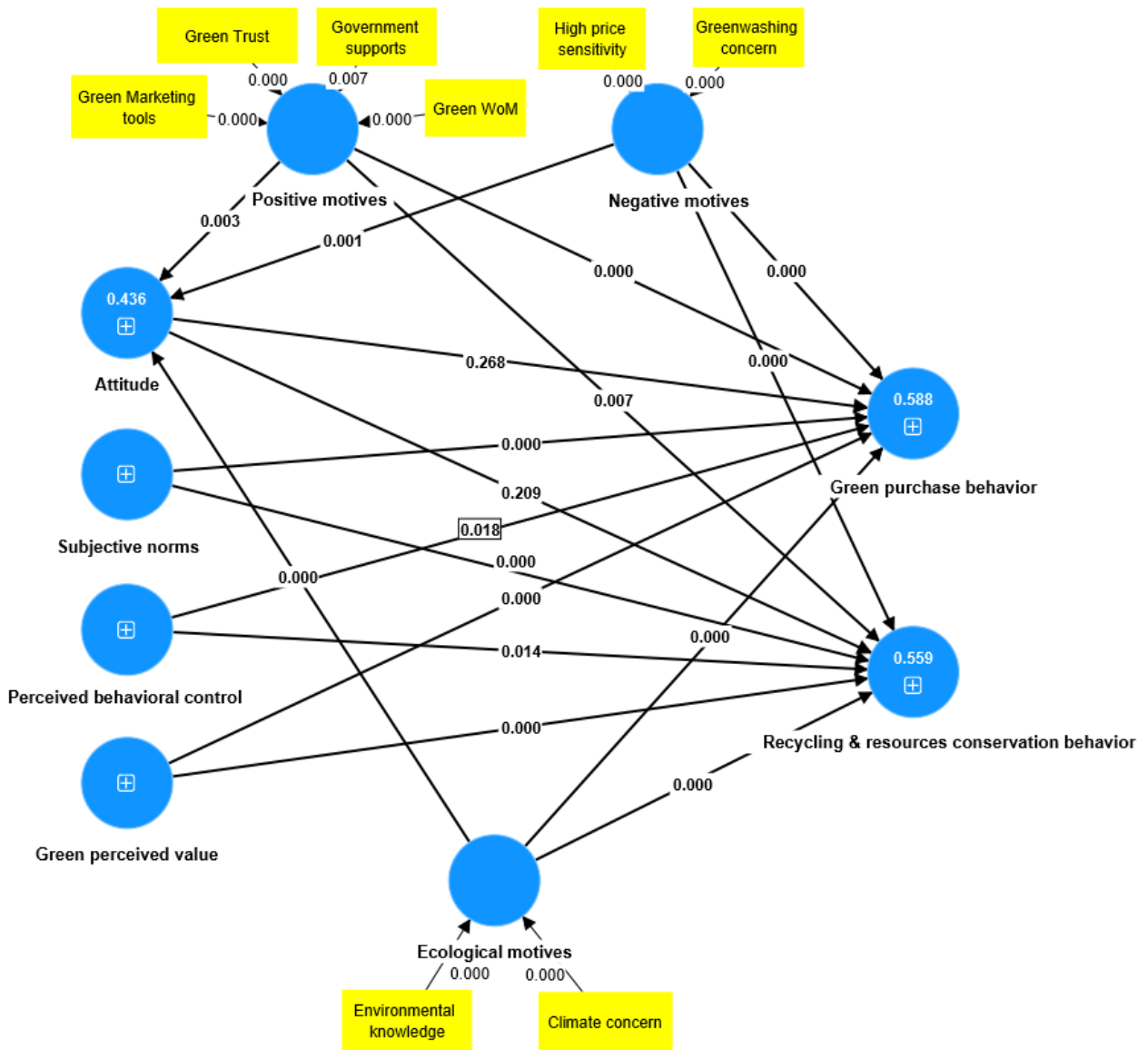


Figure 10 The results of the structural model, path coefficients (*p* value), and R-square values

Source: Author's own work based on SmartPLS results

5.5.6 Testing for Mediation: indirect and total effects

In Table 23, PLS bootstrap resampling was employed to evaluate the mediating roles of consumer attitude in relation to the independent and dependent variables within the model.

The result shows that the mediating role of attitude has an insignificantly indirect effect on EM and GPB ($\beta = 0.013, p > 0.05$) and RRCB ($\beta = 0.013, p > 0.05$).

In the context of positive motives, attitude has not relationship with GPB ($\beta = 0.004, p > 0.05$) and RRCB ($\beta = 0.005, p > 0.05$).

In the context of negative motives, the path results present that attitude has low mediation indirect effect between NM & GPB ($\beta = 0.004, p > 0.05$), and NC & RRCB ($\beta = 0.005, p > 0.05$).

Table 23 Results of the mediating investigation (indirect and total effects)

Indirect effects	Std β	T statistics	P-values	Support
EM -> AT -> GPB	0.013	1.088	0.276	No
EM -> AT -> RRCB	0.013	1.242	0.214	No
PM -> AT -> GPB	0.004	0.946	0.344	No
PM -> AT -> RRCB	0.005	1.043	0.297	No
NM -> AT -> GPB	0.004	1.1	0.271	No
NM -> AT -> RRCB	0.005	1.085	0.278	No

Note: $P < 0.05$

Source: Author's own work based on SmartPLS results

5.5.7 Testing for moderation effects

Table 24 and Figure 11 shows a moderating effect of ecological motives on the interaction between dependent and independent constructs.

Ecological motives moderate the significant positive relationship between AT & GPB ($\beta_1 = 0.088, p < 0.05$), whereas the P -value lowers the ideal value of 0.05, implying the results are supported. Nevertheless, Ecological motives moderates the significant negative relationship between AT & RRCB ($\beta_1 = -0.007, p > 0.05$) and it is not supported.

Ecological motives moderate the significant positive relationship between SN & RRCB ($\beta_1 = -0.070, p < 0.05$), thus, it is supported. Nevertheless, Ecological motives moderate the significant negative relationship between SN & GPB ($\beta_1 = -0.039, p > 0.05$) whereas the P -value exceeded the ideal value of 0.05, implying the results are not supported.

Ecological motives moderate a significant positive relationship between PBC & GPB ($\beta_1 = 0.097, p < 0.05$), implying the results are supported. But Ecological motives negatively moderates the PBC & RRCB ($\beta_1 = -0.036, p > 0.05$), therefore, it is rejected.

Moreover, GPV & GPB ($\beta_1 = -0.168, p < 0.05$), have significant interactions with the moderate variable of Ecological motives, implying that when EM is high, the interaction between SN & GPI, PBC & GPI, is considerably better than when it is low. GPV and RRCB ($\beta_1 = 0.006, p > 0.05$) have insignificant interactions with the moderate variable of Ecological motives. Thus, it is not supported.

Table 24 The results of moderation investigation

Relationship	β	Mean	Standard deviation	T statistics	P values	Results
EM x AT -> GPB	0.088	0.089	0.022	3.960	0.000	Supported
EM x AT -> RRCB	-0.007	-0.007	0.021	0.328	0.743	Not supported
EM x SN -> GPB	-0.039	-0.038	0.024	1.646	0.100	Not supported
EM x SN -> RRCB	-0.070	-0.069	0.028	2.469	0.014	Supported
EM x PBC -> GPB	0.097	0.091	0.029	3.364	0.001	Supported
EM x PBC -> RRCB	-0.036	-0.032	0.037	0.977	0.329	Not supported
EM x GPV -> GPB	-0.168	-0.165	0.024	7.004	0.000	Supported
EM x GPV -> RRCB	0.006	0.003	0.033	0.179	0.858	Not supported

Note: $P < 0.05$

Source: Author's own work based on SmartPLS results

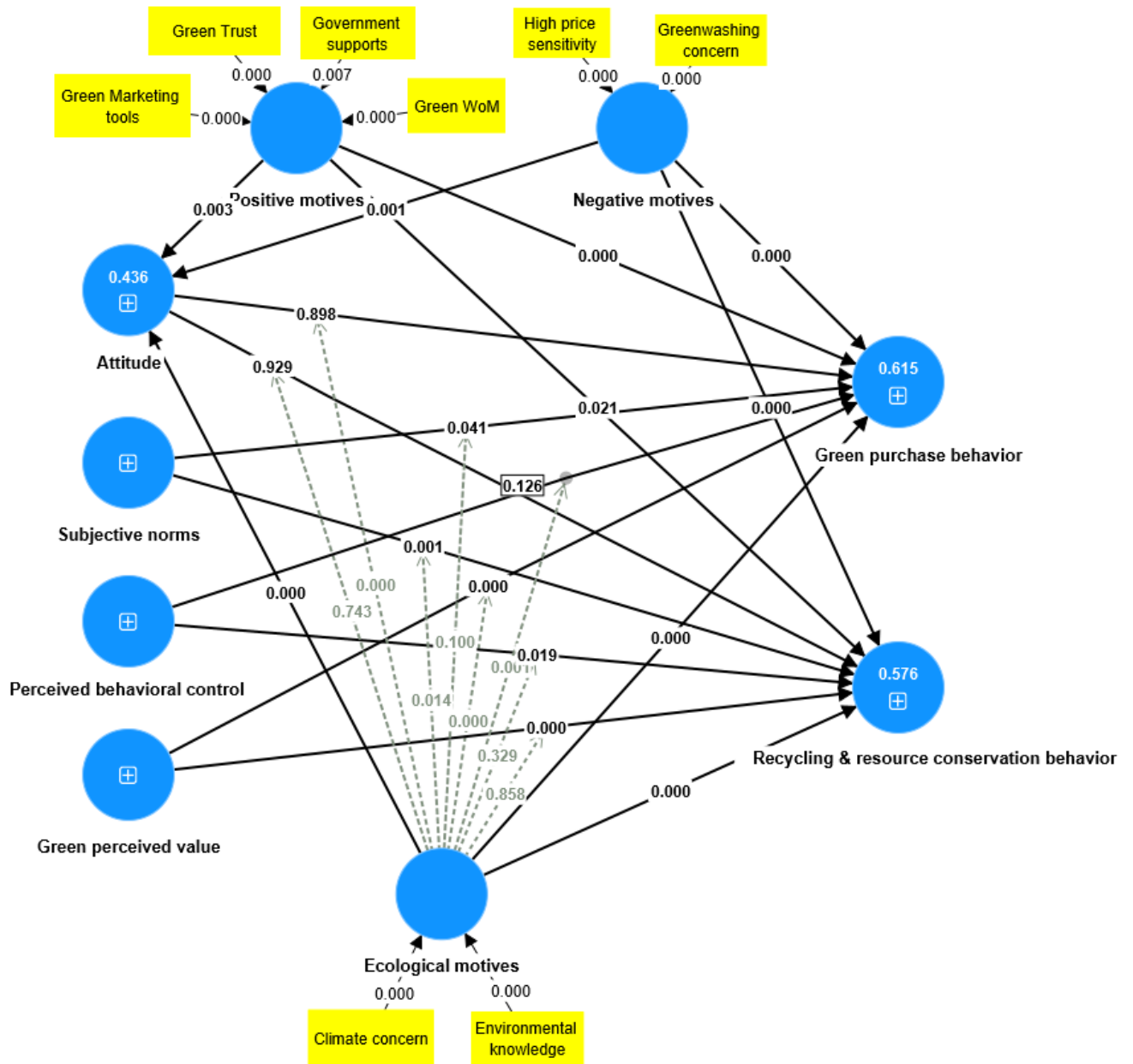


Figure 11 The results of the moderation effects of ecological motives

Source: Author's own work based on SmartPLS results

Table 25 Summary of the hypotheses test

Hypotheses		Results
Hypothesis H1a	Attitude has a positive and significant effect on green purchase behavior	Not supported
Hypothesis H1b	Attitude has a positive and significant effect on recycling and resources conservation behavior	Not supported
Hypothesis H2a	SN has a positive and significant effect on green purchase behavior	Supported
Hypothesis H2b	SN has a positive and significant effect on recycling and resources conservation behavior	Supported
Hypothesis H3a	PBC has a positive and significant effect on green purchase behavior	Supported
Hypothesis H3b	PBC has a positive and significant effect on recycling and resources conservation behavior	Supported
Hypothesis H4a	Green perceived value positively influences consumers' green purchase behavior	Supported
Hypothesis H4b	Green perceived value positively influences consumers' recycling and resources conservation behavior	Supported
Hypothesis H5a	Ecological motives positively influence consumers' attitudes toward sustainable consumption behavior	Supported
Hypothesis H5b	Ecological motives positively influence consumers' green purchase behavior	Supported
Hypothesis H5c	Ecological motives positively influence consumers' recycling and resource conservation behavior	Supported
Hypothesis H6a	Positive motives have a positive and significant effect on consumer attitude toward sustainable consumption behavior	Supported

Hypothesis H6b	Positive motives have a positive and significant impact on green purchase behavior	Supported
Hypothesis H6c	Positive motives have a positive and significant impact on recycling and resources conservation behavior	Supported
Hypothesis H7a	Negative motives have a negative and significant effect on consumer attitude toward sustainable consumption behavior	Supported
Hypothesis H7b	Negative motives have a negative and significant impact on green purchase behavior	Supported
Hypothesis H7c	Negative motives have a negative and significant impact on recycling and resources conservation behavior	Supported

Source: Author's own work

5.5.8 Importance-Performance Map Analysis

The importance-performance map analysis (IPMA) expands on the results of PLS-SEM by considering the performance of each component, and it assists researchers in identifying constructs with relatively high importance but low effectiveness as independent variables (HAIR ET AL., 2017). The data is rescaled by the IPMA to generate performance scores ranging from 0 to 100. Table 26 and **Appendix-C Figure 12** show that climate concern, attitude, green perceived value, green marketing tools, green trust and perceived behavioral control are the most important factors in defining sustainable consumption behavior of green purchase behavior and recycling & resource conservation behavior. Green WoM, environmental knowledge, subjective norms and government support have intermediate levels of importance in determining both green purchase behavior and recycling & resource conservation behavior. Negative motives particularly, greenwashing concern and high price sensitivity have low levels of importance in determining sustainable consumption behavior of green purchase behavior and recycling & resource conservation behavior. **Appendix-C Table 34** presents the reflective construct of performances for SCB.

Table 26 Construct of performances for SCB

Constructs	Performance score for GPB	Ranks	Performance score for RRCB	Ranks
Climate concern	77.31	1	77.31	1
Attitude	76.79	2	76.79	2
Green perceived value	73.60	3	73.60	3
Green marketing tools	71.34	4	71.34	4
Green trust	71.29	5	71.29	5
Perceived behavioral control	70.84	6	70.84	6
Green WoM	68.57	7	68.57	7
Environmental knowledge	67.31	8	67.31	8
Subjective norms	63.51	9	63.51	9
Government support	58.92	10	58.92	10
Greenwashing concern	39.94	11	39.94	11
High price sensitivity	35.53	12	35.53	12

Source: Author's own work based on SmartPLS results

5.6 Results of Necessary condition analysis (NCA)

In research across various disciplines, necessity statements are a prevalent feature. Researchers employ various terminologies to convey that a particular condition, denoted as X, is an essential prerequisite for producing a particular outcome, denoted as Y. Common expressions include phrases like "X is a requirement for Y," "X is pivotal for Y," and "Y's success hinges on the presence of X." The Necessary Condition Analysis (NCA) methodology can be effectively utilized to identify these indispensable prerequisites in the context of marketing phenomena.

DUL ET AL. (2021) introduced NCA for marketing research. Recently, the application of NCA in in marketing research primarily concentrates on examining consumers' attitudes and behavior e.g., (ARBABI ET AL., 2022; KOAY ET AL., 2022). It has complemented PLS-SEM with Necessary Condition Analysis (NCA) to further investigate the relationship between internal and external influential constructs of environmentally friendly products with consumers' green purchase behavior and overall sustainable consumption behavior. This research follows the guidelines of NCA established by (Richter et al., 2020), with the latent variable scores of the independent constructs of internal and external motivation, as well as overall sustainable consumption behavior, acquired through PLS-SEM, serving as a starting point for NCA. The input data for the NCA was considered the scores of the latent variables from the PLS analysis. So, after importing these scores, it has been created new data sets and ran the NCA analysis, following the instructions for conducting NCA with SmartPLS.

The ceiling line technique is a suggested method in NCA for detecting potential ceiling zone outliers (DUL, 2020). Therefore, this study tried to show if attitude, subjective norms, perceived behavior control, perceived value, environmental context, positive context, and negative context, were necessary conditions for sustainable consumption behavior or not. Figure 13 depicts ten scatter plots for all relevant relations using the ceiling envelopment-free disposal hull (CE-FDH) line to separate the space with observations from the space without observations (RICHTER ET AL., 2020 p. 224). This ceiling line indicates how much X (AT, SN, PBC, GPV, EM, PM, NM,), is needed to achieve a desired level of Y (SCB).

5.6.1 Effect size and significance testing

First, the effect sizes (d) of the latent variable scores were investigated in this study, with their statistical significance tested using a suggested random sample size of 10,000 (DUL, 2016; 2021). According to Dul and colleagues (DUL, VAN DER LAAN & KUIK, 2020), three criteria need to be met for a circumstance to be considered necessary: i) theoretical support, ii) effect size $d > 0$, and iii) a low p -value (p). Table 27 show the effect size of NCA. The NCA results indicate that AT, SN, PBC, GPV, EM, PM, NM, meaningful ($d \geq 0.1$) and significant ($p < 0.05$) necessary conditions for SCB and accuracy of over 90%. Negative affect did not show any necessary effect on either of them. According to DUL (2016), following general thresholds between different effect sizes d , where $0 < d < 0.1$ corresponds to a “small” effect size, $0.1 \leq d \leq 0.3$ to a “medium”, $0.3 \leq d \leq 0.5$ to a “large”, and $0.5 \leq d \leq 1$ to a “very large”

effect size. The results also showed that for internal and external motivational constructs, PBC, GPV, EM, PM, and NM are the necessary conditions for GPB, and RRCB with a statistical significance and accuracy of over 90%. Negative affect did not show any necessary effect on either of them.

Table 27 The results of effect size and significance test

Determinants	Outcomes	Ceiling lines	Effect size (d)	P	Accuracy
Attitude	GPB	CE-FDH	0.000	1.000	100%
	RRCB	CE-FDH	0.017	0.004	100%
Subjective norms	GPB	CE-FDH	0.000	1.000	100%
	RRCB	CE-FDH	0.217	0.000	100%
Perceived behavior control	GPB	CE-FDH	0.079	0.000	100%
	RRCB	CE-FDH	0.201	0.000	100%
Green perceived value	GPB	CE-FDH	0.261	0.000	100%
	RRCB	CE-FDH	0.290	0.000	100%
Ecological motives	GPB	CE-FDH	0.044	0.000	100%
	RRCB	CE-FDH	0.177	0.000	100%
Positive motives	GPB	CE-FDH	0.215	0.000	100%
	RRCB	CE-FDH	0.260	0.000	100%
Negative motives	GPB	CE-FDH	0.000	1.000	100%
	RRCB	CE-FDH	0.000	1.000	100%
* p<.05, ** p<.01, *** p<.001.					

Source: Author's own work based on SmartPLS-NCA results

Regarding consumer purchase and recycling & conservation behavior experience, subjective norms → GPB: $d = 0.167$; SN → RRCB: $d = 0.217$), (PBC → GPBT: $d = 0.168$; PBC → RRCB: $d = 0.201$), (Subjective norms → GPB: $d = 0.167$; SN → RRCB: $d = 0.21$) show very large, significant and necessity conditions (Table 28 and Appendix-C Figure 13).

Table 28 NCA effect sizes and accuracy

CE-FDH of support for SCB (GPB and RRCB)				
Determinants	Ceiling lines	Original effect size	Permutation p-value	Accuracy
AT- attitude	CE-FDH	0.032	0.000	100%
SN- subjective norm	CE-FDH	0.130	0.000	100%
PBC- perceived behavioral control	CE-FDH	0.120	0.000	100%
GPV-green perceived value	CE-FDH	0.185	0.000	100%
EM-ecological motives	CE-FDH	0.120	0.000	100%
PC- positive motives	CE-FDH	0.231	0.000	100%
NC -negative motives	CE-FDH	0.000	0.999	100%
Note(s): $0 < d < 0.1$ 5 small effect size; $0.1 \leq d < 0.3$ 5 medium effect size; $0.3 \leq d < 0.5$ 5 large effect size; $d \geq 0.5$ 5 very large effect size				

Source: Author's own work based on SmartPLS-NCA results

5.6.2 Bottleneck analysis

This study conducted a bottleneck analysis, enabling a comprehensive assessment of each prerequisite. Table 29 shows the bottleneck analysis. The utilization of a bottleneck technique assists in defining the critical threshold levels of necessary conditions required to achieve a particular level of outcomes related to consumer sustainable consumption behavior, with the aim of mitigating climate change. To achieve a high level of SCB (GPB and RRCB), (>50%), five prerequisites must be met: subjective norm must be at least 42%, perceived behavior control must be at least 48%, green perceived value must be at least 42%, ecological motive

must be at least 30%, positive motives must be at least 18%. The results also show that negative motives are not eligible to achieve any level of SCB.

Table 29 Bottleneck table (percentages) for SCB

Bottleneck SCB	Attitude	Subjective norms	Perceived behavior control	Green perceived value	Ecological motives	Positive motives	Negative motives
0	NN	NN	NN	NN	NN	NN	NN
10	NN	NN	NN	NN	NN	6.0	NN
20	NN	NN	NN	NN	12.0	12.0	NN
30	NN	NN	NN	NN	12.0	18.0	NN
40	NN	NN	NN	NN	12.0	18.0	NN
50	NN	42.0	48.0	42.0	30.0	18.0	NN
60	NN	42.0	48.0	42.0	30.0	18.0	NN
70	12.0	42.0	54.0	54.0	60.0	84.0	NN
80	12.0	42.0	54.0	54.0	60.0	84.0	NN
90	12.0	42.0	54.0	66.0	60.0	84.0	NN
100	66.0	96.0	72.0	66.0	60.0	84.0	NN

Source: Author's own work based on SmartPLS-NCA results

5.7 Discussion of the findings

This research aims to develop a theoretical framework for evaluating consumers' attitudes and sustainable consumption behavior by integrating the TPB and ABC theories with additional variables e.g., perceived value, ecological motives, positive and negative motives. This study proposed the relationship of attitude, subjective norms, perceived behavior control, perceived value, ecological, positive and negative motives with two dependent variables of GPB and RRCB. The mediating role of consumer attitude in the relationship between the independent constructs (ecological, positive, and negative motives) and dependent constructs (green purchase behavior and recycling & resources conservation behavior) was also investigated. The study also examined the moderating impact of ecological motives on the interrelation between AT & SCB (GPB & RRCB), SN & SCB (GPB & RRCB), PBC & SCB (GPB & RRCB), and PV & SCB (GPB & RRCB). The research affirmed that an expanded TPB-ABC (Theory of Planned Behavior - Attitude-Behavior Context) is an efficient model for measuring

sustainable consumption behavior of different aspects in the same model. Additionally, it validated that consumers are more inclined to buy environmentally friendly products when green marketing tools positively influence them. Bootstrapping was employed to validate the structural models and test the hypotheses. Seventeen hypotheses have been proposed to test the correlation between dependent and independent variables. Findings show that fifteen hypotheses are supported in the Bangladesh context and two are rejected.

Hypothesis H1a and H1b present that attitude does not significantly affect green purchase behavior and recycling & resource conservation behavior in Bangladesh. This finding does not agree with the earlier studies (VERMA & CHANDRA, 2018; ABU-ELSAMEN ET AL., 2019). Most previous studies show that a favorable attitude significantly affects green products and promotes sustainable consumption (VERMA & CHANDRA, 2018). Attitude strongly correlates with consumer energy-efficient purchase intention (ASLAM ET AL., 2020; ABU-ELSAMEN ET AL., 2019) and behavior (NGUYEN ET AL., 2018) in developing and developed countries. A previous study ARI & YILMAZ (2016) supported with my study result, and they found, attitude did not significantly influence recycling intentions or behaviors among homemakers in Turkey. The availability of various green items in market is limited and it is difficult for consumers to find environmentally friendly options. Bangladeshi young consumers prioritize immediate personal benefits over long-term environmental impacts; therefore, it makes difficult for green product purchases to be driven only by positive attitude. Moreover, limited awareness, high costs, and skepticism about green claims all lead to young consumers in Bangladesh having little influence on green product purchases. Moreover, In Bangladesh, a lack of infrastructure and educational environmental-related activities impede the sustainable recycling habits and resource-saving behaviors among young consumers.

Hypotheses 2a and 2b propose that subjective norms (SN) positively and significantly affect sustainable consumption behavior. Findings show that subjective norm has a positive and significant relationship with green purchase behavior and recycling & resource conservation. This finding is in line with studies of (AYAR, 2021; WARIS & AHMED, 2020; WARIS & AHMED, 2020; NEKMAHMUD ET AL., 2022). Previous studies show that subjective norm is a powerful predictor of consumer sustainable consumption behavior (AYAR, 2021), purchases of green products (HOSSAIN, FEKETE-FARKAS & NEKMAHMUD, 2022; NEKMAHMUD ET AL., 2022), and energy-efficient appliances (e.g., WARIS & AHMED, 2020; HOSSAIN, FEKETE-FARKAS & NEKMAHMUD, 2022; ABU-ELSAMEN ET AL., 2019). Moreover, subjective norms encourage consumers to purchase green products in

Indonesia (ARLI ET AL., 2018) and Turkey (AYAR, 2021). In the resource & conservation context, KANG ET AL. (2017) found that subjective norm positively correlates with sustainable water consumption behavior in the USA and homemakers' recycling behavior in Turkey (ARI & YILMAZ, 2016). My previous study NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS (2022) investigated tourists' sustainable consumption values regarding green purchases in Europe, where results show that subjective norms have significant positive relations with green purchase intention. Scholar SUNG ET AL. (2021) also found similar results in Taiwan. The significant emphasis on familial connections in Bangladesh and the cultural predisposition to seek guidance from family members have a considerable influence on sustainable purchasing behaviors. In the Bangladeshi setting, family education plays a critical role in shaping individuals' awareness and choices, contributing to a more sustainable and ecologically sensitive attitude to consumerism.

Hypotheses 3a and 3b propose that perceived behavioral control (PBC) positively and significantly affects SCB. Previous results show that PBC has a significant association with consumer SCB of green products in Turkey (AYAR, 2021), Indonesia (ARLI ET AL., 2018), and China (WANG ET AL., 2014). Findings show that PBC has a positive and significant relationship with green purchase behavior and recycling & resource conservation Which is in line with scholars (AYAR, 2021; ARLI ET AL., 2018; WANG ET AL., 2014).

In the context of energy-saving products, perceived behavioral control (PBC) has a significant influence on the purchase intention and behaviors for energy-smart household appliances in developing countries, Pakistan (ASLAM ET AL., 2020), Malaysia (TAN ET AL., 2017) and Bangladesh (HOSSAIN, FEKETE-FARKAS & NEKMAHMUD, 2022)—nevertheless, WANG ET AL. (2019) found no significant relationship between PBC and consumers' purchase intention of energy-saving household appliances in China. In the resource conservation studies context, PBC significantly influences consumer sustainable water consumption behavior in the USA (KANG ET AL., 2017). The results describe that the higher level of PBC contributes to the willingness and ability of young consumers in Bangladesh to adopt sustainable consumption by addressing different barriers and contributing to environmental and societal development.

Hypotheses 4a and 4b propose that green perceived value (GPV) positively and significantly affects SCB. Results show that GPV has a positive and significant relationship with green purchase behavior and recycling & resource conservation. The result is similar to the previous

studies, which validated the perceived value of green products with green purchase intention and ultimately behaviors (AHMAD & ZHANG, 2020; OGIEMWONYI, 2022; YADAV & PATHAK, 2017). For example, OGIEMWONYI (2022) found that green product value significantly influences the green purchase behavior of the Y generation in Nigeria. YADAV & PATHAK (2017) stated that consumers' perceived value plays a crucial role in their purchasing decisions. The results explain that the young generation is health conscious; therefore, they always search for product quality and health benefits and value for money. Consumers' green purchase behavior depends on product-perceived values, such as environmental value, functional value, emotional or social value, and health value (NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022). Young Consumers of the developing country context like Bangladesh are more willing to purchase a product with a higher perceived value because green products' quality and performance are higher than non-green products.

Hypothesis 5a proposes that ecological motives (EM) have a positive and significant effect on attitude. The previous studies supported the result (e.g., GAUTAM, 2020) whereas a positive correlation exists between greater knowledge and a more substantial influence on attitudes and behavior. Similarly, environmental knowledge leads to improved consumer attitudes in Bangladesh.

Hypotheses 5b, and 5c propose that ecological motives (EM) has a positive and significant effect on SCB. Findings show that ecological motives have positive and significantly relationship with green purchase behavior and recycling & resource conservation behavior. This finding is in line with studies by (AYAR, 2021; NEKMAHMUD ET AL., 2022; WARIS & AHMED, 2020; WARIS & AHMED, 2020). Previous studies (e.g., LEARY ET AL., 2014) show that environmental concern is another important ecological motive influencing consumers' SCB. In the context of SCB of energy-efficient products, environmental knowledge and concern drive the promotion of energy-efficient behavior. Environmental knowledge has significantly influenced consumer SCB (SAARI ET AL., 2021; WANG ET AL., 2014). Similarly, environmental concerns significantly correlated with ecological purchase behavior (SUN ET AL., 2022; OGIEMWONYI, 2022).

In the context of recycling, CHAO ET AL. (2021) found that environmental concerns significantly and positively affect consumer recycling behavior. Therefore, it helps to reduce the negative environmental impacts and mitigate the climate change issue. Young consumers

with higher environmental knowledge and climate concern tend to favor green products more and adopt resource conservation behavior. More profound environmental knowledge and climate concerns positively impact young consumer attitudes and willingness to consume' SCB (TAUFIQUE ET AL., 2017).

Hypothesis 6a proposes that positive motives (PM) have a positive and significant effect on attitude. Results show that external factors such as green marketing tools (eco-labels, eco-advertising, eco-brands), green trust, and government support of green products can positively influence consumer attitudes. The result is similar to the previous study (QIN & SONG, 2022), which stated that vital external positive factors continuously affect consumer attitude and SCB. In Bangladesh's context, eco-advertising significantly influences the young generation.

Hypotheses 6b and 6c propose that some positive motives (PM), e.g., green marketing tools, green trust, government support, and positive green words of mouth, positively and significantly affect SCB. Findings show that PM has a positive and significant relationship with green purchase behavior and recycling & resource conservation behavior. This finding is in line with a study by my previous study (NEKMAHMUD, 2021; AYAR, 2021; WARIS & AHMED, 2020). For example, eco-label knowledge behaviors (RAZIUDDIN ET AL., 2016; TAUFIQUE ET AL., 2017; WARIS & AHMED, 2020), eco-advertisement (CHIN ET AL., 2018), eco-branding (CHIN ET AL., 2018) had a positive relationship with environmental attitudes and pro-environmental behavior. My previous study HOSSAIN, NEKMAHMUD & FEKETE-FARKAS (2022) examined how eco-label knowledge influences consumers' pro-environmental behavior for energy-efficient household appliances in Bangladesh. Nevertheless, a study RAHBAR & WAHID (2011) found that Malaysia's eco-label effect on the actual purchase behavior of green products was insignificant. Similarly, prior studies (HOSSAIN, NEKMAHMUD & FEKETE-FARKAS, 2022; NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022; LIAO & XING, 2022) identified that green trust is the most important influencing factor for consumers purchasing green products, energy-saving products, green hotels, and recyclable products. External positive factors (e.g., green marketing tools, green trust, GWoM, and government support) significantly affect consumers' attitudes and SCB (QIN & SONG, 2022). GWoM is the most important external motivational factor to influence Y consumers in Bangladesh. Bangladeshi Y consumers obtain green product information from social media or online; if they get positive reviews of GWoM, they are interested in buying the product.

Hypothesis 7a proposes that negative motives (NM) have a negative and significant effect on attitude. Results show that NM has a significant relationship with the attitude of purchasing green products. The result is consistent with the previous study (QIN & SONG, 2022), which stated that vital external negative factors of high price and greenwashing continuously affect consumer attitudes in developed and developing countries like Bangladesh.

Hypotheses 7b and 7c propose that some negative motives (NM), e.g., high price and greenwash of green products, negatively and significantly affect SCB. Findings show that NM has a negative and significant relationship with green purchase behavior and recycling & resource conservation behavior. The result is similar to the recent studies (QIN & SONG, 2022; SUN ET AL., 2022; ISSOCK ISSOCK ET AL., 2018). For example, Sun & Wang (2020) confirmed that negative motives of price consciousness negatively influence Chinese consumers' green purchase intentions—similarly, SUN ET AL. (2022) claimed that perceived cost and price sensitivity negatively influence consumer green purchase intentions and behavior. Another study ISSOCK ISSOCK ET AL. (2018) stated that the price of green products negatively impacts consumer purchases of home appliances in South Africa, and green price sensitivity strongly influences Generation Y green behavior in Nigeria (OGIEMWONYI, 2022). So, the negative motive of price sensitivity becomes a major barrier for Y consumers' SCB in Bangladesh unless promotions or discounts are offered.

Another negative motive of green greenwashing has significantly and negatively inference Young consumer SCB of green purchase behavior and recycling & resources conservation behavior, which agreed with the previous studies (e.g., GOH & BALAJI, 2016; ZHANG ET AL., 2018). They found that the perception of greenwashing in China negatively and directly impacts green purchasing intentions and indirectly impacts the green WOM of companies. Similarly, GOH & BALAJI (2016) found that green skepticism has a direct negative influence on green purchase behavior and indirectly through environmental concern as well as environmental knowledge. Greenwashing negatively impacts firms' reputations and financial performance (LEONIDOU ET AL., 2013) and affects the interests of consumers, investors, regulators, environmental protection departments, and society (GUO ET AL., 2017). Moreover, future purchase behavior is negatively affected by greenwashing in Bangladesh. Therefore, greenwashing can be the main barrier to adopting the Y consumers' SCB in Bangladesh.

VI. CONCLUSION AND RECOMMENDATIONS

This Chapter presents the conclusion, limitations, and future research directions, theoretical, managerial, and policy implications.

6.1 Conclusions

Recently, scholars have been interested in researching pro-environmental behavior, sustainable consumption behavior, and environmental marketing with climate change issues. Scholars believe that consumers' pro-environmental and sustainable consumption behavior supports climate change mitigation. Therefore, this study makes a valuable contribution to the field of environmental marketing and consumer behavior science by exploring how various influencing factors intersect with sustainable consumption behavior and help mitigate climate change. This study offers researchers a new conceptual framework for understanding consumers' sustainable consumption behavior by integrating the TPB and ABC theories with additional variables (perceived value, ecological motives, and positive and negative motives). Previous studies neglected some factors in marketing literature that also significantly influence consumer sustainable consumption behavior. Moreover, most scholars measure consumer green purchase behavior and recycling & resource conservation behavior as sustainable consumption behavior separately, which need to be investigated together in the same model. Therefore, this is the first empirical investigation that reveals the role of a complex set of missing constructs in sustainable consumption behavior and measures together green purchase behavior and recycling & resource conservation behavior, which support climate change mitigation. It means the proposed integrated model facilitates assessing the same consumer engagement in sustainable practices across various domains, including green purchase behavior, organic food acquisition patterns, energy conservation initiatives, and eco-friendly transportation choices. The proposed integrated model, thus, demonstrates its efficacy in quantifying consumer purchasing patterns and sustainable consumption behaviors across diverse categories of environmentally friendly products.

Moreover, this research has attempted to observe how internal and external contextual motives influence consumers' sustainable consumption behavior. The path results identify that attitude, subjective norms, perceived behavior control, perceived value, climate concern, environmental knowledge, green marketing tools, green trust, government support, and green word of mouth are key influential internal and external factors that have strong and positive effects on young consumers' sustainable consumption behavior in Bangladesh.

Findings also show that green perceived value is the most crucial factor influencing green purchase behavior of young consumers in Bangladesh compared to recycling and resource conservation behavior. Marketers need to ensure green perceived value for young consumers by offering health & environmental benefits of their products that support mitigating climate issues.

Environmental knowledge and climate concerns are the primary external factors that influence young consumer attitudes and recycling & resource conservation behavior in Bangladesh. Moreover, ecological knowledge strongly influences young consumers of Bangladesh to adopt recycling and resource conservation compared to green purchase behavior. The results explain that Young consumers of Bangladesh with a heightened awareness of the environment and concerns about climate change are inclined to show a greater preference for green products and engage in pro-environmental behaviors contributing to resource conservation. A deeper understanding of environmental concerns positively influences change in young consumers' attitudes and encourages them to adopt sustainable consumption practices.

The noble results of this study show that the external context of positive motives, such as green marketing tools (eco-labels, eco-advertising, eco-brands), green trust, and government support of green products, can positively and significantly influence consumer attitudes and sustainable consumption behavior of green products, and recycling & resource conservation behavior in Bangladesh. Specifically, eco-advertising or green advertising emerges as a major influential determinant of green marketing tools in Bangladesh. Green advertising has a positive impact on young consumers' minds. It influences people to purchase eco-friendly products and encourages them to adopt sustainable consumption, whether seen on social media, YouTube, or TV. Green advertising should focus on the environmental benefits of green products and encourage a sustainable lifestyle. Telling exciting stories about sustainable practices, eco-friendly products, and the positive impact of pro-environmental and sustainable consumption behavior helps demonstrate the brand's commitment to environmental values.

Green trust also plays a pivotal role in fostering the adoption of sustainable consumption behavior among young consumers in Bangladesh. On the other hand, some negative motives, e.g., high prices and greenwashing of green products, negatively and significantly affect attitude and sustainable consumption in Bangladesh, which demotivates young consumers. Notably, the perceived high price of green products is the main hindrance to affording the green development among the young consumers in Bangladesh. Young consumers believe that the

accessibility of greenwashing has contributed to their unwillingness to acquire environmentally friendly products, decreasing their trust in the validity of environmentally friendly promises made by specific products or companies. Young consumers in Bangladesh consider the government's endorsement and implementation of environmentally friendly policies as motivating factors for engaging in sustainable consumption. They believe that the government should actively encourage the younger generation to adopt practices such as recycling and resource conservation in order to contribute to mitigating climate change.

The results of the importance-performance map analysis highlight that internal and external motivational constructs, attitude, ecological motives, and green perceived value are the most important factors in defining green purchase behavior and recycling & resource conservation behavior of young Bangladeshi consumers. Necessary condition analysis also supported that green perceived value, positive motives, and ecological motives are large effects of sustainable consumption behavior in Bangladesh, which are the necessary conditions for GPB and RRCB, with statistical significance and accuracy of over 90%. Therefore, marketers in Bangladesh should focus on green perceived value, ecological motives, and positive motives, mainly green trust, eco-advertising, and government support, compared to other influential factors.

Results show that ecological motives moderate the significant positive relationship between AT & GPB, PBC & GPB, and SN & RRCB in Bangladesh. Young consumers with higher environmental knowledge and climate concerns positively impact young consumer attitudes and perceived behavior control with green purchase behavior. If Bangladeshi consumers have profound ecological knowledge, it also supports them to adopt conservation behavior. The survey results show the consumer sustainable consumption habits in Bangladesh. According to their responses, almost 42% of young respondents sometimes buy organic food, and 43% of young consumers repurchase energy-saving household appliances. 28% of respondents said they carry their own bags when shopping. Results also show that 57% of young respondents said to turn off the tap when soaping up/cleaning teeth/ washing dishes, and 67% turn lights off in unused rooms. Only 13% of respondents use recyclable and reusable products, and 43% sometimes use recyclable and reusable products. These results show that young consumers of Bangladesh are more interested in adopting sustainable consumption behavior. Bangladesh's companies, marketing managers, and policymakers should focus more on ensuring sustainable production and consumption.

According to respondents, 65% of young respondents of Bangladesh believe that studying environmental-related modules/lessons is always helping them change their behavior/attitude toward environmental protection. Therefore, it needs to emphasize consumer education on greening, sustainability, and ecology. Environmental and climate change education must be included into school, college, and undergraduate curriculum, as well as training programs for businesses and individuals. These programs increase knowledge about and encourage adoption of sustainable practices in Bangladesh.

This research contributes theoretically and practically to developing sustainable consumption of green products and recycling & resource conservation behavior for society in a developing country context. This study provides opportunities for practitioners and researchers to delve into the rapidly extending areas of environmental marketing and sustainable consumption, ultimately mitigating climate change issues. The combined approach of SEM and NCA validates the proposed framework. As a result, this research model can measure various aspects of the same consumer purchase behavior, including organic food, green products, energy-efficient products, recycling, resource conservation behavior, and green transportation, all within a unified framework.

This study has some limitations which should be considered in further research. Firstly, the integrated model of the study is examined by gathering data from the developing country of Bangladesh. Therefore, the results may differ from those of other developed nations or other region countries, e.g., Asia, the Middle East, Europe, and North America. Therefore, future researchers ought to apply the model comparing with cross-sectional cultures, countries, and other geographical places. Secondly, the current study focused on only the Y generation. Therefore, the author recommends extending the survey to different consumer categories, such as Generation X. Moreover, future studies can compare the X and Y generations to measure pro-environmental and sustainable consumption behavior for more conclusive findings.

Thirdly, socio-demographic variables were not considered in the present model. Future research should consider the residents' socio-demographic factors, e.g., age, education, and income or other custom features as control variables in the model. The model can be expanded by considering other variables, e.g., self-image, recycling, and personal brand image, which may affect consumers' sustainable consumption behavior. Finally, this study combined organic food consumption and energy-efficient product consumption as a single variable of green purchase behavior and did not draw a hypothesis separately. Therefore, the results of the

relationship between organic food consumption behavior and energy consumption behavior can be different. Further study should consider organic food consumption behavior and energy consumption behavior separately in the proposed conceptual model. Researchers may also consider green transportation consumption behavior as a dependent variable in the model.

6.2 Implications

This study provides theoretical, managerial, and policy insights for researchers, marketing managers, marketers, and policymakers based on the dimension of social, psychological, environmental, marketing, and behavioral sciences.

6.2.1 Theoretical implication

This study makes a significant theoretical contribution to the pro-environmental and sustainable consumption behavior context by addressing the limitations of the existing theories. Remarkably, this study improves predictive power by incorporating additional factors into a combined model, which overcomes the limitations of the theory of planned behavior (TPB), which primarily focuses on behavioral intentions. TPB has been widely applied in environmental and various research fields. Scholars KOTLER & ARMSTRONG (2018) criticized the TPB is self-interest nature and failure to complete behavior due to its rational predictor constructions adequately. Moreover, TPB failed to establish the causal relationship between external and internal factors of sustainable consumption behavior. Therefore, the attitude-behavior-context (ABC) model is the most appropriate for integrating with the TPB. To overcome these limitations, I introduce an extended model incorporating TPB and ABC to measure the effectiveness of consumers' attitudes and sustainable consumption behavior.

Moreover, this proposed model offers valuable insights into addressing the attitude-behavior gap, a prominent issue in pro-environmental behavior in climate change mitigation research. In the environmental marketing and pro-environmental behavior context, some missing constructs have remained uninvestigated in the previous theoretical and conceptual model, and those also influence consumers' attitudes and sustainable consumption behavior. For example, key environmental-related variables such as green trust, government support, green marketing tools, positive green WoM, high price sensitivity, greenwashing concern, climate concern, and environmental knowledge are incorporated in our model, which enhanced the complete understanding of sustainable consumption behavior. This study introduces climate concern and environmental knowledge combined to shape the formative construct known as ecological motives. Meanwhile, green marketing tools, green trust, government support, and positive

green word-of-mouth contribute to the formative construct of positive motives, and high price sensitivity and greenwashing concerns are integrated into the formative construct of negative motives. These formative constructs of ecological motives, positive motives, and negative motives combined together in the same model, which is another theoretical and noble contribution for the first time in environmental marketing areas. These integrations contribute to gaining a comprehensive understanding of consumers' purchasing patterns for environmentally friendly products.

This is the first empirical investigation that reveals the role of a complex set of missing constructs in sustainable consumption in the marketing context and measures pro-environmental and sustainable consumption behavior that supports climate change mitigation. Previous research has overlooked these contextual factors in shaping green consumer behavior (GUO ET AL., 2018). This integrated approach allows for exploring the mechanisms behind sustainable consumption behavior, considering both internal and external factors, which are the noble theoretical contributions in the pro-environmental context.

This research introduces a comprehensive framework that expands our understanding of green purchase behavior and recycling & resource conservation behavior. This proposed model can help to measure customers' sustainable consumption behavior across multiple sectors in the same model.

Moreover, most scholars measure consumer green purchase behavior and recycling & resource conservation behavior as sustainable consumption behavior separately, which need to be investigated together in the same model. The combined approach of SEM and NCA validates the proposed framework. As a result, this research model is capable of measuring various aspects of the same consumer purchase behavior, including organic food, green products, energy-efficient products, recycling, and resource conservation behavior, as well as green transportation, all within a unified framework. This significant advancement model represents a novel theoretical contribution to the marketing field.

6.2.2 Managerial Implication

Findings of this study contribute valuable practical implications for marketing managers and marketers, enhancing their understanding of consumer pro-environmental behavior and sustainable consumption behavior, which contribute to mitigating climate change issues. This study highlights key managerial implications that help marketers of developing and developed

countries formulate effective marketing strategies for increasing sustainable consumption behavior.

Based on the study's findings, it is crucial for marketers to proactively provide consumers with informative and relevant details on how they can embrace eco-friendly products from nature. This study shows that green marketing tools significantly influence consumers' sustainable consumption behavior. Therefore, companies and marketers should initiate targeted campaigns aimed at raising awareness about green products, and utilizing green marketing tools, such as green branding, green advertising, and ecolabels, can be instrumental in achieving this objective. In Bangladesh, green advertising is the most effective marketing tool for the young generation. Green advertising or promoting eco-friendly products has a positive impact on consumers' minds, whether they are seen in print media or on TV. These green advertisements influence people to purchase eco-friendly products (DANGELICO & VOCALELLI, 2017). The young generation in Bangladesh strongly prefers social media platforms, making these channels an effective medium for engaging with them. As a result, marketers and advertisers should consider creating "green advertising" campaigns tailored to social media. Green advertising campaigns should contain educational information about the environment & climate change, informative posts, articles, and videos to raise awareness and inspire young consumers to adopt pro-environmental and sustainable consumption behavior.

The essential concept is for companies to provide informative, accurate, and simple-to-understand details regarding the environmental impact of a product throughout its lifespan. For example, using "ecolabels" is an important tool for green marketing. It helps sell products, makes the brand look good, and encourages companies to consider how their products affect the environment. This also allows consumers to learn more about environmental problems. A study found that 70% of buyers are influenced by messages in ads and labels about being environmentally friendly (CHASE & SMITH, 1992).

The study findings show that green trust significantly influences sustainable consumption behavior of young consumer in Bangladesh. Therefore, Green marketing promises should be transparent, and firms should show evidence of their commitment to sustainability. Authenticity in green messages aids in the development of consumer trust (CHARTER & POLONSKY, 2017). Research has shown skepticism among consumers, particularly regarding green product advertising on social media (LUO ET AL., 2020; NUNKOO & RAMKISSOON, 2012). This skepticism is often fueled by misleading or exaggerated claims in advertising, a

concern especially prevalent among environmentally conscious consumers. Therefore, marketers and managers need to address and minimize this skepticism at the managerial level. They can achieve this by providing genuine and accurate information about their green products, emphasizing transparency, and building consumer trust (NUNKOO & RAMKISSOON, 2012). By doing so, they can establish a more credible image and foster greater consumer trust and confidence regarding their green initiatives. Marketers and managers should establish a credible platform that allows consumers to engage and interact to enhance trust in advertising. The negative motive of greenwashing is also a key factor discouraging purchasing green products in Bangladesh. It should prioritize transparency in order to effectively combat greenwashing by giving extensive and reliable information on the ecological attributes of its products. It's also a good idea to look for third-party certifications or labels from recognized environmental organizations, which adds credibility and assures adherence to true sustainability standards.

Results show that high price is the main barrier to purchasing green product in Bangladesh. Companies should consider implementing strategies such as cost-effective production methods, promoting the long-term value of green products to consumers, developing partnerships with sustainable suppliers, and leveraging marketing campaigns to emphasize affordability and benefits over time. Investing in research and development for sustainable practices, as well as collaborating with government initiatives, can also contribute to reducing cost and market competitiveness.

This study shows that green word of mouth (GWOm) is the most powerful factor influencing pro-environmental behavior in Bangladesh. Marketers should actively engage in social media platforms and encourage user-generated content, such as testimonials and reviews, and fostering online communities centered around sustainable practices can amplify positive experiences with green purchase behavior and sustainable lifestyle.

Consumers with environmental knowledge are more interested in purchasing green products and adopting recycling and resource conservation behavior. Study results show that ecological motives significantly influence young consumers' sustainable consumption behavior in Bangladesh. Marketers increase ecological concerns and environmental knowledge for consumers in Bangladesh by integrating sustainability information into product labeling, targeted educational campaigns, emphasizing the local relevance of sustainable practices, and

highlighting the positive impact of eco-friendly choices, which can contribute to raising awareness and fostering a culture of environmental responsibility among consumers.

The young generation of Bangladesh constantly searches for the perceived value of products. Marketers can ensure perceived value and green perceived value for consumers by effectively communicating product benefits & environmental benefits of their products, using eco-friendly packaging and materials, obtaining reputable certifications to validate sustainability claims, incorporating features aligned with consumer values, and consistently delivering on promises that further contribute to building a positive and enduring green perceived value.

Despite a lack of considerable concern about green marketing among Bangladeshi consumers, awareness and recognition of eco-friendly products exist. To capitalize on this awareness and drive consumer interest in green products, marketers or companies should focus on educating consumers about the benefits of green products and sustainability practices. Marketing efforts should emphasize how these products can positively impact the environment and society (KOTLER & ARMSTRONG, 2018). Given that the term "green" is associated with environmental friendliness and connects with Bangladeshi consumers, including this language and content in marketing efforts can considerably increase consumer interest and purchasing intent. Marketers should create clear and transparent communication emphasizing the environmentally beneficial characteristics of green products, illustrating how these items contribute to a more sustainable and healthier environment.

Companies can demonstrate their strong commitment and support for the environment by running effective and well-designed campaigns that contribute to a positive shift in consumer resource conservation and more sustainable environmental attitudes and behaviors. Companies can effectively bridge the gap between consumer awareness of eco-friendly products and their actual purchase behavior by employing these environmental marketing strategies.

6.2.3 Policy implication

Findings of the study will help policymakers improve consumer pro-environmental and sustainable consumption behavior, which supports achieving the SDGs12. To contribute to a more sustainable and climate-resilient society, the government of Bangladesh can implement environmental policies, public awareness campaigns, and green certification programs, encourage green businesses, promote circular economy practices, integrate ecological education, and foster international collaboration.

Policymakers should emphasize the advantages of switching from non-green to green products, highlighting individual and environmental benefits. Policymakers of Bangladesh should promote consumer learning and education on green products and environmental issues. Therefore, it is crucial to incorporate environmental and climate change education into school, college, and undergraduate curricula and provide training programs for enterprises and individuals to improve understanding and implementation of sustainable practices in Bangladesh.

Result of this study shows that high price is the main barrier to purchasing green products in Bangladesh. Thus, policymakers can address high-price issues for green products in Bangladesh by taking a multifaceted strategy. Firstly, the government can play a pivotal role by offering subsidies and financial incentives to both manufacturers and consumers. This may include tax reduction, reduced import tariffs, or direct financial support for organic food and energy-efficient products. The government needs to encourage farmers and local production of organic food and green products.

Moreover, awareness and education campaigns are crucial to shifting perceptions about the affordability of green products, emphasizing their long-term benefits and cost savings. Collaboration with businesses is essential for implementing sustainable practices that reduce production costs, while partnerships with NGOs and international organizations can provide funding and expertise. The government should provide financial support for small businesses focusing on green products through grants or low-interest loans, which can stimulate entrepreneurship in the sustainable goods sector in Bangladesh. The Bangladesh government should promote circular economy practices, such as recycling and upcycling, which can reduce raw material costs and minimize waste. At the same time, the government should seek international collaboration and aid for sustainable development initiatives, including financial assistance, technology transfer, knowledge sharing, and enhancing the capacity to produce affordable green products. Supportive policies and regulations should be established to allow businesses to justify their green claims, promoting trust and lowering unfavorable perceptions of green products. Communication channels sponsored by government, health, or environmental organizations can promote eco-friendly products and encourage customers to make informed decisions. Continuous knowledge about eco-friendly items can motivate consumers to acquire green products, enabling them to switch from conventional food products. Given the growing demand for food security and environmental protection, policymakers and producers in Bangladesh must work together to guide consumption and

output towards sustainability. Raising public knowledge and supporting green consumerism will boost green purchasing behavior. This empirical study offers significant information for marketers and producers, assisting in understanding consumer perceptions and needs for safer, healthier product development. Collaboration among farmers, manufacturers, retailers, and government agencies is critical for achieving sustainable production and environmental conservation, harmonizing with key Sustainable Development Goals (SDGs), and minimizing environmental pollution.

Finally, Bangladesh government should invest in research and development to foster innovation in sustainable technologies and reduce the environmental footprint of products and services. Collaboration with international organizations and participation in global projects to share knowledge, resources, and best practices for sustainable consumption can achieve pro-environmental and sustainable consumption behavior, ultimately reducing climate change issues and ensuring quality of life.

VII. NEW SCIENTIFIC RESULTS

This Chapter presents new scientific results and contributions. There are five novel contributions of this study aligned with the research's questions, objectives, and hypotheses.

This research contributes new scientific results in the field of environmental marketing and consumer psychology based on the research outcomes and discussion. These findings can be used as a framework for future research, with theoretical and managerial consequences.

1. The novel theoretical contribution of this study is to integrate the theory of planned behavior and attitude-behavior-context model with additional variables, e.g., ecological motive, positive motives, and negative motives, to explain pro-environmental and sustainable consumption behavior. As mentioned earlier, several scholars have raised concerns about the adequacy of the theory of planned behavior in fully understanding consumer behavior. They suggest that the theory might need additional variables to examine consumer behavior comprehensively. Thus, this study proposed a new conceptual framework integrating TPB and ABC theories while adding some missing factors influencing consumer sustainable consumption behavior. The validity of the final model needs to be confirmed using the various analytical methods employed in this study. Hence, this study proposed a successful new TPB-ABC theory that broadly measures consumers' sustainable consumption behavior.
2. This study first developed an integrated model that measures the same consumer sustainable consumption behavior of green purchase behavior and resource conservation behavior in the single model. This is a noble contribution to environmental marketing and environmental psychology literature. Moreover, to the best of my knowledge, this study is the first empirical research that measures consumer sustainable consumption behavior in the developing country of Bangladesh.
3. This study has validated the proposed conceptual framework using the combined approaches of the structural equation model (SEM) and the Necessity condition analysis (NCA) as noble methodological contributions in the marketing and consumer psychology area. This study has investigated the relationship between internal and external influential constructs of consumers' sustainable consumption behavior. The combined approach of

SEM and NCA validates the proposed framework. As a result, this research model can measure various aspects of the same consumer purchase behavior, including organic food, green products, energy-efficient products, recycling, resource conservation behavior, and green transportation, all within a unified framework.

4. The new scientific results drawn from this research involve the incorporation of the additional external contextual variables—namely, Ecological motives encompassing environmental knowledge and climate concern, Positive motives including green marketing tools, green trust, government support, and GWoM, as well as Negative motives such as high price sensitivity and greenwashing concern—treated as formative constructs for the first time in this study. Extending the model with these variables provides valuable information for understanding consumers' decisions about purchasing green products and recycling & resource conservation behavior. In Bangladesh, the noble results of the IPMA map show that climate concern (77.31) is the most crucial ecological motive in defining young consumers' SCB. Green marketing tools (71.34) and green trust (71.29) are the most important positive motives defining consumers' SCB. Negative motives, particularly high price sensitivity (35.53), have low importance in influencing SCB and serve as the most significant barrier defining young consumer discourse towards purchasing green products.
5. According to my knowledge, it is the first that ecological motive is considered as moderate effects on the interaction between constructs of the TPB model. The PLS results show that ecological motives moderate the strong and significant relationship between green perceived value and green purchase behavior (0.168). The results also show that ecological motives moderate the crucial positive relationship between attitude & green purchase behavior (0.088) and perceived behavior control, & green purchase behavior (0.097) in Bangladesh. The findings describe that a deep understanding of ecological matters positively impacts attitudes, perceived behavior control, and green perceived value among young consumers, ultimately influencing their green purchase behavior. These results provide valuable insights for marketers and policymakers, emphasizing the significance of ecological motives, encompassing environmental knowledge and climate concerns. These outcomes are helpful for policymakers and marketers to work more effectively on emphasizing consumer education on greening, sustainability, and ecology and provide ecological-related information about their products.

VIII. SUMMARY

Sustainable consumption behavior has gained significant importance in the consumer market and research in recent decades due to rising global environmental challenges, e.g., pollution, global warming, climate change, and ecological degradation. Addressing these environmental challenges requires a shift in human behavior towards more environmentally sustainable practices. Scientists and scholars suggest companies need to ensure sustainable production and consumption to protect the environment, which is merged with the Sustainable Development Goals (SDGs-12). Besides, individuals need to adopt pro-environmental and sustainable consumption behavior practices, which help minimize CO₂ emissions and limit global climate change. Most scientists and researchers believe that increasing consumer engagement in pro-environmental behavior and sustainable consumption behavior reduces negative ecological impacts and ensures the quality of life on Earth. Pro-environmental behavior supports the environment's well-being, and sustainable consumption practices involve purchasing and consuming environmentally responsible and friendly products. This concept aligns with one of the Sustainable Development Goals (SDGs), specifically addressing the goal of reducing detrimental environmental and health impacts while encouraging and promoting eco-friendly lifestyles. To address environmental concerns effectively, it is crucial to understand how consumers engage in pro-environmental, sustainable, and eco-friendly behavior to help combat climate change. Therefore, academic and consumer market research has also focused on better understanding the consumers' pro-environmental and sustainable consumption behavior. Thus, the study aims to identify the key influential factors, influence path, and decision-making mechanisms that significantly impact Young consumers' attitudes and sustainable consumption behavior. This study also develops an integrated model that measures the two sections of sustainable consumption behaviors, including green purchase behavior and recycling & resource conservation behavior. This study proposes a new conceptual framework based on the theory of planned behavior (TPB) and the Attitude-behavior-context (ABC) model for measuring consumers' actual sustainable consumption behavior with additional internal and external contextual variables, namely perceived value, ecological motives, and positive and negative motives. This study considers climate concern and environmental knowledge combined to shape the formative construct known as ecological motives. Meanwhile, green marketing tools, green trust, government support, and positive word-of-mouth contribute to the formative construct of positive motives. On the other hand, high price sensitivity and concern about greenwashing are integrated into the formative construct of negative motives. Moreover,

this study applies the proposed integrated model to examine Young consumers' sustainable consumption behavior in Bangladesh. Further, this study also analyzes the mediating-moderating effect on sustainable consumption behavior. Bangladesh was selected for this study because of the poor management of environmental issues, fastest-growing economy, improved quality of life, increased income, greater expenditure, ecological awareness, and changing lifestyle, making it an ideal study from a developing country. A structured survey questionnaire was employed to gather data from "Young consumers" because they are more aware and motivated to purchase eco-friendly products, are future consumers, and tend to care more about social and environmental problems. A total of 1344 usable responses were obtained through a structured questionnaire in Bangladesh. The questionnaire consisted of fourteen constructs encompassing 54 items adopted from previous literature. A pilot study was carried out to validate the questionnaire for the final survey. PLS-SEM (structural equations model) and the newly developed advanced analysis technique Necessary Condition Analysis (NCA) were applied to test the model and hypotheses using the latest version of SmartPLS software. Results show that subjective norms, perceived behavior control, and perceived value have a positive and significant relationship with green purchase behavior and recycling & resource conservation. The noble results of this study are that ecological motives (environmental knowledge and climate concern) have a positive and significant relationship with consumers' attitudes, green purchase behavior, and recycling & resource conservation behavior. Other notable results show that the external context of positive motives, such as green marketing tools (eco-labels, eco-advertising, eco-brands), green trust, and government support of green products, can positively influence consumer attitudes and sustainable consumption behavior. Findings also show that green perceived value is the most important factor for influencing green purchase behavior in young consumers of Bangladesh. Environmental knowledge and climate concerns are the major external factors that influence young consumer attitudes and recycling & resource conservation behavior in Bangladesh. Findings also show that negative motives, particularly high price sensitivity, have a highly negative and significant relationship with attitude, and green purchase behavior. Ecological motives moderate the significant positive relationship between AT & GPB, GPV & GPB, and PBC & GPB. Findings of NCA also confirmed that perceived value, ecological motives, positive motives, and perceived behavioral control are the necessary conditions for green purchase behavior and recycling & resource conservation behavior in Bangladesh with a statistical significance and accuracy of over 90%. To my knowledge, this is the first empirical investigation that reveals the role of a complex set of missing constructs in SCB and measures together green purchase behavior and

recycling & resource conservation behavior, which support climate change mitigation. It means the proposed integrated model facilitates assessing the same consumer engagement in sustainable practices across various domains, including green purchase behavior, organic food consumption patterns, energy-efficient product purchase behavior, energy conservation behavior, and green transportation choices. The study has made novel theoretical contributions to marketing and consumer behavior literature by introducing a new conceptual framework to which further scholars can apply to different product sectors in both developing and developed country contexts. Moreover, Findings of this study contribute valuable practical and policy implications for marketing managers, marketers, and policymakers for formulating effective marketing strategies and enhancing their understanding of consumer pro-environmental and sustainable consumption behavior, which contributes to mitigating climate change issues. For example, marketers should concentrate on improving the perceived value of green products, eco-advertising and labeling, building consumer trust in green activities, and exploring price reductions to encourage sustainable consumption. Policymakers should implement strong environmental policies, public awareness campaigns about climate issues, green certification programs, green corporate incentives, circular economy practices, ecological education integration, and international collaboration, which ensure the advancement of sustainable practices in the country for mitigating climate change issues.

IX. APPENDICES

Appendix A: References

1. ABU-ELSAMEN, A. A., AKROUSH, M. N., ASFOUR, N. A., & AL JABALI, H. (2019). Understanding contextual factors affecting the adoption of energy-efficient household products in Jordan. *Sustainability Accounting, Management and Policy Journal*, 10(2), 314–332. <https://doi.org/10.1108/SAMPJ-05-2018-0144>
2. AGUIRRE-URRETA, M. I., & RÖNKKÖ, M. (2018). Statistical inference with PLS using bootstrap confidence intervals. *MIS Quarterly: Management Information Systems*, 42(3), 1001–1020. <https://doi.org/10.25300/MISQ/2018/13587>
3. AHMAD, W., & ZHANG, Q. (2020). Green purchase intention: Effects of electronic service quality and customer green psychology. *Journal of Cleaner Production*, 267, 122053. <https://doi.org/10.1016/j.jclepro.2020.122053>
4. AJZEN, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
5. AJZEN, I., & FISHBEIN, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, 84(5), 888–918. <https://doi.org/10.1037//0033-2909.84.5.888>
6. AJZEN, I., FISHBEIN, M. (1980). *Understanding attitudes and predicting social behavior*. Prentice-Hall Inc. Englewood Cliffs, NJ.
7. ALBAYRAK, T., AKSOY, Ş., & CABER, M. (2013). The effect of environmental concern and scepticism on green purchase behaviour. *Marketing Intelligence & Planning*, 31(1), 27-39. <https://doi.org/10.1108/02634501311292902>
8. ALI, F., ASHFAQ, M., BEGUM, S., & ALI, A. (2020). How “Green” thinking and altruism translate into purchasing intentions for electronics products: The intrinsic-extrinsic motivation mechanism. *Sustainable Production and Consumption*, 24, 281–291. <https://doi.org/10.1016/j.spc.2020.07.013>
9. AL-SWIDI, A., HUQUE, S. M. R., HAFEEZ, M. H., & SHARIFF, M. N. M. (2014). The role of subjective norms in theory of planned behavior in the context of organic food consumption. *British Food Journal*, 116(10), 1561–1580. <https://doi.org/10.1108/BFJ-05-2013-0105>
10. AMIN, S., & TARUN, M. T. (2020). Effect of consumption values on customers’ green purchase intention: a mediating role of green trust. *Social Responsibility Journal*, May. <https://doi.org/10.1108/SRJ-05-2020-0191>
11. ANDERSON, J. C., & GERBING, D. W. (1988). Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach. *Psychological Bulletin*, 103(3), 411–423. <https://doi.org/10.1037/0033-2909.103.3.411>
12. ANDERSON, R. E., HAIR, J. F., BLACK, J. W. C., & BABIN, B. J. (2010). *Multivariate data analysis: A global perspective*.
13. ARBABI, F., KHANSARI, S. M., SALAMZADEH, A., GHOLAMPOUR, A., EBRAHIMI, P., & FEKETE-FARKAS, M. (2022). Social Networks Marketing, Value Co-Creation, and Consumer Purchase Behavior: Combining PLS-SEM and NCA. *Journal of Risk and Financial Management*, 15(10). <https://doi.org/10.3390/jrfm15100440>
14. ARI, E., & YILMAZ, V. (2016). A proposed structural model for housewives’ recycling behavior: A case study from Turkey. *Ecological Economics*, 129, 132–142. <https://doi.org/10.1016/j.ecolecon.2016.06.002>
15. ARLI, D., TAN, L. P., TJIPTONO, F., & YANG, L. (2018). *Exploring consumers’ purchase intention towards green products in an emerging market : The role of*

- consumers' perceived readiness. *March 2017*, 389–401.
<https://doi.org/10.1111/ijcs.12432>
16. ASLAM, W., FARHAT, K., & ARIF, I. (2020). Regular to sustainable products : an account of environmentally concerned Regular to sustainable products : an account of environmentally concerned consumers in a developing economy Wajeeha Aslam , Kashif Farhat & Imtiaz Arif. *International Journal of Green Energy*, 18(3), 243–257.
<https://doi.org/10.1080/15435075.2020.1854266>
 17. AWUNI, J. A., & DU, J. (2016). Sustainable Consumption in Chinese Cities: Green Purchasing Intentions of Young Adults Based on the Theory of Consumption Values. *Sustainable Development*, 24(2), 124–135. <https://doi.org/10.1002/sd.1613>
 18. AYAR, I. (2021). *Sustainable Consumption Intentions of Consumers in Turkey : A Research Within the Theory of Planned Behavior*.
<https://doi.org/10.1177/21582440211047563>
 19. BAIOCCHI, G., MINX, J., & HUBACEK, K. (2010). The Impact of Social Factors and Consumer Behavior on Carbon Dioxide Emissions in the United Kingdom A Regression Based on Input – Output and Geodemographic Consumer. *Journal of Industrial Ecolog*, 14(1). <https://doi.org/10.1111/j.1530-9290.2009.00216.x>
 20. BARBAROSSA, C., & DE PELSMACKER, P. (2016). Positive and Negative Antecedents of Purchasing Eco-friendly Products: A Comparison Between Green and Non-green Consumers. *Journal of Business Ethics*, 134(2), 229–247.
<https://doi.org/10.1007/s10551-014-2425-z>
 21. BICKART, B. A., & RUTH, J. A. (2012). Green eco-seals and advertising persuasion. *Journal of Advertising*, 41(4). <https://doi.org/10.1080/00913367.2012.10672457>
 22. BLACK, J. S., STERN, P. C., & ELWORTH, J. T. (1985). Personal and Contextual Influences on Household Energy Adaptations. *Journal of Applied Psychology*, 70(1).
<https://doi.org/10.1037/0021-9010.70.1.3>
 23. BOLDERO, J. (1995). The Prediction of Household Recycling of Newspapers: The Role of Attitudes, Intentions, and Situational Factors. *Journal of Applied Social Psychology*, 25(5). <https://doi.org/10.1111/j.1559-1816.1995.tb01598.x>
 24. CHAMORRO, A., & BAÑEGIL, T. M. (2006). Green marketing philosophy: A study of Spanish firms with ecolabels. *Corporate Social Responsibility and Environmental Management*, 13(1), 11–24. <https://doi.org/10.1002/csr.83>
 25. CHAN, R. Y. K. (2004). Consumer responses to environmental advertising in China. *Marketing Intelligence & Planning*, 22(4), 427–437.
<https://doi.org/10.1108/02634500410542789>
 26. CHAO, C.-M., YU, T.-K., & YU, T.-Y. (2021). Understanding the factors influencing recycling behavior in college students: the role of interpersonal altruism and environmental concern. *International Journal of Sustainability in Higher Education*, ahead-of-p(ahead-of-print). <https://doi.org/10.1108/IJSHE-07-2020-0232>
 27. CHARTER, M., & POLONSKY, M. J. (2017). Greener Marketing: A Global Perspective on Greening Marketing Practice. In *Greener Marketing: A Global Perspective on Greening Marketing Practice*. Taylor and Francis.
<https://doi.org/10.4324/9781351283083>
 28. CHEN, A., & PENG, N. (2012). Green hotel knowledge and tourists' staying behavior. *Annals of Tourism Research*, 39(4), 2211–2216.
<https://doi.org/10.1016/j.annals.2012.07.003>
 29. CHEN, K., & DENG, T. (2016). Research on the green purchase intentions from the perspective of Product knowledge. *Sustainability (Switzerland)*, 8(9).
<https://doi.org/10.3390/su8090943>

30. CHEN, S. C., & HUNG, C. W. (2016). Elucidating the factors influencing the acceptance of green products: An extension of theory of planned behavior. *Technological Forecasting and Social Change*, 112, 155–163. <https://doi.org/10.1016/j.techfore.2016.08.022>
31. CHEN, Y. S. (2010). The drivers of green brand equity: Green brand image, green satisfaction, and green trust. *Journal of Business Ethics*, 93(2), 307–319. <https://doi.org/10.1007/s10551-009-0223-9>
32. CHEN, Y. S., & CHANG, C. H. (2012). Enhance green purchase intentions: The roles of green perceived value, green perceived risk, and green trust. *Management Decision*, 50(3), 502–520. <https://doi.org/10.1108/00251741211216250>
33. CHEN, Y. S., LIN, C. L., & CHANG, C. H. (2014). The influence of greenwash on green word-of-mouth (green WOM): The mediation effects of green perceived quality and green satisfaction. *Quality and Quantity*, 48(5). <https://doi.org/10.1007/s11135-013-9898-1>
34. CHEUNG, M. F. Y., & TO, W. M. (2019). An extended model of value-attitude-behavior to explain Chinese consumers' green purchase behavior. *Journal of Retailing and Consumer Services*, 50(February), 145–153. <https://doi.org/10.1016/j.jretconser.2019.04.006>
35. CHI, N. T. K. (2021). Understanding the effects of eco-label, eco-brand, and social media on green consumption intention in ecotourism destinations. *Journal of Cleaner Production*, 321(November 2020), 128995. <https://doi.org/10.1016/j.jclepro.2021.128995>
36. CHIN, C., CHIN, C., WONG, W. P., CHIN, C., CHIN, C., & WONG, W. P. (2018). The Implementation of Green Marketing Tools in Rural Tourism : The Readiness of Tourists ? *Journal of Hospitality Marketing & Management*, 27(3), 261–280. <https://doi.org/10.1080/19368623.2017.1359723>
37. CHIU, Y. T. H., LEE, W. I., & CHEN, T. H. (2014). Environmentally responsible behavior in ecotourism: Antecedents and implications. *Tourism Management*, 40, 321–329. <https://doi.org/10.1016/j.tourman.2013.06.013>
38. CHO, M. (2019). Campus sustainability: An integrated model of college students' recycling behavior on campus. *International Journal of Sustainability in Higher Education*, 20(6), 1042–1060. <https://doi.org/10.1108/IJSHE-06-2018-0107>
39. COHEN, J. (1988). *Statistical power analysis for the behavioural sciences*. Hillsdale, NJ: Laurence Erlbaum Associates.
40. DANGELICO, R. M., & VOCALELLI, D. (2017). “Green Marketing”: An analysis of definitions, strategy steps, and tools through a systematic review of the literature. *Journal of Cleaner Production*, 165, 1263–1279. <https://doi.org/10.1016/j.jclepro.2017.07.184>
41. DE SILVA, M., WANG, P., & KUAH, A. T. H. (2021). Why wouldn't green appeal drive purchase intention? Moderation effects of consumption values in the UK and China. *Journal of Business Research*, 122(March 2019), 713–724. <https://doi.org/10.1016/j.jbusres.2020.01.016>
42. DELMAS, M. A., & BURBANO, V. C. (2011). Vanessa Burbano: The drivers of greenwashing. *Journals.Sagepub.Com*, 54(1), 64–87.
43. DING, L., LIU, M., YANG, Y., & MA, W. (2022). *Understanding Chinese consumers' purchase intention towards traceable seafood using an extended Theory of Planned Behavior model*. 137(January).
44. D'SOUZA, C., TAGHIAN, M., LAMB, P., & PERETIATKO, R. (2007). Green decisions: Demographics and consumer understanding of environmental labels.

- International Journal of Consumer Studies*, 31(4), 371–376.
<https://doi.org/10.1111/j.1470-6431.2006.00567.x>
45. DUL, J. (2016). X Necessary Condition Analysis (NCA) with R (Version 3.2.0) A Quick Start Guide. *Ssrn, May*.
 46. DUL, J. (2022). Problematic applications of Necessary Condition Analysis (NCA) in tourism and hospitality research. *Tourism Management*, 93(January), 104616.
<https://doi.org/10.1016/j.tourman.2022.104616>
 47. DUL, J., VAN DER LAAN, E., & KUIK, R. (2020). A Statistical Significance Test for Necessary Condition Analysis. *Organizational Research Methods*, 23(2).
<https://doi.org/10.1177/1094428118795272>
 48. DUL, J., VIS, B., & GOERTZ, G. (2021). Necessary Condition Analysis (NCA) Does Exactly What It Should Do When Applied Properly: A Reply to a Comment on NCA. *Sociological Methods and Research*, 50(2), 926–936.
<https://doi.org/10.1177/0049124118799383>
 49. EAGLY, A. H., & CHAIKEN, S. (2007). The advantages of an inclusive definition of attitude. *Social Cognition*, 25(5), 582–602. <https://doi.org/10.1521/soco.2007.25.5.582>
 50. ERTZ, M., KARAKAS, F., & SARIGÖLLÜ, E. (2016). Exploring pro-environmental behaviors of consumers: An analysis of contextual factors, attitude, and behaviors. *Journal of Business Research*, 69(10), 3971–3980.
<https://doi.org/10.1016/j.jbusres.2016.06.010>
 51. EUROPEAN COMMISSION. (2021). Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions- *The European Green Deal*. European Commission. https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC_1&format=PDF
 52. EUROPEAN PARLIAMENT. (2020). Parliament supports Euroepan Green Deal and pushes for even higher ambitions. *European Parliament News*. <https://www.europarl.europa.eu/news/en/press-room/20200109IPR69902/parliament-supports-european-green-deal-and-pushes-for-even-higher-ambitions>
 53. NAZ, F. (2022). Understanding sustainable consumption behavior of consumers: An extension to the theory of planned behavior, Doctoral dissertation, Hungarian University of Agriculture and Life Sciences, Hungary.
 54. FELDMAN, L. P. (1971). Societal Adaptation: A New Challenge for Marketing. *Journal of Marketing*, 35(3). <https://doi.org/10.1177/002224297103500309>
 55. FIELDING, N., LEE, R., & BLANK, G. (2012). The SAGE Handbook of Online Research Methods. *The SAGE Handbook of Online Research Methods*, 195–216.
<https://doi.org/10.4135/9780857020055>
 56. FISHBEIN, M. & AJZEN, I. (1975). Predicting and understanding consumer behavior: Attitude-behavior correspondence. In Ajzen, I. & Fishbein, M. (eds.). *Understanding Attitudes and Predicting Social Behavior* (pp. 148-172). Englewood Cliffs, NJ: Prentice Hall.
 57. FISHBEIN, M., & AJZEN, I. (2005). Theory-based behavior change interventions: Comments on Hobbis and Sutton. *Journal of health psychology*, 10(1), 27-31.
<https://doi.org/10.1177/1359105305048552>
 58. FORNELL, C., & LARCKER, D. F. (1981). Fornell, C. and Larcker, D.F. (1981), “Evaluating structural equation models with unobservable variables and.pdf. *Journal of Marketing Research*, XVIII(February), 39–50.
 59. FREEZE, R. D., & RASCHKE, R. L. L. (2007). An assessment of formative and reflective constructs in is research. *Proceedings of the 15th European Conference on Information Systems, ECIS 2007*.

60. GADENNE, D., SHARMA, B., KERR, D., & SMITH, T. (2011). The influence of consumers' environmental beliefs and attitudes on energy saving behaviours. *Energy Policy*, 39(12), 7684–7694. <https://doi.org/10.1016/j.enpol.2011.09.002>
61. GAN, C., & WANG, W. (2017). The influence of perceived value on purchase intention in social commerce context. *Internet Research*, 27(4), 772–785. <https://doi.org/10.1108/IntR-06-2016-0164>
62. GAUTAM, V. (2020). Examining environmental friendly behaviors of tourists towards sustainable development. *Journal of Environmental Management*, 276(August), 111292. <https://doi.org/10.1016/j.jenvman.2020.111292>
63. GENG, D., LIU, J., & ZHU, Q. (2017). Motivating sustainable consumption among Chinese adolescents: An empirical examination. *Journal of Cleaner Production*, 141, 315–322. <https://doi.org/10.1016/j.jclepro.2016.09.113>
64. GEORGE, D., & MALLERY, P. (2012). IBM SPSS Statistics 19 Step by Step. *Boston, Mass.*
65. GILG, A., BARR, S., & FORD, N. (2005). Green consumption or sustainable lifestyles? Identifying the sustainable consumer. *Futures*, 37(6), 481-504. <https://doi.org/10.1016/j.futures.2004.10.016>
66. GOH, S. K., & BALAJI, M. S. (2016). Linking green skepticism to green purchase behavior. *Journal of Cleaner Production*, 131, 629–638. <https://doi.org/10.1016/j.jclepro.2016.04.122>
67. GÓMEZ-LLANOS, E., DURÁN-BARROSO, P., & ROBINA-RAMÍREZ, R. (2020). Analysis of consumer awareness of sustainable water consumption by the water footprint concept. *Science of the Total Environment*, 721. <https://doi.org/10.1016/j.scitotenv.2020.137743>
68. GROENING, C., SARKIS, J., & ZHU, Q. (2018). Green marketing consumer-level theory review: A compendium of applied theories and further research directions. *Journal of Cleaner Production*, 172, 1848–1866. <https://doi.org/10.1016/j.jclepro.2017.12.002>
69. GUAGNANO, G. A., STERN, P. C., & DIETZ, T. (1995). Influences on Attitude-Behavior Relationships: A Natural Experiment with Curbside Recycling. *Environment and Behavior*, 27(5), 699–718. <https://doi.org/10.1177/0013916595275005>
70. GUERREIRO, J., & PACHECO, M. (2021). How green trust, consumer brand engagement and green word-of-mouth mediate purchasing intentions. *Sustainability (Switzerland)*, 13(14), 1–13. <https://doi.org/10.3390/su13147877>
71. GUO, R., TAO, L., LI, C. B., & WANG, T. (2017). A Path Analysis of Greenwashing in a Trust Crisis Among Chinese Energy Companies: The Role of Brand Legitimacy and Brand Loyalty. *Journal of Business Ethics*, 140(3), 523–536. <https://doi.org/10.1007/s10551-015-2672-7>
72. GUO, Y., ZHANG, J., ZHANG, Y., & ZHENG, C. (2018). Catalyst or barrier? The influence of place attachment on perceived community resilience in tourism destinations. *Sustainability (Switzerland)*, 10(7). <https://doi.org/10.3390/su10072347>
73. HAIR, J. F., HULT, G. T. M., RINGLE, C. M., & SARSTEDT, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)*. SAGE Publications Ltd.
74. HAIR, J. F., HULT, G. T. M., RINGLE, C. M., SARSTEDT, M., & THIELE, K. O. (2017). Mirror, mirror on the wall: a comparative evaluation of composite-based structural equation modeling methods. *Journal of the academy of marketing science*, 45, 616-632. <https://doi.org/10.1007/s11747-017-0517-x>
75. HAIR, J.F., ANDERSON, R.E., BABIN, B.J., BLACK, J.W.C., (2010). *Multivariate Data Analysis: A Global Perspective*, 7th Edition. Pearson Education, Upper Saddle River

76. HAIR, J. F., RISHER, J. J., SARSTEDT, M., & RINGLE, C. M. (2018). The Results of PLS-SEM Article information. *European Business Review*, 31(1), 2–24.
77. HAIR, J. F., RISHER, J. J., SARSTEDT, M., & RINGLE, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
78. HAIR, J. F., SARSTEDT, M., HOPKINS, L., & KUPPELWIESER, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106–121. <https://doi.org/10.1108/EBR-10-2013-0128>
79. HAIR, J. F., SARSTEDT, M., RINGLE, C. M., & MENA, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science*, 40(3), 414–433. <https://doi.org/10.1007/s11747-011-0261-6>
80. HAIR, J.F., HULT, G.T.M., RINGLE, C.M., & SARSTEDT, M. (2022). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (3rd ed.). Sage.
81. HAMEED, I., & KHAN, K. (2020). An extension of the goal-framing theory to predict consumer’s sustainable behavior for home appliances. *Energy Efficiency*, 13(7), 1441–1455. <https://doi.org/10.1007/s12053-020-09890-4>
82. HARRIS, L. C., & GOODE, M. M. H. (2010). Online servicescapes, trust, and purchase intentions. *Journal of Services Marketing*, 24(3), 230–243. <https://doi.org/10.1108/08876041011040631>
83. HARTMANN, P., & APAOLAZA IBÁÑEZ, V. (2006). Green value added. *Marketing Intelligence & Planning*, 24(7), 673–680. <https://doi.org/10.1108/02634500610711842>
84. HASAN, MD. M., NEKMAHMUD, MD., YAJUAN, L., & PATWARY, M. A. (2019). Green business value chain: a systematic review. *Sustainable Production and Consumption*, 20, 326–339. <https://doi.org/10.1016/j.spc.2019.08.003>
85. HEADEY, D. D., & HODDINOTT, J. (2016). Agriculture, nutrition and the green revolution in Bangladesh. *Agricultural Systems*, 149. <https://doi.org/10.1016/j.agsy.2016.09.001>
86. HENSELER, J., RINGLE, C. M., & SARSTEDT, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
87. HOSSAIN, I., FEKETE-FARKAS, M., & NEKMAHMUD, M. (2022). Purchase Behavior of Energy-Efficient Appliances Contribute to Sustainable Energy Consumption in Developing Country: Moral Norms Extension of the Theory of Planned Behavior. *Energies*, 15(13). <https://doi.org/10.3390/en15134600>
88. HOSSAIN, I., NEKMAHMUD, M., & FEKETE-FARKAS, M. (2022). How Do Environmental Knowledge , Eco-Label Knowledge , and Green Trust Impact Consumers ’ Pro-Environmental Behaviour for Energy-Efficient Household Appliances ? *Sustainability*, 14(11), 6513. <https://doi.org/org/10.3390/su14116513>
89. HWANG, H. (2022). *Inconsistency between subjective propensity and practice of sustainable consumption : Impact of the consumers ’ values-in-behavior and social participation*. May, 1–15. <https://doi.org/10.1002/sd.2348>
90. IDREES, W., DAD, M., & HAMEED, I. (2021). Promoting environmental sustainability: The influence of knowledge of eco-labels and altruism in the purchase of energy-efficient appliances. *Management of Environmental Quality: An International Journal*, 32(5), 1006. <https://doi.org/10.1108/MEQ-11-2020-0272>
91. IPCC. (2021). Climate Change 2021: The Physical Science Basis. In V. Masson-Delmotte, P. Zhai, & A. Pirani (Eds.), *Contribution of Working Group I to the Sixth*

- Assessment Report of the Intergovernmental Panel on Climate Change* (pp. 1–41). UK and New York, NY, USA: Cambridge University Press.
<https://doi.org/10.1017/9781009157896>.
92. ISSOCK ISSOCK, P. B., MPINGANJIRA, M., & ROBERTS-LOMBARD, M. (2018). Drivers of consumer attention to mandatory energy-efficiency labels affixed to home appliances: An emerging market perspective. *Journal of Cleaner Production*, 204, 672–684. <https://doi.org/10.1016/j.jclepro.2018.08.299>
 93. ISSOCK ISSOCK, P. B., ROBERTS-LOMBARD, M., & MPINGANJIRA, M. (2020). The importance of customer trust for social marketing interventions: a case of energy-efficiency consumption. *Journal of Social Marketing*, 10(2), 265–286. [HTTPS://DOI.ORG/10.1108/JSOCM-05-2019-0071](https://doi.org/10.1108/JSOCM-05-2019-0071)
 94. JAISWAL, D., & KANT, R. (2018). Green purchasing behaviour: A conceptual framework and empirical investigation of Indian consumers. *Journal of Retailing and Consumer Services*, 41(December 2017), 60–69. <https://doi.org/10.1016/j.jretconser.2017.11.008>
 95. JOHNSTONE, M. L., & TAN, L. P. (2015). Exploring the gap between consumers' green rhetoric and purchasing behaviour. *Journal of business ethics*, 132, 311–328. <https://doi.org/10.1007/s10551-014-2316-3>
 96. JOSHI, Y., & RAHMAN, Z. (2017). Investigating the determinants of consumers' sustainable purchase behaviour. *Sustainable Production and Consumption*, 10(February), 110–120. <https://doi.org/10.1016/j.spc.2017.02.002>
 97. KALAFATIS, S. P., POLLARD, M., EAST, R., & TSOGAS, M. H. (1999). Green marketing and Ajzen's theory of planned behaviour: A cross-market examination. *Journal of Consumer Marketing*, 16(5), 441–460. <https://doi.org/10.1108/07363769910289550>
 98. KALLGREN, C. A., & WOOD, W. (1986). Access to attitude-relevant information in memory as a determinant of attitude-behavior consistency. *Journal of Experimental Social Psychology*, 2(4), 328–338. [https://doi.org/10.1016/0022-1031\(86\)90018-1](https://doi.org/10.1016/0022-1031(86)90018-1)
 99. KANCHANAPIBUL, M., LACKA, E., WANG, X., & CHAN, H. K. (2014). An empirical investigation of green purchase behaviour among the young generation. *Journal of cleaner production*, 66, 528–536. <https://doi.org/10.1016/j.jclepro.2013.10.062>
 100. KANG, J., GRABLE, K., HUSTVEDT, G., & AHN, M. (2017). Sustainable water consumption: The perspective of Hispanic consumers. *Journal of Environmental Psychology*, 50, 94–103. <https://doi.org/10.1016/j.jenvp.2017.02.005>
 101. KATT, F., & MEIXNER, O. (2020). A Systematic Review of Drivers Influencing Consumer Willingness to Pay for Organic Food. *Trends in Food Science & Technology*. <https://doi.org/10.1016/j.tifs.2020.04.029>
 102. KHALILZADEH, J., & TASCI, A. D. A. (2017). Large sample size, significance level, and the effect size: Solutions to perils of using big data for academic research. *Tourism Management*, 62. <https://doi.org/10.1016/j.tourman.2017.03.026>
 103. KOAY, K. Y., CHEAH, C. W., & CHANG, Y. X. (2022). A model of online food delivery service quality, customer satisfaction and customer loyalty: a combination of PLS-SEM and NCA approaches. *British Food Journal*, 124(12), 4516–4532. <https://doi.org/10.1108/BFJ-10-2021-1169>
 104. KOCK, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of E-Collaboration*, 11(4), 1–10.
 105. KOLLMUSS, A., & AGYEMAN, J. (2002). Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?

- Environmental Education Research*, 8(3), 239–260.
<https://doi.org/10.1080/13504620220145401>
106. KOTLER, P., & ARMSTRONG, G. (2018). Kotler & Armstrong, Principles of Marketing | Pearson. In *Pearson*.
 107. KRONROD, A., GRINSTEIN, A., & WATHIEU, L. (2012). Go green! Should environmental messages be so assertive? *Journal of Marketing*, 76(1).
<https://doi.org/10.1509/jm.10.0416>
 108. KUMAR, V., PETERSEN, A. J., & LEONE, R. P. (2007). How Valuable Is Word of Mouth? - Harvard Business Review. *HBR Magazine*, October.
 109. LATANÉ, B. (1981). The psychology of social impact. *American Psychologist*, 36(4), 343–356. <https://doi.org/10.1037/0003-066X.36.4.343>
 110. LEARY, R. B., VANN, R. J., MITTELSTAEDT, J. D., MURPHY, P. E., & SHERRY, J. F. (2014). Changing the marketplace one behavior at a time : Perceived marketplace influence and sustainable consumption. *Journal of Business Research*, 67(9), 1953–1958. <https://doi.org/10.1016/j.jbusres.2013.11.004>
 111. LEONIDOU, L. C., LEONIDOU, C. N., FOTIADIS, T. A., & ZERITI, A. (2013). Resources and capabilities as drivers of hotel environmental marketing strategy: Implications for competitive advantage and performance. *Tourism Management*, 35, 94–110. <https://doi.org/10.1016/j.tourman.2012.06.003>
 112. LI, Y., SIDDIK, A. B., & MASUKUJJAMAN, M. (2021). *applied sciences Bridging Green Gaps : The Buying Intention of Energy Efficient Home Appliances and Moderation of Green Self-Identity*.
 113. LIAO, Y., & XING, Y. (2022). Social capital and residents' plastic recycling behaviors in China. *Journal of Environmental Planning and Management*, 1–22.
<https://doi.org/10.1080/09640568.2021.2007062>
 114. LIU, W., OOSTERVEER, P., & SPAARGAREN, G. (2016). Promoting sustainable consumption in China: a conceptual framework and research review. *Journal of Cleaner Production*, 134, 13–21. <https://doi.org/10.1016/j.jclepro.2015.10.124>
 115. LIU, W., SHAO, W., & WANG, Q. (2021). Psychological distance from environmental pollution and willingness to participate in second-hand online transactions: An experimental survey in China. *Journal of Cleaner Production*, 281, 124656.
<https://doi.org/10.1016/j.jclepro.2020.124656>
 116. LO, C. W. H., & FRYXELL, G. E. (2003). The Influence of Environmental Knowledge and Values on Managerial Behaviours on Behalf of the Environment: An Empirical Examination of Managers in China. *Journal of Business Ethics*, 46(1), 45–69.
<http://dx.doi.org/10.1023/A:1024773012398%5Cnhttp://www.springerlink.com/content/m67454rq2h612367/>
 117. LUO, B., LI, L., & SUN, Y. (2022). *Understanding the Influence of Consumers' Perceived Value on Energy-Saving Products Purchase Intention*. 12(January), 1–13.
<https://doi.org/10.3389/fpsyg.2021.640376>
 118. LUO, B., SHEN, J., & XIA, L. (2020). *How does green advertising skepticism on social media affect consumer intention to purchase green products ?* February, 371–381.
<https://doi.org/10.1002/cb.1818>
 119. LYON, T. P., & MONTGOMERY, A. W. (2015). The Means and End of Greenwash. *Organization and Environment*, 28(2), 223–249.
<https://doi.org/10.1177/1086026615575332>
 120. MALHOTRA, N. (2019). *Marketing Research: An Applied Orientation, Global Edition, 7th Edition. Marketing Research*.

121. MARQUIS, C., TOFFEL, M. W., & ZHOU, Y. (2016). Scrutiny, norms, and selective disclosure: A global study of greenwashing. *Organization Science*, 27(2), 483–504. <https://doi.org/10.1287/orsc.2015.1039>
122. MARTÍNEZ-ESPIÑEIRA, R., GARCÍA-VALIÑAS, M. A., & NAUGES, C. (2014). Households' pro-environmental habits and investments in water and energy consumption: Determinants and relationships. *Journal of Environmental Management*, 133, 174–183. <https://doi.org/10.1016/j.jenvman.2013.12.002>
123. MARTÍNEZ-MARTÍNEZ, A., CEGARRA-NAVARRO, J. G., & GARCÍA-PÉREZ, A. (2015). Environmental knowledge management: A long-term enabler of tourism development. *Tourism Management*, 50, 281–291. <https://doi.org/10.1016/j.tourman.2015.03.006>
124. MASEEH, H. I., SANGROYA, D., JEBARAJAKIRTHY, C., ADIL, M., KAUR, J., YADAV, M. P., & SAHA, R. (2022). Anti-consumption behavior: A meta-analytic integration of attitude behavior context theory and well-being theory. *Psychology & Marketing*, October, 2302–2327. <https://doi.org/10.1002/mar.21748>
125. MCNEILL, L., & MOORE, R. (2015). Sustainable fashion consumption and the fast fashion conundrum: Fashionable consumers and attitudes to sustainability in clothing choice. *International Journal of Consumer Studies*, 39(3). <https://doi.org/10.1111/ijcs.12169>
126. MEHRABIAN, A., & RUSSELL, J. A. (1974). *An approach to environmental psychology*. the MIT Press.
127. MONROE, K. B. (1973). Buyers' Subjective Perceptions of Price. *Journal of Marketing Research*, 10(1). <https://doi.org/10.1177/002224377301000110>
128. MOSTAFA, M. M. (2007). Gender differences in Egyptian consumers' green purchase behaviour: The effects of environmental knowledge, concern and attitude. *International Journal of Consumer Studies*, 31(3), 220–229. <https://doi.org/10.1111/j.1470-6431.2006.00523.x>
129. NEKMAHMUD, M., & FEKETE-FARKAS, M. (2020). Why not green marketing? Determinates of consumers' intention to green purchase decision in a new developing nation. *Sustainability (Switzerland)*, 12(19), 1–31. <https://doi.org/10.3390/su12197880>
130. NEKMAHMUD, M., & FEKETE-FARKAS, M. (2021). *Green Marketing, Investment and Sustainable Development for Green Tourism*. In *Tourism in Bangladesh: Investment and Development Perspectives*. Springer. https://doi.org/10.1007/978-981-16-1858-1_21
131. NEKMAHMUD, M., NAZ, F., RAMKISSOON, H., & FEKETE-FARKAS, M. (2022). Transforming consumers' intention to purchase green products: Role of social media. *Technological Forecasting and Social Change*, 185. <https://doi.org/10.1016/j.techfore.2022.122067>
132. NEKMAHMUD, M., RAMKISSOON, H., & FEKETE-FARKAS, M. (2022). Green Purchase and Sustainable Consumption: A Comparative Study Between European and Non-European Tourists. *Tourism Management Perspectives*, 43, 100980. <https://doi.org/org/10.1016/j.tmp.2022.100980>
133. NEKMAHMUD, MD. (2020). *Environmental marketing: Tourists purchase behavior response on green products*. *Tourism Marketing in Bangladesh: An Introduction* (A. Hassan, Ed.). Routledge. <https://doi.org/10.4324/9781003007241-26>
134. NGUYEN, T. N., LOBO, A., & GREENLAND, S. (2016). Pro-environmental purchase behaviour: The role of consumers' biospheric values. *Journal of Retailing and Consumer Services*, 33, 98–108. <https://doi.org/10.1016/j.jretconser.2016.08.010>
135. NGUYEN, T. N., LOBO, A., & GREENLAND, S. (2017). Energy efficient household appliances in emerging markets: the influence of consumers' values and knowledge on

- their attitudes and purchase behaviour. *International Journal of Consumer Studies*, 41(2), 167–177. <https://doi.org/10.1111/ijcs.12323>
136. NGUYEN, T. N., LOBO, A., & NGUYEN, B. K. (2018). Young consumers' green purchase behaviour in an emerging market. *Journal of Strategic Marketing*, 26(7), 583–600. <https://doi.org/10.1080/0965254X.2017.1318946>
 137. NUNKOO, R., & RAMKISSOON, H. (2012). Power, trust, social exchange and community support. *Annals of Tourism Research*, 39(2), 997–1023. <https://doi.org/10.1016/j.annals.2011.11.017>
 138. OGIEMWONYI, O. (2022). Factors influencing generation Y green behaviour on green products in Nigeria: An application of theory of planned behaviour. *Environmental and Sustainability Indicators*, 13(October 2021), 100164. <https://doi.org/10.1016/j.indic.2021.100164>
 139. OSKAMP, S. (1995). Resource conservation and recycling: behavior and policy. *Journal of Social Issues*, 51(4), 157–177. <https://doi.org/10.1111/j.1540-4560.1995.tb01353.x>
 140. OSKAMP, S., & STERN, P. (1987). Managing scarce environmental resources. In *Handbook of environmental psychology* (Vol. 2).
 141. OTTMAN, J., & BOOKS, N. B. (1998). Green marketing: opportunity for innovation. *The Journal of Sustainable Product Design*, 60(7), 136–667.
 142. OWEN, A., & GARNIATI, G. (2016). *The Politics of Investing in Sustainable Energy Systems*. In *Storing Energy*. Elsevier. <https://doi.org/org/10.1016/B978-0-12-803440-8.00025-7>
 143. PARK, E., & KWON, S. J. (2017). What motivations drive sustainable energy-saving behavior?: An examination in South Korea. *Renewable and Sustainable Energy Reviews*, 79(February), 494–502. <https://doi.org/10.1016/j.rser.2017.05.150>
 144. PARK, S., & GUPTA, S. (2012). Handling endogenous regressors by joint estimation using copulas. *Marketing Science*, 31(4), 567–586. <https://doi.org/10.1287/mksc.1120.0718>
 145. PAUL, J., MODI, A., & PATEL, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *Journal of Retailing and Consumer Services*, 29, 123–134. <https://doi.org/10.1016/j.jretconser.2015.11.006>
 146. PEATTIE, K. (2001). Golden goose or wild goose? The hunt for the green consumer. *Business Strategy and the Environment*, 10(4). <https://doi.org/10.1002/bse.292>
 147. PEATTIE, K., & BUILDING, A. (2001). Towards sustainability: The third age of green marketing. *The Marketing Review*, 2(2).
 148. PEATTIE, K., & CRANE, A. (2005). Green marketing: Legend, myth, farce or prophecy? *Qualitative Market Research: An International Journal*, 8(4), 357–370. <https://doi.org/10.1108/13522750510619733>
 149. PETTY, R. E., & CACIOPPO, J. T. (1986). The elaboration likelihood model of persuasion. *Advances in Experimental Social Psychology*, 19(C), 123–205. [https://doi.org/10.1016/S0065-2601\(08\)60214-2](https://doi.org/10.1016/S0065-2601(08)60214-2)
 150. PINTO, D. C., NIQUE, W. M., AÑAÑA, E. DA S., & HERTER, M. M. (2011). Green consumer values: How do personal values influence environmentally responsible water consumption? *International Journal of Consumer Studies*, 35(2), 122–131. <https://doi.org/10.1111/j.1470-6431.2010.00962.x>
 151. PIRES, C., ROBERTO, L., GABRIEL, A., PAG, M., SILVA, S., JUNIOR, B., VIANA, A., QUEVEDO-SILVA, F., MIRANDA, C., COX, R., & PADGETT, M. (2020). *Fuzzy inference system to study the behavior of the green consumer facing the perception of greenwashing*. 242. <https://doi.org/10.1016/j.jclepro.2019.03.060>

152. PODSAKOFF, P. M., MACKENZIE, S. B., LEE, J. Y., & PODSAKOFF, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
153. POLONSKY, M. J. (2011). Transformative green marketing: Impediments and opportunities. *Journal of business research*, 64(12), 1311-1319. <https://doi.org/10.1016/j.jbusres.2011.01.016>
154. POŠKUS, M. S., & ŽUKAUSKIENĖ, R. (2017). Predicting adolescents' recycling behavior among different big five personality types. *Journal of Environmental Psychology*, 54, 57–64. <https://doi.org/10.1016/j.jenvp.2017.10.003>
155. PRAKASH, A. (2002). Green marketing, public policy and managerial strategies. *Business Strategy and the Environment*, 11(5). <https://doi.org/10.1002/bse.338>
156. PRAKASH, G., & PATHAK, P. (2017). Intention to buy eco-friendly packaged products among young consumers of India: A study on developing nation. *Journal of Cleaner Production*, 141, 385–393. <https://doi.org/10.1016/j.jclepro.2016.09.116>
157. PRENDERGAST, G., KO, D., & UEN, S. Y. V. (2010). Online word of mouth and consumer purchase intentions. *International Journal of Advertising*, 29(5). <https://doi.org/10.2501/s0265048710201427>
158. QI, X., & PLOEGER, A. (2019). Explaining consumers' intentions towards purchasing green food in Qingdao, China: The amendment and extension of the theory of planned behavior. *Appetite*, 133(June 2018), 414–422. <https://doi.org/10.1016/j.appet.2018.12.004>
159. QIN, B., & SONG, G. (2022). Internal Motivations, External Contexts, and Sustainable Consumption Behavior in China—Based on the TPB-ABC Integration Model. *Sustainability (Switzerland)*, 14(13). <https://doi.org/10.3390/su14137677>
160. QUOQUAB, F., MOHAMMAD, J., & SUKARI, N. N. (2019). A multiple-item scale for measuring “sustainable consumption behaviour” construct: Development and psychometric evaluation. *Asia Pacific Journal of Marketing and Logistics*, 31(4), 791–816. <https://doi.org/10.1108/APJML-02-2018-0047>
161. RAHBAR, E., & WAHID, N. A. (2011). Investigation of green marketing tools' effect on consumers' purchase behavior. *Business Strategy Series*, 12(2), 73–83. <https://doi.org/10.1108/17515631111114877>
162. RAHMAN, I., & REYNOLDS, D. (2019). The influence of values and attitudes on green consumer behavior: A conceptual model of green hotel patronage. *International Journal of Hospitality and Tourism Administration*, 20(1). <https://doi.org/10.1080/15256480.2017.1359729>
163. RAMAYAH, T., LEE, J. W. C., & LIM, S. (2012). Sustaining the environment through recycling: An empirical study. *Journal of Environmental Management*, 102. <https://doi.org/10.1016/j.jenvman.2012.02.025>
164. RAMKISSOON, H. (2020). COVID-19 Place Confinement, Pro-Social, Pro-environmental Behaviors, and Residents' Wellbeing: A New Conceptual Framework. *Frontiers in Psychology*, 11(September), 1–11. <https://doi.org/10.3389/fpsyg.2020.02248>
165. RASOOLIMANESH, S. M., ROLDÁN, J. L., JAAFAR, M., & RAMAYAH, T. (2017). Factors Influencing Residents' Perceptions toward Tourism Development: Differences across Rural and Urban World Heritage Sites. *Journal of Travel Research*, 56(6), 760–775. <https://doi.org/10.1177/0047287516662354>

166. RAUSCH, T. M., & KOPPLIN, C. S. (2021). Bridge the gap: Consumers' purchase intention and behavior regarding sustainable clothing. *Journal of Cleaner Production*, 278, 123882. <https://doi.org/10.1016/j.jclepro.2020.123882>
167. RAZIUDDIN, K., SIWAR, C., CHAMHURI, N., & HASAN, F. (2016). Integrating General Environmental Knowledge and Eco-Label Knowledge in Understanding Ecologically Conscious Consumer Behavior. *Procedia Economics and Finance*, 37(16), 39–45. [https://doi.org/10.1016/S2212-5671\(16\)30090-9](https://doi.org/10.1016/S2212-5671(16)30090-9)
168. REX, E., & BAUMANN, H. (2007). Beyond ecolabels: what green marketing can learn from conventional marketing. *Journal of Cleaner Production*, 15(6), 567–576. <https://doi.org/10.1016/j.jclepro.2006.05.013>
169. RICHTER, N. F., SCHUBRING, S., HAUFF, S., RINGLE, C. M., & SARSTEDT, M. (2020). When predictors of outcomes are necessary: guidelines for the combined use of PLS-SEM and NCA. *Industrial Management and Data Systems*, 120(12), 2243–2267. <https://doi.org/10.1108/IMDS-11-2019-0638>
170. RINGLE, C.M., WENDE, S., & BECKER, J.-M. (2022). *SmartPLS 4.0*, Oststeinbek: SmartPLS GmbH, www.smartpls.com.
171. RIPPLE, W. J., WOLF, C., NEWSOME, T. M., GALETTI, M., ALAMGIR, M., CRIST, E., MAHMOUD, M. I., & LAURANCE, W. F. (2017). World scientists' warning to humanity: A second notice. *BioScience*, 67(12), 1026–1028. <https://doi.org/10.1093/biosci/bix125>
172. ROMÁN-AUGUSTO, J. A., GARRIDO-LECCA-VERA, C., LODEIROS-ZUBIRIA, M. L., & MAURICIO-ANDIA, M. (2022). Green Marketing: Drivers in the Process of Buying Green Products—The Role of Green Satisfaction, Green Trust, Green WOM and Green Perceived Value. *Sustainability (Switzerland)*, 14(17). <https://doi.org/10.3390/su141710580>
173. SAARI, U. A., DAMBERG, S., FRÖMBLING, L., & RINGLE, C. M. (2021). Sustainable consumption behavior of Europeans: The influence of environmental knowledge and risk perception on environmental concern and behavioral intention. *Ecological Economics*, 189(April). <https://doi.org/10.1016/j.ecolecon.2021.107155>
174. SADIQ, M., ADIL, M., & PAUL, J. (2022). Organic food consumption and contextual factors: An attitude–behavior–context perspective. *Business Strategy and the Environment*, October, 1–15. <https://doi.org/10.1002/bse.3306>
175. SALOM, C., FREITAS, M., GALV, R., AGUIAR, E. C., & WANDERLEY, L. O. (2021). *Consumer antecedents towards green product purchase intentions*. 313(June). <https://doi.org/10.1016/j.jclepro.2021.127964>
176. SCHWARTZ, S. H. (1997). Normative influence on altruism. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 10, pp. 221–279). Academic Press.
177. SEELE, P., & GATTI, L. (2017). Greenwashing Revisited: In Search of a Typology and Accusation-Based Definition Incorporating Legitimacy Strategies. *Business Strategy and the Environment*, 26(2), 239–252. <https://doi.org/10.1002/bse.1912>
178. SHARMA, K., ASWAL, C., & PAUL, J. (2023). Factors affecting green purchase behavior: A systematic literature review. *Business Strategy and the Environment*, 32(4), 2078–2092.
179. SHETH, J. N., NEWMAN, B. I., & GROSS, B. L. (1991). Why we buy what we buy: A theory of consumption values. *Journal of Business Research*, 22(2), 159–170.
180. SHMUELI, G., SARSTEDT, M., HAIR, J. F., CHEAH, J. H., TING, H., VAITHILINGAM, S., & RINGLE, C. M. (2019). Predictive model assessment in PLS-SEM: guidelines for using PLSpredict. *European Journal of Marketing*, 53(11), 2322–2347. <https://doi.org/10.1108/EJM-02-2019-0189>

181. SHUM, R. Y. (2020). A comparison of land-use requirements in solar-based decarbonization scenarios. *Energy Policy*, 109(June 2016), 460–462. <https://doi.org/10.1016/j.enpol.2017.07.014>
182. SIU, J., LAM, L., & LI, K. X. (2019). Green port marketing for sustainable growth and development. *Transport Policy*, 84(December 2017), 73–81. <https://doi.org/10.1016/j.tranpol.2019.04.011>
183. SPENCE, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, 87(3), 355–374. <https://doi.org/10.2307/1882010>
184. STERN P. (2000). New Environmental Theories: Toward a Coherent Theory of Environmentally Significant Behavior. *Journal of Social Issues*, 56.
185. STERN, P. C. (1999). Information, incentives, and proenvironmental consumer behavior. *Journal of Consumer Policy*, 22(4). <https://doi.org/10.1023/A:1006211709570>
186. STERN, P. C., DIETZ, T., ABEL, T., GUAGNANO, G. A., & KALOF, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human ecology review*, 81-97.
187. Statista, (2022). <https://www.statista.com/statistics/438214/gross-domestic-product-gdp-growth-rate-in-bangladesh/>
188. SUKHOV, A., OLSSON, L. E., & FRIMAN, M. (2022). Necessary and sufficient conditions for attractive public Transport: Combined use of PLS-SEM and NCA. *Transportation Research Part A: Policy and Practice*, 158(March), 239–250. <https://doi.org/10.1016/j.tra.2022.03.012>
189. SULTAN, P., TARAFDER, T., PEARSON, D., & HENRYKS, J. (2020). Intention-behaviour gap and perceived behavioural control-behaviour gap in theory of planned behaviour: moderating roles of communication , satisfaction and trust in organic food consumption. *Food Quality and Preference*, 81(January 2019), 103838. <https://doi.org/10.1016/j.foodqual.2019.103838>
190. SUN, Y., LENG, K., & XIONG, H. (2022). Research on the influencing factors of consumers’ green purchase behavior in the post-pandemic era. *Journal of Retailing and Consumer Services*, 69(August), 103118. <https://doi.org/10.1016/j.jretconser.2022.103118>
191. SUN, Y., LI, T., & WANG, S. (2022). “I buy green products for my benefits or yours”: understanding consumers’ intention to purchase green products. *Asia Pacific Journal of Marketing and Logistics*, 34(8), 1721–1739. <https://doi.org/10.1108/APJML-04-2021-0244>
192. SUN, Y., & WANG, S. (2020). Understanding consumers’ intentions to purchase green products in the social media marketing context. *Asia Pacific Journal of Marketing and Logistics*, 32(4), 860–878. <https://doi.org/10.1108/APJML-03-2019-0178>
193. SUNG, P. L., HUANG, L., & MORRISON, A. M. (2021). *The influence of green trust on travel agency intentions to promote low-carbon tours for the purpose of sustainable development*. August 2020, 1185–1199. <https://doi.org/10.1002/csr.2131>
194. SUSSMAN, R., & GIFFORD, R. (2019). Causality in the Theory of Planned Behavior. *Personality and Social Psychology Bulletin*, 45(6), 920–933. <https://doi.org/10.1177/0146167218801363>
195. TAN, C. S., OOI, H. Y., & GOH, Y. N. (2017). A moral extension of the theory of planned behavior to predict consumers’ purchase intention for energy-efficient household appliances in Malaysia. *Energy Policy*, 107(May), 459–471. <https://doi.org/10.1016/j.enpol.2017.05.027>
196. TARIQ, A., WANG, C., TANVEER, Y., AKRAM, U., & AKRAM, Z. (2019). Organic food consumerism through social commerce in China. *Asia Pacific Journal of*

- Marketing and Logistics*, 31(1), 202–222. <https://doi.org/10.1108/APJML-04-2018-0150>
197. TAUFIQUE, K. M. R., & VAITHIANATHAN, S. (2018). A fresh look at understanding Green consumer behavior among young urban Indian consumers through the lens of Theory of Planned Behavior. *Journal of Cleaner Production*, 183, 46–55. <https://doi.org/10.1016/j.jclepro.2018.02.097>
 198. TAUFIQUE, K. M. R., VOCINO, A., & POLONSKY, M. J. (2017). The influence of eco-label knowledge and trust on pro-environmental consumer behaviour in an emerging market. *Journal of Strategic Marketing*, 25(7), 511–529. <https://doi.org/10.1080/0965254X.2016.1240219>
 199. TESTA, F., COSIC, A., & IRALDO, F. (2016). Determining factors of curtailment and purchasing energy related behaviours. *Journal of Cleaner Production*, 112, 3810–3819. <https://doi.org/10.1016/j.jclepro.2015.07.134>
 200. THØGERSEN, J. (2010). Country differences in sustainable consumption: The case of organic food. *Journal of Macromarketing*, 30(2), 171–185. <https://doi.org/10.1177/0276146710361926>
 201. TREGGAR, A., DENT, J. B., & MCGREGOR, M. J. (1994). The Demand for Organically-grown Produce. *British Food Journal*, 96(4). <https://doi.org/10.1108/00070709410061032>
 202. TRIVEDI, R. H., PATEL, J. D., & SAVALIA, J. R. (2015). Pro-environmental behaviour, locus of control and willingness to pay for environmental friendly products. *Marketing Intelligence and Planning*, 33(1). <https://doi.org/10.1108/MIP-03-2012-0028>
 203. UDALL, A. M., DE GROOT, J. I., DE JONG, S. B., & SHANKAR, A. (2020). How do I see myself? A systematic review of identities in pro-environmental behaviour research. *Journal of Consumer Behaviour*, 19(2), 108-1
 204. UNFCCC, (2021). Glasgow Climate Pact, Decision -/CP.26, advance unedited version' available at <https://unfccc.int/documents/310475> [1/CP.26]
 205. VAN VALKENGOED, A. M., ABRAHAMSE, W., & STEG, L. (2022). To select effective interventions for pro-environmental behaviour change, we need to consider determinants of behaviour. *Nature human behaviour*, 6(11), 1482-1492 <https://doi.org/10.1038/s41562-022-01473-w>
 206. VERMA, V. K., & CHANDRA, B. (2018). An application of theory of planned behavior to predict young Indian consumers' green hotel visit intention. *Journal of Cleaner Production*, 172(3), 1152–1162. <https://doi.org/10.1016/j.jclepro.2017.10.047>
 207. WAN, C., SHEN, G. Q., & CHOI, S. (2022). Pathways of place dependence and place identity influencing recycling in the extended theory of planned behavior. *Journal of Environmental Psychology*, 81(August 2021), 101795. <https://doi.org/10.1016/j.jenvp.2022.101795>
 208. WANG, C., GHADIMI, P., LIM, M. K., & TSENG, M. L. (2019). A literature review of sustainable consumption and production: A comparative analysis in developed and developing economies. *Journal of Cleaner Production*, 206, 741–754. <https://doi.org/10.1016/j.jclepro.2018.09.172>
 209. WANG, E. S. T., & LI, F. Y. (2021). Effects of needs-based motivations on attitudes and repurchase intention of energy-efficient products. *Energy Efficiency*, 14(5), 1–15. <https://doi.org/10.1007/s12053-021-09967-8>
 210. WANG, J., WANG, S., XUE, H., WANG, Y., & LI, J. (2018). Green image and consumers' word-of-mouth intention in the green hotel industry: The moderating effect of Millennials. *Journal of Cleaner Production*, 181, 426–436. <https://doi.org/10.1016/j.jclepro.2018.01.250>

211. WANG, P., LIU, Q., & QI, Y. (2014). Factors influencing sustainable consumption behaviors: A survey of the rural residents in China. *Journal of Cleaner Production*, 63, 152–165. <https://doi.org/10.1016/j.jclepro.2013.05.007>
212. WANG, Z., SUN, Q., WANG, B., & ZHANG, B. (2019). Purchasing intentions of Chinese consumers on energy-efficient appliances: Is the energy efficiency label effective? *Journal of Cleaner Production*, 238, 117896. <https://doi.org/10.1016/j.jclepro.2019.117896>
213. WANG, Z., ZHANG, B., & LI, G. (2014). Determinants of energy-saving behavioral intention among residents in Beijing: Extending the theory of planned behavior. *Journal of Renewable and Sustainable Energy*, 6(5). <https://doi.org/10.1063/1.4898363>
214. WANG, Z., ZHANG, B., YIN, J., & ZHANG, Y. (2011). Determinants and policy implications for household electricity-saving behaviour: Evidence from Beijing, China. *Energy Policy*, 39(6), 3550–3557. <https://doi.org/10.1016/j.enpol.2011.03.055>
215. WARIS, I., & AHMED, W. (2020). Empirical evaluation of the antecedents of energy-efficient home appliances: application of extended theory of planned behavior. *Management of Environmental Quality: An International Journal*, 31(4), 915–930. <https://doi.org/10.1108/MEQ-01-2020-0001>
216. WIEDERHOLD, M., & MARTINEZ, L. F. (2018). Ethical consumer behaviour in Germany: The attitude-behaviour gap in the green apparel industry. *International journal of consumer studies*, 42(4), 419–429. <https://doi.org/10.1111/ijcs.12435>
217. WILSON, A., UNCAPHER, J. L., MCMANIGAL, L., BROWNING, W. D., LOVINS, L. H., & CURETON, M. (1998). *Green development: Integrating ecology and real estate*. John Wiley & Sons.
218. WU L.M., LEE J.W.C., LIM Y.M., P. C. K. (2022). *The Predictors of Electric Vehicles Adoption: An Extended Theory of Planned Behavior* (S. K. Al-Emran M., Al-Sharafi M.A., Al-Kabi M.N., Ed.). Springer, Cham. https://doi.org/https://doi.org/10.1007/978-3-030-82616-1_43
219. WU, M. J., ZHAO, K., & FILS-AIME, F. (2022). Response rates of online surveys in published research: A meta-analysis. *Computers in Human Behavior Reports*, 7, 100206. <https://doi.org/10.1016/j.chbr.2022.100206>
220. XING, Y., LI, M., & LIAO, Y. (2022). Trust, Identity, and Public-Sphere Pro-environmental Behavior in China: An Extended Attitude-Behavior-Context Theory. *Frontiers in Psychology*, 13(June), 1–13. <https://doi.org/10.3389/fpsyg.2022.919578>
221. YADAV, R., BALAJI, M. S., & JEBARAJAKIRTHY, C. (2019). How psychological and contextual factors contribute to travelers' propensity to choose green hotels? *International Journal of Hospitality Management*, 77. <https://doi.org/10.1016/j.ijhm.2018.08.002>
222. YADAV, R., & PATHAK, G. S. (2016). Young consumers' intention towards buying green products in a developing nation: Extending the theory of planned behavior. *Journal of Cleaner Production*, 135, 732–739. <https://doi.org/10.1016/j.jclepro.2016.06.120>
223. YADAV, R., & PATHAK, G. S. (2017). Determinants of Consumers' Green Purchase Behavior in a Developing Nation: Applying and Extending the Theory of Planned Behavior. *Ecological Economics*, 134, 114–122. <https://doi.org/10.1016/j.ecolecon.2016.12.019>
224. YUE, B., SHENG, G., SHE, S., & XU, J. (2020). Impact of consumer environmental responsibility on green consumption behavior in China: The role of environmental concern and price sensitivity. *Sustainability (Switzerland)*, 12(5), 1–16. <https://doi.org/10.3390/su12052074>

225. YUE, T., LIU, J., LONG, R., CHEN, H., LI, Q., LIU, H., & GU, Y. (2021). Effects of perceived value on green consumption intention based on double-entry mental accounting: taking energy-efficient appliance purchase as an example. *Environmental Science and Pollution Research*, 28(6), 7236–7248. <https://doi.org/10.1007/s11356-020-11027-0>
226. ZEITHAML, V. A. (1983). Antithymocyte globulin reacts with many normal human cell types. *Blood*, 62(5), 1047–1054. <https://doi.org/10.1182/blood.v62.5.1047.1047>
227. ZHANG, C. Y., YU, B., WANG, J. W., & WEI, Y. M. (2018). Impact factors of household energy-saving behavior: An empirical study of Shandong Province in China. *Journal of Cleaner Production*, 185, 285–298. <https://doi.org/10.1016/j.jclepro.2018.02.303>
228. ZHANG, L., LI, D., CAO, C., & HUANG, S. (2018). The influence of greenwashing perception on green purchasing intentions: The mediating role of green word-of-mouth and moderating role of green concern. *Journal of Cleaner Production*, 187, 740–750. <https://doi.org/10.1016/j.jclepro.2018.03.201>
229. ZHANG, Y., XIAO, C., & ZHOU, G. (2020). Willingness to pay a price premium for energy-saving appliances: Role of perceived value and energy efficiency labeling. *Journal of Cleaner Production*, 242, 118555. <https://doi.org/10.1016/j.jclepro.2019.118555>
230. ZHAO, H. H., GAO, Q., WU, Y. P., WANG, Y., & ZHU, X. D. (2014). What affects green consumer behavior in China? A case study from Qingdao. *Journal of Cleaner Production*, 63, 143–151. <https://doi.org/10.1016/j.jclepro.2013.05.021>
231. ZHAO, S., DUAN, W., ZHAO, D., & SONG, Q. (2022). Identifying the influence factors of residents' low-carbon behavior under the background of “Carbon Neutrality”: An empirical study of Qingdao city, China. *Energy Reports*, 8, 6876–6886. <https://doi.org/10.1016/j.egy.2022.05.023>
232. ZHOU, Q., CUI, X., NI, H., & GONG, L. (2022). The impact of environmental regulation policy on firms' energy-saving behavior: A quasi-natural experiment based on China's low-carbon pilot city policy. *Resources Policy*, 76(March 2021), 102538.

Appendix (B): Pilot test results

Table 30 Cronbach alpha and KMO values

Construct	No. of items	Cronbach alpha	KMO
Sustainable consumption habits	6	0.754	0.763
Attitude	4	0.883	0.826
Subjective norms	3	0.807	0.668
Perceived behavioral control	3	0.780	0.700
Green perceived value	5	0.808	0.756
Environmental knowledge	3	0.807	0.714
Climate concern	3	0.768	0.692
Ecological motives	6	0.799	0.717
Green marketing tools	6	0.901	0.828
Green trust	3	0.857	0.724
Government supports	3	0.913	0.754
Green word-of-mouth	4	0.823	0.804
Positive motives	16	0.927	0.859
High price sensitivity	4	0.765	0.730
Greenwashing concern	2	0.789	0.500
Negative motives	6	0.812	0.709
Green purchase behavior	7	0.900	0.865
Recycling and resource conservation behavior	4	0.819	0.719

Source: Author's own work based on SPSS 27

Table 31 Overall KMO and Bartlett's Sphericity Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.790
Bartlett's Test of Sphericity	Approx. Chi-Square	6456.008
	df	2415
	Sig.	0.000

Source: Author's own work based on SPSS 27

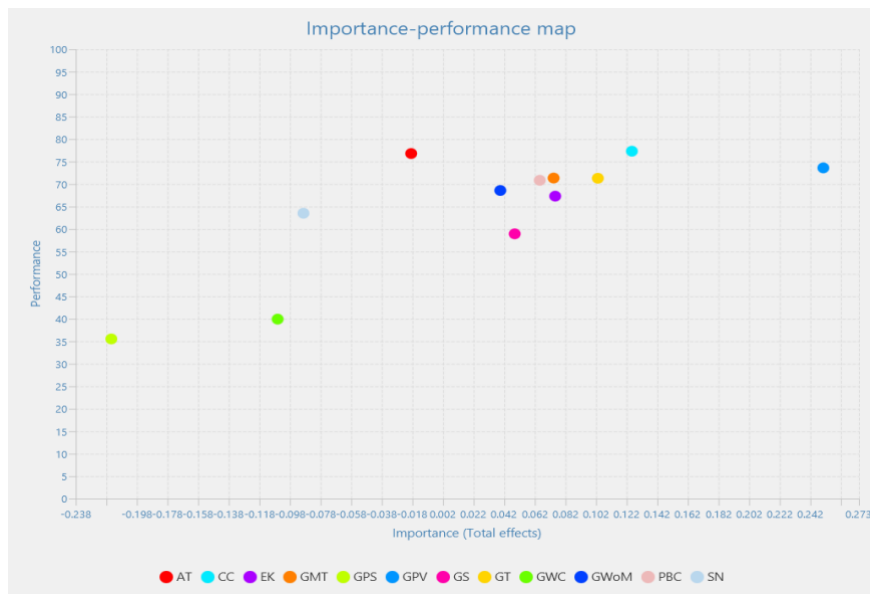
Table 32 Preliminary results of factor analysis (Item communalities)

Construct items	Communalities	Construct items	Communalities
SCH1	0.575	GT3	0.808
SCH2	0.621	GS1	0.791
SCH3	0.654	GS2	0.867
SCH4	0.680	GS3	0.864
SCH5	0.752	GoM1	0.712
SCH6	0.740	GoM2	0.785
EK1	0.742	GoM3	0.736
EK2	0.780	GoM4	0.714
EK3	0.793	HPS1	0.731
CC1	0.659	HPS2	0.800
CC2	0.762	HPS3	0.725
CC3	0.703	HPS4	0.718
AT1	0.799	GWC1	0.780
AT2	0.791	GWC2	0.788
AT3	0.781	GPB1	0.722
AT4	0.820	GPB2	0.807
SN1	0.740	GPB3	0.799
SN2	0.775	GPB4	0.823
SN3	0.740	GPB5	0.847

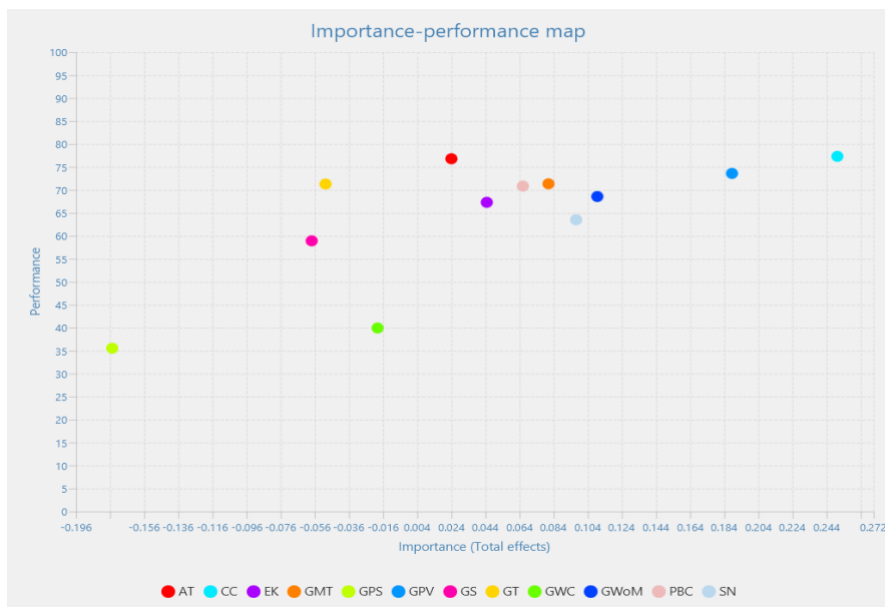
PBC1	0.735	GPB6	0.794
PBC2	0.735	GPB7	0.817
PBC3	0.761	RRCB1	0.834
GPV1	0.689	RRCB2	0.798
GPV2	0.645	RRCB3	0.815
GPV3	0.679	RRCB4	0.765
GPV4	0.659		
GPV5	0.731		
GMT1	0.732		
GMT2	0.741		
GMT3	0.875		
GMT4	0.870		
GMT5	0.892		
GMT6	0.817		
GT1	0.774		
GT2	0.822		

Source: Author's own work based on SPSS 27

Appendix (C):



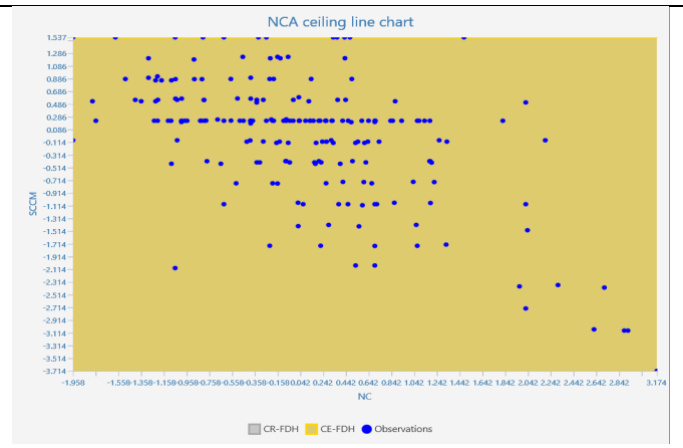
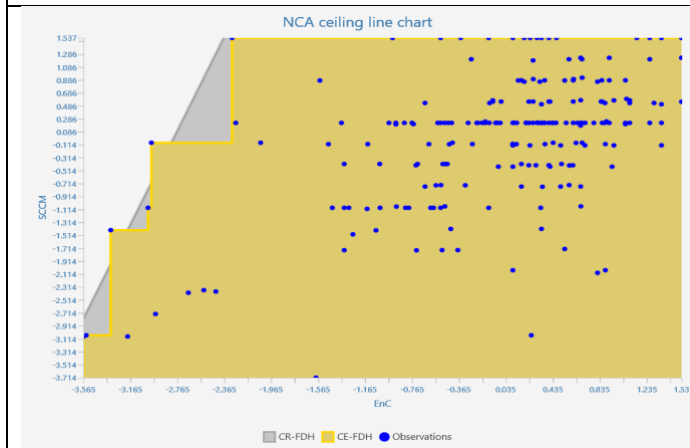
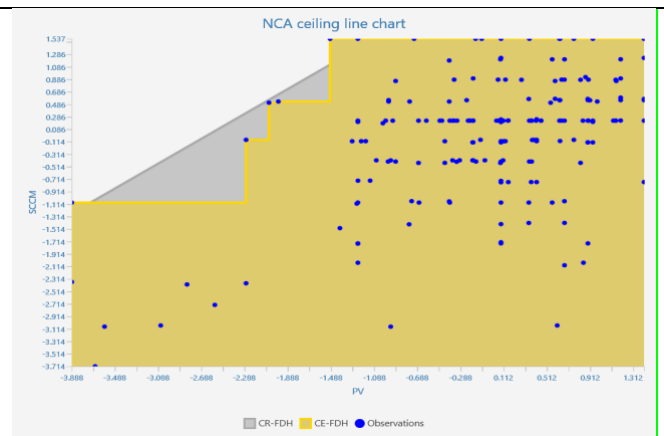
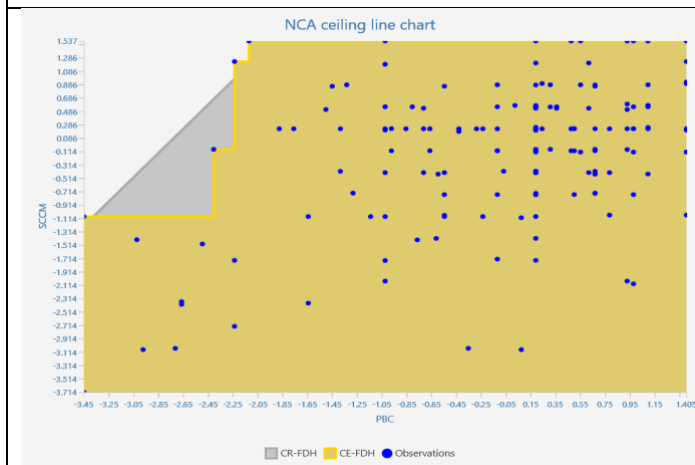
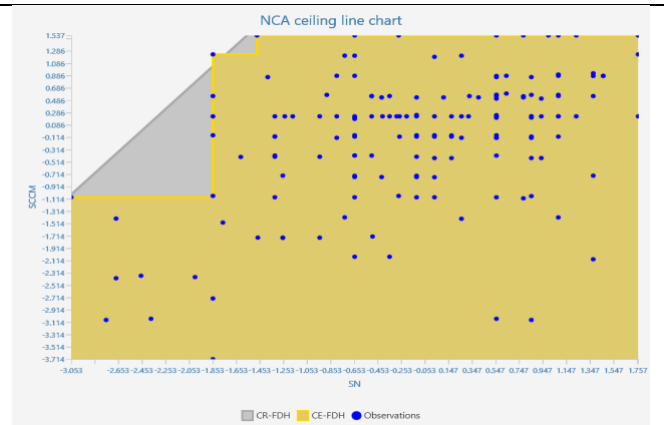
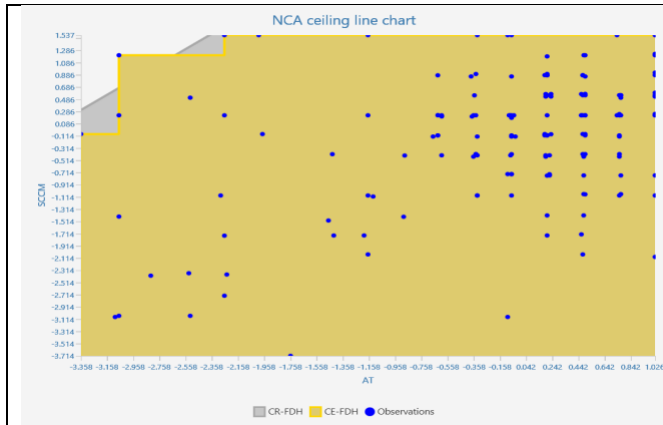
performances score for GPB



performances score for RRCB

Figure 12 Performances score for SCB (GPB & RRCB)

Source: Author's own work based on SmartPLS results



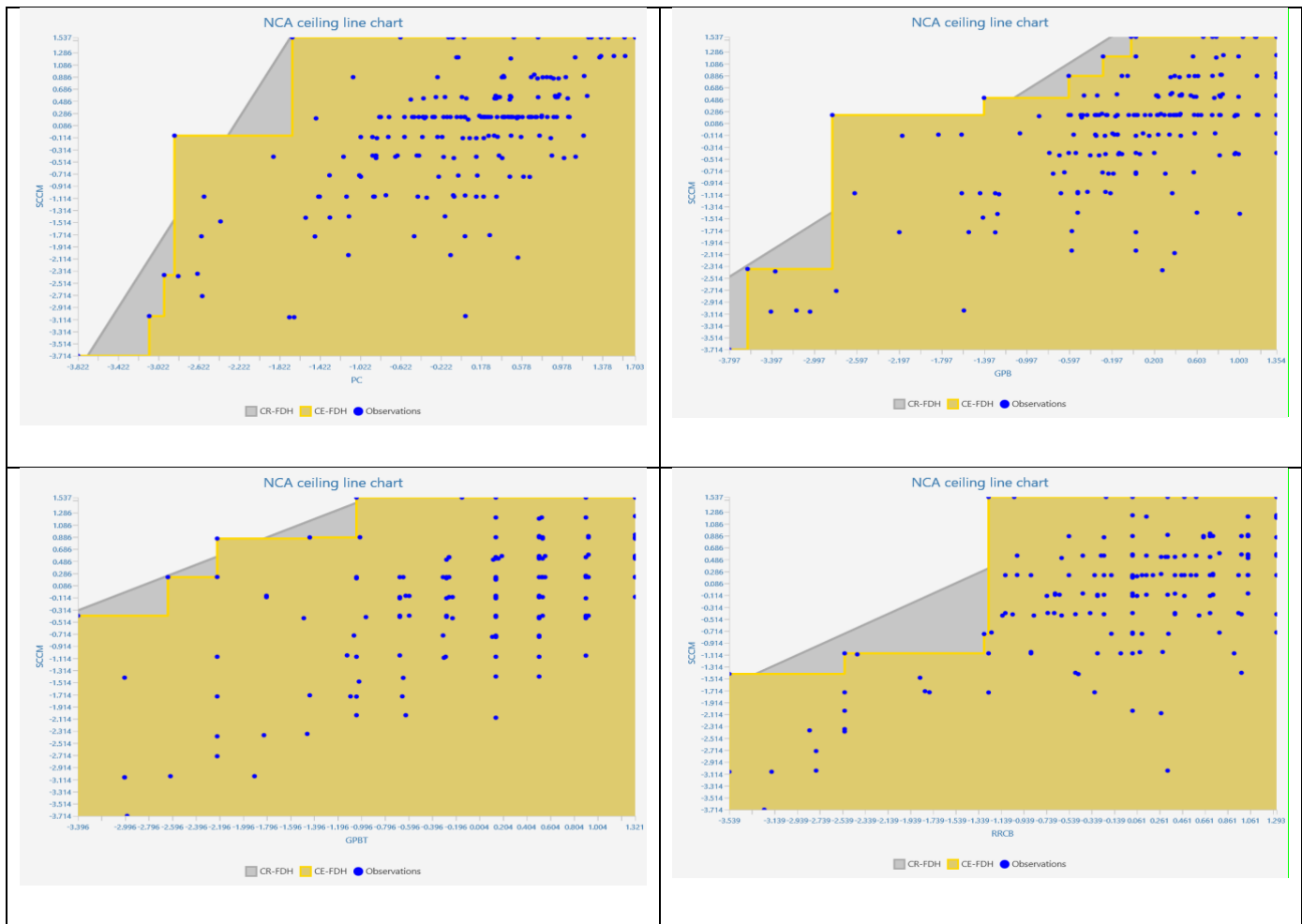


Figure 13 Illustrates scatterplots along with ceiling lines.

The necessary effect size, represented as "d," corresponds to the extent of the unoccupied area in the upper-left corner above the yellow linear line (CR-FDH)

Source: Author's own work based on SmartPLS results

Table 33 Findings of model fit (Q^2 predict and RMSE-PLS)

Items	Q^2 predict	PLS-	PLS-	LM_RMSE	LM_MAE
		SEM_RMSE	SEM_MAE		
AT1	0.347	0.869	0.642	0.799	0.593
AT2	0.366	0.806	0.612	0.742	0.555
AT3	0.285	0.825	0.6	0.755	0.551
AT4	0.345	0.809	0.596	0.777	0.592
GPB1	0.347	0.81	0.595	0.784	0.584
GPB2	0.267	0.901	0.665	0.86	0.657
GPB3	0.447	0.697	0.522	0.682	0.509
GPB4	0.347	0.756	0.542	0.693	0.516
GPB5	0.38	0.716	0.53	0.669	0.506
GPB6	0.436	0.668	0.508	0.631	0.485
GPB7	0.373	0.732	0.55	0.723	0.54
RRCB1	0.411	0.757	0.55	0.752	0.551
RRCB2	0.264	0.849	0.64	0.812	0.61
RRCB3	0.403	0.7	0.521	0.692	0.509
RRCB4	0.481	0.63	0.502	0.596	0.475

Source: Author's own work based on SmartPLS result

Table 34 Construct of performances for SCB

Constructs	Performances score for GPB	Ranks	Performances score for RRCB	Ranks
Attitude	76.785	1	76.785	1
Ecological motives	74.399	2	74.399	2
Green perceived value	73.602	3	73.602	3
Positive motives	71.022	4	71.022	4
Perceived behavioral control	70.841	5	70.841	5
Subjective norms	63.511	6	63.511	6
Negative motives	38.130	7	38.130	7

Source: Author's own work based on SmartPLS results

Appendix (D): Cover Letter for the Questionnaires

Dear Participants

I am Nekomahmud Argon, a 4th year PhD researcher at Hungarian University of Agriculture and Life Sciences (MATE). I am requesting you participate in this survey by filling out this questionnaire and providing answers that are best suited to you. This research is part of my PhD thesis. This research survey aims to examine consumers' pro-environmental purchase behavior toward environmentally-friendly/sustainable products. In general, environmentally-friendly or sustainable products are those products that do not harm the environment and health either in their production, use, or disposal, such as *organic food, energy savings electronic products, recyclable products, Bio-products, reusable grocery bags, cosmetics, environmental-friendly clothes/second-hand clothes, cleaning products, toilet tissues, eco-friendly packaging, etc.*

Your involvement should take approximately 15 minutes. Your response will be used only for research purposes and will be completely anonymous. This study will not be used for commercial purposes. If you have any queries about the research or wish to be informed of the study's outcome, you can contact Nekomahmud Argon at the address below. Thank you very much for your support. Stay safe with your family.

Thanks and regards,

Nekomahmud Argon (PhD Researcher),

Doctoral School of Economic and Regional Sciences, Hungarian University of Agriculture & Life Sciences (MATE)

Email: Nekomahmud.Mohamed@phd.uni-mate.hu or
nekomahmud.argon@gmail.com

Questionnaire of Sustainable Consumption Behavior in Climate Change Mitigation

Demographic Variables

- A. **Gender:** 1) Female 2) Male
- B. **Age:** 1) Under 20 years; 2) 21–25 years; 3) 26–30 years; 4) 31–35 years; 5) Above 35 years
- C. **Education (studying):** 1) Secondary/higher secondary school; 2) Undergraduate/Bachelor
3) Postgraduate/Master's; 4) PhD
- D. **Income level:** 1) Less than 100000 Huf 2) 101000-150000 3) 151000-200000 Huf
4) 201000-250000 Huf 5) 251000-300000 Huf 6) 301000-350000 Huf
7) 351000- 400000 Huf 8) Above 40000

E. **Country of Citizenship/Nationality:**

F. **Sustainable consumption habits (Please answer the following questions as to how often you do it)**

Questions	Never	Rarely	Sometimes	Usually	Always
Buy organic/Bio food	Never	Rarely	Sometimes	Usually	Always
Buy energy-saving household appliances (e.g., LED bulbs/lights, cooking appliances, micro-oven, laundry machines)	Never	Rarely	Sometimes	Usually	Always
Use your own bag when shopping	Never	Rarely	Sometimes	Usually	Always
Use recyclable and reusable products	Never	Rarely	Sometimes	Usually	Always
Turn off the tap when soaping up/cleaning teeth/washing dishes	Never	Rarely	Sometimes	Usually	Always
Turn lights off in unused rooms	Never	Rarely	Sometimes	Usually	Always

- G. Did you study sustainability, sustainable consumption behaviors, or environmental & climate change issues-related modules/lectures during your Undergraduate, Master's, or PhD?
1) Yes 2) No
- H. Do you think those environmental-related modules/lectures provide sufficient knowledge to understand environmental and climate issues?
1) Never 2) Rarely 3) Sometimes 4) Usually 5) Always
- I. Do you think studying those environmental-related modules/lectures is helping you change your behavior/attitude toward environmental protection?
1) Never 2) Rarely 3) Sometimes 4) Usually 5) Always

Please answer the questions as best suited to you from

SD= Strongly Disagree; D=Disagree; N=Neutral; A=Agree; SA=Strongly Agree						
		1	2	3	4	5
Environmental knowledge		SD	D	N	A	SA
EK1	I have good knowledge about sustainable consumption and environmental issues	1	2	3	4	5
EK2	I have knowledge about the sustainability or environmentally-friendly symbols/signs used on product packages	1	2	3	4	5
EK3	I am knowledgeable about sustainable consumption behavior (e.g., green products, organic food or energy-saving product)	1	2	3	4	5

Climate concern		SD	D	N	A	SA
CC1	I am very worried about the effects of the world's climate change	1	2	3	4	5
CC2	I am willing to reduce my consumption to protect against climate change	1	2	3	4	5
CC3	Major political and social changes are necessary to protect the natural environment and climate change	1	2	3	4	5
Attitude		SD	D	N	A	SA
AT1	I believe that sustainable consumption behavior will help in reducing pollution and improving the environment	1	2	3	4	5
AT2	I believe that sustainable consumption behavior will reduce the waste of natural resources	1	2	3	4	5
AT3	I believe that sustainable consumption by me will help in conserving natural resources	1	2	3	4	5
AT4	I feel good/satisfied about myself when I am involved in sustainable consumption	1	2	3	4	5
Subjective norms		SD	D	N	A	SA
SN1	My family expects me to engage sustainable consumption for example purchasing environmentally-friendly products	1	2	3	4	5
SN2	My friends/neighbors encourage me to adopt sustainable consumption	1	2	3	4	5
SN3	My society expects me to engage in sustainable consumption e.g., purchasing environmentally-friendly products	1	2	3	4	5
Perceived Behavioral Control		SD	D	N	A	SA
PBC1	I have knowledge, information, opportunities, and willingness to purchase environmentally-friendly products and to adopt sustainable consumption behavior	1	2	3	4	5
PBC2	I can make my own decisions about purchasing environmentally-friendly products	1	2	3	4	5
PBC3	I can afford to purchase environmentally-friendly products	1	2	3	4	5
Green perceived value		SD	D	N	A	SA
GPV1	I think the quality of environmentally-friendly products would be reliable and good quality	1	2	3	4	5
GPV2	Environmentally-friendly products offer good value/price for me	1	2	3	4	5
GPV3	I think sustainable consumption make me feel good and create a good image in other people's eyes	1	2	3	4	5
GPV4	I think sustainable consumption offer more environmental benefit than non-green products	1	2	3	4	5
GPV5	Sustainable consumption or environmental-friendly products offer more health benefits than non-green products	1	2	3	4	5
Green marketing tools (advertising, label & brand)		SD	D	N	A	SA
GMT1	Environmental advertisement enhances my knowledge about green/sustainable products	1	2	3	4	5
GMT2	Environmental advertisements guide customers in making awareness of green purchasing decision	1	2	3	4	5
GMT3	I am aware of the eco-label	1	2	3	4	5
GMT4	Eco-label/ logo is easily identifiable to me	1	2	3	4	5
GMT5	I am aware of the eco-brands	1	2	3	4	5
GMT6	Eco-brand is a symbol of product reliability and trustworthy	1	2	3	4	5
Green Trust		SD	D	N	A	SA
GT1	I think environmentally-friendly products are generally reliable and trustworthy	1	2	3	4	5
GT2	Environmentally-friendly products meet my expectations regarding environmental issues	1	2	3	4	5

GT3	I feel that environmentally-friendly products keep promises and commitments to environmental safety and protection	1	2	3	4	5
Policy Support/government support		SD	D	N	A	SA
GS1	Government rules and regulations make me tend toward sustainable consumption	1	2	3	4	5
GS2	Government is strongly supporting the development of sustainable consumption	1	2	3	4	5
GS3	Government encourages people to purchase environmentally-friendly products and adopt sustainable consumption	1	2	3	4	5
SD= Strongly Disagree; D=Disagree; N=Neutral; A=Agree; SA=Strongly Agree						
		1	2	3	4	5
Green word-of-mouth		SD	D	N	A	SA
GWoM 1	Due to environmental image, sustainable consumption behavior is highly recommended by others (e.g., sports person, actors, singers, influencer person)	1	2	3	4	5
GWoM 2	Due to its environmental performance, environmentally-friendly products have received positive feedback	1	2	3	4	5
GWoM 3	Social media (e.g., Facebook) have enhanced knowledge about sustainable consumption or environmentally-friendly products	1	2	3	4	5
GWoM 4	Newspapers, Magazines, and social media reviews are good sources of promoting sustainable consumption and environmental issues	1	2	3	4	5
Price sensitivity		SD	D	N	A	SA
HPS1	The environmentally-friendly products are not reasonable price	1	2	3	4	5
HPS2	I am willing to spend extra money to purchase environmentally-friendly products that have good quality	1	2	3	4	5
HPS3	I think the prices of environmentally-friendly products are in line with the value of the products	1	2	3	4	5
HPS4	Price is not an important factor when I decide to buy an environmentally-friendly products	1	2	3	4	5
Greenwashing concern		SD	D	N	A	SA
GWC1	I am concerned that green products are not produced with environmentally friendly materials in sustainable ways	1	2	3	4	5
GWC2	I am concerned that environmentally-friendly products are only pretending / misrepresent their green image	1	2	3	4	5
Green purchase behavior		SD	D	N	A	SA
GPB1	I often buy organic food that contains no or fewer chemical ingredients	1	2	3	4	5
GPB2	I prefer organic food over non-organic food when the product quality is similar	1	2	3	4	5
GPB3	I tend to buy environmentally-friendly/sustainable products	1	2	3	4	5
GPB4	I often buy products that use recycled/recyclable packaging	1	2	3	4	5
GPB5	I try to buy energy-saving household appliances that don't harm the environment	1	2	3	4	5
GPB6	I have purchased energy-saving household appliances because it uses less electricity than other non-energy-saving products	1	2	3	4	5
GPB7	I hope to use energy-saving products as much as possible	1	2	3	4	5
Recycling and resource conservation behavior		SD	D	N	A	SA
RRCB1	I am willing to recycle used appliances	1	2	3	4	5
RRCB2	I am willing to recycle used clothes	1	2	3	4	5
RRCB3	I intend to reduce water consumption (Turn off the tap when soaping up/cleaning teeth/ washing dishes)	1	2	3	4	5
RRCB4	I am willing to save energy when it is possible, e.g., Turn off the lights	1	2	3	4	5

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Sincerely,

[Nekmahmud Argon](#)

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21 November 2023