



Catalysts of Green Product Adoption: Environmental Implications and Sustainable Strategies Using a Binary Logit Model



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Received: 06-08-2025

Revised: 08-01-2025

Accepted: 09-24-2025

Citation: P. Kudal, S. Dawar, A. Patnaik, P. Dawar, and S. Panwar, "Catalysts of green product adoption: Environmental implications and sustainable strategies using a binary logit model," *Int. J. Environ. Impacts.*, vol. 8, no. 5, pp. 970–983, 2025. <https://doi.org/10.56578/ijeio80511>.



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Abstract: This research investigates the complex interplay between consumer behavior and green product adoption, uncovering key drivers and implications for sustainable consumption strategies. Green products, geared towards reducing environmental impacts, are gaining prominence in the wake of heightened environmental consciousness. However, understanding the multifaceted factors influencing consumers' decisions to embrace such products remains a challenge. Leveraging a binary logit model and drawing on the theory of consumption value, this study explores the intricate dynamics of consumers' choices within the context of environmentally friendly products. Data from a Likert scale questionnaire, completed by 922 participants across three Indian cities, forms the foundation for analysis. The study reveals that consumers' adoption of green products is significantly influenced by attributes such as Social Value, Environmental Concern, Pricing, and Conditional Value. These factors reflect the intricate balance between societal impact, emotional connections, and economic considerations in shaping purchasing behavior. While Quality, Emotional Value, and Epistemic Value exhibit nuanced impacts, they collectively underscore the complex decision-making process. The binary logit model is used in predicting green product buying behavior in modelling consumer preferences based on diverse predictor variables. Leveraging a binary logit model and the theory of consumption value, the study analyzed survey data from 922 participants across Mumbai, Pune, and Jaipur. The model revealed that Social Value ($p = 0.0048$), Environmental Concern ($p = 0.0444$), Conditional Value ($p = 0.0887$), and Pricing ($p = 0.05339$) significantly influence green product adoption. The model achieved an accuracy of 88.73%, confirming its robustness in predicting green purchasing behavior. These findings hold practical relevance for policymakers and marketers aiming to bridge the intention-action gap. Strategies such as enhancing the social appeal of green products, transparent pricing communication, and targeted environmental awareness campaigns are recommended to drive sustainable consumer choices. Collaborative partnerships among stakeholders, incentives, and addressing misconceptions are recommended strategies to bridge the gap between intention and action in adopting environmentally conscious behavior.

Keywords: Green product adoption; Sustainable consumption; Theory of consumption value; Environmental concern; Social value; Emotional value

1 Introduction

Green products are those that reflect what has been accomplished to check, bound, reduce, or mark dangerous environmental effects on air, soil, and water. They represent at least one method for determining issues linked to garbage, noise, and overall damage done to the ecosystem, and they are a channel for producing goods and services that are to the environment's benefit [1]. Customers are regarded to have a greater concern for the environment when their consumption Behavior shifts towards a greater emphasis on environmentally conscious products and services, as well as when customers adjust their shopping habits to become more environmentally conscious [2]. As a consequence of this, consumers' comprehension of the eco-labeling of environmentally friendly items starts to impact their decision-making process throughout all of its stages [3]. It is common knowledge that providing consumers

with recycling information leads to an increase in the percentage of households who recycle [4]. Self-declaration assertions on green product packing to the result that the product is ecologically friendly, organic, ozone-friendly, pesticide-free, and biodegradable all aid the consumer's buying process in selecting items that may enhance their overall health in some way [5]. At the same time, customers who make these kinds of decisions experience feelings of responsibility and concern for the environment. Despite the significant amount of work that has been put into making eco-labelling of environmentally friendly products more efficient and competent, the market share of such products is yet relatively minimal [6]. Some consumers may have a negative outlook on environmentally friendly products, but this does not negate the fact that there are many more who are enthusiastic about green options. One reason why people don't like eco-friendly items is because they think they cost too much more than regular ones. Customers on a limited budget aren't always willing to spend a little more for green items. The misconception that eco-friendly options are less functional than their conventional counterparts also contribute to the general public's distaste for these items. When it comes to cleaning and disinfecting, for example, some consumers may question whether green goods really work. In addition, the lifespan and sturdiness of green goods is a worry for certain consumers.

All socioeconomic classes should prioritise sustainability. People who care about the environment and society or their health tend to cluster in certain demographics, but this is not always the case. While 49% of Indian consumers are concerned about their health, 20% are concerned about the environment and society. Personal effect due to environmental difficulties has been the catalyst that has driven the Indian consumer to go towards sustainable products, followed closely by family and friends who have affected their decisions. One important pattern that has been seen is that even while customers have a rising interest in environmentally friendly items, they are still in the beginning phases of buying them. 62% of customers in India are eager to spend more money on items that clearly demonstrate their commitment to sustainability, yet there is a discrepancy between their intentions and their actions [7]. Customers' lack of knowledge is the most common reason why they do not purchase environmentally friendly products. Other common reasons include the high cost of organic goods in comparison to the cost of conventional goods, the sale of products that are not entirely sustainable, and the limited availability of brands that sell environmentally friendly goods. If sellers and policy creators are serious about reducing ecologically damaging Behavior and closing the attitude-Behavior disruption, they need a deeper grasp of the connection between concern and action. As awareness grows, consumers may become more eco-conscious, and their spending habits may shift in favour of greener products [2].

Consumers' day-to-day actions may be influenced by the dissemination of information about the environment and the deterioration of weather patterns. According to the findings of consumer research, knowledge is an attribute that has an impact on every stage of the decision-making procedure [8]. Customers who are interested in trying innovative things could do so in an attempt to increase the amount of potentially helpful information and problem-solving abilities in their data banks [9]. As a result, customers may choose for environmentally friendly products in reaction to actions taken to address environmental issues. The qualities of green goods, such as their capacity for recycling, low levels of pollution, and high degree of resource utilisation, are likely to elicit a range of reactions in consumers, including feelings of responsibility towards the environment [10]. Additionally, authorities and green organisations give grants or marketing in order to persuade consumers to make environmentally conscious choices. Peer opinion or personal reasons could also have a role in consumers' selections about environmentally friendly products and services [11]. A consumer's choice to engage in environmentally conscious Behavior might be influenced by the opinions of their contemporaries [12]. In settings where one's peers engage in environmentally conscious actions, one is more likely to follow suit and make environmentally responsible choices, such as participating in activities designed to save the natural world and recycling materials. In addition, it is well known that the price of the product as well as its quality are factors that customers consider when determining whether or not to buy a green product [5]. Even though customers buying recycled items or organic goods often take price and quality into consideration but still rising number of consumers are reporting that they are enthusiastic to offer a higher fee for items that have a minor effect on the natural ecosphere [13, 14]. Effective marketing communications are generally agreed upon to need a focus on the connection between customer values and motivation. The significance and drive behind purchases are likely rooted in consumerist ideals. The theory of consumer choice of values may aid practitioners, policymakers, and academic researchers in gaining insight into the factors that influence consumers' decision-making processes [15]. This is made feasible by the theory's insight into customers' most important values. This is possible within the framework of the idea since it focuses on the priorities of individual buyers.

As a theoretical framework for confirming the elements that have an impact on consumer choice Behavior, this research relates the theory of consumption values (also known as consumption values theory) to green goods. The Consumption Values Theory is a marketing concept that posits that customers make their purchase decisions based on a set of values that influence their Behavior. The aforementioned theory was formulated with the purpose of elucidating the underlying reasons for the Behavioral patterns exhibited by consumers. The values under consideration can be categorised into functional, conditional, emotional, social, and epistemological domains. The phrase "functional values" pertains to the benefits that a commodity or amenity provides in relation to its functionality, including its user-friendliness or its reliability. The usefulness or worth of anything may be evaluated dependent on a certain state

or scenario, and this evaluation is referred to as conditional value. Rather than referring to anything's intrinsic or absolute worth, it emphasises the value that something has in the specific context in which it is used. The conditional value of anything may be affected by a wide range of circumstances, such as an individual's tastes, the norms of a culture, or the conditions of their surroundings. The phrase "emotional values" pertains to the emotional gratification or enjoyment that a commodity or amenity may offer, such as elation or stimulation. The provision of values to consumers can be facilitated by a product or service. The concept of social value pertains to the social recognition or status that a product or service may confer, such as prestige or a sense of social belonging. The concept of "epistemic values" pertains to the fulfilment of a consumer's desire for knowledge or curiosity through a product or service, often achieved through the process of learning or discovery. Marketers can enhance the efficacy of their marketing strategies by comprehending the core values that are of utmost significance to their intended audience, thereby enabling them to tailor their approach to align with the values that are most salient to their target customers. The comprehension of customer values enables marketers to create products, services, and marketing messages that resonate with their intended audience, resulting in increased sales and customer loyalty. This underscores the importance of leveraging customer Behavior insights to inform the development of marketing approaches.

The importance of green product adoption for eco-friendly sustainability is emphasized in marketing literature. However, consumers' assessments of the crucial factors driving the adoption of green products exhibit notable differences. Leveraging insights from the intersection of consumer Behavior and marketing strategies, the research employs a binary logit model to explore adoption patterns of green products [16]. It is observed that people do wish to buy green products, but that wish is not converted to actual buying. The reason for the same is primarily price conscious Behavior of people in India.

There have been a lot of research on how people around the world buy green products, but there is still a big vacuum in our understanding of what makes Indian customers buy green products. This is a market that is very vulnerable to environmental issues, has a wide range of socioeconomic backgrounds, and is fast rising in the number of green consumers. This study fills in the gaps by using consumer value theory in India to give culturally relevant information about what Indian customers value most when they buy green products. Also, using a binary logit model is a methodological improvement because it lets you accurately and statistically estimate the chances of people adopting green products based on their different value perceptions (such functional, emotional, environmental, and social values). This two-pronged approach not only fills in the gaps in theory by applying consumer value theory to green marketing, but it also helps in practice by finding actionable consumer segments and value-driven strategies for marketers and policymakers who want to promote sustainable consumption in emerging economies. As a result, the purpose of the theory is to broaden people's awareness of consumer choice Behavior and to provide assistance in the area of practise, policymaking, and academic study who are involved in establishing what drives certain decisions. As people become more environmentally conscious over time, it is inevitable that studies analysing green consumers will persist to be of pursuit. As a consequence of this, the results of any one study will not inevitably continue to be valid forever. The goal of any new study on environmentally friendly goods should always be to discover probable shifts in the attitudes, intentions, and Behaviors of consumers. This research analyses consumer consumption values and choice Behavior regarding environmentally friendly goods. The findings of this study contribute to a skilled knowledge of the significant influencing elements that play a role in the Behavior of customer choice.

2 Literature Review

2.1 Theory of Consumption Value

According to the idea of consumption values, a consumer's motivations for making a purchase may be pinned down to a core set of values. It's connected to the idea of customer value, which centres on how much a consumer appreciates a product or service compared to what it costs. Marketers may boost customer value and satisfaction, which in turn increases customer loyalty and retention, provided they have a firm grasp on the numerous sorts of values that customers want from goods and services. The theory of consumption value (TCV) is a major view in the second proclivity and has been favoured for researching perceived value by consumers in a variety of studies since it emphasises both utilitarian and hedonic senses of perceived value with multi-dimensional techniques [15]. As a multidimensional method, the TCV looks at consumption value from the point of view of action and gives types of felt value [17]. This theory makes it easier to understand what drives consumer Behavior by anticipating, characterising, and explaining decision-making in terms of consumption values. The TCV offers a holistic perspective for research into consumer decision-making since it draws from finances, promoting, consumer Behavior, psychology, and sociology [18]. As shown in Figure 1, TCV's five consumer values—functional value, emotional value, conditional value, epistemic value and social value—explain why people purchase some products and why they don't buy others, as well as which brands people prefer. The magnitude to which a certain extent of consumer want is satisfied by the overall assessment of customers' net utility or gratification associated to a product after buying is what is meant when we talk about a product's consumption value [19].

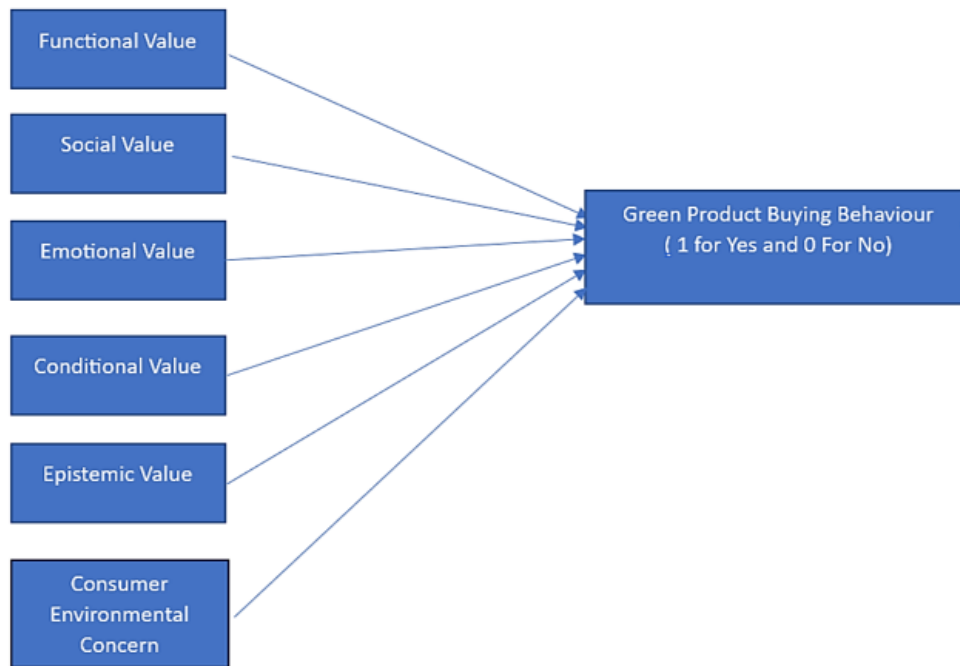


Figure 1. Model adopted from theory of consumption value

In addition to TCV, the literature on consumer Behavior also makes use of another theoretical method created by study [20]. This approach seeks to explain the rationale behind purchasing Behavior by focusing on the role of social influence. The ten fundamental values that are recognised throughout cultures and utilised to establish value priority are success, hedonism, power, self-direction, stimulation, traditionalism, universalism, compassion, security, and obedience. This approach to theory places an emphasis on the composition of vibrant links between the principles [21]. Each value's motive is represented as a segment of the value's circular structure. This cyclical framework, which simultaneously captures value conflicts and compatibility, seems to be culturally ubiquitous. The values, which are rooted in the individual, are useful for connecting customers' motive for making a purchase with their own ideals. Values associated with usage of a product category, or brand are derived from actual use, and the TCV helps explain this rationale. Furthermore, the TCV does not comment the culturally collective features of the ideals, and it emphasises individual relationships among the absolute values as a central manifest proposition. In sum, despite their differences, both theories provide theoretical insight into consumer conduct based on values.

In psychology, the organismic integration theory [22], a sub-theory of the self-determination theory, is also useful for explaining consumer Behavior motivation via extrinsic motivation and perception of locus of causation [23]. This is because the organismic integration theory is a sub-theory of the self-determination theory in psychology. External motivation is determined by four types of regulation: induced regulation, external regulation, integrated regulation and identified regulation [24]. These forms of regulations define a behavior's internationalisation [25]. These rules (with the exception of integrated regulation) have been evaluated as potential motivators for environmentally conscious actions and brand passion [26]. While the TCV explains consumer Behavior from a perspective centred on perceived value, this theory focuses on the role that rules play in driving consumer Behavior. Statements with similar meanings to those in the fields of recognised regulation and expressive value (because they denote to emotions like evading shame) and external regulation and social value (because they pertain to things like social standing and prestige) are possible.

Despite making significant contributions, the TCV has been heavily criticised in the literature on consumer Behavior. The first criticism is the theory's central claim that separate properties of value dimensions may be identified. Multidimensional methods in consumer perceived value were proposed by research [27], who argued that value dimensions are interconnected. The researchers claim that consumers may get both emotional and practical satisfaction from a single purchase. They cited research that suggests a link between hedonic and utilitarian aspects of attitude, as well as between a number of other multidimensional constructs in the literature (including, for example, measures of retail service quality). The second criticism has to do with how well the thing works. In the TCV, this value is based on a product's stability, durability, and price, among other things. Quality and price are both parts of practical value, but they affect perceived value in different ways. Quality has a optimistic effect, while price has an adverse one [27]. TCV doesn't give a good culture account of purchasing values [28]. The reason is quickly stated under social value. Another criticism is that the TCV is too narrow because it only shows how value affects how

customers make decisions. But perceived value also affects other things that customers do, like how satisfied they are, what they plan to do, and how loyal they are. So, it was suggested that the TCV include other Behavioral results besides the buying decisions setting to broaden the views [29]. Other criticisms focus on epistemic and conditional value. When it comes to the acquisition of durable product, epistemic value is probably less important. Due to the fact that the conditional value is specified as a particular case of other value types, they determined that it should be given a lower priority than the other value kinds [27].

Despite these criticisms, in this paper we consider the TCV to be a wonderful piece of work because of the addition it made to the body of literature on consumer choice Behavior.

There are three basic propositions that are regarded axiomatic within the scope of the theory of consumption values: (1) Consumer choice is a function of several consumer values, (2) different consumer values contribute differently in each decision situation, and (3) different consumer values are independent of one another. Study [15] found that over 200 applications had strong predictive validity. It influenced purchase decisions (smokers vs. nonsmokers), product selection (filtered vs. unfiltered cigarettes), and brand selection (Marlboro vs. Virginia Slim). The most important factor in identifying smokers from nonsmokers is emotional value, followed by functional value in distinguishing smokers who prefer filtered cigarettes and social value in distinguishing Marlboro smokers. Study [30] used the idea to divide customers into various categories based on their views and ties to service providers. Study [27] developed a perceived value scale that measures brand-level consumer perceptions of durable commodity value by combining functional, social, and emotional elements. Because epistemic and conditional value may be less important when purchasing a durable, the purpose was to develop a general value measure. This analysis covers all five consumption values after analysing green product attributes.

Functional, emotional, social, epistemic, and conditional values all influence consumer decisions, therefore the TCV is a helpful tool to understand why people buy green products. One-dimensional behavioural paradigms like the Theory of Planned Behaviour (TPB) focus on attitudes, subjective norms, and perceived behavioural control. TCV helps us examine sustainable consumption value judgments. TPB is often used to study pro-environmental behaviour, but it emphasizes intention over value-based motivations. This may make it less useful for understanding why customers prefer green items over ordinary ones, especially when there are trade-offs like cost, availability, or performance. TCV, which emphasizes values, is ideal for this study's purpose of identifying the consumption values that make customers buy green items. The Indian economy is broad, environmental consciousness is growing, and people are buying items based on value. TCV provides a culturally and behaviourally acceptable theoretical foundation. Combining TCV with binary logit modelling advances green marketing theory and practice. It displays adoption probabilities and value frameworks that influence these choices. The following section discusses values and their literature.

2.2 Functional Value

An option's functional, utilitarian, or physical working capability that gives it the illusion of being more useful than it actually is. An alternative's functional value can be boosted by ensuring that it possesses noticeable functional, utilitarian, or physical attributes. The functioning value is determined by a set of desirable attributes. Study [15] believed functional value drove customer choice. Consumer utility depends on dependability, durability, and pricing. If price is excessively high, the customer may trade-off elements. Green goods reduce waste, resource use, and pollution. Consumers may assist the earth by using green goods. Natural, non-toxic ingredients are used to make them. This reduces chemical exposure and improves health. Green goods are often energy efficient. Energy-efficient light bulbs utilise less power, lowering energy expenses and carbon emissions. Green goods may cost more initially, but they may save customers money over time. Energy-efficient appliances may cost more upfront, but they may save energy costs over time. In the previous five years, 85% of people globally have adjusted their purchasing patterns to be more environmentally friendly [31]. Austria has the highest percentage of consumers who have adjusted their shopping habits or lifestyle to be more environmentally friendly (42%), followed by Italy (41%), Spain (35%), and Germany (34%). 22 percent of US customers indicate significant Behavioral changes, whereas 55 percent report very moderate changes [31]. 34% of the population is willing to pay more for environmentally friendly goods or services, and they would accept a 25% premium on average. Consumer products have the greatest readiness to pay for sustainability (38%) and Energy/utilities the lowest (31%). Interestingly, consumers are prepared to pay the lowest sustainability premium (22%) and financial services the most (27%). Sustainable firms are growing worldwide because a large part of customers is prepared to pay for sustainability. Sustainability and cleanliness will become standard as demand for sustainable goods develops [31].

2.3 Social Value

The value that people believe they will receive as a result of their identification with one or more specific social groups. The social worth of an option can be enhanced or diminished based on whether it is connected with stereotyped demographic, socioeconomic, or cultural-ethnic groups. The social value is assessed using an imager that corresponds

to a profile of choice. According to the work of [15], “social value” refers to the “perceived utility” gained by membership in one or more distinct social groupings. To feel social pressure to endorse and adopt a certain Behavior style is an example of the subjective norm construct [32]. Personal norms and moral attitudes are principles or ideals that inform motivation as a result of anticipated self-administered rewards or penalties [33], whereas subjective norms reflect external social pressure, such as personal opinions of what peers believe an individual should do. Green goods may increase quality of life by making the environment healthier and safer. Green cleaning solutions increase indoor air quality and minimise respiratory issues. It may foster communal cooperation. Community gardening and composting may foster social engagement and environmental sustainability. Green product invention, manufacturing, and distribution may boost local economies. Renewable energy has spawned numerous manufacturing, installation, and maintenance employment. Green items show ethical consumerism. This may foster sustainability, justice, and responsibility and inspire others to make similar decisions. Environment-based marketing should be connected to benefits. Thus, marketers must demonstrate how green consumers help the ecosystem. The proportionate significance of altruism is an argument that businesses need to directly relate the environmental measures they do with positive outcomes and show how others benefit from these actions [11]. Consumers that desire to prevent negative things are willing to find more information sources when confronted with social risk [34]. Expert opinion appears to be a powerful technique to lessen people’s perceptions of how unsafe something is.

2.4 Emotional Value

The value that peoples believe they get from an option because of its ability to stir up their emotions or affective states. When a certain sensation is connected with a particular alternative, or when that option precipitates or perpetuates that feeling, the alternative has emotional worth. The emotional value of an option is determined by analysing a profile of the sentiments associated with it. The potential of an option to elicit emotions or affective states is the source of emotional worth, which may be defined as the perceived usefulness obtained from that capacity [15]. Products and customer services are commonly linked with a variety of psychological reactions. Their constructions, in contrast to those of other measures, incorporate elements that are both utilitarian and hedonistic [27]. Green items may make people feel good about helping the environment. This may boost self-esteem. It can make people feel like they’re helping others. Green items, manufactured from natural materials and intended to be environmentally friendly, may make people feel more connected to nature. This may calm you. Green goods may improve health and happiness. The attraction of a product or service is a combination of logical and sensitive aspects, and studies have shown that sentiments are involved in each aspect of the consumer decision-making process.

2.5 Conditional Value

The perceived value that an option obtains as a consequence of the distinctive scenario or sequence of conditions that the decision creator is faced with at the time of making the choice [15]. It is argued that an alternative has gained conditional value when there are preceding natural or social factors which improve its practical or social worth. This is because these conditions increase the likelihood that the alternative will occur [35]. The value of conditions is determined based on a profile of the many possibilities. A circumstance like this is one in which all the components pertain to specific in that times and locations and do not differ on individual knowledge or inducement qualities (option of substitute), both of that have clear and organised impacts on present performance [36]. Individuals’ responses to stimuli that are relevant to their needs and want. These are affected by conditional factors, which are the situations in which customers find themselves. Changes in personal circumstances, often known as consumer situational factors, have the potential to have an impact on consumer purchasing Behavior. Green items may not be accessible everywhere, reducing their value. Infrastructure, distribution methods, or customer demand may be to blame. These items may be more costly than conventional ones, limiting their utility to budget-conscious customers [37]. However, product lifespan cost savings may offset this. Green goods may seem less effective or attractive to certain customers. As green products become mainstream and their benefits become better known, this perception may change. Conditional value had an effect on consumer choice Behavior in the sense that customers paid attention to warnings regarding the effects of their purchases on the environment as they were making their purchases. Nevertheless, conditional value is not a significant predictor of continued environmentally responsible consumption Behavior [19].

2.6 Epistemic Value

Perceived value received from a substitution’s ability to provoke interest, give originality, and fulfil a want for information. This perceived usefulness may be achieved through an alternative’s capacity to fulfil a desire for expertise [15]. The answers to questionnaire questions that allude to things like knowledge, interest, and novelty might give an option an epistemic worth. The field of consumer research acknowledges that knowledge is a trait that may have an effect on all stages of the decision-making process. In addition to the requirements that come along with a purchasing scenario, consumer familiarity with a product also plays a vital part in the process of deciding whether or not to embrace a new product [8]. When customers are presented with a new product, they make their

choice on whether or not to purchase it built on a mix of their understanding with a product class that they are already acquainted with and the information that is shown to them regarding the new product [38]. The process of adopting an innovative product demand that there be a corresponding explanation between the customer's perceived conditional factors and product traits [39]. This is a prerequisite for the adoption process. Self-preservation may be achieved by the pursuit of novel experiences, and a person may discover that it is helpful to compile a database of information that might be of service to them. Green items commonly list their carbon footprint or recycled content. This may help consumers make more educated purchases. Green goods involve research into novel materials, technology, and manufacturing processes. This may lead to sustainability and environmental science breakthroughs. Green goods may help environmentalists collaborate and share information. This may inspire new environmental solutions. Green items may also raise awareness of environmental concerns and one's own use. This may improve environmental awareness. The epistemic value of green products, which includes factors like product characteristics and design, has a sizable impact on consumer Behavior, as evidenced by people's propensity to buy products because of their prior exposure to the brand, interest in trying out something new, or just plain curiosity [40]. Consumers might be smart to look for information that isn't useful right now but might be important in the future. Another reason why people look for new things is that it helps them get better at handling problems.

2.7 Consumer Environmental Concern

The term "consumer environmental concern" as shown in Figure 1 encompasses people's knowledge, feelings, and actions in regard to environmental problems and long-term sustainability. Consumers that care about the environment are more likely to consider the items' environmental effect while making purchases and to take steps to lessen their own personal influence on the environment." encompasses people's knowledge, feelings, and actions in regard to environmental problems and long-term sustainability. Consumers that care about the environment are more likely to consider the items' environmental effect while making purchases and to take steps to lessen their own personal influence on the environment [41]. Educated consumers are more ecologically conscious. This may be accomplished by programmes including education, the media, and the environment. customers who are more environmentally concerned are sustainable customers [42]. Reducing energy use, recycling, and buying green goods are examples. Standards and sustainability measures created by government may influence consumer environmental concern. Environmental concern is often viewed as a key extrapolative predictor of ecologically friendly Behavior, and it promptly stimulates ecological purchasing intention [43]. This is a commonly used concept to explain pro-environmental Behavior, sustainable Behavior, and a variety of other related concepts. customers with a strong feeling of personal accountability for the state of the environment were shown to be more worried about environmental issues and more inclined to purchase items and services with a smaller environmental impact. As a result, green consumption intent will follow environmental concern as the intermediate step on the path to environmental responsibility.

Early on, academics struggled to provide a precise definition of "environmental concern" [44] and some even attempted to equate "environmental concern" with "environmental attitudes" [45]. While there are academics who hold the view that environmental concern is a self-evident concept, there are also academics who find it challenging to give an abstract concept of environmental concern. Therefore, the idea of environmental concern can largely be understood through its operational definition, and various lines of research have yielded a variety of operational concepts. Study [46] developed the New Ecological Paradigm (NEP) scale. It is largely acknowledged to be the first quantitative gauge of environmental concern. To this point, environmental concern has been divided into two categories: environmental concern for specific environmental issues (for example, an attitude towards garbage disposal or water pollution) and environmental concern that is both inclusive and worldwide (for example, opinions on a diversity of ecological predicament issues and outlooks towards the human-environment relationship). In the course of our research, we decided to adhere to the second definition, which takes into account environmental concern as an all-encompassing and generalised perspective on environmental issues.

A person's mindset may be used as a reliable indicator of their intentions about their Behavior towards the surroundings [47]. Concern for the environment is positively correlated with actions that are good for the environment [48]. When consumers have a more positive attitude towards the environment, they are more likely to have the intention to cease making purchases from businesses that contribute to pollution and to make personal sacrifices in order to reduce the rate of pollution. This, in turn, leads to consumers behaving in a manner that is friendlier to the environment. There was a considerable correlation between high levels of environmental activism and the values that individuals said they placed a high amount of significance on in their lives [49]. People who are more likely to behave environmentally friendly have the following characteristics: an awareness of a variety of environmental problems and the consequences of their Behavior in response to those problems; a concern for solutions; a belief that individual efforts calculation in solutions; and a inclination to transfer their possessions (money, time, and attention) to make more environmentally friendly personal Behavior. Consequently, consumers who are more afraid about their environmental impact than usual are more inclined to try to change their Behavior.

3 Research Methodology

The relevance of green product uptake for environmental sustainability is emphasised in marketing literature. Consumers' assessments of the important elements (for adopting green products) vary significantly. A binary logit model is used in this study, which is based on a consumer-marketing interface. Applying a binary logit model in the theory of consumption value involves utilizing the model to analyze and understand consumers' adoption or purchase decisions based on various attributes or factors associated with organic or green product. The theory of consumption value suggests that consumers evaluate products not only based on their functional benefits but also on the emotional, social, and experiential value they offer.

3.1 Research Objectives

- To identify key drivers of green product buying behavior.
- To investigate green product buying behavior using logistic regression.
- To provide suggestions to policymakers in order to address when promoting environmentally conscious consumption.

3.2 Sample Size

This study included data from 922 people in three Indian cities: Mumbai, Pune, and Jaipur. Mumbai, Pune, and Jaipur were chosen on purpose to show how different regions behave when it comes to shopping, building cities, and being aware of the environment. Mumbai is a big city, Pune is a growing city with a lot of young people and technology, and Jaipur is a culturally rich but changing market. The researcher used a convenience sample method, which meant that they got information directly from customers in stores and retail outlets that sell organic and eco-friendly goods. This strategy didn't use probability, but it did let us talk directly to consumers who were actively buying green products. The sample had a wide range of demographics. The respondents were between the ages of 18 and 60 and had monthly earnings ranging from 20,000 to 1,00,000. This made sure that the results were valid outside of the study.

3.3 Data Collection

Data was collected from three cities in India using a structured questionnaire designed to measure the predictor variables and the binary outcome variable indicating green product buying behavior. The binary logit model was used in this study since the dependent variable, Green Product Buying Behaviour, could only have two values. This approach is great for figuring out the chances of a binary result based on more than one predictor. Multinomial logit or probit models can also work, although they are better when the dependent variable contains more than one category or when you think the errors are typical. The binary logit model is easy to understand because it uses odds ratios. It is also commonly used in behavioural research that look at adoption decisions. We examined some of the main assumptions of logistic regression to make sure they were strong. For example, we used the Box-Tidwell transformation to check that the logit was linear for continuous variables, and we checked that there was no autocorrelation in the residuals to make sure that the mistakes were independent. The model fit well and made accurate predictions.

3.4 Variables

Outcome Variable: Green Product Buying Behavior (1 for Yes, 0 for No) as shown in Figure 1.

Predictor Variables: Quality, Pricing, Social Value, Emotional Value, Conditional Value, Epistemic Value, Environmental Concern.

3.5 Procedure

Data Preparation: The collected data was cleaned, coded, and organized for analysis.

Software and Packages: RStudio is used for model building and "ROCR" package is used for prediction and accuracy calculations.

3.6 Binary Logit Model

A binary logit model, short for "Logistic regression model," is a statistical technique used to analyse relationships between one or more predictor variables and a binary outcome variable. The binary outcome variable takes on only two possible values, typically coded as 0 and 1, representing two categories or groups. A binary logit model's principal application is to forecast the likelihood of an event occurring, such as whether a consumer will buy a product (1) or not (0), based on certain predictor factors. Here's how a binary logit model works:

• Binary Outcome Variable (Dependent Variable)

The outcome variable is binary in nature, representing two mutually exclusive categories. For example, in the context of customer purchase Behavior, the outcome could be whether a customer makes a purchase (1) or not (0).

- **Predictor Variables (Independent Variables)**

Predictor variables are factors that you believe influence the binary outcome. These can be quantitative (continuous) or categorical variables. For customer purchase Behavior, predictor variables might include customer age, income, gender, and marketing campaign exposure.

- **Logit Transformation**

The logistic transformation, also known as the log-odds transformation, is applied to the probability of the binary outcome. This transformation converts the linear combination of predictor variables into a range from negative to positive values, helping to ensure the probability remains within the valid range of 0 to 1.

- **Model Equation**

The logistic regression equation is formulated using the logit transformation. It looks like:

$$\log \left(\frac{p}{1-p} \right) = \beta_0 + \beta_1 \chi_1 + \beta_2 \chi_2 + \dots + \beta_k \chi_k$$

where, p is the probability of binary outcome (1), $\chi_1, \chi_2, \dots, \chi_k$ are predictor variables and $\beta_0, \beta_1, \dots, \beta_k$ are the coefficients estimated from the model.

- **Model Estimation**

Using statistical methods, the model coefficients $\beta_0, \beta_1, \beta_2, \dots, \beta_k$ are estimated to maximize the likelihood of observing the actual binary outcomes given the predictor variables.

- **Interpretation**

Coefficient estimates indicate the change in the log-odds of the binary outcome for a one-unit change in the corresponding predictor variable, while holding other variables constant.

- **Prediction and Inference**

Once the model is estimated, we can use it to predict the probability of the binary outcome for new observations and make statistical inferences about the significance of predictor variables.

3.7 Validation of Binary Logit Model

To validate the predictive power of the binary logit model, the dataset was randomly split into training and testing subsets in a 70/30 ratio. The training dataset (70%) was used to develop the model, while the testing dataset (30%) evaluated its accuracy. Model performance was assessed using the Receiver Operating Characteristic (ROC) curve, with the model achieving an accuracy of 88.73%, indicating a strong ability to distinguish between adopters and non-adopters of green products. To further ensure model reliability, k-fold cross-validation ($k = 5$) was performed, which confirmed the model's stability and minimized the risk of overfitting.

Here's how we applied a binary logit model within our research framework:

1. **Identify Attributes:** We started by identifying the key attributes or factors that contribute to consumers' perceived value of a product. We have considered all the attributes as mentioned in theory of consumption value.
2. **Data Collection:** We gathered data that included consumers' preferences or choices for different attributes.
3. **Encoding Choices:** In the binary logit model, choices were encoded as binary outcomes (0 or 1), indicating whether a consumer chose an organic/green product (1) or not (0).
4. **Attribute Variables:** All the attribute variables are chosen as continuous variables as the data is perception based data collected on 5 point likert scale.
5. **Model Specification:** A Binary logit model that relates the binary outcome (choice) to the attribute variables is formulated. The model estimates the impact of each attribute on the likelihood of a consumer choosing green products.
6. **Estimation:** Use statistical software to estimate the model parameters. This involves calculating coefficients for each attribute variable that indicate the influence of the attribute on the odds of choosing the product.
7. **Interpretation:** Further interpretation of the coefficients is done to understand the impact of each attribute on consumers' adoption decisions. Positive coefficients suggest that the attribute increases the odds of choice, while negative coefficients suggest a decrease in odds.
8. **Predictions:** With the estimated model, we predicted consumers' adoption decisions for different product alternatives by plugging in the attribute values.

4 Results and Discussions

The binary logit model was used to predict Actual Buying Behavior of Green Products based on Quality, Pricing, Social Value, Emotional Value, Conditional Value, Epistemic value, Environmental concern respectively. The overall model fit was assessed using the Z test, which indicated whether a significant relationship between the predictor variables and the binary outcome exists or not.

Model1 < – glm (BuyGreen~ avgQ + avgP + avgSV + avgEV + avgCV + avg EPV + avg EC, data = train, family = ‘binomial’), herein Q, P, SV, EV, CV, EPV, EC stand for quality, Pricing, Social Value, Emotional Value, Conditional Value, Epistemic value, Environmental concern respectively.

4.1 Predictor Variables

The predictor variables included Quality of Green Products, Pricing, Social Value, Emotional Value, Conditional Value, Epistemic value and Environmental concern towards Green Products.

4.2 Model Coefficients

Table 1 presents the estimated coefficients for the predictor variables in the binary logit model. As shown in the table, Z value and respective p value show the significance of relationship. In initial model all predictors are chosen and eventually non-significant indicators are removed from the model.

Table 1. Coefficients and p values of the binary logit model

Predictor Variable	Z Value	P Value
Quality	-1.303	0.1926
Price	0.622	0.05339*
Social Value	2.842	0.0048*
Emotional Value	-1.135	0.2564
Conditional Value	1.702	0.0887*
Epistemic Value	0.755	0.4503
Environmental Concern	-0.765	0.0444*

4.3 Model Fit

The model fit was evaluated using the AIC value. An AIC value of 534.9 indicates the goodness of fit and complexity trade-off for a statistical model. Lower AIC values are generally preferred, as they suggest a better balance between model fit and simplicity. In the context of model selection, an AIC value of 534.9 is compared to AIC values from other models. All the other modes have higher AIC values; hence it indicates that the model with an AIC of 534.9 is a better fit to the data while considering model complexity.

Considering the significance of various predictors the GLM model is changed and the new revised model is Model2 < – glm (BuyGreen~ avgP + avgSV + avgCV + avg EC, data = train, famil y= ‘binomial’).

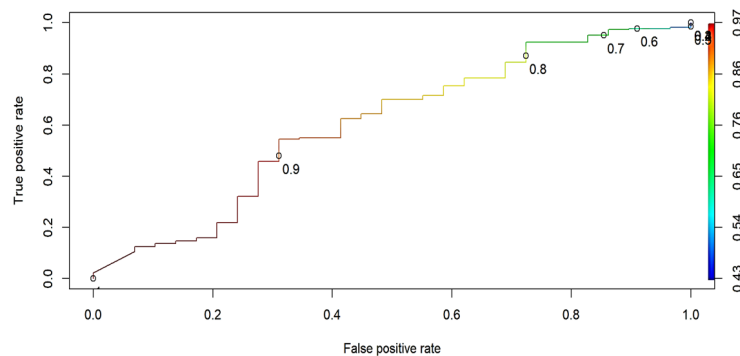


Figure 2. Receiver Operating Characteristic (ROC) curve

Model is built by dividing the data in train and test datasets. The Model is built on train data set and accuracy is tested on test data set. The accuracy of data set is found to be 88.73%, which is satisfactory and worth taking forward to make conclusions. Following Figure 2 represent the accuracy of the model representing the true positive rate and false positive rate.

5 Findings and Suggestions

In this study, we delved into the intricate realm of consumer behavior concerning green product adoption, leveraging a binary logit model within a framework grounded in the theory of consumption value. Through rigorous analysis of data collected from 922 participants across three cities in India, we uncovered compelling insights. Notably, we found that consumers’ decisions to embrace green products are strongly influenced by their perception

of Price, Conditional value, Social Value and Environmental Concern. Our model's commendable accuracy rate of approximately 88.73% underscores its effectiveness in predicting green product purchasing behavior based on a range of predictor variables. Moreover, while other variables such as Quality, Emotional Value and Epistemic value, exhibited nuanced impacts, they pointed to the complex interplay of factors shaping consumer choices. Our findings underscore the pivotal role of emphasizing societal contributions and environmental implications in promoting eco-conscious consumption. The research however provides actionable insights for policymakers and marketers striving to cultivate sustainable consumption patterns while acknowledging the need for continued exploration and refinement in this dynamic field.

For policymakers aiming to promote environmentally conscious consumption, our research offers valuable suggestions:

5.1 Social Value Amplification

Capitalize on the strong influence of Social Value in green product adoption. Develop campaigns that underscore the positive impact of choosing eco-friendly options on communities and society at large. Highlighting real-world examples and success stories can resonate with consumers' desire for meaningful contributions.

5.2 Environmental Awareness Initiatives

Invest in comprehensive awareness initiatives that emphasize the Environmental Concern associated with green products. Collaborate with environmental organizations to create educational campaigns, workshops, and events that increase public awareness about the pressing need for sustainable choices.

5.3 Transparent Pricing Communication

Address consumers' perception of Pricing by transparently communicating the long-term benefits and cost savings associated with green products. Utilize clear and relatable communication to bridge the perceived price gap between green and conventional products.

5.4 Emotional Connection Building

Recognize the potential of Emotional Value in shaping consumers' choices. Develop strategies that forge emotional connections between consumers and green products. Storytelling, relatable narratives, and relaying the emotional fulfilment of making eco-friendly choices can foster stronger brand loyalty.

5.5 Tailored Incentives

Consider implementing targeted incentives such as tax breaks, subsidies, or rewards for purchasing green products. These measures can mitigate the perceived cost disparity and encourage consumers to make sustainable choices.

5.6 Collaborative Partnerships

Forge partnerships with industry stakeholders to collectively promote green products. Collaborative efforts between manufacturers, retailers, and environmental organizations can amplify the reach and impact of sustainability campaigns.

5.7 Addressing Misconceptions

Challenge and correct common misconceptions surrounding green products, such as doubts about their effectiveness or quality. Provide consumers with accurate information and data to dispel myths and build trust.

5.8 Education and Integration

Integrate sustainability education into school curricula and public awareness campaigns. By cultivating an early understanding of the importance of eco-friendly choices, policymakers can foster a culture of sustainability from a young age.

5.9 Easy Access to Information

Ensure that consumers have easy access to information about green products. Implement labelling systems, such as eco-labels or QR codes, that provide clear details about the environmental impact, ingredients, and manufacturing processes of products.

By integrating these suggestions into policy initiatives, policymakers can effectively shape a future where environmentally conscious consumption becomes the norm, fostering a more sustainable and responsible society.

6 Conclusion

In conclusion, this study casts light on the intricate dynamics of consumer Behavior in adopting green products, offering actionable insights for policymakers and marketers. Our binary logit model, rooted in the theory of consumption value, has identified Social Value and Environmental Concern as pivotal drivers of consumers' decisions. These findings underscore the significance of societal impact and environmental consciousness in shaping purchasing Behavior. While Quality, Pricing, and other factors play nuanced roles, their implications illuminate the multifaceted nature of consumers' choices. As we move toward a more sustainable future, policymakers can harness these insights to design targeted campaigns that amplify Social Value, dispel misconceptions, and effectively communicate the long-term benefits of eco-friendly choices. By fostering emotional connections, ensuring transparency, and collaborating across sectors, policymakers can inspire a paradigm shift towards environmentally conscious consumption. As the custodians of societal progress, policymakers hold the key to cultivating a culture of sustainability that not only benefits our planet but also aligns with the evolving values and aspirations of today's consumers.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Acknowledgment

The authors express their gratitude to Sri Balaji University, Manipal University Jaipur, D.Y. Patil Institute of Management Studies, and Poornima Institute of Engineering & Technology for providing all kinds of supports.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

References

- [1] OECD, "Sustainable manufacturing and eco-innovation: Towards a green economy," *Policy Brief*, vol. 1, no. 1-8, 2009. https://www.greenpolicyplatform.org/sites/default/files/downloads/resource/Sustainable_Manufacturing_and_Eco-innovation_OECD.pdf
- [2] W. Kilbourne and G. Pickett, "How materialism affects environmental beliefs, concern, and environmentally responsible behavior," *J. Bus. Res.*, vol. 61, no. 9, pp. 885–893, 2008. <https://doi.org/10.1016/j.jbusres.2007.09.016>
- [3] N. Mohd Suki, "Green products purchases: Structural relationships of consumers' perception of eco-label, eco-brand and environmental advertisement," *J. Sustain. Sci. Manag.*, vol. 8, no. 1, pp. 1–10, 2013. https://www.researchgate.net/publication/286162935_Green_products_purchases_Structural_relationships_of_consumers'_perception_of_eco-label_eco-brand_and_environmental_advertisement
- [4] S. F. Sidique, S. V. Joshi, and F. Lupi, "Factors influencing the rate of recycling: An analysis of Minnesota counties," *Resour. Conserv. Recycling*, vol. 54, no. 4, pp. 242–249, 2010. <https://doi.org/10.1016/j.resconrec.2009.08.006>
- [5] L. T. Bei and E. Simpson, "The determinants of consumers' purchase decisions for recycled products: An application of acquisition-transaction utility theory," *ACR North American Advances*, vol. 22, no. 1, pp. 257–261, 1995. <https://www.acrwebsite.org/volumes/7711>
- [6] E. Rex and H. Baumann, "Beyond ecolabels: What green marketing can learn from conventional marketing," *J. Clean. Prod.*, vol. 15, no. 6, pp. 567–576, 2007. <https://doi.org/10.1016/j.jclepro.2006.05.013>
- [7] BW Businessworld, "Indian consumers embracing sustainable products: Report," 2022. <https://www.businessworld.in/article/Indian-Consumers-Embracing-Sustainable-Products-Report/05-06-2022-431465/>
- [8] M. Laroche, J. Bergeron, and G. Barbaro-Forleo, "Targeting consumers who are willing to pay more for environmentally friendly products," *J. Consum. Mark.*, vol. 18, no. 6, pp. 503–520, 2001. <https://doi.org/10.1108/EUM0000000006155>
- [9] D. L. Haytko and E. Matulich, "Green advertising and environmentally responsible consumer behaviours: Linkages examined," *J. Manag. Mark. Res.*, vol. 1, pp. 2–11, 2008.
- [10] C. D'Souza, M. Taghian, P. Lamb, and R. Pretiatko, "Green decisions: Demographics and consumer understanding of environmental labels," *Int. J. Consum. Stud.*, vol. 31, no. 4, pp. 371–376, 2007. <https://doi.org/10.1111/j.1470-6431.2006.00567.x>
- [11] R. D. Straughan and J. A. Roberts, "Environmental segmentation alternatives: A look at green consumer behavior in the new millennium," *J. Consum. Mark.*, vol. 16, no. 6, pp. 558–575, 1999. <https://doi.org/10.1108/07363769910297506>
- [12] S. P. Kalafatis, M. Pollard, R. East, and M. H. Tsogas, "Green marketing and Ajzen's theory of planned behaviour: A cross-market examination," *J. Consum. Mark.*, vol. 16, no. 5, pp. 441–460, 1999. <https://doi.org/10.1108/07363769910289550>

- [13] G. Singh and N. Pandey, "The determinants of green packaging that influence buyers' willingness to pay a price premium," *Australas. Mark. J.*, vol. 26, no. 3, pp. 221–230, 2018. <https://doi.org/10.1016/j.ausmj.2018.06.001>
- [14] S. Zailani, M. Iranmanesh, S. S. Hyun, and M. H. Ali, "Applying the theory of consumption values to explain drivers' willingness to pay for biofuels," *Sustainability*, vol. 11, no. 3, p. 668, 2019. <https://doi.org/10.3390/su11030668>
- [15] J. N. Sheth, B. I. Newman, and B. L. Gross, "Why we buy what we buy: A theory of consumption values," *J. Bus. Res.*, vol. 22, no. 2, pp. 159–170, 1991. [https://doi.org/10.1016/0148-2963\(91\)90050-8](https://doi.org/10.1016/0148-2963(91)90050-8)
- [16] L. L. Wan and H. Y. Ha, "Sustainable green product adoption test using logistic regression: Comparison of glass and electronic products," *Sustainability*, vol. 13, no. 9, p. 5084, 2021. <https://doi.org/10.3390/su13095084>
- [17] P. E. Boksberger and L. Melsen, "Perceived value: A critical examination of definitions, concepts and measures for the service industry," *J. Serv. Mark.*, vol. 25, no. 3, pp. 229–240, 2011. <https://doi.org/10.1108/0887604111129209>
- [18] J. Sheth, V. Jain, and A. Ambika, "Repositioning the customer support services: The next frontier of competitive advantage," *Eur. J. Mark.*, vol. 54, no. 7, pp. 1787–1804, 2020. <https://doi.org/10.1108/EJM-02-2020-0086>
- [19] A. Biswas and M. Roy, "Leveraging factors for sustained green consumption behavior based on consumption value perceptions: Testing the structural model," *J. Clean. Prod.*, vol. 95, pp. 332–340, 2015. <https://doi.org/10.1016/j.jclepro.2015.02.042>
- [20] S. H. Schwartz, "Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries," *Adv. Exp. Soc. Psychol.*, vol. 25, pp. 1–65, 1992. [https://doi.org/10.1016/S0065-2601\(08\)60281-6](https://doi.org/10.1016/S0065-2601(08)60281-6)
- [21] S. H. Schwartz, "An overview of the schwartz theory of basic values," *Online Readings Psychol. Cult.*, vol. 2, no. 1, 2012. <https://doi.org/10.9707/2307-0919.1116>
- [22] E. L. Deci and R. M. Ryan, "Toward an organismic integration theory," *Intrinsic Motiv. Self-Determ. Hum. Behav.*, pp. 113–148, 1985. https://doi.org/10.1007/978-1-4899-2271-7_5
- [23] F. G. Gilal, J. Zhang, J. Paul, and N. G. Gilal, "The role of self-determination theory in marketing science: An integrative review and agenda for research," *Eur. Manage. J.*, vol. 37, no. 1, pp. 29–44, 2019. <https://doi.org/10.1016/j.emj.2018.10.004>
- [24] E. L. Deci and R. M. Ryan, "Overview of self-determination theory: An organismic dialectical perspective," *Handb. Self-Determ. Res.*, pp. 3–33, 2002.
- [25] F. G. Gilal, K. Chandani, R. G. Gilal, N. G. Gilal, W. G. Gilal, and N. A. Channa, "Towards a new model for green consumer behaviour: A self-determination theory perspective," *Sustain. Dev.*, vol. 28, no. 4, pp. 711–722, 2020. <https://doi.org/10.1002/sd.2021>
- [26] F. G. Gilal, J. Zhang, R. G. Gilal, and N. G. Gilal, "Linking motivational regulation to brand passion in a moderated model of customer gender and age: An organismic integration theory perspective," *Rev. Manage. Sci.*, vol. 14, pp. 87–113, 2020. <https://doi.org/10.1007/s11846-018-0287-y>
- [27] J. C. Sweeney and G. N. Soutar, "Consumer perceived value: The development of a multiple item scale," *J. Retail.*, vol. 77, no. 2, pp. 203–220, 2001. [https://doi.org/10.1016/S0022-4359\(01\)00041-0](https://doi.org/10.1016/S0022-4359(01)00041-0)
- [28] J. Sheth, B. Newman, and B. Gross, "Consumption values and market choices: Theory and applications," *J. Mark. Res.*, vol. 29, no. 4, pp. 487–489, 1992.
- [29] O. Turel, A. Serenko, and N. Bontis, "User acceptance of hedonic digital artifacts: A theory of consumption values perspective," *Inf. Manag.*, vol. 47, no. 1, pp. 53–59, 2010. <http://dx.doi.org/10.1016/j.im.2009.10.002>
- [30] M. M. Long and L. G. Schiffman, "Consumption values and relationships: Segmenting the market for frequency programs," *J. Consum. Mark.*, vol. 17, no. 3, pp. 214–232, 2000. <https://doi.org/10.1108/07363760010329201>
- [31] Businesswire, "Recent study reveals more than a third of global consumers are willing to pay more for sustainability as demand grows for environmentally-friendly alternatives," 2021. <https://www.businesswire.com/news/home/20211014005090/en/Recent-Study-Reveals-More-Than-a-Third-of-Global-Consumers-Are-Willing-to-Pay-More-for-Sustainability-as-Demand-Grows-for-Environmentally-Friendly-Alternatives>
- [32] I. Ajzen, "The theory of planned behavior," *Organ. Behav. Hum. Decis. Process.*, vol. 50, no. 2, pp. 179–211, 1991. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- [33] A. Arvola, M. Vassallo, M. Dean, P. Lampila, A. Saba, L. Lähteenmäki, and R. Shepherd, "Predicting intentions to purchase organic food: The role of affective and moral attitudes in the theory of planned behaviour," *Appetite*, vol. 50, no. 2-3, pp. 443–454, 2008. <https://doi.org/10.1016/j.appet.2007.09.010>
- [34] C. Aqueveque, "Extrinsic cues and perceived risk: The influence of consumption situation," *J. Consum. Mark.*, vol. 23, no. 5, pp. 237–247, 2006. <https://doi.org/10.1108/07363760610681646>
- [35] K. H. Wong, H. H. Chang, and C. H. Yeh, "The effects of consumption values and relational benefits on smartphone brand switching behavior," *Inf. Technol. People*, vol. 32, no. 1, pp. 217–243, 2019. <https://doi.org/10.1108/ITP-02-2018-0064>

- [36] J. A. L. Yeap, K. S. G. Ong, E. H. T. Yapp, and S. K. Ooi, "Hungry for more: Understanding young domestic travellers' return for Penang Street food," *Brit. Food J.*, vol. 122, no. 6, pp. 1935–1952, 2020. <http://dx.doi.org/10.1108/BFJ-09-2018-0632>
- [37] Y. X. Wang, Y. Li, J. Y. Zhang, and X. Su, "How impacting factors affect Chinese green purchasing behavior based on fuzzy cognitive maps," *J. Clean. Prod.*, vol. 240, p. 118199, 2019. <https://doi.org/10.1016/j.jclepro.2019.118199>
- [38] A. Ruangkanjanases and M. Wutthisith, "Predicting intention to purchase digital stickers in an application for instant communications on mobile devices: A comparative study," *J. Telecommun. Electron. Comput. Eng.*, vol. 10, no. 1-10, pp. 75–80, 2018. <https://jtec.utem.edu.my/jtec/article/view/3794>
- [39] N. O. Omigie, H. Zo, J. J. Rho, and A. P. Ciganek, "Customer pre-adoption choice behavior for M-PESA mobile financial services: Extending the theory of consumption values," *Ind. Manage. Data Syst.*, vol. 117, no. 5, pp. 910–926, 2017. <https://doi.org/10.1108/IMDS-06-2016-0228>
- [40] P. C. Lin and Y. H. Huang, "The influence factors on choice behaviour regarding green products based on the theory of consumption values," *J. Clean. Prod.*, vol. 22, no. 1, pp. 11–18, 2012. <https://doi.org/10.1016/j.jclepro.2011.10.002>
- [41] S. McDonald, C. J. Oates, M. Thyne, A. J. Timmis, and C. Carlile, "Flying in the face of environmental concern: Why green consumers continue to fly," *J. Mark. Manag.*, vol. 31, no. 13-14, pp. 1503–1528, 2015. <https://doi.org/10.1080/0267257X.2015.1059352>
- [42] S. Bamberg, "How does environmental concern influence specific environmentally related behaviors? A new answer to an old question," *J. Environ. Psychol.*, vol. 23, no. 1, pp. 21–32, 2003. [https://doi.org/10.1016/S0272-4944\(02\)00078-6](https://doi.org/10.1016/S0272-4944(02)00078-6)
- [43] R. Felix, C. Hinsch, P. A. Rauschnabel, and B. B. Schlegelmilch, "Religiousness and environmental concern: A multilevel and multi-country analysis of the role of life satisfaction and indulgence," *J. Bus. Res.*, vol. 91, pp. 304–312, 2018. <https://doi.org/10.1016/j.jbusres.2018.06.017>
- [44] E. F. Pienaar, D. K. Lew, and K. Wallmo, "Are environmental attitudes influenced by survey context? An investigation of the context dependency of the New Ecological Paradigm (NEP) scale," *Soc. Sci. Res.*, vol. 42, no. 6, pp. 1542–1554, 2013. <http://dx.doi.org/10.1016/j.ssresearch.2013.07.001>
- [45] S. Fujii, "Environmental concern, attitude toward frugality, and ease of behavior as determinants of pro-environmental behavior intentions," *J. Environ. Psychol.*, vol. 26, no. 4, pp. 262–268, 2006. <https://doi.org/10.1016/j.jenvp.2006.09.003>
- [46] R. E. Dunlap, K. D. Van Liere, A. G. Mertig, and R. E. Jones, "Measuring endorsement of the new ecological paradigm: A revised NEP scale," *J. Soc. Issues*, vol. 56, no. 3, pp. 425–442, 2000. <https://psycnet.apa.org/doi/10.1111/0022-4537.00176>
- [47] S. M. Choi and Y. Kim, "Antecedents of green purchase behavior: An examination of collectivism, environmental concern, and PCE," *Adv. Consum. Res.*, vol. 32, no. 1, pp. 592–599, 2005. https://www.researchgate.net/publication/233894746_Antecedents_of_green_purchase_behavior_An_examination_of_collectivism_environmental_concern_and_PCE
- [48] A. P. Minton and R. L. Rose, "The effects of environmental concern on environmentally friendly consumer behavior: An exploratory study," *J. Bus. Res.*, vol. 40, no. 1, pp. 37–48, 1997. [https://doi.org/10.1016/S0148-2963\(96\)00209-3](https://doi.org/10.1016/S0148-2963(96)00209-3)
- [49] A. Gilg, S. Barr, and N. Ford, "Green consumption or sustainable lifestyles? Identifying the sustainable consumer," *Futures*, vol. 37, no. 6, pp. 481–504, 2005. <https://doi.org/10.1016/j.futures.2004.10.016>