## Examining Demographic Factors Impacting Green Marketing Strategies and Consumer Choices

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#### Abstract

This study investigates the relationship between green marketing practices and customer purchasing behavior in Kerala, specifically Kannur and Ernakulam Districts. Statistical techniques like the Chi-Square test, ANOVA, and Cluster analysis were applied in the research. Key factors such as green consumerism, determinants influencing buying decisions, and strategies employed in green marketing were explored. Previous literature has revealed a lack of "green" knowledge among consumers, which has led to organizations being less inclined to develop environmentally friendly products or implement green marketing strategies. The research aims to shed light on green among the target population in the region, supporting companies in developing their strategies accordingly.

Keywords: Green Marketing, Green Marketing Strategies, Chi-Square tests, ANOVA, Cluster analysis, K-means Cluster, Consumer

#### 1. INTRODUCTION

The idea of green marketing is gaining popularity and has drawn a lot of research. However, no one definition of green marketing is widely acknowledged. For instance, it has been stated that green marketing is a concept that incorporates ecological issues in all marketing activities by Tsen et al. (2006) and Wahid et al. (2011). According to Juwaheer et al. (2012), green marketing is a business approach that has been developed to set apart corporate behavior and goods for consumers. The definition employed in this thesis is that of Chan (2004), who contended that green marketing involves identifying the needs of consumers who are concerned about the environment and influencing their purchasing decisions by offering green products. Consumer environmental understanding is thought to be the key determinant of how successfully green marketing affects consumer purchasing decisions (Chowdhury, 2013). The UN Global Compact highlights the need for sustainable practices in emerging economies like China and India, which are facing environmental challenges due to rapid growth and population growth. These issues include resource scarcity, rising consumption, and urbanization. The cost of environmental degradation in India in 2009 was estimated to be 5.7% of GDP, resulting in damages to natural resources, indoor air pollution, inadequate water supply, poor sanitation, and poor hygiene. By implementing strategies to reduce environmental degradation at a minimal cost, India can maintain a high pace of economic growth without jeopardizing future environmental sustainability. This approach could help achieve green growth in underdeveloped nations.

By emphasizing the business's environmental friendliness as a bonus benefit and incorporating green efforts into brand positioning, green branding illustrates the trend of "going green" (Grimmer & Bingham, 2013). Green advertising employs persuasion techniques to persuade consumers to favor eco-friendly goods (Kotler & Armstrong, 2008). Green marketing is operationalized by the current study through three dimensions: eco-labeling, green branding, and green advertising. Eco-labels are voluntary initiatives taken by organizations to preserve the environment.

In a world increasingly concerned about environmental sustainability, businesses are under growing pressure to adopt practices that align with ecological responsibility. As a response to this paradigm shift, green marketing strategies have emerged as a powerful tool for both businesses and consumers. Green marketing encompasses a range of practices aimed at promoting products or services with reduced environmental impact or those that contribute positively to environmental goals. At the same time, the Sustainable Development Goals (SDGs), established by the United Nations to address global challenges related to poverty, inequality, climate change, and more, have gained prominence as a roadmap for global sustainability.

The environment and green management techniques have become more crucial as a result of the worsening of environmental elements, economic and technical advancement, the construction of complexity in societies, and the rise of complex systems. Particularly value-generating green techniques are regarded as essential elements in applications in the public and private sectors and are described as markers of success in terms of sustainability. Green marketing tactics, on the other hand, are significant practices that also benefit the environment and should be carefully stressed to preserve nature for future generations (Karamasa,  $\zeta$  et al., 2021).

Green practices that are linked to resource conservation, waste reduction, and healthy living are being adopted all over the world to combat global warming and environmental issues. As a result, people are more likely to buy green items (Haq, F., Adnan, A., & Ali, A. 2021). To safeguard families' health, there is a greater demand for eco-friendly items. More empirically based knowledge is anticipated to examine the theoretical components that uncover the gap between the superficially green customer purchase intents. In India, the relationship between consumer purchasing intentions and environmental attitudes is expanding quickly (Kaur, B., Gangwar, V. P., & Dash, G. 2022).

In an era where consumers are increasingly conscious of their choices and their repercussions, understanding how businesses use green marketing to influence consumer behavior becomes paramount. The present study shed light on the extent to which green marketing strategies influence consumer purchasing patterns.

### 1.1 SCOPE OF THE STUDY

The United Nations' Sustainable Development Goals (SDGs) are being emphasized in a study aimed at examining the impact of green marketing strategies on consumer purchasing patterns. The research will assess the awareness of green marketing strategies among the target population and analyze their responses to existing initiatives. It will also explore the relationship between awareness of green products and gender, and the willingness to pay more for environmentally friendly products. The findings will inform businesses and policymakers about the role of green marketing in promoting environmental sustainability and responsible consumption practices.

### 1.2 OBJECTIVE

1. The study aims to identify the awareness of green marketing strategies among the target population and their responses to the current strategies.

2. To investigate the association between gender and willingness to pay more for green products.

3. To study green marketing preference between different income groups.

#### 1.3 HYPOTHESIS

The following hypothesis were tested as part of the research related to impact of greenstrategies among the consumer of Kerala State, India.

 $H_{01}$ : There is no relationship between gender and awareness of green products.

 $H_{02}$ : There is no relationship between gender and willingness to pay more for green features.

 $H_{03}$ : There is no significant difference in green marketing satisfaction between the groups.

#### 2. LITERATURE REVIEW

In their study (Agustini, M. H. et al.,2019) found that the businesses solely engaged in "quasi" green marketing, dealing with green products and green practices but not green distribution, pricing, or promotion. This has repercussions for businesses that promote green products, allowing them to differentiate their offerings based on how green they are. (Trujillo, A et al., 2014) found that the two main greening strategies—"resource savings and waste reduction" and "certification and acknowledgment of environmental responsibility"—reflect a short-term outlook inspired by the pursuit of immediate advantages to legitimacy and the economy. Even for huge corporations, a well-structured green marketing plan was not found. (Kumar'Ranjan, R., & Kushwaha, R. 2017) in their study investigates the correlation between consumers' buying habits and green marketing tactics such as eco-labels, green brands, and green communication. The results reveal that consumers who perceive the advantages of eco-friendly products are more likely to purchase them. Furthermore, eco-branded merchandise has gained popularity due to its positive reputation, resulting in consumers' loyalty to green products. It is crucial to note that trust in eco-labels and eco-brands plays a vital role in determining consumers' inclination towards green products.

In his work (Sharma, A. P. 2021) found that several actors influence green consumer behaviour, such as environmental awareness, eco-labelling, and perceived utility. Barriers to green purchasing include lack of awareness, cost concerns, corporate image, trust, and willingness to pay. In the Iranian food industry, sustainability criteria include minimizing waste, minimizing environmental impacts, and consumer participation. Investing in waste reduction technologies can improve environmental management performance and meet protection requirements, suggesting that green marketing strategies should focus on these key aspects.

(Kaur, B., Gangwar, V. P., & Dash, G. 2022) The study reveals that green marketing strategies, environmental attitudes, and green buying intentions significantly influence millennials' green buying intentions in India. The product and promotion dimensions of the green marketing mix have the strongest impact, while environmental attitude moderates the relationship between green marketing mix strategies and green buying intentions. (Devi Juwaheer et al., 2012) in their study found that the majority of customers have stated a strong interest in environmental protection and worry over environmental damage. (Shabbir et al., 2020) provide some interesting assumptions about eco-labeling (EL), green packaging and branding (GPB), green goods, premiums, and pricing (GPPP), as well as consumer environmental concerns and beliefs (ECB) that influence how they see the environment. It was discovered that crucial elements of green marketing, like EL and GPPP, significantly improve customer views about the environment (CBTE). Furthermore, environmental beliefs and concerns (ECB) have a considerable and advantageous impact on CBTE in the UAE. (Cherian, J., & Jacob, J. 2012) The study reveals that increasing consumer awareness of environmental issues has led to a shift in consumer behavior towards a green lifestyle, despite the ongoing development of this approach organizations and businesses have observed this shift in consumer views and are attempting to gain a competitive edge in the market by taking advantage of the green market industry's potential.

In their study (Hossain, A., & Khan, M. Y. 2018) suggests that marketers should continue their promotional initiatives to spread awareness about greening. To make green information accessible, marketers must also create additional displays, sampling, commercialization, and distribution. (Rex, E., & Baumann, H. 2007) Green marketing can learn from conventional methods by developing alternative labeling strategies, reaching a wider consumer base, utilizing price, place, and promotion tactics, and actively participating in market development. (Rahman, A. S. et al., 2017) The study found that while consumers are knowledgeable about green products, they are unaware of green initiatives by government and non-government groups. This suggests a need for more efforts. The responses were moderately favorable, suggesting consumers are not skeptical of organizations' claims of environmental friendliness but are concerned about the current and future state of the environment. (Bestari, D. K. P., &Butarbutar, D. A. 2021) found that green marketing tactics, green consumers, and green buying intentions all significantly affect how green consumers behave while making ecologically friendly product purchases.

### 2.1 THEORETICAL FRAMEWORK

Green marketing is one method employed by marketers to attain sustainability. The creation and promotion of products or services that are ecologically friendly. As more and more people become environmentally conscious, this helps establish

credibility, reach a new target group, and stand out from competitors (George, D. A. S., & George, A. H. 2022). Green marketing entails creating a connection between the company and the client by thoughtfully fusing social and environmental concerns. Green marketing employs inbound marketing, which focuses on pull strategy, as opposed to traditional marketing, which uses outbound marketing (television advertising, print advertising, direct mail, and telemarketing) and push techniques (Shrestha, S. 2016).

Sustainable practices are crucial in underdeveloped economies like China and India, which are experiencing rapid growth and environmental challenges due to resource scarcity, urbanization, and urbanization. The cost of environmental degradation in India was estimated to be 5.7% of GDP in 2009, highlighting the need for sustainable practices to maintain economic growth while ensuring environmental sustainability. Marketing and sales initiatives are impacted by the public's growing awareness of the damaging effects that products and manufacturing methods have on the environment. Business people can comprehend the region and concentrate on competitive advantage according to their environmental conditions by transforming environmental challenges into commercial issues. Through marketing mix strategies, they adapt, develop, and produce competitive, green products (Pauziah, P. et al., 2018) Many manager's and activists' expectations and visions for green marketing have not come true. Even though surveys of consumer preferences regularly demonstrate that, given the option, consumers would favor environmentally friendly products over less environmentally friendly ones, in the perceptions of consumers, those "other things" are rarely comparable. The belief that such products are of poorer quality or don't genuinely fulfil their environmental promises has hampered prospects for green products. The fact that more consumers are ready to spend more on green products, such as organic foods and energy-saving equipment, proves that the news isn't all terrible (Ginsberg, J. M., & Bloom, P. N. 2004). Much like green consumerism, the green marketing trend represents businesses' obligation to society to ensure that they carry out their operations in a way that minimizes the adverse consequences on the environment. As a result, during the past thirty years, the research field has seen a lot of discussion about the green market (Eneizan, B.et al., 2019).

#### 3. METHODOLOGY

#### 3.1 Conceptual Framework

The study revolves around three key variables: gender, consumer behavior regarding green products, and green marketing satisfaction, all within the context of Ernakulam and Kannur in Kerala, India. Gender serves as the independent variable, and the research aims to investigate its influence on two dependent variables: (1) awareness of green products and (2) willingness to pay more for green features. Furthermore, the study assesses the moderating effect of income groups on the relationship between gender and green marketing satisfaction.

#### Hypothesis

The following hypotheses were tested as part of the research related to the impact of Green strategies among the consumers of Kerala State, India.

H01: There is no relationship between gender and awareness of green products.

H02: There is no relationship between gender and willingness to pay more for green features.

H03: There is no significant difference in green marketing satisfaction between the groups.

3.2 Research Design:

In this study, a descriptive research design was used to structure the research.

3.4 Population of the Study:

The consumers from Ernakulam and Kannur districts were the target population of the study. Ernakulam is the IT hub of the State of Kerala and Kannur was an important commercially and culturally important part of the region.

**3.5** Sampling Method:

The Convenience Sampling technique is used to accumulate records using a questionnaire. The sample size of the study is 101 respondents from the region of Kerala, India.

### **3.6** Data Collection:

The study aimed to understand the demographic characteristics of the target population and their eco-friendly awareness and response to green marketing strategies using a structured questionnaire and various internet sources, including articles, magazines, reports, and journals.

**3.7** Statistical Techniques and Tools Used for Analysis:

The software used for research is a statistical package for The Social Sciences (SPSS) which is used in the research for effective statistical analysis. This research used statistical techniques such were Chi Square tests, One-way ANOVA, and K-means Cluster analysis.

### 4. DATA ANALYSIS AND RESULTS

This study aimed to investigate the green marketing strategies among the consumers of Kerala. The survey data was collected through a structured questionnaire from consumers in the state of Kerala. Data was collected in Google Forms.

**4.1** Demographic Characteristics

Demographic characteristic	Percentage of Respondents (percent	
Age Group		
18-25	55.4	
26-50	42.6	
51-65	2	
Gender		
Male	35	
Female	65	
Occupation		
Employed	37.9	
Unemployed	4.8	
Self Employed	6.8	
Student	50.5	
Income		
Below 15000	14.7	
15000 - 30000	32	
30000-60000	22.3	
60000- 90000	15.5	
Above 90000	15.5	
Education		

Secondary	25.2
Bachelor degree	35
Master degree	36.9
Others	2.9

Table 1: Demographic Characteristics

The demographic data of the respondents showed that the majority were young adults (55.4percent were aged 18-25), female (65percent), employed (37.9percent), and had a bachelor's degree (35percent). The most common income bracket was 15000-30000 (32.3 percent). The demographic data suggests that the target audience for green marketing strategies is young adults, especially females. These consumers are likely to be employed and have a higher education level. They may also have more disposable income, which makes them more likely to purchase green products.

4.2 Environmental Activities undertaken by respondents

Environmental Activity	Percentage of People
Recycling	44.70
Conserving water and energy	70.90
Driving less and walking more	28.20
Using public transportation	11.30
Buying local and organic food	9.80
Volunteering for environmental organizations	7.20
Other	18.10

 Table 2: Environmental Activities undertaken by respondents

The table shows that a majority of people engage in environmental activities, with recycling being the most common (44.7%) and conserving water and energy (70.9%). Only 3.9 percent consider themselves environmentally friendly. This indicates a significant market for green marketers, who can develop targeted campaigns, place ads in environmentally conscious magazines, and partner with supermarket chains to offer educational workshops on green products.

4.3 Awareness about 'Green products' or 'Eco-friendly products through which medium

Channel	Percentage of Respondents
TV	47.60
Magazines	31.10
Internet	68.90
Friends and relatives	22.10

Seminars and conferences	7.30
Supermarket staff	11.60
Other	12.40

#### Table 3: Awareness about 'Green products' or 'Eco-friendly products through which medium

The table shows the percentage of respondents who are aware of green products or eco-friendly products through different channels. The most common channels of awareness are TV (47.6percent), magazines (31.1percent), and the internet (68.9percent). This data suggests that green marketers should focus their marketing efforts on TV, magazines, and the Internetto reach the largest possible audience. However, it is important to note that other channels, such as friends and relatives, seminars and conferences, and supermarket staff, also play a role in raising awareness of green products.

4.4 Reason for not being willing to pay more for green products

Reason for not being willing to pay more for green products	Percentage of respondents
The price is too high	64.10
Green misconceptions	7.80
Can't see the benefit/doesn't affect me	11.70
Feel that green products do not make a genuine difference to the environment	15.50
I am always ready to pay extra for environmentally friendly products	25.20

Table 4: Reason for not being willing to pay more for green products

The main reasons why people are not willing to pay more for green products are that they are too expensive (64.1 percent ), people cannot see the benefits of green products (11.7 percent ), and people do not feel that green products make a genuine difference to the environment (15.5 percent ; see Table 4). However, it is important to note that a significant minority of respondents (25.2 percent ) are always ready to pay extra for environmentally friendly products. This suggests that there is a growing market for green products, even if some consumers are still hesitant to pay a premium.

4.5 Green marketing strategies that influence purchase among respondents

Green marketing strategy	Percentage of respondents who found it effective
Advertisements using green themes	42.70
Educational campaigns	46.60
Self-explanatory labels	34.00
Certifications	35.90

#### Table 5: Green marketing strategies that influence purchase among respondents

The most effective green marketing strategies according to consumers are advertisements using green themes (42.7percent) and educational campaigns (46.6percent; see Table 4). Self-explanatory labels (34.0percent) and certifications (35.9percent) were also found to be effective but to a lesser extent. The findings of this study suggest that consumers are more likely to be influenced by green marketing strategies that are informative and educational, such as advertisements using green themes and educational campaigns.

### 4.6 Purchase from a Company that practices non-environmentally friendly activities



Fig 1: Purchase from a Company that practices non-environmentally friendly activities

The findings of this study suggest that older adults are more likely to purchase from a company that practices nonenvironmentally friendly actions than younger adults. This may be because older adults are less likely to be concerned about the environment, or because they are less likely to be aware of the environmental impact of their purchases. green marketers can create educational campaigns that teach older adults about the benefits of green products and how they can make a difference in the environment. Green marketers can also promote the environmental benefits of their products on their packaging and in their advertising.

# 4.7 Chi-Square Test: Gender, are you aware of 'Green products' or 'Eco-friendly products'?

### 4.7.1 Hypothesis:

H<sub>01</sub>: There is no relationship between gender and awareness of green products.

H<sub>11</sub>: There is a relationship between gender and awareness of green products.

### Table 6: Gender \* Are you aware of 'Green products' or 'Eco-friendly products'? Crosstabulation

Count

Are you awa products' or prod	are of 'Green 'Eco-friendly ucts'?	
Yes	A little	Total

2.Gender Female		49	17	66
	Male	30	5	35
Total		79	22	101

The crosstabulation table shows the observed frequencies for each combination of the two variables. In this case, 49 females are aware of green products, 17 females are a little aware of green products, 30 males are aware of green products, and 5 males are a little aware of green products.

Table 7: Chi-Square Tests					
	Value	df	Asymptotic Significance (2- sided)	Exact Sig. (2- sided)	Exact Sig. (1- sided)
Pearson Chi- Square	1.767ª	1	.184		
Continuity Correction	1.157	1	.282		
Likelihood Ratio	1.861	1	.173		
Fisher's Exact Test				.215	.140
N of Valid Cases	101				

a. 0 cells (0.0percent ) have an expected count of less than 5. The minimum expected count is 7.62.

b. Computed only for a 2x2 table

A chi-square test of independence was conducted to examine the relationship between gender and awareness of green products. The results were not significant ( $\chi 2(1) = 1.767$ , p = .184), indicating that there is no significant relationship between these two variables. This means that gender does not appear to be a factor in whether or not someone is aware of green products. Similar studies have supported the result of this study highlighting that there was no impact of gender onawareness of Eco-friendly products among millennials (Andhy et al., 2018; Manveer & Ambika, 2018; Takawira et al., 2019). Some literature has shown that women consumers favor eco-friendly goods and are growing more aware of the environmental situation worldwide, which presents the potential for business owners to draw in customers (Zafer, 2020; Nágelaet al., 2020; Santhosh & Raghavendra, 2020). Related literature has shown that gender was a strong predictor of consumers' awareness of eco-labeled food products (Saleh et al, 2013).

4.8 Chi-Square Test: Gender \* If green features increase the price of the product, are you willing to pay more?

### 4.8.1 Hypothesis:

H<sub>02</sub>: There is no relationship between gender and willingness to pay more for green features.

H<sub>12</sub>: There is a relationship between gender and willingness to pay more for green features.

Table 8: Gender * If green features increase the price of the product, are you willing to pay more?         Crosstabulation					
Count					
		If green features	If green features increase the price of the product, are you willing to pay more?		
		Yes	No	A little	Total
Gender	Female	22	7	31	60
	Male	9	8	16	33
Total		31	15	47	93

The crosstabulation table shows the observed frequencies for each combination of the two variables. In this case, 22 females are willing to pay more for green features, 7 females are not willing to pay more for green features, 31 females are a little willing to pay more for green features, 9 males are willing to pay more for green features, 8 males who are not willing to pay more for green features, and 16 males who are a little willing to pay more for green features.

### **Table 9: Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.694 <sup>a</sup>	2	.260
Likelihood Ratio	2.610	2	.271
Linear-by-Linear Association	.100	1	.751
N of Valid Cases	93		

a. 0 cells (0.0percent ) have an expected count of less than 5. The minimum expected count is 5.32.

A chi-square test of independence was conducted to examine the relationship between gender and willingness to pay more for green features. The results were not significant ( $\chi 2(2) = 2.694$ , p = .260), indicating that there is no significant relationship between these two variables. This means that gender does not appear to be a factor in whether or not someone is willing to pay more for green features. Some research has identified that gender has no impact on green consumer purchase behavior(Andhyet al., 2018; Zafer, 2020; Suryawati et al., 2020; Danish et al., 2023).

4.9 One-way ANOVA Test:Income Vs If green features increase the price of the product, are you willing to pay more?

H<sub>03</sub>: There is no significant difference in green marketing satisfaction between the groups.

H<sub>13</sub>: There is a significant difference in green marketing satisfaction between the groups.

Descriptives								
If green features increase the price of the product, are you willing to pay more?								
	N	Mean	Std. Deviation	Std. Error	95percent Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Below 15000	12	2.42	.900	.260	1.84	2.99	1	3
15000 - 30000	33	2.03	.951	.166	1.69	2.37	1	3
30000-60000	21	2.24	.768	.168	1.89	2.59	1	3
60000- 90000	13	1.85	.987	.274	1.25	2.44	1	3
Above 90000	14	2.50	.855	.228	2.01	2.99	1	3
Total	93	2.17	.904	.094	1.99	2.36	1	3

Table 10: Descriptives: If green features increase the price of the product, are you willing to pay more?

This table provides descriptive statistics for the dependent variable (Green\_marketing\_satisfaction) by group (Monthly\_Family\_Income). The mean, standard deviation, standard error, and 95percent confidence interval for the mean are reported for each group.

### Table 11: ANOVA:

If green features increase the price of the product, are you willing to pay more?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.359	4	1.090	1.353	.257
Within Groups	70.888	88	.806		
Total	75.247	92			

The between-groups effect is not significant (F = 1.353, p = .257). Related studies have shown that income has a relation to green consumer purchase behavior(Surya & Rashmi, 2015; Rulia et al., 2021; Yasar et al., 2019)This indicates that there is no significant difference in green marketing satisfaction between the groups. There also have been studies that have sighted that income influences the green consumer behavior of young Indians(Danish et al, 2023).

4.10 K-means Cluster Analysis: Age\*Level of Satisfaction regarding Green Products

### **Table 12: Final Cluster Centres**

Cluster		
1	2	

1. Age	39	21
.How will you describe your level of satisfaction regarding green products?	2	2

K-means Cluster was used to cluster 101 cases based on their age and satisfaction with green products. The algorithm converged in 4 iterations, with a minimum distance of 34.000 between initial cluster centers. The final cluster centers showed that Cluster 1 was characterized by older adults (mean age = 39.4 years and mean satisfaction = 2.0), while Cluster 2 was characterized by younger adults (mean age = 22.8 years and mean satisfaction = 2.0). The clusters demonstrate a distinct separation in terms of age, with Cluster 1 having an older average age compared to Cluster 2. Surprisingly, both clusters exhibited the same average satisfaction rating of 2 for green products. The consistent satisfaction levels suggest that, regardless of age, respondents in both clusters reported similar levels of satisfaction with green products.

K-means Cluster generated an outcome that showed that no difference exists between the two clusterswhen it comes to the level of satisfaction.K-means Cluster generated an outcome that showed that no difference exists between the two clusterswhen it comes to the level of satisfaction.K-means Cluster results suggest that there is a relationship between age and satisfaction with green products, with older adults being less satisfied.Some literature has proven that even though older consumers exhibited more environmentally friendly conduct, this did not achieve statistical significance (Gordon-Wilson & Modi, 2015). Previous studies have found that age does not impact green consumer behavior among young Indians (Danish et al, 2023).

### 5. CONCLUSION

This research aim importance of green marketing is becoming more relevant over the decades as pollution increases in the world. The world is moving to greener strategies with a focus on sustainability development goals (SDG) being highlighted in many industries. Green marketing was the focus of this research which investigated the impact on consumers related to strategies used by companies for green marketing. The survey shows that many consumers favored green products and the internet was the medium through which they got more awareness of green products. Educational campaign was found to be more effective in spreading the green marketing strategies but the high price was the major contributor to people not being pulled towards green products. Interestingly, adults did not care much when it came to purchasing from a company that practices non-environmentally friendly actions. The chi-square test resulted in a negative outcome between gender and willingness to pay higher prices for green products was obtained for One-way ANOVA. K-means Cluster generated two clusters grouping the consumers based on satisfaction with green products consumed by them. These results should be able to enable green marketers to redesign their future policies and marketing strategies among the consumers in Kerala and in countries like India where the income is on the lower side for the majority of the population. The youth may be better educated on the importance of green products as they are the future of the country.

### REFERENCES

- 1. Chan, R. Y. K. (2004). Consumer responses to environmental advertising in China. Marketing Intelligence & Planning, 22(4), 427-437.
- 2. Chowdhury, D. D. (2013). Organizational citizenship behavior towards sustainability. International Journal of Management, Economics and Social Sciences (IJMESS), 2(1), 28-53.
- 3. Sinnappan, P., & Rahman, A. A. (2011). Antecedents of green purchasing behavior among Malaysian consumers. International Business Management, 5(3), 129-139.
- 4. Grimmer, M., & Bingham, T. (2013). Company environmental performance and consumer purchase intentions. Journal of Business Research, 66(10), 1945–1953.

- 5. Kotler, P., & Armstrong, G. (2008). Prinsip-prinsipPemasaran. Jakarta: Erlangga.
- 6. Tsen, C., Phang, G., Hasan, H., & Buncha, M. R. (2006). Going green: A study of consumers' willingness to pay for green products in Kota Kinabalu. International Journal of Business and Society, 7(2), 40-54.
- 7. Wahid, N. A., Rahbar, E., & Shyan, T. S. (2011). Factors influencing the green purchase behavior of Penang environmental volunteers. International Business Management, 5(1), 38-49.
- Agustini, M. H., Athanasius, S. S., &Retnawati, B. B. (2019). Identification of green marketing strategies: Perspective of a developing country. Innovative Marketing, 15(4), 42–56. https://doi.org/10.21511/im.15(4).2019.04.
- Trujillo, A., Arroyo, P., & Carrete, L. (2014). Do Environmental Practices of Enterprises Constitute an Authentic Green Marketing Strategy? A Case Study from Mexico. International Journal of Business and Management, 9(2). https://doi.org/10.5539/ijbm.v9n2p175.
- 10. Kumar'Ranjan, R., & Kushwaha, R. (2017). Impact of green marketing strategies on consumer purchase behavior. Review of Management, 7(3/4), 9-22.
- 11. Sharma, A. P. (2021). Consumers' purchase behavior and green marketing: A synthesis, review, and agenda. International Journal of Consumer Studies, 45(6), 1217-1238.
- Esmaelnezhad, D., Lagzi, M. D., Antucheviciene, J., Hashemi, S. S., & Khorshidi, S. (2023). Evaluation of Green Marketing Strategies by Considering Sustainability Criteria. Sustainability (Switzerland), 15(10). https://doi.org/10.3390/su15107874.
- 13. Pandey, S., & Chawla, D. (2019). Driving Green Marketing in a Developing Country. In Green Business (pp. 1048–1070). IGI Global. https://doi.org/10.4018/978-1-5225-7915-1.ch052.
- Kaur, B., Gangwar, V. P., & Dash, G. (2022). Green Marketing Strategies, Environmental Attitude, and Green Buying Intention: A Multi-Group Analysis in an Emerging Economy Context. Sustainability (Switzerland), 14(10). https://doi.org/10.3390/su14106107.
- 15. Devi Juwaheer, T., Pudaruth, S., & Monique Emmanuelle Noyaux, M. (2012). Analyzing the impact of green marketing strategies on consumer purchasing patterns in Mauritius. World Journal of Entrepreneurship, Management and Sustainable Development, 8(1), 36-59.
- Shabbir, M. S., Bait Ali Sulaiman, M. A., Hasan Al-Kumaim, N., Mahmood, A., & Abbas, M. (2020). Green marketing approaches and their impact on consumer behavior towards the environment—A study from the UAE. Sustainability, 12(21), 8977.
- 17. Cherian, J., & Jacob, J. (2012). Green marketing: A study of consumers' attitude towards environment-friendly products.
- 18. Hossain, A., & Khan, M. Y. (2018). Green marketing mix effect on consumers buying decisions in Bangladesh.
- 19. Rex, E., & Baumann, H. (2007). Beyond ecolabels: what green marketing can learn from conventional marketing. Journal of Cleaner Production, 15(6), 567-576.
- Rahman, A. S., Barua, A., Hoque, R., & Zahir, M. R. (2017). Influence of green marketing on consumer behavior: A realistic study on Bangladesh. Global Journal of Management and Business Research: E-Marketing, 17(1), 9-16.
- GEORGE, D. A. S., & George, A. H. (2022). The Influence of Green Marketing on Consumer Behavior in Tamil Nadu: A Study. International Journal of Advanced Research in Science, Communication and Technology (IJARSCT), 2(1), 71-77.
- 22. Shrestha, S. (2016). Analysis of green marketing tools towards consumer purchase intention in Kathmandu. Journal of Business and Social Sciences Research, 1(1), 37-57.
- 23. Haq, F., Adnan, A., & Ali, A. (2021). Influence of Green Marketing Practice on Consumer Buying Behavior: Moderating Persuasion of Environmental Awareness. Journal of Managerial Sciences, 15.
- 24. Gelderman, C. J., Schijns, J., Lambrechts, W., &Vijgen, S. (2021). Green marketing as an environmental practice: The impact on green satisfaction and green loyalty in a business-to-business context. Business Strategy and the Environment, 30(4), 2061–2076. https://doi.org/10.1002/bse.2732.
- 25. Kaur, B., Gangwar, V. P., & Dash, G. (2022). Green Marketing Strategies, Environmental Attitude, and Green Buying Intention: A Multi-Group Analysis in an Emerging Economy Context. Sustainability (Switzerland),

14(10). https://doi.org/10.3390/su14106107.

- 26. Karamasa, Ç., Ergün, M., Gülcan, B., Korucuk, S., Memiş, S., &Vojinović, D. (2021). Ranking value-creating green approach practices and choosing an ideal green marketing strategy for logistics companies. Operational Research in Engineering Sciences: Theory and Applications, 4(3), 21–38. https://doi.org/10.31181/ORESTA20402021K.
- 27. Mukonza, C., & Swarts, I. (2020). The influence of green marketing strategies on business performance and corporate image in the retail sector. Business Strategy and the Environment, 29(3), 838–845. https://doi.org/10.1002/bse.2401.
- Bestari, D. K. P., &Butarbutar, D. A. (2021). Implementation of Green Marketing Strategies and Green Purchase Behavior as Efforts to Strengthen the Competitiveness of MSMEs in Indonesia. Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences, 4(1), 243–254. https://doi.org/10.33258/birci.v4i1.1588.
- Eneizan, B., Mohamad Alhamad, A., Bin.MatJunoh, M. Z., & Binti Tunku Ahmad, T. S. (2019). Green Marketing Strategies: Theoretical Approach. American Journal of Economics and Business Management, 2(2), 77–94. https://doi.org/10.31150/ajebm.vol2.iss2.69.
- Pauziah, P., Mulyana, M., Tinggi, S., &Kesatuan, I. E. (2018). Formulation of The Green Marketing Development Strategy for the Body Shop Botani Square Bogor. In International Conference On Accounting And Management Science (pp. 171–181).
- 31. Ginsberg, J. M., & Bloom, P. N. (2004, September). Choosing the right green marketing strategy. MIT Sloan Management Review.
- 32. Lee, S. E., Simons, S. B., Heldt, S. A., Zhao, M., Schroeder, J. P., Vellano, C. P., ... & Hepler, J. R. (2010). RGS14 is a natural suppressor of both synaptic plasticity in CA2 neurons and hippocampal-based learning and memory. Proceedings of the National Academy of Sciences, 107(39), 16994-16998.
- 33. Saleh, Najafinejad., Zainal, Abidin, Mohamed., Juwaidah, Sharifuddin., Nitty, Hirawaty, Kamarulzaman., Golnaz, Rezai. (2013). Malaysian consumer awareness and knowledge towards eco-labeled food products.
- Andhy, Setyawan., N, Noermijati., Sunaryo, Sunaryo., Siti, Aisjah. (2018). Is Green Product Consumption Gendered? Investigating Among Millennials in an Emerging Market. KnE Social Sciences, 3(10) doi: 10.18502/KSS.V3110.3464
- 35. Takawira, Munyaradzi, Ndofirepi. (2019). Gender-based dichotomies in various psychographic attributes for environmentally friendly products. doi: 10.4102/AC.V19I1.698
- 36. Manveer, Kaur., Ambika, Bhatia. (2018). The impact of Consumer Awareness on buying behavior of green products. International Journal of Scientific Research and Management, doi: 10.18535/JJSRM/V6I4.EM03
- Surya, Rashmi, Rawat. (2015). Impact of Age and Income Over Green Consumer Behavior. Indian journal of science and technology, doi: 10.17485/IJST/2015/V8IS4/60349
- Rulia, Akhtar., Sayema, Sultana., Muhammad, Mehedi, Masud., Nusrat, Jafrin., Nusrat, Jafrin., Abdullah, Al-Mamun. (2021). Consumers' environmental ethics, willingness, and green consumerism between lower and higher income groups. Resources Conservation and Recycling, doi: 10.1016/J.RESCONREC.2020.105274
- Yasar, Shatnawi., Elham, Hmoud, Al-Faouri., Mohammad, Al-Hayari. (2019). Examining the direct and moderation effect of psychographic and demographic factors on green purchasing behaviour. Global Business and Economics Review, doi: 10.1504/GBER.2019.10020643
- 40. Nágela, Bianca, do, Prado., Gustavo, Hermínio, Salati, Marcondes, de, Moraes. (2020). Environmental awareness, consumption of organic products and gender. REGE Revista de Gestão, doi: 10.1108/REGE-11-2019-0120
- 41. Zafer, Yilmaz. (2020). Green product consumption analysis: awareness, interest level and sensitivity of consumers. Pamukkale University Journal of Social Sciences Institute, doi: 10.30794/PAUSBED.687013
- 42. Suryawati., E, Lutfia, Zahra., Cholilawati. (2020). The Understanding and Purchase Decision of Environmentally Friendly Products Based on Gender. KnE Social Sciences, doi: 10.18502/KSS.V4I14.7928
- 43. Santhosh, V., Raghavendra, Babu. (2020). A Study on Women Consumers' Attitudes towards Green Marketing. Journal of international women's studies, 21(5):46-53.
- 44. Gordon-Wilson, S., & Modi, P. (2015). Personality and older consumers' green behaviour in the UK. Futures, 71,

1-10. https://doi.org/10.1016/J.FUTURES.2015.05.002.

- Danish, Mehraj., I., H., Qureshi., Gurmeet, Singh., Nazir, A., Nazir. (2023). Green marketing practices and green consumer behaviour: Demographic differences among young consumers. Business strategy and development, doi: 10.1002/bsd2.263
- 46. Sobia Wassan, Chen Xi, Tian Shen, Kamal Gulati, Kinza Ibraheem, Rana M. Amir Latif Rajpoot, "The Impact of Online Learning System on Students Affected with Stroke Disease", Behavioural Neurology, vol. 2022, Article ID 4847066, 14 pages, 2022. https://doi.org/10.1155/2022/4847066
- Sobia Wassan, Tian Shen, Chen Xi, Kamal Gulati, Danish Vasan, Beenish Suhail, "Customer Experience towards the Product during a Coronavirus Outbreak", Behavioural Neurology, vol. 2022, Article ID 4279346, 18 pages, 2022. https://doi.org/10.1155/2022/4279346
- Dhiman, G.; Juneja, S.; Viriyasitavat, W.; Mohafez, H.; Hadizadeh, M.; Islam, M.A.; El Bayoumy, I.; Gulati, K. A Novel Machine-Learning-Based Hybrid CNN Model for Tumor Identification in Medical Image Processing. Sustainability 2022, 14, 1447. https://doi.org/10.3390/su14031447
- 49. Akanksha, E., Sharma, N., & Gulati, K. (2021, January). OPNN: Optimized Probabilistic Neural Network based Automatic Detection of Maize Plant Disease Detection. In 2021 6th International Conference on Inventive Computation Technologies (ICICT) (pp. 1322-1328). IEEE.
- 50. Gulati, K., Boddu, R. S. K., Kapila, D., Bangare, S. L., Chandnani, N., & Saravanan, G. (2021). A review paper on wireless sensor network techniques in Internet of Things (IoT). Materials Today: Proceedings.
- 51. Gulati, K., Kumar, S. S., Boddu, R. S. K., Sarvakar, K., Sharma, D. K., & Nomani, M. Z. M. (2021). Comparative analysis of machine learning-based classification models using sentiment classification of tweets related to COVID-19 pandemic. Materials Today: Proceedings.
- 52. Wisetsri, W., R.T.S., Julie Aarthy, C.C., Thakur, V., Pandey. D. and Gulati K. (2021), Systematic Analysis and Future Research Directions in Artificial Intelligence for Marketing. Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12(11), 43-55.
- 53. Akanksha, E., Sharma, N., & Gulati, K. (2021, April). Review on Reinforcement Learning, Research Evolution and Scope of Application. In 2021 5th International Conference on Computing Methodologies and Communication (ICCMC) (pp. 1416-1423). IEEE.
- 54. Singh, U. S., Singh, N., Gulati, K., Bhasin, N. K., & Sreejith, P. M. (2021). A study on the revolution of consumer relationships as a combination of human interactions and digital transformations. Materials Today: Proceedings.
- 55. Gulati, K., Boddu, R. S. K., Kapila, D., Bangare, S. L., Chandnani, N., & Saravanan, G. (2021). A review paper on wireless sensor network techniques in Internet of Things (IoT). Materials Today: Proceedings.
- 56. SANGEETHA, D. M., PRIYA, D. R., ELIAS, J., MAMGAIN, D. P., WASSAN, S., & GULATI, D. K. (2021). Techniques Using Artificial Intelligence to Solve Stock Market Forecast, Sales Estimating and Market Division Issues. Journal of Contemporary Issues in Business and Government, 27(3), 209-215.
- 57. Dovhan, O.D., Yurchenko, O.M., Naidon, J.O., Peliukh, O.S., Tkachuk, N.I. and Gulati, K. (2021), "Formation of the counter intelligence strategy of Ukraine: national and legal dimension", World Journal of Engineering, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/WJE-06-2021-0358
- 58. Billewar, S.R., Jadhav, K., Sriram, V.P., Arun, D.A., Mohd Abdul, S., Gulati, K. and Bhasin, D.N.K.K. (2021), "The rise of 3D E-Commerce: the online shopping gets real with virtual reality and augmented reality during COVID-19", World Journal of Engineering, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/WJE-06-2021-0338
- Sanil, H.S., Singh, D., Raj, K.B., Choubey, S., Bhasin, N.K.K., Yadav, R. and Gulati, K. (2021), "Role of machine learning in changing social and business eco-system – a qualitative study to explore the factors contributing to competitive advantage during COVID pandemic", World Journal of Engineering, Vol. ahead-of-print No. aheadof-print. https://doi.org/10.1108/WJE-06-2021-0357
- 60. L. M. I. L. Joseph, P. Goel, A. Jain, K. Rajyalakshmi, K. Gulati and P. Singh, "A Novel Hybrid Deep Learning Algorithm for Smart City Traffic Congestion Predictions," 2021 6th International Conference on Signal Processing, Computing and Control (ISPCC), 2021, pp. 561-565, doi: 10.1109/ISPCC53510.2021.9609467.
- 61. S. L. Bangare, S. Prakash, K. Gulati, B. Veeru, G. Dhiman and S. Jaiswal, "The Architecture, Classification, and

Unsolved Research Issues of Big Data extraction as well as decomposing the Internet of Vehicles (IoV)," 2021 6th International Conference on Signal Processing, Computing and Control (ISPCC), 2021, pp. 566-571, doi: 10.1109/ISPCC53510.2021.9609451.

62. V. P. Sriram, K. B. Raj, K. Srinivas, H. Pallathadka, G. S. Sajja and K. Gulati, "An Extensive Systematic Review of RFID Technology Role in Supply Chain Management (SCM)," 2021 6th International Conference on Signal Processing, Computing and Control (ISPCC), 2021, pp. 789-794, doi: 10.1109/ISPCC53510.2021.9609414.