

AI Based Investigation for Validating Customer Attitude Towards Green Marketing

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Abstract—Green FMCG product is successfully establishing its own position and unique personality in this age of materialism and greed. Notably, man was unable to escape the environment, which is a basic limitation, even if he was passionate and fascinated by venal engrossment. In all honesty, India is a major player in the worldwide movement for the green revolution. Nowadays, people are more careful about the commonplace things they use, such food, makeup, baby supplies, personal hygiene products, etc. Finding out how customers feel about green FMCG products is the aim of the current study. This study offers the relevant concepts, research, and studies that have been said to demonstrate or pinpoint the impact of corporate green marketing campaigns on consumers' opinions of fast-moving consumer goods. This article examines the influence of green marketing on consumer behavior and identifies the pertinent aspects that impact customers' decisions to buy environmentally friendly fast-moving consumer goods. We employed both qualitative and quantitative approaches for our investigation. To ascertain the consumer's perspective, we developed a questionnaire using a Likert scale. We used SPSS software to examine the data.

Keywords—Green marketing, FMCG, Consumers, Attitude, Environmental Friendliness.

I. INTRODUCTION

Government and other FMCG companies' efforts to protect the environment and promote sustainability are referred to as "green marketing strategies." Here are some of the green marketing techniques that fast-moving consumer goods companies are now employing [1]. The American Marketing Association (AMA), which was created in 1975, first used the term "green marketing" in a presentation on American marketing that was structured under the heading of "ecological marketing." With the assistance of academics, administrators, and other ecological stakeholders, this conference examined the impact of marketing on environmental analysis. The marketing concept was defined as follows: Research on how marketing affects the environment, including how it affects energy use, pollution, and the use of other resources [2]. The term "green marketing" was first used in a presentation on American marketing that was arranged as "ecological marketing." The American Marketing Association (AMA) was created in 1975 and became well-known in the literature. With the assistance of academics, administrators, and other ecological stakeholders, this conference examined the impact of marketing on the study of the natural environment. The marketing concept was defined as follows: Research on how marketing affects the

environment, including how it affects energy use, pollution, and the use of other resources. Green marketing has become a global concern as a result of environmental damage. Future generations will require it since resource depletion is happening twice as fast as global population growth. Green marketing is the only way for businesses and consumers to work together to protect the limited resources for coming generations [3]. The corporate world is starting to realize that conditions are becoming more and more crucial in all aspects of business. Green has an impact on people's lives all across the world. Small, medium, and large businesses are becoming more concerned about their possible environmental effect. Companies consider their customers and how they are seen. Eco-friendly items have grown in importance over the last few decades. Many entrepreneurs have embraced the idea of becoming eco-friendly in an effort to boost their bottom line. Consumers desire to purchase eco-friendly products because they are more conscious of environmental challenges [4]. Environmentally friendly products are referred to as green products. Consumers' decisions to buy green products are heavily influenced by their opinions about eco-friendly products.

II. STATEMENT OF THE PROBLEM

Consumer behavior and the environment have been the subject of numerous studies, but the majority of these studies concentrate on one or two elements of the marketing mix and fail to link the factors that companies use to persuade consumers to buy green FMCG products with their perceptions of these goods. Furthermore, previous studies on consumers' opinions of environmentally friendly fast-moving consumer goods have shown conflicting findings [5]. For instance, some research has shown that customers think traditional items are better than environmentally friendly ones, but other research has revealed the opposite. Customers are willing to pay more for ecologically friendly products, according to some study, while other studies either show that this is not the case or that the extra cost must be little.

Lastly, we discovered Ernakulum in Kerala state studies regarding this issue, particularly concerning the FMCG sector, even if earlier research was conducted in both industrialized and developing nations [6]. Thus, we decided to conduct our investigation in Kerala's Ernakulum. This location is Kochi, Kerala, India's core commercial area. Additionally, it is Kochi's most urbanized region. Additionally, Keralans are willing to pay more for green items since they are deeply concerned about environmental concerns [7-10].

III. CONCEPTUAL FRAMEWORK

According to Consumers are becoming more conscious of and eager to purchase eco-friendly products. Products that respect the environment are known as green products [11-12]. Customers' decisions to buy environmentally friendly products are influenced by their perceptions of them. Understanding customer attitudes regarding green FMCG goods is the main goal of the study. Convenience sampling was employed. Main research with 500 participants was conducted to determine customer perceptions of green FMCG products [13-14]. Data was used to develop a comprehensive questionnaire, and a Google form was used to collect consumer responses. Numerous journals, papers, research reports, and websites are taken into consideration while creating the secondary data.

According to companies are become more conscious of their social obligations. The purpose of this article is to investigate Pondicherry customers' views and preferences about business green and goods. Data was gathered from one hundred individuals [15]. To choose the participants, a convenience sampling strategy was employed. To gather pertinent information from the sample participants, a handy questionnaire was employed. According to the results of the analysis, there is a correlation between consumer awareness and marketing tactics and product research that shows customers are environmentally conscious, and this association has a favorable effect on consumers' purchasing decisions.

IV. PURPOSE OF THE STUDY

- To evolve the factors influencing customer assertiveness in green marketing of FMCG Products
- To test the significance of Self -Satisfaction towards Green marketing of FMCG Products
- To test the significance of social esteem towards green marketing of FMCG Products

❖ EXPLORATORY FACTOR ANALYSIS

➤ Green Marketing of FMCG Product

TABLE 1: FACTORS INFLUENCING CUSTOMER ATTITUDE TOWARDS GREEN MARKETING OF FMCG PRODUCTS IN ERNAKULUM DISTRICT

Item code	Statement	Extraction	Factor Loadings	Total variance explained	KMO of sampling Adequacy
GRE 1	I like how the eco-friendly product is packaged and designed.	0.549	0.833		
GRE 2	I am aware of the details regarding environmentally friendly packaging.	0.693	0.808		
GRE 3	. I think the information on environmentally friendly packaging is accurate.	0.652	0.788		
GRE 4	In a supermarket, I can readily find eco-friendly products.	0.622	0.763		
GRE 5	I listen to what my friends and family have to say about eco-friendly products.	0.583			
GRE 6	I advise my friends and family to buy eco-friendly products.	0.553	0.741	70.872	0.769

All items with low factor loading and those that loaded beyond the acceptable threshold of 0.05, or 0.70, were eliminated from the study. As a result, each of these components makes up a unique construct known as Green Marketing of FMCG Products.

➤ Self-satisfaction

TABLE 2: FACTORS INFLUENCING CUSTOMER ATTITUDE TOWARDS ECO-FRIENDLY PRODUCTS IN ERNAKULUM DISTRICT

Item code	Statement	Extraction	Factor Loadings	Total variance explained	KMO of sampling Adequacy
SEL 1	They present a positive picture of me. .	0.774	0.888	74.563	0.705
SEL 2	Buying eco-friendly things makes me feel fashionable and up to date.	0.789	0.880		
SEL 3	The majority of the eco-friendly items I purchased pleased me.	0.673	0.821		

V. HYPOTHESES

Ho 1: Self-satisfaction has no discernible impact on FMCG products' green marketing.

Ho 2: Social respect has no discernible impact on FMCG products' green marketing.

VI. METHODOLOGY

Two methods will be used to collect the data for this study: surveys and archive research. The vast bulk of the secondary data required for the study will be sourced from previously published research, periodicals, magazines, newspapers, textbooks, and internet sources. A standardized questionnaire will be used to directly ask customers about their thoughts on green products. Consumers that are smart and well-informed themselves can be trustworthy sources of information. Sample was gathered in Kerala's Ernakulum District. Only 225 respondents completed the questionnaire during data collection, compared to the intended sample of 230 respondents from each location. Data was gathered using the convenience sampling approach. The structured questionnaire provided the data.

VII. ANALYSIS AND RESULTS

The study indicated that environmental knowledge, product quality, and corporate reputation strongly influence customers' impressions of green marketing in fast-moving consumer goods (FMCG). The findings show that Ernakulum customers are becoming more environmentally conscious and prefer to do business with sustainable enterprises. However, lack of knowledge and price sensitivity prevent wider implementation. Affordable, eco-friendly goods and good communication may boost consumer participation in this industry.

All items with low factor loading and those that loaded beyond the acceptable threshold of 0.05, or 0.70, were eliminated from the study. As a result, each of these components makes up a unique construct known as Self-Satisfaction.

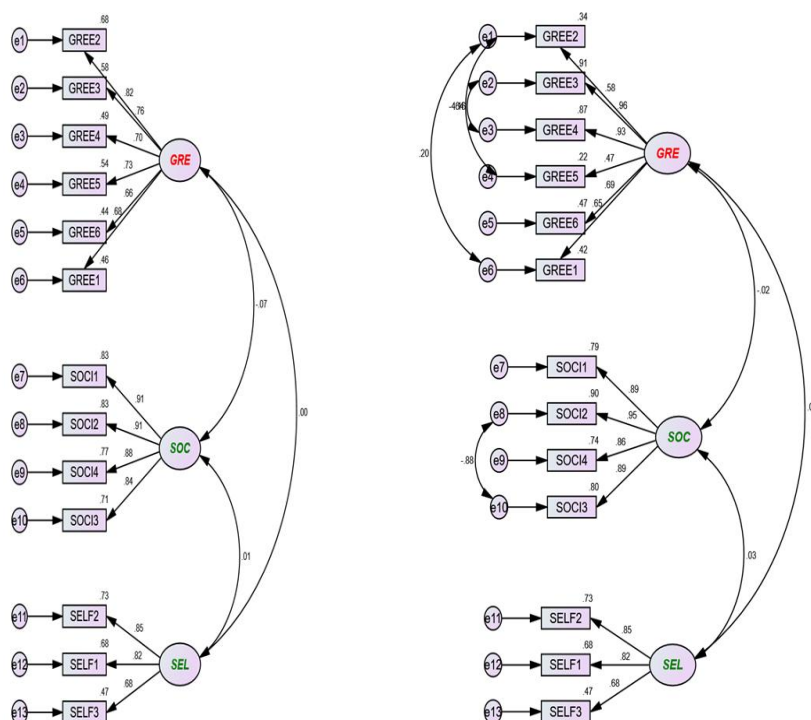
➤ Social Esteem

TABLE 3: SOCIAL FACTORS INFLUENCING CUSTOMER ATTITUDE TOWARDS ECO-FRIENDLY PRODUCTS IN ERNAKULUM DISTRICT

Item code	Statement	Extraction	Factor Loadings	Total variance explained	KMO of sampling Adequacy
SOC 1	I simply choose eco-friendly things	0.858	0.932	83.873%	0.806
SOC 2	I wish to protect the environment	0.854	0.924		
SOC 3	If I don't buy, others could think less of me.	0.798	0.913		
SOC 4	I made an impulsive choice to buy eco-friendly products at a store.	0.834	0.894		

All items with low factor loading and those that loaded beyond the acceptable threshold of 0.05, or 0.70, were eliminated from the study. As a result, each of these components makes up a unique construct known as Social-Esteem.

❖ CONFIRMATORY FACTOR ANALYSIS



➤ Change in Fit Statistics

TABLE 4: MODEL FIT INDICES FOR CUSTOMER ATTITUDE TOWARDS GREEN MARKETING OF FMCG PRODUCTS IN ERNAKULUM DISTRICT

Model	χ^2/df	GFI	AGFI	CFI	TLI	NFI	IFI	RMSEA	RMR
Initial	6.240	.873	.814	.859	.895	.823	.860	.0137	0.051
Moified	4.019	.952	.924	.968	.956	.957	.968	.076	0.068

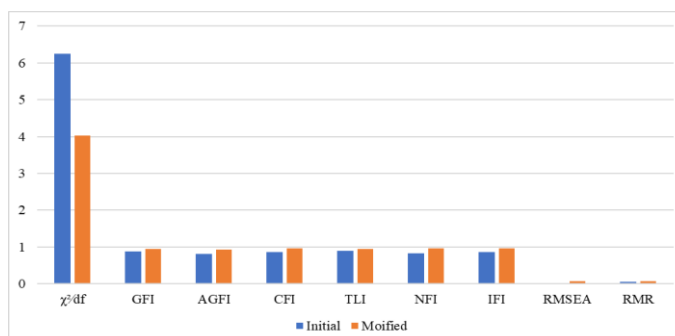


FIGURE 1: COMPARISON OF INITIAL AND MODIFIED MODEL FIT INDICES FOR GREEN MARKETING ATTITUDES

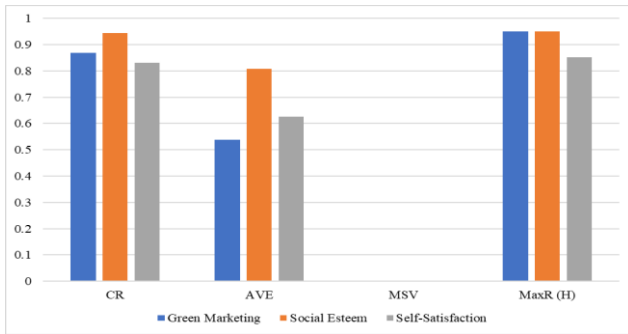


FIGURE 2: CONSTRUCTS AND THEIR RELATIONSHIPS IN GREEN MARKETING AND CONSUMER ATTITUDES

A higher degree of approval in fit indices is the outcome of the initial model's adjustments, as the table illustrate

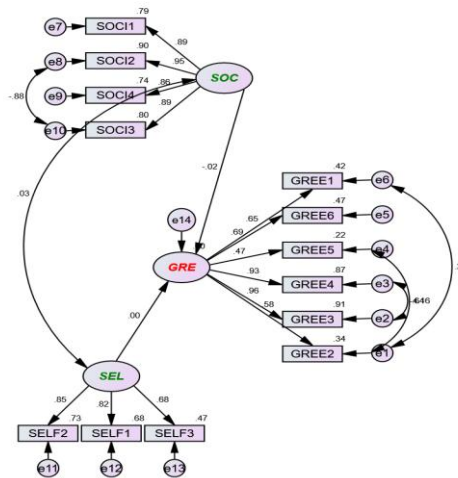
➤ Model Validity Measures

TABLE 5: CONSTRUCT RELIABILITY AND VALIDITY FOR GREEN MARKETING, SOCIAL ESTEEM, AND SELF-SATISFACTION

Constructs	CR	AVE	MSV	MaxR (H)	Green Marketing	Social Esteem	Self-Satisfaction
Green Marketing	0.868	0.538	0.001	0.951	0.734		
Social Esteem	0.944	0.807	0.001	0.951	-0.025	0.899	
Self-Satisfaction	0.832	0.626	0.001	0.851	-0.001	0.031	0.791

To validate the measurement model, we employed structural equation modeling (Lisrel software). The survey device's measuring characteristics are displayed in the table. Four indicators had factor loadings between 0.7 and 0.85, although the majority of the indicators had loadings greater than 0.7. According to Hair et al. (2011), a value of 0.0 or above is considered appropriate. We kept these four signals since we utilized known measures, even if they are over 0.85 but below 0.75.

❖ STRUCTURAL EQUATIONAL MODEL



❖ REGRESSION WEIGHTS

TABLE 6: PATH ESTIMATES FOR GREEN MARKETING, SOCIAL ESTEEM, AND SELF-SATISFACTION

DEPENDENT		INDEPENDENT	Estimate	S.E.	C.R.	P
GREEN MARKETING	<---	SOCIAL -ESTEEM	-0.018	0.024	-0.75	0.453
GREEN MARKETING	<---	SELF-SATISFACTION	0	0.025	0.001	0.999

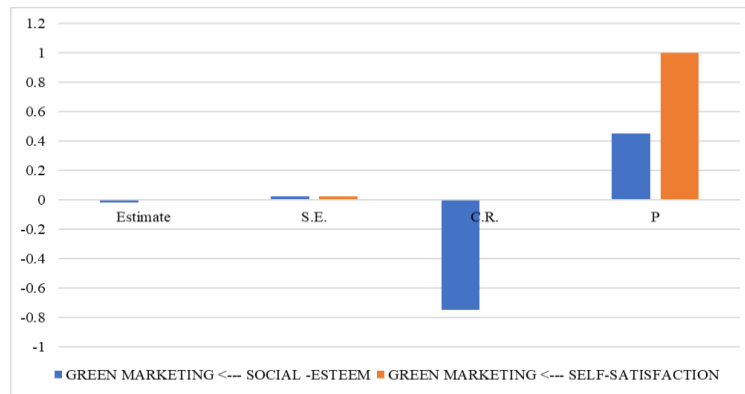


FIGURE 3: PATH ANALYSIS OF SOCIAL ESTEEM AND SELF-SATISFACTION ON GREEN MARKETING

We tested hypotheses after examining the measuring characteristics, reliability, and discriminant and convergent validity. The sole variable that was not supported, with a p-value of less than 0.05, was the relationship between job stability and family life interference with work ($p = 0.002, 0.009$). Support is provided for the remaining variables.

VIII. IMPLICATIONS AND CONCLUSIONS

Early studies and polls essentially predicted that consumers would start paying more attention to green products. The primary goal of subsequent research and surveys was to alter consumer purchase patterns in regard to environmental safety. Another study demonstrates that one of the factors influencing customer reaction is environmental understanding. The factors that influence a consumer's choice to buy are still unclear. The assessment of consumers' general reaction to the green revolution is rather favorable, but it falls short when discussing how they have incorporated them into their daily lives. The outcome is inadequate even if we wish to identify the influential mass from India. To completely raise knowledge about the purchase and use of green products, more awareness campaigns and research projects are required from the government, academics, and researchers. Businesses must make a true and full-hearted effort.

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