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# The Impact of Green Marketing Mix Elements on Algerian Consumer Purchasing Behavior: An Empirical Study at the Cement Company in Saida

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**Abstract:**

This study examines the impact of the green marketing mix on Algerian consumer purchasing behavior through an empirical study conducted at a cement company in Saida. A descriptive-analytical approach was adopted using a questionnaire distributed to a sample of 87 respondents and analyzed with SPSS. The results indicate a significant relationship and impact between green marketing mix elements and consumer behavior, with green product and green price showing the strongest influence. The findings also reveal moderate consumer awareness of green marketing practices alongside relatively high environmentally oriented purchasing behavior. The study highlights the importance of adopting green marketing strategies to support sustainable consumption.

**Keywords:** Green marketing, Consumer behavior, Sustainable consumption.
**Jel Classification Codes:** M31, Q56, D12

## Introduction :

In recent years, growing concern over environmental issues—driven by escalating pollution and the depletion of natural resources—has prompted organizations to adopt marketing practices that align more closely with sustainability principles. Within this evolving context, green marketing has emerged as a strategic orientation aimed at balancing economic performance with environmental responsibility. The green marketing mix represents a critical managerial tool through which firms operationalize their environmental commitment by designing, pricing, promoting, and distributing eco-friendly products in a manner that integrates environmental considerations. A growing body of literature suggests that the adoption of green marketing strategies can significantly influence consumer attitudes and purchasing behavior toward sustainable products (Mehmood &

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Bhaumik, 2025, p. 3162). Against this backdrop, the present study aims to analyze the impact of green marketing mix elements on Algerian consumer purchasing behavior, based on an empirical investigation involving customers of a cement company in Saida

## 1. Methodological Framework

### 1.1 Research Problem

Despite the increasing adoption of green marketing practices by firms, their actual influence on Algerian consumer purchasing behavior remains insufficiently explored, particularly within industrial sectors. Accordingly, this study seeks to assess the extent to which green marketing mix elements shape consumer purchasing behavior in the context of a cement company in Saida.

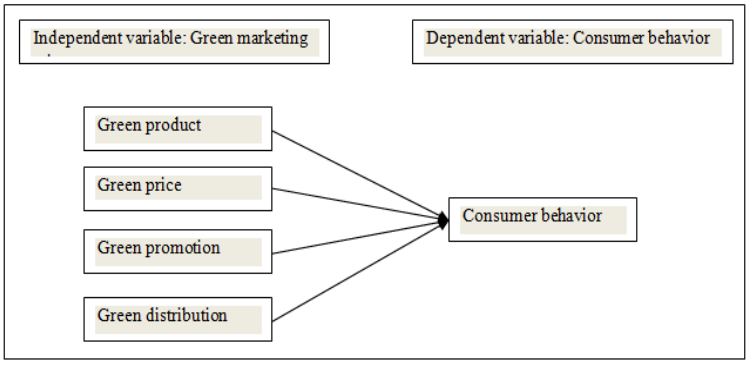
This central research question gives rise to the following sub-questions:

- What is the level of implementation of green marketing mix elements within the organization under study?
- What are consumers' attitudes toward environmentally friendly products?
- Is there a correlation between green marketing mix elements and consumer purchasing behavior?
- To what extent do these elements influence Algerian consumer purchasing decisions?

### 1.2 Conceptual Model

Building on the theoretical foundations and research objectives, a conceptual framework was developed to represent the direct causal relationships between the green marketing mix and consumer behavior (Feng & Aremu, 2025, p. 4).

**Figure 1: Hypothetical research model**




Source: Prepared by the researcher based on previous studies

### 1.3 Research Hypotheses

Based on the proposed model, the following hypotheses were formulated:

**Main Hypotheses:**

- H1: There is a statistically significant correlation between green marketing mix elements and consumer purchasing behavior.

- H2: Green marketing mix elements have a statistically significant effect on consumer purchasing behavior.

**Sub-Hypotheses:**

- H1a: Green product is significantly correlated with consumer purchasing behavior.
- H1b: Green price is significantly correlated with consumer purchasing behavior.
- H1c: Green promotion is significantly correlated with consumer purchasing behavior.
- H1d: Green distribution is significantly correlated with consumer purchasing behavior.

### 1.4 Significance of the Study

This study holds significance at multiple levels:

- **Theoretical significance:** It contributes to the growing body of literature on green marketing and consumer behavior, particularly within emerging economies such as Algeria.
- **Practical significance: It provides actionable insights for industrial firms** seeking to develop sustainable marketing strategies.
- **Societal significance:** It supports the promotion of environmental awareness and sustainable consumption patterns among consumers.

### 1.5 Scope of the Study

- **Geographical scope:** Cement company in Saida, Algeria
- **Temporal scope:** Data collected in 2025
- **Population scope:** Customers of the company

### 1.6 Research Methodology

A descriptive-analytical approach was adopted, as it is well-suited for examining relationships between variables and analyzing their effects on consumer behavior.

### 1.7 Previous Studies and Research Gap

A growing body of empirical research has examined the relationship between green marketing practices and consumer behavior across diverse contexts. In this regard, the study by Mehmood and Bhaumik (2025) aimed to analyze the impact of the green marketing mix on consumer behavior within the retail sector in the United Arab Emirates. The study employed a questionnaire distributed to a sample of 200 consumers, and the data were analyzed using factor analysis and multiple regression techniques. The findings demonstrated a statistically significant positive effect of green marketing mix elements on consumer purchasing behavior. Moreover, corporate social responsibility was found to play a mediating role in this relationship (Mehmood & Bhaumik, 2025, p. 3164).

Similarly, Feng and Aremu (2025) investigated the influence of green marketing on consumer purchasing behavior in China, while also examining the moderating role of social influence. Based on a large sample of 927 consumers and using structural equation modeling, the results indicated that green marketing exerts a positive impact on purchase decisions. In addition, environmental awareness was identified as a key mediating factor in shaping this relationship (Feng & Aremu, 2025, p. 7).

In another study, Dewi et al. (2024) explored the effect of green marketing mix elements on consumers' intention to purchase environmentally friendly products.

Adopting a quantitative approach through a survey administered to 132 respondents, the findings revealed that green product, green price, and green. promotion exert significant positive effects on purchase intention. However, green distribution did not demonstrate a statistically significant influence (Dewi et al., 2024, p. 4).

The study by Souar & Almi (2024) analyzed Algerian consumers' perceptions of the green marketing mix and its impact on consumer behavior. The study relied on a sample of 120 consumers, and the data were analyzed using SPSS. The results showed a positive relationship between the elements of the green marketing mix and environmental consumer behavior, with green products ranking first in terms of impact (Souar & Almi, 2024, p. 23).

**Research gap:** Although many studies have addressed the relationship between green marketing and consumer behavior, most have focused on different consumer markets and economic environments. They have also often emphasized the intention behind purchases rather than actual purchasing behavior, without providing a detailed analysis of the dimensions of the green marketing mix. The current study intersects with these studies in examining the impact of green marketing on consumer behavior, but it differs in its focus on analyzing the four elements of the green marketing mix and applying them to the Algerian context and the cement industry sector. This contributes to filling a research gap in the marketing literature.

## 2. Theoretical Background

### 2.1 Green Marketing Concept

Green marketing can be defined as the process of developing and promoting products in a way that satisfies consumer needs while minimizing environmental harm across production, distribution, and consumption stages (Kotler et al., 2023, p. 532).

### 2.2 Green Marketing Mix Elements

- **Green Product:** Designed using eco-friendly materials and clean production processes to reduce environmental impact (Chen & Chang, 2023).
- **Green Price:** Reflects environmental costs alongside perceived value (Peattie & Belz, 2022).
- **Green Promotion:** Communicates environmental benefits and enhances awareness (Dangelico & Vocalelli, 2023).
- **Green Distribution:** Focuses on minimizing emissions and improving logistics efficiency (Srivastava, 2023).

### 2.3 Consumer Purchasing Behavior

Consumer purchasing behavior refers to the processes through which individuals search for, evaluate, purchase, and use products to satisfy their needs, influenced by psychological, social, and marketing factors (Kotler & Keller, 2016).

### 2.4 Purchase Decision Process

The decision-making process typically involves five stages:

1. Problem recognition

2. Information search
3. Evaluation of alternatives
4. Purchase decision
5. Post-purchase behavior

### 2.5 Relationship Between Green Marketing and Consumer Behavior

Existing literature indicates a positive relationship between green marketing practices and consumer behavior, as environmentally oriented strategies enhance perceived value and trust, thereby increasing the likelihood of sustainable purchasing decisions (Dangelico & Vocalelli, 2017).

## 3. Empirical Framework of the Study

The empirical component of this study aims to examine the relationship between the elements of the green marketing mix and Algerian consumer behavior, drawing on data collected from a sample of consumers of the cement company located in Saida.

**Normality Test of the Study Data :**Table (1) presents the results of the Kolmogorov–Smirnov test conducted to assess whether the data follow a normal distribution, a prerequisite for most parametric statistical tests. The findings indicate that the significance levels for all questionnaire dimensions exceed 0.05, confirming that the data are normally distributed and, therefore, suitable for parametric analysis.

**Table 1. Results of the Normality Test**

| Dimension | Variable | Z Value | Significance Level |
|---|---|---|---|
| **First** | **Green marketing mix** | 0.552 | 0.630 |
| **Second** | **Consumer behavior** | 0.592 | 0.654 |
| **Overall questionnaire** | | 0.636 | 0.525 |

**Source:** Prepared by the author based on SPSS (V.22) outputs.

**Population and Sample of the Study :**The study population consists of all customers of the cement company in Saida. Given the large size of the population, a simple random sampling technique was employed. A total of 100 questionnaires were distributed, of which 13 were excluded due to incomplete responses, leaving 87 valid questionnaires for analysis. This represents a response rate of 87%, which was deemed sufficient for statistical analysis and generalization of the findings

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**Table 2. Distribution of the Study Sample According to Personal Variables**

| Variables | Category | Frequency | Percentage (%) |
|---|---|---|---|
| **Gender** | **Male** | 54 | 62 |
| | **Female** | 33 | 38 |
| **Total** | | 87 | 100 |

| | | | |
|---|---|---|---|
| **Age** | **Less than 25 years** | 27 | 31.05 |
| | **25–50 years** | 36 | 41.40 |
| | **Above 50 years** | 24 | 27.36 |
| **Total** | | 87 | 100 |
| **Educational Level** | **Secondary or less** | 31 | 35.65 |
| | **University** | 45 | 51.75 |
| | **Postgraduate** | 11 | 12.65 |
| **Total** | | 87 | 100 |
| **Occupation** | **Student** | 9 | 10.35 |
| | **Employee** | 38 | 43.70 |
| | **Self-employed** | 22 | 25.30 |
| | **Retired** | 18 | 20.70 |
| **Total** | | 87 | 100 |

**Source:** Prepared by the author based on SPSS (V.22) outputs.

**Research Instrument:** The study relied on a structured questionnaire as the primary tool for data collection, given its effectiveness in generating quantifiable data suitable for statistical analysis. The questionnaire comprised two main sections. The first section captured respondents' demographic characteristics, while the second focused on the core study variables, namely the elements of the green marketing mix and consumer behavior. Responses were measured using a five-point Likert scale, allowing for precise assessment of respondents' agreement levels and facilitating the analysis of behavioral tendencies toward green marketing practices.

**Reliability of the Research Instrument:** The reliability of the instrument was assessed using Cronbach's alpha to examine internal consistency. As shown in Table (3), the reliability coefficient for the green marketing mix was 0.79, while that for consumer behavior was 0.61. The overall reliability coefficient for the entire questionnaire reached 0.92. According to (Hair et al., 2019, p. 137), these values are acceptable and indicate a high level of reliability, confirming the instrument's suitability for analysis and generalization.

**Table 3. Cronbach's Alpha Coefficients for Study Variables**

| Variable | Number of Items | Cronbach's Alpha |
|---|---|---|
| **Green marketing mix elements** | 16 | 0.79 |
| **Consumer behavior** | 05 | 0.61 |
| **Overall scale** | 21 | 0.92 |

**Source**: Prepared by the author based on SPSS (V.22) outputs.

**Descriptive Analysis of Study Variables:** The results indicate that respondents' perception of green marketing mix elements was moderate, with an overall mean of 3.14. Green pricing ranked first (mean = 3.51), followed by the green product (mean = 3.36), whereas green promotion ranked last (mean = 2.77), reflecting relatively weak promotional efforts related to environmental aspects. Conversely, consumer behavior recorded a relatively high mean of 3.96, suggesting a positive orientation among consumers toward environmentally friendly products, despite the moderate level of implementation of green marketing practices by the company.

**Table 4. Descriptive Statistics of Study Variables**

| Dimension | Mean | Standard Deviation | Rank |
|---|---|---|---|
| **Green product** | 3.36 | 0.859 | 2 |
| **Green pricing** | 3.51 | 0.718 | 1 |
| **Green promotion** | 2.77 | 0.873 | 4 |
| **Green distribution** | 2.93 | 0.867 | 3 |
| **Overall green marketing mix** | 3.14 | 0.801 | |
| **Consumer behavior** | 3.96 | 0.597 | |

(n = 87), (Test value = 3)

**Source**: Prepared by the author based on SPSS (V.22) outputs.

**Correlation Hypothesis Testing :** The correlation analysis results shown in Table (5) indicate a statistically significant positive correlation between all elements of the green marketing mix and consumer behavior. All statistical significance values were less than (0.01), indicating a significant relationship at a high confidence level. Green pricing recorded the highest correlation coefficient (0.605), followed by green promotion (0.596) and then green distribution (0.569). The overall correlation coefficient between the green marketing mix and consumer behavior was (0.716), reflecting the strong relationship between the two variables and confirming the positive impact of implementing green marketing practices on guiding consumer behavior.

**Table 5. Correlation Coefficients Between Study Variables**

| Dimension | Correlation (r) | Significance (Sig.) |
|---|---|---|
| **Green product** | **0.505**** | 0.00 |
| **Green pricing** | **0.605**** | **0.00** |
| **Green promotion** | **0.596**** | **0.00** |
| **Green distribution** | **0.569**** | **0.00** |
| **Overall green marketing mix** | **0.716**** | **0.00** |

**$P^{**} \leq 0.01$ ; $p^{*} \leq 0.05$ ; n=87**

**Source**: Prepared by the author based on SPSS (V.22) outputs.

**Testing the Impact Hypotheses :** The results of the simple regression analysis presented in Table (8) indicate a statistically significant effect of the green marketing mix on consumer behavior. The correlation coefficient (R = 0.716) reflects a strong relationship between the variables. Furthermore, the coefficient of determination ($R^2$ = 0.512) suggests that the green marketing mix explains 51.2% of the variance in consumer behavior, demonstrating the robustness of the model. Additionally, the calculated F-value (386.285) at a significance level of 0.000 confirms the statistical validity of the model and the predictive power of the green marketing mix.

**Table 6. Simple Regression Results**

| | Independent variable: Green marketing mix | | | | |
|---|---|---|---|---|---|
| **Dependent Variable: Consumer Behavior** | **R** | **$R^2$** | **B** | **F** | **Sig** |
| | 0.716 | 0.512 | 0.762 | 386.285 | 0.000 |

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**Source:** Prepared by the author based on SPSS (V.22) outputs

**Multiple Regression Analysis :** To further explore the impact of each dimension of the green marketing mix, multiple regression analysis was conducted. The results, presented in Table (7), indicate that all four elements exert a statistically significant effect on consumer behavior.

**Table 7. Multiple Regression Results**

| Variable | B | Std. Error | Beta | T | Sig |
|---|---|---|---|---|---|
| **Constant** | 0.229 | 0.132 | - | 1.735 | 0.084 |
| **Green product** | 0.335 | 0.022 | 0.480 | 15.333 | 0.000 |
| **Green pricing** | 0.270 | 0.024 | 0.337 | 11.137 | 0.000 |
| **Green promotion** | 0.176 | 0.40 | 0.143 | 4.367 | 0.000 |
| **Green distribution** | 0.140 | 0.038 | 0.110 | 3.646 | 0.000 |

**Source**: SPSS (V.22) outputs (reorganized).

The findings clearly demonstrate that all independent variables are statistically significant ($p < 0.05$), confirming their explanatory power. Among them, the green product emerges as the most influential factor (Beta = 0.480; T = 15.333), followed by green price (Beta = 0.337). This suggests that environmental product attributes and pricing strategies aligned with environmental value are key determinants of consumer purchasing behavior. In contrast, green promotion and green distribution exhibit relatively weaker, albeit still significant, effects, indicating limited effectiveness of communication and logistical efforts compared to product and pricing strategies.

**Regression Equation** : Based on the unstandardized coefficients (B), the regression equation can be formulated as follows:
Consumer Behavior = 0.229 + 0.335 (Green Product) + 0.270 (Green Price) + 0.176 (Green Promotion) + 0.140 (Green Distribution)
This equation indicates that, holding other variables constant, a one-unit increase in the implementation of the green product leads to a 0.335 increase in consumer behavior. Similarly, increases in green pricing, promotion, and distribution contribute 0.270, 0.176, and 0.140, respectively. These results provide compelling evidence of the pivotal role played by environmentally oriented product characteristics and pricing policies in shaping consumer responses.

## 4. Discussion

The study results confirmed the two main hypotheses, demonstrating a significant correlation and influence of green marketing mix elements on consumer purchasing behavior. The sub-hypotheses also showed that all dimensions have a positive impact, with green product and green price demonstrating a clear advantage over the other elements. These findings align with the studies of Mehmood & Bhaumik (2025) and Dewi et al. (2024), which highlighted the significant role of product and price in influencing consumer behavior. In contrast, the impact of promotion and distribution remains relatively less pronounced, reflecting the limited effectiveness of communication and logistical efforts. Thus, the current study's results support the general trend in recent marketing literature, which asserts that organizations' adoption of green marketing practices significantly contributes to fostering sustainable purchasing habits among consumers.

## Conclusion

This study demonstrates that green marketing practices play a crucial role in shaping consumer purchasing behavior in Algeria. However, the effectiveness of these practices varies across marketing mix elements, highlighting the need for an integrated and strategically balanced approach to promote sustainable consumption.

## Study Results:

- A statistically significant positive correlation exists between the elements of the green marketing mix and consumer purchasing behavior.
- Regression analysis revealed that the green marketing mix explains a significant proportion of the variance in consumer behavior.
- The results showed that green products and green pricing are the most influential elements of the marketing mix on consumer behavior compared to the other elements.
- Green promotion and green distribution registered relatively lower levels of influence.
- The results indicated that consumers' awareness of green marketing practices was moderate.

## Study recommendations:

- Industrial institutions should promote the adoption of green marketing strategies as an effective tool for improving their environmental image.
- Develop environmentally friendly products by adopting clean production technologies and using raw materials with a lower environmental impact.
- Intensify promotional activities that highlight the environmental characteristics of products to raise consumer awareness.
- Adopt flexible pricing policies for green products that take into account the perceived environmental value to consumers.
- Develop distribution channels and logistics systems in line with green distribution principles.
- Strengthen cooperation between industrial institutions and government agencies to support environmental initiatives and encourage the adoption of green marketing practices.

## Future Research Directions

- Extend studies to other sectors.
- Conduct cross-country comparative analyses.
- Integrate moderating variables (e.g., environmental awareness, trust) .
- Explore the role of digital green marketing.

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## Appendices

**Survey Questionnaire**

Dear Sir / Madam,
Greetings,
This study aims to examine the impact of green marketing mix elements on shaping Algerian consumer purchasing behavior, through a field study conducted at the Cement Company in Saida.
You are kindly requested to complete this questionnaire with accuracy and objectivity. Please be assured that all information provided will be treated with strict confidentiality and will be used solely for scientific research purposes.
Thank you for your valuable cooperation.
With highest respect and appreciation.

**Section I: Demographic Information**

| Gender | Age | Educational Level | Occupation |
|---|---|---|---|
| Female ☐ | Less than 25 years ☐ | Secondary or less ☐ | Student ☐ |
| Male ☐ | 25 to 50 years ☐ | University ☐ | Employee ☐ |
| | Above 50 years ☐ | Postgraduate ☐ | Self-employed ☐ |
| | | | Retired ☐ |

**Section II: Please indicate your level of agreement by placing (×) in the appropriate box**

| Statements | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|
| **Dimension 1: Green Marketing Mix** | | | | | |
| **Green Product** | | | | | |
| The company seeks to reduce energy consumption as much as possible | | | | | |
| The company's products are made from recyclable materials | | | | | |
| The company's products generate little or no waste | | | | | |
| The company produces environmentally friendly products | | | | | |
| **Green Price** | | | | | |
| The company takes environmental protection costs into account when setting prices | | | | | |
| The company seeks to balance environmental costs with product pricing | | | | | |
| The company's pricing reflects environmental efficiency without compromising core product attributes | | | | | |
| The company adopts modern technologies to reduce costs and improve environmental efficiency | | | | | |
| **Green Promotion** | | | | | |
| The company works to increase | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| customers' awareness of environmental issues | | | | | |
| The company uses eco-labels (green labels) as guarantees that reflect environmental standards | | | | | |
| The company's advertising messages emphasize environmental characteristics | | | | | |
| The company aligns its promotional messages with its environmental image and orientation | | | | | |
| **Green Distribution** | | | | | |
| The company selects the most appropriate distribution alternatives based on product characteristics | | | | | |
| The company provides efficient distribution channels for collecting recyclable materials | | | | | |
| The company seeks to reduce emissions and pollution resulting from product distribution | | | | | |
| The company considers environmental protection when distributing its products | | | | | |
| **Dimension 2: Consumer Purchasing Behavior** | | | | | |
| I consider purchasing green products a social and ethical responsibility | | | | | |
| I strive to adopt environmentally responsible values in my purchasing behavior | | | | | |
| I consider buying green products an ethical obligation | | | | | |
| I actively promote awareness of green products within my local community | | | | | |
| The availability of diverse green product alternatives facilitates my purchasing decisions | | | | | |