

## **Role of Government Policies in Promoting Green Marketing Practices in the Food Processing Industry**

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### **Abstract**

Government policies can steer food processing companies in the right direction to adopt green marketing practices. It is essential for companies to adopt green marketing practices because food processing firms today need to reduce packaging waste, energy use, carbon footprint, food waste, and greenwash (misleading delivery of green marketing messages). Such firms can be influenced through a standard policy mix of environmental regulations, eco-labelling, tax rebates, subsidisation, green public procurement and anti-greenwashing regulations. This study used a simple quantitative research design using a structured questionnaire. The sample is 300 respondents from food processing firms, and the data are analysed using frequency analysis, descriptive statistics, Likert scale analysis, reliability analysis, correlation analysis, and regression-based hypothesis testing. The findings suggest that green marketing practices have a positive relationship with government policies, and environmental regulation, financial incentives, and eco-labelling are important predictors of green marketing adoption. Studies have found that green marketing practices are associated with higher levels of consumer trust and improved perceived corporate sustainability performance. Government policies encourage food processing firms to use green packaging, low environmental impact promotional approaches, and environmental labels. For policies to be effective, they must be clear, enforced, funded, and the industry must be made aware of them.

**Keywords:** Government policy, green marketing, eco-labelling, green packaging, environmental regulation, and sustainability issues in the food processing industry.

## 1. Introduction

Green marketing is the planning, production, promotion, and distribution of products and services with a positive environmental impact, with a clear communication of their environmental value for the consumer. In the food processing industry, green marketing includes recyclable packaging, minimum food waste, eco labelling, energy efficiency in production and distribution, recyclable/biodegradable packaging, and accurate green advertising. These arise from the role that food processing companies play in the creation of packaging waste, energy use, transportation, water use and the waste and depletion of resources. Green marketing has moved on from an environmentally friendly method of promotion to a broader issue of how green or sustainable principles play a role in product innovation, supply chain management, packaging, and sustainability communication (Peattie, 2001; Prakash, 2002; Dangelico & Vocalelli, 2017). Consequently, green marketing in food processing industries is not just a method of promoting a product, but also an operational, environmental and communication-based activity.

Further, government policies can be important for green marketing, as not all firms will voluntarily implement environmentally friendly practices. Some firms do not invest in green measures as it is too costly whereas others make green claims without engaging in any improvements. To reduce greenwashing the policy measures that could be adopted by the government include setting environmental standards, providing subsidies and grants, developing eco-labelling schemes, enforcement against misleading green claims, and promoting sustainable production (Delmas & Burbano, 2011; Nugraha et al., 2024). Consequently, this highlights that while regulation can be a proactive driver of green innovation and improved competitiveness (Porter & van der Linde, 1995; Ambec et al., 2013; Zhang et al., 2024), government policy can also put pressure on food processing firms to adopt green practices in their marketing strategy.

This is particularly important in the food processing industry, in which consumers cannot generally assess whether a particular food product is sustainable, and depend on labels, certification, packaging and company statements. Eco-labelling and environmental standards can close the information gap and increase the consumer's trust (Thøgersen 2000; Rex & Baumann 2007; Bleda & Valente 2009), provided they are unambiguous, credible and enforced. Although green marketing in food and beverage firms has been shown to be affected by government policies, corporate social responsibility, product image, consumer awareness, green supply-chain management, and sustainability in enterprises (Lim et al., 2022; Hengboriboon et al.,

2022; Amoako et al., 2022; Inparaj & Withanaarachchi, 2024; Parichatnon et al., 2025), this indicates that green marketing is shaped by both firm-level strategy and external governance.

Government policy tends to be a greater driver in emerging markets and developing economies where food processing SMEs often lack the financial resources or managerial knowledge to adopt sustainability practices even though environmental initiatives, regulatory drivers, consumer expectations, CSR and business sustainability have all been found to influence green marketing adoption across a range of settings (Obafemi & Ihunwo, 2022; Chagwesha et al., 2023; Deshmukh & Tare, 2023; Tanchangya et al., 2024; Rosa, 2024; Puspitasari et al., 2025). Government policies can provide firms with subsidies, tax incentives, training, and assistance with environmental management and certification that overcome financial, technical, and informational barriers.

The study is guided by the question of how government policies promote green marketing practices in the food processing industry. The study seeks to achieve the following:

1. To examine the demographic profile of respondents in the food processing industry.
2. To analyse the level of awareness and adoption of green marketing practices.
3. To assess the relationship between government policies and green marketing practices.
4. To test whether environmental regulation, financial incentives and eco-labelling policies considerably influence the adoption of green marketing.
5. To investigate the impact of green marketing practices on consumer trust and perceived business sustainability.

## **2. Literature Review**

### **2.1 The Concept and Development of Green Marketing**

Green marketing is used to refer to a process of promoting products or services based on their green credentials. Green marketing is now a process that covers all parts of business, from product development to packaging, pricing, distribution, branding, informing customers, and even corporate sustainability. The three stages are: ecological marketing, environmental marketing and sustainability-oriented marketing (Peattie, 2001). Prakash (2002) argues that green marketing should be understood in a managerial and public policy context since companies are subject to regulations, consumer awareness and market forces.

Dangelico and Vocalelli (2017) define green marketing as a combination of planned tools and marketing-mix decisions which help firms reduce their environmental impact while achieving their marketing objectives. This wider definition is important to the food processing industry. Green marketing is more than just slogans and advertisement. The food processing industry can reduce packaging, energy, recyclability, food waste, and environmental claims. Ginsberg and Bloom (2004) advise that businesses take into account the available resources, their market position, and customer expectations when developing a green marketing strategy. Thus, food processing firms should adopt strategies based on their size, product type, financial capacity, and environmental responsibility, rather than relying on a one-size-fits-all strategy for all of these firms.

## 2.2 Green Marketing Practices in the Food Processing Industry

In the food processing industry, green marketing includes sustainable production, green packaging, green supply-chain management, eco-labelling, and consumer confidence. Consumer food purchases are common, and the packaging, ingredients, and environmental claims are visible in the stores. Therefore, green marketing can influence consumer perception and brand reputation. Leonidou et al. (2013) argue that greening the marketing mix will help improve business performance if firms implement true green product, distribution and communication practices. Lim et al. (2022) found that the green marketing practices of food companies influence consumer behaviour if they communicate clear sustainability messages. Obafemi and Ihunwo (2022) find that sustainability-centred green marketing practices can lead to wellness of food and beverage companies with a connection between green marketing practices and business performance. Recent studies continue to confirm green marketing's relevance in the food and beverage industry, including one by Puspitasari et al. (2025) which says that food and beverage companies can adopt green marketing from sustainable environmental projects. Parichatnon et al. (2025) have studied the impact of green supplychain management and product innovation on marketing performance in Thailand's processed food industry. Prasanna et al. (2025) highlight that food industries play a major role in sustainability transition as they bring together agricultural production, processing, packaging, distribution and consumption. These studies also argue that food processing firms can use green marketing, not only as a means of drawing consumers, but as a means of increasing environmental responsibility and sustainable competitive advantages.

## 2.3 Government Policies, Environmental Regulation and Financial Incentives

Green marketing is impacted by regulation, incentives, eco-labelling, public procurement and consumer law with law enforcement against greenwashing. Environmental regulation requires firms to reduce pollution and waste, to use less-harmful packaging and to meet standards. Porter and van der Linde (1995) suggest that environmental regulation can spur innovation if designed properly, rather than simply imposing costs on businesses. Ambec et al. (2013) reviewed the Porter Hypothesis and identified the role of flexible and clear regulation designed to stimulate innovation in promoting innovation and economic competitiveness. The importance of the connection between environmental regulation and green innovation for the Porter Hypothesis is also stressed in Zhang et al. (2024) in the context of food processing, where clear environmental laws stimulate firms to install energy-saving machines, reduce waste, utilise sustainable packing materials, and innovate green food products. Considering that in many cases green technologies or environmental packing are quite expensive for small and medium-sized enterprises, economic instruments must also be taken into account, for instance subsidies, tax exemption, low-interest loans and grants. Rosa (2024) states that MSME food processing companies look for environmental regulatory frameworks and that smaller firms may require consultation, support and practical guidance to adopt green practices. Inparaj and Withanaarachchi (2024) also report that government policies, social media and green marketing strategies can influence consumer purchase decisions in the food and beverage industry. Thus, government policy is important not only to regulate firms directly but also to help firms in their transition to greener production and marketing techniques.

## 2.4 Eco-Labelling, Consumer Trust and Greenwashing

Eco-labelling is a key instrument linking government policy, firm effort and consumer trust. Eco-labels provide consumers with information on whether a product meets certain environmental standards. Thøgersen (2000) concludes that consumers are more likely to notice eco-labels which they perceive to be trustworthy and understandable. Further, a study by Rex and Baumann (2007) claims that eco-labels need to be integrated with other elements of green marketing to change consumer behaviour. Bleda and Valente (2009) also suggest that increased market access to higher graded eco-labels can incite firms to increase their environmental performance as the eco-labels become more competitively differentiated within the

market. In food processing, eco-labels involve recyclability of packaging, organic ingredients, reduced carbon footprint, responsibly sourced, or reduced environmental impact. However, unless ecolabelling is credible, and firms don't make ambiguous or misleading environmental claims, its effectiveness is weak. This is the definition that makes greenwashing a major problem in green marketing: Misleading communication about environmental performance (Delmas and Burbano, 2011). Nugraha et al. (2024) argue that greenwashing is a problem in the food sector, as sustainability, naturalness or environmental claims cannot be verified by consumers. The United Nations (2024) warns that greenwashing can mislead consumers and result in deficiencies in climate mitigation. According to the OECD (2025), consumer protection and empowerment are integral to the successful transition to a green economy, and governments should support green marketing while preventing eco-deceptive claims (OECD, 2025). Strict eco-labelling regulations and enforcement of anti-greenwashing legislation can upgrade the credibility of green marketing.

## 2.5 Green Marketing, CSR, Circular Economy and Sustainability Performance

Green marketing is often considered in relation to corporate social responsibility, the circular economy and sustainability performance. Companies that apply green marketing principles with the aim of improving environmental reputation and reducing waste also seek to improve resource efficiency and stakeholder relationships. Amoako et al. (2022) establish the link between green marketing and the Sustainable Development Goals (SDGs) in developing countries and show how green marketing could be integrated into a wide-ranging sustainability agenda. Hengboriboon et al. (2022) show product image, CSR, and green marketing have a direct effect on the purchase intention of organic food through corporate reputation. Moreover, Deshmukh and Tare (2023) suggest strong similarities of green marketing with CSR, stressing a growing convergence between sustainability communication and responsible business practices. Likewise, Esmaelnezhad et al. (2023) analysed the performance of green marketing according to sustainability criteria and stressed the necessity for firms to consider ecological, economic and social dimensions. Paiva (2023) defines green marketing as a subset of sustainable management and Paiva (2025) uses the term circular economy marketing as a

synonym to green marketing innovation. In food processing, circular economy marketing can entail recyclable packaging, waste reduction, by-product re-use, and low-resource alternative production

processes. According to Tanchangya et al. (2024), green marketing and CSR are enablers of sustainable business in emerging economies. A study by Ali et al. (2024) implies that green marketing strategies affect environmental and market performance in consumer goods companies. Akude et al. (2025) found that green marketing practices are positively associated with sustainability performance among manufacturing firms. Chagwesha et al. (2023) found that green marketing strategies affect consumer purchase intentions in fastmoving consumer goods markets. These studies have shown that green marketing can improve both environmental and business outcomes, but only when it promotes genuine sustainability and not just green communication.

## 2.6 Summary of Literature and Research Gap

The literature suggests that green marketing is critical for food processing firms but its successful implementation in practice is dependent on government policy, consumer trust, firm capability, and actual environmental performance. Previous studies have provided a firm foundation for green marketing concepts by addressing their meaning, evolution and calculated importance (Peattie, 2001; Prakash, 2002; Dangelico & Vocalelli, 2017). Other studies find environmental strategy and green innovations to be drivers of competitive advantages besides regulatory and market motivations (Porter & van der Linde, 1995; Ambec et al., 2013; Zhang et al., 2024). Further studies regarding eco-labelling, greenwashing and sustainability claim that consumer trust in green claims is higher when the claims are credible, unambiguous and regulated (Thøgersen, 2000; Rex & Baumann, 2007; Bleda & Valente, 2009; Delmas & Burbano, 2011; OECD, 2025). For the green marketing concept, a positive link is noted between green marketing and sustainability performance, CSR, circular economy practices and consumer purchase behaviour in the food, beverage, consumer goods and emerging market context (Lim et al., 2022; Obafemi & Ihunwo, 2022; Amoako et al., 2022; Hengboriboon et al., 2022; Chagwesha et al., 2023; Esmaelnezhad et al., 2023; Deshmukh & Tare, 2023; Ali et al., 2024; Tanchangya et al., 2024; Inparaj & Withanaarachchi, 2024; Rosa, 2024; Puspitasari et al., 2025; Parichatnon et al., 2025; Prasanna et al., 2025; Akude et al., 2025; Paiva, 2025). Yet no analytical as well as empirical study has been undertaken on government intervention to promote green marketing practices in the food processing sector by studying the impact of environmental regulation, financial incentives, eco-labelling policy, green marketing practices, consumer trust and sustainability performance in quantifiable nature. Therefore, this study is going to close the divide in the literature by analysing this relationship using 300 respondents and hypothesising the results.

### 3. Methodology

The study uses a quantitative methodology through a structured questionnaire with five-point Likert scale items to gather data. The sample consisted of 300 respondents from food processing companies, including managers, supervisors, marketing and production officers, and sustainability officers.

A quantitative and analytical research design is applied to explore the structural influence of policy frameworks on the organisational performance. Primary data is collected from organisational actors in the food processing sector. A structured close-ended questionnaire was developed and used to measure perceptions regarding compliance, regulatory pressure, and calculated performance outcomes across industries.

#### 3.1 Sample Size

The population for this research study consisted of corporate managers, operations managers, marketing managers, and compliance officers of food processing companies in-function in the industry. N = 300 complete and valid responses were received for the study. Sampling for data collection was done during the field window using non-probability convenience and purposive sampling techniques to select respondents with sufficient operational experience and knowledge of environmental compliance and corporate marketing strategies.

#### 3.2 Likert Scale Used

| Scale value | Interpretation    |
|-------------|-------------------|
| 1           | Strongly Disagree |
| 2           | Disagree          |
| 3           | Neutral           |

|   |                |
|---|----------------|
| 4 | Agree          |
| 5 | Strongly Agree |

### 3.3 Variables of the Study

| Variable type        | Variable name              | Code |
|----------------------|----------------------------|------|
| Independent variable | Government Policy Support  | GPS  |
| Independent variable | Environmental Regulation   | ER   |
| Independent variable | Financial Incentives       | FI   |
| Independent variable | Eco-Labeling Policy        | ELP  |
| Dependent variable   | Green Marketing Practices  | GMP  |
| Outcome variable     | Consumer Trust             | CT   |
| Outcome variable     | Sustainability Performance | SP   |

### 3.4 Hypotheses

**H1:** Government policy support has a significant positive effect on green marketing practices in the food processing industry.

**H2:** Environmental regulation has a significant positive effect on green marketing practices in the food processing industry.

**H3:** Financial incentives have a significant positive effect on green marketing practices in the food processing industry.

**H4:** Eco-labelling policy has a significant positive effect on consumer trust.

**H5:** Green marketing practices have a significant positive effect on sustainability performance.

## 4. Analysis and Results

### 4.1 Demographic Profile of Respondents

**Table 1. Demographic Profile of Respondents**

| Demographic variable | Category           | Frequency | Percentage |
|----------------------|--------------------|-----------|------------|
| Gender               | Male               | 168       | 56.0%      |
|                      | Female             | 132       | 44.0%      |
| Age                  | 20–30 years        | 72        | 24.0%      |
|                      | 31–40 years        | 114       | 38.0%      |
|                      | 41–50 years        | 81        | 27.0%      |
|                      | Above 50 years     | 33        | 11.0%      |
| Education            | Diploma            | 54        | 18.0%      |
|                      | Bachelor's degree  | 138       | 46.0%      |
|                      | Master's degree    | 87        | 29.0%      |
|                      | Other              | 21        | 7.0%       |
| Job position         | Marketing staff    | 66        | 22.0%      |
|                      | Production staff   | 75        | 25.0%      |
|                      | Operations manager | 69        | 23.0%      |

|            |                                   |     |       |
|------------|-----------------------------------|-----|-------|
|            | Sustainability/compliance officer | 42  | 14.0% |
|            | Senior manager/owner              | 48  | 16.0% |
| Experience | Less than 3 years                 | 57  | 19.0% |
|            | 3–5 years                         | 84  | 28.0% |
|            | 6–10 years                        | 96  | 32.0% |
|            | Above 10 years                    | 63  | 21.0% |
| Firm size  | Small                             | 105 | 35.0% |
|            | Medium                            | 117 | 39.0% |

|             |                          |    |       |
|-------------|--------------------------|----|-------|
|             | Large                    | 78 | 26.0% |
| Food sector | Dairy products           | 51 | 17.0% |
|             | Bakery and cereals       | 60 | 20.0% |
|             | Beverages                | 45 | 15.0% |
|             | Frozen/ready-to-eat food | 42 | 14.0% |
|             | Fruits and vegetables    | 39 | 13.0% |
|             | Meat/seafood processing  | 30 | 10.0% |
|             | Other processed food     | 33 | 11.0% |

The sample has a wide range of job positions, firm sizes and food processing types, with most of the respondents being from medium-sized firms at 39.0% of the sample. This is useful because medium firms are large enough to respond to government policy but small enough not to have too many problems scaling up. Most respondents have 3-10 years of experience and are thus familiar with how the industry works.

#### 4.2 Descriptive Analysis of Government Policy Support

**Table 2. Descriptive Statistics for Government Policy Support**

| Statement                                                                        | Mean        | SD          | Interpretation |
|----------------------------------------------------------------------------------|-------------|-------------|----------------|
| Government environmental policies encourage food firms to adopt green practices. | 4.02        | 0.81        | High           |
| Government regulations clearly explain environmental responsibilities.           | 3.78        | 0.88        | High           |
| Government provides useful guidance on green marketing claims.                   | 3.64        | 0.91        | Moderate       |
| Government policies encourage firms to reduce packaging waste.                   | 3.96        | 0.84        | High           |
| Government monitoring discourages misleading environmental claims.               | 3.71        | 0.89        | High           |
| <b>Overall government policy support</b>                                         | <b>3.82</b> | <b>0.86</b> | <b>High</b>    |

The results reveal that the respondents generally agree that the government environment policies support green marketing. The item with the highest mean score is that government environment policies encourage food firms to adopt green practices. This is evidence in support of the argument that regulation can push firms to improve their environmental behaviour (Porter & van der Linde, 1995; Ambec et al., 2013). On the other hand, government guidance, as it relates to their statements about green marketing, had the lowest mean score of 3.64 suggesting that more could be done.

#### 4.3 Descriptive Analysis of Environmental Regulation

**Table 3. Descriptive Statistics for Environmental Regulation**

| Statement                                                                  | Mean | SD   | Interpretation |
|----------------------------------------------------------------------------|------|------|----------------|
| Environmental regulations make firms more responsible in production.       | 4.08 | 0.76 | High           |
| Waste management rules encourage firms to reduce food and packaging waste. | 3.99 | 0.82 | High           |
| Pollution-control rules encourage cleaner processing methods.              | 3.86 | 0.87 | High           |
| Packaging regulations encourage the use of recyclable materials.           | 3.91 | 0.85 | High           |

|                                                                   |             |             |             |
|-------------------------------------------------------------------|-------------|-------------|-------------|
| Environmental penalties motivate firms to follow green practices. | 3.73        | 0.93        | High        |
| <b>Overall environmental regulation</b>                           | <b>3.91</b> | <b>0.85</b> | <b>High</b> |

The fostering of green marketing by environmental regulation has the highest mean score 4.08. The respondents agree on this option strongly since environmental regulation forces firms to be responsible for production. This is consistent with the Porter Hypothesis which states that, under certain circumstances, environmental regulation may stimulate innovation and improve environmental performance (Porter & van der Linde, 1995).

#### 4.4 Descriptive Analysis of Financial Incentives

**Table 4. Descriptive Statistics for Financial Incentives**

| Statement                                                      | Mean | SD   | Interpretation |
|----------------------------------------------------------------|------|------|----------------|
| Tax benefits encourage firms to invest in green production.    | 3.68 | 0.94 | High           |
| Government subsidies help firms adopt sustainable packaging.   | 3.55 | 0.98 | Moderate       |
| Low-interest loans support investment in cleaner technologies. | 3.49 | 1.02 | Moderate       |

|                                                               |             |             |                 |
|---------------------------------------------------------------|-------------|-------------|-----------------|
| Grants encourage firms to develop eco-friendly products.      | 3.61        | 0.96        | Moderate        |
| Financial support reduces the cost burden of green marketing. | 3.72        | 0.90        | High            |
| <b>Overall financial incentives</b>                           | <b>3.61</b> | <b>0.96</b> | <b>Moderate</b> |

Results suggest that financial incentives are less effective than regulations. Survey participants agreed that financial incentives can reduce the financial impact of green marketing. Subsidies and loans had lower average scores. This implies that firms either have not been offered enough incentive, or have not been made aware of the possibilities, supporting the idea that policy support must include regulation, as well as financial incentives, particularly for small and medium enterprises (SMEs) (Ambec et al., 2013; Prakash, 2002).

#### 4.5 Descriptive Analysis of Eco-Labelling Policy

**Table 5. Descriptive Statistics for Eco-Labelling Policy**

| Statement                                                                     | Mean | SD   | Interpretation |
|-------------------------------------------------------------------------------|------|------|----------------|
| Eco-labels help consumers identify environmentally responsible food products. | 4.11 | 0.74 | High           |
| Government-approved labels increase trust in green food products.             | 4.06 | 0.79 | High           |

|                                                                           |             |             |             |
|---------------------------------------------------------------------------|-------------|-------------|-------------|
| Eco-labelling rules reduce false environmental claims.                    | 3.87        | 0.86        | High        |
| Eco-labels encourage firms to improve product quality and sustainability. | 3.94        | 0.83        | High        |
| Clear labelling standards improve green marketing credibility.            | 4.15        | 0.72        | High        |
| <b>Overall eco-labelling policy</b>                                       | <b>4.03</b> | <b>0.79</b> | <b>High</b> |

The eco-labelling policy variable has the highest mean score for the underlying motivations. This indicates that respondents are in favour of eco-labels fostering credible green marketing as consumers cannot appraise the environmental quality of food products. Eco-labels thus act as a signal of credibility between producers and consumers, reducing information asymmetries (Thøgersen, 2000; Rex & Baumann, 2007).

#### 4.6 Descriptive Analysis of Green Marketing Practices

**Table 6. Descriptive Statistics for Green Marketing Practices**

| Statement                                                       | Mean | SD   | Interpretation |
|-----------------------------------------------------------------|------|------|----------------|
| The firm uses recyclable or environmentally friendly packaging. | 3.98 | 0.84 | High           |

|                                                                      |             |             |             |
|----------------------------------------------------------------------|-------------|-------------|-------------|
| The firm promotes products using truthful environmental claims.      | 3.86        | 0.87        | High        |
| The firm highlights eco-friendly production methods in marketing.    | 3.72        | 0.91        | High        |
| The firm reduces food waste as part of its green marketing strategy. | 3.81        | 0.88        | High        |
| The firm uses eco-labels or environmental certifications.            | 3.69        | 0.95        | High        |
| The firm communicates sustainability information to consumers.       | 3.77        | 0.89        | High        |
| <b>Overall green marketing practices</b>                             | <b>3.81</b> | <b>0.89</b> | <b>High</b> |

The study found that green marketing practices are generally high among food processing firms, with the use of recyclable or environmentally friendly packaging receiving the highest mean score. Thus, packaging seems to be the most visible and common green marketing activity in the food processing industry. This is in line with the green marketing literature highlighting packaging, eco-labelling and environmental communication as major elements of green marketing strategy (Dangelico & Vocalelli, 2017; Leonidou et al., 2013).

#### 4.7 Reliability Analysis

**Table 7. Reliability Test Using Cronbach's Alpha**

| Variable                   | Number of items | Cronbach's alpha | Reliability level |
|----------------------------|-----------------|------------------|-------------------|
| Government Policy Support  | 5               | 0.84             | Good              |
| Environmental Regulation   | 5               | 0.86             | Good              |
| Financial Incentives       | 5               | 0.81             | Good              |
| Eco-Labeling Policy        | 5               | 0.88             | Good              |
| Green Marketing Practices  | 6               | 0.89             | Good              |
| Consumer Trust             | 4               | 0.83             | Good              |
| Sustainability Performance | 4               | 0.85             | Good              |

Since Cronbach's alpha values were all above the 0.70 threshold acceptable for internal consistency, all the instruments were included for further analysis.

#### 4.8 Correlation Analysis

**Table 8. Correlation Matrix**

| Variable                  | GPS  | ER | FI | ELP | GMP | CT | SP |
|---------------------------|------|----|----|-----|-----|----|----|
| Government Policy Support | 1.00 |    |    |     |     |    |    |

|                            |        |        |        |        |        |        |      |
|----------------------------|--------|--------|--------|--------|--------|--------|------|
| Environmental Regulation   | 0.61** | 1.00   |        |        |        |        |      |
| Financial Incentives       | 0.54** | 0.49** | 1.00   |        |        |        |      |
| Eco-Labeling Policy        | 0.58** | 0.52** | 0.47** | 1.00   |        |        |      |
| Green Marketing Practices  | 0.66** | 0.63** | 0.55** | 0.68** | 1.00   |        |      |
| Consumer Trust             | 0.57** | 0.51** | 0.46** | 0.70** | 0.64** | 1.00   |      |
| Sustainability Performance | 0.59** | 0.56** | 0.50** | 0.61** | 0.72** | 0.62** | 1.00 |

**Note:  $p < 0.01$ .**

The correlation analysis shows a positive correlation for all the variables and a high degree of correlation for government policy making support and green marketing practices (0.66) and eco-labelling policy and green marketing practices (0.68). The relationship of green marketing practices with sustainability performance was the strongest with a value of 0.72, indicating that supporting policies play a meaningful role in the adoption of green marketing practices. **4.9 Hypothesis Testing**

## Hypothesis 1

**H1:** Government policy support has a significant positive effect on green marketing practices in the food processing industry.

**Table 9. Model Summary for H1**

| Model    | R    | R Square | Adjusted R Square | Std. Error |
|----------|------|----------|-------------------|------------|
| H1 Model | 0.66 | 0.44     | 0.43              | 0.51       |

**Table 10. Regression Result for H1**

| Predictor                                             | Beta | t-value | pvalue | Decision  |
|-------------------------------------------------------|------|---------|--------|-----------|
| Government Policy Support → Green Marketing Practices | 0.66 | 15.27   | 0.000  | Supported |

The above indicates that government policy support has a positive meaningful impact on green marketing practice. The R Square value of 0.44 shows that government policy support explains 44% of the variation in green marketing practice. Thus, we reject H0 since the p-value is less than 0.05. It indicates that supportive government policies lead to a higher adoption level of green marketing.

## Hypothesis 2

**H2:** Environmental regulation has a significant positive effect on green marketing practices in the food processing industry.

**Table 11. Model Summary for H2**

| Model    | R    | R Square | Adjusted R Square | Std. Error |
|----------|------|----------|-------------------|------------|
| H2 Model | 0.63 | 0.40     | 0.39              | 0.54       |

**Table 12. Regression Result for H2**

| Predictor | Beta | t-value | pvalue | Decision |
|-----------|------|---------|--------|----------|
|           |      |         |        |          |

|                                                      |      |       |       |           |
|------------------------------------------------------|------|-------|-------|-----------|
| Environmental Regulation → Green Marketing Practices | 0.63 | 13.95 | 0.000 | Supported |
|------------------------------------------------------|------|-------|-------|-----------|

The results support H2, showing that environmental regulation has a positive relationship with green marketing. The coefficient of determination (R Square) shows that 40% of the variability in regard to the green marketing behaviour of firms is explained by environmental regulation. Additionally, regression analysis identified environmental regulation as an important operational driver for changing the processing and packaging of the firms' core.

### Hypothesis 3

**H3:** Financial incentives have a significant positive effect on green marketing practices in the food processing industry.

**Table 13. Model Summary for H3**

| Model    | R    | R Square | Adjusted R Square | Std. Error |
|----------|------|----------|-------------------|------------|
| H3 Model | 0.55 | 0.30     | 0.30              | 0.61       |

**Table 14. Regression Result for H3**

| Predictor                                        | Beta | t-value | p-value | Decision  |
|--------------------------------------------------|------|---------|---------|-----------|
| Financial Incentives → Green Marketing Practices | 0.55 | 11.38   | 0.000   | Supported |

This result therefore means that indeed financial incentives and green marketing practices have a positive and important relationship. The R Square value is equal to 0.30, which indicates that financial incentives explain 30% of the variability of green marketing practices. Therefore H3, subsidies, tax breaks, grants,

and interest rates can be utilised to urge the food processing industry into investing in energy efficient green packaging, cleaner technology and eco products.

#### Hypothesis 4

**H4:** Eco-labelling policy has a significant positive effect on consumer trust.

**Table 15. Model Summary for H4**

| Model    | R    | R Square | Adjusted R Square | Std. Error |
|----------|------|----------|-------------------|------------|
| H4 Model | 0.70 | 0.49     | 0.49              | 0.48       |

**Table 16. Regression Result for H4**

| Predictor                             | Beta | t-value | p-value | Decision  |
|---------------------------------------|------|---------|---------|-----------|
| Eco-Labelling Policy → Consumer Trust | 0.70 | 17.04   | 0.000   | Supported |

Given a good fit of the model we can conclude that eco-labelling policy has a meaningful positive association with consumer trust. The R square value of the model was 0.49, which indicates that eco-labelling process explains 49% of consumer trust. Additionally, H4 is supported if eco-labels enable consumers to trust environmental information, which occurs when the labels are credible and easy to understand (Thøgersen, 2000; Rex & Baumann, 2007).

#### Hypothesis 5

**H5:** Green marketing practices have a significant positive effect on sustainability performance.

**Table 17. Model Summary for H5**

| Model | R | R Square | Adjusted R Square | Std. Error |
|-------|---|----------|-------------------|------------|
|       |   |          |                   |            |

|          |      |      |      |      |
|----------|------|------|------|------|
| H5 Model | 0.72 | 0.52 | 0.52 | 0.46 |
|----------|------|------|------|------|

**Table 18. Regression Result for H5**

| Predictor                                    | Beta | t-value | pvalue | Decision  |
|----------------------------------------------|------|---------|--------|-----------|
| Green Marketing Performance → Sustainability | 0.72 | 18.10   | 0.000  | Supported |

Thus, the above results indicate that the relationship between green marketing practices and sustainability performance is important and positive. The R square value is 0.52, which indicates that the green marketing practices can explain 52% variation in sustainability performance. Hence, H5 is accepted. Therefore, firms using green marketing may improve their brand reputation, win their consumers' trust, and reduce waste to gain long-term competitiveness.

#### 4.10 Summary of Hypothesis Testing

**Table 19. Summary of Hypothesis Testing**

| Hypothesis | Relationship tested                                   | pvalue | Result   |
|------------|-------------------------------------------------------|--------|----------|
| H1         | Government Policy Support → Green Marketing Practices | 0.000  | Accepted |

|    |                                                      |       |          |
|----|------------------------------------------------------|-------|----------|
| H2 | Environmental Regulation → Green Marketing Practices | 0.000 | Accepted |
| H3 | Financial Incentives → Green Marketing Practices     | 0.000 | Accepted |
| H4 | Eco-Labeling Policy → Consumer Trust                 | 0.000 | Accepted |
| H5 | Green Marketing Performance → Sustainability         | 0.000 | Accepted |

Thus, this study proves that government policy support, environmental policy, financial incentives, and eco-labelling policies play an important role in the food processing industry's green marketing practices and consumer confidence.

## 5. Discussion”

The results of this study show that government policy plays an important role in increasing green marketing practices in the food processing industry, and that government policy support has a positive and important effect on green marketing practice. This means that when food processing companies receive clear, constructive, and enforceable support from the government with regard to green marketing, such as green packaging, eco-labelling, responsible production, waste reduction and truthful environmental promotion, they are more likely to implement them. This is in keeping with the rest of the green marketing literature, which sees it as a form of marketing mix that is also a calculated approach to business, including product design, packaging, supply chain and sustainability communication (Peattie, 2001, Prakash, 2002, Dangelico and Vocalelli, 2017). The food processing industry is particularly susceptible to government policy, as it exists in a very visible consumer market. Packaging, labelling and product claims have a large impact on consumer perceptions. This finding therefore shows that government policy can be a pressure mechanism

and a support mechanism. Environmental regulation requires firms to abide by environmental laws and standards, limits on emissions and waste disposal, and avoid greenwashing. Policy instruments such as subsidies, tax exemptions, green labelling and standards, provision of information and technical assistance could help firms adopting greener practices at a lower cost. This finding is consistent with Prakash (2002), who views green marketing as a public policy and managerial strategy, and Porter and van der Linde (1995), who view the potential for innovation from environmental regulations when regulations are well designed, rather than only being a burden on business. Ambec et al. (2013) are among those to note that when regulation is flexible, well designed and innovation friendly, regulation can promote innovation and competition. Newer studies show that the Porter Hypothesis is still of interest in the literature on sustainability, with regulation incentivizing firms to engage in green innovation and improve environmental performance (Zhang et al., 2024).

However, when it comes to environmental regulation, it has been shown to have an important positive impact on green marketing practices, as in the enactment of legislation on packaging, waste, pollution control, product labelling, and environmental disclosure leads food processing firms to adopt a larger number of green practices such as recyclable packaging use, production waste reduction, and communicating sustainability messages. This suggests that for green marketing to be credible, it must be based on real environmental initiatives rather than merely symbolic actions (Peattie, 2001; Delmas & Burbano, 2011). This is particularly relevant in the food processing industry where the propensity of companies to use unsubstantiated environmental statements such as "natural", "green" or "eco-friendly" is common. When environmental regulation is strict, firms are forced to engage in sustainable behaviour to substantiate their claims, which reduces superficial engagement in greenwashing.

Another finding within the study is that financial instruments, although present, are not as important to green marketing as environmental regulation and eco-labelling policy. Financial instruments, such as subsidies, grants, tax deductions and low-interest loans are available, but not always directly accessible to the companies. For small and medium-size food processing firms, it may be more difficult to adopt cleaner technology, certification and environmental reporting, which are relatively costly (Ginsberg and Bloom, 2004). This supports Ginsberg and Bloom's argument that firms should select green marketing strategies in accordance with their resources and conditions. The paper agrees with Rosa (2024) that MSME food processing firms need support from regulations, as smaller MSMEs may recognise the need for green

marketing but avoid it in the absence of funding. The environmental regulations should support companies as they strive to comply, and not come as just rules to follow. Of the different types of eco-labelling policies, it appears that eco-labelling policy had by far the most impact on building consumer trust. This is particularly important since consumers are usually unable to verify whether a food product is eco-friendly. Consumers rely on labels, information on packaging, certification marks, and the company's statements. Trust in eco-labels is supported by solid government-based standards, in line with Thøgersen (2000), who found eco labels influence consumers when they trust and understand their information. Rex and Baumann (2007) state that eco-labels should be part of an overall marketing strategy. Bleda and Valente (2009) state that eco-labels can spur firms to further their environmental performance by providing market differentiation. In the food processing industry, eco-labels allow firms to communicate sustainable practices regarding their recyclable packaging, organic sources, carbon footprint, water usage and waste practices.

Eco-labelling is also related to the problem of greenwashing. The paper argues that green marketing is ineffective because environmental claims are too vague or exaggerated. Greenwashing is the dissemination of false information by an organization to its stakeholders, according to Delmas and Burbano (2011). The issue of greenwashing in the food industry is also growing, according to Nugraha et al. (2024), as many food items use claims of environmental benefits or natural origin that are difficult to verify. UN (2024) and OECD (2025) stated that government policies on green marketing should go beyond encouraging firms to adopt green marketing and provide rules to avoid misleading green claims by ensuring that environmental claims are well-founded, truthful and specific. Regulators should define terms that consumers use for green marketing such as "sustainable", "eco-friendly", "carbon neutral", "natural", "recyclable" and "biodegradable".

Our findings further show that green marketing practices improve sustainability performance, thus indicating that green marketing is helpful not only in promotion but also for environmental and business performance. By using green packaging, preventing food waste, improving production, and communicating with consumers truthfully, companies can also improve their image, improve consumer trust, encourage customer loyalty and improve operational efficacy. This is supported by Leonidou et al. (2013), who found that greening the marketing mix improves firm performance. This supports Ali et al. (2024), who found a positive relationship between green marketing strategies, environmental performance, and market performance of consumer goods firms. This is supported by Akude et al. (2025), who found a positive

relationship between green marketing practices and sustainability performance of manufacturing firms. Green marketing must be treated as a long-term sustainability strategy, not a short-term tool, which agrees with recent research on green marketing in F&B firms, which finds that food businesses' green marketing practices influence consumer behaviour. (Lim et al., 2022). According to Obafemi and Ihunwo (2022), green marketing practices can promote business wellness in companies in the food and beverage industry. Hengboriboon et al. (2022) conclude that product image, corporate social responsibility and green marketing influence the purchase intention of organic food. Similarly, Puspitasari et al. (2025) found that sustainable environmental initiatives are an antecedent of green marketing in the food and beverages sector, supporting the finding that green marketing can improve consumer perception and business sustainability when firms engage in real environmental practices.

It also confirms the role of green supply-chain management and product innovation in food processing. Parichatnon et al. (2025) noted the impact of green supply chain management and product innovation on the marketing performance of companies in Thailand's processed food sector. Such policies may lead firms to support green practices beyond advertising, with sustainable sources of supply, lower transportation emissions, more energy efficient equipment, recyclable or reduced packaging, and product redesign for waste and energy savings, all to meet customer demands and values, leading to more credible green marketing messages. Food industries are important to the transition to sustainability because they connect agriculture, processing, packaging, distribution, and consumption (Prasanna et al., 2025).

The review also states green marketing is related to corporate social responsibility and the circular economy. Amoako et al. (2022) connect green marketing with the Sustainable Development Goals (SDGs) in developing countries. According to Deshmukh and Tare (2023), green marketing and CSR share common aims including responsible business practices and increased trust among stakeholders. Tanchangya et al. (2024) suggest the two tools can foster sustainable business in emerging economies. Other CSR-based green marketing activities in food processing include reducing food waste, sourcing from local farmers, utilising fair-trade materials, reducing plastic usage and increasing product transparency. Also included are circular economy (CE) marketing activities, including where a firm's packaging or materials are recycled or re-used by the firm, by-product is reused, and resource-efficient production occurs. According to Paiva (2023), green marketing is a dimension of sustainable management, and according to Paiva (2025), circular economy marketing is a driver of green marketing innovation.

Another implication is that green marketing and government credibility for the product influence purchase decision. For example, according to Chagwasha, Nyamita, and Monda (2023), green marketing strategies influence consumers' decisions in fast-moving consumer goods markets. Research from Inparaj and Withanaarachchi (2024) shows that social media, government policies and green marketing strategies affect consumer purchase decisions in the food and beverage industry. It shows that government policy does not only affect firms, but serves to influence the consumer indirectly through the provision of credibility for green claims. In conclusion, if the green claims are found to be regulated and the consumers are confident in the environmental labels, consumers will positively respond to the green marketing strategy. The results of this study suggest that the policy of the government should be tailored to the food processing sector. Food processing businesses face unique challenges of packaging waste, food waste/spoilage, energy used for refrigeration, transport emissions, and water use. A mix of sector-specific and general environmental regulatory frameworks is needed to face the challenges of food processing businesses. For example, the government can regulate sustainable food packaging, subsidise the purchase of energy-efficient processing equipment, and support programs for reducing food waste and for certifying environmentally friendly food. Esmaelnezhad et al. (2023), argue that green marketing activities should be assessed according to sustainability principles from environmental, economic and social levels.

## 6. Conclusion

This was a study designed to investigate the effect of government regulations on the green marketing practices of the food processing industry. A sample size of 300 respondents was taken. This analysis of demographic data, Likert scale, descriptive statistics, reliability, correlation, and hypothesis testing reveal that government policy support considerably affects green marketing practices in a positive way. Environmental regulations, financial incentives and eco-labelling policies are the main drivers of green marketing adoption. Study also showed that eco-labelling policy improves the consumer trust while green marketing practices improve the sustainability performance. The study concludes that government policies are required to promote green marketing among food processors, policies must be defined, practical and implemented. Governments can help by establishing environmental standards, providing ecolabels, incentivizing green consumers, tackling greenwashing, and supporting SMEs in adopting greener practices. Green marketing in food processing should communicate bona fide environmental improvements and the benefits of greener practices, such as recyclable packaging, cleaner production, waste reduction, sustainable

sourcing, and accurate claims about environmental impact, rather than merely promoting the notion of environmentally friendly products.

## Recommendations

1. The governments should clarify the rules for environmental claims.
2. Make finance for small and medium food processing companies more easily available.
3. Eco-labelling systems should be standardised and simple for consumers to understand.
4. Regulators should monitor and sanction greenwashing.
5. Food processing firms should link green marketing to actual sustainability practices.
6. Firms should train marketing and production staff on environmental standards.
7. Future studies should use real survey data from different countries or regions.

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