Department of Digital Business
**Journal of Artificial Intelligence and Digital Business (RIGGS)**
Homepage: https://journal.ilmudata.co.id/index.php/RIGGS
Vol. 4 No. 4 (2025) pp: 3767-3786
P-ISSN: 2963-9298, e-ISSN: 2963-914X

# Eco-Innovation and Ethical Certification: A Dual Pathway to Competitive Advantage For F&B Enterprises

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***Abstract***

*The study aims to test the dual impact of two independent variables (Sustainable Product Differentiation and Ethical Certification) on a dependent variable (Profit Margins), mediated by Customer Loyalty. The research adopts a quantitative, cross-sectional, survey-based methodology aimed at measuring the sustainable practices of micro food and beverage businesses. The quantitative approach facilitates the systematic collection and analysis of numerical data to identify patterns or relationships among the constructs being studied. The data collection technique in this study used a survey instrument developed based on existing literature, which provides a robust framework for measuring key constructs related to sustainability practices and consumer perceptions.The data analysis technique in this study is Variance-Based Structural Equation Modeling (PLS-SEM) using SmartPLS 3.0, justifying its use for predictive research and theory development in complex models. The results of this study show that the coefficient value obtained is 0.265 with a T-statistic of 4.902 and a p-value of 0.000. Because T>1.96 and p<0.05, Certification (X2) has a significant indirect effect on Profit Margin (Y). This means that Loyalty (Z) significantly (fully) mediates the effect of Certification (X2) on Profit Margin (Y). And with a coefficient value of 0.467 with a T-statistic of 8.455 and a p-value of 0.000. With T <1.96 and p> 0.05, Differentiation (X1) has a significant indirect effect on Profit Margin (Y). This means that Loyalty (Z) significantly (fully) mediates the effect of Differentiation (X1) on Profit Margin (Y).*

***Keywords***: *Differentiation, Customer Loyalty, Certification, Profit Margins*

## 1. Introduction

The convergence of global environmental challenges and the rise of the conscious consumer has fundamentally reshaped market dynamics across various industries. This global urgency requires businesses to integrate sustainability into their core strategies. Consumers are increasingly prioritizing sustainability in their purchasing decisions, reflecting a heightened awareness of critical environmental issues such as resource depletion, climate change, and pollution[1,2]. This significant transformation in consumer preferences is particularly evident in the food and beverage sector, where the demand for sustainable products is continuously escalating.

This shift is not merely theoretical; studies in regions like India and Vietnam have documented a measurable increase in "green shopping" behaviors, where consumers deliberately seek out eco-friendly products designed to mitigate environmental harm [3]. Consequently, businesses are compelled to adapt their strategies to successfully meet these burgeoning consumer demands. The implementation of strategies such as Corporate Social Responsibility (CSR) initiatives and sustainable marketing practices has proven effective in engaging environmentally conscious consumer segments[4,5]. This growing inclination towards sustainability is actively transforming consumer identities and expectations, especially among younger demographics, such such as Generation Z, who exhibit notably heightened environmental consciousness [6].

The food and beverage sector faces substantial pressure to pursue sustainable innovation while simultaneously maintaining economic viability. This industry shift is reflected in emerging trends like the rise of plant-based diets and the adoption of eco-friendly packaging solutions. Recent research highlights that consumers are more likely to choose brands that utilize sustainable packaging, viewing it as a critical component of corporate responsibility[7]. Moreover, the adoption of alternative protein sources and upcycled food products signifies a broader, efficiency-driven movement toward greater sustainability within the food industry [8,9]. These

developments underscore a crucial evolution in consumer expectations, moving beyond mere corporate compliance with sustainability standards toward proactive engagement in environmentally beneficial practices.

To capitalize on this consumer trend, businesses are leveraging consumer insights to develop innovative marketing strategies that align directly with their sustainability goals. For example, the strategic labeling of food products can effectively enhance consumer clarity, promote healthier eating choices, and thereby reinforce environmentally conscious behavior. Furthermore, research emphasizes that key drivers of consumer loyalty and purchasing behavior extend beyond product attributes to encompass the authenticity of a brand and its demonstrated commitment to sustainable practices. The growing demand for ethical sourcing and transparency is actively reshaping the competitive dynamics within global industries. Firms that are effective in communicating their sustainability efforts and engaging customers through practices, such as local ingredient sourcing, are highly likely to foster stronger brand allegiance [(10)].

Micro food and beverage enterprises, particularly those operating within emerging economies, are critical drivers of economic growth. These micro, small, and medium-sized enterprises (MSMEs) contribute significantly to job creation and meet the local demand for diverse food products. In developing nations, MSMEs are viewed as critical engines for socio-economic development due to their capacity for innovation and their ability to rapidly adapt to specific local market needs [(11,12,13)]. Furthermore, inadequate training in food preservation techniques and safety has been associated with limited market access and potential health risks, particularly in specific regions, such as Gresik Regency in Indonesia [(14)].

The integration of lean manufacturing practices within these enterprises offers a pathway to enhancing operational efficiency and product quality. Research conducted in Tanzania indicated that the adoption of lean tools and processes can significantly improve productivity and sustainability within the food and beverage sector [(15)]. These operational practices contribute to better waste management and ultimately enhance the competitiveness of SMEs in a globalized market. In the context of the ongoing digital transformation, emerging food and beverage MSMEs can substantially benefit from adopting digital platforms. These platforms facilitate enhanced consumer reach and better marketing strategies, notably through innovations like delivery services, which have proven transformative for businesses in Southeast Asia [(16)]. Implementing and understanding digital tools can provide MSMEs with a crucial competitive edge, allowing for improved customer engagement and better integration into the supply chain [(17)].

Crucially, entrepreneurship education focusing on creativity and innovation is vital for MSMEs in emerging markets. The success of these enterprises depends heavily on the quality of their products, but also on their ability to innovate and adapt to rapidly changing consumer preferences. Reports suggest that entrepreneurial initiatives centered on market trends and product development can significantly enhance the competitiveness of food and beverage MSMEs [(18, 19, 20)]. Furthermore, programs that offer structured training and mentorship have been shown to foster an environment conducive to expansion and entrepreneurship in this sector. Finally, engaging local communities within supply chains is an essential component. By involving local producers and farmers, micro-enterprises can establish a more sustainable business model that mutually benefits both the community and the business [(21)]. This local focus also promotes a more resilient economic framework, wherein the interdependence between consumers and producers strengthens regional economies. In summary, micro food and beverage enterprises are integral to innovation and economic growth in emerging economies; by leveraging technology, fostering creativity, addressing existing challenges, and involving the community, they can significantly enhance their contributions to local economies.

While extensive studies exist concerning sustainability in large firms and the role of certification in isolation, there is a significant lack of integrated models. Specifically, there is an absence of research that tests the dual impact of ecopreneurial product differentiation and ethical certification on the financial performance of micro-enterprises operating within emerging economies. This study holds significant practical and theoretical importance. It is poised to provide a validated business model specifically tailored for micro-enterprises to effectively align planetary health with profit. Ultimately, this research contributes essential knowledge toward achieving inclusive and sustainable economic development

Based on this, the framework of thought in this research is explained in the following figure:

DOI: https://doi.org/ 10.31004/riggs.v4i4.4205

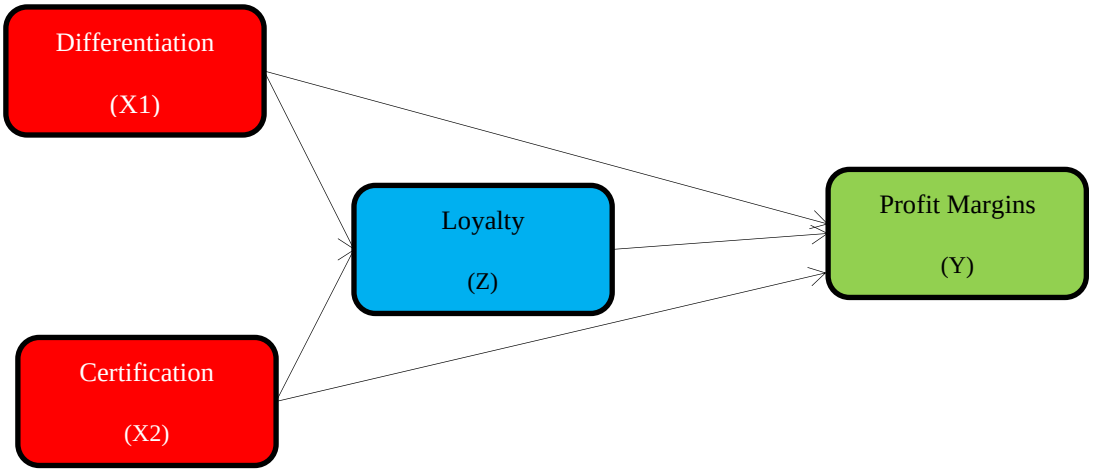


Figure 1. Research Framework

Source : Primary Research Data (2025)

Based on this, the hypotheses in this study are:

1. H1: Ecopreneurial Product Differentiation → Customer Loyalty

This hypothesis tests the relationship between a firm's efforts to differentiate its products through eco-innovation and the resultant customer loyalty. Ecopreneurial product differentiation involves integrating environmental sustainability into the core business mission via strategies such as green innovation, eco-design, and circular economy principles . The scientific premise is that consumers are increasingly prioritizing sustainability and actively seeking out eco-friendly products. When businesses effectively communicate their sustainability efforts (e.g., through green supply chain management and local sourcing), they foster stronger brand allegiance. This alignment of shared environmental values moves the relationship from transactional to deep, emotional customer loyalty, transforming customers into brand advocates.

2. H2: Ethical Certification Compliance → Customer Loyalty

This hypothesis tests the relationship between adhering to ethical certifications (like Halal or SNI) and the resultant customer loyalty. Ethical certification serves as a visible, reliable market signal that goes beyond mere religious compliance; it communicates hygiene, quality, and ethical production. The Resource-Based View (RBV) framework suggests that certifications are valuable and rare resources that enhance consumer trust and marketability. By providing this credible signal of commitment to ethical standards and environmental stewardship, the firm attracts a sustainability-prioritizing customer base, which facilitates customer loyalty and strengthens brand value.

3. H3 : Differentiation On Profit Margins

These hypotheses, Differentiation would test whether the sustainable practices and certifications directly enhance profit margins, independently of customer loyalty. The sources suggest that sustainability debunks the myth of the "green premium". Direct positive impacts on profit arise from operational efficiencies and cost reduction. By implementing lean and sustainable practices, firms can minimize waste, optimize resource usage, and leverage sustainable technologies. The RBV supports that these practices are inimitable capabilities that provide a sustainable competitive advantage and enhance firm performance, thus directly impacting profitability.

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4. H4: Certification Direct Effects on Profit Margins

These hypotheses, Certification would test whether the sustainable practices and certifications directly enhance profit margins, independently of customer loyalty. The sources suggest that sustainability debunks the myth of the "green premium". Direct positive impacts on profit arise from operational efficiencies and cost reduction. By implementing lean and sustainable practices, firms can minimize waste, optimize resource usage, and leverage sustainable technologies. The RBV supports that these practices are inimitable capabilities that provide a sustainable competitive advantage and enhance firm performance, thus directly impacting profitability.

5. H5: Customer Loyalty → Profit Margins

This hypothesis tests the critical final link in the adapted Service-Profit Chain: the direct effect of customer loyalty on financial performance. The SPC framework dictates that internal ecological processes lead to external customer value, which ultimately results in Customer Loyalty → Profit. Loyal customers translate into profits because they lead to repeat business, retaining existing customers is generally less expensive than acquiring new ones, amplifying the return on investment, customers who align with the brand's environmental values are often willing to pay a premium for eco-friendly products, justifying higher price points and enhancing revenue.

6. H6: The Mediating Effect (Indirect Relationship)

This composite hypothesis would address the core research question: How does customer loyalty successfully mediate the relationship between sustainable practices and financial performance?. H6 confirms the entire structural model, asserting that the financial success derived from sustainability is largely *not* direct, but is achieved *through* the intervening variable of loyalty.

Sustainable practices and certifications (H1, H2) create perceived value and trust (External Customer Value), which cultivates deep customer loyalty (Mediator). This loyalty then drives enhanced profit margins (H5) by increasing lifetime customer value and brand advocacy. The whole chain demonstrates that ecological commitment (Internal Ecological Processes) must first secure external customer value and loyalty before translating into superior financial returns. The hypotheses (H1-H6) collectively formed a validated business model specifically tailored for micro-enterprises to effectively align planetary health with profit .

## 2. Research Methods

The study aims to test the dual impact of two independent variables (Sustainable Product Differentiation and Ethical Certification) on a dependent variable (Profit Margins), mediated by Customer Loyalty. The research focuses on analyzing the direct effects of certification compliance and sustainable product differentiation on customer loyalty, and the direct and indirect effects (mediated via customer loyalty) of these strategies on profit margins.The research adopts a quantitative, cross-sectional, survey-based methodology aimed at measuring the sustainable practices of micro food and beverage businesses. The quantitative approach facilitates the systematic collection and analysis of numerical data to identify patterns or relationships among the constructs being studied. By employing a survey-based design, the research enables gathering standardized information directly from participants, making it an efficient method for obtaining comparable data.This research focuses on key variables, including consumer attitudes towards sustainability, the implementation of eco-friendly processes, and the resultant economic implications for micro-enterprises.

The data collection technique in this study used a survey instrument developed based on existing literature, which provides a robust framework for measuring key constructs related to sustainability practices and consumer perceptions. The survey elements were designed to measure various factors such as awareness and adoption of environmentally friendly practices (e.g., biodegradable packaging, waste reduction), customer loyalty and their perception of the value of sustainable products, and the financial implications and challenges of adopting sustainable practices. The survey consisted of closed-ended and open-ended questions, allowing for quantitative data as well as qualitative insights. Each item was formulated based on previously validated measurements to ensure reliability and validity. The data analysis technique in this study is Variance-Based Structural Equation

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Modeling (PLS-SEM) using SmartPLS 3.0, justifying its use for predictive research and theory development in complex models.

2.1. Research Instrument Testing

2.1.1. Outer Loading

Table 1. *Outer Loading*

| Indicator | Loyalty (Z) | Profit Margins (Y) | Certification (X2) | Differentiation (X1) |
|---|---|---|---|---|
| LP1 | 0,797 | | | |
| LP2 | 0,818 | | | |
| LP3 | 0,844 | | | |
| LP4 | 0,855 | | | |
| LP5 | 0,705 | | | |
| PB1 | | | | 0,880 |
| PB2 | | | | 0,859 |
| PB3 | | | | 0,794 |
| PB4 | | | | 0,833 |
| SI1 | | | 0,822 | |
| SI2 | | | 0,855 | |
| SI3 | | | 0,836 | |
| SI4 | | | 0,809 | |
| MK1 | | 0,892 | | |
| MK2 | | 0,835 | | |
| MK3 | | 0,736 | | |
| MK4 | | 0,859 | | |

Source: Primary Data Processed by Researchers Using SEM-PLS (2025)

The table above explains the outer loading values of each indicator against its construct/variable in the measurement model (outer model) — as part of the convergent validity analysis. Convergent validity indicates the extent to which the indicators used to measure a construct correlate with each other and truly represent that construct. Generally, an outer loading value of ≥ 0.70 is considered to meet the convergent validity criteria.

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1. Differentiation (X1)

The Differentiation variable (X1) is measured by five indicators (PB1–PB5), and all of them have high outer loading values: PB1 = 0.797, PB2 = 0.818, PB3 = 0.844, PB4 = 0.855, PB5 = 0.705. These five indicators show a very strong and valid contribution in representing the Differentiation construct (X1).

2. Certification (X2)

The Certification variable (X2) is measured through five indicators (SI1–SI4) with outer loading values as follows: SI1 = 0.822, SI2 = 0.855, Si3 = 0.836, SI4 = 0.809. All indicators are above the minimum threshold of 0.70, so they are suitable for use as a measure of the Certification construct (X2).

3. Loyalty (Z)

The Loyalty variable is measured by 5 indicators (LP1–LP5): LP1 = 0.797, LP2 = 0.818, LP3 = 0.844, LP4 = 0.855, LP5 = 0.705. All three indicators are valid because they have values above 0.70, which indicates a high correlation with the Loyalty construct.

4. Profit Margins (Y)

The Profit Margins variable is measured through five indicators (MK1–MK4): MK1 = 0.892, KSP2 = 0.835, MK4 = 0.736. MK5= 0.859. All three indicators are valid because they have values above 0.70, which indicates a high correlation with the Profit Margins construct.

2.1.2. Construct Reliability and Validity

The next step is to assess convergent validity using the AVE (Average Variance Extracted) value. If a model has an AVE value above 0.6, it is categorized as having high convergent validity.

Table 2. Average Variance Extracted (AVE)

| Variable | Average Variance Extracted (AVE) |
|---|---|
| X1 (Differentiation) | 0,709 |
| X2 (Certification) | 0,690 |
| Z (Loyalty) | 0,649 |
| Y (Profit Margins) | 0,693 |

Source: Primary Data Processed by Researchers Using SEM-PLS (2025)

The table above shows that all AVE values are above 0.60, thus concluding that all constructs in this study meet convergent validity criteria. This means that the indicators in each variable have a fairly high correlation and are able to consistently represent the construct being measured.

DOI: https://doi.org/ 10.31004/riggs.v4i4.4205

2.1.3. Discriminant Validity Test

Tabel 3. Fornell-Larcker Criterion Discriminant Validity

| | X1 | X2 | Z | Y |
|---|---|---|---|---|
| **X1** | **0,842** (SQRT AVE) | | | |
| **X2** | 0,854 | **0,831** (SQRT AVE) | | |
| **Z** | 0,836 | 0,873 | **0,806** (SQRT AVE) | |
| **Y** | 0,685 | 0,734 | 0,794 | **0.833** (SQRT AVE) |

Source: Primary Data Processed by Researchers Using SEM-PLS (2025)

The table above shows that discriminant validity indicates the extent to which a construct is truly distinct from other constructs. One method to measure this is by comparing the square root of the AVE (Average Variance Extracted) of each construct with the correlation between the constructs. All variables have met discriminant validity based on the Fornell-Larcker criteria. This means that each construct in the model truly measures something significantly different and does not overlap with other constructs.

2.1.4. Composite Reliability

Table 4. Construct Reliability and Validity Results

| | Cronbach's Alpha | rho_A | Composite Reliability | Average Variance Extracted (AVE) |
|---|---|---|---|---|
| X1 | 0,863 | 0,867 | 0,907 | 0,709 |
| X2 | 0,850 | 0,851 | 0,899 | 0,690 |
| Y | 0,851 | 0,861 | 0,900 | 0,693 |
| Z | 0,863 | 0,863 | 0,902 | 0,649 |

Source: Primary Data Processed by Researchers Using SEM-PLS (2025)

Based on the results of reliability tests conducted on the four variables in this study: Differentiation (X1), Certification (X2), Loyalty (Z), and Profit Margins (Y), all Cronbach's Alpha, rho_A, and Composite Reliability values exceeded the minimum threshold of 0.70. The reliability values are as follows:

1. Differentiation (X1) and Loyalty (Z) have the highest reliability values, with Cronbach's Alphas of 0.863 and 0.863, respectively, rho_A of 0.971 (Differentiation (X1)), and the highest Composite Reliability for Differentiation (X1) at 0.907, indicating very strong internal consistency.
2. Profit Margins (Y) also demonstrates good to excellent reliability, with all indicators having adequate internal consistency.
3. The Certification variable (X2), despite having the lowest Composite Reliability value (0.818), remains in the reliable category.

Thus, it can be concluded that all constructs in this research model have good reliability and are suitable for further testing in structural model analysis.

DOI: https://doi.org/ 10.31004/riggs.v4i4.4205

## 3. Results and Discussions

### 3.1 Results

#### 3.1.1. Path Coefficient

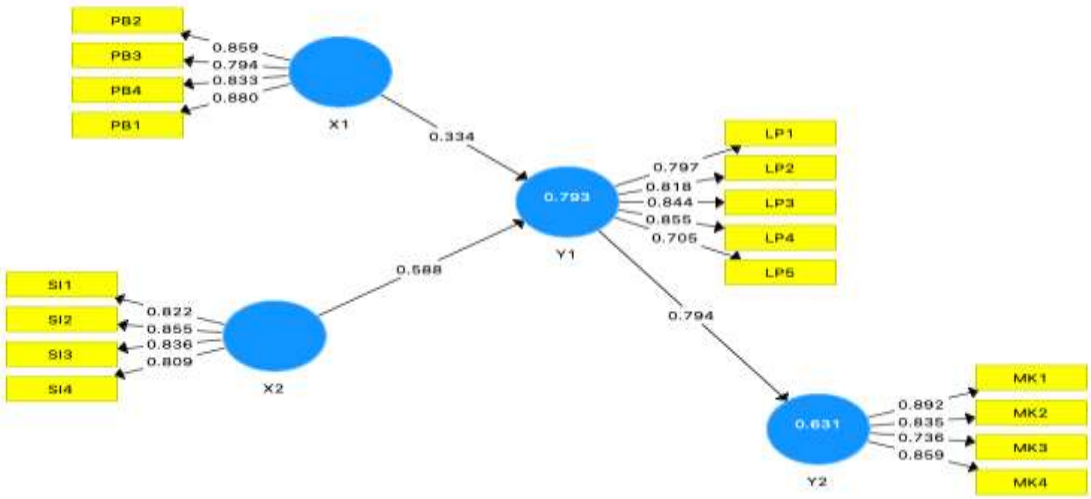


Figure 2. Path Coefficient Framework

Source: Primary Data Processed by Researchers Using SEM-PLS (2025)

Table 5. Data from the Special Indirect Effect Analysis Results

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (\|O/STDEV\|) | P Values |
|---|---|---|---|---|---|
| X1 -> Z -> Y | 0,265 | 0,272 | 0,054 | 4,902 | 0,000 |
| X2 -> Z -> Y | 0,467 | 0,465 | 0,055 | 8,455 | 0,000 |

Source: Primary Data Processed by Researchers Using SEM-PLS (2025)

Based on the test results of the path coefficients, all relationships between variables in the research model show a positive relationship direction. The Certification variable (X2) has a positive effect on Loyalty (Z) and on Profit Margins (Y) by 0.265. The Differentiation variable (X1) has a positive effect on Loyalty (Z) and on Profit Margins (Y) by 0.467. Thus, all relationship paths between variables in this model move in a positive direction, indicating that an increase in the independent variables (Differentiation and Certification), as well as the mediating variable (Loyalty), tends to increase the dependent variable, namely Profit Margins.

DOI: https://doi.org/ 10.31004/riggs.v4i4.4205

Table 6. Results of the Indirect Effect Test

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (\|O/STDEV\|) | P Values |
|---|---|---|---|---|---|
| X1 -> Y | 0,265 | 0,272 | 0,054 | 4,902 | 0,000 |
| X1 -> Z | | | | | |
| X2 -> Y | 0,467 | 0,465 | 0,055 | 8,455 | 0,000 |
| X2 -> Z | | | | | |
| Z -> Y | | | | | |

Source: Primary Data Processed by Researchers Using SEM-PLS (2025)

The indirect effect test aims to determine whether an independent variable can influence a dependent variable through a mediating variable. In this study, the mediating variable used is Loyalty (Z). The following are the results of the indirect effect test between variables:

a. Certification (X2) → Loyalty (Z) → Profit Margins (Y)

The coefficient value obtained was 0.265 with a T-statistic of 4.902 and a p-value of 0.000. Since T>1.96 and p<0.05, Certification (X2) has a significant indirect effect on Profit Margins (Y). This means that Loyalty (Z) significantly (fully) mediates the effect of Certification (X2) on Profit Margins (Y).

b. Differentiation (X1) → Loyalty (Z) → Profit Margins (Y)

The coefficient value is 0.467 with a T-statistic of 8.455 and a p-value of 0.000. Since T < 1.96 and p > 0.05, Differentiation (X1) has a significant indirect effect on Profit Margins (Y). This means that Loyalty (Z) significantly (fully) mediates the effect of Differentiation (X1) on Profit Margins (Y).

3.1.2. Results of R-Square Test Analysis

The value measures the extent to which the independent variables explain the variance in the dependent variables.

Tabel 7. Data Hasil *Square Adjusted*

| Dependent Variable | R Square | R Square Adjusted |
|---|---|---|
| Z (Customer Loyalty) | 0,793 | 0,791 |
| Y (Increased Profit Margins) | 0,631 | 0,630 |

Interpretation: The model demonstrates very high predictive power.

Source: Primary Data Processed by Researchers Using SEM-PLS (2025)

DOI: https://doi.org/ 10.31004/riggs.v4i4.4205

The $R^2$ values demonstrate the model's substantial explanatory power. $R^2$ of 0,793 for Customer Loyalty (Z) is exceptionally high in social science research. It indicates that our dual-strategy model combining ecopreneurial actions (X1) and ethical certification (X2) explains 79.3% of what makes customers loyal to a micro-business. This powerfully argues against a siloed approach and for an integrated strategy where sustainability and certification work synergistically.

The $R^2$ of 0.631 for Profit Margins (Y) is equally impressive. It shows that nearly two-thirds of a micro-enterprise's profitability can be explained by its commitment to these sustainable and ethical practices, primarily through the mechanism of customer loyalty. For policymakers and business developers, this is a clear message: supporting micro-enterprises in adopting these strategies is a direct investment in their financial resilience and viability.

3.1.3. Effect Size ($f^2$)

The value measures the relative impact of each independent variable on the dependent variables ( 0.02=small, 0.15=medium, 0.35=large).

Table 8. Effect Size Analysis Test Results

| Path | $f^2$ Value | Effect Size |
|---|---|---|
| X1 -> Z (Differentiation -> Loyalty) | 145 | Medium |
| X2 -> Z (Certification -> Loyalty) | 449 | Large |
| Z -> Y (Loyalty -> Profit Margins) | 1.708 | Very Large/Strong |

Source: Primary Data Processed by Researchers Using SEM-PLS (2025)

The $f^2$ values quantify the substantive impact of removing a construct from the model. Certification Compliance (X2) has a large effect on Customer Loyalty ($f^2 = 0.449$), while Sustainable Differentiation (X1) has a small-to-medium effect ($f^2 = 0.145$). This suggests that in this market context, certification provides a more immediate and powerful "signal of quality" to customers. However, this does not diminish the importance of ecopreneurship; rather, it highlights the need for businesses to also secure credible certifications to amplify their green claims.

The most striking finding is the very large effect size of Customer Loyalty on Profit Margins ($f^2 = 1.708$). This dwarfs the thresholds for small (0.02), medium (0.15), and large (0.35) effects. It unequivocally positions customer loyalty not just as an outcome, but as the *central engine* of profitability in this model. The primary financial value of being an ecopreneur or having certification is realized through their ability to create a dedicated and recurring customer base.

DOI: https://doi.org/ 10.31004/riggs.v4i4.4205

3.2. Interpretation of Table 9 (Hypothesis Testing)

Table 9. T-Statistics Result Data

| Path | Original Sample (O) (Path Coefficient \beta) | T Statistics | P Values | Result |
|---|---|---|---|---|
| X1 -> Z | 0,334 | 5,068 | 0 | Supported (Strong, positive) |
| X1 -> Y | 0,265 | 5,007 | 0 | Supported (Strong, positive) |
| X2 -> Z | 0,588 | 9,339 | 0 | Supported (Very strong, positive) |
| X2 -> Y | 0,467 | 8,478 | 0 | Supported (Very strong, positive) |
| Z -> Y | 0,794 | 26,392 | 0 | Supported (Dominant, positive) |

Source: Primary Data Processed by Researchers Using SEM-PLS (2025)

3.2.1. Research Objective 1: Direct Effects on Customer Loyalty (H1 and H2)

The first objective (RO1) is to comprehensively examine the direct effects of certification compliance and sustainable product differentiation on customer loyalty. This objective corresponds to Hypotheses 1 and 2, testing how sustainable inputs translate into loyal consumers.

3.2.2. H1: Ecopreneurial Product Differentiation → Customer Loyalty

This hypothesis tests the relationship between a firm's efforts to differentiate its products through eco-innovation and the resultant customer loyalty. Ecopreneurial product differentiation involves integrating environmental sustainability into the core business mission via strategies such as green innovation, eco-design, and circular economy principles . The scientific premise is that consumers are increasingly prioritizing sustainability and actively seeking out eco-friendly products. When businesses effectively communicate their sustainability efforts (e.g., through green supply chain management and local sourcing), they foster stronger brand allegiance. This alignment of shared environmental values moves the relationship from transactional to deep, emotional customer loyalty, transforming customers into brand advocates.

3.2.3. H2: Ethical Certification Compliance → Customer Loyalty

This hypothesis tests the relationship between adhering to ethical certifications (like Halal or SNI) and the resultant customer loyalty. Ethical certification serves as a visible, reliable market signal that goes beyond mere religious compliance; it communicates hygiene, quality, and ethical production. The Resource-Based View (RBV) framework suggests that certifications are valuable and rare resources that enhance consumer trust and marketability. By providing this credible signal of commitment to ethical standards and environmental stewardship, the firm attracts a sustainability-prioritizing customer base, which facilitates customer loyalty and strengthens brand value.

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3.2.4. Research Objective 2: Direct and Indirect Effects on Profit Margins (H3, H4, H5, H6)

The second objective (RO2) is to analyze the direct and indirect effects (mediated via customer loyalty) of sustainable strategies and certification compliance on profit margins. This involves examining the financial outcomes and the crucial role of loyalty as a connecting mechanism, central to the adapted Service-Profit Chain (SPC).

3.2.5. H3 & H4: Direct Effects on Profit Margins

These hypotheses (H3 for Differentiation, H4 for Certification) would test whether the sustainable practices and certifications directly enhance profit margins, independently of customer loyalty. The sources suggest that sustainability debunks the myth of the "green premium". Direct positive impacts on profit arise from operational efficiencies and cost reduction. By implementing lean and sustainable practices, firms can minimize waste, optimize resource usage, and leverage sustainable technologies. The RBV supports that these practices are inimitable capabilities that provide a sustainable competitive advantage and enhance firm performance, thus directly impacting profitability.

3.2.6. H5: Customer Loyalty → Profit Margins

This hypothesis tests the critical final link in the adapted Service-Profit Chain: the direct effect of customer loyalty on financial performance. The SPC framework dictates that internal ecological processes lead to external customer value, which ultimately results in Customer Loyalty → Profit. Loyal customers translate into profits because:

1. They lead to repeat business.
2. Retaining existing customers is generally less expensive than acquiring new ones, amplifying the return on investment.
3. Customers who align with the brand's environmental values are often willing to pay a premium for eco-friendly products, justifying higher price points and enhancing revenue.

3.2.7. H6: The Mediating Effect (Indirect Relationship)

This composite hypothesis would address the core research question: How does customer loyalty successfully mediate the relationship between sustainable practices and financial performance?. H6 confirms the entire structural model, asserting that the financial success derived from sustainability is largely *not* direct, but is achieved *through* the intervening variable of loyalty. Sustainable practices and certifications (H1, H2) create perceived value and trust (External Customer Value), which cultivates deep customer loyalty (Mediator). This loyalty then drives enhanced profit margins (H5) by increasing lifetime customer value and brand advocacy 51. The whole chain demonstrates that ecological commitment (Internal Ecological Processes) must first secure external customer value and loyalty before translating into superior financial returns .

The hypotheses (H1-H6) collectively formed a validated business model specifically tailored for micro-enterprises to effectively align planetary health with profit .

3.3. Discussions

3.3.1. Theoretical implication

The primary theoretical implication of this research lies in its novel integration of three distinct, complementary frameworks—the Resource-Based View (RBV), Stakeholder Theory, and the Service-Profit Chain (SPC)—all adapted for an ecopreneurial context [22, 23, 24]. This convergence is crucial as it addresses a significant

DOI: https://doi.org/ 10.31004/riggs.v4i4.4205

research gap: the absence of integrated models that test the dual impact of ecopreneurial product differentiation and ethical certification on the financial performance of micro-enterprises in emerging economies[25,26,27]. By unifying these perspectives, the study constructs a comprehensive theoretical structure aimed at determining the relative importance of these two strategies in building customer loyalty (RO1) and how this loyalty mediates the path to profit margins (RO2) for resource-constrained firms [28,29].

The research offers a significant contribution to the Resource-Based View (RBV) by formally positioning both ethical certifications and sustainable practices as quantifiable strategic resources that meet the criteria of being valuable, rare, and inimitable [30,31,32, 33, 34]. This framework is pivotal because it theorizes that successful sustainable initiatives are not merely compliance costs, but rather unique internal capabilities that deliver a sustainable competitive advantage and enhance long-term firm performance [33,36,37,38]. Ethical certification is specifically characterized as a rare asset and a tangible market signal that enhances consumer trust and marketability [39,40, 41, 42,43]. Furthermore, sustainable practices that are deeply ingrained within a firm's unique operational processes enhance inimitability, making them difficult for competitors to replicate and thus ensuring sustained market success [44, 45].

The study makes a critical advancement by adapting the Service-Profit Chain (SPC) to an ecopreneurial context, establishing the sequence: Internal Ecological Processes → External Customer Value → Customer Loyalty → Profit [46,47,48]. This theoretical adaptation provides the mechanism for linking a firm's internal ecological commitment (e.g., waste minimization, green innovation) to its external financial outcomes [49,50]. Crucially, this model integrates Stakeholder Theory, emphasizing that achieving competitive advantage requires meeting the demands of environmentally and ethically conscious customers [51,52,53,54]. The framework dictates that customer loyalty is the essential theoretical mediator, translating successful engagement with stakeholders (by aligning with shared environmental values) into enhanced profitability derived from repeat business and brand advocacy [55,56,57,58].

Finally, the theoretical model contributes directly to the field of Ecopreneurship by providing a validated theoretical blueprint for micro-enterprises to thrive in the modern market, thereby supporting inclusive and sustainable economic development [59,60,61,62]. The study provides the theoretical foundation to debunk the myth of the "green premium," asserting that sustainable micro-businesses can achieve superior financial performance [63,64]. This is theoretically achieved not by charging excessive premiums, but by leveraging sustainability to generate operational efficiency and cost reduction through lean practices, and by maximizing revenue through the enhanced lifetime value of loyal, environmentally conscious customers who are willing to support the brand [65,66]. This theoretical validation shifts the narrative, confirming that embedding environmental sustainability into the core business mission is a resilient and profitable strategy [67].

### 3.3.2. Practical Implication

The practical implications of this research offer clear, actionable strategies for micro food and beverage enterprises operating in emerging economies, emphasizing the necessity of integrating sustainability into their core strategy to achieve competitive advantage and profitability. Micro-enterprises must adopt a dual pathway approach: securing ethical certification (like Halal or SNI) to serve as a reliable market signal of hygiene, quality, and ethical commitment, thereby building crucial consumer trust [68,69,70].

. Simultaneously, they must focus on ecopreneurial product differentiation through internal efforts, such as green innovation, eco-design, and local sourcing, which aligns product attributes with the increasing demands of the conscious consumer [71,72, 73, 74, 75]. Critically, micro-enterprises must effectively use strategic labeling and clear communication to reinforce environmentally conscious behavior and foster stronger brand allegiance among their target customer base [76,78,79].

DOI: https://doi.org/ 10.31004/riggs.v4i4.4205

Operationally, the research provides practical guidance for achieving profitability by debunking the "green premium" myth 4. Firms should implement lean manufacturing practices and circular economy principles to aggressively pursue efficiency and waste reduction, such as optimizing resource usage and minimizing waste output, which directly leads to cost savings and improved profit margins [80,81,82]. Furthermore, micro-enterprises must focus on cultivating deep, emotional customer loyalty by authentically aligning with consumers' shared environmental values . This loyalty is strategically invaluable because retaining existing, satisfied customers is less expensive than acquiring new ones, maximizing the return on investment in sustainability and justifying higher price points due to the enhanced lifetime customer value [83,84].

To address the common challenges faced by micro-enterprises, managers must proactively seek training and leverage technology. They must overcome the pervasive knowledge gap regarding the benefits of sustainable practices and technological advancements, as insufficient awareness hinders proactive engagement with sustainability [85]. Entrepreneurship education should prioritize creativity and innovation [86, 87, 88, 89] . Furthermore, micro-enterprises should strategically adopt digital platforms and delivery services to enhance consumer reach and marketing effectiveness in the digital transformation context [90.91,92] . Finally, involving local communities, farmers, and producers within the supply chain is a necessary practical step that fosters a more resilient and mutually beneficial business model, embedding the ecopreneurial mission into the local economic fabric [93,94,95].

For external stakeholders, the research implies a critical need for targeted strategic interventions to overcome financial and structural barriers [96,97,98,99]. Policymakers and financial institutions must address issues like limited access to finance and insufficient training by providing tailored support [100,101,102] . Governments should actively utilize institutional factors and policy frameworks—such as subsidies, tax incentives, and regulatory support—to mitigate the high initial costs associated with sustainable technologies and practices [103,104,105]. These strategic interventions are essential for facilitating the transition of micro-enterprises toward sustainable models, ultimately positioning them as vital contributors to inclusive and sustainable economic development [106, 107, 108]. In addition to capital, the development of MSMEs must be accompanied by the development of Human Resources (HR) such as providing training to employees [109]. This training is expected to improve work competence so that they are able to produce quality products that support business development [110].

## 4. Conclusion

The overall conclusion of the material provided is that the future competitiveness and viability of micro food and beverage enterprises in emerging economies hinge upon the successful integration of a dual-pathway sustainable business model designed to capture the rising demands of the conscious consumer. The research addresses a critical gap by focusing specifically on resource-constrained micro-enterprises and aims to test an integrated theoretical model that links ecopreneurial product differentiation and ethical certification to financial success. This study is significant because it is poised to provide a validated blueprint for these enterprises to effectively align planetary health with profit, thereby contributing essential knowledge toward achieving inclusive and sustainable economic development. The theoretical framework underpinning this conclusion relies on the strategic convergence of the Resource-Based View (RBV) and Stakeholder Theory. Through the RBV lens, sustainable practices and ethical certifications are defined as valuable, rare, and inimitable strategic resources that are difficult for competitors to copy, ensuring a sustainable competitive advantage and enhancing firm performance. By adhering to Stakeholder Theory, firms recognize that meeting the expectations of environmentally and ethically conscious customers (stakeholders) is integral to generating a competitive edge, as this engagement fosters customer loyalty, enhances corporate reputation, and translates directly into improved financial returns. Crucially, the relationship between sustainable initiatives and financial success is theorized through the adapted Service-Profit Chain (SPC), which establishes the sequence: Internal Ecological Processes → External Customer Value → Customer Loyalty → Profit. This framework highlights that customer loyalty is the essential theoretical mediator, translating the firm’s ecological commitment into measurable financial outcomes.

DOI: https://doi.org/ 10.31004/riggs.v4i4.4205

Loyalty is cultivated when ecopreneurs effectively communicate their sustainable actions, resulting in the alignment of shared environmental values, which transforms relationships from transactional to deep, emotional engagements. This strong, emotional loyalty is critical because repeat business and brand advocacy are less costly than customer acquisition, amplifying the return on sustainable investments. To practically realize this conclusion, micro-enterprises must strategically pursue both pathways: Ecopreneurial Product Differentiation via green innovation, eco-design, and circular economy principles to minimize waste and optimize resource use, and Ethical Certification Compliance (such as Halal or SNI) to provide consumers with a visible, reliable market signal of hygiene, quality, and ethical commitment. The integration of these two strategies allows micro-enterprises to differentiate themselves, attract a sustainability-prioritizing customer base, and gain a strategic advantage in competitive markets. Ultimately, the model provides the theoretical foundation to debunk the myth of the "green premium"—the notion that sustainability inherently leads to diminished profit margins—by asserting that profitability is generated through enhanced operational efficiency, cost reduction, and maximizing the enhanced lifetime value of loyal customers. However, for micro-enterprises to successfully adopt this model, targeted support is paramount, as they currently face barriers related to insufficient training, a lack of awareness of benefits, and limited access to finance. Therefore, supportive policy frameworks, including subsidies and tax incentives, are required to mitigate high initial costs and facilitate the widespread adoption of these sustainable and profitable business practices.

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