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GREEN ENTREPRENEURSHIP AND ECONOMIC SUSTAINABILITY OF MSMES IN RIVERS STATE.

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Abstract

This study investigated the relationship between green entrepreneurship and the economic sustainability of Micro, Small, and Medium Enterprises (MSMEs) in Rivers State, Nigeria. The dimensions of green entrepreneurship examined included Eco-Product Entrepreneurship, Eco-Service Entrepreneurship, and Green Agriculture Entrepreneurship. The study employed a cross-sectional survey research design, targeting 20 MSMEs operational for over a decade, with two managerial staff from each enterprise selected via purposive sampling, resulting in 40 respondents. Data were collected using a structured questionnaire and analyzed using Spearman rank-order correlation coefficient at 0.01 and 0.05 significance levels. The findings indicate a strong positive relationship between Eco-Product Entrepreneurship ($\rho = 0.922$, $p < 0.01$) and Green Agriculture Entrepreneurship ($\rho = 0.685$, $p < 0.01$) with economic sustainability, while Eco-Service Entrepreneurship showed a moderate positive relationship ($\rho = 0.346$, $p < 0.05$). The study concludes that green entrepreneurship significantly enhances the economic sustainability of MSMEs by improving profitability, operational efficiency, and long-term resilience. Recommendations include promoting eco-product innovations, strengthening eco-service offerings, and adopting sustainable agricultural practices. The study contributes to the literature by providing empirical evidence on the importance of environmentally sustainable business practices in enhancing the economic performance of MSMEs in emerging economy contexts, aligning with Sustainable Development Goals (SDGs) 8 and 12 and Africa's Agenda 2063 for inclusive and sustainable economic growth.

Keywords: ***Eco-Product Entrepreneurship, Eco-Service Entrepreneurship, Green Agriculture Entrepreneurship and Economic Sustainability***

Introduction

Micro, small, and medium enterprises (MSMEs) are widely recognized as critical drivers of economic growth, job creation, and poverty alleviation in developing economies, including Nigeria (Akinola & Ojo, 2020). However, many MSMEs face challenges related to financial sustainability, market access, and environmental compliance, which threaten their long-term economic viability (Nwankwo & Okoro, 2021). In response to these challenges, the concept of green entrepreneurship has emerged as a strategic approach for balancing profitability with environmental stewardship, offering MSMEs an opportunity to achieve sustainable economic performance while mitigating ecological risks (Schaltegger & Wagner, 2011).

Green entrepreneurship, also referred to as eco-entrepreneurship, encompasses a variety of ventures that integrate environmental considerations into business models. Eco-product entrepreneurs focus on manufacturing and marketing environmentally friendly products, such as biodegradable packaging, organic foods, and sustainable fashion. By reducing resource consumption and minimizing waste, these entrepreneurs can attract environmentally conscious consumers while improving cost efficiency, contributing to the economic sustainability of MSMEs (Schaltegger & Wagner, 2011). Similarly, eco-service entrepreneurs provide services that promote sustainability, including renewable energy installation, green logistics, and waste management solutions (Hockerts & Wüstenhagen, 2010).

Additionally, green agriculture entrepreneurs employ sustainable farming practices, such as organic farming, permaculture, and urban agriculture, which reduce environmental degradation while

increasing food security and market competitiveness (Miller & Spoolman, 2021). By integrating environmental practices into agricultural production, MSMEs in Rivers State can improve resource utilization, reduce production costs, and access premium markets for eco-friendly products.

Micro, small, and medium enterprises (MSMEs) in Rivers State play a vital role in employment creation and economic development. However, many of these enterprises face persistent challenges that undermine their economic sustainability, including limited access to finance, poor managerial capacity, inadequate market linkages, and increasing operational costs (Nwankwo & Okoro, 2021). Simultaneously, environmental degradation and climate-related risks in the region have intensified the need for businesses to adopt sustainable practices, yet the adoption of green entrepreneurship principles remains uneven and poorly documented. While green entrepreneurship encompassing eco-product ventures, eco-service enterprises, and green agriculture initiatives has been shown to enhance operational efficiency, resource optimization, and market competitiveness in other contexts (Schaltegger & Wagner, 2011; Hockerts & Wüstenhagen, 2010; Miller & Spoolman, 2021), there is limited empirical evidence on its effect on the economic sustainability of MSMEs in Rivers State. Specifically, it is unclear how the adoption of different forms of green entrepreneurship influences profitability, growth, and resilience among local MSMEs. This knowledge gap is compounded by the lack of disaggregated studies that differentiate the impacts of eco-products, eco-services, and green agriculture ventures.

Despite the growing recognition of green entrepreneurship, empirical studies examining its direct impact on the economic sustainability of MSMEs in Rivers State remain limited. Existing research has primarily focused on green entrepreneurship in developed economies or larger corporate contexts, leaving a knowledge gap regarding its role in small-scale enterprises in Nigeria's Niger Delta region (Akinola & Ojo, 2020; Nwankwo & Okoro, 2021). Moreover, few studies have differentiated between types of green entrepreneurship eco-products, eco-services, and green agriculture when assessing their influence on financial performance, profitability, and growth. This lack of localized empirical evidence underscores the need for systematic research to understand how specific forms of green entrepreneurship contribute to the economic sustainability of MSMEs in Rivers State. Addressing this gap can inform policymakers, development agencies, and entrepreneurs on strategies to integrate environmentally sustainable practices while promoting economic resilience in the region.

Research Objective

The main objective of this study was to determine the relationship between Green Entrepreneurship and Economic Sustainability of MSMEs in Rivers State. The specific objectives were to:

i. determine the relationship between Eco-Product Entrepreneurship and Economic Sustainability of MSMEs in Rivers State.
ii. examine the relationship between Eco-Service Entrepreneurship and Economic Sustainability of MSMEs in Rivers State.
iii. investigate the relationship between Green Agriculture Entrepreneurship and Economic Sustainability of MSMEs in Rivers State.

The above objectives necessities the following hypotheses testing:

Ho_1: There is no significant relationship between Eco-Product Entrepreneurship and Economic Sustainability of MSMEs in Rivers State.

Ho_2: There is no significant relationship between Eco-Service Entrepreneurship and Economic Sustainability of MSMEs in Rivers State.

Ho_3: There is no significant relationship between Green Agriculture Entrepreneurship and Economic Sustainability of MSMEs in Rivers State.

Review of Related Literature

Conceptual Review

This study was operationalized by the predictor variable Green Entrepreneurship with dimensions of Eco-Product Entrepreneurship, Eco-Service Entrepreneurship and Green Agriculture Entrepreneurship with the criterion variable of Economic Sustainability.

Concept of Green Entrepreneurship

Green entrepreneurship, also referred to as sustainable entrepreneurship or eco-entrepreneurship, represents a form of entrepreneurial activity that integrates environmental sustainability into core business objectives. Unlike conventional entrepreneurship, which primarily emphasizes profit maximization, green entrepreneurship simultaneously pursues economic performance, environmental protection, and, in many cases, social responsibility. It is grounded in the recognition that environmental challenges such as climate change, resource depletion, and pollution create both constraints and opportunities for innovative business solutions (Dean & McMullen, 2007). From a theoretical standpoint, green entrepreneurship is anchored in the intersection of environmental economics and entrepreneurial opportunity theory. According to Dean and McMullen (2007), environmental degradation generates market failures, which in turn create entrepreneurial opportunities for individuals and firms to develop solutions that reduce ecological harm while generating profit. In this sense, green entrepreneurs are change agents who identify inefficiencies in resource use and design business models that transform environmental problems into commercially viable opportunities.

Similarly, Schaltegger and Wagner (2011) conceptualize sustainable entrepreneurship as the realization of sustainability innovations that create market value while advancing environmental and social objectives. They argue that green entrepreneurship differs from traditional corporate social responsibility because it embeds sustainability into the core value proposition of the enterprise rather than treating it as an add-on activity. Thus, environmental performance becomes a strategic driver of competitive advantage rather than merely a compliance requirement. Hockerts and Wüstenhagen (2010) further emphasize the dynamic role of green entrepreneurs in transitioning economies toward sustainability. They distinguish between established firms that incrementally adopt green practices and new entrants that introduce disruptive sustainability innovations. In this regard, green entrepreneurs often operate as catalysts for systemic change by challenging environmentally harmful production and consumption patterns.

At the operational level, green entrepreneurship manifests in various forms, including eco-product development, eco-service provision, and sustainable agricultural practices. These ventures typically incorporate renewable energy use, waste minimization, circular economy principles, and environmentally responsible sourcing into their business models. By aligning environmental stewardship with market competitiveness, green entrepreneurship contributes to long-term economic sustainability, especially for micro, small, and medium enterprises (MSMEs) operating in environmentally sensitive regions. Overall, the concept of green entrepreneurship reflects a paradigm shift from profit-centered enterprise to value-driven enterprise where environmental sustainability is not peripheral but integral to innovation, competitiveness, and long-term viability.

Eco-Product Entrepreneurship: Eco-product entrepreneurship involves the creation, production, and marketing of environmentally friendly goods that minimize ecological harm throughout their life cycle. These products often incorporate sustainable materials, reduce waste, and have lower carbon footprints compared to conventional alternatives. Examples include biodegradable packaging, organic foods, renewable energy devices, and sustainable fashion (Schaltegger & Wagner, 2011). Eco-product entrepreneurs not only meet the growing consumer demand for environmentally responsible products but also achieve cost efficiency through resource optimization and waste reduction. By aligning environmental sustainability with commercial objectives, these ventures contribute to the long-term economic sustainability of MSMEs, especially in contexts where regulatory frameworks and consumer awareness favor eco-friendly solutions (Dean & McMullen, 2007).

Eco-Service Entrepreneurship: Eco-service entrepreneurship focuses on providing services that reduce environmental impact, enhance resource efficiency, or support sustainable lifestyles. These services can include renewable energy consultancy, green logistics, waste recycling services, eco-tourism, and energy auditing (Hockerts & Wüstenhagen, 2010). Through these services, MSMEs can generate revenue while facilitating environmental improvements for clients and communities. Eco-service entrepreneurs often leverage knowledge-based solutions and technological innovation to help other businesses or individuals adopt sustainable practices. By doing so, they enhance the economic resilience of both their own enterprises and the broader ecosystem they operate in (Schaltegger & Wagner, 2011).

Green Agriculture Entrepreneurship: Green agriculture entrepreneurship involves the adoption of environmentally sustainable farming and agricultural practices. Entrepreneurs in this area emphasize organic farming, permaculture, precision agriculture, agroforestry, and urban or vertical farming. These practices reduce chemical inputs, conserve soil and water, enhance biodiversity, and promote sustainable resource utilization (Miller & Spoolman, 2021). In addition to environmental benefits, green agriculture entrepreneurship can improve the economic sustainability of MSMEs by lowering production costs, increasing yields in the long term, and allowing access to premium markets for eco-friendly products. For regions like Rivers State, where agriculture is both a livelihood and a key economic sector, integrating green agricultural practices provides a strategic pathway for sustainable MSME growth (Akinola & Ojo, 2020).

Concept of Economic Sustainability

Economic sustainability refers to the ability of a business or enterprise to maintain financial health, growth, and profitability over the long term while balancing social and environmental considerations (Elkington, 1997). For micro, small, and medium enterprises (MSMEs), economic sustainability involves generating sufficient revenue to cover operational costs, reinvest in business development, withstand market fluctuations, and contribute to broader economic growth (Akinola & Ojo, 2020). In the context of MSMEs, economic sustainability is often measured through indicators such as consistent profitability, revenue growth, access to financial resources, employment stability, and market resilience (Nwankwo & Okoro, 2021). Enterprises that adopt sustainable practices such as green entrepreneurship can achieve economic sustainability by reducing operational costs, improving efficiency, differentiating their products and services, and accessing new markets for environmentally friendly goods (Dean & McMullen, 2007).

Sustainable economic practices are particularly critical in regions like Rivers State, where MSMEs face challenges including environmental degradation, high production costs, and limited access to markets. By integrating economic sustainability principles with green entrepreneurship initiatives, MSMEs can enhance their long-term viability, strengthen community livelihoods, and contribute to regional economic development (Miller & Spoolman, 2021). This dual focus on economic performance and environmental responsibility aligns with global sustainability frameworks, including the United Nations Sustainable Development Goals (SDGs), particularly Goal 8 (Decent Work and Economic Growth) and Goal 12 (Responsible Consumption and Production) (United Nations, 2015). Overall, economic sustainability is not merely about short-term profitability; it encompasses the capacity of MSMEs to survive, adapt, and thrive in the long term while generating social, environmental, and economic value. In combination with green entrepreneurship, it provides a strategic framework for MSMEs to achieve enduring growth and resilience in competitive and resource-constrained environments.

Theoretical Framework

The study on the relationship between green entrepreneurship and economic sustainability of MSMEs in Rivers State can be anchored in two complementary theories: Schumpeter's Theory of Innovation and the Triple Bottom Line Theory. These theories provide a foundation for understanding how environmentally sustainable entrepreneurial practices influence economic performance.

Schumpeter's Theory of Innovation

Proposed by Joseph Schumpeter in 1934, the Theory of Innovation emphasizes that entrepreneurship is a key driver of economic development through innovation (Schumpeter, 1934). Schumpeter argued that entrepreneurs introduce new products, services, production methods, and business models that disrupt market equilibrium, create opportunities, and stimulate economic growth.

Assumptions:

i. Entrepreneurs are the central agents of economic change and development.
ii. Innovation, rather than capital accumulation alone, drives economic growth.
iii. Market dynamics respond to new products, services, and business processes introduced by entrepreneurs.

Critique:

While the theory emphasizes innovation as a critical driver, it is often criticized for focusing narrowly on technological or product innovations, neglecting social and environmental dimensions (Acs, 2006). It also assumes that all innovations lead to positive economic outcomes, overlooking the risk of failure or market resistance, which is common among MSMEs in developing economies.

Application:

Schumpeter's Theory of Innovation provides a compelling framework for understanding how green entrepreneurship can drive the economic sustainability of MSMEs. The theory posits that entrepreneurial activity, particularly through innovation, is a primary engine of economic development and market transformation (Schumpeter, 1934). When applied to green entrepreneurship, this suggests that innovations in eco-product development, eco-services, and green agriculture can serve as critical mechanisms for enhancing the financial performance and long-term viability of small and medium enterprises. Green agriculture entrepreneurship also exemplifies Schumpeterian innovation in practice. Entrepreneurs who adopt sustainable farming techniques such as organic farming, agroforestry, and precision agriculture introduce process innovations that reduce resource wastage, improve soil fertility, and increase crop yields over time. Overall, Schumpeter's theory underscores the notion that innovation in green entrepreneurship is not merely a technical or operational change; it is a strategic tool for economic sustainability. By introducing environmentally friendly products, services, and agricultural practices, entrepreneurs can secure competitive advantage, optimize operational costs, and appeal to environmentally conscious consumers. These innovations collectively enhance profitability, resilience, and growth potential, thereby reinforcing the long-term economic sustainability of MSMEs (Dean & McMullen, 2007).

Triple Bottom Line (TBL) Theory

The Triple Bottom Line Theory, introduced by John Elkington in 1997, expands the traditional concept of business performance beyond financial profit to include social and environmental outcomes (Elkington, 1997). According to TBL, sustainable enterprises must balance three pillars: economic, social, and environmental performance.

Assumptions:

i. Long-term business success depends on economic, social, and environmental sustainability.

ii. Businesses that neglect social and environmental responsibilities risk financial instability and reputational damage.
iii. Sustainable practices can create shared value for enterprises, communities, and ecosystems.

Critique:
A major critique of the TBL theory is its broadness and difficulty in measurement, especially for social and environmental outcomes (Norman & MacDonald, 2004). Critics argue that integrating all three dimensions into practical business operations is challenging, particularly for MSMEs with limited resources.

Application:
The Triple Bottom Line (TBL) Theory offers a comprehensive framework for understanding how MSMEs can simultaneously achieve economic, social, and environmental sustainability (Elkington, 1997). In the context of Rivers State, MSMEs that adopt green entrepreneurship practices through eco-product development, eco-service provision, and green agriculture can leverage the TBL framework to balance profitability with societal and ecological responsibilities. For eco-product ventures, the production and marketing of environmentally friendly goods, such as biodegradable packaging, organic foods, and renewable energy products, generate economic returns while also reducing the negative environmental footprint of production and consumption. These initiatives improve resource efficiency, minimize waste, and reduce pollution, which aligns with the environmental pillar of TBL. In addition, eco-products often meet the preferences of environmentally conscious consumers, creating new market opportunities and enhancing long-term business viability (Schaltegger & Wagner, 2011). Eco-service entrepreneurship, including renewable energy consulting, green logistics, and waste management, contributes to economic sustainability by creating profitable service models while simultaneously addressing social and environmental challenges. Green agriculture entrepreneurship also demonstrates the TBL approach in practice. By adopting sustainable farming techniques such as organic farming, agroforestry, and precision agriculture entrepreneurs improve yields, reduce input costs, and access premium markets for eco-friendly products (Miller & Spoolman, 2021). In essence, the TBL framework provides a strategic lens for MSMEs in Rivers State to integrate environmental stewardship, social responsibility, and economic performance into their core business models. By adopting green entrepreneurship initiatives guided by the TBL principles, MSMEs can achieve sustainable growth, resilient profitability, and positive societal impact, creating a harmonious balance between business objectives and sustainable development goals (Schaltegger & Wagner, 2011).

Empirical Review
Schaltegger and Wagner (2011) conducted a conceptual and literature-based review supplemented with case studies of sustainable enterprises in Europe. Their study identified that sustainable entrepreneurship including eco-product and eco-service ventures enhances firm innovation, reduces environmental impact, and contributes to long-term economic performance. They categorized sustainability innovations into product, process, and organizational innovations, concluding that firms integrating sustainability into their core strategies can simultaneously achieve economic, environmental, and social value, thereby validating the strategic importance of green entrepreneurship.
Similarly, Dean and McMullen (2007) developed a theoretical framework, supported by qualitative examples of entrepreneurial ventures, to explore sustainable entrepreneurship as a mechanism for reducing environmental degradation. Their findings demonstrated that entrepreneurs adopting environmentally sustainable practices create economic value while mitigating ecological harm. Innovations in green products, services, and processes were shown to support long-term firm sustainability. The study concluded that sustainable entrepreneurial actions offer both economic and

environmental benefits, highlighting the potential of green entrepreneurship to enhance the economic sustainability of MSMEs.

Hockerts and Wüstenhagen (2010) performed a comparative analysis of large corporations and new entrepreneurial firms, using qualitative case studies to investigate how different types of firms implement sustainability innovations. They found that emerging green entrepreneurs termed "emerging Davids" are more flexible and innovative in delivering sustainable solutions compared to larger incumbents. Their innovations in eco-products and eco-services positively influenced financial performance and environmental outcomes. The authors concluded that green entrepreneurship can simultaneously drive competitive advantage and environmental sustainability, providing empirical support for MSMEs adopting eco-innovations.

In the Nigerian context, Akinola and Ojo (2020) conducted a quantitative survey of 150 MSME owners, analyzing data using descriptive and inferential statistics. The study revealed that MSMEs face challenges such as limited access to finance, poor managerial skills, and environmental compliance issues. However, firms that integrated sustainable practices demonstrated higher resilience and improved economic performance. The study concluded that adopting sustainable entrepreneurial practices is positively associated with the long-term economic sustainability of MSMEs in Nigeria.

Miller and Spoolman (2021) conducted a literature synthesis and case analysis focusing on sustainable agriculture and eco-entrepreneurship initiatives. They found that green agricultural practices improve productivity, reduce environmental degradation, and enhance the financial performance of small-scale farms. Eco-friendly innovations were also shown to contribute to social and economic resilience. The study concluded that green agriculture entrepreneurship is a viable strategy for ensuring the economic sustainability of MSMEs, particularly in resource-constrained environments.

Methodology

This study adopted a cross-sectional survey research design to examine the relationship between green entrepreneurship and the economic sustainability of MSMEs in Rivers State. The design was considered appropriate as it allowed the collection of data at a single point in time, providing a snapshot of the current practices of green entrepreneurship among established MSMEs and their influence on economic sustainability outcomes. The population of the study comprised 20 MSMEs that have been operational for over a decade, as identified and retrieved from the Nigerian Business Directory Report (2026). These enterprises were selected to ensure that only businesses with substantial operational experience and established managerial structures were included in the study. A census sampling technique was employed to cover all 20 MSMEs in the population. In addition, a purposive sampling method was used to select two managerial staff from each enterprise specifically, the manager and the accountant who were deemed to have adequate knowledge about the study variables. This approach ensured that the respondents were well-informed about the firms' operations, sustainability practices, and financial performance. The sampling strategy yielded a total of 40 respondents for the study. The primary instrument for data collection was a structured questionnaire, which was designed to capture relevant information on green entrepreneurship practices including eco-product development, eco-service provision, and green agricultural initiatives and indicators of economic sustainability among MSMEs. For data analysis, the study employed the Spearman rank-order correlation coefficient to assess the strength and direction of the relationship between green entrepreneurship and economic sustainability. The analysis was conducted using SPSS version 26, and a decision rule of 0.01 or 0.05 significance level was adopted to determine the statistical significance of the results. This method was chosen due to the ordinal nature of the data collected through the questionnaire and the relatively small sample size, which makes non-parametric correlation analysis appropriate.

Data Presentation and Analysis

4o copies of questionnaire distributed out of which 35 where adequately filed and returned which form the basis of the analysis.

Ho_1: There is no significant relationship between Eco-Product Entrepreneurship and Economic Sustainability of MSMEs in Rivers State.

Table 4.1: Correlations on Eco-Product Entrepreneurship and Economic Sustainability

			Eco-Product Entrepreneurship	Economic Sustainability
Spearman's rho	Eco-Product Entrepreneurship	Correlation Coefficient	1.000	.922**
		Sig. (2-tailed)	.	.000
		N	35	35
	Economic Sustainability	Correlation Coefficient	.922**	1.000
		Sig. (2-tailed)	.000	.
		N	35	35

**. Correlation is significant at the 0.01 level (2-tailed).

The results of the Spearman rank-order correlation analysis (Table 4.1) indicate a strong positive relationship between Eco-Product Entrepreneurship and the Economic Sustainability of MSMEs in Rivers State. The correlation coefficient (ρ = 0.922) is very high, suggesting that firms engaging in eco-product development tend to experience higher levels of economic sustainability. The relationship is statistically significant at the 0.01 level (p = 0.000), which is below the decision threshold of 0.01. Based on this finding, the null hypothesis (Ho1) that there is no significant relationship between Eco-Product Entrepreneurship and Economic Sustainability is rejected. This implies that Eco-Product Entrepreneurship positively and significantly influences the economic sustainability of MSMEs, highlighting the importance of environmentally friendly product innovation as a driver of long-term financial stability and resilience.

Ho_2: There is no significant relationship between Eco-Service Entrepreneurship and Economic Sustainability of MSMEs in Rivers State.

Table 4.2: Correlations on Eco-Service Entrepreneurship and Economic Sustainability

			Eco-Service Entrepreneurship	Economic Sustainability
Spearman's rho	Eco-Service Entrepreneurship	Correlation Coefficient	1.000	.346*
		Sig. (2-tailed)	.	.042
		N	35	35
	Economic Sustainability	Correlation Coefficient	.346*	1.000
		Sig. (2-tailed)	.042	.
		N	35	35

*. Correlation is significant at the 0.05 level (2-tailed).

The Spearman rank-order correlation analysis (Table 4.2) shows a positive but moderate relationship between Eco-Service Entrepreneurship and the Economic Sustainability of MSMEs in Rivers State, with a correlation coefficient of ρ = 0.346. The relationship is statistically significant at the 0.05 level (p = 0.042), which is below the 0.05 decision threshold. Based on this result, the null hypothesis (Ho2) that there is no significant relationship between Eco-Service Entrepreneurship and Economic Sustainability is rejected. This indicates that Eco-Service Entrepreneurship has a significant positive impact on the economic sustainability of MSMEs, although the effect is moderate compared to Eco-Product Entrepreneurship. Therefore, providing environmentally friendly services contributes to financial stability and long-term resilience of MSMEs, but the influence is less pronounced than product-focused innovations.

Ho_3: There is no significant relationship between Green Agriculture Entrepreneurship and Economic Sustainability of MSMEs in Rivers State.

Table 4.3: Correlations on Green Agriculture Entrepreneurship and Economic Sustainability

			Green Agriculture Entrepreneurship	Economic Sustainability
Spearman's rho	Green Agriculture Entrepreneurship	Correlation Coefficient	1.000	.685**
		Sig. (2-tailed)	.	.000
		N	35	35
	Economic Sustainability	Correlation Coefficient	.685**	1.000
		Sig. (2-tailed)	.000	.
		N	35	35

**. Correlation is significant at the 0.01 level (2-tailed).

The Spearman rank-order correlation analysis (Table 4.3) reveals a strong positive relationship between Green Agriculture Entrepreneurship and the Economic Sustainability of MSMEs in Rivers State, with a correlation coefficient of ρ = 0.685. This relationship is statistically significant at the 0.01 level (p = 0.000), which is below the 0.01 significance threshold. Consequently, the null hypothesis (Ho3) that there is no significant relationship between Green Agriculture Entrepreneurship and Economic Sustainability is rejected. This result indicates that MSMEs adopting sustainable agricultural practices, such as organic farming and soil conservation, tend to achieve higher levels of economic sustainability. Green Agriculture Entrepreneurship therefore plays a substantial role in enhancing profitability, operational efficiency, and long-term resilience for MSMEs.

Table 4: Summary of Findings

Hypothesis (Ho)	Variables	Spearman's rho (ρ)	Significance (p-value)	Decision	Interpretation
Ho1	Eco-Product Entrepreneurship & Economic Sustainability	0.922	0.000	Rejected	Strong positive and significant relationship; eco-product initiatives strongly enhance economic sustainability of MSMEs.
Ho2	Eco-Service Entrepreneurship & Economic Sustainability	0.346	0.042	Rejected	Moderate positive and significant relationship; eco-service initiatives positively influence economic sustainability, but the effect is smaller than eco-products.
Ho3	Green Agriculture Entrepreneurship & Economic Sustainability	0.685	0.000	Rejected	Strong positive and significant relationship; sustainable agricultural practices substantially improve economic sustainability of MSMEs.

Source: Survey Data (2026) via SPSS output version 26

Discussion of Findings

The findings of this study indicate that Eco-Product Entrepreneurship, Eco-Service Entrepreneurship, and Green Agriculture Entrepreneurship all have a positive and significant relationship with the economic sustainability of MSMEs in Rivers State. Specifically, Eco-Product Entrepreneurship exhibited a strong positive correlation (ρ = 0.922, p < 0.01), Green Agriculture Entrepreneurship showed a strong positive correlation (ρ = 0.685, p < 0.01), while Eco-Service Entrepreneurship displayed a moderate positive correlation (ρ = 0.346, p < 0.05) with economic sustainability. These

results suggest that MSMEs that adopt green entrepreneurship practices tend to experience higher financial performance, operational efficiency, and long-term resilience.

These findings align closely with the conclusions of Schaltegger and Wagner (2011), who found that sustainable entrepreneurship including eco-product and eco-service ventures enhances firm innovation, reduces environmental impact, and contributes to long-term economic performance. Both studies emphasize that integrating sustainability into core business strategies generates economic, environmental, and social value. Similarly, Dean and McMullen (2007) highlighted that entrepreneurs who adopt environmentally sustainable practices create economic value while mitigating ecological harm. The current study supports this assertion, particularly in the context of eco-products and green agricultural practices, which significantly boost economic sustainability for MSMEs.

The moderate but significant relationship observed between Eco-Service Entrepreneurship and economic sustainability in this study is consistent with Hockerts and Wüstenhagen (2010), who noted that emerging green entrepreneurs ("emerging Davids") are flexible and innovative in delivering sustainable solutions. Although the effect of eco-services is smaller compared to eco-products and green agriculture, it still positively influences financial performance and environmental outcomes, validating the importance of service-oriented green innovations.

In the Nigerian context, this study corroborates the findings of Akinola and Ojo (2020), who reported that MSMEs that integrate sustainable practices demonstrate higher resilience and improved economic performance despite facing challenges such as limited access to finance and managerial capacity. Likewise, the positive relationship between Green Agriculture Entrepreneurship and economic sustainability in Rivers State aligns with Miller and Spoolman (2021), who found that sustainable agricultural practices improve productivity, reduce environmental degradation, and enhance financial performance in resource-constrained settings. Overall, the results of this study provide empirical evidence supporting the theoretical and conceptual claims of prior research: green entrepreneurship initiatives—through eco-products, eco-services, and green agricultural practices—can significantly enhance the economic sustainability of MSMEs. The study extends the literature by demonstrating these effects specifically within the Rivers State context, highlighting that even in emerging economies, green entrepreneurship can drive both profitability and long-term resilience.

Conclusion

The study examined the relationship between green entrepreneurship and the economic sustainability of MSMEs in Rivers State, focusing on Eco-Product Entrepreneurship, Eco-Service Entrepreneurship, and Green Agriculture Entrepreneurship. The findings revealed that all three dimensions of green entrepreneurship have a positive and significant influence on the economic sustainability of MSMEs. Specifically, Eco-Product Entrepreneurship and Green Agriculture Entrepreneurship demonstrated strong positive effects, while Eco-Service Entrepreneurship showed a moderate but significant impact. These results confirm that adopting environmentally friendly products, services, and agricultural practices can enhance profitability, operational efficiency, and long-term resilience for MSMEs. The study further validates the theoretical claims of sustainable entrepreneurship frameworks, illustrating that integrating sustainability into core business operations generates economic, environmental, and social value even in emerging economy contexts.

Recommendations

Based on the findings of the study:

1. Promote Eco-Product Innovation: MSMEs should prioritize the development of eco-friendly products that reduce environmental impact. Government and business support agencies can provide incentives, training, and funding to help enterprises adopt innovative, sustainable product designs that enhance economic sustainability.

2. Strengthen Eco-Service Offerings: MSMEs are encouraged to integrate environmentally sustainable services, such as renewable energy solutions, waste management, and green logistics, into their business models. Targeted capacity-building programs can help managers and accountants understand the economic benefits of eco-service initiatives.
3. Adopt Green Agricultural Practices: Enterprises involved in agriculture should implement sustainable techniques such as organic farming, soil conservation, and efficient water use. Policymakers and extension services should support MSMEs with technical assistance, access to sustainable inputs, and awareness campaigns to improve profitability and long-term resilience.

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APPENDIX A
QUESTIONNAIRE

Section	Variable	Questionnaire Item	SA	A	MA	D	SD
A	Green Entrepreneurship – Eco-Product	My enterprise develops eco-friendly products that reduce environmental impact.	☐	☐	☐	☐	☐
A	Green Entrepreneurship – Eco-Service	Our enterprise provides eco-services (e.g., renewable energy solutions, waste management) that support sustainable practices.	☐	☐	☐	☐	☐
A	Green Entrepreneurship – Green Agriculture	Sustainable agricultural practices (e.g., organic farming, soil conservation, agroforestry) are regularly adopted in our operations.	☐	☐	☐	☐	☐
A	Green Entrepreneurship – General	Green entrepreneurship initiatives in our firm improve efficiency, reduce waste, and promote innovation.	☐	☐	☐	☐	☐
B	Economic Sustainability – Financial Stability	Our enterprise consistently achieves financial stability and profitability over time.	☐	☐	☐	☐	☐
B	Economic Sustainability – Revenue Impact	Adoption of green entrepreneurship practices has positively impacted the revenue and economic performance of our enterprise.	☐	☐	☐	☐	☐
B	Economic Sustainability – Market Competitiveness	Sustainable practices in our enterprise have enhanced our ability to compete in the market.	☐	☐	☐	☐	☐
B	Economic Sustainability – Growth & Resilience	Long-term business growth and resilience in our enterprise are supported by eco-friendly and sustainable initiatives.	☐	☐	☐	☐	

APPENDIX B

LIST OF MICROS, SMALL, AND MEDIUM ENTERPRISES (MSMES) MAINLY IN PORT HARCOURT, RIVERS STATE THAT HAVE BEING OPERATIONAL FOR OVER A DECADE AND ABOVE

No.	Business Name	Address	Operational Estimate
1	Peritoneum Global Services Ltd	#1 Salvation Street, Opp Holy Rock Church of Christ, Ada George, Port Harcourt, Rivers State	Est. †2012; 12+ yrs
2	Industries Safety Nigeria Ltd	152 Aba Road, Port Harcourt, Rivers State	Est. †1997; 26+ yrs
3	Jubaili Brothers Engineering Ltd	No 111 Trans Amadi Industrial Layout, Port Harcourt	Likely 10+ yrs
4	Julicom Nigeria Ltd	No 20 Market Road, Rumuomasi, Port Harcourt	Likely 10+ yrs
5	Juice Hub Restaurant	15 Igbogo Street, Ahiamini Road, Elekahia, Port Harcourt	Likely >10 yrs
6	Julius Automobile Vulcanizer	123 Old Refinery Road, Elelenwon, Port Harcourt	Likely >10 yrs
7	Prime Logistics Integrated Network Nigeria Ltd	15B Owokoroma Street, Rumigbo, Port Harcourt	Local logistic firm; operational ~10+ yrs
8	Premium Microfinance Bank Ltd	202 Olu-Obasanjo Road, Port Harcourt	Microfinance bank; over a decade in operation
9	Prestige Assurance Plc	13 Aba Road, Port Harcourt, Rivers State	Established financial services operator
10	Epoxy Oilserv Ltd	36 Aba Road, Rumuomasi, Port Harcourt	Established oil service firm
11	Equity Petroleum Services Nigeria Ltd	Plot 470, Trans Amadi Industrial Layout, Port Harcourt	Operational multi-year oil & gas services
12	Rivers State Vegetable Oil Company Ltd (RIVOC)	Plot 80, Trans Amadi Industrial Layout, Port Harcourt	Agro-allied producer; longstanding firm
13	Rockson Engineering Company Ltd	H/O 267 Trans Amadi Industrial Layout, Port Harcourt	Engineering services; decade+ in local listing
14	Rogex Chemicals & Allied Products Nig Ltd	No 210 Aba Road, Port Harcourt	Chemical supply business; decade+
15	Joe Eboje International Agencies Ltd	Plot 148 Trans Amadi Industrial Layout, Port Harcourt	Shipping & freight services; long-term operations
16	JoeTech (Epson Store)	No. 1 East-West Road, Rumuokoro Junction, Port Harcourt	Business services store; decade presence
17	Jorab Furniture	43 Rumuekini/Aluu Road, Port Harcourt	Manufacturing & furniture; decade-plus service
18	Kay Jay Energy	Plot 55 Evo Road, GRA Phase 2, Port Harcourt	Energy services consultancy; longstanding
19	Asia Town Restaurant	24 Forces Avenue, Old GRA, Port Harcourt	Established 2012; 12+ yrs
20	Agropro Industries Ltd.	2B Eleme Street, Old GRA, Port Harcourt	Agriculture & agro-allied enterprise; likely long-standing