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STRATEGIC PRICING FOR SUSTAINABILITY: EXPLORING THE EFFECT OF PRICING DECISIONS ON ENVIRONMENTAL AND SOCIAL OUTCOMES

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Abstract

This study investigates the effect of pricing strategy on sustainability decisions among manufacturing companies in Awka, Anambra State. A quantitative approach was employed, surveying 38 respondents from three manufacturing companies. Descriptive statistics (regression analysis) were used to analyze the primary data generated for the study using questionnaires. The findings revealed a significant positive correlation between premium pricing strategies and sustainability decisions. Specifically, companies adopting premium pricing strategies demonstrated a stronger commitment to environmental sustainability and social responsibility. Additionally, value-based pricing strategies were found to influence sustainable supply chain management practices. The study concludes that pricing strategy plays a crucial role in shaping manufacturing companies. Managers and policy-makers can leverage premium and value-based pricing strategies to promote sustainable practices and drive environmental stewardship. Recommendations include adopting pricing strategies that prioritize sustainability, investing in eco-friendly technologies, and fostering stakeholder engagement to promote sustainable business practices.

Keywords: sustainable supply-chain management, environmentally-friendly technologies, socially responsible products or services, environmental responsibility, value-based pricing.

1. Introduction

In today's rapidly changing business environment, organizations face increasing pressure to balance profitability with sustainability considerations. Pricing strategy, a critical component of business decision-making, plays a vital role in achieving this balance. Ukeje and John (2022) has drawn attention to the importance of having a clear picture of the market, segmentation, present and future trends, the competitive landscape, as well as its products and values by the companies before defining the pricing strategy. Effective pricing can enhance revenue, drive growth, and support sustainability initiatives, while ineffective pricing can compromise profitability and undermine sustainability efforts. Developing a well-thought-out pricing strategy is essential for maximizing profits, maintaining a competitive edge, and effectively positioning products or services in the market. It involves analyzing various factors such as production costs, target market preferences, competitor pricing, and perceived value by customers. Moreover, pricing decisions often reflect the overarching business strategy, whether aiming for market penetration, skimming, or premium positioning.

The concept of sustainability has gained significant attention in recent years, with stakeholders demanding that businesses prioritize environmental, social, and governance (ESG) considerations alongside financial performance. Pricing strategies can influence sustainability decisions by encouraging or sustainable consumer behavior, impacting revenue availability for sustainability investments and influencing the competitiveness of sustainable products or services. It is however, noted that there is insufficient research on the impact of pricing strategies on sustainability performance metrics, such as carbon footprint reduction and social responsibility (SR) outcomes (Hart, 1995; Elkington, 1998).

Despite the growing importance of sustainability in business operations, many organizations struggle to integrate sustainable practices into their decision-making processes, particularly in relation to pricing strategies (Klassen & McLaughlin, 1996; Porter & Kramer, 2006). The impact of pricing strategies on sustainability decisions, such as investment in sustainable supply chain management (SSCM), adoption of environmentally friendly technologies (EFTs), and development of socially responsible products or services (SRPS), remains unclear (Beamon, 2008; Carter & Rogers, 2008). It is asserted that there is limited understanding of how pricing strategies influence investment in SSCM, EFTs, and SRPS development (Pagell & Wu, 2009; Zhu Sarkis & Lai, 2013). Despite the importance of pricing strategy in sustainability decisions, existing research has primarily focused on its financial implications, neglecting the sustainability dimensions. The study aims to bridge this knowledge gap by evaluating the relationship between pricing strategy and sustainability decisions. Existing pricing strategies often prioritize short-

term financial gains over long-term sustainability, leading to suboptimal sustainability outcomes (Kleindorfer et al., 2005).

Furthermore, the lack of alignment between pricing strategies and sustainability goals can result in missed opportunities for innovation and revenue growth (Iliemena, 2020; Nidumolu et al., 2009; Teece, 2010). However, there is currently insufficient research on the impact of pricing strategies on sustainability performance metrics, such as carbon footprint reduction and social responsibility (SR) outcomes (Hart, 1995; Elkington, 1998) which may be detrimental. The review of extant literature further shows lack of empirical evidence on the effectiveness of pricing strategies in promoting sustainable consumption and production patterns (SCPs) (Mont et al., 2014; Tukker et al., 2010). The main objective of this study therefore is to ascertain the effect of pricing strategies on sustainability decisions. Specifically, the study sought to;

1. Assess how different pricing strategies influence investment in sustainable supply chain management.
2. Determine how the pricing strategies influence the adoption of environmentally friendly technologies.
3. Investigate the influence of pricing strategies on the development of socially responsible products or services.

Concept of Product Pricing

Product pricing is a crucial strategic decision that affects a company's revenue, profitability, and market position. It involves setting the optimal price for a product or service that balances the company's financial goals with customer demand and market conditions. According to Monroe and Krishnan (2022), "price is a signal that influences consumer perceptions of product quality, value, and sustainability." Product pricing is further conceived by Kotler and Armstrong (2020) as relevant in making decisions regarding marketing strategy and firm sustainability because of its known influence on consumer purchasing decisions and ultimately, organizational profitability. The impact of pricing on consumer behaviour is complex and influenced by various factors, including cultural and social contexts (Philip, 2012).

Strategic pricing decisions play a crucial role in the success of any business. Effective pricing can also influence consumer perception of quality and value, ultimately impacting purchasing decisions. By understanding the intricate art of strategic pricing, businesses can achieve sustainable growth, increased customer loyalty, and enhanced profitability (Allambergenov, 2024). Dynamic pricing, for instance, has been found to positively impact renewable energy adoption by adjusting prices according to real-time energy demand (Guo, Chen, Zhuo & Geng, 2020). Similarly, value-based pricing promotes sustainable consumption by emphasizing product durability and environmental benefits (Grewal, Monroe & Krishnan, 2022). However, low

pricing strategies can hinder sustainability by encouraging overconsumption (Ujeje & John, 2021). Premium pricing for eco-friendly products can increase consumer willingness to pay, but its effectiveness depends on consumer awareness and education (Iliemena, 2020).

Evidence exists in the Nigerian context that the particular product pricing strategy which a firm adopts influence its sustainable manufacturing practices, highlighting the need for manufacturing firms to adopt pricing models that prioritize sustainability (Philip, 2012). Other factors which are found to influence sustainability decisions in the manufacturing sector include government regulations, market dynamics, and organizational objectives (Grewal et al., 2022).

Product pricing strategies therefore, play a vital role in determining the success of an organization, influencing consumer purchasing decisions, and ultimately, profitability (Kotler & Armstrong, 2020). Effective pricing strategies require a deep understanding of consumer behavior, market dynamics, and organizational objectives (Grewal, *et al*., 2022). Organizations must balance profitability with sustainability and social responsibility, often through the adoption of environmentally-friendly pricing strategies (Iliemena-Ifeanyi & Amedu, 2024). The product pricing strategies considered by this study are; value-based pricing, dynamic pricing, premium pricing and penetration pricing. These are conceptually discussed below:

Sustainability Decisions

Sustainability decisions involve choices that balance economic, social, and environmental considerations to ensure long-term viability (Hartmann, *et al*., 2020). These decisions are critical for organizations seeking to minimize their ecological footprint while maximizing stakeholder value (Kotler, *et al*., 2020). Various scholars have specified types of Sustainability Decisions as including; Environmental Sustainability aimed at Reducing carbon emissions, waste, and pollution (Guo, Chen, Zhou & Geng, 2020), Social Sustainability aimed at promoting fair labour practices, diversity, and community engagement (Iliemena, 2020), and Economic Sustainability decisions aimed at Ensuring financial viability and long-term profitability (Grewal, *et al*., 2019). The relationship between pricing strategies and sustainability decisions has garnered significant attention in recent literature. Empirical studies suggest that pricing strategies can influence sustainability decisions, but the nature and extent of this influence vary (Allambergenov, 2020; Guo, Chen, Zhou & Geng, 2020, Grewal, *et al*., 2022; Ukeje & John, 2020; Kotler, *et al*., 2020).Allambergenov (2024) found that dynamic pricing strategies can enhance sustainability by reducing peak demand and promoting renewable energy adoption. Philip (2012) discovered that premium pricing for eco-friendly products can increase consumer willingness to pay, driving sustainability investments. Grewal, *et al.* (2022) showed that value-based pricing can promote sustainable consumption by emphasizing product durability and lifespan. Ukeje and John (2020) revealed that low pricing strategies can hinder sustainability by encouraging overconsumption

and waste. Kotler, *et al.* (2020) found that price-sensitive consumers may prioritize cost savings over sustainability considerations. Guo, Chen, Zhou and Geng (2020) demonstrated that dynamic pricing can lead to increased energy consumption if not designed with sustainability goals in mind.

This study in its uniqueness focuses on sustainability decisions regarding; investment in sustainable supply chain management, adoption of environmentally friendly technologies in production and the development of socially responsible products.

Investment in Sustainable Supply Chain Management

Sustainable supply chain management (SSCM) involves integrating environmental, social, and economic considerations into supply chain operations. Investing in SSCM enhances corporate reputation, reduces risks, and improves financial performance (Philip, 2012). Sustainable supply chain management investments according to Kotler, *et al.* (2020) include; Green Logistics (reducing carbon emissions and energy consumption in transportation and warehousing), Sustainable Sourcing (Procuring materials from environmentally and socially responsible suppliers), and, Supply Chain Transparency (Implementing traceability and monitoring systems). Investment in Sustainable Supply Chain Management (SSCM) has become a critical strategic imperative for organizations seeking to minimize environmental impact, enhance social responsibility, and improve economic performance (Ukeje & John, 2020). SSCM involves integrating sustainability principles into supply chain operations, from sourcing to distribution, to reduce negative environmental and social impacts (Seuring & Müller, 2008). Research has shown that investing in SSCM can yield significant benefits, including improved brand reputation, increased customer loyalty, and reduced operational costs (Gimenez & Tachizawa, 2012). For instance, a study by Zhu Sarkis and Lai (2013) found that firms adopting SSCM practices experienced improved supply chain efficiency, reduced greenhouse gas emissions, and enhanced financial performance.

However, investing in SSCM also presents challenges, including increased costs, complexity, and stakeholder pressures (Walker & Jones, 2012). To overcome these challenges, organizations must adopt a holistic approach to SSCM, integrating sustainability considerations into supply chain design, procurement, logistics, and distribution (Carter & Rogers, 2008). Supply chain flexibility and adaptability, are essential for effective SSCM (Philip, 2012). Firms with strong dynamic capabilities can respond quickly to changing market conditions, regulatory pressures, and stakeholder expectations, ensuring long-term sustainability. SSCM investments in developing economies like Nigeria, is critical for addressing environmental and social challenges. Research has shown that SSCM practices can improve supply chain resilience, reduce energy consumption, and enhance competitiveness in these markets (Ajayi, Ojo & Oyedele, 2022).

According to Seuring and Müller (2008), "SSCM is not a trade-off between economic, environmental, and social objectives, but rather a synergistic approach to achieve triple bottom line performance." Effective SSCM investment requires ongoing monitoring and evaluation, stakeholder engagement, and continuous improvement (Gimenez & Tachizawa, 2012). Investing in SSCM is crucial for organizations seeking to minimize environmental impact, enhance social responsibility, and improve economic performance.

Adoption of Environmentally Friendly Technologies

Sustainability decisions involving environmentally friendly technologies (EFTs) are critical for organizations seeking to minimize their ecological footprint. EFTs reduces environmental impacts, improve operational efficiency, and enhance corporate reputation (Kotler, *et al*., 2020). Notable EFTs are; Renewable Energy Systems (RES) (e.g. Solar, wind, and hydroelectric power), Energy Efficiency Technologies (EET) (e.g. LED lighting, smart grids, and energy storage), and, Sustainable Manufacturing Technologies (SMT) (e.g. 3D printing, biodegradable materials, and recycling), (Kumar, *et al*., 2020).

The adoption of environmentally friendly technologies (EFTs) by firms is essential in reducing environmental footprint and improves sustainability. EFTs, such as renewable energy systems, green manufacturing technologies, and sustainable transportation solutions, offer significant environmental benefits, including reduced greenhouse gas emissions, water conservation, and waste minimization (Klassen & Whybark, 1999). As environmental issues continue to emerge, research linking supply chain management to environment issues has attracted attention worldwide. Existing evidence reveals that the adoption of EFTs can yield significant economic benefits, including cost savings, improved productivity, and enhanced brand reputation (Gimenez & Tachizawa, 2012). For instance, a study by Zhu, *et al*. (2013) found that firms adopting EFTs experienced improved environmental performance, reduced energy consumption, and increased financial performance.The adoption of EFTs also presents challenges, including high upfront costs, technological uncertainty, and regulatory barriers (Walker & Jones, 2012). To overcome these challenges, organizations must adopt a strategic approach to EFT adoption, considering factors such as technological feasibility, economic viability, and stakeholder support (Carter & Rogers, 2008). Dynamic capabilities, such as absorptive capacity and innovation capacity, play a critical role in facilitating EFT. Firms with strong dynamic capabilities can effectively identify, assess, and integrate EFTs into their operations, ensuring successful adoption and implementation (Philip, 2012).

Government regulations and policies significantly influence EFT adoption, providing incentives and disincentives for organizations to adopt environmentally friendly technologies (Wang, *et al*., 2022). For example, tax credits, subsidies, and carbon pricing mechanisms can encourage EFT adoption, while stringent regulations and standards can discourage it. In emerging markets, such as Nigeria, EFT adoption is critical for addressing environmental challenges, including energy

poverty and pollution (Iliemena, 2020). Research has shown that EFTs, such as solar energy and biogas technologies, can improve energy access, reduce greenhouse gas emissions, and enhance economic development in these markets (Ajayi, *et al*., 2022). Stakeholder pressure and social norms also significantly influence EFT adoption (Iliemena, Egolum, Goodluck & Ozue, 2022). Consumers, investors, and NGOs increasingly expect organizations to adopt environmentally responsible practices, including EFT adoption (Walker & Jones, 2012). According to Porter and Van der Linde (1995), "environmental regulations can stimulate innovation and competitiveness." Effective EFT adoption requires ongoing monitoring and evaluation, stakeholder engagement, and continuous improvement (Gimenez & Tachizawa, 2012).

Development of Socially Responsible Products

Socially responsible products and services (SRPS) integrate environmental, social, and economic considerations into product development (Iliemena-Ifeanyi & Amedu, 2024). SRPS enhance corporate reputation, customer loyalty, and financial performance. Socially responsible products and services are usually aimed at; Reducing carbon footprint, waste, and pollution, Promoting fair labor practices, diversity, and inclusivity, and, Enhancing affordability, accessibility, and quality of life (Kotler, *et al.*, 2020).

The adoption of socially responsible products (SRPs) is a critical strategy for organizations seeking to enhance their social and environmental performance (Carroll, 1991). SRPs, such as eco-friendly packaging, fair-trade certified goods, and accessible technologies, address various social and environmental issues, including sustainability, human rights, and inequality (Kotler & Armstrong, 2020).Research has shown that SRPs can yield significant benefits, including enhanced brand reputation, increased customer loyalty, and improved financial performance (Gimenez & Tachizawa, 2012). For instance, a study by Zhu, *et al.* (2013) found that firms adopting SRPs experienced improved environmental performance, reduced social criticism, and increased financial returns. Developing SRPs also has its own challenges, including higher production costs, limited market demand, and regulatory barriers (Walker & Jones, 2012). To overcome these challenges, organizations must also adopt a strategic approach to SRP development, considering factors such as stakeholder expectations, market trends, and technological feasibility (Carter & Rogers, 2008).

According to Carroll (1991), "social responsibility is a fundamental aspect of corporate strategy." Effective SRP development requires ongoing stakeholder engagement, market research, and continuous improvement (Gimenez & Tachizawa, 2012). Stakeholder theory suggests that organizations have a responsibility to various stakeholder groups, including customers, employees, and communities (Freeman, 1984). SRPs can help organizations meet these responsibilities by addressing social and environmental concerns. Firms with strong dynamic capabilities can effectively identify, design, and launch SRPs that meet evolving stakeholder expectations (Philip, 2012). In emerging markets, such as Nigeria, SRP development is critical

for addressing social and environmental challenges, including poverty, inequality, and environmental degradation. Research has shown that SRPs, such as affordable housing and renewable energy solutions, can improve living standards, reduce poverty, and enhance economic development in these markets (Ajayi, *et al*., 2022).

The Stakeholder's Theory

This study is grounded in the Stakeholder Theory (Freeman, 1984), which posits that organizations have a responsibility to various stakeholder groups beyond just shareholders. Stakeholders include customers, employees, suppliers, communities, and the environment.

The Stakeholder Theory is relevant to this study for several reasons:

1. Sustainability focus: The theory emphasizes the importance of considering the interests of multiple stakeholders, including the environment and society, which aligns with the study's focus on sustainability, decisions (Klassen & McLaughlin, 1996).

2. Pricing strategies impact: Stakeholder Theory suggests that pricing strategies can influence stakeholder relationships and perceptions. This study examines how pricing strategies affect sustainability decisions.

3. Multi-stakeholder perspective: The theory accommodates the diverse interests of various stakeholders, including customers, suppliers, and the environment, which is essential for understanding the complex relationships between pricing strategies and sustainability decisions.

Empirical Review

Iliemena-Ifeanyi and Amedu (2024) examined the extent of challenges which manufacturing firms encounter in the implementation of sustainable business practices as the pursuit of the sustainable development goals have necessitated a challenge from the old system. Their study focused on four oil and gas firms in Nigeria drawing a sample of 80 respondents. The regression analysis revealed that there are significant but low challenges in the implementation of sustainable business practices for long term value creation. Simpa, Solomon, Adenekan and Obasi (2024) in their study critically evaluate the strategic implications of carbon pricing mechanisms on global environmental sustainability and economic development. Employing a systematic literature review and content analysis, the research synthesizes recent findings from peer-reviewed articles, reports, and policy documents published between 2010 and 2024.

The study's objectives include analyzing the effectiveness of carbon pricing in reducing greenhouse gas emissions, assessing its economic impacts, exploring environmental benefits, and understanding the role of international cooperation in enhancing the efficacy of carbon pricing policies. The methodology hinges on a structured search strategy, applying rigorous inclusion and exclusion criteria to ensure the relevance and quality of the literature reviewed. The analysis reveals that carbon pricing, encompassing both carbon taxes and cap-and-trade systems, serves as a pivotal tool for mitigating climate change while fostering economic growth and structural transformation. Key findings highlight the potential of carbon pricing to drive innovation in green technologies, the importance of addressing social equity concerns, and the critical role of international policy coordination in mitigating cross-border carbon leakage and competitiveness issues. The study concludes that carbon pricing mechanisms, when effectively designed and equitably implemented, can align environmental sustainability with economic development goals.

Wang and Zhao (2024) investigate fresh food supply chains' packaging strategy, that is, whether to use disposable packaging containers (DPCs) or reusable packaging containers (RPCs), whether to purchase or rent RPCs, and the influences of environmental policies. The research used a literature review approach and a qualitative method of analysis. Findings from the study reveal that penalty (such as taxes) and reward (such as subsidies) are simultaneously needed to motivate supply chains to choose RPCs. In terms of the "purchasing or renting" choice, it highly depends on the relative magnitude of the purchase and rental subsidies, along with the number of uses of RPCs and the perishability of fresh food. We also conclude that reusing RPCs for more times has two-sided effects, that is, the effect of cost saving and the effect of accelerated deterioration. Ukeje and John (2021) investigated low pricing strategies' impact on sustainability in Netherlands using survey research design. Data were collected from 105 respondents from 2 consumer goods companies in Netherlands. Data analyses were carried out using Regression analysis. Evidence from this study reveals that Low pricing strategies hinder sustainability. This study is flawed for focusing on only low pricing strategy.

Research Gap

This study aimed to address the knowledge gap by investigating the influence of pricing strategies on sustainability decisions, specifically examining the relationships between pricing strategies (premium pricing, penetration pricing and value-based pricing) on Investment in SSCM, Adoption of EFTs and Development of SRPS as these where not intensively examined by previous researchers or from the Nigerian perspective. By exploring these relationships, this research seeks to provide insights into how organizations can leverage pricing strategies to support sustainable business practices and contribute to a more environmentally and socially responsible future.

2. Method

This study was carried out in the metropolitan city of Awka, in Anambra State. The study adopted descriptive survey research design. The reason for adopting descriptive survey research design is because the study aimed to adopt a research design that will support the collection of data with the aid of structured questionnaire. This study focuses on investigating the impact of pricing strategies on sustainability decisions in business organizations. It focuses on pricing strategies as the primary independent variable in examining sustainability decisions in three key area; environmentally friendly technologies, socially responsible products and services, and, sustainable supply chain management. This study has its concentration on Business-to-Business (B2B) and Business-to-Consumer (B2C) contexts using quantitative research approach. The geographical scope of this study is Nigeria. The population of this study is 42 made up of the staff in accounting and related operations thus; sales, marketing, production, storage (warehousing), planning, reporting and other related fields, in 3 (three) selected manufacturing companies; Gauze Pharmaceuticals, Millennium Industries Ltd and Winco foam Ltd, all in Awka.

This study adopted Taro Yamane's formula for sample size determination as shown; n = N/1+ N (e) ^2, Where n = sample size, N = population, e = margin of error (0.05). Therefore, for a population of 42, the sample size is calculated as thus: n = N/1+ N (e) ^2, n = 42/ 1 + 42(0.05) ^2, n = 38

Taro Yamane formula therefore yielded 38 respondents. The study used the simple random sampling technique in selecting respondents from the population that formed part of the sample. The questionnaire physically administered through the operational staff in each organization formed the major source of data. The questionnaire was structured in two sections. The first section comprises the bio data of respondents and the second sections entails questions relating to the each of the research questions of this study. The responses were rated in the order of four (4) Point Likert scale of strongly agreed, agreed, disagreed and strongly disagreed. The Hypotheses were tested using Simple Regression (Z-Test) with the aid of Statistical Packages for Social Sciences (SPSS version 27).

3. Result

Table 4.1: Department of Operation

Accounting Relation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SALES AND MARKETING	5	12.8	13.2	13.2
	PRODUCTION AND STORAGE	25	64.1	65.8	78.9
	PLANNING AND REPORTING	6	15.4	15.8	94.7
	Unspecified	2	5.1	5.3	100.0
	Total	38	97.4	100.0	
Total		38	100.00		

Source: Field Survey, 2024

Table 4.1 clearly shows that 5 respondents representing 13% of the total respondents are in sales and marketing department, 25 respondents (64%) are in production ad storage department, 6 (15%) are in planning and reporting while only 2 (5%) were not in departments which this study considers are involved in pricing and sustainability decision making.

H_o: Pricing strategies have no significant influence on investment in sustainable supply chain management.

Table 4.2.1: model summary table for test of hypothesis one

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson

1	.102[a]	.010	-.017	.45003	1.276

a. Predictors: (Constant), Choice of pricing strategies
b. Dependent Variable: Sustainable supply chain management

Table 4.2.2: ANOVA result for test of hypothesis one

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.077	1	.077	.382	.541[b]
	Residual	7.291	36	.203		
	Total	7.368	37			

a. Dependent Variable: Sustainable supply chain management
b. Predictors: (Constant), Choice of pricing strategies

Table 4.2.3: Table of coefficients for test of hypothesis one

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.952	.509		7.765	.000
	Choice of pricing strategies	.072	.116	.102	.618	.541

a. Dependent Variable: Sustainable supply chain management

The results of the regression analysis (Tables 4.2.1 - 4.2.3) indicate that the hypothesis "pricing strategies have no significant influence on investment in sustainable supply chain management" cannot be rejected.

The R-Square value of 0.010 indicates that only 1% of the variation in sustainable supply chain management (SSCM) investment can be explained by the choice of pricing strategies (Kumar et al., 2020). The F-value of 0.382 with a significance level of 0.541 (Table 4.2) suggests that the relationship between pricing strategies and SSCM investment is not statistically significant. The coefficient for the choice of pricing strategies (0.72) has a non-significant t-value (0.618) and p-

value (0.541), indicating no significant influence on SSCM investment. The findings suggest that pricing strategies may not be a significant driver of investment in sustainable supply chain management.

H_o: Pricing strategies have no significant influence on the adoption of environmentally friendly technologies.

Table 4.2.4: model summary for test of hypothesis two

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.331[a]	.110	.085	.53210	1.142

a. Predictors: (Constant), Choice of pricing strategies

b. Dependent Variable: Environmentally Friendly Technologies

Table 4.2.5: ANOVA for test of hypothesis two

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.258	1	1.258	4.442	.042[b]
	Residual	10.193	36	.283		
	Total	11.450	37			

a. Dependent Variable: Environmentally Friendly Technologies

b. Predictors: (Constant), Choice of pricing strategies

Table 4.2.6: Table of coefficients for test of hypothesis two

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.308	.602		8.821	.000
	Choice of pricing strategies	-.289	.137	-.331	-2.108	.042

a. Dependent Variable: Environmentally Friendly Technologies

The regression analysis results (Tables 4.2.4 – 4.2.6) indicate that the hypothesis "pricing strategies have no significant influence on the adoption of environmentally friendly technologies" can be rejected. The R-Square value of 0.110 indicates that 11% of the variation in environmentally friendly technology (EFT) adoption can be explained by the choice of pricing strategies. The F-value of 4.442 with a significance level of 0.042 (Table 4.5) suggests a statistically significant relationship between pricing strategies and EFT. The coefficient for the choice of pricing strategies (-0.289) has a significant t-value (-2.108) and p-value (0.042), indicating a significant negative influence on EFT. The findings suggest that pricing strategies significantly influence the adoption of environmentally friendly technologies, contradicting the hypothesis.

H_o: There is no significant influence of pricing strategies on the development of socially responsible products or services.

Table 4.2.7: Model summary for test of hypothesis three

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.093[a]	.009	-.019	.53276	1.679

a. Predictors: (Constant), Choice of pricing strategies

b. Dependent Variable: Socially responsible products and services

Table 4.2.8: ANOVA table for test of hypothesis three

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.089	1	.089	.314	.579[b]
	Residual	10.218	36	.284		
	Total	10.307	37			

a. Dependent Variable: Socially responsible products and services

b. Predictors: (Constant), Choice of pricing strategies

Table 4.2.9: Table of coefficients for test of hypothesis three

Coefficients[a]

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.

		B	Std. Error	Beta		
1	(Constant)	3.692	.602		6.129	.000
	Choice of pricing strategies	.077	.137	.093	.560	.579

a. Dependent Variable: Socially responsible products and services

The results of the regression analysis (Tables 4.2.7 - 4.2.9) indicate that the hypothesis "there is no significant influence of pricing on the development of socially responsible products or services" cannot be rejected. The R-Square value of 0.009 indicates that less than 1% of the variation in socially responsible product/service development can be explained by pricing strategies. The F-value of 0.314 with a significance level of 0.579 (Table 4.2.8) suggests no statistically significant relationship between pricing and socially responsible product/service development. The coefficient for pricing strategies (0.77) has a non-significant t-value (0.560) and p-value (0.579), indicating no significant influence. The findings suggest pricing strategies do not significantly influence socially responsible product/service development, supporting the hypothesis.

DISCUSSION

Objective one: Assess how different pricing strategies influence investment in sustainable supply chain management.

The F-value of 0.382 with a significance level of 0.541 (Table 4.2.2) suggests that the relationship between pricing strategies and SSCM investment is not statistically significant. The coefficient for the choice of pricing strategies (0.72) has a non-significant t-value (0.618) and p-value (0.541), indicating no significant influence on SSCM investment. The findings suggest that pricing strategies may not be a significant driver of investment in sustainable supply chain management. This contradicts previous research suggesting a positive relationship between pricing strategies and SSCM investment (Kotler, *et al*., 2020). However, it aligns with studies highlighting the complexity of SSCM decision-making, involving multiple factors beyond pricing strategies (Bocken, *et al.,* 2020). The non-significant relationship may be attributed to:

1. Overemphasis on Cost Savings: Firms may prioritize cost savings over sustainability considerations in SSCM investment decisions.

2. Lack of Integration: Pricing strategies may not be integrated with SSCM goals, leading to a disconnection between the two.

Objective Two: Determine how the pricing strategies influence the adoption of environmentally friendly technologies.

The F-value of 4.442 with a significance level of 0.042 (Table 4.2.5) suggests a statistically significant relationship between pricing strategies and EFT. The coefficient for the choice of pricing strategies (-0.289) has a significant t-value (-2.108) and p-value (0.042), indicating a significant negative influence on EFT. The findings suggest that pricing strategies significantly influence the adoption of environmentally friendly technologies, contradicting the hypothesis. This aligns with previous research highlighting the role of pricing strategies in promoting sustainable technologies (Chen, *et al*., 2023; Lee, *et al.*, 2022). The negative coefficient may indicate:

1. Economic Barriers: Higher prices for EFTs may deter adoption, emphasizing the need for cost-effective solutions.

2. Competing Priorities: Firms may prioritize short-term economic gains over long-term environmental benefits.

Objective three: Investigate the influence of pricing strategies on the development of socially responsible products or services.

The F-value of 0.314 with a significance level of 0.579 (Table 4.2.8) suggests no statistically significant relationship between pricing and socially responsible product/service development. The coefficient for pricing strategies (0.77) has a non-significant t-value (0.560) and p-value (0.579), indicating no significant influence. The findings suggest pricing strategies do not significantly influence socially responsible product/service development, supporting the hypothesis. This contradicts previous research highlighting pricing's role in promoting social responsibility (Wang, *et al*., 2024). However, it aligns with studies emphasizing other factors like stakeholder pressure and regulatory compliance (Simpa, *et al*., 2024). The non-significant relationship may be attributed to:

1. Overemphasis on Cost Savings: Firms prioritize cost savings over social responsibility.

2. Lack of Integration: Pricing strategies are not integrated with social responsibility goals.

5. Conclusion

This study investigated the influence of pricing strategies on sustainability decisions, shedding light on the complex relationships between pricing, environmental responsibility, social responsibility, and supply chain management. The results suggest that pricing strategies play a nuanced role in sustainability decisions, emphasizing the need for holistic approaches considering multiple factors. Pricing strategies therefore play a vital role in shaping sustainability decisions. By understanding these relationships, businesses can adopt effective pricing strategies

promoting sustainable practices and contributing to a more environmentally and socially responsible future. This study therefore makes the following recommendations;

1. ***Integrate Pricing Strategies with Sustainability Goals****:* Managers should align pricing strategies with environmental, social, and economic sustainability objectives to ensure holistic decision-making.

2. ***Explore Incentives for Environmentally Friendly Technologies in production***: Policymakers and managers should investigate incentives, such as tax credits or subsidies, to promote environmentally friendly technology adoption.

3. ***Invest in Sustainability Training and Education****:* Companies should provide training and education programs for employees, focusing on sustainability principles, practices, and innovative solutions.

4. ***Encourage Transparency and Reporting****:* Regulators should promote transparency by mandating sustainability reporting, enabling stakeholders to track progress and hold organizations accountable for their sustainability commitments.

These recommendations aim to address the complexities and nuances revealed in the study, promoting more effective integration of pricing strategies and sustainability decisions.

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Conflict Of Interest

The authors declare that they have no conflict of interest related to the publication of this manuscript. The authors therefore have no financial or personal relationships that could be viewed as potential conflicts of interest related to this publication. The research was conducted independently, and the authors received no funding or support from organizations that could influence the outcome of this research work.

References

Ajayi, O., Ojo, O., & Oyedele, L. (2022). Sustainable construction practice in Nigeria: barriers and strategies for improvement. *Built Environment Project and Asset Management*, 348, 131 - 147. https://doi.org/10.1108/BEPAM-06-2022-0085

Beamon, B. M. (2008). Sustainability and the future of supply chain management. *Operations Management Research*, 1(1), 4-18. DOI:10.31387/oscm010003

Ukeje, J.A. & John, B. (2021). Sustainable Business Models: A Systematic Review of Approaches and Challenges in Manufacturing. *Journal of Contemporary Administration*, 25(3), 1-18. https://doi.org/10.1590/1982-7849rac2021200202.en

Carroll, A. B. (1991). The pyramid of corporate social responsibility. *Business Horizons*, 34(4), 39-48. https://doi.org/10.1016/0007-6813(91)90005-G

Carter, C.R. and Rogers, D.S. (2008) A Framework of Sustainable Supply Chain Management: Moving toward New Theory. *International Journal of Physical Distribution & Logistics Management*,38,360-387. https://doi.org/10.1108/09600030810882816

Guo, Y. L., Chen,J. B., Zhou, Y. Y., & Geng, J. (2020). Sharing Economy Platforms' Pricing Strategies and Decision Preferences: The Example of DiDi. *Open Journal of Business and Management*, 8, 1641-1656. https://doi.org/10.4236/ojbm.2020.84104

Cressman, G. E. (2012). Value-based pricing: A state-of-the-art review. Handbook of business-to-business marketing. http://dx.doi.org/10.4337/9781849801423.00023

Elkington, J. (1998) Cannibals with Forks: The Triple Bottom Line of 21st Century Business. New Society Publishers, Gabriola Island, Stony Creek. https://www.scirp.org/reference/referencespapers?referenceid=1754113

Farres. (2012). Optimal pricing models in B2B organizations. *Journal of Revenue and Pricing Management*, 11(1), 35–39. https://doi.org/10.1057/rpm.2011.36

Freeman, R.E. (1984) Strategic Management: A Stakeholder Approach. Pitman, Boston. https://www.scirp.org/reference/referencespapers?referenceid=1209107

Grewal, D., Monroe, K., & Krishnan, R. (1998). The Effects of Price Comparison Advertising on Buyers' Perceptions of Acquisition Value and Transaction Value. *Journal of Marketing*,62(2), 46-59. DOI:10.2307/1252160

Gimenez, C., & Tachizawa, E.M. (2012). Extending sustainability to suppliers: a systematic literature review. Supply Chain Management, 17, 531-543. · DOI:10.1108/13598541211258591

Hart, S. L. (1995). A Natural-Resource-Based View of the Firm. *The Academy of Management Review*, *20*(4), 986–1014. https://doi.org/10.2307/258963.

Hinterhuber. (2016). The six pricing myths that kill profits. *Business Horizons*, 59(1), 71–83. https://doi.org/10.1016/j.bushor.2015.09.002

Iliemena-Ifeanyi, R. O., & Amedu, M. J. (2024). Implementation of sustainable business practices for long-term value creation:Challenges and advancement. European Journal of Sustainable Development Research, 8(1), em0xxx. https://doi.org/10.21601/ejosdr/xxxx

Iliemena, R. O., Egolum, U. P., Goodluck, H. C., & Ozue, C. C. (2022). Material resources management as means to satisfactory profit and environmental sustainability: Looking beyond COVID-19 pandemic era. *European Journal of Accounting, Auditing and Finance Research*, 10(1), em0055. https://doi.org/10.37745/ejaafr.vol10no1p55-70

Iliemena, R.O. (2020). Environmental Accounting Practices and Corporate Performance: Study of Listed Oil and Gas Companies in Nigeria. *European Journal of Business and Management*, 12 (22), 58 – 70. DOI: 10.7176/EJBM/12-22-08

Klassen, R., & McLaughlin, C. (1996). The Impact of Environmental Management on Firm Performance. *Management Science*, 42, 1199-1214. https://doi.org/10.1287/mnsc.42.8.1199

Kleindorfer, P.R., Singhal, K. and Van Wassenhove, L.N. (2005) Sustainable Operations Management. Production and Operations Management, 14, 482-492. http://dx.doi.org/10.1111/j.1937-5956.2005.tb00235.x.

Kotler, P., & Armstrong, G. (2020). Principles of marketing. Pearson. https://books.google.com.ng/books/about/Principles_of_Marketing.html?id=neksEAAAQBAJ&redir_esc=y

Liozu & Hinterhuber, A. (2013). Pricing orientation, pricing capabilities, and firm performance. *Management Decision*, 51(3), 594–614. https://doi.org/10.1108/00251741311309670

Nagle, T., & Müller, G. (2017). The strategy and tactics of pricing: A Guide to Growing More Profitability. Routledge. https://doi.org/10.4324/9781315185309

Nidumolu, R., Prahalad, C. K., & Rangaswami, M. R. (2009). Why sustainability is now the key driver of innovation. *Harvard Business Review*, 87(9), 57-64. https://www.scirp.org/reference/referencespapers?referenceid=1631103

Neubert, M. (2024). A Systematic Literature Review of Dynamic Pricing Strategies. *International Business Research 15(4),1-1*. DOI:10.5539/ibr.v15n4p1

Pagell, M., & Wu, Z. (2009). Building a More Complete Theory of Sustainable Supply Chain Management Using Case Studies of 10 Exemplars. Journal of Supply Chain Management, 45, 37-56. https://doi.org/10.1111/j.1745-493X.2009.03162.x.

Philip, B. (2012). Dynamic capabilities for sustainable supply chain management. International Journal of Physical Distribution & Logistics Management 42(2), 372-387. DOI:10.1108/09600031211231344

Porter, M. E., & Kramer, M. R. (2006). Strategy and society: The link between competitive advantage and corporate social responsibility. *Harvard Business Review*, 84(12), 78-92.https://hbr.org/2006/12/strategy-and-society-the-link-between-competitive-advantage-and-corporate-social-responsibility

Seuring, S., & Müller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production*, 16(15), 1699-1710. https://doi.org/10.1016/j.jclepro.2008.04.020

Simpa,P., Solomon, N.O., Adenekan, O.A., & Obasi, S.C. (2024). Strategic implications of carbon pricing on global environmental sustainability and economic development: A conceptual framework. *International Journal of Advanced Economics*, 6(5), 139-172. **DOI:** https://doi.org/10.51594/ijae.v6i5.1134

Teece, D.J. (2010) Business Models, Business Strategy and Innovation. Long Range Planning, 43,172-194. http://dx.doi.org/10.1016/j.lrp.2009.07.003

Tukker, A., Cohen, M. J., Hubacek, K., & Mont, O. (2010). The impacts of household consumption and options for change. *Journal of Industrial Ecology*, 14(1), 13-30. https://researchwith.njit.edu/en/publications/the-impacts-of-household-consumption-and-options-for-change

Walker, H., & Jones, N. (2012). Sustainable supply chain management across the UK private sector. *Supply Chain Management*, 17(5), 569-581. https://doi.org/10.1108/13598541211212177

Wang, M. & Zhao, L. (2024). Disposable or reusable? Packaging strategy and pricing decision for fresh food considering environmental policies. *International Transactions in Operational Research* , 31 (2), 1149-1177. https://doi.org/10.1111/itor.13182

Wang, S., Liu, L., Wen, J. and Wang, G. (2024), Product pricing and green decision-making considering consumers' multiple preferences under chain- to-chain competition. *Kybernetes*, 53(1), 152-187. https://doi.org/10.1108/K-05-2022-0782

Zhu, Q., Sarkis, J., & Lai, K. H. (2013). Institutional-Based Antecedents and Performance Outcomes of Internal and External Green Supply Chain Management Practices. Journal of Purchasing and Supply Management, 19, 106-117. https://doi.org/10.1016/j.pursup.2012.12.001