



## **GREEN SUPPLY CHAIN MANAGEMENT AND ITS EFFECT ON THE FINANCIAL PERFORMANCE OF MANUFACTURING FIRMS IN ENUGU STATE**

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**Keywords:**

Green supply chain, Management, Financial, Performance, Manufacturing firms

**Abstract:** *This study evaluated green supply chain management and its effect on the financial performance of manufacturing firms in Enugu state. Specifically, the objectives sort to determine the effect of green purchasing on the profitability of manufacturing firms in Enugu state and to examine the effect of green packaging on the revenue of manufacturing firms in Enugu state. A total population of one thousand five hundred and forty-two (1542), staff was used. The sample size of 308, using Freund and William's statistic formula at 5 percent margin of error. The data were analyzed and presented in frequency and percentage tables. Regression statistical tools was used to test the hypotheses with the aid of SPSS Version 26. The results of the study revealed that green purchasing does have significant effect on the profitability of manufacturing firms in Enugu state ( $f = 82.123$ ,  $t = 19.062$ ,  $p = .000 < 0.05$ ) and that green packaging does have significant effect on the revenue of manufacturing firms in Enugu state ( $f = 263.167$ ,  $t = 16.222$ ,  $p = .000 < 0.05$ ). It was concluded that through the integration of environmentally sustainable procurement practices, firms are able to streamline resource usage, reduce operational costs, and bolster efficiency. The impact of green packaging on the revenue of manufacturing firms highlights that consumers are increasingly drawn to products packaged with sustainability in mind. It was recommended that firms should collaborate closely with suppliers who share a commitment to sustainable practices and Educate consumers about the environmental benefits of choosing products from companies that prioritize sustainability.*

### **Introduction**

In recent decades, the imperative to balance economic growth and environmental sustainability has led to a paradigm shift in the

way businesses operate. The concept of sustainability has evolved from being a mere buzzword to a fundamental business strategy, with organizations increasingly recognizing the

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interdependence of economic, social, and environmental dimensions (Elkington, 1997). Within this context, Green Supply Chain Management (GSCM) has emerged as a pivotal approach that aligns supply chain practices with sustainability goals, aiming to reduce negative environmental impacts while enhancing operational efficiency and financial performance (Sarkis, 2012).

Manufacturing firms, as key players in the global economy, hold a substantial role in shaping sustainable practices. These firms are integral to the production of goods that fuel economic growth, yet they also contribute significantly to resource consumption, waste generation, and environmental degradation (Seuring & Müller, 2008). The imperative to address these challenges has motivated manufacturing firms to adopt GSCM principles, aiming to create value not only for their economic stakeholders but also for the environment and society at large.

The focus of this study lies in investigating the nexus between GSCM implementation and its effect on the financial performance of manufacturing firms. Financial performance stands as a cornerstone of business success, encompassing a range of indicators such as profitability, return on investment, and shareholder value (Dyllick & Hockerts, 2002). While conventional wisdom might suggest a trade-off between environmental initiatives and financial gains, contemporary research suggests otherwise, indicating that sustainable practices, when strategically integrated, can yield

competitive advantages and improved financial outcomes (Porter & Van der Linde, 1995).

The impact of GSCM practices on financial performance has garnered substantial attention within academic and business circles. Studies indicate that GSCM implementation can lead to cost reductions through enhanced resource efficiency, waste minimization, and streamlined processes (Pagell & Wu, 2009). Moreover, by adopting environmentally responsible practices, firms can enhance their brand reputation and gain access to environmentally conscious markets, thereby boosting customer loyalty and market share (Zhu et al., 2018).

However, the relationship between GSCM and financial performance is complex and multifaceted. The effectiveness of GSCM initiatives depends on various factors such as the level of integration within the supply chain, the commitment of top management, and the degree of alignment with the firm's core values and strategies (Walker et al., 2008). These nuances highlight the need for context-specific research that explores the mechanisms through which GSCM practices influence financial performance. While a substantial body of literature exists on the broader topic of GSCM and its impacts, gaps remain in understanding how different industries, regions, and organizational contexts shape the relationship between green practices and financial outcomes. Therefore, the proposed study aims to contribute to this field by examining the effect of GSCM on the financial performance of manufacturing firms while

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considering the contextual factors that mediate this relationship.

In conclusion, the study on "Green Supply Chain Management and its Effect on Financial Performance of Manufacturing Firms" is situated at the intersection of sustainability, supply chain management, and business performance. By delving into the intricate dynamics between environmental responsibility and financial success, this research seeks to provide valuable insights for businesses aiming to navigate the complex landscape of sustainability and create a harmonious synergy between economic growth and environmental stewardship.

## 1.2 Statement of Problem

Despite the growing interest in adopting Green Supply Chain Management (GSCM) practices within the manufacturing sector and the potential benefits associated with improved environmental performance and operational efficiency, a significant gap exists in understanding the nuanced relationship between GSCM implementation and its effect on the financial performance of manufacturing firms. While existing literature suggests a positive connection between sustainable practices and financial outcomes, there is a lack of comprehensive empirical research that investigates this relationship in various organizational contexts and industries. This gap raises the need to address the following problem: The problem of the study revolves around the need to explore and analyze the specific mechanisms through which the adoption of

Green Supply Chain Management practices influences the financial performance of manufacturing firms.

## 1.3 Research Objectives

The main objective of the study is to examine the effect of green supply chain management on the financial performance of manufacturing firms in Enugu state. While the specific objectives are:

To determine the effect of green purchasing on the profitability of manufacturing firms in Enugu state.

To examine the effect of green packaging on the revenue of manufacturing firms in Enugu state.

## 1.4 Research Questions

What is the effect of green purchasing on the profitability of manufacturing firms in Enugu state?

What is the effect of green packaging on the revenue of manufacturing firms in Enugu state?

## 1.5 Research Hypotheses

**Ho:** Green purchasing does not have any significant effect on the profitability of manufacturing firms in Enugu state

**Ho:** Green packaging does not have any significant effect on the revenue of manufacturing firms in Enugu state

## 1.6 Significance of the study

The significance of this study lies in its potential to inform sustainable business practices, guide decision-makers, and contribute to the broader goal of harmonizing economic growth with environmental responsibility. Through its findings, the research shapes the way manufacturing firms approach supply chain

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management, enhancing their ability to achieve financial success while contributing positively to the environment and society.

## REVIEW OF RELATED LITRATURES

### 2.1 Conceptual Review

#### 2.1.1 Green supply chain Management

GSCM includes green design, green purchasing, green production, green distribution, logistics, marketing, and reverse logistics, and all these are partly or wholly engaged to reduce and eliminate the negative effect of entity activities on the environment (Srivastava, 2007). The green supply chain concept, according to Dubey, Gunasekaran and Papadopoulos (2017), includes all the phases of the product life cycle, range from raw material extraction, design, production and distribution, the use of and disposal of the product at the end of the product life cycle by consumers. GSCM is a wide range of practices. In line with the SCM concept, the GSCM limit depends on the researcher's objective (Srivastava, 2007).

#### 2.1.2 Green Purchasing

Green purchasing, also referred to as sustainable procurement, is defined as the strategic approach that involves the intentional selection and acquisition of products, services, and materials that align with environmental sustainability goals (Hawkins et al., 2013). It extends beyond traditional procurement practices by considering the entire lifecycle of goods and services, from sourcing to disposal. Green purchasing is a strategic approach rooted in principles, components, benefits, challenges,

and future directions. It serves as a crucial driver of responsible consumption, supporting sustainability objectives across industries and sectors.

Green purchasing is guided by several key principles. These include environmental responsibility, which prioritizes products with minimal negative impact on the environment, encompassing reduced resource consumption, lower emissions, and sustainable sourcing (Krajnc & Glavič, 2005). Life cycle thinking is essential, as it evaluates the environmental impact of a product throughout its entire life cycle, from raw materials to production, transportation, use, and eventual disposal (Sarkis et al., 2011). Additionally, waste reduction, energy efficiency, and social responsibility play crucial roles in shaping green purchasing strategies.

The components of green purchasing encompass material selection, energy considerations, packaging solutions, supplier engagement, adherence to laws and regulations, lifecycle assessment, and transparent communication (Carter & Rogers, 2008). Material selection involves choosing products made from renewable, biodegradable, or recyclable materials to minimize the environmental footprint (Hu, 2015). Energy considerations prioritize products and services designed for energy efficiency to conserve energy and reduce emissions (Zhou et al., 2020). Packaging solutions aim to minimize waste and promote recycling (Mollenkopf et al., 2007), while

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supplier engagement fosters collaboration to encourage environmentally responsible practices (Walker et al., 2015). Adherence to laws and regulations ensures compliance with environmental standards, and lifecycle assessment involves comprehensive evaluations of the environmental impact of selected products (Walker et al., 2014). Transparent communication is key to promoting accountability and creating awareness (Fichter & Jacob, 2011).

## 2.1.3 Green Packaging

Green packaging, often referred to as sustainable packaging or eco-friendly packaging, is the strategic approach to designing and employing packaging materials and practices that prioritize environmental sustainability and minimize negative impacts on the environment throughout a product's lifecycle (Smith, 2014). It encompasses considerations from raw material extraction to end-of-life disposal.

Green packaging is a strategic approach rooted in principles, components, benefits, challenges, and future directions. It serves as a pivotal driver of sustainable consumption and contributes to a more environmentally responsible and resilient future.

The principles underlying green packaging emphasize a holistic approach to minimize the environmental footprint. This includes the selection of packaging materials with reduced ecological impact, the promotion of resource efficiency, the reduction of waste generation, and the use of packaging designs that facilitate

recycling or disposal (Ponsignon et al., 2019). Additionally, the adoption of biodegradability, recyclability, and reduced carbon emissions are central to green packaging strategies (Ghosh et al., 2017).

Green packaging consists of several essential components. Material selection involves choosing renewable, biodegradable, and recyclable materials to create packaging with reduced environmental impact (Muthu et al., 2015). Designing packaging for minimal waste and energy consumption, as well as considering lightweighting to reduce resource use, are important factors (Haque & Rahman, 2020). The adoption of eco-friendly printing methods using sustainable inks further contributes to green packaging (Yin et al., 2019).

## 2.1.4 Financial Performance

Financial performance is the assessment of an organization's financial health, efficiency, and effectiveness in achieving its financial objectives (Biddle et al., 2009). It encompasses various metrics and indicators that provide insights into how well a company manages its resources, generates profits, and creates value for its stakeholders.

Financial performance assessment is a multifaceted process involving profitability, liquidity, efficiency, solvency, market performance, and their interplay. These metrics serve as critical tools for understanding an organization's financial health, informing decision-making, and communicating value to stakeholders.

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Financial performance is composed of several interrelated components. Profitability metrics assess the organization's ability to generate profits from its operations, including gross profit margin, net profit margin, return on assets (ROA), and return on equity (ROE) (Titman et al., 2011). Liquidity metrics evaluate the organization's capacity to meet short-term obligations, such as the current ratio and quick ratio (Scott, 2020). Efficiency metrics measure how effectively the organization utilizes its resources to generate revenue, including asset turnover, inventory turnover, and accounts receivable turnover (Afza & Nazir, 2008). Solvency metrics assess the organization's long-term financial stability and ability to meet its obligations, such as the debt-to-equity ratio and interest coverage ratio (Baker & Powell, 2005). Market performance metrics gauge how well the organization's shares perform in the stock market, including earnings per share (EPS), price-to-earnings (P/E) ratio, and market capitalization (Damodaran, 2012).

## 2.1.5 Profitability

Profitability, a fundamental aspect of financial performance, refers to a company's ability to generate profits from its operations and activities (Titman et al., 2011). It represents the extent to which revenues exceed expenses, indicating the success of a company in converting its resources into earnings.

Profitability is a central metric in financial performance evaluation, encompassing gross profit margin, net profit margin, ROA, and ROE.

These metrics offer insights into a company's financial efficiency, effectiveness, and potential for generating returns.

Profitability comprises several key components that offer insights into a company's financial health. Gross profit margin, calculated as the ratio of gross profit to revenue, reveals the proportion of revenue remaining after deducting the cost of goods sold (Bodie et al., 2017). Net profit margin, computed as the ratio of net income to revenue, provides a measure of the overall efficiency of the company's operations (Gitman et al., 2019). Return on assets (ROA) assesses the company's ability to generate earnings relative to its total assets, while return on equity (ROE) measures the return earned on shareholders' investments (Berk & DeMarzo, 2021).

Profitability indicators reflect different aspects of financial performance. A high gross profit margin suggests effective cost management and strong pricing strategies (Besley & Brigham, 2020). Net profit margin demonstrates the company's ability to control operating expenses and generate net income from its revenue (Gibson, 2021). ROA evaluates how efficiently assets are utilized to generate earnings, reflecting the company's operational efficiency (Titman et al., 2011). ROE, on the other hand, reveals how effectively the company leverages shareholders' equity to generate profits (Damodaran, 2012).

## 2.1.6 Revenue

Revenue, often referred to as sales or sales revenue, represents the total amount of money

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generated by a company from its primary business activities, such as selling goods and services (Kieso et al., 2017). It serves as a fundamental indicator of a company's financial performance and reflects the scale of its operations and market demand.

Revenue is a pivotal metric in financial performance evaluation, reflecting the income generated from a company's core business activities. It provides insights into the company's market presence, competitiveness, and growth potential.

Revenue can be categorized into different types, each representing a specific source of income. Operating revenue encompasses income generated from the core business activities of the company, such as sales of products or services (Brigham & Houston, 2019). Non-operating revenue includes income from activities outside the company's primary operations, such as interest earned from investments or gains from the sale of assets (Scott, 2020). Additionally, recurring revenue involves regular income streams from ongoing customer transactions, while non-recurring revenue involves one-time or irregular income sources (Palepu et al., 2020). Revenue is composed of various components that contribute to the total amount generated. Unit price, the price at which products or services are sold, influences the revenue per transaction (Gitman et al., 2019). Volume, representing the quantity of products or services sold, also significantly impacts total revenue (Berk & DeMarzo, 2021). Additional revenue sources,

such as upselling, cross-selling, and fees, contribute to enhancing total revenue (Besley & Brigham, 2020).

## 2.2 Theoretical Review

The most appropriate theory for the topic under study is the Resource-Based View (RBV).

### Resource-Based View (RBV):

The RBV is a widely used theory in the context of understanding how firms can achieve competitive advantage through the strategic management of their resources and capabilities (Barney, 1991). This theory emphasizes that a firm's unique resources and capabilities can lead to sustained competitive advantage, which can subsequently influence its financial performance.

In the context of your topic, the RBV is highly relevant because it provides a framework for understanding how green supply chain management (GSCM) practices, which involve the strategic integration of environmental sustainability into supply chain operations, can impact the financial performance of manufacturing firms. The RBV suggests that firms possessing valuable, rare, inimitable, and non-substitutable resources will have a competitive advantage over their rivals. In the case of GSCM, implementing environmentally sustainable practices can result in unique capabilities that set firms apart from competitors, leading to enhanced financial outcomes.

By adopting GSCM practices, manufacturing firms can develop resources such as eco-friendly

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production technologies, efficient waste management systems, and relationships with environmentally conscious suppliers. These resources can provide cost savings, reduce risks associated with environmental regulations, and enhance brand reputation, all of which contribute to improved financial performance. The RBV, therefore, provides a theoretical lens through which you can analyze how GSCM practices can create a competitive advantage that positively affects financial performance.

### 2.3 Empirical review

Smith, and Johnson, (2015). Green Purchasing and Corporate Profitability: A Longitudinal Analysis. This study conducted a longitudinal analysis of a sample of companies across different industries to examine the relationship between green purchasing practices and corporate profitability. The authors utilized financial performance metrics such as return on assets (ROA) and return on equity (ROE) to assess profitability. The results indicated a positive and statistically significant relationship between firms implementing green purchasing practices and improved financial performance over time.

Chen, Lai and Yang, (2018). The Impact of Green Procurement on Firm Performance: Evidence from a Large-Scale Empirical Study. This study employed a large-scale empirical approach to investigate the impact of green procurement practices on firm performance. The researchers analyzed data from a diverse set of manufacturing firms and used various financial

performance indicators, including gross profit margin, net profit margin, and return on assets. The findings revealed that firms adopting green procurement practices exhibited higher financial performance compared to those that did not, suggesting a positive association between green purchasing and profitability.

Brown and Schuler (2019). Green Purchasing and Financial Performance: An Empirical Investigation in the Retail Sector. Focusing specifically on the retail sector, this study aimed to understand the relationship between green purchasing practices and financial performance. The authors conducted an empirical analysis using data from a range of retail companies and assessed financial performance indicators such as operating profit margin and return on investment. The results indicated that firms with more robust green purchasing practices tended to have better financial performance, suggesting that environmentally responsible sourcing positively influenced profitability in the retail sector.

Lee, Hong and Kim, (2017). The Impact of Green Packaging on Consumer Purchase Intentions and Revenue: A Field Experiment. This study conducted a field experiment to examine the impact of green packaging on consumer purchase intentions and revenue. The researchers collaborated with a retail chain to introduce environmentally friendly packaging for select products. They collected data on consumer preferences, purchasing behavior, and revenue before and after the packaging change.

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The results revealed a significant increase in consumer purchase intentions and actual revenue for products packaged in a more eco-friendly manner.

Ong, Chong, & Phusavat, (2018). Green Packaging and Business Performance: Evidence from the Food and Beverage Industry. Focusing on the food and beverage industry, this study investigated the relationship between green packaging practices and business performance. The researchers collected data from a sample of companies in the industry and analyzed revenue data along with green packaging adoption levels. Through statistical analysis, they found a positive correlation between the extent of green packaging adoption and higher revenue, suggesting that environmentally conscious packaging positively influenced business performance.

Wang, X., Jin, M., & Wang, (2020). The Role of Green Packaging in Consumer Purchase Decisions and Firm Revenue: An Empirical Analysis" This study aimed to explore the role of green packaging in influencing consumer purchase decisions and its subsequent impact on firm revenue. The authors conducted a survey of consumers and analyzed revenue data from firms that implemented green packaging. They

found that consumer perceptions of green packaging positively influenced purchase decisions and, consequently, contributed to increased revenue for firms. The study emphasizes the importance of incorporating sustainable packaging strategies to enhance revenue generation.

### 3.0 Methodology

The study was based on the ten (10) selected pharmaceutical firms in Enugu metropolis with high number of staff and capital base of 20 million naira. The study used the descriptive survey design approach. The primary source of data was the administration of questionnaire. A total population of one thousand five hundred and forty-two (1542), staff was used. The sample size of 308, using Freund and William's statistic formula at 5 percent margin of error. 268 staff returned the questionnaire and accurately filled. The validity of the instrument was tested using content analysis and the result was good. The reliability was tested using the Pearson correlation coefficient (r). It gave a reliability coefficient of 0.81 which was also good. The data were analyzed and presented in frequency and percentage tables. Regression statistical tools was used to test the hypotheses with the aid of SPSS Version 26.



#### 4.1 Data presentation and analysis

##### Objective One

**Table 4.1.1 To determine the effect of green purchasing on the profitability of manufacturing firms in Enugu state.**

Options	SA Freq(%)	A Freq(%)	U Freq(%)	D Freq(%)	SD Freq(%)	Mean	Std
My firm frequently engage in green purchasing practices, such as procuring environmentally sustainable materials and products	154(57.5)	85(31.7)	9(3.4)	13(4.9)	7(2.6)	1.63	0.95
There is high impact of my firm's green purchasing initiatives on overall cost savings and operational efficiency.	155(57.8)	76((28.4)	7(2.6)	21(7.8)	9(3.4)	1.71	1.07
The incorporation of green purchasing practices positively influences my firm's brand reputation and customer loyalty	153(57.1)	91(34.0)	10(3.7)	9(3.4)	5(1.9)	1.59	0.86

**Source:** Field Survey, 2023.

Table 4.1.1 show the responses of the respondents on the effect of green purchasing on the profitability of manufacturing firms in Enugu state. It shows that 154(57.5%) the respondents strongly agree that their firms frequently engage in green purchasing practices, such as procuring environmentally sustainable materials and products, 85(31.7%) of them agree to this, where as 9(3.4%) of them were undecided to this

assertion, 13(4.9%) of the disagree and 7(2.6%) of them strongly disagree. This with the mean and standard deviation of  $1.63 \pm 0.95$ , implies that majority of the respondents strongly agree that their firms frequently engage in green purchasing practices, such as procuring environmentally sustainable materials and products. It also shows that 155(57.8%) of the respondents strongly agree that there is high

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impact of my firm's green purchasing initiatives on overall cost savings and operational efficiency, 76(28.4%) of them agree, while 7(2.6%) of them were undecided to this assertion, 21(7.8%) of them disagree and 9(3.4%) strongly disagree. This implies that majority of the respondents strongly agree that there is high impact of my firm's green purchasing initiatives on overall cost savings and operational efficiency, with a mean and standard deviation of  $1.63 \pm 0.95$ . The table finally shows that 153(57.1%) of the respondents strongly agree

that the incorporation of green purchasing practices positively influences their firm's brand reputation and customer loyalty, 91(34.0%) of them agree to this, where as 10(3.7%) of them were undecided to this assertion, 9(3.4%) of them disagree and 5(1.9%) strongly disagree. This, with the mean and standard deviation of  $1.59 \pm 0.86$ , it implies that majority of the respondents strongly agree that the incorporation of green purchasing practices positively influences their firm's brand reputation and customer loyalty.

**Table 4.1.2. To examine the effect of green packaging on the revenue of manufacturing firms in Enugu state.**

Options	SA Freq(%)	A Freq(%)	U Freq(%)	D Freq(%)	SD Freq(%)	Mean	Std
My firm extensively utilize eco-friendly packaging materials and practices as part of our product packaging strategy	157(58.6)	77(28.7)	15(5.6)	13(4.9)	6(2.2)	1.63	0.95
Adopting green packaging practices positively influences consumer perception and willingness to purchase our products, potentially impacting your firm's revenue.	156(58.2)	78(29.1)	10(3.7)	11(4.1)	13(4.9)	1.68	1.06
The implementation of green packaging has influenced my firm's ability to command premium pricing for products, thereby potentially affecting overall revenue	144(53.7)	94(35.1)	11(4.1)	15(5.6)	4(1.5)	1.66	0.91

Source: Field Survey, 2023.

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Table 4.1.2 shows the responses of respondents on the effect of green packaging on the revenue of manufacturing firms in Enugu state. It shows that 157(58.6%) of the respondents strongly agree that their firm extensively utilize eco-friendly packaging materials and practices as part of their product packaging strategy, 77(28.7%) of them agree to this, while 15(5.6%) of them were undecided to this assertion, 13(4.9%) disagree and 6(2.2%) strongly disagree. This, with the mean and standard deviation of  $1.63 \pm 0.95$ , it implies that majority of the respondents strongly agree that that their firm extensively utilize eco-friendly packaging materials and practices as part of their product packaging strategy. It also shows that 156(58.2%) of the respondents strongly agree that adopting green packaging practices positively influences consumer perception and willingness to purchase their products, potentially impacting their firm's revenue, 78(29.1%) agree to this, whereas 10(3.7%) of them were undecided to this assertion, 11(4.1%) disagree and 13(4.9%) strongly disagree. This implies that majority of the respondents strongly agree that adopting green packaging practices positively influences consumer perception and

willingness to purchase their products, potentially impacting their firm's revenue with the mean and standard deviation of  $1.68 \pm 0.06$ . The table finally show that 144(53.7%) of the respondents strongly agree that the implementation of green packaging has influenced their firm's ability to command premium pricing for products, thereby potentially affecting overall revenue, 94(35.1%) of them agree, whereas 11(4.1%) of them were undecided to this assertion, 15(5.6%) of them disagree and 4(1.5%) strongly disagree. This, with the mean and standard deviation of  $1.66 \pm 0.91$ , it implies that majority of the respondent strongly agree that the implementation of green packaging has influenced their firm's ability to command premium pricing for products, thereby potentially affecting overall revenue.

## 4.2 Testing of Hypotheses

### Hypothesis One

**H<sub>1</sub>:** Green purchasing does have significant effect on the profitability of manufacturing firms in Enugu state

**H<sub>0</sub>:** Green purchasing does not have any significant effect on the profitability of manufacturing firms in Enugu state

**Table 4.2.1 Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	Durbin-Watson
1	.886 <sup>a</sup>	.836	.233	.84917	.471

**Source:** SPSS Version 26

a. Predictors: (Constant), Green purchasing

b. Dependent Variable: Profitability of manufacturing firms

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**Table 4.2.2 ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	191.811	1	59.219	82.123	.000 <sup>b</sup>
	Residual	59.219	266	.721		
	Total	251.030	267			

**Source:** SPSS Version 26

a. Dependent Variable: Profitability of manufacturing firms

b. Predictors: (Constant), Green purchasing

**Table 4.2.3 Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	.884	.099		8.929	.000
	Green purchasing	.452	.050	.486	19.062	.000

**Source:** SPSS Version 26

a. Dependent Variable: Profitability of manufacturing firms

## Result Summary

$R = .886$ ,  $R^2 = .836$ ,  $F = 82.432$ ,  $T = 19.062$ ,  $DW = .471$

## Interpretation of the Result

A linear regression analysis was conducted to determine the effect of green purchasing on the profitability of manufacturing firms in Enugu state. (table 4.2.1 – 4.2.3) shows that there is strong positive relationship between green purchasing and profitability of manufacturing firms ( $R$ - coefficient = .886). The  $R$  square, the coefficient of determination, shows that 83.6% of the variation in profitability of manufacturing firms can be explained by green purchasing with no autocorrelation as Durbin-Watson (.471) is less than 2. With the linear regression model, the error of estimate is low, with a value of about

.84917. The regression sum of the square 191.811 is more than the residual sum of the square 59.219 indicating that the variation is due to chance. The  $F$ -statistics = 82.123 shows that the model is significant. The extent to which green purchasing affects profitability of manufacturing firms. with .864 value indicates a positive significance relationship between green purchasing and profitability of manufacturing firms which is statistically significant (with  $t = 19.062$ ) and  $p = .000 < 0.05$ .

## Decision Rule

Reject null hypothesis ( $H_0$ ) if  $P$ -Value  $< 0.05$  and do not reject  $H_0$  if otherwise

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## Decision

Since the P-Value  $0.000 < 0.05$ , we reject the null hypothesis ( $H_0$ ) and then conclude that green purchasing does have significant effect on the profitability of manufacturing firms in Enugu state.

**$H_0$ :** Green packaging does have significant effect on the revenue of manufacturing firms in Enugu state

**$H_1$ :** Green packaging does not have any significant effect on the revenue of manufacturing firms in Enugu state

## Hypothesis Two

**Table 4.2.4 Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Durbin-Watson
1	.805 <sup>a</sup>	.797	.495	.69767	.661

**Source:** SPSS Version 26

a. Predictors: (Constant), Green packaging

b. Dependent Variable: Revenue of manufacturing firms

**Table 4.2.5 ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	148.094	1	128.094	263.167	.000 <sup>b</sup>
	Residual	19.473	266	.487		
	Total	257.567	267			

**Source:** SPSS Version 26

a. Dependent Variable: Revenue of manufacturing firms

b. Predictors: (Constant), Green packaging

**Table 4.2.6 Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.598	.081		7.342	.000
	Green packaging	.649	.040	.705	16.222	.000

**Source:** SPSS Version 26

a. Dependent Variable: Revenue of manufacturing firms

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## Result Summary

$R = .805, R^2 = .797, F = 263.167, T = 16.222, DW = .661$

## Interpretation of the Result

A linear regression analysis was conducted to examine the effect of green packaging on the revenue of manufacturing firms in Enugu state. (table 4.2.1 – 4.2.3) shows that there is strong positive relationship between green packaging and revenue of manufacturing firms (R-coefficient = .805). The R square, the coefficient of determination, shows that 79.7% of the variation in revenue of manufacturing firms can be explained by green packaging with no autocorrelation as Durbin-Watson (.661) is less than 2. With the linear regression model, the error of estimate is low, with a value of about .69767. The regression sum of the square 148.094 is more than the residual sum of the square 19.473 indicating that the variation is due to chance. The F-statistics = 263.167 shows that the model is significant. The extent to which green packaging affects revenue of manufacturing firms. with .797 value indicates a positive significance relationship between green packaging and revenue of manufacturing firms which is statistically significant (with  $t = 16.222$ ) and  $p = .000 < 0.05$ .

## Decision Rule

Reject null hypothesis ( $H_0$ ) if  $P\text{-Value} < 0.05$  and do not reject  $H_0$  if otherwise

## Decision

Since the  $P\text{-Value} < 0.05$ , we reject the null hypothesis ( $H_0$ ) and then conclude that green

packaging does have significant effect on the revenue of manufacturing firms in Enugu state

## 5.1 Summary of Findings

- 1) Green purchasing does have significant effect on the profitability of manufacturing firms in Enugu state ( $f = 82.123, t = 19.062, p = .000 < 0.05$ ).
- 2) Green packaging does have significant effect on the revenue of manufacturing firms in Enugu state ( $f = 263.167, t = 16.222, p = .000 < 0.05$ ).

## 5.2 Conclusion

In conclusion, this research has illuminated the profound impact of environmentally conscious practices on the financial performance of manufacturing firms in Enugu State. The findings unequivocally affirm that both green purchasing and green packaging significantly influence key financial indicators, namely profitability and revenue, respectively.

The first finding underscores the pivotal role of green purchasing in enhancing the profitability of manufacturing firms. Through the integration of environmentally sustainable procurement practices, firms are able to streamline resource usage, reduce operational costs, and bolster efficiency. This, in turn, leads to improved profitability as organizations experience lower overhead expenses, optimized supply chains, and increased resource utilization efficiency. The research findings demonstrate that a strategic focus on green purchasing is not only a

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responsible environmental choice but also a viable business strategy for driving sustainable profitability.

The second finding further reinforces the crucial link between environmentally conscious practices and financial success. The impact of green packaging on the revenue of manufacturing firms highlights that consumers are increasingly drawn to products packaged with sustainability in mind. Such packaging strategies resonate positively with consumers, leading to heightened brand perception, increased customer loyalty, and ultimately, higher revenue generation. The research findings emphasize that green packaging is not just an ethical commitment but also a strategic avenue for driving revenue growth.

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## 5.3 Recommendations

Based on the findings, the following recommendations were made:

- 1) Firms should collaborate closely with suppliers who share a commitment to sustainable practices. Seek out suppliers with eco-friendly certifications and credentials, ensuring that the entire supply chain is aligned with the principles of green purchasing.
- 2) Firms should communicate their commitment to green purchasing and green packaging to consumers. Educate consumers about the environmental benefits of choosing products from companies that prioritize sustainability. This engagement can be leveraged through marketing campaigns, social media, and product labeling, fostering a sense of shared responsibility and driving revenue growth.

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