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GREEN SUPPLY CHAIN MANAGEMENT AND SUSTAINABILITY PERFORMANCE OF QUOTED CONSUMER GOODS MANUFACTURING COMPANIES IN SOUTH-SOUTH NIGERIA

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ABSTRACT: This study explored green supply chain management and sustainability performance of quoted consumer goods manufacturing companies in South-South Nigeria. The study applied the correlational research design and the positivist research philosophy. The population of the study comprised 21 quoted consumer goods manufacturing companies in South-South Nigeria. The census sampling technique was adopted. The sampling units consisted of managers of quoted consumer goods manufacturing companies in South-South Nigeria. A structured questionnaire was used as the instrument for data collection. The data collected were analyzed statistically while the hypotheses were tested using Pearson Product Moment Correlation Coefficient (r) and the SPSS software application. The findings revealed that green manufacturing has a significant relationship with environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria. This study also found a significant relationship between green manufacturing and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria. The study equally discovered a significant relationship between green distribution and environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria. The study also found a significant relationship between green distribution and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria. Therefore, it was concluded that green supply chain management such as green manufacturing and green distribution significantly improve sustainability performance of quoted consumer goods manufacturing companies in South-South Nigeria. The study therefore recommended that consumer goods manufacturing companies in South-South Nigeria should adopt green supply chain management as it would enhance their sustainability performance.

KEYWORDS: Green supply chain management, green manufacturing, green distribution, sustainability performance, environmental performance, economic performance.



INTRODUCTION

The world today is facing serious environmental challenges such as climate change, global warming, depletion of natural resources, environmental pollution, lack of good water and other man-made dangers. These environmental challenges have continued to pose a threat to human existence and well-being. As these environmental challenges begin to take effects on the lives of the people, it becomes necessary for companies to integrate environmental concern into their business operations and improve their sustainability performance. Improving sustainability performance requires companies to be more conscious of the environment and preserve it while satisfying needs and maximizing profit (Gillaspy, 2018). A good sustainability performance brings some social and economic benefits to companies. According to Langella and Zanoni (2011), a good sustainability performance earns a company more recognition, awards and ranked high among its competitors by third parties. Therefore, companies need to find a smart way to improve their sustainability performance so as to get more recognition, awards and gain competitive advantage over their rivals. To improve their sustainability performance, companies need to switch from their unsustainable supply chain practices to green supply chain management.

Green supply chain management is the integration of environmental thinking into the supply chain management. It involves the integration of environmental concern into product design, material sourcing and selection, manufacturing processes, delivery of final product to the final consumer as well as end-of-life-management of the product after its useful life (Srivastava, in Onyinkwa & Ochiri, 2016). Green supply chain management incorporates activities such as green procurement, environmentally responsible design, green manufacturing, green packaging, green distribution and reverse logistics (Ochieng, et al, 2016). The idea behind green supply chain management is to eliminate or minimize waste (energy, emissions, chemical/hazardous, solid wastes) along the supply chain (Hervani et al in Ninlawan et al, 2010). This practice helps to reduce cost of production, increase product value and improve the environmental image of a company.

The implementation of green supply chain management can help to improve their sustainability performance of companies. According to Muma et al (2014), green supply chain management helps a company to improve its sustainability performance and attract public recognition and awards as the leader in the environmental stewardship. Such practices would not only improve their sustainability performance but would also improve their operational, marketing and financial performances. Through the implementation of green supply chain management, companies can reduce their carbon footprint and waste across their supply chain and improve their sustainability performance. Alshura and Awawdeh (2016) argued that green supply chain management can improve the sustainability performance of business firms especially those in the manufacturing and oil industries. It is against this backdrop that this study examines the relationship between green supply chain management and sustainability performance of consumer goods manufacturing companies in South-South Nigeria.



Statement of the Problem

Some manufacturing companies in Nigeria have completely neglected the sustainability aspect of business operations as they solely focus on satisfying human needs and maximizing profit. These companies do not take the equity dimension into consideration by ensuring a balance between meeting needs and environmental protection. Even their supply chain activities including their manufacturing and distribution operations do not incorporate environmental friendly practices as they continue to generate large amount of carbon footprint and waste into the environment, resulting in poor sustainability performance. Stakeholders, environmentalists and world leaders have called on manufacturing companies to show concern for the environment in the course of satisfying needs and maximizing profit. As the pressure intensified, some companies in the consumer goods manufacturing sector have began to green their supply chain in order to improve their sustainability performance. Since the implementation of green supply chain management, it is still not clear whether such strategic decision has improved their sustainability performance as empirical evidence on the relationship between green their supply chain management and sustainability performance of quoted consumer goods manufacturing companies in Nigeria is lacking, hence the need for this study.

Conceptual Framework

The conceptual framework of green supply chain management and sustainability performance

of quoted consumer goods manufacturing companies is shown in figure 1 below:



Fig 1: Conceptual framework of green supply chain management and sustainability performance of consumer goods manufacturing companies

Source: Author's Conceptualization



Aim and Objectives of the Study

- The aim of this study is to examine the relationship between green supply chain management and sustainability performance of quoted consumer goods manufacturing companies in South-South Nigeria. The specific objectives of the study are to:
- 1. determine the relationship between green manufacturing and environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria;
- 2. ascertain the relationship between green manufacturing and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria;
- 3. examine the relationship between green distribution and environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria;
- 4. determine the relationship between green distribution and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria;

Research Questions

The following research questions emerged in this study:

- 1. What is the relationship between green manufacturing and environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria?
- 2. To what extent does green manufacturing relate to economic performance of quoted consumer goods manufacturing companies in South-South Nigeria?
- 3. What is the relationship between green distribution and environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria?
- 4. To what extent does green distribution relate to economic performance of quoted consumer goods manufacturing companies in South-South Nigeria?

Research Hypotheses

The following hypotheses were postulated in this study:

Ho₁: There is no significant relationship between green manufacturing and environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria.

Ho₂: There is no significant relationship between green manufacturing and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria.

Ho₃: There is no significant relationship between green distribution and environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria.

Ho₄: There is no significant relationship between green distribution and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria.



REVIEW OF RELATED LITERATURE

Concept of Green Supply Chain Management

Green supply chain management is the integration of environmental concerns into supply chain management (Seman et al in Aguilar et al, 2018). It requires a strategic collaboration of partner firms in a supply chain to manage the operational and environmental impacts of supply chain activities by coordinating the intra and inter-organizational processes (Wong, in Rahim et al, 2016). Green supply chain management started in the early 1990 when firms decided to commit to them to go green with their supply chain management because of the environmental impacts of production (Kopicki et al, in Aguilar et al, 2018). Today, green supply chain management is one of the emerging trends which companies are trying to implement to protect the environment. The aim of practicing green supply chain management is to improve the environmental performance of manufacturing companies in terms of minimizing wastes and pollution (Srivastava, 2007). It focuses on producing environmental friendly products, eliminating usage of hazardous materials in production and packaging, and minimizing waste in the process of production and distribution (Rahim et al, 2016). Integrating environmental consciousness into the supply chain management requires the implementation of green purchasing, green product design, green logistics and green packaging.

Dimensions of Green Supply Chain Management

Green supply chain management covers a set of activities which include green procurement, green manufacturing, green packaging and green distribution. However, the dimensions of green supply chain management considered in this study are green manufacturing and green distribution.

Green Manufacturing

Green manufacturing is a production process that is highly efficient and utilizes inputs with low environmental impacts (Ninlawan et al, 2010). It involves the conversion of raw materials into finished products in an environmental friendly manner. Aguilar et al (2018) defined green manufacturing as a production process that reduce hazardous substances and minimize waste in the environment. This method of manufacturing tends to minimize the environmental impacts of manufacturing operation. Zailani et al (2012) stated that green manufacturing is aimed at reducing the negative environmental impacts of the production processes by redefining the production process or system to eliminate or minimize pollution and wastes. This can be done by using inputs with low environmental impacts which generate little or no waste or pollution (Ochieng et al, 2016).

Green Distribution

According to Langella and Zanoni (2011), green distribution is a transition from the conventional distribution practices to an environmental friendly distribution system. It is an improvement in the way distribution activities are being practiced by integrating sustainability issues into the conventional distribution processes without compromising any of the conventional purposes that distribution has to fulfill. Green distribution places much emphasis on environmental protection in the process of distributing goods from one place to another (Alshura & Awawdeh, 2016). It requires manufacturing companies to adopt



environmental friendly measures in the process of storing and transporting goods from one point to another. Green distribution requires a system that consumes less amount of energy during the distribution process and reduces the amount of carbon emission released into the air during transportation and storage operations (Ravet, 2013). The required parameters in green distribution practices include the company's infrastructures, as well as the type of transport and storage system that consume less amount of energy and minimize carbon footprint (Mwaura et al, 2016). The dynamics that link these parameters determine the environmental impact of the distribution phase of the supply chain.

Concept of Sustainability Performance

Sustainability performance refers to the performance of a company in preserving the natural environment while satisfying needs (Cheng, 2011). It shows how well a company performs in environmental, economic and social issues (Kocmanova & Docekalova, 2011). Gillaspy (2018) defined sustainability performance as the actual result obtained by a company from integrating environmental concern into its business operations and achieve its sustainability goals. Some of the sustainability goals set by these companies include waste reduction, energy efficiency, absolute reduction in Greenhouse Gas (GHG) emission, biodiversity and ecosystem services, amongst others (US White Paper, 2013). A company that is able to achieve its sustainability goals can be said to have a good sustainability performance (Kocmanova & Docekalova, 2011). Langella and Zanoni (2011) posited that a company that has a good sustainability performance earns recognition, awards and ranked high among its competitors by third parties.

Measures of Sustainability Performance

Sustainability performance is measured using environmental, economic and social indicators. However, in this study, sustainability performance is measured using environmental performance and economic performance.

Environmental Performance

Environmental performance refers to how well a company is able to protect the environment in the course of carrying out their business operations (Vanalle & Santos, 2014). It shows how well a company is able to reduce waste, pollution and safeguard the environment Companies are mandated to improve and report their environmental performance (Saeed et al, 2018). The increasing awareness of environmental disasters during the 1970 and 1980s has made many countries to make it mandatory for companies to disclose their environmental performance. Manufacturing plants need to limit carbon emissions, minimize solid and water waste while decreasing the use of toxic and hazardous raw materials to prove their progress in environmental performance (Zhu, et al, in Saeed et al, 2018). Improving environmental performance will go a long way in minimizing environmental related problems, thereby promoting good public image for the company (Yu & Ramanthan, 2015). De Diovanni (2012) posited that improvement in environmental performance would help companies to cut down costs associated with environmental accidents and improve their green image.



Economic Performance

According to Saeed et al (2018), economic performance is the economic results obtained by a firm for a given period of time. It indicates how well a company is able to meet its economic goals set for a specific period of time. Some of the economic goals of companies include profit growth, revenue growth, increased cash inflow, cost reduction, resource efficiency, and investment growth (Drexhage & Mulphy, 2010). However, in sustainability reporting, economic performance indicates the company's influences on its stakeholders' economic circumstance and on the economic systems at local, national and international levels. The Global Reporting Initiatives Guidelines (GRIG) in Lin et al (2014) identified three (3) criteria for measuring economic performance of a company and they include direct economic performance, indirect economic impacts, and market presence. According to GRIG, direct economic performance consists of direct economic value generated and distributed to capital providers and governments; risks due to climate change; significant financial assistance received from government. Indirect economic impacts consists of development and impact of infrastructure investments and services provided primarily for public benefit; understanding significant indirect economic impacts. Market presence (localization) comprise of policy, practices, and proportion of spending on locally-based suppliers; as well as procedures for local hiring (Global Reporting Initiatives Guidelines, in Lin et al, 2014).

Theoretical Review

This study adopted the industrial ecology theory which was developed by Robert Frosch and Nicholas E. Gallopoulos in 1989. The theory emphasizes the design and management of production and consumption system in such a way that the system can interact with the natural system to form a single integrated ecosystem that has an ecological integrity. The theory argues that the amount of natural resources needed to meet the consumption level may not be available in the planet since the levels of wastes generated and pollution may exceed the world's regenerated capacity (Frosch & Gallopoulos, in Hond, 2001). Industrial ecology theory tends to provide solutions to environmental problems by emphasizing the notion that industrial system ought to be modified so as to mimic the natural ecosystem in its overall operations (Frosch & Gallopoulos, in Hond, 2001). The theory provides the basis for radical transformation of industrial society. The industrial ecology theory is very relevant in explaining how sustainability performance of firms can be improved through green supply chain management. The theory argues that supply chain management activities can be carried out in a sustainable manner to improve the sustainability performance of firms.

Empirical Review

A number of studies have been conducted on green supply chain management and sustainability performance of firms. For instance, Ochieng et al (2016) investigated the relationship between green supply chain management practices and performance of ISO 14001 certified manufacturing firms in East Africa. Their data were collected from 67 manufacturing companies in Kenya, Tanzania, Uganda and Rwanda using questionnaire. The data collected were analyzed statistically using Partial Least Squares-Structural Equation Modeling (PLS-SEM). The findings showed that green supply chain management (green procurement, environmental responsible design, green manufacturing, green packaging, green distribution and reverse logistics) have a positive and significant relationship with financial and market performance of manufacturing organizations.



Alshura and Awawdeh (2016) empirically examined green supply chain practices and green performance of extractive industries in Jordan. Their data were collected from 74 top and middle level managers in the extractive industries with the aid of a self-designed questionnaire. The data collected were analyzed using SPSS software program and the results revealed that all the six dimensions of green supply chain practices (green supplier selection, green purchasing, green production, green design, green distribution and reverse logistics) were positively and significantly correlated to green performance of extractive industries.

Muma et al (2014) explored the relationship between green supply chain management and environmental performance among tea processing firms in Kericho County, Kenya. Their study adopted the correlation survey research design where a structured questionnaire was used to collect from managers in tea processing firms in Kericho County. The data collected were analyzed statistically while the hypotheses were tested using Spearman Rank Order Correlation and regression analysis. The findings revealed that green supply chain management practices (green procurement, green manufacturing, green packaging and green distribution) have a significant positive relationship with environmental performance of tea processing firms.

Ninlawan et al (2010) examined the implementation of green supply chain management practices in electronics industry in Thailand. Their study adopted the survey research design where a structured questionnaire was used to elicit data from 118 middle level managers in eleven (11) Chinese electronic manufacturing companies in Thailand. The data collected were analyzed statistically using descriptive and inferential statistics. The result revealed that green procurement, green manufacturing, green distribution and reverse logistics significantly enhance environmental and economic performance of electronic manufacturing companies in Thailand.

Rahim et al (2016) carried out a study to determine the impact of sustainable green supply chain management on organizations. The study adopted positivist philosophy and deductive approach. The research design employed was a mixed design which combined the qualitative and quantitative research approach. After analyzing the data collected, the researchers found out that green supply chain management enhance sustainability performance of manufacturing firms.

Onyinkwa and Ochiri (2016) examined the effects of green supply chain management practices on competitiveness of firms in the food and beverage sector in Kenya. The study employed the descriptive survey research where data were collected with the aid of a structured questionnaire. The data collected were analyzed using descriptive statistics such as mean, standard deviation and inferential statistic such as regression and correlation analysis. The SPSS was used to correlate their data on the study variables. The finding revealed that green supply chain management practices have a positive and significant relationship with firm competitiveness and improved financial performance.



Gap in Literature

It was observed that a good number of studies have been conducted on green supply chain management and sustainability performance of firms. However, most of the studies conducted on green supply chain management and sustainability performance focused on unquoted manufacturing and extractive companies while studies that examined the relationship between green supply chain management practices and sustainability performance of quoted consumer goods manufacturing companies in Nigeria are lacking. This has created a sectorial and geographical gap in literature which this study intended to fill.

METHODOLOGY

This study is a correlational research that employed the positivist research philosophy. The study population consisted of all the 21 quoted consumer goods manufacturing companies in South-South Nigeria (Nigerian Stock Exchange Factbooks 2024 Edition). South-South Nigeria comprised six states namely; Akwa Ibom State, Bayelsa State, Cross River State, Delta State, Edo State, and Rivers State. However, the census sampling technique was adopted in this study. By this method of sampling, it means that all the members of the population were studied. The sampling units consisted of managers of the quoted consumer goods manufacturing companies in South-South Nigeria. The managers include general managers, operational managers, production managers, distribution managers, logistics managers and delivery managers of the companies. A sample size of 126 managers was drawn from the 21 quoted consumer goods manufacturing companies on the ratio of 6 managers per company. A structured questionnaire was used to collect data from the respondents. The research instrument was validated and its reliability was tested using Cronbach Alpha method. A total of 126 questionnaires were administered to the respondents and 104 copies were collected. The data collected were analyzed statistically while the hypotheses were tested using Pearson Product Moment Correlation Coefficient (PPMCC). The correlation analysis was aided with the use of the SPSS software application (version 24.0).



RESULTS AND DISCUSSION

The predictor and criterion variables of the study were correlated using the SPSS software application and the results are shown in the tables below:

Table 1: Result of correlation analysis between green manufacturing and environmentalperformance of quoted consumer goods manufacturing companies

			Green	Environmental
			Manufacturing	Performance
Pearson (r)	Green	Correlation Coefficient	1.000	.833**
	Manufacturing	Sig. (2 tailed)		.001
		Ν	104	104
	Environmental	Correlation Coefficient	.833**	1.000
	Performance	Sig. (2 tailed)	.001	
		Ν	104	104

**Correlation is significant at 0.01 levels (2 tailed)

*Correlation is significant at 0.05 levels (2 tailed)

Source: SPSS-Generated Output

Table 1 shows a very strong and positive correlation between green manufacturing and environmental performance of quoted consumer goods manufacturing companies and this correlation is statistically significant at 0.01 level ($r = .833^{**}$). As a result of this, the null hypothesis (Ho₁) is rejected and the alternate hypothesis is accepted. This means that we then accept that there is significant relationship between green manufacturing and environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria.

Table 2: Result of correlation analysis between green manufacturing and economic performance of quoted consumer goods manufacturing companies

			Green	Economic
			Manufacturing	Performance
Pearson (r)	Green	Correlation Coefficient	1.000	.616**
	Manufacturing	Sig. (2 tailed)		.001
		Ν	104	104
	Economic	Correlation Coefficient	.616**	1.000
	Performance	Sig. (2 tailed)	.001	
		Ν	104	104

**Correlation is significant at 0.01 levels (2 tailed)

*Correlation is significant at 0.05 levels (2 tailed)

Source: SPSS-Generated Output



Table 2 indicates that green manufacturing is strongly and positively correlated to economic performance of quoted consumer goods manufacturing companies and this correlation is statistically significant at 0.01 level ($r = 616^{**}$). Based on this result, the null hypothesis (Ho₂) is rejected and the alternate hypothesis is accepted. This implies that there is significant relationship between green manufacturing and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria.

Table 3: Result of correlation analysis between green distribution and environmental performance of quoted consumer goods manufacturing companies

			Green	Environmental
			Distribution	Performance
Pearson (r)	Green Distribution	Correlation Coefficient	1.000	.843**
		Sig. (2 tailed)		.001
		Ν	104	104
	Environmental	Correlation Coefficient	.843**	1.000
	Performance	Sig. (2 tailed)	.001	
		N	104	104
	**0		10^{-1}	

**Correlation is significant at 0.01 levels (2 tailed)

*Correlation is significant at 0.05 levels (2 tailed)

Source: SPSS-Generated Output

Table 3 reveals that green distribution has a very strong and positive correlation with environmental performance of quoted consumer goods manufacturing companies and this correlation is statistically significant at 0.01 level ($r = 843^{**}$). In line with this result, we reject the null hypothesis (Ho₃) and accept the alternate hypothesis which states that there is significant relationship between green distribution and environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria.

Table 4: Result of correlation analysis between green distribution and economic performance of quoted consumer goods manufacturing companies

			Green	Economic
			Distribution	Performance
Pearson (r)	Green Distribution	Correlation Coefficient	1.000	.712**
		Sig. (2 tailed)		.001
		Ν	104	104
	Economic	Correlation Coefficient	.712**	1.000
	Performance	Sig. (2 tailed)	.001	
		Ν	104	104

**Correlation is significant at 0.01 levels (2 tailed)

*Correlation is significant at 0.05 levels (2 tailed)

Source: SPSS-Generated Output



Table 4 shows that green distribution is strongly and positively correlated to economic performance of quoted consumer goods manufacturing companies and this correlation is statistically significant at 0.01 level ($r = 712^{**}$). As a result of this, the null hypothesis (Ho₄) is rejected and the alternate hypothesis is accepted. This means that we then accept that there is significant relationship between green distribution and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria.

DISCUSSION OF FINDINGS

This study discovered a significant relationship between green manufacturing and environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria. This finding emerged from the result of the correlation analysis carried out on the two variables. The result showed a very strong and positive correlation between green manufacturing and environmental performance of quoted consumer goods manufacturing companies and this correlation is statistically significant at 0.01 level (see table 1). As a result of this, the null hypothesis (Ho₁) was rejected and the alternate hypothesis was accepted. This means that there is significant relationship between green manufacturing and environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria. This finding is supported by Muma et al (2014) and Ninlawan et al (2010) as both studies revealed that green manufacturing reduce waste and carbon emission and improve environmental performance of firms.

This study also discovered a significant relationship between green manufacturing and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria. This finding was derived from the result of the analysis carried out on the two variables. The result revealed that green manufacturing is strongly and positively correlated to economic performance of quoted consumer goods manufacturing companies and this correlation is statistically significant at 0.01 level (see table 2). Based on this result, the null hypothesis (Ho₂) was rejected and the alternate hypothesis is accepted. This mean that we then accepted that there is significant relationship between green manufacturing and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria. This finding is in line with the research conducted by Ochieng et al (2016) and Rahim et al (2016) which revealed that green manufacturing reduce costs and improve the profitability of firms.

This study found a significant relationship between green distribution and environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria. This finding was deduced from the result of the analysis carried out on the two variables. The result revealed that green distribution has a very strong and positive correlation with environmental performance of quoted consumer goods manufacturing companies and this correlation is statistically significant at 0.01 level (see table 3). Based on this result, the null hypothesis (Ho₃) was rejected and the alternate hypothesis was accepted. This means that there is significant relationship between green distribution and environmental performance of quoted consumer goods manufacturing companies in South-South Nigeria. This finding is supported by Alshura and Awawdeh (2016) and Hutomo et al (2018) as both studies revealed that green distribution is a strategic tool for improving the environmental performance of firms.



Finally, it was reported that green distribution and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria. This finding emanated from the result of the analysis carried out on the two variables. The result revealed that green distribution is strongly and positively correlated to economic performance of quoted consumer goods manufacturing companies and this correlation is statistically significant at 0.01 level (see table 4). As a result of this, the null hypothesis (Ho₄) was rejected and the alternate hypothesis was accepted. This means that we then accepted that there is significant relationship between green distribution and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria. This finding is supported by Onyinkwa and Ochiri (2016) and Ninlawan et al (2010) as both studies revealed that green distribution significantly reduce costs and improve the economic performance of firms.

CONCLUSIONS

This study examined green supply chain management and sustainability performance of quoted consumer goods manufacturing companies in South-South Nigeria. It focused on green manufacturing and green distribution aspects of green supply chain management and related them to sustainability performance (environmental performance and economic performance) of quoted consumer goods manufacturing companies in South-South Nigeria. The empirical results revealed that green manufacturing is significantly related to environmental performance and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria. The study also revealed that green distribution is significantly related to environmental performance and economic performance and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria. The study also revealed that green distribution is significantly related to environmental performance and economic performance of quoted consumer goods manufacturing companies in South-South Nigeria. Hence, it was concluded that green supply chain management such as green manufacturing and green distribution significantly improve sustainability performance of quoted consumer goods manufacturing companies in South-South Nigeria.

RECOMMENDATIONS

The following recommendations were provided for the study:

- 1. That, consumer goods manufacturing companies in Nigeria especially those that are performing poorly in sustainability issue should adopt green supply chain management as it would improve their sustainability performance.
- 2. That, consumer goods manufacturing companies in Nigeria particularly those that are heavy criticized and accused of environmental damage should switch from their unsustainable manufacturing practices to green manufacturing as it would only improve their environmental performance but also improve their economic performance.
- 3. That, consumer goods manufacturing companies in Nigeria particularly those that are practicing unsustainable distribution should switch from their unsustainable distribution practices to green distribution as it would improve their environmental and economic performance.



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- 4. That, consumer goods manufacturing companies in Nigeria should adopt a green policy in their manufacturing operation as it would facilitate effective implementation of green supply chain management and improves their sustainability performance.
- 5. Finally, it is recommended that consumer goods manufacturing companies in Nigeria should be more environmental conscious and engage in green procurement practices as this would facilitate green manufacturing and improve their environmental and economic performance.

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