THE EFFECT OF WAREHOUSING IN LOGISTICS PERFORMANCE OF SHIPPING FIRMS IN NIGERIA

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ABSTRACT: *The demand for businesses to develop new methods to generate value and distribute it to consumers is rising in the highly challenging global market in recent times. This has forced the development of more effective and efficient warehousing techniques in the shipping industry. This study empirically investigated the role of warehousing in the logistics performance of shipping companies in Nigeria. Data were obtained from registered shipping enterprises and warehouse operators in Nigeria to test the hypotheses. Descriptive and inferential statistics were tools for data analysis. The conclusions of the investigation indicated that warehousing impacts shipping Companies' logistics performance significantly. Based on the findings from the results, it was established that if warehousing activities are successfully implemented in shipping companies, their logistics performance will be improved rapidly. Therefore, it was recommended that logistics managers and warehousing operators should devise strategies for improving their warehousing activities to achieve effective and efficient logistics performance.*

KEYWORDS: Warehousing, Logistics performance, Customer satisfaction, On-time delivery.

INTRODUCTION

Shipping activities act as a fulcrum around which the global economy swings. The growth of any economy is significantly reliant on the efficient functioning and functionality of its shipping industry. Shipping as a business is a driver of economic growth and development because most businesses in a country cannot grow significantly without the demand for shipping services (Ndikom, Bubari, Okek & Matthew, 2017). According to Agyabeng-mensah, Ahemkorah, Dacosta and Tian (2020) and Mpuon (2018a), shipping appeared to reflect on national development, productivity efficiency and money creation which sparked other port's supplementary services to promote overall national growth. Elsayed and Wahba (2016) and Mpuon, Essien, Eyo and Ita (2022) argued that it is necessary to investigate the role of warehousing in the logistics performance of shipping firms, by ensuring the continued prosperity of highly industrialized countries or the steady development of the third world. Kittisak, Utamat and Sriyakw (2019) argued that properly operated shipping firms or seaports warehouses are critical to maritime nations' business performance.

Munyao, Omulo, Mwithiga and Chepkulei (2015) opined that warehousing has a significant impact on the procurement performance of shipping firms by improving material flow, providing a solid foundation for inventory management and directly lowering transportation costs. Warehousing is the term used for the action of storing and retrieving items without causing damage or altering the delivery time, quantity or quality of the items (Navickas et al., 2016). Following the significant findings of Mpuon and Oyong (2019) on supply chain process integration and business strategies, as well as the researcher's adaptation action of his work to warehousing, warehousing became an element of a border business model, both in trade and in research. Warehouses, according to Inang et al. (2016), are more than simply budget holders; they are also part of the value chain's development. Besides, they may help in terms of cost leadership strategy by lowering operational expenses as well as the differentiation strategy by improving the service quality.

According to Zkou et al. (2016) and Mpuon, Eyo and Kajang (2020), warehousing has undergone fundamental changes in terms of logistics performance over the last three decades, as a result of growing money and labor costs, fast technical advancements, notably in information technology, severe global rivalry, increased customer demands, and the shift of supply chain management from producers to retailers. Although warehousing productivity, automation, and information technology system dependency increased service selections, higher service quality, shorter lead times, lower order and processing expenses have all increased dramatically, there appears to be no study that has looked into the impact of warehousing on logistics performance of shipping companies, particularly in the context of Nigerian shipping firms. This work aimed to analyze this constraint to fill a knowledge gap. Literature review, hypothesis development and presentation of the conceptual framework will be covered in the next section.

LITERATURE REVIEW, HYPOTHESES AND CONCEPTUAL FRAMEWORK

Warehousing has become such an important part of a company's overall performance that its absence would make it difficult for logisticians to achieve the goals of their logistics operations. According to Kittisack et al. (2019), warehouses create the circumstances for enterprises to achieve uninterrupted production processes, engage in futuristic production, and mass production by keeping raw materials and productive inputs. Similarly, Mohd et al. (2020), and Mpuon, Odigbo, Etim, Etuk and Usoro (2023a) claimed that warehouses enable enterprises to profit from variation in demand and supply by providing adequate and uniform custody for finished goods. Also, Faber (2013) argued that warehouses maintain a balance between inventory management, logistical performance and general organizational success.

Based on a survey of scholarly literature, warehousing plays a variety of functions in business and logistics management performance including but not limited to ease of movement of goods, risk-bearing, financing, grading and packaging, maintaining regular production time, on-time delivery efficiency and surplus goods storage (Christopher, 2016; Dedzie & Johnston, 1991; Dornhofer & Gunther, 2016). Faber and Koster (2013) submitted that warehousing plays a significant role in the logistics performance of shipping firms by storing surplus goods within the warehouses until they are needed by the customer when prices fall and supply is bountiful, and when demand is high during the slow season (Pandian, 2019; Mpuon, Etim, Etuk, Odigbo & Arikpo, 2023b). According to Zhou et al. (2016), risk-bearing as a critical role of warehousing in the logistics performance of shipping firms is centred on the fact that commodities held in warehouses are vulnerable to threats such as theft, degradation, and inspection. Zhou et al. (2016) opined further that warehouses are constructed in such a way that these risks are minimized. Furthermore, they held that when items are housed in warehouses, contracts of bailment apply and that a warehouse custodian must take reasonable care of the products and protect them from different threats.

In terms of financing as an important role of warehousing within the improvement of logistics performance of shipping firms, Elgayed and Wahba (2016), and Mpuon, Eyo, Eko, Akaninyene and Eke (2023c) noted that warehouses provide owners of items a receipt for the products maintained in the warehouse; banks and other financial institutions issue loans against warehouse receipts; and owners can borrow money against the security of their products by signing an endorsement on the warehouse receipt. Besides, Gani (2017) argued that grading and packaging play a pivotal role in the improvement of logistics performance of shipping firms by providing the facilities of packaging, processing and grading of products which will be packaged in convenient sizes on the idea of the owner. Theoretically, Ndikom et al. (2017) and Mpuon, Etim, Effa and Eko (2021) maintained that concerning control production, warehouses are critical to the increasing role of a firm's logistics performance through raw materials stored in anticipation of a rise in prices and manufacturers producing goods for future demand.

Scholarly empirical investigations that will aid in revealing current literature that agrees or disagrees with our findings as theoretical underpinning are discussed further down. Kittisak et al. (2019) investigated the influence of warehouse parameters on supply chain warehouse efficiency in Indonesia using cutting-edge statistical approaches such as PLS-SEM. They observed that a well-run warehouse can swiftly satisfy consumer demands and improve a company's logistics performance. Through a case study of the desired company, the research's findings also reveal that warehouse characteristics have a positive influence on supply chain

warehouse efficiency and that efficient warehouse design and operations enhance warehouse efficiency among Indonesian supply chain enterprises. Kibrom (2019) investigated the impact of warehousing organizational performance. Employees were all aware of the relevance of warehousing activities on organizational performance success, according to the study's findings. The findings also show that, unlike order picking, the four warehousing dimensions (receiving, storing, picking and shipping activity) have a disproportionately beneficial impact on organizational performance.

The impact of warehousing and transportation management on logistics performance was investigated by Mohd et al. (2020), and the findings from the exploratory research revealed that warehouse management requires organizations to plan properly based on the investment, which comprises the organization's location, design, and external factors since decisions made on these elements will influence the organization's long-term viability. To assess the impact of warehousing, Omolola (2020) used a population of managers, logistics executives, haulage chauffeurs, suppliers, and shipping lines from various consumer goods industries. The data revealed that warehouse operations boost resource efficiency, improve goods delivery, and improve overall performance. Muhalia et al. (2021) conducted descriptive research in Kenya to investigate the influence of warehouse operations on the supply chain performance of fast-moving commodities manufacturing. Warehouse management solutions, according to the data, have a positive and considerable influence on FMCC – supply chain efficiency in Kenya warehouse management solutions, according to the respondents helping to eliminate picking errors, maximize storage space, optimize stock control, increase job productivity, guide employees through hazard analysis and highlight warehouse safety regulations. In addition, John and Bowen (2003) maintained that warehousing enables you to save time by bridging the difference in time between the assembly and consumption of goods. Warehousing helps in providing access to products anytime the clients want them. Based on the above argument, we are putting forth the following hypotheses to justify our discussion.

H1: Warehousing impacts significantly on logistics performance of shipping firms in Nigeria. In conceptualizing hypothesis one, we are looking at warehousing according to Munyao et al. (2015) as an integral component of logistics and business performance that plays a significant role in customer satisfaction, on-time delivery effectiveness, efficient cost of production and transportation. Here we are also looking at the basic warehousing activities, such as final preparation for shipping, receiving customers' orders, store space for keeping goods, retrieving required items, screening and classification, sending for storage, depositing in storage, retrieving from storage, order accommodation, packaging, transportation, and maintaining records.

H2: Warehousing facilitates on-time delivery of goods by shipping firms in Nigeria significantly. In conceptualizing hypothesis two, Wang et al. (2016) explain that warehousing is crucial in on-time delivery as a measure of logistics performance of shipping firms in Nigeria. Organizations can provide timely the kind and volume of products needed, deliver customer orders on time, provide expendable delivery services, have time to unravel customer complaints and order time interval

H3: Warehousing impacts significantly on customer satisfaction of shipping firms in Nigeria. In conceptualizing hypothesis three, Elsayed and Wahba (2016) argued empirically that warehousing impacts on customer satisfaction of shipping firms in Nigeria in terms of flexibility, information and material flow integration, risk management and supplier's

performance for delivering the prosper goods within the right time frame. According to Yonas (2013), customer satisfaction measured the expectation regarding a given product or service provided by a firm at a given time. Businesses use surveys on clients' satisfaction to ascertain the peak of customer satisfaction. The above-hypothesized variables are used as measures of logistics performance correlating with the role of warehousing in shipping firms.

In today's economic context, measuring logistics performance is a key problem for academic and practicing managers alike (Wood, 2006). Logistics performance is described as an organization's operational ability to satisfy the desires of its key shareholders and its success. The value of performance evaluation and practices for an organization has been studied by academics (Atikah, 2014). Literature suggests an appropriate alternative to objective measurement. It further shows that evaluation of subject perceptions is commonly and comprehensively used in social sciences research (Chandler & Hanks, 1993; Atikah, 2014; Wood, 2006).

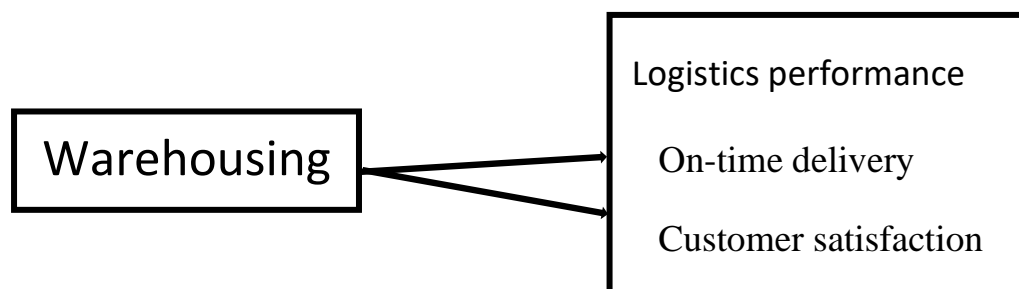**Fig. 1: Conceptual framework on the role of warehousing on logistics performance**

Figure 1 shows the relationship between the variables built on network theory. The theory is relevant for the inquiry because it emphasizes organizational mechanisms that permit system integrated operational based technologies and provides an awareness of the necessity to adopt systems for managing logistics performance. Some of these strategies are conventional in nature such as customer and market demand analysis for warehousing activities that are required for effective and efficient logistics performance. The theory is relevant to this research since it may assist firms in implementing warehouse activities that will increase logistics performance in shipping firms.

Network Theory

According to Chicksand et al. (2012), one of the theoretical concepts for supply chain and operational management that has been developed in recent years is network theory, which describes the interconnections between firms, suppliers, consumers, and purchasers. Liisa (2004) describes a network as a certain sort of relation that connects a predetermined collection of people, things, or events whose context is determined by the interactions between network members. Zaheer et al. (2000) suggested that a network comprised two or more organizations pursuing long-term relationships that are mutually advantageous to all relevant parties, as evidenced by the commitments and activities of the other parties involved.

Tuija-Liisa (2004) maintained that companies are becoming increasingly aware of the efficient integration and management of important business activities across the supply chain which

determines the success of a single organization. Chang et al. (2012) argued that the most crucial concern of firms today is how to manage the company's supply chain network and realize SCM's full potential. In the view of Li et al. (2009), one method to put together this network of companies is to build a strong relationship with important partners who can provide value to the market offering without putting the company in danger. Furthermore, Tuija-Liisa (2004) takes the philosophy of SCM to a new level that entails identifying the supply chain participants that must use linked, as well as the procedures that must be considered, and the sort of integration required to connect the various operations and partners. Ho et al. (2010) opined that the goal is to produce value for the organization and the entire logistics web, let alone the end customers. Increased process efficiency and effectiveness are necessary for the entire chain and the gains must be spread equally (Tuija–Liisa, 2004).

In the assertion of Kim et al. (2011), organizations in the business sector are entailed in a complicated web of interactions with suppliers, customers, and a variety of other participants. Strategic networks, according to Zaheer et al. (2000), provide a firm with technologies, as well as the span of learning and scope economics, which enable companies to attain strategic goals like risk sharing and value chain outsourcing segments managerial issues. Chicksand et al. (2012) argued that theories are necessary for comprehending the complex environment in which organizations operate. They maintained that network theory aids supply chain management by making demand and production planning easier through the simplification of resource allocation achieved through the establishment of strategic long-term partnerships. Ho et al. (2010) further opined that organizations who are part of a network have access to a larger pool of suppliers which can help to assure the supply of vital goals.

According to Maike (n.d), Zaheer et al. (2000), Tuija-Liisa (2004), and Chicksand et al. (2012), markets are considered as a system of relationships among diverse entities in network theory, such as buyers, suppliers and producers. The authors argued that firms that are currently functioning in networks are seen to gain an edge not by achieving their aims, but by engaging in business relationships and partnerships within the networks. The partners will be organized to produce cost-saving and technological advancement production, shipping, and administrative costs are all reduced as a result (Li et al., 2009). Nevertheless, Bello et al. (2000) submitted that the largest benefit of network theory in terms of technical advancement is the possibility of reducing supplier resources and lowering lead times.

METHODOLOGY

A cross-sectional survey research approach was used in this study. The study's participants constitute all registered management staff snipping company operators in Nigeria. The study adopted a convenience sampling technique which is based on easy accessibility of the people and a sample of 101 registered selected shipping companies in Nigeria was selected. These companies were selected because of the spread of their activities with the upstream and downstream maritime supply chain. A questionnaire tagged Warehousing and Logistics Performance Questionnaire (WLPQ) was used in data gathering. There were two sections to the questionnaire: A and B. Section A captured the demographics of the respondents while Section B addressed the research variables (the role of warehousing, and logistics performance). All items in section B were rated on a five-point Likert scale of 1 -5, of strongly agree, agree, neutral, disagree and strongly disagree. Logistics performance was measured in

terms of customer satisfaction and on-time delivery with 18 items while warehousing had 10 items. Three copies of the questionnaire were given to each company making a total of three hundred and three questionnaires administered to the ship superintendent, vessel managers, and captain and logistics specialist. Out of the 303 questionnaires distributed, 286 questionnaires were correctly filled and returned . Frequency and percentages were used to analyze the demographics of the study participants. Meanwhile, the hypotheses were tested using linear regression on the 0.05 level of significance. To establish the reliability of the instrument, a pilot survey was conducted in which 20 copies of the instrument were administered to 20 employees who did not take part in the primary research, yet are part of the study population. The received data was submitted to the Cronbach Alpha reliability statistical tool, which yielded a reliability coefficient of 0.943. This was high enough to justify the reliability of the instrument. Hence, the instrument was considered reliable.

Table1: Summary of the Cronbach's Alpha Reliability Result for the Instrument

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.943	.970	28

RESULTS

Table 2: Demographics of the Respondents

Demographics Variables	No. Of Respondents	Percentage (%)
Gender		
Male	180	63
Female	106	37
Total	**286**	**100.0**
Age (years)		
20-29 years	82	29
30 - 39 years	84	29
40–49 years	69	24
50 and above	51	18
Total	286	100.0
Total		**100. 0**
Educational Qualification		
PhD	16	6
MSc	60	21
BSc	100	35
HND/ NCE	110	38
Total	**286**	**100.0**
Marital status		
Married	96	34
Single	190	66
Total	286	100.0
Experience		

1- 5 years	84	29
6-10 years	80	38
11-15 years	70	25
Above 15 years	53	18
Total	286	100.0

Source: *Field Survey (2022)*

286 copies of the 303 questionnaires distributed were collected and confirmed to be usable, accounting for 94.4 percent of the total number of questionnaires. Results presented in Table 2 show the distribution of the demographics of the respondents. The result reveals that 180 respondents representing 63% of the respondents were male and 106 respondents representing 37% were female. The distribution of their age shows that 29% were between 20-29 years, 29% still were between 30 - 39 years, and 24% were between 40 - 49 years while 18% of the respondents were between 51 and above years respectively. 16 respondents representing 6% had PhD, 21% had MSc, 100% had BSc and the majority had HND/NCE. Ninety-six respondents representing 37% were married, while one hundred and ninety respondents representing 66% were single. The result of the years of experience shows that 39% of the respondents had 1-5 years, 38% had 6-10 years, and 25% had 11-15 years while 18% of the respondents had above 15 years of experience.

Table 3: Descriptive Statistics for the Research Variables

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Warehousing	286	26.45	10.61	-0.51	0.13	-1.44	0.24
Customer satisfaction	286	23.63	9.39	-0.64	0.13	-1.45	0.24
On – delivery	286	22.71	8.36	0.63	0.13	-0.02	0.24
Logistics performance		28.63	6.54	-0.51	0.13	-0.51	0.24
Valid N (listwise)	286						

Source: *Researchers Computation with SPSS 20*

Table 3 summarizes the results of the descriptive statistics for the research variables. The mean and standard deviation, skewness, and kurtosis of the scores collected on each of the research variables are presented in the table too. The result shows that the mean score of 26.45, 23.63, 22.71, and 28.63 for warehousing, customer satisfaction, delivering and logistics performance with standard deviations of 10.61, 9.39, 8.36, and 6.54 respectively. In terms of skewness, the result shows that the scores obtained for warehousing (-0.51), customer satisfaction (-0.64), on-time delivery (-0.63) and logistics performance (-0.51) were less than 1 meaning that they are skewed to the left. Result also shows that the kurtosis for warehousing (-1.44), customer satisfaction (-1.45), on-time delivery (-0.02) and Logistics performance (-0.51) were less than 3.00. The normality of the scores obtained on each of the variables using the Shapiro-Wilks test are presented in Table 4.3.

Table 4. Summary of Normality Test using Shapiro-Wilk Test for the Research Variables

	Shapiro-Wilk		
	Statistic	df	P-value
Warehousing	0.902	286	0.000
Customer satisfaction	0.823	286	0.000
On – delivery	0.746	286	0.000
Logistics performance	0.952	286	0.000

Source: Author's computation (2019) using SPSS version 20.0

Table 4 shows the outcome. P-values less than 0.05 (P<.05) are found in warehousing (P-value = 0.000), customer satisfaction (P-value = 0.000), and on-time delivery (P-value = 0.000). This means that none of the research variables was regularly distributed.

Hypothesis 1

H1: Warehousing has a significant effect on logistics performance of shipping firms in Nigeria.

Table 5: Model Summary for the Regression Relationship between Warehousing and Logistics Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	.624	.388	.345	7.25442	2.833

Source: *Researchers Computation with SPSS 20*

The r-square of 0.345 in Table 5 indicates that warehouse operations accounted for 38.8 per cent of the variation in logistics performance. This outcome also means that if there is any upgrade in warehousing activities, there will be a corresponding improvement in logistics performance. The Durbin-Watson value of 3.833 was obtained which implies that there is no evidence of autocorrelation. This is because the Durbin-Watson value of 2.838 is greater than 1 but less than 3.00 which indicates that the error terms are not correlated as suggested by Field (Field, 2009). The result of the analysis of variance for the regression is shown in Table 6.

Table 6: ANOVA Result for the Impact of Warehousing on Logistics Performance

Source of variation	Sum of Squares	df	Mean Square	F-calc.	F-crit.	p-value
Regression	13034.190	1	13032.190	247.673*	3.87	0.000
Residual	20471.728	389	52.627			
Total	33505.918	390				

*significant at p<0.05. Source: *Researchers Computation with SPSS 20.*

Table 6 shows that the F-critical was 247.673 with a p-value of 0.000 and the F-critical was 3.87 at the 0.05 level of significance. At the 0.05 level of significance, the F-calculated (247.673) is more than the F-critical (3.87), indicating that there is a substantial linear association between warehousing and logistics performance. This result also implies that

warehousing accounted for significant variation in logistics performance. In Table 4.13, the regression model's parameters are estimated.

Table 7: Parameters Estimates of the Regression of Warehousing on Logistics Performance

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t-calc.	P-value
Constant	7.929	.950		8.349	0.000*
Warehousing	0.536	0.034	0.624	15.738	0.000*

*significant at 1 %(p<0.01), t-critical = 1.97. *Source: Researchers Computation with SPSS 20.*

The regression coefficient for the model parameters is shown in Table 7. The results demonstrate that channel design (= 0.624, S.E= 0.034, t-calc. = 15.738, t-crit. =1.97, p=0.000, p0.05) has a substantial positive association with customer satisfaction (= 0.624, S.E= 0.034, t-calc. = 15.738, t-crit. =1.97, p=0.000, p0.05). The results also provided a standardized beta coefficient of 0.624, which means that if all other factors remain constant, customer service will increase by 0.624 for every unit improvement in channel design. At the 0.05 level of significance, the result demonstrates that t-calculated (15.738) is bigger than t-critical (1.97). As a result, the null hypothesis stated previously is rejected. As a result, there is a considerable positive correlation between channel design and customer service. This result indicates that effective channel design enhances customer service.

Hypothesis 2

H$_2$: warehousing has a significantly effect on-time delivery of shipping firms in Nigeria

Table 8: Model Summary for the Relationship between Warehousing and On–time Delivery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	.765	.578	.562	4.21466	2.251

Source: *Researchers Computation with SPSS 20*

The r-square of 0.562 in Table 8 indicates that warehouse operations accounted for 57.8 percent of the variation in on-time delivery. This finding also means that if there is any progress in warehousing activities, there will be a corresponding improvement in on – delivery. The Durbin-Watson value of 2.251 was obtained which implies that there is no evidence of autocorrelation. This is because the Durbin-Watson value of 2.251is greater than 1 but less than 3.00 which indicates that the error terms are not correlated as suggested by Field (2009). Table 4.15 shows the outcome of the regression's Analysis of Variance.

Table 9: ANOVA Result for the Relationship between Warehousing and On–time Delivery

Source of variation	Sum of Squares	df	Mean Square	F-calc.	F-crit.	p-value
Regression	9772.070	1	9772.070	540.147*	3.85	0.000
Residual	6909.925	389	17.763			
Total	16681.995	390				

*significant at p<0.05.

Source: *Researchers Computation with SPSS 20*

Table 9 shows that the F-critical was 540.147 with a p-value of 0.000 and the F-critical was 3.85 at the 0.05 level of significance. At the 0.05 level of significance, the F-calculated (540.147) is more than the F-critical (3.85), indicating that there is a substantial linear association between warehousing and on-time delivery. This result also implies that warehousing accounted for a significant variation on–delivery. In Table 4.16, the regression model's parameters are estimated.

Table 10: Parameters Estimates of the Regression of Warehousing on On–time Delivery

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t-calc.	P-value
Constant	6.992	.552		12.674	0.000*
Channel design	.464	0.020	0.762	24.455	0.000*

*significant at 1 %(p<0.01), t-critical = 1.97.

Source: *Researchers Computation with SPSS 20*

The regression coefficient for the model parameters is shown in Table 10. The results demonstrate that warehousing (= 0.762, S. E= 0.020, t-calc. = 24.455, t-crit. =1.97, p=0.000, p0.05) has a substantial positive connection with on-time delivery (= 0.762, S. E= 0.020, t-calc. = 24.455, t-crit. =1.97, p=0.000, p0.05). The results also provided a standardized beta value of 0.765, which means that if all other factors remain constant, on-time delivery will improve by 0.765 for every 1-unit improvement in warehousing activities. At the 0.05 level of significance, the t-calculated (24.455) is likewise bigger than the t-critical (1.97). As a result, the above-mentioned alternative theory is accepted. As a result, there is a substantial positive relationship between warehousing and on-time delivery. This result indicates that effective warehousing design enhances on–time delivery.

Hypothesis 3

H3: Warehousing impacts significantly on customer satisfaction.

Table 11: Model Summary for the Regression Relationship between Warehousing and Customer Satisfaction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	.806	.634	.648	3.12832	1.986

Source: *Researchers Computation with SPSS 20*

The r-square of 0.634, as shown in Table 11, indicates that warehousing accounts for 64.8 per cent of the variation in customer satisfaction. This finding also shows that if there is any progress in warehousing there will be a corresponding improvement in customer satisfaction. The Durbin-Watson value of 1.986 was obtained which implies that there is no evidence of autocorrelation. This is because the Durbin-Watson value of 1.986 is greater than 1 but less than 3.00 which indicates that the error terms are not correlated as suggested by Field (2009). Table 4.18 shows the regression's Analysis of Variance result.

Table 12: ANOVA Result for the Relationship between Warehousing and Customer Satisfaction

Source of variation	Sum of Squares	df	Mean Square	F-calc.	F-crit.	p-value
Regression	7050.710	1	7050.710	720.463*	3.87	0.000
Residual	3806.896	389	9.786			
Total	10857.606	390				

*significant at p<0.05.

Source: *Researchers Computation with SPSS 20*

Table 12 shows that the F-critical was 720.463 with a p-value of 0.000, and the F-critical was 3.87 at the 0.05 level of significance. At the 0.05 level of significance, the F-calculated (720.463) is more than the F-critical (3.87), implying that there is a substantial linear association between warehousing and customers' satisfaction. This result also implies that warehousing accounted for significant variation in customer satisfaction. In Table 4.19, the regression model's parameters are estimated.

Table 13: Parameters Estimates of the Regression Warehousing on Customer Satisfaction

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t-calc.	P-value
Constant	1.046	.420		2.492	0.013*
Warehousing	.366	0.014	.806	26.841	0.000*

*significant at 1 %(p<0.01), t-critical = 1.97.

Source: *Researchers Computation with SPSS 20*

The regression coefficient for the model parameters is shown in Table 13. The results demonstrate that warehousing (= 0.806, S. E= 0.014, t-calc. = 26.841, t-crit. =1.97, p=0.000, p0.05) has a substantial positive connection with product availability (= 0.806, S. E= 0.014, t-calc. = 26.841, t-crit. =1.97, p=0.000, p0.05). The result also revealed a standardized beta coefficient of 0.806, which means that if all other factors remain constant, product availability will improve by 0.806 for every 1-unit improvement in channel strategy. At the 0.05 level of significance, the result demonstrates that t-calculated (26.841) is bigger than t-critical (1.97). As a result, the null hypothesis stated previously is rejected. As a result, there is a substantial positive relationship between channel strategy and product availability. This result indicates that an effective channel strategy enhances product availability.

DISCUSSION OF THE RESULTS

Hypothesis one highlighted warehousing as having a large positive impact on the logistics performance of shipping firms in Nigeria. These assertions are supported by the study of Pandian (2017) which revealed that warehousing improves logistics performance through effective and efficient customer service, cost reduction, profitability, product availability and on-time delivery. Hypothesis two results revealed that warehousing impacted significantly on on-time delivery of goods and services of shipping firms in Nigeria. The findings tally with the study of Mohd et al. (2020) which stated that warehousing plays a pivotal role in the creation of placing utility that enhances product availability to the market.

Finally, hypothesis three results show that warehousing can impact clients' satisfaction positively. The findings collaborated with that of Kittisak et al. (2019) that effective implementation of warehousing activities lead to customer satisfaction through standardized, grading, packaging, sorting, delivery, and also creating efficiency of time by eliminating the vacuum between the assembly period and rate of consumption.

MANAGERIAL AND THEORETICAL IMPLICATIONS

To illustrate statistical relationships between warehousing and logistics performance, this study employs basic linear regression and analysis of variance (ANOVA) to verify the results of previous researchers such as Brain et al. (2010), Kittisak et al. (2019), Ndikom et al. (2017), and Mohd et al. (2020) affirming that warehousing has a significant and positive effect on logistics performance for clients' satisfaction and on-time delivery and provision of effective customer services. Managers should take advantage of this study by implementing warehousing activities that encourage effective and efficient logistics performance.

CONCLUSION

The research contributed to a better understanding of the effect of warehousing on logistics performance by showing the interrelationships among its measures and its impact on overall organizational performance. Additionally, a review of scholarly pieces of the literature shows that the role of warehousing in logistics performance is not limited to customer satisfaction,

on-time delivery, ease of movement of goods, risk management, grading, and packaging, time efficiency, consistent operation and storage of surplus goods.

RECOMMENDATIONS

It was suggested that managers in shipping firms should implement warehousing activities in their organization that will lead to effective and efficient logistics performance based on the outcomes of this study. Warehousing activities should be strategic to enable the firm to achieve its corporate strategies in terms of on-time delivery of goods and services. Finally, warehousing activities that will trigger customer satisfaction and encourage customer loyalty, commitments and confidence in the firm should be put in place.

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