



## LOGISTICS OUTSOURCING PRACTICES AND SUPPLY CHAIN PERFORMANCE OF FOOD AND BEVERAGE MANUFACTURING FIRMS IN RIVERS STATE, NIGERIA

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**ABSTRACT:** *This study examined the relationship between logistics outsourcing practices and supply chain performance of food and beverage manufacturing firms in Rivers State. This study adopted the correlational research design and the positivism research philosophy. The study population consisted of 30 registered food and beverage manufacturing firms in Rivers State. The study adopted the census sampling technique where all the members of the population were studied. The sampling unit consisted of branch managers, logistics managers, and operational managers of the 30 food and beverage manufacturing firms in Rivers State. A sample size of 90 managers was drawn from the 30 food and beverage manufacturing firms in Rivers State at the ratio of 3 managers per company. A structured questionnaire was used as the main instrument for data collection. The data collected were analysed using descriptive statistics, while the hypotheses were tested using the Spearman Rank Order Correlation Coefficient ( $\rho$ ). The SPSS version 26 was utilized for data processing and computation. The findings revealed that transportation outsourcing has a significant relationship with on-time delivery of food and beverage manufacturing firms in Rivers State. The study also found a significant relationship between transportation outsourcing and cost reduction of food and beverage manufacturing firms in Rivers State. Warehousing outsourcing was also found to have a significant relationship with on-time delivery of food and beverage manufacturing firms in Rivers State. The study equally discovered a significant relationship between warehousing outsourcing and cost reduction of food and beverage manufacturing firms in Rivers State. Based on these findings, it is concluded that logistics outsourcing practices (transportation and warehousing outsourcing) have a significant impact on the supply chain performance of food and beverage manufacturing firms in Rivers State, Nigeria.*

**KEYWORDS:** Logistics outsourcing, Transportation outsourcing, Warehousing outsourcing, Supply chain performance, On-time delivery and Cost reduction.



## INTRODUCTION

The manufacturing industry plays a vital role in a typical supply chain, purchasing raw materials from suppliers, converting these materials into finished goods, and transporting these finished products to places where they are needed for consumption or use. These supply chain activities embarked upon by manufacturing firms are crucial to the growth and development of any nation. Therefore, manufacturing firms in Nigeria must intensify their efforts to improve their supply chain performance so that the country can experience rapid economic growth and development. Improving supply chain performance requires manufacturing firms to perform their logistics functions effectively so that goods produced can get to the final consumers at the right time with a much-reduced costs (Bwari et al., 2016). However, logistics processes such as transportation, warehousing, inventory management, material handling, information management, order processing, freight auditing, and distribution have become more complex than ever before as the scope of each activity has increased significantly with more companies specializing in each of these operations. As logistics operations become more complex with an increased number of logistics companies, it becomes necessary for manufacturing firms to outsource part or all of its logistic processes to a third party in order to improve their supply chain performance.

Logistics outsourcing is the act of subcontracting logistics activities to firms equipped to provide these services (Lynch, in Joto & Odock, 2019). It involves moving some of a company's logistics activities and decision responsibilities to outside firms that specialized in logistics operations. The logistics operations that can be outsourced by companies include ordering processing, warehousing, inventory management, packaging, transportation, and freight management (Somuyiwa et al., 2016). Outsourcing logistics has become a major practice in modern organizations. According to Joto and Odock (2019), outsourcing logistics activities either partially or wholly to logistics firms has increased across all industries. Many large manufacturing companies outsource their logistics functions, such as freight forwarding, customs brokerage, transportation, warehousing, material handling, and inventory management, to firms that are well equipped to deliver logistics services while they concentrate solely on the core manufacturing activities (Aziz et al., 2020). These companies outsource logistics operations in order to differentiate their supply chain services from competitors' own, reduce their costs, and improve their supply chain flexibility.

Outsourcing logistics functions to a third party can help to improve the supply chain performance of manufacturing firms. By subcontracting these logistics functions to other competent firms, manufacturing companies can concentrate on their core activities, add value to their own operations and improve their supply chain performance (Njagi, 2017). Linda and Mwaura (2020), opined that logistic outsourcing enhances supply chain quality, reduce supply chain costs, ensures, on-time delivery, and increases supply chain flexibility of firms. By outsourcing logistics operations, the firm can shorten delivery time as logistic service provider will adopt restructuring strategies that will bring about a faster mode of transportation, more direct transportation and eliminate local inventory (Esther & Katuse, 2013). Sangam (2017) argued that logistics outsourcing can reduce supply chain costs, shorten lead time, ensure quick response to customer requests, increase customer satisfaction level, ensure supply chain flexibility, and improve the overall supply chain performance of firms. It is against this backdrop that this study examines the relationship between logistics outsourcing practices and supply chain performance of food and beverage manufacturing firms in Rivers State.



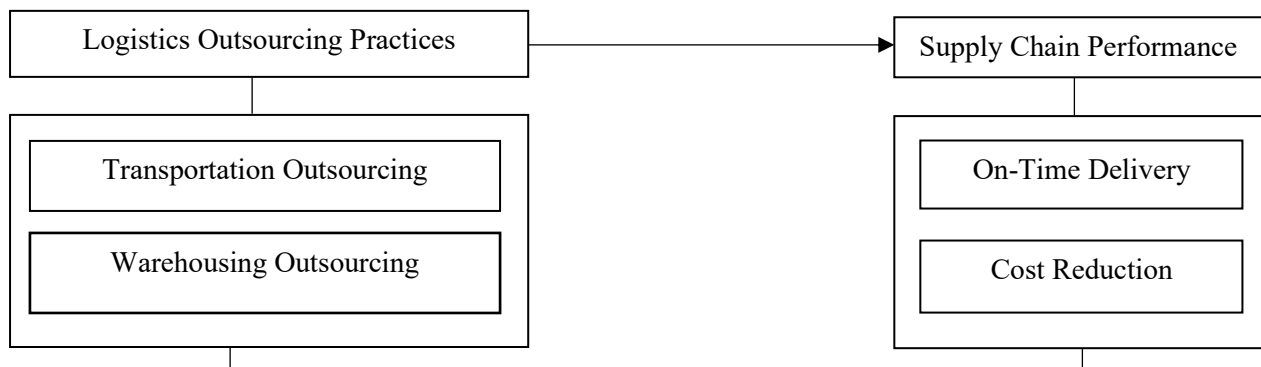
## Statement of the Problem

Improving supply chain performance has become a challenging task for many manufacturing firms in Nigeria. Many manufacturing firms in Nigeria are struggling to improve their supply chain performance as they often experience high costs, delays in delivery of goods and a rigid supply chain structure, resulting in poor supply chain performance. To address these challenges and improve their supply chain performance, some manufacturing firms in the food and beverage industry in Nigeria have been compelled to outsource their logistics functions such as transportation and warehousing operations to third-party logistics companies. Since these firms outsource their logistics operations to third-party logistics companies, it is still not clear whether it has improved their supply chain performance. Although some studies (e.g. Kavcic et al, 2015; Maata and Ombui, 2018; Belhu, 2019; Mills and Opoku-Akyea, 2019; Joto and Odock, 2019; Aziz et al., 2020; Linda and Mwaura, 2020) have examined the relationship between logistics outsourcing and firm performance, none of these studies focused on food and beverage manufacturing firms in Rivers State. This has created a vacuum in literature which this study intends to fill and contribute to the existing literature on logistics management.

## Conceptual Framework

The conceptual framework of logistics outsourcing practices and supply chain performance of food and beverage manufacturing firms is shown in Figure 1 below:

**Fig 1: Conceptual framework of logistics outsourcing practices and supply chain performance of food and beverage manufacturing firms in Rivers State**



**Source:** *Author's Conceptualization*

## Aims and Objectives of the Study

This study aims to examine the relationship between logistics outsourcing practices and supply chain performance of food and beverage manufacturing firms in Rivers State, Nigeria. To achieve this broad aim, the study intends to:

1. determine the relationship between transportation outsourcing and on-time delivery of food and beverage manufacturing firms in Rivers State;
2. ascertain the relationship between transportation outsourcing and cost reduction of food and beverage manufacturing firms in Rivers State;



3. determine the relationship between warehousing outsourcing and on-time delivery of food and beverage manufacturing firms in Rivers State;
4. ascertain the relationship between warehousing outsourcing and cost reduction of food and beverage manufacturing firms in Rivers State.

### **Research Questions**

Attempts were made to answer the following research questions:

1. What is the relationship between transportation outsourcing and on-time delivery of food and beverage manufacturing firms in Rivers State?
2. To what extent does transportation outsourcing relate to cost reduction of food and beverage manufacturing firms in Rivers State?
3. What is the relationship between warehousing outsourcing and on-time delivery of food and beverage manufacturing firms in Rivers State?
4. To what extent does warehousing outsourcing relate to cost reduction of food and beverage manufacturing firms in Rivers State?

### **Research Hypotheses**

The following hypotheses were formulated in this study:

Ho<sub>1</sub>: There is no significant relationship between transportation outsourcing and on-time delivery of food and beverage manufacturing firms in Rivers State.

Ho<sub>2</sub>: There is no significant relationship between transportation outsourcing and cost reduction of food and beverage manufacturing firms in Rivers State.

Ho<sub>3</sub>: There is no significant relationship between warehousing outsourcing and on-time delivery of food and beverage manufacturing firms in Rivers State.

Ho<sub>4</sub>: There is no significant relationship between warehousing outsourcing and cost reduction of food and beverage manufacturing firms in Rivers State.

## **REVIEW OF RELATED LITERATURE**

### **Concept of Logistics Outsourcing**

Logistics outsourcing is a strategy whereby a company assigns its logistics functions to more specialized, more effective, and more efficient service providers so that the company can be left to perform and concentrate on its core business activities (Kremic et al in Nzitunga, 2019). Ho et al in Budler et al, (2021) defined logistics outsourcing as the use of a third party (logistics service provider) to carry out logistics activities such as transportation, warehousing, customs clearance processes, inventory management, ordering processing, freight forwarding, packaging, material handling, and information management. Outsourcing logistics operations



to a third party is not a new development in the business world (Munanira & Mulyungi, 2018). There are instances where a company cannot perform all the logistics functions and seeks to concentrate on its core activities, which are production, research, and innovation. When a firm cannot perform all these logistics activities given its resources and capabilities, it can consider outsourcing some of these activities to third party firm that has the ability to deliver these services at a lower cost (Zhu et al., 2017). Wabuge and Osaro (2020) noted that most successful manufacturing companies today have resorted to outsourcing their logistics operations to other companies that have the capabilities to deliver these services at a lower cost. By subcontracting these logistics functions to other competent firms, manufacturing companies tend to add value to their own operations and concentrate on their core functions of production, research, and innovation (Njagi, 2017).

### **Dimensions of Logistics Outsourcing**

There are several logistics activities that a firm can outsource to a third party. However, this study focuses on outsourcing transportation and warehousing operations to a third-party logistics company.

#### **Transportation Outsourcing**

Transportation is the movement of people and goods from one place to another (Erdogan & Miller-Hooks, 2012). Transportation is one of the key logistics functions of a company. However, when a company is not sure of its transportation system, it can outsource its transport operations to a firm that is well equipped to deliver transportation services more effectively (Kisilu & Gatari, 2021). Transportation outsourcing has become a popular practice among business firms. According to Budler et al, (2021), transportation is a logistics activity that is most commonly outsourced. A good number of firms are outsourcing their transportation at a very rapid rate. A survey conducted by Budler et al, (2021) revealed that 72% of companies had outsourced transportation activities in 2013 while in 2019, it was reported that all the companies use logistics service providers. The idea behind transportation outsourcing is to gain cost advantage with a much- improved quality of service (Wabuge & Osaro, 2020). Uzair and Siddiqui (2018) stated that a company that outsources transportation operations would not only reduce its costs but also make the supply chain more agile. This is because transportation outsourcing reduces capital investment and decreases the operational and depreciation costs. Sanchis-Pedregosa et al, (2012) opined that a transportation outsourcing enables a company to increase its efficiency since the outsourced partner specializes in transportation activity.

#### **Warehousing Outsourcing**

Warehousing is an activity that involves storing goods in a commercial building constructed by a company until they are needed (Zacharias & Boopathy, 2022). Considering the importance of warehousing operations, it becomes imperative for companies to construct a good warehouse to facilitate their logistics operations. However, when a company cannot construct a good warehouse for itself, it can outsource its warehousing operations to a firm that has a good warehouse facility (Budler et al., 2021). Outsourcing warehousing is the act of subcontracting warehousing operations to a firm that is well-equipped to provide these services (Joto & Odock, 2019). A good number of companies outsource their warehousing operations by engaging specialized firms to provide warehousing services. Zhu et al, (2017) noted that large



manufacturing companies outsource their warehouse functions to logistics firms that are well equipped to carry out this operation. These companies outsource their warehousing operations in order to reduce their costs and improve their supply chain performance. Mugo (2016) noted that outsourcing warehouse operations helps a company to focus on its core functions and reduce the risks associated with warehousing operations.

### **Concept of Supply Chain Performance**

Supply chain performance refers to how well or poorly the supply chain of a firm is doing in terms of meeting end-customer requirements, ensuring product availability, and on-time delivery of goods to end-users (Mubarik et al., 2012). When the supply chain of a firm satisfactorily meets end-customer requirements, guarantees product availability, and ensures timely delivery, the supply chain of the firm can be said to be performing well but where the supply chain of the firm fails to meet customer requirements, ensure product availability and ensure on-time delivery, the supply chain of the firm can be said to be performing poorly (Mubarik et al., 2012). This is why Maata and Ombui (2018) defined supply chain performance as the ability of a supply chain to meet customer needs by ensuring product or service availability at the right time, right place, right price and right quantity. Business firms operate in a dynamic environment and as such they need to continuously improve their supply chain performance. Hence, it is important for firms to assess their supply chain performance and become more purposeful about improving it. Continuously improving supply chain performance can give a company the needed stability and competitive edge over its rivals (Linda & Mwaura, 2020). Every firm wants to improve their supply chain performance because it gives a better chance of achieving business success. By improving supply chain performance, firms tend to reduce supply chain costs, enhance supply chain quality, ensure on-time delivery, and increase supply chain flexibility (Shahzadi et al., 2013).

### **Measures of Delivery Performance**

Supply chain performance of firms can be measured using various indicators. However, this study measures supply chain performance using on-time delivery and cost reduction.

### **On-Time Delivery**

On-time delivery refers to the ability of a firm to deliver the specific product or service at the stipulated time (McLennan, 2011). When a firm delivers goods or services to customers on time, such firm can be said to have a good supply chain performance (Somuyiwa et al., 2015). Jacobs and Zulu (2012) stated that on-time delivery is a standard criterion used to measure the fulfilment of a customer's demand to the desired date. A firm is expected to deliver the product/service in accordance to specification and also at the right time. Customers attached much importance to timely delivery of their consignments (Hausman, 2014). They often use timely delivery as a criterion for assessing the efficiency of an organization. If a firm is able to deliver product on or before the due date as stated in their contractual agreement with customer, the customer will consider the firm to be reliable for future business transactions. This will bring about customer loyalty, which will lead to better sales performance for the firm (Bearmon & Balcik, 2019).



## **Cost Reduction**

Cost reduction is one of the indicators for measuring supply chain performance. Wanjugu et al (2020) noted that companies must reduce their costs to the barest minimum if they must improve their supply chain performance. They need to drastically reduce unnecessary costs and eliminate other big cost centers that their competitors in the industry have incurred. By reducing costs, companies will be able to invest in what customers value most and provide services at a relatively lower price in the industry (Kisilu & Gatari, 2021). A company that reduces its costs will operate more profitably in its industry (Mubarik et al., 2012). Jacobs and Zulu (2012) stated that some companies incurred high supply chain costs, thereby resulting to selling their product or service at a higher price. However, there are some supply works that are very expensive to the firm. Therefore, companies must try to estimate the actual cost of a supply. However, it should be noted that the actual and exact costs of a supply can only be ascertained after the actual supply has been made. Maata and Ombui (2018) emphasized that companies must lower their operational costs in order to create superior value for their new market segments.

## **Theoretical Review**

This study is guided by the transaction cost economics theory which was developed by Coase in 1937 and expanded by Williamson in 1971. The theory states that utilizing the market system is not free as it comes with a cost for using it known as “transaction costs” (Kaiser & Obermaier, 2020). Transaction costs are the cost of organizing the economic system. Hence, the transaction costs of a firm’s activities and market transactions have to be compared with the costs of outsourcing activities, and transactions should only be undertaken within that institutional arrangement (market or firm) that causes the lowest costs (Kaiser & Obermaier, 2020). The transaction cost economics theory is very relevant in analyzing logistics outsourcing practices of firms as it emphasizes that firms that outsource their logistics operations will have lower costs than firms that perform their logistics operations in-house. The theory explains that a firm should outsource its logistics functions if the costs of performing these operations in-house outweigh costs of performing logistics operations in-house. The transaction cost view plays an important role in understanding the economic costs/benefits of outsourcing logistics.

## **Empirical Review**

Several studies have been conducted on logistics outsourcing practices and supply chain performance of firms. For instance, Linda and Mwaura (2020) explored the influence of logistics outsourcing services on supply chain performance in commercial State Corporation in Nandi County, Kenya. The researchers adopted the descriptive survey research design and used a structured questionnaire to collect data from procurement officials in commercial state corporate in Nandi County, Kenya. The data collected were analyzed using percentage and frequency table, mean and standard deviation, while the formulated hypotheses were tested using Pearson Product- Moment Correlation Coefficient and regression analysis. The findings revealed that logistics outsourcing such as transportation outsourcing, warehousing outsourcing and distribution outsourcing has a significant relationship with supply chain performance in commercial State Corporation.



Aziz et al, (2020) examined the impact of logistics capability and logistics outsourcing on the performance of manufacturing companies in Pakistan. Their study adopted the exploratory research design and used a structured questionnaire to collect data from 437 logistics managers in 113 manufacturing firms that perform their own logistic operations or outsource logistics services from other logistics companies in Karachi, Pakistan. The data collected from the respondents were analyzed statistically using percentage and frequency analysis while the hypotheses were tested using Structural Equation Model (SEM) and confirmatory factor analysis. The findings showed that logistics capability has a significant positive impact on the performance of manufacturing companies in Pakistan. The study also revealed that logistics outsourcing has no significant impact on the performance of manufacturing companies in Pakistan.

Kavcic et al, (2015) conducted a study to determine how logistics outsourcing influence organization's performance. The researchers employed the online survey as their method for data collection. The instrument used for data collection was a structured questionnaire which was mailed to 295 companies' addresses provided by the Slovenian Chamber of Commerce and the Chamber of Craft and Small Business of Slovenia. The data collected for the study were analyzed using t-test, Pearson correlation and SPSS software program. The findings revealed that outsourcing basic services (warehousing, transportation, and delivery services) and advanced outsourcing services (order processing, labeling, packaging and improved information systems) are closely connected to the performance of Slovenian organizations.

Joto and Odock (2019) carried out a study to determine the effect of logistics outsourcing on the performance of dairy processing firms in Kenya. The researchers adopted the cross-sectional survey research design and used a semi-structured questionnaire to collect data from owners of the dairy processing firms in Kenya. The data collected from the respondents were analyzed statistically using mean and standard deviation, while the formulated hypotheses were tested using multiple regression analysis. The findings revealed that logistics outsourcing is yet to be fully practiced in the dairy processing industry in Kenya. The study revealed that dairy processing firms that outsource logistics services do so only during the high seasons. The study also reported that logistics outsourcing operations help to reduce costs such as vehicle acquisition and maintenance costs, fuel costs, risk cost among others. The study, however, concluded that logistics outsourcing has a significant effect on firm performance.

Maata and Ombui (2018) examined the role of third-party logistics services in improving supply chain performance in distribution sector in Kenya. The researchers adopted the descriptive survey research design and used an open and closed-ended questionnaire to collect data from 40 respondents in Bollore Transport & Logistics Kenya Limited. The data collected were analyzed using descriptive statistics such as percentage and frequency tables, graphs, charts, and measures of central tendency, while the Pearson correlation, ANOVA, and regression analysis were used to test the hypotheses. The finding revealed that inventory management control, ICT integration, organizational policy, and lead time have a significant positive relationship with supply chain performance in the distribution sector in Kenya.

Belhu (2019) carried out a study to determine the effect of outsourcing logistics activities on the performance of Total Ethiopian. The researcher adopted the descriptive survey research design and used a questionnaire and interviews, to collect data from the respondents. The data collected in the questionnaire were analyzed using percentage and frequency tables, mean and



standard deviation, while those obtained in the interview were analyzed qualitatively. The hypotheses were tested using SPSS software program. The findings showed that access to outside expertise, efficient utilization of company's assets and cost savings, are the main reason why Total Ethiopian engage in logistics outsourcing activities. The study revealed that inefficient management of outsourced freight forwarding activities is the major challenge faced by Total Ethiopian.

Mills and Opoku-Akyea (2019) evaluated the impact of outsourcing transport logistics on organizational performance. Their study employed the case study research approach and the quantitative research paradigm. The researchers collected data from management staff in alcoholic beverage-producing companies in Ghana using a structured questionnaire. The data collected were analyzed using percentage and frequency tables, graphs while Panel regression method was used to test the hypotheses. The findings revealed that improving company's focus on core activities, access to world-class capabilities, and helping companies to free resources and control operating costs are the major reasons why beverage producing companies in Ghana engage in logistics outsourcing. The study revealed that the major challenges of outsourcing transport logistics are loss of control, dissatisfied customers, leakage of confidential information, staff retrenchment, and high switching costs.

## **METHODOLOGY**

The positivist research philosophy and correlational research design were adopted in this study. The study population consisted of 30 registered food and beverage manufacturing firms in Rivers State (<https://www.directory.org.ng>). The study adopted the census sampling technique where all the members of the population were studied. The sampling unit consisted of branch managers, logistics managers, and operational managers of the 30 registered food and beverage manufacturing firms in Rivers State. A sample size of 90 managers of the above categories was drawn from the 30 registered food and beverage manufacturing firms in Rivers State at a ratio of 3 managers per company. A structured questionnaire was used as the main instrument for data collection. The instrument was validated using content validity method and its reliability was determined using Cronbach's Alpha method. A total of ninety (90) copies of the questionnaires were administered to the respondents by the researcher, and 76 copies were collected. The data collected from the respondents were tabulated, while the hypotheses were tested using Spearman's Rank Order Correlation Coefficient ( $\rho$ ). The  $\rho$  value was computed with the aid of SPSS version 26.0., and the results were interpreted.

## **RESULTS AND DISCUSSION**

The results of the analysis carried out on study variables are presented and interpreted in this section. The data collected on logistics outsourcing practices (transportation outsourcing and warehousing outsourcing) were correlated with those obtained on supply chain performance measures (on-time delivery and cost reduction) using the SPSS version 26 and the results were presented in the tables below:



**Table 1: Result of correlation analysis between transportation outsourcing and on-time delivery of food and beverage manufacturing firms**

|                |                            |                         | Transportation Outsourcing | On-Time Delivery |
|----------------|----------------------------|-------------------------|----------------------------|------------------|
| Spearman (rho) | Transportation Outsourcing | Correlation Coefficient | 1.000                      | .883**           |
|                |                            | Sig. (2- tailed)        | .                          | .001             |
|                |                            | N                       | 76                         | 76               |
|                | On-Time Delivery           | Correlation Coefficient | .883**                     | 1.000            |
|                |                            | Sig. (2- tailed)        | .001                       | .                |
|                |                            | N                       | 76                         | 76               |

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

\*Correlation is significant at 0.05 levels (2 tailed)

**Source:** SPSS-Generated Output

Table 1 indicates that transportation outsourcing has a very strong and positive correlation with on-time delivery of food and beverage manufacturing firms ( $\rho = .883^{**}$ ) and this correlation is significant at 0.01 level. Based on this result, the null hypothesis ( $H_{01}$ ) is rejected and the alternate hypothesis is accepted. This means that there is a significant relationship between transportation outsourcing and on-time delivery of food and beverage manufacturing firms in Rivers State.

**Table 2: Result of correlation analysis between transportation outsourcing and cost reduction of food and beverage manufacturing firms**

|                |                            |                         | Transportation Outsourcing | Cost Reduction |
|----------------|----------------------------|-------------------------|----------------------------|----------------|
| Spearman (rho) | Transportation Outsourcing | Correlation Coefficient | 1.000                      | .824**         |
|                |                            | Sig. (2- tailed)        | .                          | .001           |
|                |                            | N                       | 76                         | 76             |
|                | Cost Reduction             | Correlation Coefficient | .824**                     | 1.000          |
|                |                            | Sig. (2- tailed)        | .001                       | .              |
|                |                            | N                       | 76                         | 76             |

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

\*Correlation is significant at 0.05 levels (2 tailed)

**Source:** SPSS-Generated Output

Table 2 shows a strong and positive correlation between transportation outsourcing and cost reduction of food and beverage manufacturing firms ( $\rho = .824^{**}$ ) and this correlation is significant at 0.01 level. Consequently, the null hypothesis ( $H_{02}$ ) is rejected and the alternate hypothesis is accepted. This implies that we then accept that there is a significant relationship between transportation outsourcing and cost reduction of food and beverage manufacturing firms in Rivers State.



**Table 3: Result of correlation analysis between warehousing outsourcing and on-time delivery of food and beverage manufacturing firms**

|                |                         |                         | Warehousing Outsourcing | On-Time Delivery |
|----------------|-------------------------|-------------------------|-------------------------|------------------|
| Spearman (rho) | Warehousing Outsourcing | Correlation Coefficient | 1.000                   | .647**           |
|                |                         | Sig. (2- tailed)        | .                       | .001             |
|                |                         | N                       | 76                      | 76               |
|                | On-Time Delivery        | Correlation Coefficient | .647**                  | 1.000            |
|                |                         | Sig. (2- tailed)        | .001                    | .                |
|                |                         | N                       | 76                      | 76               |

\*\*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 warehousing outsourcing is strongly and positively correlated to on-time delivery of food and beverage manufacturing firms ( $\rho = .647^{**}$ ) and this correlation is significant at 0.01 level. As a result of this we then reject the null hypothesis ( $H_{03}$ ) and accept the alternate hypothesis, which states that there is a significant relationship between warehousing outsourcing and on-time delivery of food and beverage manufacturing firms in Rivers State.

**Table 4: Result of correlation analysis between warehousing outsourcing and cost reduction of food and beverage manufacturing firms**

|                |                         |                         | Warehousing Outsourcing | Cost Reduction |
|----------------|-------------------------|-------------------------|-------------------------|----------------|
| Spearman (rho) | Warehousing Outsourcing | Correlation Coefficient | 1.000                   | .754**         |
|                |                         | Sig. (2- tailed)        | .                       | .001           |
|                |                         | N                       | 76                      | 76             |
|                | Cost Reduction          | Correlation Coefficient | .754**                  | 1.000          |
|                |                         | Sig. (2- tailed)        | .001                    | .              |
|                |                         | N                       | 76                      | 76             |

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

\*Correlation is significant at 0.05 levels (2 tailed)

**Source:** SPSS-Generated Output

Table 4 indicates that warehousing outsourcing has a strong and positive correlation with cost reduction of food and beverage manufacturing firms ( $\rho = .754^{**}$ ) and this correlation is significant at 0.01 level. Based on this result, the null hypothesis ( $H_{04}$ ) is rejected and the alternate hypothesis is accepted. This means that there is a significant relationship between warehousing outsourcing and cost reduction of food and beverage manufacturing firms in Rivers State.



## DISCUSSION OF FINDINGS

This study discovered a significant relationship between transportation outsourcing and on-time delivery of food and beverage manufacturing firms in Rivers State. This finding was obtained from the result of the analysis carried out on the two variables in Table 1. The result revealed that transportation outsourcing has a very strong and positive correlation with on-time delivery of food and beverage manufacturing firms ( $\rho = .883^{**}$ ), and this correlation is significant at 0.01 level. Based on this result, the null hypothesis ( $H_{01}$ ) was rejected and the alternate hypothesis was accepted. This means that there is a significant relationship between transportation outsourcing and on-time delivery of food and beverage manufacturing firms in Rivers State. This finding is in line with the findings of Kalinzi (2016) and Belhu (2019), which revealed that transportation outsourcing has a significant influence on the supply chain performance of companies.

This study also reported a significant relationship between transportation outsourcing and cost reduction of food and beverage manufacturing firms in Rivers State. This finding was deduced from the result of the analysis carried out on the two variables in Table 2. The result showed a strong and positive correlation between transportation outsourcing and cost reduction of food and beverage manufacturing firms ( $\rho = .824^{**}$ ) and this correlation is significant at 0.01 level. Consequently, the null hypothesis ( $H_{02}$ ) was rejected and the alternate hypothesis was accepted. This implies that we then accepted that there is a significant relationship between transportation outsourcing and cost reduction of food and beverage manufacturing firms in Rivers State. This finding is supported by Mills and Opoku-Akyea (2019) and Linda and Mwaura (2020) as both studies revealed that firms that outsource their transportation activities to third-party firms are more likely to reduce their supply chain costs and improve their supply chain performance.

This study equally found a significant relationship between warehousing outsourcing and on-time delivery of food and beverage manufacturing firms in Rivers State. This finding was derived from the result of the analysis carried out on the two variables in Table 3. The result revealed that warehousing outsourcing is strongly and positively correlated to on-time delivery of food and beverage manufacturing firms ( $\rho = .647^{**}$ ) and this correlation is significant at 0.01 level. As a result of this we then rejected the null hypothesis ( $H_{03}$ ) and accepted the alternate hypothesis which states that there is a significant relationship between warehousing outsourcing and on-time delivery of food and beverage manufacturing firms in Rivers State. This finding is consistent with the research conducted by Njagi (2017) and Belhu (2019), as both studies revealed that outsourcing warehousing enables firms to deliver goods to customer on-time.

Finally, it was revealed that warehousing outsourcing has a significant relationship with cost reduction of food and beverage manufacturing firms in Rivers State. This finding was obtained from the result of the analysis carried out on the two variables in Table 4. The result revealed that warehousing outsourcing has a strong and positive correlation with cost reduction of food and beverage manufacturing firms ( $\rho = .754^{**}$ ), and this correlation is significant at 0.01 level. Based on this result, the null hypothesis ( $H_{04}$ ) was rejected and the alternate hypothesis was accepted. This means that there is a significant relationship between warehousing outsourcing and cost reduction of food and beverage manufacturing firms in Rivers State. This



finding is supported by Muiruri and Iravo (2015) and Joto and Odock (2019), as both studies revealed that outsourcing warehousing helps to reduce supply chain costs of firms.

## CONCLUSIONS

Considering the high costs of operating businesses in Nigeria, the rigid nature of the supply chain as well as the frequent delays in the arrival of goods and services at their destination, it becomes imperative for food and beverage manufacturing firms to improve their supply chain performance so as to remain in business. This can be done by outsourcing their logistics functions such as transportation and warehousing operations to third-party firms that are well-equipped to execute logistics services. The empirical results of this study clearly showed that transportation outsourcing has a significant relationship with on-time delivery and cost reduction of food and beverage manufacturing firms in Rivers State. Warehousing outsourcing was also found to have a significant relationship with on-time delivery and cost reduction of food and beverage manufacturing firms in Rivers State. Based on these findings, it is concluded that logistics outsourcing practices have a significant impact on supply chain performance of food and beverage manufacturing firms in Rivers State, Nigeria.

## RECOMMENDATIONS

Based on the findings and conclusions, the following recommendations are made:

1. That, food and beverage manufacturing firms in Nigeria particularly those that are experiencing poor supply chain performance should outsource their logistics functions to third-party firms that are well-equipped to execute logistics functions as this would surely improve their supply chain performance.
2. That, food and beverage manufacturing firms in Nigeria that often experience delays in getting their goods and services to their destination should outsource their transportation and distribution operations to third-party firms that are capable of executing these logistics functions, as this would ensure on-time delivery of goods and services.
3. That, food and beverage manufacturing firms in Nigeria particularly those that are experiencing high costs of running their warehousing operations in the country should outsource their warehousing operations to a third-party firm as this would help to reduce their operating costs and improve their supply chain performance.
4. That, food and beverage manufacturing firms in Nigeria should outsource part or all their logistics operations to third-party firms that are specialize in carrying out logistics operations as this would enable them to focus on their core manufacturing activities and improve their supply chain efficiency and competitiveness.
5. Finally, it is recommended that food and beverage manufacturing firms in Nigeria should subcontract their logistics functions to other competent firms as this would add



value to their own operations, differentiate their supply chain services from competitors' own, and improve their supply chain performance.

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