

TRANSPORTATION MANAGEMENT AND LOGISTICS PERFORMANCE OF FOOD AND BEVERAGE FIRMS IN RIVERS STATE, NIGERIA

JOEL Emmanuel Monday

Department of Marketing, Faculty of Administration and Management

Rivers State University Nkpolu-Oroworukwo, Port Harcourt

emmanueljoel2191@gmail.com

NADUBE Paul M.

Department of Marketing, Faculty of Administration and Management

Rivers State University Nkpolu-Oroworukwo, Port Harcourt

paul.nadube@ust.edu.ng

Abstract

This study examined the transportation management and logistics performance of food and beverage firms in Rivers State, Nigeria. This study adopted a descriptive survey design. The population of the study comprised 17 registered food and beverages firms in Rivers State. The entire population was surveyed. However, 3 copies of questionnaire were given to 3 managers (procurement manager, business manager and logistics manager) of each firm, making a total of 51 respondents. Pearson Product Moment Correlation was used to determine the relationship between transportation management and measures logistics performance (on-time-delivery, inventory turn-over and order accuracy) with the aid of statistical package for social science (SPSS) version 26.0. The study found that transportation management has strong positive and statistically significant correlation with logistics performance. The study concludes that improved logistics performance of food and beverage firms in Rivers State depend adroit transportation management; and recommends that food and beverage firms in Rivers State that seek enhanced logistics performance should engage in effective transportation management practices and leverage technology to achieve faster order delivery time, facilitate inventory turn-over and improve order accuracy.

Keywords: Logistics performance, on-time-delivery, inventory turn-over, order accuracy, transportation management

Introduction

The food and beverage industry is a diverse one with a wide range of sub-sectors, including flour and grain; soft drinks and carbonated water; breweries; starch and miscellaneous food products; meat, poultry and fish; tea, coffee and other beverages; fruit juices; sugar; distilleries and breweries; cocoa, chocolates and sugar confectioneries; agricultural and food chemicals and industrial packaging (Ojo, 2019). The industry plays a pivotal role in economic development, job creation, and food security, especially in emerging economies like Nigeria.

As consumer demand increase for freshness, variety, and availability, the importance of effective logistics in the industry has intensified (Christopher, 2016). The core of logistics is transportation - the mechanisms by which products are delivered to retailers or consumers. Transportation is crucial to achieving logistics objectives, including timely delivery, reduced operational costs, inventory accuracy, and customer satisfaction (Christopher, 2016).

In the competitive landscape of Nigeria's F&B sector, firms face numerous challenges, such as poor road infrastructure, unreliable power supply, and fluctuating fuel prices, all of which directly impact distribution efficiency. As such, firms must adopt tailored transportation management to ensure that products reach their destinations in optimal condition and at minimal cost (Rushton et al., 2017).

Moreover, as the industry becomes more integrated into global and regional trade networks, firms must balance cost efficiency with service quality, particularly in densely populated urban centers like Lagos, Port Harcourt, and Kano. Yet, studies have shown that many Nigerian F&B firms still grapple with ineffective logistics planning and fragmented distribution networks (Adeleke & Olajide, 2020) often result in delivery delays; and underscore the critical role of transportation management in enhancing logistics performance indicators like delivery timeliness, product quality, and customer satisfaction (Christopher, 2016).

Yet, there is limited research that examine the extent to which transportation management influence logistics performance or identify key challenges and propose actionable solutions to logistics efficiency, customer satisfaction, and profitability in Nigeria's F&B industry. Therefore, this study sought to investigate the interplay between transportation management and logistics performance of F&B firms in Rivers State. The specific objectives of the study were to examine the correlation between transportation management and measures of logistics performance (on-time delivery, inventory turnover and order accuracy) among food and beverage firms in Rivers State, Nigeria.

The following null hypotheses were formulated to guide the study, and tested to address the objectives specified.

- Ho₁: There is no significant relationship between transportation management and on-time delivery of food and beverage firms in Rivers State, Nigeria.
- Ho₂: There is no significant relationship between transportation management and inventory turnover of food and beverage firms in Rivers State, Nigeria.
- Ho₃: There is no significant relationship between transportation management and order accuracy of food and beverage firms in Rivers State, Nigeria.

Theoretical Foundation of the Study

This study is anchored on Resource-Based View (RBV), introduced by Barney (1991). RBV argue that firms can achieve sustainable competitive advantage and superior performance by leveraging unique internal resources and capabilities. Within logistics and physical distribution, RBV emphasizes that organizations which effectively utilize valuable, rare, inimitable, and non-substitutable (VRIN) resources such as advanced supply chain technologies, modern transportation fleets, and efficient warehousing systems are better positioned to enhance logistics performance. Resources like innovative inventory tracking systems, skilled logistics professionals, and integrated supply chain networks allow firms to optimize transportation, reduce delivery times, and minimize operational costs, ultimately improving efficiency.

Transportation Management

Effective physical distribution - the movement, storage, and handling of finished goods from the point of production to the final consumer - depends on astute transportation management. Transportation management is the key component of supply chain management that directly impact customer satisfaction, operational efficiency, and cost management (Richards, 2017). Effective transportation management ensures timely and cost-effective delivery (Kotler & Keller, 2016). While primary goal of physical distribution is to align logistics operations with market needs, transportation management ensures that products are available in the right quantity, at the right place, and at the right time (Kotler & Keller, 2016).

Transportation management a vital aspect of physical distribution, as it focuses on moving goods from producers to final consumers. These well-designed transportation management

ensure timely deliveries, optimizes costs, and enhance customer satisfaction, thereby improving operational efficiency and creating competitive advantages in the marketplace (Christopher, 2016). Transportation management is thus a core function in physical distribution that enable efficient movement of goods, materials, and products from one location to another.

Effective transportation management however, involves planning, execution, and optimization of logistics processes to achieve timely delivery, cost-efficiency, and customer satisfaction (Chopra & Meindl, 2019). The importance of transportation management has increased with globalization, technological advancements, and rising customer expectations for faster and reliable deliveries. As transportation accounts for a significant portion of logistics costs, effective management is crucial for ensuring competitive advantage and supply chain sustainability (Christopher, 2016).

Logistics Performance

Logistics performance refers to the efficiency and effectiveness of the processes involved in the management of the flow of goods, services, and related information from the points of origin to points of consumption. It refers to how well an organization manages the flow of goods, services, information, and resources from the point of origin to the final customer. Logistics performance is a critical determinant of supply chain success, impacting customer satisfaction, operational costs, and organizational competitiveness (Christopher, 2016).

Logistics performance is also a critical measure of efficiency, effectiveness, and competitiveness of a firm's logistics operations. Logistics performance manifests in customer satisfaction, cost optimization, and contributes to a company's overall strategic objectives. The measurement and management of logistics performance are essential in a globalized and highly competitive business environment (Christopher, 2016).

Logistics performance is a complex idea, and may be decomposed into on-time delivery, inventory turn-over and order accuracy. On-time delivery refers to a company's capability to meet customer orders within the agreed timeframe, ensuring that goods or services arrive at their destination without delay. It is a critical performance indicator in distribution management, with a direct impact on customer satisfaction, operational efficiency, and competitiveness (Gunasekaran et al., 2001). Timely delivery is essential for sustaining customer trust and loyalty, as delays may result in lost sales, reputational damage, or additional costs from expedited shipping and penalties (Chopra & Meindl, 2019).

Inventory turnover is a logistics performance measure that assesses the frequency with which a firm sells and replenished its stock of goods within a specified time horizon. Inventory turnover is usually calibrated by dividing the cost of goods sold by the average inventory. The ratio obtained indicates if a firm is managing its inventory efficiently. High turnover suggest strong sales and effective inventory management, while low turnover might be a sign of weak demand or overstocking. Inventory turnover is crucial for businesses because it impacts cash flow, profitability, and overall operational efficiency. High inventory turnover ratio is associated with increased sales revenue, reduced storage costs, and minimized risk of inventory obsolescence. On the other hand, low inventory turnover ratio tie-up capital, increase holding costs, and may lead to losses stemming from inventory obsolescence or deterioration.

Order accuracy on the other hand, is a logistics performance index that gauge the extent to which a firm fulfills orders correctly, ensuring customers receive the right products, in the right

quantities, and on time. Order accuracy is determined by comparing number of accurate orders and total number of orders processed in a given timeframe. High order accuracy is essential to logistics performance and business success because it builds trust and customer loyalty. Achieving 96-98% order accuracy is good, but it is better to strive to achieve 99% or more. However, this will require firms to implement strategies like integrating fulfillment systems, rigorous quality control, and leveraging technology.

Methodology

This study adopted descriptive survey design with a correlational method of investigation. This design is necessary since the study seeks to examine the connection between transportation management and logistics performance in food and beverage firms in Rivers State, Nigeria. The population the study comprised 17 registered food and beverages firms in Rivers State. The study took a census. However, three copies questionnaire are given to three managers (procurement manager, marketing manager and logistics manager) of each firm, making a total of fifty-one (51) respondents. The Person Product Moment Correlation was used to test the relationship between transportation management and measures logistics performance. Each test was based on the criterion of 0.005 for level of analysis given the adopted confidence interval of 95%. The statistics package for social science (SPSS, V25) was utilized in the analysis of the study.

Data Analysis and Results

Table 1: Correlation on transportation management and on-time delivery

		Correlations	
		Transportation Management	On-Time Delivery
Transportation Management	Pearson Correlation	1	.719**
	Sig. (2-tailed)		.000
	N	50	210
On-Time Delivery	Pearson Correlation	.719**	1
	Sig. (2-tailed)	.000	
	N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Table 1 shows the correlation analysis of the extent and direction of relationship between transportation management and on-time delivery. It showed a correlation coefficient of .719** and probability value of 0.00, which is less than 0.05 level of significance. .719 is a very high correlation value and indicates a strong relationship between transportation management and on-time delivery. Also, the correlation coefficient is positive which indicates that improvement in on-time delivery is associated with increase in transportation management. Thus the researcher concludes that there is a strong relationship between transportation management and on-time delivery of food and beverages firms in Rivers State, Nigeria.

Table 2: Correlation Analysis on transportation management and inventory turnover

		Correlations	
		Transportation Management	Inventory Turnover
Transportation Management	Pearson Correlation	1	.856**
	Sig. (2-tailed)		.000
	N	50	50
Inventory Turnover	Pearson Correlation	.856**	1
	Sig. (2-tailed)	.000	
	N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2 shows the correlation analysis on the extent and direction of the relationship between transportation management and inventory turnover. The Table showed a correlation coefficient of 0.856** with a corresponding probability value of 0.000. This shows that there is a strong positive significant relationship between transportation management and inventory turnover. The result showed that the probability/significant value is 0.000, < 0.05 level of significance hence the researcher rejects the null hypothesis and conclude that there is significant relationship between transportation management and inventory turnover of food and beverage in Rivers State, Nigeria.

Table 3: Correlation analysis on transportation management and Order accuracy

		Correlations	
		Transportation Management	Order Accuracy
Transportation Management	Pearson Correlation	1	.901**
	Sig. (2-tailed)		.011
	N	50	50
Order Accuracy	Pearson Correlation	.901**	1
	Sig. (2-tailed)	.011	
	N	50	50

**. Correlation is significant at the 0.05 level (2-tailed).

Table 3 delineates the correlation analysis exploring the nexus between transportation management and order accuracy. The matrix rendered a Pearson's correlation coefficient (r) of 0.901**, accompanied by a p-value of 0.011. This statistical output underscores a pronounced relationship between transportation management and order accuracy. Given that the p-value is manifestly below the 0.05 alpha levels of significances, the null hypothesis is subsequently repudiated. Consequently, the study concludes that there is a very strong positive relationship between transportation management and order accuracy of food and beverages firms in Rivers State, Nigeria.

Conclusion and Recommendations

This study examined the relationship between transportation management and logistics performance of Food and Beverage firms in Rivers State, Nigeria. Findings showed that transport management significantly impact logistics performance of food and beverage companies. This suggests that improvements in logistics performance can be achieved through adroit transportation management. These findings amplify the conviction that astute transportation management drive logistics performance by reducing freight costs, improving shipment tracking, and optimizing vehicle routing and scheduling.

Thus, the study concludes that logistics performance of food and beverage firms in Rivers State, Nigeria depends on frugal transportation management. Transportation management enable food and beverage firms in Rivers State achieve superior logistics performance and maintain competitiveness. Effective transportation management not only enhance logistics performance but also reinforces operational and financial sustainability of food and beverage firms in Rivers State. Consequently, the study recommends that food and beverage firms in Rivers State that seek improved logistics performance should adopt cogent transportation management practices, and leverage technology to improve delivery speed, enhance inventory turn-over and improve order accuracy.

References

Bartholdi, J. J., & Hackman, S. T. (2016). *Warehouse & distribution science*. Release 0.95. Georgia Institute of Technology.

Bertalanffy, L. V. (1968). *General System Theory: foundations, development, applications*. Braziller.

Bowersox, D. J., Closs, D. J., Cooper, M. B., & Bowersox, J. C. (2013). *Supply chain logistics management*. McGraw-Hill Education.

Carter, C. R., & Rogers, D. S. (2008). A framework of sustainable supply chain management: moving toward new theory. *International Journal of Physical Distribution & Logistics Management*, 38(5), 360-387.

Chopra, S., & Meindl, P. (2019). *Supply chain management: Strategy, planning, and operation (7th edition)*. Pearson Education.

Christopher, M. (2016). *Logistics and supply chain management*. Pearson Education.

Edim E. J., Inyang B. I. (2022). Logistics management and marketing performance of small and medium-sized manufacturing firms. *International Journal of entrepreneurship and business innovation*, 5(1), 1-15. <https://www.doi.org/10.52589/ijebi-d1d3kf26>

Ejike, I. K. (2019). Impact of physical distribution on market Performance of cement producing firms in Nigeria: A study of Dangote cements company Calabar. *Emerald International Journal of Scientific and Contemporary Studies*, 1(1), 1-11.

Gill, A., Biger, N., & Mathur, N. (2010). The relationship between working capital management and profitability: Evidence from the United States. *Business and Economics Journal*.

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic management Journal*, 17(S2), 109-122.

Harris, F. W. (1913). How Many Parts to Make at Once. *Operations Research*, 38(6), 947–950.

Heizer, J., & Render, B. (2017). *Operations management: Sustainability and supply chain management (12th edition)*. Pearson Education.

Keller, D. (2015). *Managing inventory: The complete guide to inventory management and optimization*. Wiley.

Kumar, R., Singh, R., & Jain, S. (2020). *Sustainability in transportation and logistics*. Springer.

Mentzer, J. T., & Konrad, B. P. (1991). An efficiency/effectiveness approach to logistics performance analysis. *Journal of business logistics*, 12(1), 33-61.

Mentzer, J. T., & Williams, L. R. (2001). The role of logistics leverage in marketing strategy. *Journal of marketing channels*, 8(1/2), 29-47.

Pyzdek, T., & Keller, P. (2018). *The six sigma handbook: A complete guide for green belts, black belts, and managers at all levels (5th edition)*. McGraw-Hill Education.

Richards, G. (2017). *Warehouse management: a complete guide to improving efficiency and minimizing costs in the modern warehouse (3rd edition)*. Kogan Page Publishers.

Rushton, A., Croucher, P., & Baker, P. (2017). *The Handbook of logistics and distribution management (6th edition)*. Kogan Page Publishers.

Williamson, O. E. (1985). *The economic institutions of capitalism*. The Free Press.

Womack, J. P., & Jones, D. T. (2003). *Lean thinking: Banish waste and create wealth in your corporation*. Free Press.