



# Evaluation of Logistics Management and Survival of Small Scale Enterprises: A Panacea for Structural Transformation of Nigeria in Post Covid-19 Future

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## ABSTRACT

*This study focused on the influence of physical distribution management on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. The specific objectives of the study were to examine the effect of transportation, warehousing and inventory management on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. The study adopted survey research design. Data used in this study were collected through primary source. The population of the study consists of 92 small scale enterprises outlets in Ado-Ekiti metropolis, Ekiti State in Nigeria. These respondents were used due to their experience in business enterprise. The study utilized convenience sampling technique to select sample of 92 respondents for the study. 5-point likert scale option of structured questionnaire was used in the study to obtain respondents response. Content validity was used to determine the validity of the instrument by giving to research experts who modified and made the necessary correction to measure the instrument. Simple linear regression analysis was used to test the hypotheses. Three hypotheses were tested in line with the objectives of the study and it was revealed that transportation, warehousing and inventory management have significant effect on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. The study recommends as follows: stakeholder in government should encourage small scale enterprises by constructing or renovating roads for easy access of goods to the needed area; appropriate mode of transportation should be provided by government at affordable rate for smooth flow of product in post Covid-19 future and a standard warehouse should be provided to accommodate and encourage inventory management of stock for survival of small scale enterprises in post Covid-19 future.*

**Keywords:** *Physical Distribution Management, Small Scale Enterprise, Transformation, Post Covid 19 future*

## Introduction

In the business environment, small scale enterprise plays a vital role in the society. Due to its value, there must be free flow of product to meet the desire of consumers. During Covid-19 period many small scale business suffer from shortage of supply of the needed products but with the aid of physical distribution management their business strive at the optimum level at that era. Appropriate physical distribution management must be provided for products to meet and satisfy the need of the society at all the time such as transportation, warehousing, inventory management, material handlings and order processing. These components of physical distribution can assist small scale enterprises to survive post Covid 19 future.

Small and Medium Scale Enterprises are essential factors for national objective in terms of employment, development of entrepreneurial capability and indigenous technology. Small scale enterprises also minimize the migration of people from rural to urban areas. They also contribute to the country's gross domestic product and development of the nation. The Small scale enterprises are important factors in most economies especially in developing countries (Nwankwo, Ewuim & Asoanya, 2012). Small scale enterprises are quasi spouse for urban employment and providers of inexpensive consumer goods with little or no import content, serving an important pressure releasing and welfare-augmenting function (Soninem, Martikinen, Puumalainen & Kyläheiko, 2011). Considering the proven economic and social benefit of small scale enterprises to Nigeria and Southeast in particular, it must be protected in order to survive in the business environment. Emmanuel, Awolusi, and Ibojo, (2013) suggests that every organization should see survival (longevity and profitability growth) as absolute prerequisites for serving any interest. Therefore, there appears to be correlation between the degree of physical distribution management and survival of Small scale enterprises in an economy. Due to this fact, it is the desire of every nation like Nigeria to create favourable atmosphere for food security through logistics (physical distribution) to enhance standard of living of its citizenry and economic development. Physical distribution is part of business management and has six major functions: transportation, storage and deposit, assembling and processing, material handling, packaging and wrapping, and information chain (Hernández, Garcia, & Hernández, 2012). Council of Logistics Management (CLM) defines physical distribution management as "the systemic, strategic coordination of the traditional business functions and tactics across these businesses functions within a particular organization and across businesses within the supply chain for the purposes of improving the long-term performance of the individual organizations and the supply chain as a whole". Nwokoye as cited in Obun (2012) defined physical distribution as a set of activities including order processing material handling, inventory management, warehousing and transportation used in the movement of products to consumers as the end users. An effective and efficient physical distribution system should be in place to deliver the right quantity of goods at the right place and time with the right support services to the customers.

Physical distribution facilities, such as terminal, distribution centre, warehouse, and so on. Beside, enterprise logistics is centred in searching and achieving the best present, future satisfaction of the final customer and includes the socio-environmental and ethic-legal aspects, the planning, execution and control of all related activities with the procurement, flow, warehousing and maintenance of materials, products and even services; from the raw material source, including customer through inverse logistics, to the sale point of the finished product whether local or international, in effective and efficient manner, maximizing performance and the expected quality, while minimizing waste, time and cost using modern information technologies (Hernández, *et al.*, 2012; Uzel, 2018).

### **Objectives of the study**

- i) To examine the effect of transportation on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future.
- ii) To examine the effect of warehousing on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future.
- iii) To examine the effect of inventory management on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future.

### **Conceptual Review**

#### **Meaning of physical distribution**

Alan, John, and Phil (2010) posit that physical distribution activities includes storage, warehousing and materials handling; transport inventory; information and control; packaging and unitization; location of warehouses number and size of distribution depots type of storage materials handling equipment; unit load protective packaging handling.

Xing and Grant (2006) declared, Physical distribution deals with finished products and is considered as a part of a firm's out bound logistics that incorporates a relationship between the firm and its customers.

Rushton, Croucher, and Baker (2010) Physical distribution or logistics is concerned with physical and information flows and storage from raw material through to the final distribution of the finished product.

The physical distribution systems say that all transporting, storing and product handling activities of a business and a whole channel system should be coordinated as one system that seeks to minimize the total cost of distribution for a given customer service level (Perreault, Cannon & McCarthy 2010).

### **Physical distribution service with dimensions and indicators of each dimension**

The dimensions and indicator of Physical distribution service are:

**Product availability:** Availability is the proportion of units, order lines, or orders completely filled. Goods that are unavailable must either be backordered, causing time delays and extra costs, or the order is simply cancelled by the customer. Notably, the availability benefit is provided whenever the customer is not required to wait an abnormal length of time, or to place the order again. Thus, an order directed to a location that is stocked out, if filled in timely fashion from another location, does not produce a reduced availability level from the customer's perspective. From the retail perspective, availability is provided if the product is on the shelf for purchase when the customer arrives at the shelf to obtain it (Mentzer, Gomes, & Krapfe as cited in Gligor, 2015).

**Physical distribution service timeliness:** Timeliness is the order cycle time performance of the entire distribution system linking buyers and sellers. For the buyer, it is the time elapsed between placing and receiving an order. Timeliness encompasses the duration of one order cycle for a single customer as well as central tendency and variability across multiple order cycles for one or more customers (Mentzer et al as cited in Gligor, 2015). It is measured by its indicators, namely: (a) mean order cycle time, (b) standard deviation of order cycle time, and (c) percent units received in specified time period.

**Physical distribution service quality:** Mentzer et al as cited in Gligor, (2015) stated that the quality of physical distribution service depends on the incidence of in-transit damage, shipment of incorrect items, and incorrect shipment quantity. Quality is the most heterogeneous of the constructs, yet it remains a distinct area of customer benefit, clearly within the PDS domain. Physical distribution service quality is the "form and composition of the delivery order" (Beinstock et al as cited in Gligor, 2015). It is about the accuracy and quality of the order.

**Physical distribution service flexibility:** is the ability of the firm to rapidly and effectively adjust inventory, packaging, warehousing and transportation of the physical products in respond to customer requirements (Lambert et al. as cited in Gligor, 2015). Supplier flexibility should affect the link between customer service and customer satisfaction. The extent to which a firm will adapt to a customer's needs may be characterized as flexibility (Buffa as cited in Gligor, 2015). Providing Flexibility offers the firm an opportunity to meet or exceed the customer's expectations, thereby resulting in customer satisfaction. It is measured by its indicators, namely: (a) flexible order policies (b) expedite and substitute capacity, and (c) timely response to unexpected needs of customers. This fourth dimension is not shown in the figure, but it is being considered as critically important in modern physical distribution service

### **Components of Physical Distribution**

#### **Transportation**

Transportation in one form or the other is a basic and essential requirement of daily human activities as no human activities (including agriculture) can take place without its services (Ademiluyi, 2006; Rodrigue, Comtos, & Black, 2006). While freight transportation plays a crucial role in the smooth running of any economy in which road sector dominates, agricultural practices usually produce freight which in turns translates into wealth for the national economy including developed and developing ones (Ojekunle, 2004; Rodrigue, Comtos & Black, 2006 ).

Transportation logistics services are important activities which assist in national and global distribution (Kee-Hung *et al.*, as cited in Ibrahim, Shehu & Abubakar, 2014). It enables materials and goods to be moved from a location where they are in excess or surplus to a location where there is demand or shortage or non-existent (Ballou as cited in Ibrahim, Shehu & Abubakar, 2014). It also provide services which link manufacturers to markets and enable individuals to access employment, goods, services and social opportunities. Different modes of transport are used in the transfer of passenger, agricultural commodities and manufactured goods from places of supply or production to areas of scarcity or consumption which are found in different regions in Nigeria (Bamaiyi, 2011; Musa, 2008).

### **Warehousing**

Warehousing is basically a function of storing goods in between the time they are manufactured and the time they are delivered to the customer. Philip and Smoth (2014) said that in practice, the goods are produced in long production runs and they are transported to in large lots to the storage areas or warehouses closer to the market. Storage is the basic function of warehousing as highlighted by Smritiri (2015). Surplus commodities which are not needed immediately can be stored (keep it) in warehouse. They can be supplied as and when needed by the customers. Warehousing refers to the holding and preservation of goods until they are dispatched to the consumers. Generally, there is a time gap between the production and consumption of products which is the gap that brought the marketer into business. By bridging this gap, storage creates time utility (Salo & Coe, 2000).

### **Inventory management System**

Inventory management System is the process of managing inventory in order to meet customer demand at the lowest possible cost and with a minimum of investment, Byoungho (2004). A successfully implemented inventory control program takes into account such things as purchasing goods commensurate with demand, seasonal variation, changing usage patterns, and monitoring for pilferage (Ellram as cited in Fred, 2018). A preliminary step in the process of inventory management is to determine the approximate costs of carrying inventory. According to Langabeer and Stoughton (2001), these costs include such expenses as storage costs, inventory risks, and the loss-of-opportunity costs associated with tying up capital. Wanke and Zinn (2004) states that inventory management approaches are a “function of product, operational and demand related variables such as delivery time, obsolescence, coefficient of variation of sales and inventory turnover” and that logistics managers are more likely to decentralize inventory in order to stock product close to the customer's facility if the customers demand a reduced delivery time. Graman and Magazine (2006), argued that today, the cost of holding inventory, extensive product proliferation and the risk of obsolescence, especially in rapidly changing markets, make the expense of holding large inventories of finished goods excessive and that high demand items naturally have safety stock assigned to them, but in many organizations there are so many very-low-demand items that keeping any stock of these items is unreasonably expensive, so they argue that companies must now provide good service while maintaining minimal inventories. Therefore, inventory management approaches are important aspects of any business organization.

### **Methodology**

The study adopted survey research design. Data used in this study were collected through primary source. The population of the study consists of 92 small scale enterprises outlets in Ado-Ekiti metropolis, Ekiti State in Nigeria. These respondents were used due to their experience in business enterprise. The study utilized convenience sampling technique to select sample of 92 respondents for the study. 5-point likert scale option of structured questionnaire was used in the study to obtain respondents response. Content validity was used to determine the validity of the instrument by giving to research experts who modified and made the necessary correction to measure the instrument. The value of the test of reliability is 0.87 which was conducted using test-retest reliability method which indicated that there is internal consistency of the instrument. Simple linear regression statistical tool was used to test the hypothesis through Statistical Package for Social Sciences (SPSS) version 20.

**Hypothesis One**

**Ho:** Transportation has no significant effect on food security and economic development in North central Nigeria

**Table 1**  
**Regression Model Summary for H1**

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
H1	.738 <sup>a</sup>	.545	.543		.20858

a. Predictors: (Constant), Transportation

b. Dependent Variable: Survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future.

**Source:** SPSS Version 20

Table 1 shows the regression analysis result which established the relationship between transportation as proxy of logistics and survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. The result revealed that transportation as proxy of logistics has significant effect on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. The result considered that transportation can be used to predict survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future; it means that if transportation is increasing survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future, may also improve. Depending on the R Square value of (0.545), transportation could explain 54.5% variation in survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future.

**Table 2**  
**ANOVA for H1**

Model		Sum of Squares	Df	Mean Square	F	Sig.
H1	Regression	16.553	1	16.553	380.475	.000 <sup>b</sup>
	Residual	13.835	318	.044		
	Total	30.388	319			

a. Dependent Variable: Survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future..

b. Predictors: (Constant): Transportation

**Source:** SPSS Version 20

**Decision Rule**

According to Table 2, the analysis of variance (ANOVA) calculated F test was 380.475 and an associated significance p value of 0.000 (p value < 0.05) was significant, thus results indicate support for the first hypothesis. We reject null hypothesis and accept the alternative hypothesis which state that transportation as proxy of logistics has significant effect on Survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. The implication was that the simple linear regression was a good fit for the data.

**Hypothesis Two**

**Ho:** Warehousing has no significant effect on Survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future.

**Table 3**  
**Regression Model Summary for H2**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
<b>H2</b>	.733 <sup>a</sup>	.537	.536	39.03872

a. Predictors: (Constant), Warehouse b. Dependent Variable: Survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future...

**Source:** SPSS Version 20

Table 3 shows the regression analysis result which established the relationship between warehousing as proxy of logistics and survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. The result revealed that warehousing as proxy of logistics has significant effect on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. The result considered that warehousing can be used to predict survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future; it means that if warehousing is increasing survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future, may also improve. Depending on the R Square value of (0.537), warehouse could explain 53.7% variation in survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future.

**Table 4**  
**ANOVA for H2**

Model		Sum of Squares	Df	Mean Square	F	Sig.
<b>H2</b>	<b>Regression</b>	562084.601	1	562084.601	368.817	.000 <sup>b</sup>
	<b>Residual</b>	484638.887	318	1524.022		
	<b>Total</b>	1046723.487	319			

a. Dependent Variable: Survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future.

b. Predictors: (Constant): warehouse

**Source:** SPSS Version 20

### Decision Rule

According to Table 4, the analysis of variance (ANOVA) calculated F was 368.817 and an associated significance p value of 0.000 (p value < 0.05) was significant, thus results indicate support for the second hypothesis. We reject null hypothesis and accept the alternative hypothesis which state that warehousing as proxy of logistics has significant effect on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. The implication was that the simple linear regression was a good fit for the data.

**Hypothesis Three**

**Ho:** Inventory management has no significant effect on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future.

**Table 5**  
**Regression Model Summary for H3**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
<b>H3</b>	.699 <sup>a</sup>	.488	.486	42.71752

a. Predictors: (Constant), Inventory management b. Dependent Variable: Survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future.

**Source:** SPSS Version 20

Table 5 shows the regression analysis result which established the relationship between inventory management as proxy of logistics and survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. The result revealed that inventory management as proxy of logistics has significant effect on food survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. The result considered that inventory management can be used to predict survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future; it means that if inventory management is increasing survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future, may also improve. Depending on the R Square value of (0.488), inventory management could explain 48.8% variation in survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future.

**Table 6**  
**ANOVA for H3**

Model		Sum of Squares	Df	Mean Square	F	Sig.
<b>H3</b>	<b>Regression</b>	558438.294	1	558438.294	306.029	.000 <sup>b</sup>
	<b>Residual</b>	585756.443	321	1824.786		
	<b>Total</b>	1144194.737	322			

a. Dependent Variable:: Survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future.

b. Predictors: (Constant): Inventory management

**Source:** SPSS Version 20

**Decision Rule**

According to Table 6, the analysis of variance (ANOVA) calculated F 306.029 and an associated significance p value of 0.000 (p value < 0.05) was significant, thus results indicate support for the third hypothesis. We reject null hypothesis and accept the alternative hypothesis which state that inventory management as proxy of logistics has significant effect on food survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future The implication was that the simple linear regression was a good fit for the data.

**Discussion of findings**

The research hypothesis tests one revealed that transportation has significant effect on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. Gebresenbet and Oodally, (2005) affirmed that rural transport planning must address the needs of people, as much

as possible at the household level. Such well planned transport system enables smallholders make the transition from subsistence to small-scale commercial farming. This helps them to harvest and market crops more efficiently, reduces drudgery and, by facilitating communication, helps stimulate social integration and improve quality of life. Availability of road infrastructure (that includes feeder roads, tracks, and paths), storage facilities and transport services increases mobility and encourages production (Gebresenbet & Oodally, 2005).

The research hypothesis tests two revealed that warehousing has significant effect on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. Uwaoma, Esi-Ubani and Emeh (2018) affirmed that at the marketing level, warehouse help to balance the supply and demand of products, thereby stabilizing market prices at the Industrial level. It guarantee regular and continuous supplies of raw-materials for processing industries. There is need for storing the goods so as to make them available to buyers as and when required.

The research hypothesis tests three revealed that inventory management has significant effect on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. Okeudo (2013) affirmed that inventory management is a critical area of physical distribution management because stock levels have a direct effect on levels of service and customer satisfaction. The optimum stock level is a function of the type of market in which the firm operates.

### **Conclusion**

From the findings, it was revealed that transportation, warehousing and inventory control as proxy of logistics has significant effect on survival of small scale enterprises towards structural transformation of Nigeria in post Covid-19 future. Physical distribution management is the marketing activity responsible for the flow of materials from suppliers into an organization, through operations within the organization, and then out to customers. Because Physical distribution is the process of observing the circulation of goods in and out the organization, its main objective gears towards fulfilling customer satisfaction.

### **Recommendations**

- i) Stakeholders in government should encourage small scale enterprises by constructing or renovating roads for easy access to rural area within the zones,
- ii) Appropriate mode of transportation should be provided by government at affordable rate for smooth flow of product to needed areas
- iii) Government should provide standard warehouse to accommodate large product to enhance survival of small scale enterprise in Nigeria.
- iv) For proper documentation and avoidance of wasting of product, experts in inventory management must be engage in the operation of logistics activities to maintain free flow of standard product which in turn boost small scale enterprise.
- v) The concerned stakeholders in government should release adequate fund to maintain physical distribution activities in small scale enterprises.



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