TRANSPORTATION SYSTEMS EFFECTIVENESS AND ECONOMIC DEVELOPMENT IN NIGERIA

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Abstract
The study focused on the transportation systems and economic development in Nigeria. The objectives of the study were to ascertain the effect of road transport system on economic development in Nigeria, to examine the effect of rail transport system on economic development in Nigeria and to examine the effect of water transport system on economic development in Nigeria. The population of the study comprised all the management and administrative staff of Peace Mass Transit Nigeria Ltd, Nigerian Maritime Administration and Safety Agency (NIMASA), Royal Mass Transit Ltd and Eastern Mass Transit Ltd respectively which brought the total to 980. A sample size of 284 was drawn from the population using Taro Yamani's statistical formula. The content validity and reliability tests of the research instrument were established. Survey method was used and copies of questionnaire were administered to 284 respondents through personal contact and 280 copies of questionnaire were returned which formed the basis for data analysis. Data were analyzed using percentage and frequency distribution tables. Three hypotheses were formulated and tested with Simple Regression Analysis. The findings revealed that there is a significant effect of road transport system on economic development in Nigeria. Also, it was revealed that there is a significant effect of rail transport system on economic development in Nigeria. Finally, it was revealed that there is a significant effect of water transport system on economic development in Nigeria. Therefore, institutional and private investors should show greater investment interest and commitment in the Nigerian water, road and rail transportation systems to galvanize all the potential resources for their improvement and growth.

Key words; Road transportation, Rail transportation, Water transportation, and Economic development

Introduction

Surviving the "war on transportation" is highly demanding and overarching as many transportation firms clash over who will dominate the transportation industry. However, to be a victor and a benchmark, transportation companies must offer a distinct, classical, differentiated, consistent, state-of-the-art, out-of-the-box and sophisticated transport services that is above global best practice to earn a competitive advantage and profitability. Unequivocally, transportation is key and a sine qua non to the socio-economic and environmental development and sustainability of many nations the world over (Nwoye, Oyegun & Ugbebor, 2019). Okolo and Ehikwe (2015) support this statement by stating that transportation aids the evolution of civilisation and catalyses economic growth and development. Markedly, transportation systems in Nigeria were fashioned alongside the British transport systems because of the influence of the British government that colonized Nigeria (Ehikwe, 2002). The development of the system started with the use of bicycles, motorbikes, and cycles, vehicles – cars, trucks, ships, boats, air craft, railroads and train and pipelines. In Nigeria, transport systems started with land, sea and air transport networks (Hoyle, 2013). Emphatically, the rail network commenced from Lagos in 1898. Also, work commenced on the Lagos Harbour in 1907 and the railway was extended to Kano in 1911 and in 1912. Then, the Eastern railway from Port Harcourt had reached Enugu where coal mining started in the same year.

However, transportation and distribution management is pivotal to marketing and commercial activities of both developed and developing countries (Ohmae, 2015). Transportation is fundamental to the success of physical distribution and effective services delivery in any society. Transportation serves in facilitating the movement of goods and services which marketing provides to consumers. Marketing has the sole responsibility of identifying and anticipating the needs of customers and providing them at production centres in their various sizes and units of sales (Anyanwu, 2013). The job of moving the products physically from the production centres to the customers at the various places where they are needed fall within transportation jurisdiction (Zeng, Hu & Huang, 2013; Yaqub, Olateju & Aina, 2012). Marketing satisfies customers' needs by making the products available at affordable prices, quantities, units and marketable conditions.

The success of marketing activities is enormously improved by the physical movement of goods, passengers and services (courier) safely to their destinations (Olamigoke & Adebayo, 2013; Agbonifoh, Ogwo, Nnolin & Nkamnebe, 2007). Transportation creates place and time utilities by adding value to products (Taff, 2012). To achieve these goals, transportation facilities must be adequate, the services must be reliable, dependable and the costs equitable in the light of the facilities and services provided. Transportation management is responsible for the movement of persons and goods within an organization and the entire society. Wells (2013) notes that traffic management for business including industrial, commercial and government organization is responsible for the planning, direction, selection, purchase and use by the company or organization of all aspects of transportation or transport service, with the objective of serving the organization, business or government in the most efficient manner.

Moreover, the rural roads are the least developed and the least utilised, but they constitute more than 80 per cent of all the roads in Nigeria, because the highest population of people are found in the rural areas or communities. Dueker, Bultler, Bender and Zhang (2005) submit that rural roads account for a small portion of total vehicular traffic (about 90 per cent of vehicle traffic move on 15 per cent of main roads), but they are used for essential movements of people and goods in agricultural areas. The problems of road development and maintenance, especially at the construction stages, are aggravated by the poor state of the soil, leading to landslides and erosion during the rainy seasons, especially in the Southern States. There is also the problem of wilful damages to roads by those involved in other construction works, including connection of pipelines to convey water to houses in urban cities. The negligence on the part of the government is very paramount for lack of adaptive solutions like condition monitoring where potholes develop to gullies and ditches without care or repairs (Oduola, 2009). Some of the roads have outlived their life span and usefulness and require widening and resurfacing, but are left to become death traps and threats to life and moveable properties. The poor construction work, especially by indigenous engineers and above all, the high cost of road maintenance which takes a high percentage of the total cost outlay for road works may be difficult for government to bear alone without resort to contributions by public and private organizations (Olayemi, 2012).

Also, the public use of water transport in Nigeria is very low and several factors could be attributed to this; including the poor attitude of people towards use of water as an alternative means of transport. The public has not been adequately informed about the available services of water transport modes and their routes around Nigeria including the type of passengers and goods that are particularly suitable for such transport to different destinations. There is lack of adequate development of internal waterways with many navigable rivers not dredged to accommodate bigger ships to make it more economical and comfortable in the movement of people and goods. Moreso, the Nigerian investors favour land and air transport modes to the detriment of water, possibly for lack of quick returns on investment and high profit margin (Ehikwe, 2002). There are also no credible ship and boat builders that could provide the much needed repair and maintenance services which are essential to the successful running of water transport services.

Furthermore, studies in extant literature have focused on the effect of transportation industry competition on marketing of consumer and industrial products in Nigeria (Dueker & Bender, 2002) and the role of technology in transportation systems in Nigeria (Fairs & Sampson, 2007; Hoyle, 2013). However, there is paucity of literature on the subject matter as none of these studies focused specifically on transportation systems effectiveness and economic development in Nigeria which necessitated this study.

Conceptual framework

Independent Variables	↔	Dependent Variable

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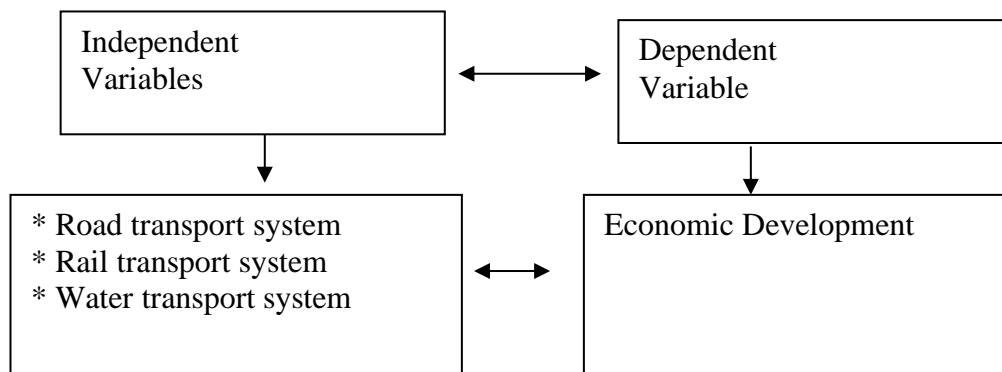| * Road transport system * Rail transport system * Water transport system	↔	Economic Development

Figure 1: Schematic diagram of the conceptual framework of the study.
Source: Ehikwe (2002). Transportation and Distribution Management Enugu: Precision Publishers Ltd

Road Transport System and Economic Development

Road transport system is indispensable (Hashidu & Adamu, 2018) as it leads to the growth and development of the Nigerian economy through construction and maintenance of road infrastructure to guarantee easy accessibility of agricultural produce from rural areas where they are produced to the markets where they are sold to consumers and customers (Adedeji, Olafiaji, Omole, Olanibi & Lukman, 2014). It has been very relevant in the movement of people and goods from place to place thereby providing socio-cultural ties among people and making goods and services available (Eze, Okeudo & Amadi, 2012). It is the most popular and reliable among the domestic transportation systems of most nations including Nigeria (Ehikwe, 2002). Reacting to this, Faajir and Zidan (2016) note that the extensive use of bicycles, motorcycles, carts, trailers, tankers, buses and lorries in moving goods and services to different destinations on the Nigerian roads makes it the commonest form of transportation.

However, the highways, carriage ways, expressways, trunks, bypasses, feeder roads, different vehicular modes, the terminals such garages, parks and their locations, the traffic systems, toll gates, rates and taxes on vehicles, different material handling aids, recovery vans and all other factors and facilities associated with the use of road transport in Nigeria are important components and facilities of the road transport system (Ehikwe, 2002; Knowles & Hall, 2009). The routing of vehicles, rules and regulations, manpower development and load capacity management are needed to function effectively as customers demand consistent services to make their produce and products available at all times (Agu, Madumere & Uche, 2017).

Interestingly, Ehikwe (2002) highlights that road classification could be based on the way a vehicle is built and the type of services being executed. Classification could also be made by the type of stopping schedule or of operation like local service or express service by the time of operations as in regular commuter and social or irregular service. Indeed, the development of road transport systems started with the construction of roads and the subsequent maintenance programmes. The development of the road transport system began in 1905 with the construction of the first main trunk road from the rail head

at Ibadan to Oyo (Dueker & Bender, 2002). Unfortunately, most Nigerian roads are in a very bad condition as they are either not tarred in the first place; poorly tarred as a result of corruption, and even when they are tarred with asphalt, they easily develop potholes due to poor maintenance culture (Ikejiofor & Ali, 2014). Nwafor and Onya (2019) underpin this statement and observe that road dilapidation has done more harm than good to the Nigerian transport system. Similarly, Usman (2014) observes that bad roads, traffic congestions, incessant armed robbery attacks and high transportation costs and high cost of maintenance of vehicles are some of the challenges of road transport in Nigeria.

In addition, the effective road transport system stimulates economic activities by encouraging the development of rural roads to give access to humans and agricultural produce (Jelilov & Kachallah, 2017; Gbadamosi & Olorunfemi, 2016). In other words, good road network is synonymous with economic development (Jelilov & Kachallah, 2017; Alamigoke & Adebayo, 2013). In view of this, Anin, Annan and Otchero (2013) assert that good road transportation system champions the economic and social development of a nation. Scholars equally noted that both economic and military power of a nation had had a close relationship with effective road network (Eze et al., 2012; Hashidu & Adamu, 2018). It plays a monumental role in the political and socio-economic life of an organisation and the society at large (Ikejiofor & Ali, 2014). Conversely, Nwafor and Onya (2019) remark that the unpalatable nature, in terms of bad road networks and lack of transport facilities on the Nigerian roads has resulted to poor economic development in that sector. Based on this the hypothesis is thus:

H1: There is no significant effect of road transport system on economic development in Nigeria.

The Rail Transport System and Economic Development

The rail transport system has the highest carrying capacity and is also the oldest type of transportation in Nigeria (Ademiluyi & Dina, 2011). The construction of the rail line in Nigeria which started in 1898 and linked Lagos to Ibadan in 1901 was premeditated by the economic (trade), administrative and military motive of the Nigerian colonial masters who had the need to open up Nigeria to England and the rest of the world (Babatunde, 2019). In line with this statement, Jakpa (2000) argues that the purpose of the railway was partly administrative as it provides a bridge between the Northern and Southern parts of Nigeria to facilitate the movement of mineral resources and agricultural produce from the Northern to the seaports in the Southern part of Nigeria for direct shipment to overseas. Similarly, it opened up a channel through which imported cargos from European countries are offloaded in the Lagos seaports and transported to different regions in Nigeria (Ehikwe, 2002).

The rail transport system comprises the rail tracks and lines, the terminals, the train, the motive power and other operations and infrastructural facilities (Babatunde, 2019). In support of this view, Ehikwe (2002) remarks that the train comprising of the coach and the motive power unit is the makeup of the rail component of the system. According to him, it also includes "rates and ticketing, goods and passengers carried, the maintenance and repairs, road crossing intercept points, manpower recruitment,

training and development, routing and schedules of departures and arrivals." In the same vein, Faris and Sampson (2007) also noted motive power and coaches, communication gadgets and services, and regulatory and traffic controls as important components.

Indeed, the rail system of transportation is held at high esteem for its enormous contribution to economic development of many nations in the world (Agbaeze & Onwuka, 2014). Unfortunately, Agbaeze and Onwuka (2014) argue that with many opportunities in different dimensions of economic development in terms of making agricultural and manufactured goods available to consumers and industrial customers, the Nigerian rail system is still in its nascent stage. In other words, despite the conferment of responsibility of the Nigerian Railway Corporation (NRC) to oversee the effective management of carriage of goods and passengers, the social and administrative duty outweigh the economic achievement (Agunloye & Oduwaye, 2011). The Nigerian rail system has been inadequately managed leading to poor contribution to the Nigerian gross domestic product (GDP) (Faajir & Zidan, 2016). Obidike, Uma and Onwusogbulu (2015) conducted a study on restructuring the Nigerian rail system for efficient distribution of resources and assert that despite the Goodluck Ebele Johnathan's administration effort to deliver a paradigm shift in the Nigerian rail transport system, the Nigeria rail system was almost moribund in terms of delivering economic and social development to the nation. Based on this, the hypothesis is thus stated:

H2: There is no significant effect of rail transport system on economic development in Nigeria.

Water Transport System and Economic Development

Water transport has only a share of 1.6% of Nigeria's gross domestic product despite her large 450 kilometres inland waterways (Owoputi, Ifabiyi & Akpudo, 2018). Ukoji and Ukoji (2015) in their study noted 8, 600 kilometres of inland waterways in Nigeria which makes her the second longest in Africa. However, in the presence of large and deep bodies of water capable of buoyantly allowing the sailing of ships and ocean liners, water transport provides man with the cheapest means of conveying people and goods to various destinations (Nwoye et al., 2019). In Nigeria, the lakes, the lagoons, the rivers, creeks and intra-coastal waters make up the navigable inland waters (Aderemo & Mogaji, 2010). Water transport system is composed of the ships, the ways, the dockyards, motive power, the ports, passenger and cargoes on board the ships, material handling aids, export and import duties on consignments, import and export regulations on carriage of goods, the clearing and forwarding systems, capacity management, communication gadgets and other navigational facilities and services (Wilkie & Moore, 2014). Unfortunately, the condition of the waterways for the provision of adequate sailing operation of ships and boats has posed an enormous challenge and as such, presents water transport as the least developed transport system in Nigeria (Adejare, Olusina & Olaleye, 2017).

The waterways could be described as the large body of water that is free from natural barriers and deep enough to carry ocean vessels. In other words, it involves deepening water channels and the removal of bars and sandbanks between waterways to permit large ships to pass over and providing aids to safe

navigation in the form of lights, beacons, markers and signals, both visual and audible (Ehikwe, 2002). The navigable waters found in Lagos, Warri, Port Harcourt and Calabar domestic waterways are still at its developmental stages and require committed investment outlay from public private partnership (PPP) to mobilise resources towards providing improvement and growth in the sector (Bassey & EkpenyongNsa, 2018; Adejare et al., 2017). For Bassey and EkpenyongNsa (2018), the efficient and effective navigable water in Lagos can only be attained and sustainable through the maintenance dredging of the ferry terminals.

Furthermore, similar to other transport systems, water transport is a beacon of economic growth and development (Adejare et al., 2017). Nigeria has failed to maximise the environmental, social and economic benefits attracted through water transport system (Bayode & Ipingbemi, 2016). Nevertheless, Obeta (2014) notes that despite boat building, jetty operations and facility management opportunities offered by the Nigerian inland waterways to investors, security has posed a colossal challenge. In his view, Adejare et al. (2017) regret that those opportunities provided for investors for business by the Nigerian inland waterways have been inadequately utilised sequel to the road and air transport systems dominance in the transportation industry. Perhaps, a paradigm shift to the effective and efficient management of the Nigerian waterways will provide a U-turn and at the same time, decongest the incessant gridlock experienced in Nigerian roads (Nwoye et al., 2019; Bayode & Ipingbemi, 2016). Based on this, the hypothesis is thus stated:

H3: There is no significant effect of water transport system on economic development in Nigeria.

Economic characteristics of efficient transport system
The following are the economic characteristics of efficient transport system according to (Ehikwe, 2002).

Operating Speed: There is always the belief that time management is the key to successful business operations: Most goods are prone to perishability, which only speed and timely delivery can prevent. Agricultural products, news that; could be stalled, fashion wares that could miss early adopters, goods that attract high risk in transit, failure to meet with business appointments are among the numerous market, commercial and service products which speed can help to prevent or reduce their risks of loss in transport system. The operating speed of a vehicle is experienced also by the passengers.

Safety: Safety has no equivalent, concerning the lives of people and properties in the use of any transport system. When lives are lost through accidents, they are usually not replaceable, and where they can be replaced, in case of goods, extra costs may be attracted which defeats the objective of the investment. Safety measures against fire, theft, pilferage, rain, heat, contamination, breakages, rust, rot, accidents and wilful damages are usually experienced during loading and unloading processes, transport on motion, bad use of transport facilities and non existence of safety rules and regulations in the use of transport system.

Capacity: The transport system in use must have the capacity to withstand the weight, quantity, bulkiness, shape, hazardous nature of the people and goods in the use of any transport system.

Promptness of Services: Any transport system in use must be prompt, regular and reliable in order to attract high patronage. This could also be related to the level of reliability of operations expressed as vehicle arrivals with less or more than the approximate, exact or fixed time deviation from the actual or standard time schedule.

Performance: This refers to the general overview of the people's feelings of the transport system, speed, safety, capacity, reliability and other factors for the appraisals put together and used as a rational for the efficiency of the transport.

Service: This refers to the quality of convenience, comfort, cleanliness, good capacity utilisation of optimum load, minimal breakdown and stoppages during operations, courtesy of the driver and crew and the safety feelings of passengers.

Price: This refers to the sacrifices users make to use the transport including delays experienced before departure and arrivals for clearance, ticketing and routing preparations.

Research Methods

Survey research design was used in this study. This is because it is interested in generating and analyzing data from only a few people or items considered being representative of the entire group. The population of the study comprised all the management and administrative staff of Peace Mass Transit ltd, Enugu State (390): Nigerian Maritime Administration and Safety Agency(NIMASA), Delta State (250): Royal Mass Transit ltd, Anambra State (210) and Eastern Gateway Mass Transit ltd, Ebonyi State (130) respectively. Altogether, 980 (Nine hundred and eighty) management and administrative staff form the study population (Companies Resource centre, 2019)

A sample size of 284 was drawn from the population of the study using Taro Yamani's statistical formula:

$$n = \frac{N}{1_t N(e)^2}$$

where:

n = sample

N = Population

1 = Constant

e = Margin of tolerable error

Thus, n = 980/ 1+ 980 x 0.05 x 0.05

n =980/ 1+ 980 x 0.0025

n=980/ 1 + 2.45

n=980 / 3.45

n= 284

The sampling technique adopted for this study was the probability sampling which gave all the members of the sample equal chance of being selected, and which also made a sample to be representative of the population from which it was selected. The probability sampling method used was the systematic random sampling. The sources of data collection are mainly primary data (information generated by the researcher on the variables of interest in the study). The primary data were generated through questionnaire administered to the respondents. The content validity of the instrument was ascertained by using a questionnaire review-panel that did objective assessment of the questions and ensured their relevance to the issues at stake and coverage of the entire study. In establishing the reliability estimate, the test/retest method was used. The instrument was administered to the same group of individual on two different occasions separated by time interval of between 7-14 days. The two sets of data from the two occasions were correlated using the Pearson product moment correlation coefficient which was calculated and used to adjudge the reliability of the instrument. The value of the coefficient of correlation obtained was 0.6 which confirmed the instrument reliable and acceptable (Nwana, 2001). The statistical technique adopted in testing the hypotheses was Simple Linear Regression (an inferential tool of the statistical package for social sciences version 21).

Data Analysis

Table 1. Road vehicles should be accessible, available and capable of carrying the maximum load by weight and size as prescribed by law

Response options	Frequency	Percentage
Strongly Agree	80	28
Agree	180	64
Strongly Disagree	5	2
Disagree	10	4
Neutral	5	2
Total	280	100

Source: Survey Data, 2019

Table 1 above revealed that a total of 260 representing (92%) respondents were in agreement that Road vehicles should be accessible, available and capable of carrying the maximum load by weight and size as prescribed by law while 15 (6% respondents did not agree. Only 5 (2%) respondents were undecided at the instance of the research.

Table 2. The train is involved in large shipment of goods and services across the country, especially the agricultural products and livestock which require bulk movement for their disposal

Response options	Frequency	Percentage
Strongly Agree	70	25
Agree	140	50
Strongly Disagree	27	10
Disagree	43	15
Neutral	-	-
Total	280	100

Source: survey Data, 2019.

In table 2 above, 210 respondents representing 75% were in agreement that the train is involved in large shipment of goods and services across the country, especially the agricultural products and livestock which require bulk movement for their disposal while 70 (25% respondents disagreed with the statement.

Table 3. Nigerian investors favour land and air transport modes to the detriment of water, possibly for lack of quick returns on investment and high profit margin.

Response options	Frequency	Percentage
Strongly Agree	85	30
Agree	90	32
Strongly Disagree	25	9
Disagree	50	18
Neutral	30	11
Total	280	100

Source: Survey Data, 2019

Table 3 above indicated that 175 respondents representing 62% were in agreement about the statement that Nigerian investors favour land and air transport modes to the detriment of water, possibly for lack of quick returns on investment and high profit margin while only 75 respondents representing 27% disagreed with the statement. Only 30 respondents representing 11% were neutral to the instance of the research.

Test of Hypotheses

Hypothesis I:

Ho: There is a significant effect of road transport system on economic development in Nigeria.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.648[a]	.419	.347	12.199

a. Predictors: (Constant), Road Transport

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	859.524	1	859.524	5.776	.043[b]
	Residual	1190.476	8	148.810		
	Total	2050.000	9			

a. Dependent Variable: Economic Development

b. Predictors: (Constant), Road Transport

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.143	11.934		-.180	.862
	Intensive Distribution	.905	.376	.648	2.403	.043

a .Dependent Variable: Economic Development

The regression model summary above shows a regression coefficient value of 0.648 which is significant in achieving economic development in the studied companies respectively .The coefficient of determination (R^2) of 0.419 indicates that 41% of variations in economic development in the studied companies can be explained by road transport. The remaining 59% can be explained by other related factors not noted in the regression model. This implies that there is an evidence of significant effect and linear relationship between road transport and economic development in the studied companies in Nigeria. Therefore, we accept the hypothesis that there is significant effect of road transport on the economic development of the studied companies in Nigeria.

Hypothesis 2:

H2: There is a significant effect of rail transport system on economic development in Nigeria.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.741[a]	.548	.492	3.8461

a. Predictors: (Constant), Rail Transport

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	143.758	1	143.758	9.718	.014[b]
	Residual	118.342	8	14.793		
	Total	262.100	9			

a. Dependent Variable: Economic Development

b.Predictors: (Constant), Rail Transport.

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.076	4.413		2.963	.018
	Product positioning	.427	.137	.741	3.117	.014

a. Dependent Variable: Market share

The regression model above shows a regression value of 0.741 which is positive and significant in achieving economic development in studied companies respectively. The coefficient of determination (R2) of 0.548 indicates that 54% of variation in economic development in the studied companies can be explained by rail transport. The remaining 46% can be explained by other related factors not noted in the regression model. This implies that there is an evidence of existence of significant effect and linear relationship rail transport and economic development in the studied companies. Therefore, we accept the hypothesis that there is a significant effect of rail transport system on economic development in the studied companies.

Hypothesis 3:

H3: There is a significant effect of water transport system on economic development in Nigeria.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.704[a]	.495	.432	6.772

a. Predictors: (Constant); Water Transport

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	360.000	1	360.000	7.850	.023[b]
	Residual	366.900	8	45.863		
	Total	726.900	9			

a. Dependent Variable: Economic Development

b. Predictors: (Constant), Water Transport

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.100	6.772		1.639	.140
	Intensive Distribution	.600	.214	.704	2.802	.023

a. Dependent Variable: Economic Development

From the regression model above, a regression value of 0.704 can be observed which is positive and significant in achieving economic development in studied companies respectively. The coefficient of determination (R2) of 0.495 indicates that 49% of variation in economic development in the studied companies can be explained by water transport system. The remaining 51% can be explained by other related factors not noted in the regression model. This implies that there is an evidence of existence of significant effect and linear relationship between water transport and economic development in the studied companies. Therefore, we accept the alternative hypothesis that there is a significant effect of water transport on economic development in the studied companies.

Discussion of Findings

Road transport system and Economic Development

Hypothesis 1 of this study states that there is no significant effect of road transport system on the economic development in Nigeria. The result of the analysis of this hypothesis shows a regression value of 0.648 and coefficient of determination value of 0.419. This result indicates that there is a significant effect of road transport system on economic development. This result agrees with the study of Hoyle (2013) that road transport system has significant effect on economic development in Nigeria. He further revealed that the rural roads are the least developed and the least utilised, but they constitute more than 80 percent of all the roads in Nigeria, because the highest population of people are found in the rural areas or communities who transact businesses. Jakpa (2000) submit that rural roads account for a small portion of total vehicular traffic, but they are used for essential movements of people and goods in agricultural areas.

Rail Transport System and Economic Development

Hypothesis 2 of this study states that there is a significant effect of rail transport system on economic development in Nigeria. The analysis of this hypothesis reveals a regression value of 0.741 and coefficient of determination value of 0.548. This result indicates that there is a significant effect of rail transport system on economic development in Nigeria. In his view, Ohmae (2015), rail transport facilitates the evacuation of mineral resources and agricultural products from the Northern producing areas to the seaports in the South of Nigeria for onward shipment to overseas countries. Supporting this assertion, Wells (2013) posits that rail transport system provides the ready means of transportation for the heterogeneous imports received from the United Kingdom and other European Countries.

Water Transport System and Economic Development

The third hypothesis of the study states that there is no significant effect of water transport system on economic development in Nigeria. The result of the analysis of this hypothesis shows a regression value of 0.704 and coefficient of determination value of 0.495. This result indicates that there is a significant effect of water transport system on economic development in Nigeria. This is in agreement with the study carried out by Feenstra (2015) which showed that waterways used by ships and boats is one of the least developed transport system in Nigeria, with most of it still unused despite the large body of water in abundance and the large population of people and goods willing to use the water transport.

Conclusion

The position of transportation in physical distribution remains vital, considering the direct effect it has on warehousing and inventory management. A wrong choice of transport will almost immediately affect the distribution services in routing, speed of delivery, reliability of services and delivery and loss of lead time (time taken to order and receive goods). A bad transport with low speed, transit delay and breakdown would cause longer lead time that may result to loss of sales, customer time and production delay. A good transport with high speed, least transit delay could encourage customers through fast stock replenishment and possible decongestion of warehouses with minimum need for large stock piles.

The study concludes that there is significant effect of transport systems (road, rail and water) on economic development in terms of supporting clusters and agglomerations, increasing productivity, enhancing job and labour force accessibility and supply chain efficiency as well as opening new markets for businesses in Nigeria.

Limitation of the Study

The study has many limitations, some of which provide direction for further studies. The small sample size of 280 respondents is the major limitation of the study, indicating that caution is needed in the interpretation of findings. The study also made us of simple linear regression tool in data analysis and the application of other statistical tool on the same data generated might give a different result entirely. The study focused only on road, rail and water transport systems, thereby learning behind other important modes of transport system such as air and pipeline transport systems.

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Page | 17