



The Impact of Short-Sea Shipping on Nigerian Economy

H.K. Onyema^{1,*}, U.M. Emenyonu¹, N.V. Kpee¹, G.C. Emeghara¹

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ABSTRACT

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Modern transport and freight distribution system all over the world are trending towards the adoption of best practices that are reliable, timely and cost effective. The purpose of this study is to compare and analyze the impact of short sea shipping and road haulage in Nigerian Economy, with the aim of gathering information on the contributions of short-sea shipping to Nigerian economy for the past ten years 2003-2012 and the cost involved and time taken to deliver goods from Nigeria (Calabar Port) to Cameroon (Garoua) using short sea shipping and from Adamawa (Yola) to the cities in south-south Nigeria using road haulage. The approach, is to obtain quantitative data (secondary data). The Ordinary Least squares (OLS) multiple regression techniques, using a software package (SPSS) were used to analyze the obtained data. The hypotheses were tested with the results obtained from the regression analysis. Results were discussed and the research concluded by giving recommendation for improving on short sea shipping operations in Nigeria.

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1. Introduction

Short sea shipping may be defined as a "maritime highway transportation system" according to the definition by EU committee and it includes canal, river, other inland waterway as well as coastal shipping system. Short sea shipping services are more fuel efficient than trucks so that they can contribute to improving air quality and reducing noise. This mode of transport also plays a key role in reducing the road and terminal congestion as well as the number of trucks and trains traveling on crowded port access routes. As a result, short sea shipping development may provide a more cost-effective alternative to building new roadways and rail lines. In particular, a new concept of Motorway of the Sea in Europe has contributed to reducing the amount of money spent on infrastructure projects, and maintenance costs. Such inefficiency is reported to stem, among others, from imbalanced cargo flows inbound and outbound at its loading and discharging ports and insufficient modal shift among different modes.

Nigeria is the world's largest independent black nation, with a current population estimate of 150 million people. The country covers a total geographical area of 923,768 square kilometers. Nigeria is a coastal state with about 853 Kilometers Atlantic coast line. Her exclusive economic zone (EEZ) covers a total area of approximately, 315,950 square meters with a vast marine environment subsisting enormous resources. The Nigerian maritime sector has remained fully untapped and still has a variety of investment potentials cutting across mining, manufacturing service industries. West Africa has about twenty commercial maritime harbors with traffic of over 500,000 tons/per annum. This involves an exclusion of oil terminals of which five are located in Nigeria. The number of vessels docking at West Africa coasts has grown from 15,000 in the early 1990s to over 30,000 during the early 2000s. (Wikipedia, 2014). These movements were able to generate a trade volume (excluding petroleum exports) of more than 140 million tons, which equals approximately 25% of total African maritime traffic and only 1.5% the world maritime traffic. (Royal Haskoning, 2010).

In Nigeria, national and trans-national cargo movement has been transformed from a largely maritime enterprise during the first centuries of a continental development to a predominantly land based enterprise with the extensive development of national rail- road network in the Nineteenth century and national

¹Department of Maritime Management Technology MSc Student. Federal University of Technology Owerri. Imo State. Nigeria

*Corresponding Author: H.K. Onyema. E-mail address: henskele@yahoo.co.uk

highway network in the twentieth century. (Ajayi, 2003). Movement of freight over these networks has expanded owing to their ability to meet the needs of shippers for providing reliable, time sensitive services at market bearable costs. Thus there arose a growing concern among shippers, cargo carriers and national transportation agencies that these land based networks are rapidly depreciating and in some cases exceeding the capacities they are designed for.

At the same time the volume of cargo is swelling in Nigerian ports, some of the truck companies have gone out of business in the last few years. The highway system itself is a concern. It is clear and vivid therefore, that Nigeria is not going to be able to afford to build its way out of congestion without some major changes in transportation patterns and practice. With continuing demand and growth of international trade, the resulting gridlock on these networks could lead to congestion and hazards in sanitation.

1.1. Objectives of the Study

1. To evaluate the contributions of short sea shipping to Nigerian economy for the past ten years using Calabar Port and Cameroon.
2. To compare and ascertain the overall difference in costs/time saved by moving goods using short sea shipping rather than the sole reliance on road haulage.

2. Review of Related Literature

The country's waterways centers on the Rivers Niger and Benue which dissect Nigeria into East, West and Northern regions. The two rivers form a confluence at Lokoja and flow into the Atlantic Ocean. The coastal water ways extend from Badagry through Warri to Calabar (NIWA, 2006). In all, Nigeria has about 2,200km of route, out of the total drainage of the rivers from source to mouth. The system is connected to about 880km of inter-coastal water ways from Lagos through Warri, Port Harcourt and Calabar. With a total of approximately 3000km of under developed but developable and navigable inland water ways, if fully harnessed, should be poised for a virile commercial river transportation and great potential for inter-modalism in the country. Short sea shipping is in many cases is one of various different transport modes within a chain, and a number of stakeholders are represented within these chains from shipper to end customer. One of the objectives of building river ports in Nigeria was to shift freight away from road and by doing so reduce road congestion. The principal measures for achieving this included the promotion of transport by sea and inland waterways. This will require better connections between ports, rail and inland waterway networks together with improvements in the quality of port services.

Economic and geographical assessment of developing short sea trade in Nigeria/West Africa can be stated as following the economic importance of developing short sea shipping network (SSN) in West Africa. Few are discussed below. It generates revenue (domestically) with regards to the area of generating revenue domestically, short sea network is a coastal trading

which involves domestic trading close to the communities. This trading is closer to the masses as it distributes goods and services/revenue internally thereby leading to strong background financial revenue of any nation. It is also the backbone of the economy since goods and revenue is distributed.

Employment Generation: Short sea shipping is a coastal trade which is closer to people that is seeking for job thereby making it easy for them because of the closeness. Since SSN is a wide variety of business which involves many departments of labor, it thereby provides employment opportunities and also it boosts other units of work.

Social and Political Interaction among West African States: SSN will create an area for West African state traders to associate with each other, have a common trading idea and improve market standards.

Equilibrium price/currency: Since West African states should have one currency nationally (as does the European Union) and still maintains the local currency internally, price of trading across boundaries would not exceed the normal price

Investment opportunity: Many bulk cargo industries survive through complete sea transportation which could either be coastwise or a river inlet With SSS, investment opportunities abound because of complete marine logistics of SSN.

2.1. Short Sea Shipping Conceptual Model Considerations

The challenge is to develop the appropriate commercially viable business model for short sea shipping in the Western Hemisphere and an enhanced business model for Europe. This challenge must meet the inflexible demand of time sensitivity in a just-in-time commercial environment the fundamental issue of freight mobility to satisfy the market place must be addressed by the short sea shipping business model.

The critical success factor in adopting the short sea shipping concept is that it must facilitate cargo movement as an inexpensive, seamless component of an integrated, intermodal transportation system. This business model must also overcome the tyranny of current practices which heighten resistance to change.

Advocates of short sea shipping in the United States need to move beyond the discussion stage. The next stage requires applied research to develop short sea shipping as commercially viable feasibility Short sea shipping should investigate opportunities to gain market share, initially at the expense of current profits. If the business model is sufficiently attractive, the profits will flow during the subsequent time periods. Advocates are deluding themselves to think that short sea shipping will be profitable at its introduction stage. This tension between striving for market share or profitability is faced by virtually all entrepreneurs who are involved in business start-ups. The general rule is that profitability will ensue after sufficient market share is gained. The lack of scale economies and experience at the enterprises onset detract from its ability to earn a profit the importance of strategic planning, effective budgeting, and milestone development is paramount. Responsible maritime professionals are the ones to make short sea shipping a reality in the Western Hemisphere and a larger presence in Europe.

The short sea shipping (SSS) of freight has a strong presence in Europe because of its geography, where European Union policies have encouraged its use. The Europe, SSS grew steadily over the last three decades. Europe needs an efficient logistics transport system combining the benefits of all modes to maintain and increase European competitiveness and prosperity in line with the mid-term review of the White Paper on European Transport Policy in order to overcome less efficient rail system and to make many of Europe main industrial centers get close to waterways. Thus, in many cases, SSS routes in Europe have provided the fastest and most reliable service between destinations.

Fast growing trends of SSS has been also seen in Asia according to mega-hub port developments and China high rate of economic growth. Recent years have brought an increasing focus on developing new SSS options that are better suited for moving container cargo, for example in Korea and China, that normally travels by truck and tends to include higher-value and time-sensitive goods.

The dredging of the Lower River Niger from Warri (Delta State) to Baro (Niger State) - 572km - to facilitate all-year navigability will boost shipping activities in Onitsha River Port. For big time importers from the commercial towns of Onitsha, Nnewi, Aba and Ogbete-Enugu, the decision by the Federal Government was a welcome development. And this is for obvious reasons. The port could be a big relief for importers from the South East who have over the years moved their trade goods from Lagos, Port Harcourt and Calabar ports by road. The problem associated with transporting goods to long distances is usually nightmarish, one of the reasons why government is planning to introduce Inland Container Depots (ICDs) in the six-geo-political zones in the country which will improve short sea shipping in Nigeria. Poor road network and security concerns have been problematic for importers who have to transport their goods to far distances.

There have been cases of container or truck hijack as well as breakdowns that leave importers at the risk of highway robbers. Sometimes, the drivers connive with robbers to hijack such goods, leaving the owner to suffer huge economic loss. The importers are also at the mercy of Shylock transporters who charge exorbitant fares to take containers from far away Lagos to the East. Calabar port which would have helped was deserted because of the low cap of the Ikom Bridge and rampant robbery cases. Delta Seaport which is nearer to the East was also faced with piracy and other hostilities that have affected the fortunes of the seaport. The rail system would have addressed this problem, but totally absent where needed.

3. Research Methodology

Data employed in the study were analysed using regression techniques to achieve the stated objectives. This is to enable us describe the basic features of the data used in this research study so as to provide simple summary of the samples and operational measures. Also the ordinary least Square (OLS) of simple regression with the optimal properties of best, linear and unbiased nature is employed to test the hypotheses.

Specifically the usage of the OLS is to give room for random term in the analysis the random term entails other independent variables not captured in the study. More importantly, the computational procedures of OLS are filthy simples as compared with other economic techniques and the data required are not excessive.

4. Result and Interpretation

Table 1: Net and Gross Registered Tonnage of Short Sea Shipping Vessels in Nigeria (Calabar Port) To Cameroon (Garoua) from 2003 to 2012

Source: Nigerian Port Authority Calabar

Year	GRT (X)	NRT (Y)
2003	4,356,314	2,190,808
2004	2,395,325	1,089,909
2005	2,560,808	1,433,795
2006	3,178,379	1,559,746
2007	2,837,183	1,458,501
2008	2,566,831	1,310,407
2009	3,242,898	1,582,217
2010	2,352,865	1,141,386
2011	2,336,100	1,180,891
2012	1,691,291	1,345,710
TOTAL	23,461,680	14,312,370

The essence of introducing short sea in developed and developing countries is to alleviate the much burden been borne by our highways and rail system (although dead in Nigeria). In analyzing table 1. We look at the total import cargo throughput in all the Nigerian ports. This stands at 275,903,907 (MT) as against 685,567 (MT) gotten for short sea shipping cargo traffic. This goes to show the size of trade involved in short sea shipping in a country that has a total cargo throughput of such enormous amount.

Table 2: Cargo Traffic Volume Generated through Short Sea Shipping over the Years (2003-2012) Nigeria to Cameroon in tonnes

Source: Nigerian Port Authority Calabar

Year	Inward cargo flow		Outward cargo flow	
	Cameroon to Nigeria (X)		Nigeria to Cameroon (Y)	
2003	418,275		1,478,819	
2004	427,131		1,269,630	
2005	396,184		1,310,849	
2006	526,725		748,556	
2007	593,866		1,528,822	
2008	602,425		1,528,822	
2009	616,338		1,299,960	
2010	611,338		714,960	
2011	670,504		2,487,398	
2012	685,567		1,785,804	
TOTAL	5,548,046		13,590,819	

The coefficient of the regression analysis of outward cargo flow (Nigeria to Cameroon) against the inward cargo flow (Cameroon to Nigeria) as contained in table 2. of the regression output is given below:

$$\text{Constant} = B_0 = 492389.273$$

$$\text{Inward} = B_1 = 1.568$$

Using the simple linear regression model:

$$Y = B_0 + B_1 X \quad (1)$$

The model becomes Outward cargo flow = 492389.273 + 1.568 inward cargo flow. The coefficient 492389.273 indicates that when there is no inward cargo flow, the total amount/quantity of the outward flow is 492389.273. The R^2 value of 0.972 (97.2%) is significant which shows that 97.2% of the variation in time spent is explained by the model.

The coefficients -0.585 and 0.603 indicates that; using short sea shipping as means of transporting your goods decreases the total time by 0.585 while using road increases the time by 0.603. This result suggests that short-sea shipping is faster than road haulage.

The test of significance also gives an interesting result.

The F.cal. value of 25.563 against its significant value of 0.13 gives us enough evidence to reject the null and accept the alternative. Which indicates that there is a significant percentage of time saved using short sea shipping over road haulage.

5. Conclusion

This research has shown that short sea shipping is a cost efficient method of transport that cuts transport costs down drastically. Majority of the respondents agreed that SSS would have a significant impact on the development of new kinds of shipping techniques and new inter-modal transportation concepts for passengers. Short sea shipping reduces air pollution

caused by trucks in Nigeria; hence it becomes significant as an alternative-to-road-rail as it saves more cost by virtue of economies of scale which variably leads to delay avoidance and restrictions in West African roads. This is as a result of road blocks, bad access roads, police check points and illegal collection of road charges and dues which are major bathers to prompt transportation of goods. SSS becomes very relevant and encourages suitable turn-round time for ship operations in our ports. The government is therefore called upon to map out strategic policies and allocation of funds to the effective development of SSS within Nigeria and West Africa sub-regions with a view of broad approach to its development.

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