An Assessment of the Influence of Cabotage Trade Operations on the Nigerian Maritime Industry

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Abstract— This research assesses the influence of Cabotage trade operations on the development of the Nigerian maritime industry. A time series data were obtained from NIMASA and NPA annual bulletin (2004-2013) on the pillars of cabotage and total cabotage trade operations were analysed using the ordinary least square (OLS) method of the Multi linear Regression algorithm, and were analysed with the aid of Statistical Package for Social Science (SPSS V.20), to determine the degree of significance of the pillars of cabotage as it influences cabotage trade operations. From the findings, it was deduced that, the number of Nigerian registered vessels (X2) and indigenous human capacity development (X3) variables are statistically significant and correlates positively with the dependent variable. It was however, recommended that marine transport policy makers should stimulate private and public sector investments in the development of maritime infrastructure and construction of ship building dock yards. In conclusion, cabotage trade operations in Nigeria needs strict control and management measures, so that the problems of foreign domination can be effectively checkmated and maximum efficiency achieved.

Key words: Cabotage Trade, Vessel, Operation, Foreign

I. INTRODUCTION

The word Cabotage means inland trade along coastal waters. It is the navigation and movement of a country's ships in its coastal waters to its own domestic traffic. But such coastal trade must be guided by some international conventions and rules that equally govern all maritime operations. Nigerian cabotage is vessel- based, similar to what operates in some advanced countries, such as the United States of America. However, the operational modalities of US cabotage are quite distinct from those of Nigeria.

Taking due account and recognition of inadequate indigenous capacity and non-operational maritime policy. The cabotage Act, 2004 advocates a liberal policy through the use of internationally recognized waiver system. The waiver principle, as provided by the Act, is based on non-availability of Nigerian built, owned crewed and manned vessels. The objective of the Act is primarily to reserve commercial transport of goods and services within Nigerian coastal and inland waters to vessels flying the Nigerian flag and owned by Nigerian citizen (Ndikom,2008). The Act also has the objective of dock yards, in providing services for the nation's inland water shipping (Ndikom,2008). The management and operation of the cabotage regime in Nigeria are anchored on four pillars, which are:

- Nigeria citizens must wholly own cabotage vessels
- Cabotage vessels must be registered in Nigeria
- Cabotage vessels must be manned by Nigerian citizens
- Cabotage vessels must be built in Nigerian shipyards

II. BRIEF REVIEW OF RELATED LITERATURE

A. Concept of Cabotage Policy and Implementation

The word Cabotage means inland trade along coastal waters. It is the navigation and movement of ships in coastal waters by a country to its own domestic traffic. But such coastal trade must be guided by some international conventions and rules that equally govern maritime operations. It is common knowledge that Nigerian cabotage is a vessel type of cabotage, which is similar to what operates elsewhere as in most advanced countries such as the United States of America. Ideally, operational modalities of U.S. based cabotage are quite distinct from Nigerian cabotage concept.

Taking due account of inadequate indigenous capacity, the cabotage Act advocates a liberal cabotage policy through the use of the internationally recognized waiver system. The waiver principle, as provided by the Act, is based on non-availability of Nigerian-owned, crewed or built vessels. The objective of the cabotage Act is primarily to reserve the commercial transportation of goods and services within Nigerian coastal and inland waters to vessels flying the Nigerian flag and owned by persons of Nigerian citizenship (Ndikom, 2005).

Across the globe, the wind of change is blowing. The global economy is daily witnessing unprecedented structural changes with privatization and commercialization being the driving market forces. The multiplier effect of these is the elasticity of demand which daily poses challenges to the industries. The nature of Nigeria economy, its peculiar position and the role it plays in the world does not permit undue stagnancy. It must move with time and in accordance with the international pace and standard. The Nigerian cabotage Act for instance was fashioned after the Jones Act United States of America, which has, since the enactment, developed an enviable fleet of vessels and generated considerable employment for its citizens.

The commencement of the cabotage regime has indeed elicited a much wider scope of operations with honest expectations of positive reactions and responses for possible returns from Government's good gesture. The institution of an indigenous cabotage regime is seen as a necessary tool for the protection of local ship owner's interest in the carriage of locally generated cargo. The term cabotage has indeed become a familiar word in recent times especially within the Nigerian maritime industry. Cabotage is seen by stakeholders as a fundamental tool in restricting coastal trading to the citizens of a nation's state. Nigerians are daily confronted with the realities of a growing need to strengthen the economy: a means of doing that reflects in the development of a vibrant maritime sector. A large percentage of revenue in any country with a vast maritime coastline like Nigeria is generated through import and export of goods and then, down to the coastline. Cabotage

policies are the building blocks of maritime infrastructure upon which the transport industry depends. The development of a good national maritime infrastructure would make for accelerated growth in the Nigerian maritime industry and provide meaningful engagements and exchange of technology with other maritime nations of the world. The institute of a cabotage regime in Nigeria is highly desirable basically for all the advantages it is bound to offer for the maritime industry and the nation as a whole (Iheanacho, 2005).

It is pertinent to note here that, in Nigeria, foreign shipping companies, unfortunately, dominated the maritime sector over the years to the detriment of the indigenous operators. Shipping activities are expensive in Nigeria due to lack of direct and indirect fiscal measures by the Nigerian Government.

The local and indigenous shipping vessels have not been able to compete favourably with the foreign flagged and crewed shipping vessels. The consequences have been substantial revenue and employment opportunities have eluded the country. The problems and complications within the shipping industry have deepened even with the advent of the cabotage law. The local operators are not really benefiting from the law, as foreign shipping partners are still exhibiting strong domination without leaving any sort of crumbs for the indigenous operators.

Over the years, world shipping has been dominated by traditional maritime powers. This domination has been well consolidated by deliberate strategies, with the monopolistic policies of sharing of routes in the 1880s. The maritime powers steadily sought to control the shipping markets to their advantage, culminating in the Hague Conference of 1923/24, which gave birth to the Hague Rules. The defining feature of The Hague Rules (and the subsequent Hague-Visby Rules), was the limitation of liability of ship owners to stated package or definitions. This ability of ship owners and, by extension, ship owning nations to limit their liability to trading partners defines their control of the market and uses to which they can put such control.

B. Challenges of Cabotage in Nigeria

The sorry state of our indigenous capacity has not been lack of laws or lack of government polices. One would recall the acquisition by government of a fleet of twenty nine vessels in the late 70s and the ship Acquisition and shipbuilding Fund set up under the National shipping policy of 1987. The government is very conscious of the factors that contributed to the failure of those initiatives. She intends to learn from the mistakes of the past and work towards the success of the cabotage regime. She therefore identified enforcement as one of the fundamental challenges, which must be properly executed for an effective implementation of the cabotage law. Effective enforcement has been the bane of much good legislation in Nigeria. It is my honest hope and expectation that this law does not suffer such fat. Extensive and practical enforcement provisions and provided in the Act in order for the cabotage Act to achieve its laudable objectives. It has provisions to curb, if not completely, eliminate subversive practices by stakeholders. The ownership criteria are indeed very vigorous and any contravention of those provisions is criminalized in the Act (Ndikom, 2004).

It would therefore be quite difficult to have respectable citizen lend their names as fronts to foreign ship owners. Nigerians are thus advised to take counsel from their lawyers before they permit the use of their names as shareholders, holding shares in trust for persons not eligible to own specified categories of cabotage vessels. This is where Nigeria operators should borrow a leaf from the maritime cabotage Task force in the United State of America on effective monitoring of compliance with the Act (Ndikom, 2004).

To emphasize the determination of government to be transparent in the enforcement of this law, not even the minister of transport is spared by the Act. This is arguably one of the very few laws that circumscribe the minister's traditional discretion. The Act prescribes the procedure to be followed by the minister prior to granting waivers. The government, conscious of the need to demonstrate transparency and to encourage participatory decision making invited representatives of all the key stakeholders in the industry to participate in developing modalities for an efficient implementation of the cabotage Act. The result of the exercise was the production of the cabotage Act implementation guidelines by the ministerial committee. (Ndikom, 2008).

The point being made here is that the government guided by the cabotage Act and with tremendous input from the industry has produced an implementation strategy for the successful take–off the cabotage regime. Apart from determining the institutional framework for efficient implementation of the law, the guidelines set out in great details, procedures for the various categories of registration, ministerial waivers, enforcement cabotage, vessels financing, fees and tariff. Beyond involving a wide array of key players in the ministerial committee, the federal minister of transport is actively and on a continuous basis engaging every economic sector, government ministries and agencies who are directly or tangentially connected to the cabotage Act.

C. Cabotage Law Prospects in Nigeria

The level of sustained media campaigns that greeted the introduction of the cabotage law, sponsored by the shipping industry in 2004 is a demonstration of the renewed and assured hope that the problem of foreign domination of local lifting of cargo will soon be over. The commencement of the cabotage law in may 2004 signposts a new vista of shipping business and market opportunities for indigenous Nigerian ship-owners and management interest (Ihenacho,2004)**.** The capitalization of the lucrative shipping market opportunity is expected to take place as a result of the restrictions placed by provisions of the cabotage law. The market reservation provision of the law is intended to achieve for Nigeria owners/operators interest only, the effect of reserving a significant portions of Nigeria's coastalshipping market, particularly in the areas of coastal carriage of goods, coastal transport of men and materials, supply of offshore vessels differing operational and market role description supply of all manners of shipping services between al Nigeria coastwise and offshore location (Owolabi, 2007).

The commencement of the cabotage regime is supposed to effectively signal the rebirth of Nigeria's status as a budding regional maritime power. The scope and

coverage of this cabotage coastwise trading limits includes the coastal business in the transshipment of imported petroleum products, carriage of all manners of goods and passengers and offshore service vessels supply opportunities (Onwukwe,2005).Cabotage is neither a new fangled idea nor an industrial application particularly unique to the operations of the Nigerian economy. Most maritime nations of the world maintain one form of cabotage regime or another in the support of developmental and growth requirements of their merchant shipping industry. In the light of this, therefore, the recent introduction of the cabotage in Nigeria should not be looked on as an aberrant partisan measure, conceived by a bunch of overzealous nationalists in Nigeria's shipping industry. It isin fact, and reality, for the interest of Nigerian Maritime operators and policy planners, a bid to catch up on a practice long developed and perfected elsewhere, which recognizes the need to safeguard a nations' economic and national security circumstances, through restrictions on foreign owned businesses, in regard to the extent to which they may attain access to coastal maritime locations and trade. The cabotage law in Nigeria's maritime trade is, therefore, as intuitively reasonable as it is logical (Ihenacho, 2004).

Having moved to the point where the provisions of the cabotage Act have been fully articulated and enacted, it remains the hope and expectations that in the light of the compelling imperatives which underpinned the campaign for the promulgation of this law, the extraordinary resources and energies that were mustered and deployed in the pursuit of these imperatives would similarly attend the requirements to ensure the successful implementation of the Act.

III. OBJECTIVES OF STUDY

The main objective of this research is to assess the influence of Cabotage operation on the Nigerian Maritime Industry. Other specific objectives include;

- To assess wholly, the level indigenous owned vessels are used in cabotage trade operations.
- To estimate the number of Nigerian registered vessels that are used in cabotage trade operations.
- To assess the extent to which indigenous human capacities are involved in cabotage trade operations.

IV. RESEARCH HYPOTHESES

1) H_{01}: Indigenous owned vessels used in cabotage trade operations are not statistically significant.
2) H_{02}: Nigerian registered vessels used for cabotage trade operations are not statistically significant.
3) H_{03}: Indigenous human capacities involved in cabotage trade operations are not statistically significant

V. RESEARCH METHODOLOGY

The multi-linear regression analysis was used to model the relationship between cabotage operations in Nigeria and the four pillars of cabotage. Kasypi (2006), opines that, the aim of using multiple regression is to examine the nature of the relationship between the dependent variable and two or more independent variable in the regression function. The model describing the relationship between the dependent

variable 'y' and a set of 'k' independent variables "x_1, x_2... $x_k$can be expressed as follows;

$$LogY = B_0 + B_1 LogX_1 + B_2 LogX_2 + B_3 LogX_3 + ut \quad (1)$$

Where:
Y = Cabotage Trade operations
B_o = Constant
X_1 = Indigenous owned vessels
X_2 = Number of vessels registered in Nigeria
X_3 = Indigenous human capacities manning cabotage vessels
U = Error term

B_o is the baseline while B_1, B_2, and B_3, are coefficients of the regression parameters to be estimated. The values of the coefficients are obtained using the ordinary least square method. The values will be gotten from the output of the Statistical Package for Social Scientist (SPSS V20).The sign and value of the estimators indicates the proportionate direction and magnitude of effect each independent variable (input) will have on the dependent variable (output). For instance, a positive sign will indicate a direct proportionate effect.

The parameters B_o, B_1, B_2.... B_3 are coefficients of regression parameters of the equation and are obtained by making use of the logarithm of the secondary data obtained to run OLS regression analysis on SPSS, chosen for its simplicity and accuracy.

VI. RESULT AND INTERPRETATION

In this section, result of the ordinary least square (OLS) regression analysis is presented. The analysis of the result involves subjecting the parameters estimate to theoretical statistical and econometric test to determine their robustness.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.999 a	.998	.996	.01271	2.604

Table 1: Regression Analysis Output Model Summary[b]
- Predictors: (Constant), Number of Nigerian built vessels in cabotage trade, Number of Nigerian crews onboard cabotage vessels, Number of Nigerian vessels Registered for cabotage operations, Vessels owned by Nigerians in cabotage operations
- Dependent Variable: Cabotage Operations

A. ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.323	4	.081	499.810	.000[b]
	Residual	.001	5	.000		
	Total	.324	9			

Table 2: Anova
a. Dependent Variable: Cabotage Operations
b. Predictors: (Constant), Number of Nigerian built vessels in cabotage trade, Number of Nigerian crews onboard cabotage vessels, Number of Nigerain vessels Registered for cabotage operations, Vessels owned by Nigerians in cabotage operations

B. Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.537	.082		6.553	.001
Vessels owned by Nigerians in cabotage operations	.043	.029	.088	1.498	.194
Number of Nigerain vessels Registered for cabotage operations	.083	.021	.114	3.910	.011
Number of Nigerian crews onboard cabotage vessels	.763	.022	.901	35.151	.000
Number of Nigerian built vessels in cabotage trade	.045	.033	.069	1.377	.227

Table 3: a. Dependent Variable: Cabotage Operations

C. Test for Goodness of Fit

The relationship parameters are: coefficient of correlation (R) = 99.9%, coefficient of determination (R^2) = 99.8%, and adjusted coefficient of determination (99.6 %). The above imply that 85.9% of the variation in Cabotage operations per year can be explained by the variation in the independent variables, 0.2% could be explained by parameters not included in the model. The coefficient of correlation value of 99.9% implies that, there is a very strong positive correlation between the dependent and independent variables. This implies that there is a high goodness of fit between the dependent and independent variables. The adjusted R-square of 99.6 % means that the model has accounted for 99.6 % of the variance in the independent variable. The remaining 0.4% of the variation is explained by stochastic factors. Taking a critical look at Figure 4.0 shows the beta values of the explanatory variables relative to cabotage operations.

D. Estimating the Research Model for Cabotage Operations in Nigeria

$$\hat{Y} = B_O + B_1(X_1) + B_2(X_2) + B_3(X_3) + ut \quad (2)$$

Cabotage Trade Operations = $0.537 + 0.043(X_1) + 0.083(X_2) + 0.763(X_3) + 0.01271$ (3)

The significance of the above model is tested by way of the F-test using the Analysis of variance (ANOVA) approach. The interpretation of the regression line is that, there is a direct proportionate effect on the independent variable such that the influence of cabotage trade operations on the Nigerian maritime industry will increase by; 0.043% for a percent increase in X_1(Indigenous owned vessels), 0.083% for a percent increase in X_2(number of Nigerian registered vessels for cabotage trade), 0.763% for a percent increase in X_3(Indigenous human capacity onboard cabotage vessels). The regression intercept have a positive value which shows a direct proportionate relationship with the dependent variable

E. Test for Hypothesis 1

1) H_{01}: Indigenous owned vessels used in cabotage trade operations are not statistically significant.

From the regression output, the coefficient of X_1 is 0.043 and the standard error is 0.029, therefore;

$$T_1 = 0.043 / 0.029 = 1.498$$

This value corresponds with the X_1 't-stat' value of the regression output; the sig – value of X_1 variable is 0.194. Since the sig- value is greater than 0.05. Therefore, X_1 is not statistically significant, then we accept the null hypothesis, i.e Indigenous owned vessels used in cabotage trade operations are not statistically significant**.**

F. Test for Hypothesis 2

1) $H0_2$: Nigerian registered vessels used for cabotage trade operations are not statistically significant.

From the regression output, the coefficient of X_2 is 0.083 and the standard error is 0.021, therefore;

$$T_2 = 0.083 / 0.021 = 3.910$$

This value corresponds with the X_2 t-stat value of the regression output, and the sig-value of (0.011) is less than 0.05, the calculated t- value (3.910) is greater than (1.90) tabulated t-value at (7) df. Based on the Sig-value, the null hypothesis was rejected, that is; Nigerian registered vessels used for cabotage trade operations are not statistically significant.

G. Test for Hypothesis 3

1) H_{03}: Indigenous human capacities involved in cabotage trade operations are not statistically significant.

From the regression output, the coefficient of X_3 is (0.763) and the standard error is 0.022 therefore;

$$T_3 = 0.763/0.022 = 35.151$$

This value corresponds with the X_3 t-stat' value of the regression output, and the sig-value is 0.000 < 0.05 and the calculated t value (35.151) is greater than the tabulated t value (1.90) at (7) degrees of freedom (df). Based on the sig-value, (0.000 < 0.05), then the null hypothesis was rejected, that is; Indigenous human capacities involved in cabotage trade operations are not statistically significant.

H. Identification of the Critical Factors influencing Cabotage Trade Operations in the Nigerian Maritime Sector

The regression statistics in table 1.0 shows a strong correlation existing between Cabotage trade operations and the identified pillars of cabotage. The *R*-value stood at 99.9% and the coefficient of determination also gave a value of 99.8%. This implies that the four pillars of cabotage X_1-X_3 are accountable for the influence of cabotage trade operations on the Nigerian maritime sector. Looking at table 1.0 also shows the Beta values of the pillars of cabotage relative to the Total cabotage trade operations. Considering the variables that have positive Beta values for the selection of the critical factors, we present X_1 whose Beta value is 0.043. This is followed by variable X_2 with Beta value 0.083, X_3 with Beta value of 0.763. From these Beta values, the factor with the highest Beta coefficient becomes the most critical factor relative to cabotage trade operation problems. Consequently, variable X_3 whose Beta value stood at 0.763 is the most critical and influential factor.

VII. DISCUSSION OF FINDINGS

From the results obtained in this work, several observation and interpretations can be made. The results obtained from the above model are discussed in as follows:

1) The coefficient of Nigerian Registered Vessels parameter (X1), indicates a direct proportionate relationship with Cabotage Operations in the Nigerian economy.
2) The coefficient of Nigerian Trained Crew (X2) variable, indicates a direct proportionate relationship with Cabotage Operations in the Nigerian economy.
3) The coefficient of Nigeria Built Vessel (X3) variable, indicates an inverse proportionate relationship with Cabotage Operations (COP) in the Nigerian economy.
4) The R2 value obtained for the model is high and aligns within the acceptable range, hence the model has a high goodness of fit and confirms that 99.8%, variations of the dependent variable Cabotage Operations is explained by the independent variables.
5) The value of the F- ratio (ANOVA- approach) tested on the model shows that the regression parameters are not all equal to zero. Since the calculated F-value (499.810) is greater than the tabulated F- value (2.70), implies that all parameters are not equal to zero, thus the model is significant.
6) The value for the adjusted R2 (99.6%) tends to approve the results of the regression model, since it is fairly close to 100%, suggesting that the overall model is adequate to fit the variables confirming the reliability and accuracy of the model.

Generally, the above findings reveal that the model is reliable and able to predict and estimate the implementation the Influence of Cabotage Trade Operations on the Nigerian Maritime Industry for the years under study.

VIII. CONCLUSION

In conclusion, cabotage trade operation in Nigeria needs strict control and management measures so that the problems of foreign domination can be effectively check mated and maximum efficiency achieved. To solve foreign domination problems in our maritime sector, we must also encourage private/ public sector investment in the development of maritime infrastructure, such as ports, waterways and inter-modal connections, vital links to multi-modal transport network, and reliable and cost-effective coastal feeder services, to improve inland waterways transport development, to enhance productivity, competitiveness and operational performance which will strengthen national security.

IX. SUGGESTIONS FOR FURTHER RESEARCH

This research could aid further researches especially in the area of developing a factor analytical model to model the factors negating the development and full implementation of the cabotage Act in the Nigerian maritime sector. Also further researches can be done on cabotage Act implementation using Cost Benefit Analysis (CBA) model, which can also be used to compare the relative influence of cabotage trade operations in terms of economic gains adjusted for technical efficiency.

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