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Institute of Research and Journal (IRAJ) is an advanced Non-profit technological forum registered under Peoples Empowerment Trust, situated at Bhubaneswar, Odisha, for the Researchers & Scholars "to promote the progress of Science and Technology" by displaying their knowledge in the vicinity of Science and Technology for the service of mankind and the advancement of the general welfare.

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EDITORIAL

It is my proud privilege to welcome you all to the The IRES International Conference at Lagos, Nigeria. I am happy to see the papers from all part of the world and some of the best paper published in this proceedings. This proceeding brings out the various Research papers from diverse areas of Science, Engineering, Technology and Management. This platform is intended to provide a platform for researchers, educators and professionals to present their discoveries and innovative practice and to explore future trends and applications in the field Science and Engineering. However, this conference will also provide a forum for dissemination of knowledge on both theoretical and applied research on the above said area with an ultimate aim to bridge the gap between these coherent disciplines of knowledge. Thus the forum accelerates the trend of development of technology for next generation. Our goal is to make the Conference proceedings useful and interesting to audiences involved in research in these areas, as well as to those involved in design, implementation and operation, to achieve the goal.

I once again give thanks to the Institute of Research and Journals, The IIER & The IRES for organizing this event in Lagos, Nigeria. I am sure the contributions by the authors shall add value to the research community. I also thank all the International Advisory members and Reviewers for making this event a Successful one.

Editor-In-Chief

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THE IMPACT OF LOGISTICS PERFORMANCE INDEX ON TRADE OPENNESS IN AFRICA

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Abstract - Logistics activities affect the costs of international trade and thus the recovery of the economies of States, since the efficient and effective management of logistics performance makes countries more competitive internationally. The objective of this study is to develop a framework to link logistics performance and trade openness through the adoption of a standard analytical study for African countries, where trade openness helps cross-border production, leading to productivity gains and accelerated economic growth, and to examine the impact of the logistics performance indicator on trade openness using a statistical model, the results of which show that the logistics performance indicator does not affect African countries, which shows that the countries are moving toward development and investment in the logistics industry as a key to be an essential component of trade.

Keywords - Logistics Performance Index, Macro Economics, International Trade, Trade Openness, Africa.

I. INTRODUCTION

International trade plays a vital role in any successful economy. Trade openness helps cross-border production, leading to productivity gains and accelerating economic growth. Since logistics is an important part of the economic and trade system and economic activity (international trade: import and export, GDP), the importance of this research is to shed light on what logistics can contribute to supporting the movements and flows of commercial transactions.Logistics has become a common term in the world and is no longer the same as it was confined to international companies only, but logistical practices have extended to the level of the world as they are able to increase competitiveness and its impact on the international sector in demand and supply, and then in international trade.

According to Hollweg& Wong [1], logistics is the ability to transport goods quickly, reliably, and at low cost, ensuring that many problems are solved through its activities such as transport and storage, which contribute to increasing the competitiveness of companies and countries.The objective of the research is to develop a link of logistics performance with the trade openness of countries through a study to analyze the impact of the Logistics Performance Index on the trade openness of the African continent, and to determine the relative importance of this indicator on trade openness taking into consideration some economic indicators and population growth in African countries.

II. LITERATURE REVIEW

A. Logistics Performance Index

It is worth mentioning that the logistical activities of countries, except to mention the term logistics performance index, which was developed and developed by the World Bank in 2007, was updated and expanded in 2010 to measure the logistics performance of countries according to certain criteria and ranking based on their results. He pointed out [2] that the Logistics Performance Index (LPI) is the most comprehensive data indicator to measure the logistic performance of the countries of the world, which is the role of comparing the logistics performance between countries and determine the needs and priorities of countries to improve their logistics performance and also able to provide information of great value States in general and companies operating in these countries or intending to operate in particular.Young Tae Kim [3], Secretary General of the OECD International Transport Forum noted that the World Bank Logistics Performance Index (LPI) is a unique benchmarking tool, providing the same measure for more than 160 countries and that the Forum itself is using this indicator as the most important starting point for dialogue With its members on the basics of logistics performance.
The Logistics Performance Index consists of six axes: First: Customs by Customs Efficiency and Clearance of Border Management; Second: Infrastructure through Quality of Infrastructure related to Trade and Transport; The quality of the logistics services, Fifth: Follow-up and tracking through the ability to track and track shipments, Sixth: Timing by the frequency of shipments to the recipients on time for the scheduled or expected delivery as shown in the Fig.2. These indicators were selected on the basis of theoretical and empirical research and on the practical experience of logistics personnel involved in international shipping [3].The researchers [4] confirmed that the Logistics Performance Index is able to improve trade facilitation between the countries of the world. Logistic Performance In many researches that have been addressed in the study of the logistic performance index and its relationship to other economic and social indicators.

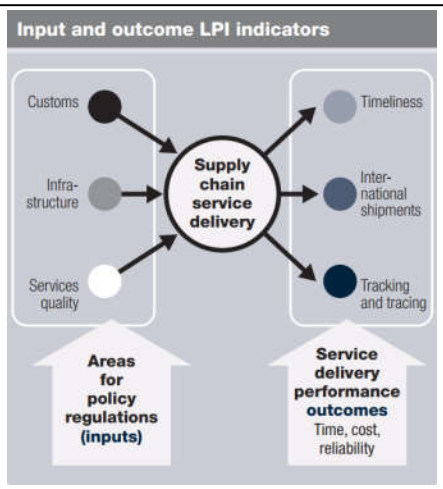

Fig. 1Input and output LPI indicators [3].

B. International Trade

Trade is vital to a successful economy, and trade openness helps cross-border production, leading to productivity gains and accelerating economic growth. Many researchers[5],[6] & [7], knew that trade openness International trade as a percentage of total trade imports + exports to the country's national income GDP. Trade liberalization not only promotes economic aspects but also social aspects such as living standards, life expectancy and export expansion accelerates economic growth by generating positive externalities through specialization, efficient resource allocation, improved production techniques, competition, economies of scale Effective management As foreign exchange provides for the import of capital and intermediary goods, which in turn increases capital formation and hence domestic production, high productivity reduces the cost of production per unit that increases international export competitiveness. However, if domestic production is larger than domestic demand, producers in an open economy will try to sell it abroad and grow internally [8].The importance of international trade has increased over time due to the availability of surpluses in some countries and the shortage in other countries. Produce it as needed by the production of others in other words foreign demand.

C. Relation of the Logistics Performance Index to the growth of international trade volume

The result of one study is that there is a strong statistical correlation between transport costs and international trade flows and a clear link between the quality of infrastructure and transport costs. The Impact of Logistics Activities on Trade Attention of researchers, and some researchers focused on logistics activities in the context of the discussion of trade facilitation. Shipping has been analyzed by Fink, Mattoo&Neagy,[9]. In addition, the size of the global logistics sector is not clearly known, and the existence of a large number of studies gives evidence that inefficient logistics performance can have negative effects on World trade One of them is the delay while waiting for shipping by transporting containers from the manufacturing site to a ship at the nearest port, which is why trade is reduced by more than 1% [10].The researcher [11] examined the logistic performance index with an independent variable and the international trade index of exports of goods and services as a dependent variable.

The result of this study showed that logistics has a big impact on international trade where the logistic indicator can boost exports to countries and eventually Economic growth is also greatly affected by exports because it changes the balance of payments of the state for the better by reducing its deficits and strengthening the value of the local currency. Import of services as a percentage of gross domestic product [8].

III. RESEARCH METHODOLOGY

The research used quantitative methodology in the analysis based on the standard analytical method, where the quantitative data are extracted from the logistic performance index and some economic indicators such as: foreign direct investment, GDP, exchange rate and government expenditure, population growth and their relation to trade openness during the study period (2007-2016). And estimate their impact on trade openness, using the statistical program (EViews8).

The research used a statistical model based on the data of the sectoral time series (Panel Data), and the majority of economic research depends on the models or data of the sectoral time series (Panel Data), which is cross-statistical data that change according to the time index on the one hand and an indicator other than time such as change Logistics performance index by time index and by country on the other hand. In addition, it gives more accurate results because it takes into account time-dimensional data in the time series and cross-sectional dimension in different units. Sectoral time series data have several advantages: first, controlling the heterogeneity of the special variation that may appear in the case of cross-sectional or sectoral time-series data; second, sectoral time-series data give better efficiency, increased freedom, as well as less linear multiplicity between variables; More information when using cross-sectional data or time series [12].

A. The research samples

The sample used for this research will consist of 22 countries from the continent of Africa. These countries were selected according to the availability of data for the variables within this research. Of the Logistics Performance Index by the World Bank reports issued in those years 2007, 2010, 2012, 2014 and 2016, as shown in the table I.

Africa					
#	Country	#	Country	#	Country
1	Algeria	8	Guinea	15	Liberia
2	Angola	9	Guinea-	16	Niger
3	Benin	10	Kenya	17	Nigeria
4	Burkina	11	Côte	18	Rwanda
5	Cameroon	12	Egypt	19	Senegal
6	Chad	13	Gabon	20	S.Africa
7	Comoros	14	Ghana	21	Sudan
				22	Tunisia

Table IAfrican countries used in this study

B. Variables of this study

The researchers identified the variables studied and analyzed their results and confirmed the impact of the independent variable on the dependent variable, where the independent variables were identified, namely the logistics performance index and exchange rate index, foreign direct investment index, government expenditure index, GDP and population growth.In addition to the dependent variable in this study, which is trade openness, which is the sum of exports and imports as a percentage of GDP, as shown in the Fig.2.

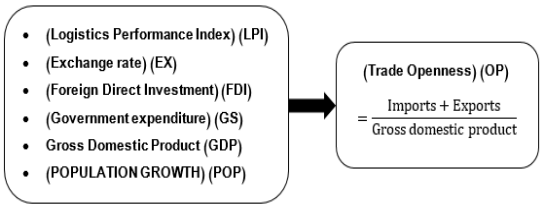

Fig.2 The variables of this study

C. Unit Root Test

The researcher subjected all the variables of the research from independent variable and dependent variables and control variables to test the static variables based on their initial values level shows no static, so the values of the variables were converted to logarithms, and the results of the test of the static variables as shown in the following table II of the African continent.

Africa			
Variables	PP		Levin, Lin & Chu
	At level		At level
Log LPI	Statistic	82.3923	-7.92244
	Probability	0.0004	0.0000
Log GDP	Statistic	93.7444	-24.3016
	Probability	0.0000	0.0000
Log OP	Statistic	69.3911	-2.36688
	Probability	0.0086	0.0090
Log EX	Statistic	102.129	-4.41010
	Probability	0.0000	0.0000
Log POP	Statistic	77.3569	-5.10460
	Probability	0.0000	0.0000
Log FDI	Statistic	96.5072	-22.4155
	Probability	0.0000	0.0000
Log GC	Statistic	88.6138	-10.6153
	Probability	0.0001	0.0000

Table II Stability test results of model variables using PP and LL test

D. Hausman Test

The results of the Haussmann test showed the selection of the Random Effects Model for the African countries shown in Table III.

Variable		Chi-Sq Statistic	Probability	Decision
Log OP	DEPENT	7.395	0.2858	REM
Log LPI	Non-DEPENT.			
Log OP	DEPENT	7.131	0.3089	REM
Log EX	Non-DEPENT.			
Log OP	DEPENT	7.827	0.2510	REM
Log GDP	Non-DEPENT.			
Log OP	DEPENT	7.281	0.2956	REM
Log FDI	Non-DEPENT.			
Log OP	DEPENT	7.202	0.3025	REM
Log GC	Non-DEPENT.			
Log OP	DEPENT	6.830	0.3369	REM
Log POP	Non-DEPENT.			

Table III Hausman test results for African countries

E. Measuring the impact of the Logistics Performance Index on African trade openness

After the preparation of the data starting from the Unit Root Test, followed by the Hausman Test to select the appropriate model for the data of countries in the continent of Africa, was selected a random effects model, and on that basis on this model on all search variables as shown in equation 1.

$$LogOp = \beta 0 + \beta 1 LogFDI + \beta 2\, LogGC + \beta 3\, LogGDP \dots\dots\dots\dots\dots\dots 1$$

$$LogOp = 2.936684 + 0.072FDI + 0.360GC + 0.116GDP \dots\dots\dots\dots\dots\dots\dots 2$$

As shown in equation 2, the results of estimating the data for using the random effects model at an explanatory power R^2 is 30.5% and are detailed in table IV.

Dependent Variable: LOP
Method: Panel EGLS (Cross-section random effects)
Date: 09/30/19 Time: 15:57
Sample: 2007 2016
Periods included: 5
Cross-sections included: 22
Total panel (balanced) observations: 110
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.936684	0.257364	11.41062	0.0000
LFDI	0.072881	0.025189	2.893333	0.0046
LGC	0.360883	0.095815	3.766465	0.0003
LGDP	0.116448	0.030334	3.838938	0.0002
	Effects Specification			
			S.D.	Rho
Cross-section random			0.296978	0.7611
Idiosyncratic random			0.166393	0.2389
	Weighted Statistics			
R-squared	0.304745	Mean dependent var		0.995500
Adjusted R-squared	0.285068	S.D. dependent var		0.199761
S.E. of regression	0.168905	Sum squared resid		3.024071
F-statistic	15.48732	Durbin-Watson stat		1.982102
Prob(F-statistic)	0.000000			
	Unweighted Statistics			
R-squared	0.276378	Mean dependent var		4.095803
Sum squared resid	13.48291	Durbin-Watson stat		0.845369

Table IV

According to the results of the data estimation it is clear that:

- There is a positive impact of foreign direct investment on trade openness in the study sample from the continent of Africa, where when there is a one per cent increase in foreign direct investment, an increase in trade openness by 7%, and therefore a positive economic impact
- There is a positive impact of government spending on trade openness in the study sample from the continent of Africa, where when there is a one per cent increase in government spending will result in an increase in trade openness by 36%, a significant impact of economic progress.
- There is a positive impact of GDP on trade openness in the study sample from the continent of Africa, where when there is a one per cent increase in GDP results in an increase in trade openness by 11.6%, and this has a positive impact on the economy.

IV. CONCLUSION

After all the data for all the variables mentioned in this study were analyzed, the explanatory power of these variables is 30.5%. This means that these variables change by about 31% of the changes in the trade openness due to the independent variables listed in equation 1 for the African countries. The results showed that the logistic performance index, which is considered the independent variable in this study in the continent of Africa is able to influence the impact of trade openness, which is normal because of its weakness in the logistics performance, as shown by the World Bank in this indicator.In addition to the logistical performance index, the exchange rate variable is also another indicator that is unable to influence trade openness and is not related to trade openness in the continent of Africa, which is one of the indicators that cause many problems in the economies of the continent. On trade openness a very large difference follows the GDP variable and to a lesser extent comes foreign direct investment. Only these variables can influence the continent's trade openness, but it should be noted that one of the main reasons for the strong impact of these indicators is the poor performance of the logistics and its six axes separately, rather than the high performance of these indicators themselves.

FUTURE WORK

As part of the above, it is proposed that future research in this area the study of how progress can be made in the Logistics Performance Index for the African States. Comparative studies can be prepared between any of the continents or countries of the world according to the objectives of the study using

the methodology used in this research. It also proposes to study the impact of the logistic indicator on trade openness by incorporating it with a number of legal variables, for example, the institutional and legislative status to cope with the recent developments of the management of the transport system and the development of transport services, or include it with social variables such as: the efficiency of human resources as the main pillar in the development and modernization of transport facilities.

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