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Impact of Customs Clearance Process on the Performance of Consumers, Industrial and Healthcare Products' Manufacturers in Lagos and Ogun States

Oni, Babatope Gabriel | Ojekunle, Ademola Joel

ABSTRACT

The performance of the Nigerian manufacturing sector has been unsatisfactory low. This study therefore investigates the impact of Customs clearance process in Lagos Seaports on the performance of the three dominant sectors namely consumers' goods, industrial goods and Healthcare manufacturers. A questionnaire survey was conducted on twenty-three (23) sampled firms comprised of 7 consumer goods, 10 Healthcare, and 6 industrial goods respectively. This represents 30.4%, 43.5%, and 26.1% of consumer goods, healthcare, and industrial goods respectively. In addition to primary data, time-series data for a period of ten (10) years were collected from secondary sources. Prior to the estimation results of short run and long run estimates the pre-estimation outcomes such as descriptive statistics, correlation analysis, cross-sectional dependence, stationary and co-integration were estimated and reported accordingly. The results of panel Vector Error Correction Model (VECM) estimates show that enhancing Customs clearance at the seaports will effectively help to enhance the performance of the firms. The impact of Customs clearance cost on performance indicators of firms quite varies, higher in industrial goods firms, afterward, healthcare firms and consumer goods firms. The results suggest that firms' performance is much dependent on importation of manufacturing inputs and this characteristic of firms in Lagos and Ogun states makes this study to conclude that economy of this region is still highly import-dependent and the region need more efforts to change this trend.

Keyword: customs clearance, processing cost, Lagos Seaport, manufacturers' performance, impact

INTRODUCTION

The concern for a virile manufacturing sector which can serve as engine of economic development in Nigeria has attracted the attention of academia and professionals alike in recent years. Adofu et al, (2015) believes that high productivity in needed to boost economic growth and the standards of living of the people. He argued that manufacturing is assumed to be more dynamic than other sectors. Thus, a transfer of productive resources to more dynamic sectors would lead to economic growth. Dogara, (2018) established that the level of concern given to the manufacturing sector through adoption of several policies at one point or the other in order to achieve development suggests that the sector is critical to economic growth and development in Nigeria. Victoria (2019) regards the manufacturing sector as a very important sector in an economy because it has the capacity to foster wide and efficient backward and forward linkages among other sectors of the economy. Ekpo, (2020) also discovered that the manufacturing sector is a veritable tool for empowering as well as diversifying the real sector of the economy for growth and development.

Similarly, experts like the president of Manufacturers Association of Nigeria (MAN), Mr. Ahmed Mansur, the former director-general of Nigeria Association of Chambers of Commerce,

Industry, Mines and Agriculture and currently a United Nations Industrial Development Organization (UNIDO) consultant, Mr. John Isemede, also opined that Nigerian economy must have a GDP tending towards a trillion dollars, with the manufacturing sector contributing at least 20 percent before it can be of relevance in today's dynamic world (Business Day, January 01, 2019). In the same vein, the chairman, MAN Apapa Branch, Mr Frank Ike Onyebu, contended that the manufacturing sector has the potential of contributing more than 25 percent to Nigeria's GDP but at present, contributing less than 10 percent due to the poor state of infrastructure such as road, port among others (Thisday, 16 August, 2021). Based on these facts, this study therefore seeks to understand the effects of Customs clearance process on the performance of the three major sub-sectors of the manufacturing sector. With such understandings, relevant measures can be put in place in this direction; consequently, all the potentials of the manufacturing sector mentioned in the above studies can be realized.

Available economic indicators such as annual contribution to gross domestic product (GDP), manufacturing value added (MVA), manufacturing capacity utilization (MCU) etc., over a period of almost four decades (1982 – 2018) have however, shown that the manufacturing sector in Nigeria is far from becoming its best (Anachusi (2015): Data from *CBN Statistical Bulletin*). The Lagos Chamber of Commerce and Industry-LCCI (2019) clamored that the Nigerian manufacturing sector has been on the decline over the past two decades. It stated that the manufacturing contribution to GDP remains at an average of 7 percent over this period.

Fig. 1: Manufacturing sector's contribution to GDP (%) from 1981 – 2013. Source: Anachusi (2015): Data from CBN statistical bulletin

It remarked that the contribution of the Nigerian manufacturing sector is far below the figures recorded in other emerging economies, even countries like Brazil, Thailand, Malaysia, and Indonesia, which were at the same level of development as Nigeria in the 1960s and the early 1970s. For example, the manufacturing sector has contributed up to 20 percent to GDP in Brazil, 35 percent in Thailand, 30 percent in Malaysia, and 28 percent in Indonesia.

Furthermore, the International Centre for Investigative Reporting (ICIR) in 2019 based on the World Bank's data showed that there was no indication of growth in the Nigerian Manufacturing Value Added (MVA) over a period of almost four decades (1982 – 2018). According to the data, the Nigeria's Manufacturing Value Added (MVA) was $33.3 billion in 1981. Instead of increasing, the value reduced rather sharply until it hit $5.1 billion in 1993. Gradually, it rose till it got to $27.5 billion in 2008. Then it dropped to $22.9 billion in 2009, and from there, it skyrocketed to an all-time peak of $54.8 billion in 2014. In 2015, it reduced to $46.6 billion and it's continued on a downward curve ever since. Surprisingly, the figure as of 2018 (36 years later) was $30.9 billion which was the same as the amount it was sometime in 1982 (ICIR, 2019).

Meanwhile, the findings of the economic review done by the Manufacturers Association of Nigeria (MAN) in 2019 and reports from other sources have identified that the conditions at which importers' goods are being cleared at the seaports must improve if improvement in manufacturing performance is in view. For instance, Shittu, (2020); Haastrup, (2020); and Usman, (2020), have observed that cargo clearance processing in Nigerian seaports, (Lagos Sea-

ports in particular), is still done without the aid of the single window system and without the required synergy between stakeholders and clearing agents at the seaports. Due to the absence of a standard single window platform, importers' containers and goods go through too many interventions from Customs, which results in a lengthy process, for instance, after containers have been examined, there is yet a need by the CG Taskforce to examine the same consignment within and outside the seaport. The important point is that effective and efficient clearance of importers' containers at the seaports cannot be achieved where containers must go through manual a process and undergo 100 % physical examination of cargo due to the lack of scanners at the seaports for a speedy process of inspection of cargo.

In fact, owing to the conditions under which cargoes are cleared at the seaports, the study by Delloitte, (2017), found out that Customs clearance alone accounts for over 80 percent of overall seaport charges borne by manufacturers at the Nigerian seaports. Similarly, Cotecna, (2021) has observed that it takes two to three weeks instead of 48hours United Nations benchmark to clear cargo in Nigerian seaports and other national borders. Furthermore, a recent report by Ogunojemite-the National President of Africa Association of Professional Freight Forwarders and Logistics Nigeria, in FleetMon August 17, 2021, shows that owing to delays resulting from slow digital platform and servers, it has been estimated that an estimate of $485million was paid by Freight Forwarders and importers, mostly, manufacturers within a period of two weeks as demurrage and delays charges. The point here is that the conditions at which importers' cargoes are being cleared at the seaports might have implications for manufacturing business performance.

Several studies have studied cargo clearance procedures in connection with firm performance. Holzner and Peci (2009) investigated the impact of formal and informal institutional factors in customs procedures on small and medium-sized enterprises in Kosovo. It shows that a positive and significant relationship exists between formal and informal institutional factors in customs procedures and turnover of small and medium-sized enterprises. Similarly, Agbesi, (2013) investigated the impact of Information and Communication Technologies ICT on the clearance of goods at Ghana ports of Tema and Takoradi. Findings show that Information and Communication Technologies ICT are reshaping the logistics systems from traditional methods to modern logistics and contributing increasingly to the efficiency of urban goods transport.

In his study, Nicholas, (2017), examined the extent of automation at the Kenya-Uganda border. It also established the effect of the cargo tracking system on the level of trade between Kenyan and Uganda. Data was collected using a semi-structured questionnaire. Using the purposive sampling design and the regression model, he found out that the cost of monitoring transit cargo had been reduced as a result of the introduction of the cargo tracking system. The study infers that an electronic cargo tracking system improves the border efficiency, and reduction of transit time and the cost of private business.

Again, Onogwu, (2018) investigated the effect of corruption on the efficiency of customs service in Nigeria, Benin, Chad, Ghana, and Cameroon. Based on secondary data, (data of the total economy aggregate corruption index as a proxy for corruption from world development

indications world economic forum, executive opinion survey), the study identified a robust relationship between corruption and the effectiveness of the customs service is. It therefore concludes that a significant relationship exists between corruption and the effectiveness of the customs.

In this same vein, Rhodalyn, (2018) investigated the impact of a single-window system on trade competitiveness in Ghana's Marine trade sector. Using Tema Port as a case study, a sample size of 100 respondents, a purposive sampling technique, a questionnaire survey method of data collection and secondary data, and Statistical Package for Social Sciences (SPSS) as a data analysis technique, the study found out that, Trade facilitation has been enhanced along the supply chain following the implementation of single windows system.

Furthermore, Kabui, Gakobo, and Mwaura (2019) studied the effect of single windows on shipping procedures, pre-clearance permits and customs goods declaration procedures at the port of Mombasa. A structured questionnaire was used to collect data from 112 respondents through a stratified sampling technique. The study found that single windows concept has a positive effect on shipping procedures, pre-clearance, customs goods declaration procedures and hence improved cargo clearance efficiency at the port of Mombasa.

In the vein, Bassa et al, (2021) assessed the effect of paperless information technology (IT)-based custom clearance at Ghana Seaports on businesses and industrial supply chains in Ghana. The study conducted a survey with a sample size of 200 trading firms in Ghana. The result of the study showed that IT-based port clearance has positive impact on customer order fulfillment, transaction cost reduction and supply chain relationships. Based on this finding, there is a relationship between IT-based port clearance and customer order fulfillment, transaction cost reduction and supply chain relation.

Nguyen et al, (2021) identifies the drivers and barriers of e-customs implementation in Vietnam (known as a developing country with a lower technological environment) along with determining the impact of e-customs on firm performance. The survey was conducted with managers of firms in five cities and provinces dominating Vietnam's international trade. The data was analyzed using structural equation modeling (SEM). The findings show that relative advantages and national culture are the two significant drivers while compatibility and ease of use are the barriers. Additionally, the study established that e-customs implementation had a positive influence on firm performance in Vietnam. This study is foreign-based and limited in scope.

In all the studies above, the actual effect that cargo clearance costs in seaports have on specific performance indicators like turnover, cost of sales, and profit of specific business sectors in Lagos and Ogun industrial zones (the nation's economic hub), is not clear. If the manufacturing sector is to optimally tackle its low and unsatisfactory performance, it must identify and target specific aspects of manufacturing that are clearly adversely affected by the conditions of the cargo clearance process and improve them. The Nigerian manufacturing sector is dominated by the production of cement and building materials, food and beverages, chemicals and fertilizers, wood, and textiles. Out of all these, three sub-sectors namely; consumers' goods (food and beverages), industrial goods (cement), and textiles account for 77 percent of man-

ufacturing output (Selected Global Solution, 2021). Generally, import-related challenges such
as high demurrage charged on stored consignments; delays due to non- standardized clear-
ing processes; traffic gridlocks along port access roads, etc are common to all manufacturing
sectors. These challenges however, seem very peculiar to the operations of certain sectors than
others. The chemical and pharmaceutical sector for instance imports almost 70 percent of raw
materials inputs (MAN. 2020). The fact that businesses differ in terms of level of utilization of
foreign-based manufacturing inputs, conditions of operation, importation level, etc. suggests
that specific policies may be needed for specific sectors of business. This study therefore in-
vestigates the impact of Customs clearance process on the performance of Consumers goods,
Industrial goods and Healthcare Manufacturing Business in Lagos and Ogun States, Nigeria.

LITERATURE REVIEW

Again, Martincus and Graziano (2012) estimated the trade effects of custom-related delays on
firm exports. A dataset that consists of Uruguay export transactions over the period 2002-2011
was used. These include; precise information on the time it took for each of these transactions
to go through the customs (i.e., the time spanning between channel request and shipment re-
lease). The Authors found that delays have a significant negative impact on exports. In partic-
ular, an increase of one day in the median time spent in customs translates into a 1.4% decline
in the growth rate of exports. These effects are however severe for exports of time-sensitive
products to secondary buyers in Organization for Economic Cooperation and Development
(OECD) countries.

Again, Anton, (2013) investigated the effect of customs clearance time on the percentage of im-
ported inputs. The results showed that a 10-day delay in customs clearing of imported goods,
on average; reduce their imports by 1.6 % (4.1% for Ukraine). In their study, Carballo, Grazia-
no, Schaur and Volpe-Martincus (2014) estimated the impact of port-of-entry delays due to
clearance procedures on firm-level imports in Peru. Using regression models, the result shows
that an additional day of delay raises the cost for small firms by about 0.7% and by 0.9% for
large firms. Based on the result, there is a relationship between clearance procedure and firm's
productivity.

Martincus et al, (2015) estimated the effects of custom-related delays on firms' exports. The
study used a unique dataset that consists of the universe of Uruguay's export transactions over
the period 2002–2011 and includes precise information on the actual time it took for each of
these transactions to go through customs. The study found that delays have a significant nega-
tive impact on firms' exports along several dimensions. Impacts are more pronounced on sales
to newer buyers. Nguyen et al, (2020) identify the drivers and barriers of e-customs implemen-
tation in Vietnam (known as a developing country with a lower technological environment)
along with determining the impact of e-customs on firm performance. The survey was con-
ducted with managers of firms in five cities and provinces dominating Vietnam's internation-
al trade. The data was analyzed using structural equation modeling (SEM). The findings show
that relative advantages and national culture are the two significant drivers while compatibil-
ity and ease of use are the barriers. Additionally, the study established that e-customs imple-
mentation had a positive influence on firm performance in Vietnam.

METHODOLOGY

Theoretical framework

This study hinges on an economic theory of production (Akintayo, 2010), which explains the principles by which a producer such as a manufacturing firm decides how much of its goods it will produce with (how much of) its factors of production such as labour, raw material, fixed capital good, etc., that it employs. The theory is premised on the most fundamental principles of economics. These include the relationship between the prices of commodities and the prices of the productive factors used to produce them and also the relationships between the prices of commodities and productive factors, on the one hand, and the quantities of these commodities and productive factors that are produced or used, on the other.

Consumers' goods, industrial and healthcare manufacturers employ raw materials and other manufacturing inputs. Some of these production materials are imported from foreign sources and are usually transported by sea due to their weight. Hence, customs clearance cost becomes one of such logistics costs borne by manufacturers. This cost is incurred in conjunction with other inputs to produce manufactured goods as the case may be. The fact that consumers' goods, industrial, and healthcare manufacturers incur Customs clearance costs as an input of production suggests a relationship between the cost of cargo clearance and the performance of their business.

Following the theoretical framework, the hypothetical link between the customs clearance process and shippers' business performance is functionally stated as:

$$mbp_{i,t} = f(tccc_{i,t}) \qquad \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots (1)$$

In an econometric form, the empirical model of this research study is stated as:

$$mbp_{i,t} = \pi_0 + \pi_1 tccc_{i,t} + \mu_{i,t} \qquad \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots (2)$$

Where: *mbp* is a vector of manufacturers' business performance indices which are turnover (*tover*), cost of sales (*csales*), and profit (*profit*); tccc denotes total container clearance cost measuring customs clearance cost; π_0, π_1 are parameters; *i* represents firms; *t* denotes time; and μ is error term. The aim of the empirical equation is to estimates the parameters which represent the long-run elasticity of total container clearance cost.

Data and Variable Description

In the study, the customs clearance process represents the regressant while manufacturing business performance represents the regressor. Customs clearance process was proxy by total container clearance cost (Shepa, 2013). Manufacturers business performance was proxy by turnover, cost of sales, and profit (Holzer & Peci, 2009). Data through structured questionnaires were sourced purposively from twenty-three (23) firms comprised of 7 consumer goods, 10 Healthcare, and 6 industrial goods respectively. These companies regularly import cargoes in containers via Lagos seaports. For a company to be selected, it must have a minimum of 20 customs declarations in a year. This is to ensure that selected companies are those who truly depend on imported manufacturing inputs such as raw materials, equipment, and the likes. These companies are located at Ilupeju, Agbara, Ewekoro, Ikeja, Ikorodu, Isolo, Oregun Ota and shagamu in Lagos and Ogun industrial estates.

Out of 30 companies selected from the list of quoted manufacturers on the Nigerian Stock Exchange (NSE) (2020), 23 companies filled the questionnaire. This number represents 77 percent of the population. The structured questionnaire was divided into four sections namely, demographic: (age, educational qualification, area of operations, and work experience of respondents etc.); container clearance data such as the total number of steps taken to complete each of the procedures, the total number of agencies involved, total number of documents and mode of operations (electronic or manual). Other sections include; the total number of containers imported in a year, total cost of clearing a container, data on standard time and delays in container clearance. In addition to primary data, time-series data were employed through secondary sources. Prior to questionnaire administration, the instrument was subjected to the scrutiny of a panel of experts in the field to ensure content and construct validity. Afterward, pilot studies as recommended in Nwankwo (2016) were carried out in an attempt to determine whether questionnaire items possess the desired quality.

Estimation Techniques

First, the study tests for the integration order of the series i.e. total cost of container clearance, turnover, cost of sales, and profit using the panel unit root tests, Levin, Lin and Chin (2002) and Breitung (2001) techniques. The reason for employing the estimators is to ensure assessment and validation of result with the aim of ensuring consistency. Afterwards, the cointegation test using the Kao cointegration test by Kao (1999) to determine if there exists a long run relationship among the variables. To sum up, the causal relations of hinterland location and shippers' business performance was estimated using the panel Vector Error Correction (VECM) estimator. The panel VECM of the empirical model specified in equation (2) is presented as:

(3)
$$\Delta mbp_{i,t} = \alpha_{1j} + \sum_{j=1}^{m} \beta_{1,j} \Delta mbp_{i,t-j} + \sum_{k=1}^{m} \beta_{2,k} \Delta tccc_{i,t-k} + \phi_{1i} ECT_{i,t-1} + \mu_{1,t}$$

(4)
$$\Delta tccc_{i,t} = \alpha_{2j} + \sum_{j=1}^{m} \beta_{2,j} \Delta mbp_{i,t-j} + \sum_{k=1}^{m} \beta_{2,k} \Delta tccc_{i,t-k} + \phi_{2i} ECT_{i,t-1} + \mu_{2,t}$$

The variables remained as earlier discussed. Thus, Δ represents the first differences; k, j are the determined optimal lag length; $\beta's$ are the short run parameters; $\phi's$ are the coefficients of the error correction terms; and $\mu's$ are the disturbance terms.

EMPIRICAL RESULTS

In this section, the study provides the estimation findings of the effects of cost of container clearance on manufacturers' (consumer goods, Healthcare, and industrial goods) business performance in Lagos and Ogun states, Nigeria. Before reporting the estimation findings of short-run and long-run estimates, the study reported the results of pre-estimation tests like descriptive statistics, correlation analysis, cross-sectional dependence, unit root test, and co-integration test accordingly and concludes with a discussion of findings.

Descriptive Statistics

The study reports the descriptive statistics of the indicators of cost of container clearance and shippers' business performance in the section. The results are presented in Table 1 and it shows their respective average, maximum, minimum, standard deviation, Kurtosis and skewness values obtained from our survey. The average value of total cost of container clearance between 2010-2019 stood at ₦516,027,696 whereas its maximum and minimum values was

₦5,400,000,000 and ₦4,860,000 respectively. The maximum and minimum values show that there is a large variation between the series of total cost of container clearance which is further indicated in the standard deviation value. As well, the data is not normally distributed owing to the fact that the Kurtosis value is higher than 3, which thereby implies leptokurtic (meaning that firms can experience broader fluctuations resulting in greater potential for extremely low or high returns). Likewise, the series is positively skewed as its skewness value stood at 2.9483.

Table 1:   Descriptive statistics

	Variable signs and description			
	Total cost of container clearance (tccc ₦)	Turnover (tover= ₦)	Cost of sales (csales ₦)	Profit (profit ₦)
Mean	516027696	62359843188	41821513216	20431789321
Standard Deviation	946358887	70248911210	46656350909	25497368514
Minimum	4860000	1460728000	604670000	684666000
Maximum	5400000000	2.84E+11	2E+11	1.28E+11
Kurtosis	8.843678	1.748524	1.794938	3.859194
Skewness	2.948247	1.5408	1.499562	1.962812
Count	230	230	230	230

Source: Authors' computation (2022).

As for manufacturers' business performance indicators, the averages of turnover, cost of sales and profit are ₦62,359,843,188, ₦46,656,350,909 and ₦25,497,368,514 respectively. The average profit of the sampled firms over the periods understudied shows that there is improved performance in the business activities of the manufacturing industry. Also, the high variability in the series was revealed in their respective standard deviation. From Table 1, the descriptive statistics equally showed the skewness and Kurtosis position of the series.

CORRELATION MATRIX
Table 2 shows the partial correlation coefficients of the relationship between total container clearance cost and manufacturers' business performance.

Table 2:   Correlation Matrix

	tccc	tover	csales	profit
Total cost of container clearance (tccc)	1			
Turnover (tover)	-0.09597	1		
Cost of sales (csales)	-0.11007	0.88596	1	
Profit (profit)	-0.08188	0.85359	0.79045	1

Source: Author's computation (2022).

The correlation coefficients of total container clearance cost and manufacturers' business performance indicators are negative values. The findings revealed that there exists a negative relationship between total container clearance cost and manufacturers' business performance variables. Correspondingly, the correlation coefficients of container clearance cost with turnover, cost of sales and profit are -0.0960, -0.1101, and -0.0819. As for the indicators of manufacturers' business performance, there is a strong positive level of association among turnover, cost of sales and profit. Although the positive correlation coefficients of manufacturers' business per-

formance indicators are strong, the chances of running into multicollinearity are avoided as the variables are not run in the same equation. Thus, the problem of multicollinearity is avoided in the empirical analysis. Nevertheless, the results of the correlation coefficients are just preliminary analyses that are being put through confirmation in section 4.4 after considering the determinants of container clearance cost together.

Table 3: Cross-sectional dependence test results (d.f. = 253)

	Statistics	Probability
Model 1: profit tccc		
Breusch-Pagan LM	1078.875	0.0000
Pesaran scaled LM	36.71461	0.0000
Pesaran CD	27.82166	0.0000
Model 2: tover tccc		
Breusch-Pagan LM	1368.116	0.0000
Pesaran scaled LM	49.57296	0.0000
Pesaran CD	31.33216	0.0000
Model 3: csales tccc		
Breusch-Pagan LM	1478.707	0.0000
Pesaran scaled LM	54.48931	0.0000
Pesaran CD	31.17949	0.0000

Source: Authors' computation (2022).

Cross-sectional dependence, stationary and cointegration tests

In this section, the study presents the results of the cross-sectional dependence test, which is presented in Table 3. The test statistics were performed for the companies' annual reports from 23 manufacturing firms (consumer goods, healthcare, and industrial goods) for a period of ten years (2010-2019). The Breusch-Pagan LM test results of total container clearance cost and the respective shippers' business performance (turnover, cost of sales and profit) were reported in Table 3 Based on the results reported in the table; the findings from the Breusch-Pagan LM test confirm the rejection of null hypotheses of no correlation at conventional significance levels. Also, the Pesaran scaled LM test results are asymptotically standard normal and the statistical values strongly reject the null hypotheses at 5% significance level. As for the test statistic values of standard normal Pesaran CD test, their statistical values are significantly below the values of LM tests and they still reject the null hypotheses at 5% level of significance.

Table 4: Panel Unit Root Test Results

Variables	Levels		1st Difference		Decision
	LLC	Breit	LLC	Breit	
Total cost of container clearance (tccc)	-6.3465***	3.3965	-	-2.2978***	I(1)
Turnover (tover)	-1.9671**	1.4176	-	-3.6335***	I(1)
Cost of sales (csales)	-2.5050***	1.4406	-	-1.9767**	I(1)
Profit (profit)	-4.6104***	2.8721	-	-2.0324**	I(1)

*Note: LLC denotes Levin, Lin & Chin (2002); Breit represents Breitung (2001); ***, ** & * denote 1%, 5% & 10% significance levels. Source: Authors' computation (2022).*

In addition, we report the results of the panel unit root and co-integration test in Table 4 and 5 respectively. The unit root test results of Levin, Lin and Chin (2002) and Breitung (2001) tech-

niques are reported in Table 4. With respect to the Levin, Lin and Chin unit root test, it confirms that the null hypotheses of unit root presence for total container clearance cost, turnover, cost of sales and profit were not accepted at 5% significance level. Based on the unit root estimation approach, the series are stationary at levels [I (0)]. Afterwards, the use of Breitung approach found that the series are not stationary at levels. Therefore, they were differenced and the null hypotheses of unit root of the variables were rejected at the conventional level. Using Breitung methods, It therefore implies that the series are stationary at first difference [I(1)]. Based on the unit root test results of Levin, Lin and Chin (2002) and Breitung (2001), the study concludes that the series are stationary at first difference.

Table 5: KAO residual test for cointegration

	t-Statistics	Probability
Model 1: profit lccc		
ADF	-3.340810	0.0004
Residual variance	0.097473	
HAC variance	0.088539	
Model 2: tover tccc		
ADF	-3.265887	0.0005
Residual variance	0.041836	
HAC variance	0.046149	
Model 3: csales tccc		
ADF	-3.578991	0.0002
Residual variance	0.096016	
HAC variance	0.092301	

Source: Authors' computation (2022).

Further, in Table 5, we report the KAO Residual test results for co-integration by Kao (1999). Following the conventional probability test criteria, the table reveals a rejection of the null hypotheses of no co-integration for the seven models at a 5% level of significance. The implication is that there exists a long-run relationship among the regressand and regressors across all the estimated models in the study. It therefore confirms that the presence of co-integration or a long-run relationship between total container clearance cost and manufacturers business performance indicators (turnover, cost of sales and profit) in Lagos and Ogun state, Nigeria. Thus, there exists a long-run relationship between total container clearance cost and manufacturers' business performance in Lagos and Ogun state, Nigeria.

Short-Run and Long-Run Estimates

In this section, the study presents the empirical result of both the short-run and long-run effects of total container clearance cost on manufacturers' business performance in Lagos and Ogun state, Nigeria with the aid of the vector error correction model (VECM) estimation approach was discussed in this section. As for the selection of optimal lag lengths, the lag length of the variables was selected using the Akaike Information Criterion (AIC) after setting it at three in order to ensure sufficient degree of freedom. Table 6 and 7 present the result of short-run and long-run parameter estimates respectively. In Table 6, the coefficients of error correction term are found to be negative and statistically significant at the conventional level. In specific terms, the coefficients of the error correction terms are negative and the probability values of their t-statistic are less than 1%. It implies that the empirical models of manufacturers' busi-

ness performance in terms of turnover, cost of sales and profit correct its short-run disequilibrium by at 38.59%, 31.40% and 61.68% speed of adjustment in order to return to the long-run equilibrium. This further confirms that there exists a long-run relationship between total container clearance cost and manufacturers' business performance in Lagos and Ogun state, Nigeria. Thus, it confirmed that the models' equilibrium nature is valid in the long-run.

Table 6:   Short-run estimates

Variables	Dependent variables		
	$\Delta(\log(\text{turnover}))$	$\Delta(\log(\text{cost of sales}))$	$\Delta(\log(\text{profit}))$
$\Delta(\log(\text{total cost of container clearance}))$	0.0288 (0.0253)	0.0249 (0.0251)	0.0264 (0.0359)
Error correction term(-1)	-0.3859*** (0.0473)	-0.3140*** (0.0465)	-0.6168*** (0.0600)
Constant	0.0691*** (0.0097)	0.0539*** (0.0106)	0.0627*** (0.0130)
Adjusted R-squared	0.2575	0.1952	0.3297
F-Statistics	3.9771	3.0813	5.2221
Prob(F-Stat)	(0.0000)	(0.0000)	(0.0000)

*Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.10. **Source:** Author's computation (2022).*

As regards the short-run coefficients reported in Table 6, the result shows that total container clearance cost has positive impact on turnover, cost of sales and profit, albeit they are not statistically significant at 5% level. In magnitude, the results show that with 10% changes in total container clearance cost, turnover, cost of sales and profit changes by 0.29%, 0.25% and 0.26% respectively. With the magnitude and size, it means that total container clearance cost has no significant effect on manufacturers' business performance in the short run.

Table 7:   Long-run estimates

Variables	Dependent variables		
	$\log(\text{turnover})$	$\log(\text{cost of sales})$	$\log(\text{profit})$
Log (total cost of container clearance)	0.2399*** (0.0259)	0.1989*** (0.0348)	0.1983*** (0.0312)
Constant	19.537*** (0.4914)	19.844*** (0.6579)	19.235*** (0.5900)
Adjusted R-squared	0.8633	0.8438	0.8375
F-Statistics	262.55	168.25	150.33
Prob(F-Stat)	(0.0000)	(0.0000)	(0.0000)

*Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.10. **Source:** Author's computation (2022).*

Table 7 reports the long-run relationship between total container clearance cost and shippers' business performance of 23 manufacturing firms in Lagos and Ogun for the periods of 2010-2019. The study found that total container clearance cost positively and significantly impacted on business performance of the sampled firms. In magnitude terms, a 10% increase in total container clearance cost will lead to a rise in turnover, cost of sales and profit by 2.4%, 1.99% and 1.98%. The results show that container clearance cost affects the turnover of the sampled manufacturing firms compared to the cost of sales and profit respectively in the long run. Also, the adjusted R-squared shows that total container clearance cost explains about 86.3%, 84.4% and 83.8% total variations in turnover, cost of sales and profit correspondingly. Furthermore,

the F-statistics show that there is an overall significant relationship between container clearance cost and shippers' business performance.

Robustness checks

In this section, the short run and long run impact of total container clearance cost on manufacturers' business performance of consumer goods, Healthcare, and industrial goods manufacturing firms in Lagos and Ogun states, Nigeria is reported. The short-run and long-run results are presented in Tables 8a-b respectively. From the short-run estimates reported in Table 8a, the total container clearance cost of Healthcare firms directly influenced the sector's turnover at a 10% significance level whereas its positive impact on the cost of sales and profit was not significant statistically. Also, consumer goods manufacturing firms' cost of sales was positively impacted by total container clearance cost at a 5% level. However, total container clearance cost has an adverse and significant impact on the profit of consumer goods-producing firms at a 5% level. For industrial goods firms, total container clearance cost only impacted their profit positively and significantly at 5% but not significantly on turnover and cost of sales respectively.

Table 8a: Robustness check (short run estimates) of manufacturing firms

Variables	Δ(log(turnover))			Δ(log(cost of sales))			Δ(log(profit))		
	Consumer goods	Healthcare firms	Industrial firms	Consumer goods	Healthcare firms	Industrial firms	Consumer goods	Healthcare firms	Industrial firms
Δ (log(total container clearance cost))	0.0087 (0.0424)	0.0853* (0.0482)	0.0428 (0.0491)	0.0143*** (0.0045)	0.0678 (0.0490)	0.0394 (0.0616)	-0.1157** (0.0577)	0.1001 (0.0731)	0.1911*** (0.0686)
ECT(-1)	-0.5928*** (0.1552)	-0.2279*** (0.0654)	-0.4304*** (0.0892)	-0.3946*** (0.0317)	-0.2264*** (0.0627)	-0.3748*** (0.1045)	-0.7048*** (0.1041)	-0.5282*** (0.0926)	-0.2797*** (0.1287)
Constant	0.0830*** (0.0313)	0.0459*** (0.0164)	0.0676*** (0.0158)	0.0626*** (0.0083)	0.0466*** (0.0170)	0.0442** (0.0199)	0.0972*** (0.0248)	0.0480** (0.0250)	0.0216 (0.0231)
Adjusted R-squared	0.3699	0.2434	0.2681	0.7516	0.2194	0.1431	0.4484	0.2837	0.1982
F-Statistics	5.5511	3.6023	3.7728	24.447	3.2733	2.2651	7.2993	4.2045	1.8248
Prob.(F-Stat)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.1052)

*Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.10. **Source:** Author's computation (2022).*

As for the long run estimates in Table 8b, total container clearance cost positively and significantly impacted manufacturers' business performance indicators of consumer goods, Healthcare and industrial goods manufacturing firms. The parameters of container clearance cost on turnover are higher in industrial firms, afterwards consumer goods firms and Healthcare firms. Container clearance cost has a greater impact on the cost of sales in industrial goods firms, healthcare firms and consumer goods firms respectively. Similarly, profit is directly and significantly impacted by container clearance costs in industrial goods firms, Healthcare firms and consumer goods firms correspondingly.

Table 8b: Robustness check (long run estimates) of manufacturing firms

Variables	Log (turnover)			Log (cost of sales)			Log (profit)		
	Consumer goods	Healthcare firms	Industrial firms	Consumer goods	Healthcare firms	Industrial firms	Consumer goods	Healthcare firms	Industrial firms
Log (total container clearance cost)	0.20020*** (0.0320)	0.1704*** (0.0334)	0.2485*** (0.0226)	0.1298*** (0.0177)	0.1638*** (0.0338)	0.2749*** (0.0327)	0.1553*** (0.0388)	0.2315*** (0.0367)	0.2345*** (0.0218)

Variables	Log (turnover)			Log (cost of sales)			Log (profit)		
	Consumer goods	Healthcare firms	Industrial firms	Consumer goods	Healthcare firms	Industrial firms	Consumer goods	Healthcare firms	Industrial firms
Constant	19.679*** (0.6492)	21.487*** (0.5952)	18.926*** (0.4321)	20.214*** (0.3594)	21.159*** (0.6034)	17.974*** (0.6260)	19.617*** (0.7876)	19.267*** (0.6541)	18.073*** (0.4168)
Adjusted R-squared	0.8245	0.8504	0.8792	0.8792	0.8694	0.8711	0.7547	0.8700	0.8178
F-Statistics	121.695	495.048	464.081	465.212	471.979	330.961	31.3242	321.445	110.766
Prob.(F-Stat)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.10. **Source:** *Author's computation (2022).*

DISCUSSION

The results show that the total cost of container clearance at the seaports significantly impacted on turnover, cost of sales and profit of consumers' goods, industrial goods and healthcare manufacturing firms in Lagos and Ogun states for the period under study (2010-2019). The impact however varies across business sectors. Impacts of container clearance cost on turnover are higher in industrial firms, afterwards consumer goods firms and Healthcare firms. Container clearance cost has a greater impact on the cost of sales in industrial goods firms, Healthcare firms and consumer goods firms respectively. Similarly, profit is directly and significantly impacted by container clearance costs in industrial goods firms, Healthcare firms and consumer goods firms correspondingly. Generally, the impact of customs clearance cost at Lagos Seaport is more on industrial goods, then, healthcare products and finally on consumer's goods. These variations could be a result of concessions, waivers, tax reductions, tax holidays etc., enjoyed by consumers' goods over other sectors like healthcare business and industrial goods firms. It could also result from intrinsic factors such as behavior and attitudes of customs officers- bribery etc. which may vary from one sector to another sector due to the nature of materials. Other issues could be payment-related issues and forwarding agents charges among others.

The results of this study agree with some past research findings. For example, Holzner and Peci (2009) found out that formal and informal institutional factors in Customs procedures positively and significantly impacted the turnover growth of small and medium-sized enterprises in Kosovo.

CONCLUSION

This study investigates the impact of the customs clearance process at the seaports on the performance of consumers, industrial and healthcare manufacturers in Lagos and Ogun states, Nigeria. The results show that enhancing customs clearance at the seaports will effectively help to enhance the performance of the firms. The impact of customs clearance cost on performance indicators of firms quite varies, higher in industrial goods firms, afterward, healthcare firms and consumer goods firms. The results suggest that firms' performance is much dependent on material importation and this characteristic of firms in Lagos and Ogun states makes this study to conclude that economy of this region is still foreign-tied and the region needs more efforts to change this trend.

Meanwhile, standardization, harmonization and simplification of customs clearance procedures through a single window system should be considered while more concessions, waivers, tax reductions, and tax holidays should be given to firms to exploit an absolute advantage of this region in the manufacturing of goods. Since efficient Customs process has a significant

role in the region or economy level. The results of these studies will be very useful for the Manufacturer firms' activities; Manufactures Association of Nigeria (MAN) Customs Administration and policy makers. Further studies can assess the effect of the Customs clearance process on the household and on the national economy.

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