

Determining The Effects of Customs Procedure on Cargo Clearance Time in Nigerian Seaports

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Abstract

In international trade, customs processing time in the seaports is an important component of the overall cargo delivery time. Understanding custom procedure and determining the clearing time of cargo in Nigerian seaports will help port operators and managers to optimize cargo clearance process and cargo clearing time. This study therefore, attempts to investigate the impacts of customs procedures on clearing time of cargoes in A papa and Tin Can Island Ports. A questionnaire survey method was used to collect data from operations managers of 23 Freight Forwarding firms operating in the City of Lagos. Respondents were randomly selected from the register of Council for Regulation of Freight Forwarder in Nigeria (CRFFN). A regression analysis was carried out to determine the effects of Customs procedures on clearing time of containers with the aid of SPSS. The results of the regression analysis show that none of the seven stages or procedures of clearing cargo in A papa and Tin Can Port; namely; Processing of Form M (**FM**); Processing of Pre-Arrival Assessment Report (**PAAR**); Assessment of Duty (**AD**); Payment of Duty (**PD**), Examination (**E**); Custom Release (**CR**) and Delivery (**D**) has any significant effect on cargo processing time. This implies that the efficiency or otherwise of the container clearance system in A papa and Tin Can Ports in terms of speed or responsiveness (time) is not a function of the nature (complexity) of Customs procedures.

Keywords: Customs procedures, container processing time, impact, Lagos seaports.

1. INTRODUCTION

In today's competitive business and trading environment, efficient Customs clearance is imperative to have an edge. In a fast, dynamic, and competitive world, responsiveness and efficiency are keys to business and trading bottom line. The World Bank initiatives such as the Logistics Performance Index studies (LPI), Ease of Doing Business studies have proven extremely useful by helping nations cope with challenges of the dynamic and competitive business and trading environment. By identifying the challenges and opportunities faced by nations, the Logistics Performance Index studies, (of which efficiency of Customs process is a focus), have helped countries improved on their trade logistics performance. In the case of Ease of Doing Business initiative, a recent report on trading across borders among other things shows that Nigeria has reduced the time to export and import (table 2.1) by further upgrading its electronic system and by launching e-payment of fees (World Bank Doing Business, 2020). This reform applies to both Kano and Lagos. All these interventions truly reveal that efficient Customs clearance is of extreme value. As the role is even more valuable to developing countries, Chibira, (2021), has advised African countries to transform its Customs environment through interventions that gear towards eliminating inefficiencies if they want to make significant progress towards trade between its regional economic communities, improving trade competitiveness and participating in global trading system.

The advent of globalization and breakthrough in Information & Communication Technology (ICT) have made the global business and trading environment more dynamic and hyper-competitive (Al-Muhaisen, 2005; and Jacobs, 2009). More and more business and trading activities are emerging among regional economic communities and global economic system. Globalization has helped people, capital, goods and services move freely within and among nations with little or no barriers. The growth in the multinational manufacturing sector for instance has been phenomenal. This is justified by the sector's dominance position of 50% share in the global trade flow (2005 Trade Statistics cited in Institute of Chartered Shipbrokers, 2013). Kilibarda et al, (2017) remarked that the evolution and the growth in international trade have been very intensive in the last two decades. The shift in the ways business and trading activities are conducted and the consequences of this shift have further justified the need for a more efficient Customs clearance process.

During the various stages of importation, shippers are more interested in efficient customs clearance operations because of the impact of possible delays. This is based on the understanding that customs processing time in the seaports forms a key component of the overall delivery time. Analyzing the time necessary to clear goods is therefore a crucial issue for meeting business bottom line. Usually when goods arrive at their destination seaport, they are unloaded from the ship, moved to Customs for inspection, examination and clearance before they are finally pick up by the shipper for

onward delivery at the shippers' factory. The process of physical inspection, examination is to ensure that the information on the documents is in consonance with the goods in the container. The duties values declared will be looked into to ensure there are no discrepancies between the information on documents and the goods to be examined (Adewale, 2016). These procedures however can take a short or long time depending on the nature of the process and if there are delays, it translates to costs to be borne by the shippers. Cargo clearance issues in seaport are a major area of concern to Nigerian manufacturers as it accounts for over 80 percent of overall seaport charges borne by shipper at the Nigerian seaports (Deloitte, 2017).

Several authors have worked on Customs procedures, processing time and performance. The study of Carballo et al, (2014) investigated the impact of delays due to clearance procedures at the port of entry on firm-level of imports in Peru. They discovered that an additional day of delay raises cost for small firms by about 0.7% and by 0.9% for large firms. Similarly, Sirika and Gizaw (2016) investigated the factors affecting custom clearance cost and reported that the delay time has a significant effect on customs clearance cost. Again, Rhodalyn, (2018), showed that implementation of single window system leads to a reduction in transaction time and the cost of goods clearance. Hoffman et al (Undated), quantifies the contributions of customs, traders, and the port terminal operator to cargo time delays through the parallel customs and ports processes, by categorizing cargo based on customs regime and

declaration plans. It was found that customs processes are the primary contributor for import cargo delays, while terminal operator processes are the primary contributor for transit cargo delays.

Furthermore, Dhakal and Jha, (2020) examined the time for custom clearance of freight transport at Birgunj customs areas and found that extra time is being spent by freight vehicle inside the custom yard, other than actual processing time, which shows that there is mainly delay in-between the process other than in actual processing unit and the major factors for this are: owner not clearing the goods on time, due to lack of enough number of agents and unseen syndicate within the freight transportation system.

As can be seen from the available literature, most previous studies focus attention on examining causes of delay in cargo clearance or identifying the specific stages where delay occurs during the process of clearing cargo in the seaport. However, there is the need to have knowledge and an understanding of how specific elements of customs procedures contribute or impact on the overall processing time of container clearance in the seaport. Analyzing the specific contribution or impact of each component of customs clearance has on the overall cargo clearance time will help identify critical factors or elements that impact significantly on cargo clearing time in Nigerian seaport. With this information, the Key performance indicators can easily be identified in the process. Based on the above, the question that this study tries to answer is how each component of customs procedure in the container clearance system affects

the container processing time? In answering this question, the study therefore analyses the impacts of Customs procedures on container/cargo clearance or processing time in Lagos seaports.

2. LITERATURE REVIEW

Chapter 4 of the Revised Kyoto Convention defines Customs procedures as the treatment applied by the Customs Administration of a country to goods, which are subject to that country's customs law. Customs law refers to such laws and regulations administered and enforced by the Customs Administration of a country concerning the importation, exportation, and transit or trans shipment of goods, as they relate to customs duties, other taxes and other charges, or to prohibitions, restrictions and other similar controls with respect to the movement of controlled items across the boundary of the customs territory of a Party; It further states that to the extent possible, each country shall adopt or maintain procedures allowing, goods to be released: (a) within 48 hours of arrival or as soon as practicable; and (b) where possible, at the point of arrival, without temporary transfer to warehouses.

Wilson, (2018) identified the critical elements of cargo clearance process namely, preparation of documents (documentation), declaration of goods and value and examination. Similarly, Juneja (2019) defines customs clearance as the preparation and submission of documents required to facilitate imports or exports into the country, representing clients during customs examinations, assessment, payment of duty and co taking delivery of cargo

from after clearance along with documents. He listed import documents required as follows; purchase order from Buyers, Sales Invoice of suppliers, Bill of Entry, Bill of Lading or Airway Bill as the case may be, Packing List, Certificate of Origin, and any other specific documentation required by the buyer, or financial institution or the importing country.

Several empirical works on Customs procedures and clearance time were reviewed. The study of Carballo et al, (2014) investigated the impact of delays due to clearance procedures at the port of entry on firm-level of imports in Peru. They discovered that an additional day of delay raises cost for small firms by about 0.7% and by 0.9% for large firms. Similarly, Sirika and Gizaw (2016) investigated the factors affecting custom clearance cost and reported that the delay time has a significant effect on customs clearance cost. Again, Rhodalyn, (2018), showed that implementation of single window system leads to a reduction in transaction time and the cost of goods clearance.

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Hoffman et al (Undated), quantifies the contributions of customs, traders, and the port terminal operator to cargo time delays through the parallel customs and ports processes, by categorizing cargo based on customs regime and declaration plans. It was found that customs processes are the primary contributor for import cargo delays, while terminal operator processes are the primary contributor for transit cargo delays.

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Based on authors knowledge, no attempt has been made to understand the relationship between cargo clearance time in seaports and specific procedure in the clearance system. This gap should be explored so as to understand the specific impact of each procedure on clearance time for containers. This paper seeks to fill this gap by determining the effect of Customs procedures on clearance time in Lagos seaports.

Chopra and Meindl, (2007) explained that in the process of fulfilling the need of a customer, there are many parties that are directly or indirectly involved. For instance, a customer who visits a retail shop for chopping depends on the shop for his

needs. The retail shop also depends on a distributor or a warehouse for replenishment. The distributor may need or use trucks supplied by a third party. The distributor receives stocks from the manufacturer. The manufacturer depends on raw materials supply by a variety of suppliers, who may themselves have been supplied by lower-tier suppliers. This chain of supply (network) is premised on the constructs of Supply Network Theory. All the parties mentioned (customer, retailer, distributor, third-party-transport-company, manufacturer, supplier and the low-tier supplier), directly or indirectly contributes to the fulfillment of the customers' need. The objective of every Value Chain is to maximize the overall value generated. Usually, the value a Value Chain generates is strongly correlated with the Chain's efficiency (Chopra and Meindl, 2007).

Relating the Value Chain Theory to the current work, the container clearance system consists of seven procedures that work interdependently in a chain-like structure. At every procedure namely: (1) Processing of Form M; (2) Pre-arrival Assessment Report (PAAR); (3) Assessment of Duty; (4) Payment of duty; (5) Custom Examination; (6) Custom Release and (7) Delivery, values are generated in terms of speed, responsiveness and time savings. The overall time savings or value generated will depend on value generated from each procedure at the entire system. The point here is that analyzing the container processing time requires specific analysis of each procedure within the system. Chopra and Meindl, (2007) has asserted that the value a value network generates is strongly

correlated with the chain profitability. Going by this assertion, it is acceptable to say that the overall processing time for a container is strongly correlated with the efficiency of customs procedures. This is based on the premise that the container processing time (output) is the sum of fractions of time spend on all the seven procedures. This then suggest a relationship between each of the seven procedures in the clearance system in seaports and container processing time.

3. METHODOLOGY

In this section the empirical evidence of the impact of Customs procedures on container processing time of 23 freight forwarding companies at the City of Lagos is presented. The sample was randomly selected from the database of registered freight forwarders at the Council for the Regulation of Freight Forwarders in Nigeria (CRFFN). This figure represents 10 percent of the total number of registered Freight Forwarders in 2020. Out of 30 companies contacted through their email addresses, 23 companies responded positively representing 77 percent. Data were collected through structured questionnaire methods. This was divided into four sections (A, B, C, and D). Section A contains demographic information such as educational qualifications, work experience, area of work. Section B contains data on container clearance at A papa and Tin Can Ports. Section C collected data on total number of steps involved, total number of agencies involved, total number of documents involved and mode of operations. This covers all the seven procedures in the clearance system. Section D

was designed to collect information on standard time for containers clearance for each of the seven procedures. Other information collected in section D includes: delays, and causes of delays.

For the analysis, multiple regressions model was used. This implies that certain factors help to explain container clearance time in Lagos seaports. It can therefore be conceptualized that there is a set of variables $x_1, x_2, x_3, \dots, x_n$ which can be used to explain cargo clearance time in Lagos seaports. This may be mathematically stated as:

$$Y = f(x_1, x_2, x_3, \dots, x_n) \tag{1}$$

This can be transformed using the multiple regression equation thus:

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + \dots + b_nx_n + e \tag{2}$$

Where Y = the dependent variable, that is the Cargo Clearance Time, a = constant, $b_1, b_2, b_3, \dots, b_n$ = the intercept, $x_1, x_2, x_3, \dots, x_n$ = the independent variables and e = error term representing the unexplained variables. The multiple regression model is a useful statistical tool for finding the contribution of independent variables to dependent variables. The statistical produce a coefficient of determination which is a measure of the total contribution of the explanatory variables to the dependent variable. The equation results provide a basis for predicting the value of dependent variable from two or more independent variables. For this purpose of this study, the multiple regression is operationalized as follows:

$$CCT = F (FM, PAAR, AD, PD, E, CR, D,) \dots\dots\dots(3)$$

Customs procedures represent the independent variables while container processing time represents the dependent variable. There are seven procedures in the container clearance system in Lagos Seaports which comprise of Apapa and Tin Can Ports. These procedures include: Processing of Form M (**FM**); Processing of Pre-Arrival Assessment Report (**PAAR**); Assessment of Duty (**AD**); Payment of Duty (**PD**), Examination (**E**); Custom Release (**CR**) and Delivery (**D**). CCT stands for the Container Clearance Time and also represents the dependent variable. This is therefore transformed as:

$$CCT = a+b1FM+ b2PAAR+ b3AD+ b4PD+ b5E + b6CR + b7D\dots\dots\dots(4)$$

For each of the procedures, the regression equation is given as;

$$CCT = a +b1 +FMNS +b2FMNA +b3 FMND \dots\dots\dots(5)$$

Where CCT represents Container Clearance Time, FM represents Form M and the first procedure in the system, NS represents number of steps for FM, NA, number of agencies for FM, and ND represents Number of documents for FM. It is good to mention here that NS, NA and ND were measured in all the seven procedures in the system. The different equations developed each of the remaining six procedures are presented from equations 6 to 11 below.

$$CCT = a +b1 +PAARNS + b2PAARNA +b3PAARND\dots\dots\dots(6)$$

$$CCT = a + b1 +ADNS +b2ADNA$$

$$+b3ADND\dots\dots\dots(7)$$

$$CCT = a + b1 +PDNS +b2PDNA + b3PDND\dots\dots\dots(8)$$

$$CCT = a + b1 +ENS + b2ENA + b3END\dots\dots\dots(9)$$

$$CCT = a + b1 +CRNS +b2CRNA + b3CRND\dots\dots\dots(10)$$

$$CCT = a + b1+DNS + b2DNA +b3 DND\dots\dots\dots(11)$$

4. DISCUSSION OF THE RESULTS

4.1 Description of the Container Clearance Procedures in Lagos seaport.

There are seven procedures in the container clearance system based on the field survey in Apapa and Tin Can Island Seaports. Under each of the procedures, four elements were measured namely; steps involved number of agencies involved, number of documents involved and mode of operation (manual or electronics). The seven procedures that make-up the container clearance system are;

1. Processing of e-Form M
2. Processing of PAAR (Pre-Arrival Assessment Report)
3. Assessment of Duty
4. Payment of Duty
5. Examination
6. Customs Release and
7. Delivery.

Table 5.1. Description of Container Process in Apapa and Tin Ports.

S/N	Description of Process	Average Number of Steps Involved	Average Number of Agencies Involved	Average Number of Document Involved	Mode of Operation (Manual or Electronics)	Average Expected Time (HRS)	Average Actual Time (HRS)	Average Diff. in Time (HRS)
1	Processing of E-Form M	3	4	4	100% Electronic	25	57	32
2	Processing PAAR	3	3	6	100% Electronic	25	57	32
3	Assessment of Duty	2	2	4	95% Electronic	25	57	32
4	Payment Of Duty	2	2	3	100% Electronic	25	57	32
5	Examination	3	6	8	74% Manual	25	57	32
6	Customs Release	3	4	7	70% Electronics	25	57	32
7	Delivery	3	5	7	65% Electronic	25	57	32
8	TOTAL	19	26	39		175	399	224

Source; Authors, Field survey, 2021

Table 5.1 shows that an average of 19 steps is taken in the container clearance process in Apapa and Tin Can Ports. It also shows that an average of 26 agencies and 39 documents are involved. The table further revealed that processing of e-form M, Pre-Arrival Assessment Report (PAAR) and payment of duty are done 100 percent automated. Assessment of duty is 95 percent automated while the remaining 5 percent is manually conducted. The process of Examination, Customs release, and Delivery, are 74, 70 and 65 percent automated respectively. Furthermore, it takes average of 399 hours to complete the process of cargo clearance in Lagos seaports. This means an average of 224 hours delay is experienced by shippers in the course of clearing their cargo.

4.2 Impacts of Cargo Clearance Procedures on Processing Time for Containers

In analyzing the impacts of cargo clearance procedures on processing time for containers, a multiple regression analysis was carried out.

Under each procedure, four elements were measured (Table 5.1) namely; steps involved, number of agencies, number of documents and mode of operations were measured against the processing time for containers. The fourth element (Mode of operation) was measured nominally where 1 and 2, stand for manual and electronic respectively. The results of the regression analysis for all procedures in the clearance system against processing time is shown on Table 5.2

Table 5.2. Model Summary for Customs Procedures on Processing Time

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1. Form M	.319 ^a	.102	-.110	139.88072
2. PAAR	.408 ^a	.166	-.030	134.76478
3. ASM OF DUTY	.362 ^a	.131	-.140	141.78386
4. PAY OF DUTY	.319 ^a	.101	-.098	137.82120
5. EXAMINATION	.617 ^a	.380	.198	117.76726
6. CUSTOMS REL	.487 ^a	.237	.013	130.68437
7. DELIVERY	.458 ^a	.210	-.022	132.978779

a. Predictors: (Constant), for each of the seven procedures there are mode of operation, which are manual or electronics, number of documents involved, number of steps and numbers agencies involved.

Results in Table 5.2. above shows that Form M has a weak association ($r = 0.319$) with container processing time, and it account for about 10.2% ($r^2 = 0.102$) of the variations in the container processing time. Similarly, PAAR has a weak association ($r = 0.408$) with container processing time and it accounts for about 16.6% ($r^2 = 0.166$) of the variations in container processing time. Furthermore, Customs duty assessment was found to have a weak correlation ($r = 0.362$) with container processing time, and it seems to accounts for just about 13.1% ($r^2 = 0.131$) of the variations in the container processing time. It was also discovered from the summary that Customs Duty Payment has a weak correlation ($r = 0.319$) with container processing time, and it seems to account for about 10.1% ($r^2 = 0.101$) of the variations in the container processing time. The result however shows that Examination has a strong association ($r = 0.617$) with container processing time, and it seems to account for 38.0% ($r^2 = 0.380$) of the variations in

the container processing time. Customs Release has a mild association ($r = 0.487$) with container processing time, and it seems to account for about 23.7% ($r^2 = 0.237$) of the variations in the container processing time.

Further analysis (ANOVA Table) shows that e-Form M procedure has no statistically effect ($p = 0.750$) on container processing time. It also shows that Pre-Arrival Assessment Report (PAAR) procedure has no statistically effect ($p = 0.515$) on container processing time. Similarly, Customs Duty Assessment Procedure has no statistically significant effect ($p = 0.84$) on container processing time. Furthermore, Customs Duty Payment has no statistically significant effect ($p = 0.730$) on container processing time. Examination procedure has no statistically effect ($p = 0.117$) on container processing time. Customs Release procedure also does not have a statistically significant effect ($p = 0.418$). For Delivery Procedure, there is no statistically effect ($p = 0.501$) on container processing time.

Table 5.3 ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
FM	Regression	37604.602	4	9401.150	.480	.750 ^b
	Residual	332632.489	17	19566.617		
	Total	370237.091	21			
Model		Sum of Squares	df	Mean Square	F	Sig.
PAAR	Regression	61490.802	4	15372.700	.846	.515 ^b
	Residual	308746.289	17	15372.700		
	Total	370237.091	21			
Model		Sum of Squares	df	Mean Square	F	Sig.
ASSMT OF DUTY	Regression	48594.499	5	9718.900	.483	.784 ^b
	Residual	321642.591	16	20102.662		
	Total	370237.091	21			
Model		Sum of Squares	df	Mean Square	F	Sig.
PAY OF DUTY	Regression	38606.294	4	9651.574	.508	.730 ^b
	Residual	341904.314	18	18994.684		
	Total	380510.609	22			
Model		Sum of Squares	df	Mean Square	F	Sig.
EXAMINATION	Regression	144735.459	5	28947.092	2.087	.117 ^b
	Residual	235775.150	17	13869.126		
	Total	380510.609	22			
Model		Sum of Squares	df	Mean Square	F	Sig.
CUSTOMS REL	Regression	90177.719	5	18035.544	1.056	.418 ^b
	Residual	290332.889	17	17078.405		
	Total	380510.609	22			
Model		Sum of Squares	df	Mean Square	F	Sig.
DELIVERY	Regression	79893.501	5	15978.700	.904	.501 ^b
	Residual	300617.107	17	17683.359		
	Total	380510.609	22			

a. Dependent Variable: Total Clearance Time

b. Predictors: (Constant), for each of the seven stages of processes there are mode of operation, which are manual or electronics, number of documents involved, number of steps and numbers agencies involved.

The results on ANOVA Table show that none of seven the procedures in the container clearance system in Apapa and Tin Can Ports has any significant effect on container processing time. This implies that the efficiency or otherwise of the container clearance system in Apapa and Tin Can Island Ports in terms of speed or responsiveness (time) is not a function of the nature (complexity) of Customs procedures. By application, it therefore shows that the delays in cargo clearance process at Apapa and Tin Can Ports are not function of the nature of procedures established by Customs Administration.

5. CONCLUSION

The results of the regression analysis on the effects of customs procedures on the container clearance time show that none of the seven procedures in the container clearance system in Apapa and Tin Can Ports has any significant effect on container processing time. This implies that the type and the nature of container clearance procedure or system adopted in Apapa and Tin Can Island Ports do not in any way affect the amount of time spent in clearing cargoes.

5.1 Implications and Recommendations

This study has revealed that the type and nature of custom procedure adopted in Nigerian seaports does not affect the clearance time of cargoes in the Port. In other words, the study has shown that the custom clearance procedures are really not sufficient factors for explaining the length of time spent at the port for cargo clearance. This implies the need for further search to finding underlying factors for explaining

the reasons for length of time being spent for cargo clearance.

The study therefore recommends that a further research should be conducted to unravel other internal and external factors that may have been responsible for the delay in cargo clearance in Nigerian Seaports.

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