ENHANCING NIGERIA'S NON-OIL EXPORT THROUGH TRADE FACILITATION

BY

Bashir Adelowo WAHAB

A Postgraduate Student of the Department of Economics, University of Ibadan,

Ibadan, Nigeria

December, 2019

Chapter One

Background to the Study

1.1 Introduction

Trade is universally agreed in the economic literature as an engine of growth (Todaro and Smith, 2004). One of the strategies to improve the competitiveness and exports performance of countries in international trade is trade facilitation (Singh and Mishra, 2013). However, many economies of the world found it difficult to engage in international trade due to overregulation, high production and transaction costs (which could not allow them to cover their average cost) especially from the importing countries. These practices do not only have adverse effects on trade volume/performance of countries, but also limiting their ability to compete favourably in the trade arena (Akinkungbe, 2006). In the effort to resolve these issues, trade facilitation emerges as an important tool designed towards reducing the complexity, trade transaction costs and ensuring that the entire trading activities take place in an efficient, transparent and predictable manner. The term "trade facilitation" simply refers to application of efficient trade procedures which encompass various measures that allow quick delivery and free movement of goods and services between sellers and buyers, along the entire international trade chain (Woo and Wilson, 2000).

Trade facilitation is not about restricting countries' ability from protecting their domestic border against imported products from the foreign competitors. It is all about reducing the trade transaction costs (otherwise known as trade impediments) involved in the trading activities. Trade transaction costs are costs associated with inefficient trade procedures, which makes trading activities more cumbersome and burdensome (Miteva-Kacarski and Gorgieva-Trajkovska, 2011). With trade facilitation, countries are encouraged to participate actively at various levels of international trade which could either be at the multilateral or regional level. Also, at firm level, small and medium scale enterprises (SMEs) that already engaged in international trade found it easier to export more, while new entrant will be encouraged to actively participate in international trade. The consequence of this development thereby brings about intensive and extensive margin of trade (Chaney, 2008). Intensive margin of trade refers to the volume of goods being exported while extensive margin is the varieties of goods exported by the exporting countries (See Chaney, 2008).

Generally, trade facilitation is considered as a strategy designed towards reducing trade transaction costs associated with inefficient trade procedures. This implies that competitiveness of a country in international trade arena can only be enhanced through efficient trade procedures such as logistics; supply chain management and security; custom reform and modernization; simple rules and procedures; operational flexibility; avoidance of duplication and elimination of things that make trade cumbersome and burdensome (Grainger, 2011). Given this, it becomes clear that tariff reduction is just a necessary condition but not a sufficient condition for trade flows. Against this background, focus has shifted from constant tariffs reduction as a result of GATT, to non-tariff barriers and trade

facilitation. This occurs with the growing emergence of global value chains that highlight the significance of an efficient trade administration (OECD/WTO, 2015).

At Bali Ministerial Conference in December 2013, negotiations on a Trade Facilitation Agreement (TFA) as part of wider "Bali Package" were concluded by member countries. The TFA contains provisions for quick movement, release and clearance of goods, as well as goods in transit. Its implementation give room for paperless trade system, as called for in Article 10.4 of the WTO Trade Facilitation Agreement.

1.2 Statement of the Problem

Since 1980s, Nigeria has successfully implemented major trade reforms ranging from trade liberalization to regional integration and other bilateral and multilateral trade agreements. As a result, tariffs have been at all-time low in ECOWAS (after the implementation of Common External Tariff (CET)). This is equally in line with the trend in the world presently. The average tariff in most sectors of Nigerian economy has reduced substantially. However, these reforms often fall short of addressing the myriad of non-tariff barriers that often have more devastating effects on trade than actual tariffs (Seck, 2014). It is therefore clear that tariff reduction is just a necessary condition but not a sufficient condition for trade flows.

Nigeria's contribution to global export has not been satisfactory (UNCTAD, 2017). Nigeria's share of world exports over the last five years peaked at 0.63 per cent in 2011 and has since gradually dropped, recording 0.22 per cent in 2016 (UNCTAD, 2017). This is lower compared with South Africa which her share of world exports recorded 0.48 per cent for the same period. Based on this fact, Nigeria is placed 51st position in the international trade centre's (ITC's) ranking of world exporting countries, while South Africa, a smaller economy than Nigeria was ranked 38th in 2016. Also, Nigeria's share of exports to GDP between 2005 and 2016 averaged 21.8 per cent, lower than Ghana and South Africa with 37.4 per cent and 30.3 per cent share of exports to GDP (WDI, 2016).

Nigeria's poor performance in global trade is largely attributed to high and rising cost of trade, together with unconducive business environment that make business operations costly and inefficient (Ministry of Budget and National Planning, 2017). This is reflected in the doing business report's trading across border indicators (TBI) that trading in and out of Nigeria's borders requires far greater number of documents. For instance, prior to the TFA, 9.1 documents are required when exporting and 13.4 when importing, as against 3 and 5, 4 and 4 documents required to export and import in Japan and Germany. Around the same period, the TBI also reveals that it takes more time to ship a container from Nigeria to the rest of the world (26.4 days) or from the outside world to Nigeria (42.1 days), compared with major trading partners, especially Japan and Germany with 11 and 11 days, 8 and 8.1 days to export and import respectively (World Bank, 2015). During TFA period, Nigeria still required 131 hours and 173 hours, equivalent to 5.46 and 7.21 days to export and import. This is considerably higher when compared with Japan and Germany that required 2.4-3.4 hour and 1-1 hour to export and import (World Bank, 2018). More so, the cost required in Nigeria to export and import a unit of container before TFA period averaged US$1,195.78

and US$1,408.83 while US$250.00 and US$564.00 during TFA period compared to relatively low costs required in Japan and Germany.

The same pattern shows in the World Economic Forum's Enabling Trade Index that measures the extent to which individual economies have developed institutions, policies, and services facilitating the free flow of goods over borders and to destination, Nigeria scored 3.1 out of 7 overall and ranked 127 out of 138 countries overall (WEF, 2016-2017). This is of course an indication that trading activities in Nigeria is high and the resulting effect of these trade impediments is higher prices of goods and services (Arvis et al., 2014). Consequently both imports and exports are discouraged and further harming Nigeria's economy international competitiveness. Against the above background, the study seeks to ask the following research questions: (i) What are the factors constraining Nigeria's non-oil exports? (ii) What impact do these trade facilitation measures play on Nigeria's non-oil export?

1.3 Objective of the Study

The overall objective of this study is to investigate how Nigeria's non-oil export could be enhanced through trade facilitation measures. With the overall objectives stated above, the specific objectives are as follows:

1. To identify the factors constraining Nigeria's non-oil exports.
2. To explore how trade facilitation measures can be employed to enhance Nigeria's non-oil exports.
3. Analyse comparatively significant impact of trade facilitation measures on Nigeria's non-oil exports before and during the TFA periods.

1.4 Rationale of the Study

Evidence has shown that Nigeria's lack of global trade competitive has been due to high transaction costs. Higher trade costs inhibit the potential of both firms and businesses to thrive domestically and to engage actively and competitively in the global commerce. This study therefore, is important as it will sensitize the stakeholders and government about the benefits of facilitating trade in Nigeria. In addition, this study focuses on trade policy and domestic regulatory measures. Trade policy barrier measures the extent to which a country had developed policies that make imported goods or services less competitive than locally produced goods and services. Indicators of trade policy barriers include tariffs and non-tariff measures. On the other hand, domestic regulatory measures also known as border-related measures. It reflects the domestic economic environment such as the legal and regulatory framework, costs of supplying information and providing documentation, customs clearance procedures, administrative red tape, etc. All these barriers have potentially large impact on trade and are captured by logistics performance index (LPI) and doing business indicators (DBI). The DBI comprises number of documents required to export/import, time and cost to export and import a 20-foot container.

This study mainly focuses on Nigeria by considering the supply side (exports of Nigeria) to its top trading partners. The study intends to consider the combination of tariff and non-tariff

measures. The non-tariff measures focus specifically on domestic economic environment captured by the DBI. The three indicators of doing business will be considered. Also, this study employs gravity model because it is the most standard empirical tools for modelling bilateral trade flows. The gravity equation is estimated within the framework of Poisson Pseudo-Maximum Likelihood (PPML) and fixed effect PPML. Finally, this study focuses on supply side only, making it unique as there is dearth of such study conducted for Nigeria.

Chapter Two

Literature Review

2.0 Stylized Facts

2.1 Borders-related (or Domestic Regulatory) measures

Doing business in Nigeria could be challenging due to high costs of trading in and out of its borders. Before TFA, trading in the country requires 9.1 documents on average when exporting and 13.4 documents on average when importing (World Bank, 2015). This was considerably higher particularly when compared with the requirements of its major trading partners. As for time, an average of 26.4 days was required to ship goods from Nigeria to the rest of the world while an average of 42.1 days was required to ship goods from a partner country to Nigeria (See Table 1). In most of Nigeria's trading partners, except Ghana, it takes even fewer days to export and import.

In respect to costs of trading, Table 1 shows Nigeria to be unfavourable. For instance, costs of exporting and importing a container in and out of Nigeria remained significantly higher than its trading partners. The average cost of exporting and importing a container in Nigeria before TFA period was US$1,195.78 and US$1,408.83 respectively. This was considerably higher compared with its trading partners, except Brazil, Cote d'Ivoire and South Africa which recorded an average of US$1,378.81, US$1,659.67 and US$1,402.67 on export and US$1,567.70, US$2,201.00 and US$1,626.11 respectively on import.

With the implementation of TFA, the requirements for cross-border trade have been simplified. However, ease of doing business in Nigeria still remains higher compared to its trading partners, except Ghana. For instance, Nigeria requires an average of 131 hours and 173 hours, equivalent to 5.46 days and 7.21 days to export and import. In respect to cost to export and import a container, it requires US$250.00 and US$564.00 respectively (World Bank, 2018). As can be inferred from Table 1, what necessitates high cost of trading in Nigeria is failure of the country to streamline documentation and bureaucratic clearance procedures.

Table 1: Cross-Border Trade Indicators for Nigeria and major Trading Partners, 2005-2013 and 2014-2018

	EXPORTS					IMPORTS				
	PRE-TFA period (2005-2013)			During TFA period (2014-2018)[15]		PRE-TFA period (2005-2013)			During TFA period (2014-2018)	
Countries	Number of Document required	Days spent	Cost (US $ per container)	Time: documentary compliance (hours)	Cost US $ per container): documentary compliance	Number of Document required	Days spent	Cost (US $ per container)	Time: documentary compliance (hours)	Cost US $ per container): documentary compliance
Nigeria	9.1	26.4	1195.78	131	250.00	13.4	42.1	1408.83	173	564.00
Brazil	6	14.7	1378.81	22	226.00	8	19.2	1567.70	137.33	107.00
China	8	21.2	503.67	21	85.00	5.4	24.2	542.78	66	171.00
Cote d'Ivoire	9	24.1	1659.67	120	136.00	13	38.7	2201.00	113	267.00
France	3	11.4	1285.00	1	0	3.9	12.2	1378.33	1	0
Germany	4	8.3	852.78	1	45.00	4	7	874.44	1	0
Ghana	6	22.3	765.00	89	155.00	7	42.4	1122.78	301.33	474.00
India	7	19.1	960.00	40	99.00	10	24.9	1181.67	62.33	142.00
Italy	3	19.9	1260.33	1	0	3	18	1210.33	1	0
Japan	3	11	884.92	2	60.00	5	11	1090.26	3	100.00
Netherlands	4	7	920.00	1	0	4.8	6	982.67	1	0
Portugal	4	8	963.78	2	0	5	7	820.00	2	0
South Africa	6.6	23	1402.67	68	170.00	6.8	31.8	1626.11	36	213.00
Spain	4	10	1194.89	1	0	4.6	9.8	1265.22	1	0
Turkey	7.2	14.8	909.00	5	87.00	9.1	16.7	1067.22	11	142.00
United Kingdom	4	9.1	1015.00	4	25.00	4	7.1	1166.22	2	0
United States	3	6	1030.44	2	60.00	5	5	1251.22	8	100.00

Source: Author's Computation based on World Development Indicators database, 2015 and 2018.

Note: The period average is calculated for each dates

Chart Area

2.2 Sectoral Analysis of Nigeria's Exports

The sectoral composition of trade reflects both the comparative advantage of countries in the production of specific products as well as patterns of demand by consumers. Table 2 shows the classifications of various export commodities by sector. It can be seen in Table 2 that over the period 2005-2016, the total export of Nigeria was dominated by oil sector. For instance, it increased from US$39.40 billion in 2005 to US$99.44 billion in 2012. The increase in oil sector export during these periods was influenced mainly by the favourable international crude oil price, as performance of agriculture and manufacturing sectors showed only marginal improvement. The average exports values of agriculture and manufacturing sectors for the periods 2005-2016 recorded US$3.28 billion and US$2.18 billion (accounted for about 4.35 per cent and 3.21 per cent, respectively). However, oil sector export dropped significantly to US$67.25 billion in 2013, though it improved a bit in 2014 to US$75.16 billion but significantly dropped in 2016 to US$27.06 billion (accounted for about 92.03 per cent of total merchandise exports). In addition, with reduction in oil sector export in recent times, the summation of exports of both agriculture and manufacturing sectors is still insignificant as it constituted less than 10 per cent of total merchandise exports value.

Table 2: Sectoral Analysis of Nigeria's Merchandize Exports to its major Trading Partners (Trade value in Million US$)

Sectors		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AGRICULTURAL*	Value	752.41	229.64	1087.67	1257.95	927.48	2699.90	8202.91	13327.84	5565.07	1798.84	1706.07	1750.17
	Share in total (%)	(1.85)	(0.44)	(2.30)	(1.77)	(2.49)	(3.95)	(8.69)	(11.46)	(7.43)	(2.18)	(3.71)	(5.95)
MANUFACTURING**	Value	547.74	470.15	1861.66	2435.14	1110.32	4173.46	2851.21	3515.72	2047.91	5524.72	1047.25	593.68
	Share in total (%)	(1.35)	(0.91)	(3.94)	(3.43)	(2.98)	(6.10)	(3.02)	(3.02)	(2.74)	(6.70)	(2.28)	(2.02)
OIL***	Value	39403.19	50996.15	44347.99	67369.98	35200.65	61494.46	83383.80	99444.05	67252.82	75157.48	43237.55	27056.60
	Share in total (%)	(96.81)	(98.65)	(93.76)	(94.80)	(94.53)	(89.95)	(88.29)	(85.52)	(89.83)	(91.12)	(94.01)	(92.03)
Total		40703.34	51695.95	47297.33	71063.08	37238.45	68367.82	94437.91	116287.61	74865.8	82481.04	45990.87	29400.45
Maximum		39403.19	50996.15	44347.99	67369.98	35200.65	61494.46	83383.8	99444.054	67252.82	75157.48	43237.55	27056.60
Highest Maximum Share (%)		(96.81)	(98.65)	(93.76)	(94.80)	(94.53)	(89.95)	(88.29)	(85.52)	(89.83)	(91.12)	(94.01)	(92.03)

Source: Author's calculation based on data from World Integrated Trade Solution (WITS), 2017;

2.3 Empirical Review

Under this section, some of the empirical literatures that are considered relevant to the focus of this research shall be reviewed.

2.3.1 Empirical Review of Literature

Since the official birth of trade facilitation in 1996, series of studies have attempted to assess various trade facilitation measures, its impact and possible ways of improving country's exports through these measures. This subsection provides a brief of the various methodological approaches adopted, empirical findings and conclusions of existing studies on the topic in order to identify the frontier of knowledge**.** Shepherd (2009), for instance, employed a theory-consistent gravity model to examine the role of trade facilitation in reducing the overall trade costs in APEC and ASEAN between 1995 and 2008, and 2001 and 2007. The results showed that tariff reductions have played an important role in reducing overall trade costs for both groups. Though progress on non-tariff trade costs has been much more limited, but APEC and ASEAN should refocus their trade facilitation efforts on non-tariff trade costs. Persson (2010) counted the number of 8-digit products that are exported from developing countries to EU countries in order to test whether the extensive margins of trade in differentiated and homogeneous goods are affected in the same way by trade transaction costs related to cumbersome cross- border trade procedures. The results found that trade facilitation has effects on the extensive margin of trade, and therefore affects the range of goods that can be traded. To this type of trade barrier, differentiated products are more sensitive than homogeneous products. The estimated results therefore suggest that a 1 per cent reduction in the number of days needed to export a good will result to a rise in the number of exported differentiated and homogeneous products would rise by 0.7 per cent and 0.4 per cent respectively

Bourdet and Persson (2011) employed gravity model to estimate the impact of trade procedures on exports from non-EU countries. The results revealed that if the EU were to harmonize import procedures to the level of the currently most efficient EU countries, the average non-member would increase its aggregated exports to the EU by around 20 per cent. In a similar study by Bourdet and Persson (2012), they explored whether deeper integration in the form of trade facilitation i.e. improved and simplified trade procedures could have a positive effect on export volumes and the number of products that are exported by allowing both import procedures in EU countries and export procedures in exporting non-EU Mediterranean countries to have an effect on trade. The results thereby indicated that the efficiency of trade procedures has a statistically significant effect on bilateral export volumes. Also that with harmonization of import and export procedures to the level of the currently most efficient EU countries, aggregated exports from individual non-EU Mediterranean countries would increase by as much as 57 per cent.

Cheewatrakoolpong and Rujanakanoknad (2011) conducted a survey in order to analyse the relationship between trade facilitation and trade performance across 10 border checkpoints of Thailand between 2003 and 2008. The findings showed that the implementation of ASEAN Framework Agreement on the facilitation of goods in transit and inter-state will improve the export values at the border of locations of Thailand. If only ASEAN Single Window (ASW) is implemented, exports passing all borders locations of Thailand will increase by 308.88 and if the Electronic Data Interchange (EDI) system is installed in all neighbouring countries, exports will increase by 723.97 million bahts. Their findings further that if neighbouring countries like Lao PDR, Myanmar and Cambodia could reduce the time spent in their customs procedures for one-hour, the export values at all border locations of Thailand will rise by 1,029.33 million bahts even without the implementation of EDI system in the mentioned countries and 4,109.92 million bahts with the implementation of EDI system.

Otsuki (2011) used both regression and simulation analysis to estimate the effect of trade facilitation on trade flows of manufactured goods among 99 ASEAN member countries between 2004 and 2008. The estimated results support the positive effect of all the four trade facilitation indicators on bilateral trade flows. While under a scenario of raising the below-average countries halfway to the global average, ASEAN's trade is estimated to increase by $99 billion, three-quarters of which comes from the region's own improvements. Also, regulatory reforms, for example, enhancing transparency of trade-related regulations and ensuring law-abiding operations of the regulatory authorities, are found to be most effective. In examining the impact of trade facilitation on the extensive and intensive margins of trade using the traditional cross-section gravity model, Lee and Kim ((2012) used a highly disaggregated data on imports to 26 EU countries from 150 developing and developed countries in 2007. The result showed that more efficient trade procedures had the largest benefits for low-income countries (LIC) and lower middle- income countries (LMIC) in exporting primary goods at both the extensive and intensive margins, and the largest benefits for upper middle-income countries (UMIC) in exporting manufacturing goods at both the extensive and intensive margins.

Márquez-Ramos, Martínez-Zarzoso and Suárez-Burguet (2012) quantified and compared the impact that a number of trade facilitation and trade policy barriers have on bilateral trade flows using the 4-digit Standard International Trade Classification (SITC) with a sample of countries comprised 13 exporters and 167 importers in the year 2000. The authors employed gravity model with the aid of Bonus vetus OLS. Their results therefore indicated that a reduction in the number of days and the number of documents needed for trade, as well as information technology achievement promotes international trade to a greater extent than equivalent reductions in tariff barriers and this result is also obtained for specific countries and sectors. The study also suggests that trade policy negotiation efforts should focus on facilitating trade processes and should be at the forefront of multilateral negotiations.

Asgarkhani and Amini (2014) used both fixed effect model and generalized least square (GLS) to estimate the effect of trade facilitation on non-oil export of 16 countries in South West Asia between 2006 and 2012. The analysis of the results showed that the significant and positive impact of trade facilitation on non-oil export can be found and it can be accentuated that reducing the number of days and documents required for export plays a key role in the growth of non-oil exports. Furthermore, GDP has also a positive and significant effect on non-oil exports. Therefore, overcoming barriers of increasing production and trade facilitation plays a large role in the development of non-oil exports. Following a Preferential Trade Agreement (PTA) between EU27- country and non-EU upper-middle income country for the period 2005-2012, Akesson and Karlberg (2015) conducted a panel study using gravity model to investigate how the volume of Kazakhstan's exports to the EU is likely to be affected by Kazakhstan pursuing trade facilitation. The results indicate that trade facilitation could lead to a substantial increase in the volume of Kazakhstan's annual exports to the EU. And that whether the exporting country is either a member of PTA with the EU or not, Trade facilitation significantly improves her GDP.

In Africa, Akinkugbe (2006) employed panel regression technique of one-way error component random effects model to examine the relationship between the indicators of trade facilitation and trade flows (manufactured exports). The study comprises a panel of 20 selected African countries for the period of 1995 to 2004. The results showed that significant improvements in infrastructure, well-functioning institutions, and e-business usages may significantly expand trade; whereas regulatory barriers and the perception of corruption in a country will deter trade. While Njinkeu, Wilson and Fosso (2008) extended the study by Wilson, Mann and Otsuki (2003a-b, 2004) in order to examine the impact of trade facilitation on intra-African trade using a sample of 100 countries including 25 African countries for the period 2003-2004. The study employed a combination of pooled OLS and fixed effect model. Their findings showed that besides the traditional determinants of bilateral trade, port efficiency and services infrastructure are the factors that have a positive impact on African trade but that customs and regulatory environments are the main obstacles to intra-African trade. The study further suggested that a coherent and comprehensive trade facilitation agenda should be an essential element of domestic reform.

Across 146 countries in 2007, Freund and Rocha (2010) examined the effects of transit, documentation, and ports and customs delays on Africa's exports using OLS and

instrumental variable (IV). The results showed that transit delays have the most economically and statically significant effect on exports. A one day reduction in inland travel times leads to a 7 per cent increase in exports. Also, this effect is higher for time-sensitive goods compared to time-insensitive goods and that long times are associated with high uncertainty in road transport, which jeopardizes exporters' delivery targets. Olayiwola, Osabuohien and Okodua (2011) combined ECOWAS Trade Data, World Trade Indicators and World Governance Indicators with the aid of econometrics analysis in order to determine the role of economic integration and trade facilitation on agricultural export in ECOWAS for the period 1995-2009. Their findings clearly showed that on the average, the level of trade facilitation in ECOWAS is below world average. It was also found that ECOWAS members with more bureaucratic processes experience greater costs of exporting/importing. Furthermore, their results indicated that economic integration significantly helps in facilitating trade within the ECOWAS sub-region.

Spence and Karingi (2011) employed a Constant Market Share Analysis (CMSA) to analyse the impact of trade facilitation on the dynamics of export competitiveness for 53 African nations over the period 2004-2008. Their analysis showed that trade facilitation, captured by the four indicators created by Portugal- Perez and Wilson (2010), significantly bolsters a key source of competitiveness, total-factor productivity, through a transaction effect but the production effect in which trade facilitation reallocates resources to more productive sectors, proxied by the impact on the income level of exports, is less sensitive. While the quality and quantity of physical infrastructure is robust across specifications, the results thereby suggested that trade facilitation measures are best adopted as part of a holistic trade policy aimed at creating an environment conducive to the diversification of African exports to ensure long run export competitiveness.

In a Panel survey across 7,000 manufacturing firms from 37 countries in Sub-Saharan Africa between 2006 and 2009, Hoekstra (2012) investigated the determinants of African firms' exporting behaviour with a special focus on trade facilitation measures. The analyses indicated that trade facilitation is associated with an increase in African firms' probability to participate in international trade, and that trade facilitation also matters for how much firms export. All trade facilitation variables except the number of days needed for export goods to clear customs had significant effects while access to finance is less robust. Also, firms exporting behaviour is most responsive to telecommunications, which holds the potential for large benefits. However, many exporters consider transport and the energy infrastructure to be severe obstacles compared to other obstacles affecting firms' operations, and the results confirm that both indeed are negatively related to exporting.

Considering a panel of 20 countries over the period 2007-2010, Djemmo (2013) employed gravity model to evaluate the impact of five trade facilitation measures on the export performance of Cameroon. The results clearly showed that port efficiency and quality of roads are the main drivers of trade facilitation in Cameroon. Also, a 1 per cent improvement of each of these two indicators would increase the volume of manufacturing exports by more than 2.9 per cent and 2.3 per cent respectively. The author further clarified his findings that while port and airport are the main entries and exit points of goods with Cameroon's main

trading partners outside the continent (EU, USA, China, etc.) whereas roads remain the main supply channel for partners within the continent, including peers of CEMAC zone and Nigeria. However, with the same approach, Njuguna (2013) estimated the impact of trade facilitation on export flows among the 19 member states in the COMESA over the period 2005-2010. The results clearly revealed that trade facilitation is yet to have a significant effect on intra- regional trade patterns for there no significant emphasis on the importance of implementing policy measures geared towards trade facilitation. Also, multiple memberships to Regional Trade Agreements RTAs) have a negative influence on trade patterns.

Nilsson (2014) employed both survey approach and gravity model to investigate whether inefficient trade procedures affect exports, and more specifically, whether it is likely that Ghana could increase its exports volumes and/or export diversification by engaging in trade facilitation. The survey covered 49 countries in Sub-Saharan Africa and the EU27 for the period 2006-2012. The results of analysis however suggest that Ghana, by engaging in trade facilitation, would gain in terms of increased export diversification but not in terms of export volumes i.e. a 1 per cent reduction of the cost to export would reduce export volumes by 0.4 per cent and increase export diversification by 0.2 per cent. Also, trade facilitation reform in the area of improving port facilities and customs authorities would fall under the broader definition of trade facilitation and is hence likely to have a substantial impact on export volumes and export diversification.

2.3.2 Summary of Conclusion from the Empirical Literature

The results of previous studies on trade facilitation have clearly shown that efficiency of trade procedures has significant positive impact on bilateral exports (both volumes and export diversification). Most of these studies have employed gravity model with the aid of various estimators. For instance, Njinkeu, Wilson and Fosso (2008); Otsuki (2011); Lee and Kim (2012); and Márquez-Ramos, Martínez-Zarzoso and Suárez-Burguet (2012) used OLS and pooled OLS technique in the absence of endogeneity issue. To address the issue of endogeneity in which the use of instrumental variables (IVs) is required, Spence and Karingi (2011); Cheewatrakoolpong and Rujanakanoknad (2011) and Asgarkhani and Amini (2014) employed generalized least square (GLS) while Olayiwola, Osabuohien and Okodua (2011) used generalized method of moments (GMM) technique. While dealing with the issue of zero trade flows, Bourdet and Persson (2011 and 2012); Akesson and Karlberg (2015) used Poisson Pseudo-Maximum Likelihood (PPML).

These studies were conducted across developed countries, developing countries and for both and mostly focussed on cross country. This is because the subject matter is mainly centred on bilateral trade relation as most of the studies considered both the supply (exports) and the demand (imports) sides. But when only the supply side is being considered, we can therefore be referring to country specific study. For instance, Djemmo (2013) and Akesson and Karlberg (2015). The former focussed on manufacturing exports of Cameroon to its trading partners while the latter specifically focussed on exports volume of Kazakhstan to the EU. The fact behind this kind of study is that a country must have trading partners as it cannot trade alone. In terms of specific indicator used, Nilsson (2014); Akesson and Karlberg (2015)

used the three indicators of doing business (i.e. time required to export and import, costs and number of documents required to export and import). However, Márquez-Ramos, Martínez-Zarzoso and Suárez-Burguet (2012); Asgarkhani and Amini (2014) used time and number of documents while Freund and Rocha (2010), Persson (2011), Bourdet and Persson (2011; 2012) and Cheewatrakoolpong and Rujanakanoknad (2011) used only time required to export and import. In another dimension, Lee and Kim (2012) and Njuguna (2013) both employed logistics performance index (LPI) to measure trade facilitation. Finally, some other indicators of trade facilitation (such as port efficiency, custom environment, regulatory environment, infrastructure and finance) were used by several other studies.

Chapter Three

Theoretical Framework and Methodology

3.1 Theoretical Framework

In international economics, global trade involves a process whereby traders (i.e. buyer and seller) negotiate, establish and implement international commercial contracts. In satisfying the commercial contract, traders must comply with certain set of procedures, such as meeting the administrative and documentary requirements and bear the relevant costs. Trade transaction costs comprise both direct and indirect costs with greater impact on competitiveness. The direct costs are the costs relating to supplying of information and fulfilling the required documents to the authorities or paying for trade-related services. The indirect costs on the other hand are induced costs, such as those arising from procedural delays or lost business opportunities. Consequently, higher trade transaction costs inhibit competitiveness. Through the implementation of trade facilitation measures that requires simplification and harmonization of international trade procedures and formalities, there tend to be a reduction in trade transaction costs. This could thereby improve competitiveness.

The framework for the paper follows Sadikov (2007) who assumed that inefficient trade procedures reduce country's exports as it increases transaction costs. Also in this paper, trade transaction costs is assumed to take an ad valorem form such that country *i*'s importer face price $p_j\left(1+t_{ij}\right)$ for shipping good from country *j* at price p_j.

$$\text{i.e. } p_i = p_j\left(1+t_{ij}\right) \tag{1}$$

Trade transaction costs affect both exporter and importer. For the importer, these costs are not limited to costs for shipping goods between the trading partners. But it includes other costs such as tariffs, operational logistics environment, documentation, time required to complete import procedures and cost to import a 20-foot container. In the exporting country, costs incurred include transportation costs for moving good from a factory gate to the port, tariffs, infrastructural, number of documentation required, number of days to process the document and cost of moving a container from country *i* to *j*.

To analyse how competitiveness Nigeria's exports could be improved through trade facilitation measures, this paper assume that trade transaction costs between Nigeria and each of the trading partners is expressed as:

$$\tau_{ij} = \left(1+\gamma_j\right)\left(1+\gamma_{ij}\left(g_{ij}, 1+t_{ij}, d_i\right)\right) \tag{2}$$

Where τ_{ij} represent trade transaction costs of trading between two countries. The first term on the right hand side, $\left(1+\gamma_j\right)$, signifies transaction costs specific to the exporter which depends strictly on the level of trade facilitation in the exporting country. This is because an exporter must comply with certain requirements such as number of documents and days

required to export. Satisfy with the cost to export a 20-foot container and meeting the border requirements. All these must be fulfilled before a ship is allowed to leave the port. The second term on the right hand side of equation (2), $\left(1+\gamma_{ij}\right)$, denotes transaction costs relating to bilateral-pair factors, such as standard gravity model variables $\left(g_{ij}\right)$. In addition, $\left(1+t_{ij}\right)$ is the transportation cost factor for shifting goods from country *i to j* that equals to one plus tariff rate applied to these goods. d_i represents importer specific factors, including those determined its level of trade facilitation.

The Trade Model

According to Sadikov (2007), each country is endowed with composite factor *L* and a specific factor (i.e. skilled labour). A representative consumer in country *i* maximizes preferences over two composite goods: a primary product (homogeneous) good *H* and manufacture product (heterogeneous) good *D*.

$$U_i = D_i^{\alpha} H_i^{1-\alpha} \tag{3}$$

Where α is a share of her income spent on *D*. *D* can be thought of as a sub-utility derived from the consumption of manufacturing goods, while *H* is sub-utility derived from the consumption of primary goods. Aggregation of consumer preferences for primary goods (both imported and domestic goods) is given by the standard CES utility function. The elasticity of substitution between the two goods is characterized by $\sigma_h > 1$.

$$H_i = \left(h_{ii}^{\frac{\sigma_h - 1}{\sigma_h}} + h_{ij}^{\frac{\sigma_h - 1}{\sigma_h}} \right)^{\frac{\sigma_h - 1}{\sigma_h}} \tag{4}$$

Also, a symmetric CES aggregate of consumer preferences for the manufactured good (both imported and domestic goods) is also given by:

$$D_i = \left(N_i d_{ii}^{\frac{\sigma_d - 1}{\sigma_d}} + N_i d_{ij}^{\frac{\sigma_d - 1}{\sigma_d}} \right)^{\frac{\sigma_d}{\sigma_d - 1}} \tag{5}$$

Where $\sigma_d \geq 1$ is the elasticity of substitution between manufacturing varieties. Under these assumptions, the manufacturing firms will generate mark-up profits in equilibrium, which accrue to the owners of the specific factor *S*.

Export Supply Function

With the perfect competition in the commodity sector and monopolistic competition with constant mark-ups in manufacturing, lower marginal costs reduce prices of goods in both markets. Particularly in manufacturing industry, reductions in trade transaction costs improve the competitiveness of firms in the industry and also enable the country to produce and export more varieties of goods. Country *i*'s exports of homogeneous and heterogeneous commodities to country *j* is expressed as:

$$E_{ijh} = \left(\frac{c_{jh}}{a_j}\right)^{1-\sigma_h} \left(\tau_{ijh}\right)^{1-\sigma_h} g_{ih}^{\sigma_h - 1}(1-\alpha)T_i \quad (6)$$

$$E_{ijd} = \left(N_j a_j\right)\left(\frac{c_{jd}}{a_j}\right)^{1-\sigma_d} \left(\tau_{ijd}\right)^{1-\sigma_d} g_{id}^{\sigma_d - 1}\alpha T_i. \quad (7)$$

Equation (6) and (7) show that reduction in trade transaction costs denotes an improvement in trade facilitation and this generates greater impact on exports competitiveness.

3.2 Methodology

This section discusses the tools and techniques to be used in exploring the impact of trade facilitation measures on Nigeria's export competitiveness. Also, the data and variables to be used in the analysis will be described.

To achieve this objective, the study employs gravity model. In international trade literature, gravity model is mostly employed as a veritable tool to examine the functional relationship between a country and its trading counterparts. The gravity model is derived from the "Law of Universal Gravitation". The law proposes that the force of attraction, V_{ij}, between two separate entities i and j is a positive function of the entities' respective masses, m_i and m_j, and inversely related to the squared distance, d_{ij}^2, between the objects. This law is formalized as:

$$V_{ij} = \mathrm{G}\,\frac{M_i M_j}{D_{ij}^2} \quad (8)$$

Where V_{ij} is the force of attraction, $M_i$and M_j are the respective two entities' masses, D_{ij}^2 is the distance between the two entities (objects), and *G* is a gravitational constant depending on the units of measurement for mass and force.

However, in this paper, a modified standard gravity model is specified in which the variable 'distance' is replaced by cost to export and import a 20-foot container. In addition, other variables of interest (policy variables) are included in the model to be able to explore how trade facilitation measures could enhance competitiveness of Nigeria non-oil exports.

Based on this, a modified standard gravity model takes the form:

$$\ln \exp_{ijzt} = \beta_0 + \beta_1 \ln y_{it} + \beta_2 \ln y_{jt} + \beta_3 \ln trf_{ijt} + \beta_4 \ln ndrx_{it} + \beta_5 \ln ndrx_{jt} + \beta_6 \ln ndtx_{it} + \beta_7 \ln ndtx_{jt} + \beta_8 \ln \cos x_{it} + \beta_9 \ln \cos x_{jt} + \varepsilon_t \quad (9)$$

Where z equals total trade and sectoral trade (various sectors), *i* indexes countries and *t* denotes time. The dependent variable $\left(\exp_{iztd}\right)$in equation (9) is export of commodity *z* from country *i* (Nigeria) to country *j*, its major trading partners at year *t* on a one –digit division *d.* It is computed as the volume of commodity *z* exported by Nigeria to each of the trading

partners at time *t* divided by the total volume of commodity *z* exported by all countries to country *j* at time *t*. The explanatory variables of main interest include: trf_{ijt} is the weighted average tariffs rates at time *t;* $ndrx_{it}$ and $ndrm_{jt}$ are the number of documents required to exports and imports at time *t;* $ndtx_{it}$ and $ndtx_{it}$ are the number of days required to process exports and imports at time *t;* $cosx_{it}$ and $cosm_{jt}$ are the costs required to exports and imports at time *t; and* ε_t is the error term at time *t*. The other explanatory variable is the GDP of Nigeria at time *t*; denoted by y_{it} and y_{jt} is the GDP of each of the major importing trading partners of Nigeria at time *t*.

Table 3: A priori Expectation of the Variables used in equations (1)

Abbreviation of Variables	Explanation of Variables	Proxy	Expected relationship (sign)	Data source
EXP	Sectoral export	Sectoral export		WITS
GDP (agric and manuf. sectors)	Gross Domestic Product	Domestic GDP growth (real).	+	WDI
TRF	Tariff	Bilateral weighted average level applied MFN tariffs rates	-	WDI, World bank database. https://data.worldbank.org/indicator/TM.TAX.TCOM.SM.AR.ZS
NDRX	Number of documents required to exports	Number of documents required to exports	-	WDI
NDPX	Number of days taken to process exports	Number of days taken to process exports	-	WDI
NDRM	Number of documents required to imports	Number of documents required to imports	-	WDI
NDPM	Number of days taken to process imports	Number of days taken to process imports	-	WDI
COSX	cost of exporting a container	cost of exporting a container per US$	-	WDI
COSM	cost of importing a container	cost of importing a container per US$	-	WDI

Source: Author's Compilation from Literature Review.

3.3 Estimation Issues and Techniques

To estimate equation (9) above, pseudo poisson maximum likelihood (PPML) and fixed effect PPML are used. The rationale for this technique is to capture the presence of zero trade which the use of OLS technique could render the estimates bias and inconsistent. Also, the use of either logit or probit estimator is inappropriate because the available data is not dichotomous in nature. Finally, to show the competitiveness of Nigeria's exports products, this study focuses on Nigeria and its 16 top trading partners over the periods 2005-2018. The 16 top trading partners represent the top importer of Nigeria's exports products. The choice of the selected years is due to data availability, particularly the doing business indicators. The 16 top trading partners of Nigeria represent the sample for the study. These countries are cited from the trade database and they include: India, USA, Spain, Turkey, Ghana, Japan, Netherlands, France, Portugal, South Africa, Italy, UK, China, Cote d'Ivoire, Germany and Brazil.

Chapter Four

Results and Discussions

4.1 Descriptive Analysis

Tables 4 and 5 present the descriptive statistics for Nigeria's agricultural and manufacturing exports together with the components representing trade facilitation for the 16 trading partners' countries. The statistics presented include the mean, maximum, minimum, standard deviation, and coefficient of variation for the period 2005-2018, period before TFA (2005-2013) and during TFA (2014-2018) respectively. Starting with sectoral exports, the result of the analysis reveals that Nigeria's agriculture and manufacturing sectors exports averaged US$1.701 billion and US$1.322 billion before TFA period. These values are relatively higher than the average during TFA period and full period. Also, coefficient of variation is significantly skewed towards the same direction indicating no much variation across the trading partners. Nigeria's agriculture and manufacturing sector GDP recorded higher average (US$110.0 billion and US$43.0 billion) during TFA period with variations across the trading partners. Similarly, both agricultural and manufacturing GDP of trading partners recorded highest during TFA period.

Table 4: Descriptive Analysis for Agriculture Exports

Between 2005 and 2018 (Full period)										
Variable	expa2	agrgdp_x2	agrgdp_m2	Trf	ndr_x	ndr_m	ndp_x	ndp_m	cos_x	cos_m
Obs	224	224	224	224	224	224	224	224	224	224
Mean	143599.6	91.7	94.0	4.2	6.5	4.3	20.2	13.1	951.3	905.6
Std. Dev.	359332.4	16.8	155.0	2.9	4.1	3.6	10.3	12.5	484.1	618.8
Min	0.0	63.3	3.9	1.3	0.0	0.0	5.0	0.04	250.0	0.0
Max	3618426.0	116.7	770.3	15.3	10.0	13.0	41.0	63.0	1560.0	2410.0
CV	250.2	18.3	164.8	70.0	63.5	84.1	51.2	95.5	50.9	68.3
Between 2005 and 2013 (Period before TFA)										
Obs	144	144	144	144	144	144	144	144	144	144
Mean	170137.8	81.5	87.3	4.0	9.1	6.1	26.4	18.0	1195.3	1215.6
Std. Dev.	436588.0	11.4	138.7	2.8	0.3	2.8	5.3	11.9	209.5	400.4
Min	8.2	63.3	3.9	1.3	9.0	2.0	22.9	5.0	798.0	430.0
Max	3618426.0	98.1	641.2	15.3	10.0	13.0	41.0	63.0	1560.0	2410.0
CV	256.6	14.0	159.0	69.7	3.5	46.6	19.9	66.1	17.5	32.9
Between 2014 and 2018 (During TFA period)										
Obs	80	80	80	80	80	80	80	80	80	80
Mean	95830.8	110.0	106.2	4.5	1.8	1.2	8.9	4.2	512.0	347.5
Std. Dev.	125921.9	5.3	180.9	3.1	3.6	2.6	7.1	7.6	527.3	547.7
Min	0.0	102.3	4.7	2.0	0.0	0.0	5.0	0.04	250.0	0.0
Max	566355.8	116.7	770.3	14.8	9.0	13.0	22.9	41.0	1560.0	2320.0
CV	131.4	4.8	170.3	70.2	201.3	228.2	79.8	182.8	103.0	157.6

Source: Author's computation.

Note: Std. D. represents standard deviation while CV is coefficient of variation.

Prior to TFA, in December 2013, the doing business indicators comprises three requirements for both exporters and importers (number of documents to export and import, the time and the cost to export and import a container per US$). However, the implementation of the TFA signed by all the WTO member countries in December 2013 integrated these three requirements into two: Time to export/import, documentary compliance (hours) and cost to export/import, documentary compliance (US$). Based on this development, the minimum and maximum number of documents required in Nigeria to export during TFA period is 0 and 9 compared with minimum of 9 and maximum of 10 documents required before the TFA period. Minimum and maximum number of documents required by the trading partners during TFA is 0 and 13 as against 2 and 13 number of documents required before TFA period.

In the case of number of days to export in Nigeria, a minimum and maximum of 5.46 days is required during TFA period as against minimum of 22.90 days and maximum of 41.00 days required during pre-TFA period. The required minimum and maximum number of days to import by Nigeria's importers during TFA is 0.04 days (equivalent to 1 hour) and 22.75 days compared with minimum of 4 days and maximum of 63 days required before TFA period. During TFA, both minimum and maximum cost of exporting a container (US$) in Nigeria is bearable (US$250.00) relative to before TFA period with minimum of US$798.00 and maximum of US$1,560.00.

Table 5: Descriptive Analysis for Manufacturing Exports

Between 2005 and 2018 (Full period)										
Variable	expm2	mangdp_x2	mangdp_m2	trf	ndr_x	ndr_m	ndp_x	ndp_m	cos_x	cos_m
Obs	224	224	224	224	224	224	224	224	224	224
Mean	122615.7	32.0	488.2	5.2	6.5	4.3	20.2	13.1	951.3	905.6
Std. Dev.	217639.3	9.4	670.9	3.0	4.1	3.6	10.3	12.5	484.1	618.8
Min	0.0	21.6	1.9	1.7	0.0	0.0	5.0	0.04	250.0	0.0
Max	2002656.0	44.5	2857.0	12.9	10.0	13.0	41.0	63.0	1560.0	2410.0
CV	177.5	29.3	137.4	57.0	63.5	84.1	51.2	95.5	50.9	68.3
Between 2005 and 2013 (Period before TFA)										
Obs	144	144	144	144	144	144	144	144	144	144
Mean	132181.7	25.9	452.4	5.2	9.1	6.1	26.4	18.0	1195.3	1215.6
Std. Dev.	190575.0	5.6	605.2	3.0	0.3	2.8	5.3	11.9	209.5	400.4
Min	394.1	21.6	1.9	1.7	9.0	2.0	22.9	5.0	798.0	430.0
Max	1031657.0	38.8	2857.0	12.9	10.0	13.0	41.0	63.0	1560.0	2410.0
CV	144.2	21.7	133.8	57.4	3.5	46.6	19.9	66.1	17.5	32.9
Between 2014 and 2018 (During TFA period)										
Obs	80	80	80	80	80	80	80	80	80	80
Mean	105396.9	43.0	552.5	5.2	1.8	1.2	8.9	4.2	512.0	347.5
Std. Dev.	259803.3	1.0	775.4	2.9	3.6	2.6	7.1	7.6	527.3	547.7
Min	0.0	41.8	2.4	1.9	0.0	0.0	5.0	0.04	250.0	0.0
Max	2002656.0	44.5	2857.0	12.7	9.0	13.0	22.9	41.0	1560.0	2320.0
CV	246.5	2.4	140.3	56.4	201.3	228.2	79.8	182.8	103.0	157.6

Source: Author's computation.
Note: Std. D. represents standard deviation while CV is coefficient of variation

4.2 Correlation Analysis

The correlation results are presented in Table 6 for both agriculture and manufacturing sectors. Since all the indicators of trade facilitation except tariff assume the same value, the correlation results of these variables are also the same. Among the explanatory variables both in agricultural and manufacturing exports models, the analysis shows that the magnitude of relationship between some of the explanatory variables was also high but could not result to econometrics problem in the model.

Table 6: Results of Correlation between Pairs of Variables (Agriculture Sector Exports)

	agrgd~x2	agrgd~m2	trf	ndr_x	ndr_m	ndp_x	ndp_m	cos_x	cos_m
agrgdp_x2	1								
agrgdp_m2	0.0674	1							
Trf	0.0378	-0.0097	1						
ndr_x	-0.7856	-0.0567	-0.0933	1					
ndr_m	-0.6269	-0.0005	0.142	0.7565	1				
ndp_x	-0.8802	-0.0605	-0.0565	0.9323	0.7184	1			
ndp_m	-0.5423	0.0249	0.3109	0.6086	0.7771	0.5971	1		
cos_x	-0.462	-0.0369	-0.114	0.9009	0.66	0.7066	0.5056	1	
cos_m	-0.5561	-0.1954	-0.0102	0.8224	0.7952	0.7204	0.6433	0.8069	1
Manufacturing Sector Exports									
	mangdp_x2	mangdp_m2	trf	ndr_x	ndr_m	ndp_x	ndp_m	cos_x	cos_m
mangdp_x2	1								
mangdp_m2	0.087	1							
Trf	0.003	-0.194	1						
ndr_x	-0.727	-0.066	0.001	1					
ndr_m	-0.577	-0.171	0.358	0.757	1				
ndp_x	-0.777	-0.078	0.007	0.932	0.718	1			
ndp_m	-0.490	-0.209	0.516	0.609	0.777	0.597	1		
cos_x	-0.423	-0.034	-0.005	0.901	0.660	0.707	0.506	1	
cos_m	-0.517	-0.205	0.248	0.822	0.795	0.720	0.643	0.807	1

Source: Author's computation.

4.3 Empirical Analysis

The results in Table 7 present the estimates for full period, period before and during TFA on trade (agricultural exports) between Nigeria and its trading partners. To control for unobserved heterogeneity between country pairs and to account for importer specific fixed effects, fixed effect PPML is interpreted in each of the models. All the explanatory variables are statistically significant at 1 percent confidence level. Economic size in terms of sectoral GDP of exporters and importers as well as tariff and trade facilitation indicators (number of documents, time and cost to export and import a container) were found to be significant indicators towards enhancing Nigeria's non-oil exports. In the full period estimates, however,

agricultural GDP of partners, cost to import a container and documents to export do not conform with the theory. In the period before TFA, time to import and documents to export while during the TFA period, agricultural GDP of both Nigeria and the partners and documents to export are inconsistent with the expected sign.

In the full period, the fixed effect PPML estimates show significant positive impact of agricultural GDP of Nigeria while negative impact of the trading partners on Nigeria's agricultural export exports. During the TFA period, significant negative impact of agricultural GDP of both Nigeria and the partners is exerted. However, before the TFA period, both the agricultural GDP of Nigeria and the trading partners play an important role towards enhancing Nigeria's agricultural exports, though agricultural GDP of Nigeria has higher impact. The fixed effect PPML estimates also indicate the impact of tariff as a deterrent to exports, as tariff rate imposed by the trading partners on Nigeria's agricultural products is found to have a significant negative impact on Nigeria's exports of agricultural products. In terms of comparison, significant impact of tariff during TFA period (0.067) is higher relative to other periods under consideration.

As regard the trade facilitation indicators, the estimated results for the full period reveal that number of days (time) to export and import are negative and statistically significant in explaining exports of Nigeria's agricultural products with time to export in Nigeria having higher impact than time required to import by the trading partners. Before the TFA period, only time to export while time to import during the TFA period has significant negative impact. The estimates further suggest that increasing the number of days (time) required to complete export procedures reduces Nigeria's exports of agricultural products more before the TFA (-1.13) than other periods (-0.10). Conversely, additional days required by the trading partners to complete import processes reduces Nigeria's exports of agricultural products less during the TFA (-0.02) than other periods (-0.04). In this case, a more related study is Sadikov (2007). The author however used number of signatures and registration procedures while concludes that country specific characteristics matter.

In terms of cost to export and import a container, the estimated results for period before TFA indicate the propensity to reduce Nigeria's export of agricultural products with an increase in the cost to export and import a 20-foot container. Although the estimates show that US$1 increase in the cost to export (-8.628) has higher impact than cost to import a container (-1.576) by the trading partners. Comparing these estimates across the three periods under consideration, it is shown that US$1 increase in the cost to export a 20-foot container before the TFA period reduces Nigeria's exports of agricultural products more relative to other period. Similarly, US$1 increase in the cost to import a container by the trading partners reduces Nigeria's export of agricultural products more before the TFA than other periods.

More so, the estimates show that the required number of documents to import by the trading partners exerts significant negative impact across the three periods under consideration. In effect, one additional document required by the trading partners to import leads to a decrease in the exports of Nigeria's agricultural products. Comparatively, extra documents the trading partners required to import before the TFA period (0.004) reduces Nigeria's export of

agricultural products less relative to other periods. Conversely, the positive coefficient of number of documents to export as shown in Table 7 is inconsistent with the theory. This implies that even though higher trade procedures associated with the required number of documents increase, exports of agricultural products in Nigeria also maintain an increasing trend. One major fact behind such case could be due to non-resistance of informal traders to all forms of restrictive measures towards reducing their activities. The informal traders boycott the required processes involved in cross-border trade as they fail to abide by the required sanitary and phytosanitary procedures. By implication, increasing trade procedures has no much impact on Nigeria's agricultural exports even though the coefficient before the TFA period is relatively higher than other periods.

Table 7: Results of Gravity model for Agricultural Exports

	(Full Period)		Period before TFA		Period during TFA	
Dependent variable Agriculture Exports	Pooled PPML	Fixed Effect PPML	Pooled PPML	Fixed Effect PPML	Pooled PPML	Fixed Effect PPML
Agric. Sector GDP Nigeria (log)	11.501 (2300.71)***	11.839 (2342.81)***	15.699 (2414.79)***	16.445 (2310.27)***	-2.499 (-157.53)***	-1.172 (-70.74)***
Agric. Sector GDP Partners (log)	0.071 (444.53)***	-1.185 (-423.32)***	-0.064 (-323.65)***	2.494 (746.35)***	0.294 (1082.83)***	-3.361 (-361.03)***
Tariff	0.038 (379.45)***	-0.002 (-8.22)***	0.071 (539.57)***	-0.029 (-104.88)***	0.007 (45.25)***	-0.067 (-90.49)***
Cost to export a container (Nigeria)	-0.006 (-1664.35)***	-0.006 (-1677.11)***	-8.784 (-1485.17)***	-8.628 (-1406.50)***	-	-
Cost to import a container (Partners)	-0.0004 (-606.36)***	0.001 (913.02)***	-0.214 (-213.88)***	-1.576 (-476.12)***	-0.002 (-633.69)***	-0.0002 (-52.72)***
Days to export (Nigeria)	-0.116 (-909.96)***	-0.097 (-743.15)***	-2.952 (-172.98)***	-1.127 (-63.79)***	0.051 (19.00)***	0.031 (11.51)***
Days to import (Partners)	-0.082 (-2353.38)***	-0.041 (-640.46)***	-1.425 (-3056.94)***	0.128 (33.55)***	-0.022 (-233.94)***	-0.019 (-150.14)***
Documents to export (Nigeria)	1.491 (2151.54)***	1.226 (1734.09)***	0.961 (136.23)***	0.257 (35.31)***	0.138 (27.01)***	0.032 (6.17)***
Documents to import (Partners)	-0.020 (-148.48)***	-0.059 (-259.59)***	-0.008 (-53.09)***	-0.004 (-11.34)***	0.031 (76.90)***	-0.041 (-72.59)***
Constant	-281.06 (-2221.70)***	-	-313.413 (-2229.35)	-	67.569 (163.43)***	-
No. of cross sections	16	16	16	16	16	16
No. of Observations	224	224	144	144	80	80
Log likelihood	-21656573	-12631100	-12614166	-5752960.7	-3846743.5	-911382.38
Pseudo R-square	0.3809	-	0.564	-	0.230	-

Notes: z-test are in parentheses while ***, **, and * respectively represent p<0.01, p<0.05, and p<0.1.
During the TFA period, variable "cost to export" is omitted from the estimation because of collinearity.
Source: Author's computation.

Similar to agricultural export models, the results in Table 8 demonstrates that manufacturing GDP of exporter and importers, tariff, number of documents, time and cost to export and import a container were significant to enhance Nigeria's exports of manufacturing products. The fixed effect PPML estimates reveal that only manufacturing GDP of Nigeria is statistically positive while that of the trading partners exerts significant impact in the full period. A contrary case is reported for the period before TFA. This implies that Nigeria tends to export more of manufactured products which it has comparative advantage and export less of those it has comparative disadvantage. During the TFA period, manufacturing GDP of

both Nigeria and trading partners reveal significant negative impact on Nigeria's manufacturing exports. This also connotes that as Nigeria could export less of certain manufactured goods it has comparative disadvantage, the trading partners could as well import less of such manufactured products because they have comparative advantage.

High tariff is expected to reduce exports as shown in the estimate for period during TFA. However, both in the full period and period before TFA, the estimates show a contrary case. A possible explanation for such case could be due to high quality coupled with high preference for consuming Nigeria's manufactured products in the foreign markets. Based on these conditions, high demand encourages Nigeria's manufacturing exports. Imposing high tariff could possibly not discourage such demand.

Concerning the indicators of trade facilitation, the fixed effect PPML estimates in Table 8 reveal that an increase of US$1 in the cost to export a 20-foot container before TFA period (-2.067) has greater impact of reducing Nigeria's exports of manufacturing products than an increase of US$1 in the cost to import a container by the trading partners (-1.519). When compare with other periods, the estimates show that cost to export and import a container have tendency to reduce Nigeria's export of manufactured products more before TFA relative to other periods.

In terms of number of days (time) to export and import, the estimates show significant negative impact both in the full period and during TFA with time to export having higher impact than time to import. This therefore predicts a differing impact on manufacturing exports. In effect, extra one-day on the average days required to export in Nigeria constrains its manufactured goods exports than extra one-day on the average required to import by the trading partners. Comparing these two periods with period before TFA, it is clear from the estimates that extra one-day required to export before TFA period has higher propensity to reduce Nigeria's exports of manufactured products. Significant positive coefficient of number of documents required to export as shown across the three periods under consideration is inconsistent with theory. This could also be explained by the increasing level of informal trading activities. However, both in the full period and during TFA, the effect of increasing the required number of documents to import by the trading partners is higher during TFA (-0.189) than that of the full period (-0.022).

Table 8: Results of Gravity model for Manufacturing Exports

	(Full Period)		Period before TFA		Period during TFA	
Dependent variable Manufacturing Exports	Pooled PPML	Fixed Effect PPML	Pooled PPML	Fixed Effect PPML	Pooled PPML	Fixed Effect PPML
Manuf. Sector GDP Nigeria (log)	1.564 (663.79)***	1.456 (602.24)***	-1.075 (-399.77)***	-1.795 (-620.98)***	-8.338 (-231.29)***	-11.608 (-301.37)***
Manuf. Sector GDP Partners (log)	0.126 (919.99)***	-0.095 (-59.05)***	0.233 (1288.74)***	1.270 (545.99)***	-0.084 (-367.51)***	-5.929 (-416.79)***
Tariff	-0.074 (-597.28)***	0.080 (266.91)***	-0.087 (-631.21)***	0.038 (116.96)***	-0.012 (-58.13)***	-0.517 (-311.49)***
Cost to export a container (Nigeria)	-0.001 (-338.11)***	-0.001 (-253.90)***	-3.784 (-539.81)***	-2.067 (-277.05)***	-	-
Cost to import a container (Partners)	-0.0003 (-424.83)***	-0.001 (-803.87)***	0.074 (88.05)***	-1.519 (-485.79)***	-0.001 (-560.16)***	-0.002 (-458.87)***
Days to export (Nigeria)	-0.184 (-930.59)***	-0.181 (-906.74)***	-22.374 (-1234.31)***	-21.564 (-1166.19)***	-0.011 (-3.72)***	-0.295 (-99.19)***
Days to import (Partners)	0.026 (755.98)***	-0.023 (-343.13)***	0.575 (980.25)***	0.809 (273.32)***	-0.032 (-426.51)***	-0.075 (-671.37)***
Documents to export (Nigeria)	0.836 (866.32)***	0.929 (933.57)***	8.188 (1129.72)***	8.168 (1111.84)***	0.557 (99.98)***	1.283 (217.44)***
Documents to import (Partners)	-0.100 (-835.81)***	-0.022 (-92.36)***	-0.061 (-471.35)***	0.033 (98.26)***	-0.169 (-582.23)***	-0.189 (-405.46)***
Constant	-29.254 (-520.98)***	-	55.131 (1114.02)***	-	217.109 (245.19)***	-
No. of cross sections	16	16	16	16	16	16
No. of Observations	224	224	144	144	80	80
Log likelihood	-15790311	-10418690	-9988598.8	-5524591.8	-3842114.6	-1140316.8
Pseudo R-square	0.342	-	0.285	-	0.611	-

Notes: z-test are in parentheses while ***, **, and * respectively represent $p<0.01$, $p<0.05$, and $p<0.1$.

During the TFA period, variable "cost to export" is omitted from the estimation because of collinearity.

Source: Author's computation.

Chapter Five

Summary, Conclusion and Recommendations

5.1 Summary of Findings

Towards achieving the objectives of this study, gravity model was employed as a veritable tool mostly used to examine a functional relationship between and among countries and their trading partners. PPML and fixed effect PPML were the estimation procedures carried out in respect of agricultural and manufacturing sectors exports. Also, different estimations were done covering full period (2005-2018), period before TFA (2005-2013) and period during TFA (2014-2018).

The results reveal that reducing the required number of documents, time and cost to export a container in Nigeria have significant greater impact of enhancing both its agricultural and manufacturing exports than further reduction of these requirements by its trading partners. In terms of differential impact of trade facilitation indicators on both agricultural and manufacturing sectors, the estimated coefficients for both time and number of document required to export and import are relatively higher for manufacturing than agricultural sector. However, estimated coefficients for cost to export and import are higher for agricultural than manufacturing sector.

For comparative analysis across periods under consideration, the estimated results also show that before the implementation of TFA, required time, number of documents and cost are significantly higher relative to other periods.

5.2 Conclusion

Evidence from the analysis of the study shows that the attention of policy debates is more on non-tariff measures particularly on domestic regulatory measures. From the analysis, it is clear that reducing trade complexities and inefficiency associated with number of documents, number of days and cost by both exporter and importer could yield higher payoff than further reductions in tariffs or seeking additional trade preferences.

5.3 Recommendations

This study has confirmed that focusing more attention on policy measures that could facilitate trade or reduce trade costs would produce large trade gains. From the findings, reducing trade complexities and inefficiency associated with doing business cost of trading). Based on the findings of this study, the recommendations made are as follows:

1. National government through the Nigeria Customs Services should ensure effective implementation of trade facilitation reforms, in particular, doing business requirements for cross-border trade constituted by bureaucratic processes.
2. Ministry of industry, trade and investment should also monitor and evaluate the timing for clearing goods and costs involved at the various ports.

3. The Presidential Enabling Business Environment Council set up by the Federal Government of Nigeria should be strengthened through expanding their operational offices, personnel and equipment in order to enable them fast-track their operations to get things done without much delay.

All these will further make Nigerian business environment more competitive and ensure more rewarding outcomes. Such efforts will also enable Nigeria to be highly competitive with those of her trading partners that are mostly efficient in their trading environment.

References

Akesson, J. and Karlberg, L. (2015). Trade Facilitation: Bringing Kazakhstan Closer to the EU. B.sc Thesis, Department of Economics, Lund University.

Akinkugbe, O. (2006). Trade Facilitation and Africa's Manufactured Goods Export. *Journal of Comparative International Management.* 9(2),***.

Asgarkhani, L. and Amini, A. 2014. An Investigation into the Role of Trade Facilitation in the Development of Non-Oil Exports: A Case Study of Selected Countries in South-West Asia. *Indian Journal of Fundamental and Applied Life Sciences, 4(S4), 2334-2337*

Arvis, J. F., Saslavsky, D., Ojala, L., Shepherd, B., Busch, C., and Raj, A. 2014. Connecting to Compete: Trade Logistics in the Global Economy. Washington D.C.: World Bank. http://lpi.worldbank.org/sites/default/files/LPI_Report_2014.pdf .

Bourdet, Y. and Persson, M. 2012. Completing the EU Customs Union. The Effects of Trade Procedure Harmonization. *Journal of Common Market Studies*, 50(2), 300-314.

Bourdet, Y. and Persson, M. 2011. Reaping the Benefits of Deeper Euro-Med Integration through Trade Facilitation. Research Institute of Industrial Economics. IFN Working Paper No. 881

Chaney T. 2008. Distorted Gravity: The Intensive and Extensive Margins of International Trade. *American Economic Review*, 98(4), 1707-1721.

Cheewatrakoolpong, K. and Rujanakanoknad, J. 2011. The Impact of AEC Trade Facilitation Improvement on Thailand's Goods in Transit and Inter-state Trade. *Chulalongkorn Journal of Economics,* 23(**), 19-37

Demir, I., 2001. *Türk beyaz e_ya sanayiinin rekabet gücü ve gelece_i*, Devlet Planlama Te_kilatı (DPT) Yayınları, Ankara, ubat.

Djemmo, A. F., 2013. Trade Facilitation and Performance of Manufacturing Exports from Cameroon.*Journal of International Business and Economy.* 14(1), 49-70.

Freund, C. and Rocha, N. 2010. What Constrains Africa's exports? World Trade Organization Economic Research and Statistics Division. Staff Working Paper ERSD-2010-07.

Grainger, A. 2011. Trade Facilitation: A Conceptual Review. *Journal of World Trade.* 45(1), 39–62

Hoekstra, R., 2012. Trade Facilitation and Exports – Evidence from African Manufacturing Firms, University Bochum.

International Institute for Management Development (IMD) (2009). *World Competitiveness Yearbook 2007* (Lausanne, IMD).

Kibritçioglu, A., 1996. Uluslararası rekabet gücüne kavramsal bir yakla_ım', *MPM Verimlilik Dergisi*, 96(3), 109-122.

Lall, S., 2001. *Competitiveness, technology and skills*, Edwar Elgar, UK.

Lee, H. and Kim, C. 2012. The Impact of Trade Facilitation on the Extensive and Intensive Margins of Trade: An Application for Developing Countries. *Journal of East Asian Economic Integration*, 16(1), 67-96.

Márquez-Ramos, L., Martínez-Zarzoso, I., & Suárez-Burguet, C. 2012. Trade policy versus trade facilitation: an application using "Good Old" OLS" (2012). *The Open-Access, Open-Assessment E-Journal*. 6, 2012-11. Retrieved February 14, 2015 from: http://dx.doi.org/10.5018/economics-ejournal.ja.2012-11

McFetridge, D.G., 1995. Competitiveness: Concepts and measures, *Occasional Paper,* 5, Industry Canada, Ottowa.

Ministry of Budget and National Planning, 2017. Economic Recovery and Growth Plan 2017-2020. Federal Republic of Nigeria.

Miteva-Kacarski, E, Gorgieva-Trajkovska O. 2011. Benefits of trade facilitation as a simpler procedure for world trade growth. Economics and Management in the 21st Century-Solutions for Sustainability and Growth.: 188-194. Tsenov Academic Publishing House.

Nilsson, E., 2014. What can trade facilitation do for Ghana? M.sc Thesis, Lund University School of Economics and Management.

Njinkeu, D., Wilson, J. S. and Fosso, B. P. 2008. Expanding Trade within Africa.The Impact of Trade Facilitation.World Bank Policy Research Working Paper 4790, Washington D.C.

Njuguna, L., 2013. Impact of Trade Facilitation on Intra-Regional Exports: A study of the COMESA Region. Jonkoping International Business School Working Paper.

Olayiwola, W., Osabuohien, E., and Okodua, H. 2011. Economic Integration, Trade Facilitation and Agricultural Exports Performance in ECOWAS Countries. Economic Policy Analysis Unit, Department of Macroeconomic Policy, ECOWAS Commission. Monograph Series No. 1

Otsuki, T., 2011, "Quantifying the Benefits of Trade Facilitation in ASEAN", Osaka School of International Public Policy (OSIPP), Discussion Paper: DP-2011-E-006. Osaka University.

Persson, M., 2010. Trade Facilitation and the Extensive Margin.Research Institute of Industrial Economics. IFN Working Paper No. 828.

Porter, M., Ketels, C. and Delgado, M. 2008. The Microeconomic Foundations of Propserity: Findings from the Business Competitiveness Index in WEF. The Global Competitiveness Report 2007-2008 WEF, Geneva.

Portugal-Perez, A. and Wilson, J. S. 2010. Export Performance and Trade Facilitation Reform: Hard and Soft Infrastructure. World Bank Policy Research Working Paper 5261, Washington D.C.

Sadikov, A. 2007. Border and Behind-the-Border Trade Barriers and Country Exports. IMF Working Paper No. 07/292. (Washington, D.C.: International Monetary Fund)..

Seck, A., 2014. How facilitating trade would benefit trade in Africa. *AERC Research Paper:* African Economic Research Consortium, Nairobi.

Shepherd, B., 2009. Trade Costs and Facilitation in APEC and ASEAN: Delivering the Goods? Developing Trade Consultants, Policy Research Capacity Building Working Paper DTC-2009-1

Singh, S and Mishra, R.C. 2013. Trade Facilitation and Trading across Borders: A Case Study of India. *SIU Journal of Management*, 3(2), ***.

Spence, M. D. and Karingi, S. N. 2011.Impact of Trade Facilitation Mechanisms on Export Competitiveness in Africa.Economic Commission for Africa. African Trade Policy Centre, Work in Progress No. 85

Todaro, M. P and Smith, S. C. 2004. Economic Development. Addison-Weskey (Pearson Education), eight edition.

UNCTAD, 2016. United Nations Conference for Trade and Development Statistics.

Wilson, J. S., Mann, C. L., and Otsuki, T. 2004. Assessing the Potential Benefit of Trade Facilitation: A Global Perspective. World Bank Working Paper 3224, Washington, D.C.

Wilson, J. S., Mann, C. L., and Otsuki, T. 2003a. Trade Facilitation and Economic Development: Measuring the Impact. World Bank Working Paper 2988, Washington, D.C.

Wilson, J. S., Mann, C. L., and Otsuki, T. 2003b. Trade Facilitation and Economic Development: A New Approach to Quantifying the Impact. *World Bank Economic Review*, 17(3): 367-389.

World Economic Forum, 2016-2017. *The Global Competitiveness Report* (Geneva).

Woo, Y. P. and Wilson, J. 2000. Cutting Through Red Tape: New Directions for APEC's Trade Facilitation Agenda. Vancouver: Asia Pacific Foundation of Canada. Retrieved Jun, 10, 2012 from: http://www.apec.org/Groups/Committeeon- Trade-and investment/~/media/Files/ Groups/MAG/01_cti_tradefacilitatn.ashx

World Bank. World Development Indicators (WDI). http://data.worldbank.org/data- catalog/world-development-indicators