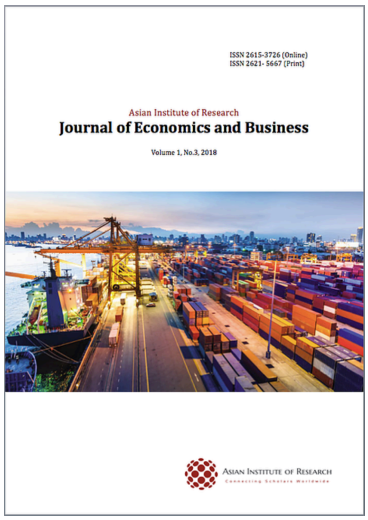

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Structure, Characteristics, and Determinants of Services Export in Nigeria

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Abstract
The perennial problems of unfavourable commodity terms of trade, early deindustrialisation, and exchange rate volatility are forcing a rethink of development strategies in developing countries. Services are now coming up as a new frontier for trade expansion and economic growth in developing countries. Several empirical studies in structural transformation studies have shown both services value added and exports as growing faster than manufacturing in many developing countries, hence the surge in the literature seeking to determine the important factors driving services export. This study expands the scope of the literature by examining the structure, characteristics, and determinants of Nigeria's services export. The Central Bank of Nigeria Statistical Bulletin provides data for our descriptive analysis and the World Development Indicators for econometric analysis. The auto-regressive distributed lag (ARDL) estimation technique was adopted for econometrics analysis following unit roots and cointegration tests. Residuals and stability tests conducted on the error correction model of the ARDL supports our regression results for valid and reliable inference. Findings show that Nigeria's services export is highly concentrated on the low- technology, low-productivity end of transport and travel services. Services export respond significantly to real income of the rest of the world, the real effective exchange rate, and services value added. Great potentials, however, exists for participation in high-end services like pipeline, maritime, and rail transport since these services are integral to holistic development of the country's huge gas, crude petroleum, and iron ore deposits.

Key Words: Services, Exports, Trade, Technology, Productivity, Nigeria

1. Introduction

Services constitute a large share of national production in almost all regions of the world resulting in remarkable growth in the services sector and international trade in services in both the developed and developing countries. Services accounts up to 74.3% of the gross domestic product (GDP) in the European Union in 2015, 67.4% in Latin America and the Caribbean, 58% in Sub-Sahara Africa, and 49.8% in the developing areas of East Asia and the Pacific. Services exports are mainly from developed economies as business services such as research and development, consulting, technical and trade-related services, and charges on the intellectual property. These accounts for two-thirds of total global services exports in 2016. According to UNCTAD (2017), travel dominated services exports by developing economies and of equal dollars size as exports of insurance, pension, and financial services by developed economies.

Advances in information and communication technologies (ICTs) have made it increasingly possible to trade services across borders, thus shedding the traditional toga of non-tradability. The conclusion of the General Agreement on Trade in Services (GATS), now a principal part of the World Trade Organization (WTO) system, attests to the importance of trading in services. The expansive definition of services adopted by GATS embraces a wide range of services as tradable and simplifies the analysis of trade in services. There are four modes of supply under which a service is considered tradable: cross-border trade in services (mode 1), consumption abroad (mode 2), commercial presence abroad (mode 3), and movement of natural persons (mode 4). Developing countries are increasingly exporting across the four modes depending on their respective capabilities to deliver services through any of the modes.

Services will continue to grow in importance as both exports and component of the GDP as they increasingly become integral to the production of goods, facilitation of their trade and the maintenance of trade transactions. Services hold great potential for diversification of exports and provide new channel for foreign direct investments (FDI) inflow thus bridging the foreign currency gap for many developing countries. Thus, a country's international competitiveness and the overall economic growth may fundamentally rest on the range and sophistication of its services production and exports.

This paper aims to add a new perspective to the growing literature on services exports by developing countries by specifically looking at the structure and dynamic characteristics of services exports, as well as the determinants of services exports in Nigeria. The paper is in six parts as follows; section two reviews extant literature on determinants of services exports while in section three we conduct a descriptive analysis of the structure and characteristics of Nigeria's services exports. Section four explains the procedure for the econometrics tests. The tests are conducted, and the results reported and discussed in section five. We conclude with recommendations in section six.

2. Review of literature

2.1. Services and trade in services: A conceptual clarification

The intangibility and the very heterogeneous nature of services make a definition of a service and its trade across national boundaries somehow difficult. Hufbauer and Warren (1999) following from Hill (1977) considered any economic activity that directly adds value to another economic unit or to the output of another economic unit as a service. As thus defined, services are fundamental inputs into production. Hoekman and Mattoo (2007) identified two dimensions of the input functions of services. As direct inputs, services are determinants of the productivity of other factors of production that are employed in the creation of differentiated tangible and intangible outputs. The other dimension is the facilitation of transactions through space (e.g. exchange between locations through transport or telecommunication) or the facilitation of transaction through time (e.g. financial intermediation). However, advancements in technology and the increasing sophistication of services have changed the role of services from primarily an input for the production of and facilitation of trade in goods to become a "final export" for direct consumption (Mishra, Lundstrom, and Anand 2011).

Trade in services, on the other hand, involves the supply of service across national boundaries. According to the WTO (b) and as contained in the Article 1 of the General Agreement on Trade in Services (GATS), international trade in service among member countries could result from any of the following four main modes of service supply:

i. From one country into any other through cross-border communications, without the physical movement of the service supplier or the consumer (mode 1);
ii. In one country to the service consumer of any other country through the movement of the consumer to the country of residence of the supplier (mode 2);
iii. By a service supplier of one country establishing a commercial presence in the country of the service consumer (mode 3);
iv. Through the movement of an individual service supplier of one country to the country of residence of the service consumer (mode 4).

The four modes clearly distinguish between technology-enabled modern impersonal services that can be delivered over networks and traditional personal services, which call for face-to-face interaction, as well as provide platforms for international trade in a wide range of services. Like goods trade, the modes evidently show that trade in services encompasses foreign direct investment (FDI), temporary movement of labour, and the traditional cross-border transactions.

2.2. Technology and trade in services

The traditional notion of services is that they are not tradable due to the special demand of close proximity between provider and consumer, as well as the conditions of non-storability, non-transportability, and indivisibility of many services. Thus, to the classical economists, services are exclusively for domestic consumption as inputs to agriculture and industry. However, advances in technology have conferred on services the same trade characteristics as goods (Bhagwati, 1984). Ghani and Kharas (2010) suggest that services may be more mobile across borders than goods as high-productivity modern services can be produced, stored and traded digitally across national boundaries circumventing much of the trade barriers that characterised goods exports. Thus, the global forces of technology, tradability, and transportability have dynamically changed the nature of services and trade in services. Through technological change, services in certain respects are indeed becoming similar to manufactured goods as their costs rest critically on economies of scale, agglomeration, networks, and specialisation (Mishra, Lundstrom, and Anand, 2011).

Technology has not only reduce and, in some cases, eliminates the requirement of proximity between service suppliers and consumers: it is also stimulating the unbundling of service production. Through technology, a vertically connected service activity that takes place in one location can now be fragmented and completed separately at different geographical locations across the globe (Feenstra, 2010; Jones 2000). Business services like telecommunication, logistics, and financial services facilitate connection of tasks from different locations (Goswami, Mattoo, and Sáez, 2011). This fragmentation of service production and export provide prospects for specialisation and sophistication in a manner previously unknown to trade. An empirical result from Mishra, Lundstrom, and Anand (2011) suggests that increasing sophistication of services exports positively correlate with growth in per capita income. In comparing China and India, the authors argued that advances in information and communications technologies are making services more productive with India's overall economic growth benefitting more from growth in services total factor productivity (TFP) more than China. Like India, developing countries with the requisite capabilities may leverage on services sector productivity to diversify exports, achieve economy-wide productivity growth and overall economic growth.

2.3. Determinants of services exports

The availability of quality services is an essential condition for rapid economic growth, general welfare, and development of developed and developing countries. Park & Shin (2012) identified the sector as the new frontier for economic growth in the current millennium due to its own capacity to generate new employment, in particular and generally because of its linkage to other sectors as production input, facilitator of job creation, and performance enhancer (Gonzales, Jensen, Kim & Nordas, 2012). Many developing countries are already demonstrating a strong comparative advantage in services exports that are unrelated to their level of industrial development and opening a new channel for exports diversification and economic growth (Ghani 2010). Sustained economic growth via services export growth is thus crucial to such developing countries; hence, the need to identify the major determinants of services exports as inputs into design policies supportive of services export growth. We examine briefly here the findings in empirical studies relating to services export determinants.

The gravity model, though commonly use in the analysis of goods trade has in recent times find wide application in the analysis of trade in services. Several of such models that have been estimated include Grunfeld & Moxnes (2003), Kimura & Lee (2006), Brandicourt, Schwellnus & Wörz (2008), Shepherd & marel (2010), Shingal (2010), Kandilov & Grennes (2010), Kaur (2011), Karam & Zaki (2012), Covaci and Moldovan (2015), and Pham and Vũ (2016). In both Grunfeld & Moxnes, and Kimura & Lee geographical distance is an important factor in services exports, with Kandilov & Grennes showing that the importance of geographical distance varies

substantially across types of services export. The variation, however, could be concealed when services that are not homogeneous are aggregated. In most of the estimated gravity models, other important considerations in services exports include the cost of transport, quality of infrastructure, legal and regulatory regimes, human capital, membership of regional economic block, and common language. Kimura & Lee (2006) worked on the influence of governance on both goods and services exports. Both trades relate positively to economic freedom with much stronger effect for services trade. Brandicourt, Schwellnus & Wörz (2008), and kaur (2011) deals essentially with trade potential in services. While the former demonstrates the possibility of services export coming below potentials for both large developed western economies and transition economies in Europe, the later fitted panel data based on gravity model to interrogate the USA services export convergence and divergence with six Asian trade partners (Japan, China, India, Singapore, South Korea and Hong Kong). Shingal (2010) included both the home market size and volume of goods trade as important determinants of trade in services. Karam & Zaki (2012) on their part used an adapted variant of the gravity model to examine the influence on services trade of WTO membership, and the number of commitments undertaken by sector in the WTO as well as the availability of those commitments by mode. These factors were found to have statistically significant and positive effect on services exports.

Other studies employed different variants of the export demand function of Bahmani-Oskooee (1986). This model posits that a country's total exports to the rest of the world is a log-linear function of: quality of exports (X), weighted average of the real gross national product (GNP) of a country's trading partners (YW), export price (PX), weighted average of the export prices of a country's trading partners (PXW), and export-weighted effective exchange rate (E). Simply, the Bahmani-Oskooee (1986), the export demand function implies that exports are a function of foreign income, relative prices, and the exchange rate. All of these factors have been found to have a significant positive effect on services export.

Based on the above review, we can identify several factors as being critical to trade in services and services export in particular. Researchers have variously combined these factors in empirical studies with a view to isolating elements that may inform policy design towards service exports expansion and diversification. These factors include - foreign income measured as world real GDP or real GDP of trading partners, real exchange rate which measures the relative prices and costs of one country in relation to the rest of the world (Auboin and Ruta, 2011), volume of manufacturing exports, services value added as proxy for services production, quality of human capital, quality of institutions, infrastructure development (especially communication infrastructure), foreign direct investment, and services trade barrier. The current study employed seven of these variables to explain the determinants of service exports from Nigeria. The chosen variables will be defined in the next section.

3. Structure and characteristics of services exports by Nigeria

3.1. Services and industry value added growth

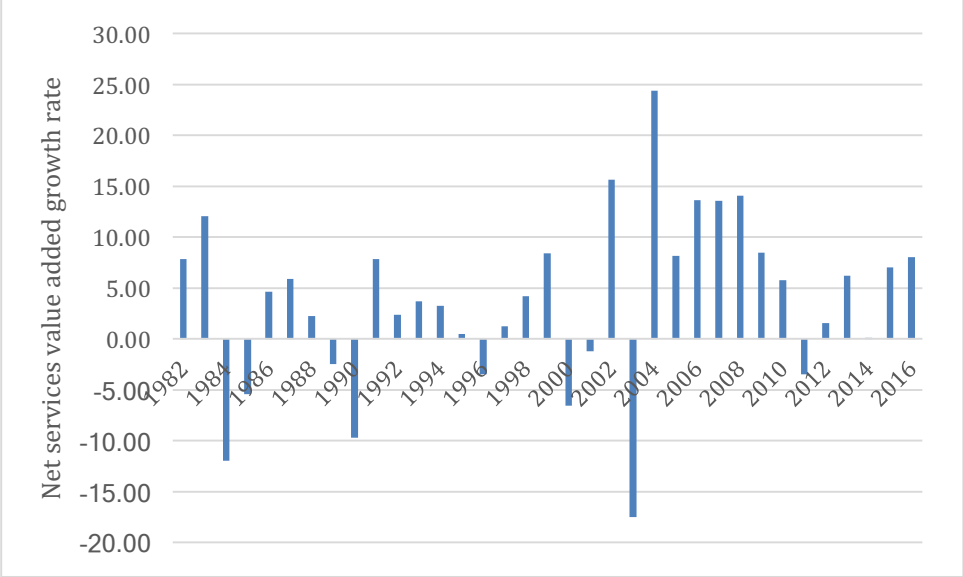

Figure 1: Services value added growth rate less industry value added growth rate
(Author's computation from WDI 2017)

Services output measured in value-added terms witnessed tremendous growth when compared to the growth rate of industry value added over the thirty-five years reviewed. Value added in services grew faster than industry's (including construction) by almost four times. Figure 1 plot the services – industry net growth rate showing services value added growing faster than industry value added for twenty-six of the thirty-five years under review. Except for a break in 2012, services value added outgrew industry value added each year from 2004 to 2016. The same trend occurred from 1991 to 1999, with services value-added growth falling behind industries only in 1996.

3.2. Services export and services value-added growth

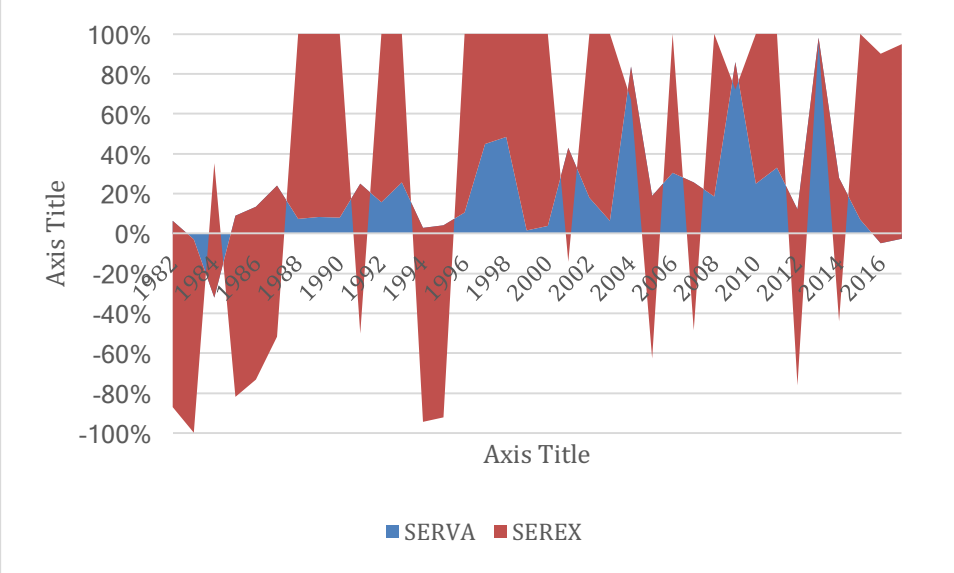

Figure 2: Service exports and service value added growth rate
(Author's computation from WDI 2017)

The growth rate of services value added mostly has been positive with negative episodes only in 1983, 1984, 2016 and 2017. Exports growth rate, on the other hand, experienced negative growth rates sixteen times between 1982 and 2017. Except for 1984, the growth rate of services value added is positive for each time services export recorded negative growth rate. A close observation of the relation between the two variables reveals some interesting facts: (i) exports growth rate doubles for every one percent increase in value added. In 1999, services export grew seventy-two times the growth in services value added. At no time did value-added growth exceeds exports growth rates when both are positive, (ii) in almost all cases, negative growth in services export is at least twice the positive growth in services value added, (iii) when both are negative, services exports are much more negative. Overall, services exports have grown much faster than value-added indicating the increasing integration of Nigeria's services exports into the global value chains and providing opportunities for exports diversification. The stylised facts also indicate that different factors may be responsible for determining the growth of services export and value added.

3.3. Foreign exchange earning capacity

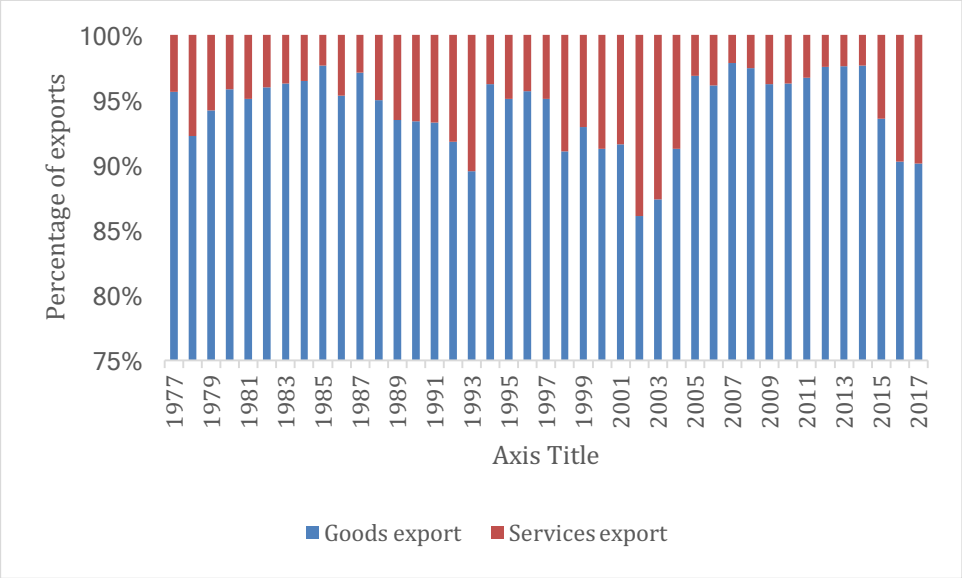

Figure 3: Services and goods export (Bop, current US$)
(Author's computation from WDI 2017)

Although services value added has been growing faster than industry's, manufacturing industries generate more export earning than services. The growth and macroeconomic stability of most developing countries depend on the quantum of foreign earnings to import necessary inputs for industrial output growth and diversification, infrastructure upgrade and to stabilise the exchange rate. Value of services export reached its peak in 2002 and 2003 constituting about 14% and 13% of the total value of goods and services exports. Between 2012 and 2014 the value of services export averages 2.4% of total exports value. In the last two years of our study period, the value of services exports stands at about 10% of exports of goods and services. On the average, services export accounts for 5.71% of the value of goods and services export for the entire study period, with a range of 11.77%. Interestingly, while goods export accounts for 94.27% of the gap between its highest and lowest contribution to total exports value is equally 11.77%. Factors like real effective exchange rate and growth in global demand for goods and services may subject both categories of exports to the same pattern of variability, especially if both categories are more of traditional exports.

The very low foreign exchange earning capacity of services in the face of growing services value added may suggest that services output in Nigeria largely serves the domestic market as direct consumption, input into the production of goods, and facilitation of goods trade. Though services export has been rising since 2015 with a concurrent decline in goods exports, Nigeria is still a long way to service-led economic growth.

3.4. Structure of services export

Five main activities constitute services exports in Nigeria. Table 1 computed export of each service as a percentage of total services export on a five-year average from 1977 to 2016, with values also for 2017. Service export is highly concentrated on two activity areas of communications and transport services, which jointly accounts for no less than 67% and going as high as 96% of total service exports. In the last two decades, (1997-2016) share of communication services in total service export declined progressively from 81.7% in 1997-2001 to 23.94% in 2012-2016.

Table 1. Percentage of services exports

	1977-1981	1982-1986	1987-1991	1992-1996	1997-2001	2002-2006	2007-2011	2012-2016	2017
Communications, computers, etc.	21.89	10.92	73.44	81.70	81.47	56.59	24.30	23.94	16.30
ICT services	0.00	0.00	0.00	0.00	0.00	0.61	2.25	6.55	6.73
Insurance and financial services	4.88	3.60	0.87	0.67	0.68	0.46	0.66	4.31	7.18
Transport services	62.05	56.61	14.24	14.45	12.10	39.34	54.25	48.91	25.85
Travel services	11.18	28.87	11.45	3.18	5.75	3.61	20.79	22.84	50.67
	100.00	100.00	100.00	100.00	100.00	100.61	102.25	106.55	106.73

(Author's computation from WDI 2017)

Within the same period, transportation services increased its share of total services export from 12.10% in 1997-2001 to 54.25% in 2007-2011. For the first time since 1977-1981, transport services overtook communication as the top service export in 2007-2011 and 2012-2016. In 2017, transportation contribution to service exports was about 59% higher than communications. By the records of the CBN available in its 2016 edition of the Statistical Bulletin, communication services average 3.66% of transportation services between 2005 and 2016. Communication services export thus has declined sharply relative to transportation services export since the last one decade. A breakdown of transportation exports (see Figure 4) shows that freight and other auxiliary services such as cargo handling, storage and warehousing, and freight-transport agency services are the principal drivers of transportation export. Both accounts for about 91% of transportation services export.

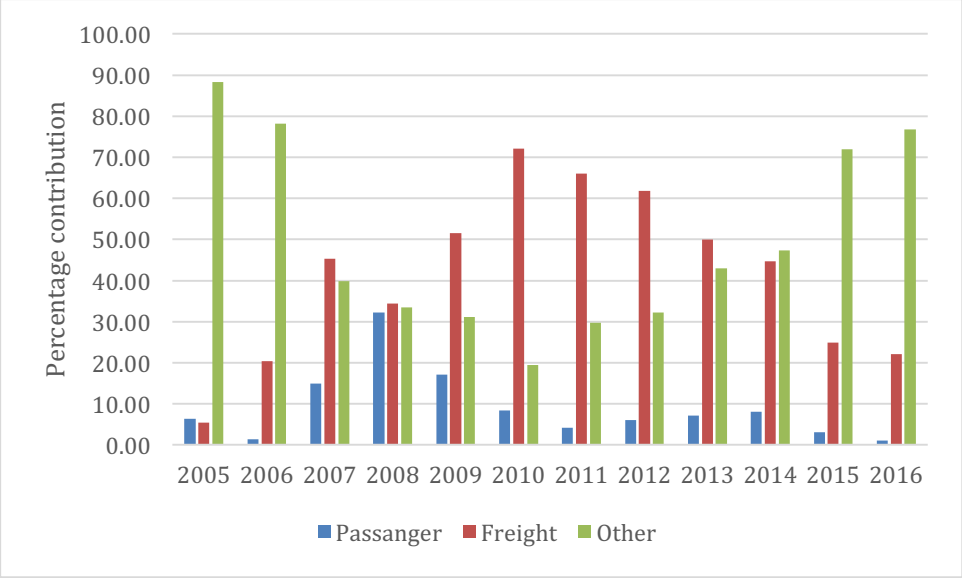

Figure 4. Compositing of transportation service export
(Author's computation from CBN Statistical Bulletin 2016)

Next to communication, and transportation services as major drivers of service export in Nigeria is travel related services. Falling behind communication services and transportation services by 4.59% and 53.30%, respectively in 2012-16, travel services as Table 1 shows, grew rapidly to become the single largest service export in 2017 accounting for slightly over half of total services export. The CBN divided travel services in the BoP into business travel, personal travel comprising education and health-related, and other personal travel. The total value for travel export comes only from other personal travel. The export of insurance and financial services in the last one decade weighed more on the side of financial services, which accounts for the average for 84.02% of financial and insurance services. On the growth side, export of insurance service had grown more steadily and higher than financial services except for 2008 when it recorded a negative growth rate and 2015 when financial services recovered from a previous year negative growth rate to post a growth of 21.40%. ICT services export did not commence in any significant measure until 2005.

One notable fact of services exports in Nigeria is its high concentration across service activities. In insurance and financial services, the latter holds sway. In travel services, it is entirely other personal travel, and transportation services are highly concentrated on auxiliary services. There is thus a great room for diversification in the services sector of the economy, especially to more high technology and high productivity service activities. The World Trade Organisation (1991) in its services sectoral classification list listed 12 main services sectors comprising over 120 services activities ranging from simple to complex-high technology activities. The classification opens a window of opportunities for developing countries to develop capabilities to deliver services for exports in any of the 12 sectors and over 120 service activities.

4. Data description, model specification, and analytical procedures

The data used for econometric analysis in this paper are annual values obtained in United State Dollars from the 2017 edition of the World Bank's World Development Indicators (WDI). Eight macroeconomic variables are selected for the analysis. *SXT* is the value of services export from Nigeria (BOP, current US$). Communication index (*CMM*) is the sum of fixed telephone and mobile cellular subscription par 100 people. Financial sector development (*DMC*) is measured by the domestic credit provided by the financial sector as a percentage of GDP. Foreign direct investment (*FDI)* is recorded as a percentage of GDP. *GXT* (BoP, current US$) measures the value of goods export from Nigeria. Real effective exchange rate index (*RXT*) is recorded in constant 2010 US dollars. Services valued added (*SVA*) is computed as a percentage of GDP. The world real gross domestic product (*WGP*) is net of Nigeria's GDP. We transform all the variables into natural logarithms except *CMM, DMC*, and *FDI*. The dataset cover 37 years from 1981 to 2017.

The hypothesised functional relationship of the eight variables for the determinants of services exports in Nigeria is:

$$SXT = \beta_0 + \beta_1 CMM + \beta_2 DMC + \beta_3 FDI + \beta_4 GXT + \beta_5 RXT + \beta_6 SVA + \beta_7 WGP + \upsilon \quad (1)$$

Taking the natural logarithms of some of the variables, the functional relationship specified for analysis is:

$$LSXT_t = \varpi_0 + \varpi_1 CMM_t + \varpi_2 DMC_t + \varpi_3 FDI_t + \varpi_4 LGXT_t + \varpi_5 LRXT_t + \varpi_6 LSVA_t + \varpi_7 LWGP_t + \varepsilon_t \quad (2)$$

Following the well-established tradition that the constancy of the means and variances cannot be assumed when analysing time series variables, we take preliminary measures to determine the stationarity and integration order properties of the eight macro-economic variables using the Augmented Dickey-Fuller (ADF, 1981) and the Kwiatkowski, Phillips, Schmidt and Shin (KPSS, 1992) test. Next, we conduct a co-integration check of the variables following the procedures of Pesaran, Shin, and Smith (2001) bounds testing within the framework of the auto-regressive distributed lag (ARDL) model. The ARDL approach to co-integration test is recommended in empirical studies when the variables in a model are not entirely first difference stationary. The F-statistic of the bounds test tests the joint null hypothesis of no cointegration among the variables against the alternative hypothesis of the presence of cointegration. A decision is reached regarding the existence of a cointegrating relationship among the variables of an ARDL model by comparing the calculated F-statistic with two sets of critical values (upper and lower) provided by Pesaran, Shin, and Smith (2001) for a given level of significance. If the computed F statistic exceeds the upper critical bound value, all the variables are I(1), and we reject the null

hypothesis of no cointegration. Alternatively, if the computed F statistic is less than the lower critical bounds value, we assume all variables are I(0), and we cannot reject the null hypothesis of no cointegration. If, however, the calculated F statistic falls between the bounds, we take the test as inconclusive. Given the existence of co-integration, we estimate the error correction form (ECM) of the ARDL model for the short-run dynamics of the variables. We expect the error correction term indicated by the ECM to have a negative sign. When negative and significant, the error correction term measures the speed of convergence to long-run equilibrium from previous deviations, as well as reinforces the presence of cointegration.

We complete our tests with four regression diagnostic checks examined by the ECM. The Lagrange Multiplier (LM) test checks whether the estimated ARDL model suffers from residual serial correlation. The null hypothesis of the LM test is that there is no serial correlation against the alternative that the estimated model includes both auto-regressive (AR) and moving average (MA) error processes. The LM test is applicable irrespective of the presence of lagged dependent variables in the model. The White test tests the null hypothesis that residuals are homoscedastic and independent of the regressors, against the alternate hypothesis of the presence of heteroscedasticity of unknown, general form. The histogram – normality (Jarque-Bera) test interrogates the null hypothesis that the residuals are normally distributed. The test statistic measures the difference between the skewness and kurtosis of the series with those from the distribution. Finally, we use the Ramsey RESET test to check for parameter instability in the estimated ARDL model. Results of the various test are reported in the next section.

5. Results and discussions

Table 2 reports the results of the ADF test for unit roots for the levels and first differences of the eight macroeconomic variables in our model. All the variables tested are stationary at their first difference, except *FDI*, which is level stationary**.**

Table 2. ADF test results for unit roots

Variable	Level at 5%		First Difference at 5%		Order of integration
	Critical value	t-Statistic	Critical value	t-Statistic	
SXT	-2.945842	-0.876578	-2.948404	-4.789140*	I(1)
CMM	-3.548490	-2.844994	-3.595026	-4.747520*	I(1)
DMC	-2.945842	-2.228316	-2.954021	-5.467621*	I(1)
FDI	-2.945842	-3.475091**	-	-	I(0)
GXT	-2.945842	-1.160376	-2.948404	-6.402441*	I(1)
RRT	-2.945842	-2.129189	-2.948404	-4.504777*	I(1)
SVA	-2.945842	-1.893546	-2.948404	-6.400949*	I(1)
WGP	-3.540328	-2.225325	-3.544284	-5.212358*	I(1)

Note: *, ** indicate 0.01 and 0.05 level of significance respectively

Table 3 reports the results of the KPSS stationarity test. Four variables are stationary at their levels, and the rest four are stationary becomes stationary after taking their first difference. From both tests, we are certain that we have a combination of I(0) and I(1) variables.

Table 3. KPSS test results for stationarity

Variable	Level at 5%		First Difference at 5%		Order of integration
	Critical value	t-Statistic	Critical value	t-Statistic	
SXT	0.463000	0.643314	0.463000	0.109737*	I(1)
CMM	0.146000	0.181941	0.146000	0.092411*	I(1)
DMC	0.463000	0.455459**	-	-	I(0)
FDI	0.463000	0.170801*	-	-	I(0)
GXT	0.463000	0.507870	4.463000	0.147759*	I(1)
RRT	0.463000	0.255297*	-	-	I(0)
SVA	0.463000	0.614823	0.463000	0.165606*	I(1)
WGP	0.146000	0.099331*	-	-	I(0)

Note: *, ** indicate 0.01 and 0.05 level of significance respectively

We now proceed to test for the presence of a stable long-run relation using the ARDL Bounds testing procedure for cointegration. Maximum two lags are selected for the test with Akaike Information Criteria (AIC). The value of the F-statistic reported in Table 4 is at 0.05 level of significance. Based on the test, we reject the null hypothesis of no long-run relationship and uphold the existence of a stable long-run relationship among the variables.

Table 4. ARDL Bounds test for cointegration result

Test statistic	**Value**	**I(0)**	**I(1)**
F	7.407568*	2.32	3.5

* Significant at 0.01

Having satisfied the stationarity and cointegration requirements for the estimation of our model, we estimate the long-run levels model for the long-run coefficients using the ARDL procedure and report the results in Table 5

Table 5. Coefficients of the estimated long-run form

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
CMM	0.005299	0.009928	0.533730	0.6019
DMC	-0.020278	0.022314	-0.908763	0.3789
FDI	-0.333560	0.065854	-5.065110	0.0002*
GXT	-0.500411	0.293477	-1.705112	0.1103
RXT	-1.055000	0.239426	-4.406369	0.0006*
SVA	1.941012	0.759663	2.555095	0.0229**
WGP	3.687860	0.942833	3.911467	0.0016*

*, ** indicates significance at 0.01 and 0.05 significance level

The long-run coefficients of services value added and real world GDP is positive and statistically significant at 5% and 1% significance level respectively. Expectedly, the real effective exchange rate is negative and significant at 1%. In magnitude, the real world income is the single largest significant determinant of foreign demand for Nigeria's services. A one percent increase in foreign real income increases demands for Nigeria's services by about 3.7%. Growth in services supply capacity is also shown to be positively related to service export growth, as a one percent growth in services value added induces almost 2% increase in services export. Given a growing world real GDP and increasing supply capacity, the relative prices measured in terms real exchange rate may ultimately determine the rest of the world's uptake of services from Nigeria as there appears to be a one-to-one correspondence between real exchange rate appreciations and lose of export volume.

Foreign direct investment and financial sector development both have a negative effect on services export in the long-run, with only the former being statistically significant. The large and sustained inflow of foreign direct

investment into a country is a contributory factor to financial sector development of the recipient country. However, many sectors within the economy may not benefit significantly from the expanding financial sector if domestic credit Sis skewed in favour of the sectors most attractive to foreign direct investment. If then domestic credit follows foreign direct investment, our result simply implies that the services sector is crowded out as it is presently less attractive to foreign direct investment. Our analysis in section 2.4 shows that Nigeria's services export predominantly comes from auxiliary transport services and other personal travels. These are no paramount destinations for foreign direct investment and domestic credit.

The long-run effect of communication, though positive, is not statistically significant as a determinant services exports. This may speak to the low level of sophistication of Nigeria's goods and services exports. Domestic credit and goods exports are both negative and statistically insignificant. Table 6 below presents the short-run dynamics of the variables. Lag-one period of domestic credit, foreign direct investment, and goods exports all have a significant positive effect on services exports. In the current period, they are each negative implying that policies or actions on these variables boost services exports one year after. The real effective exchange rate varies inversely with services export in the current period and directly one year after.

Table 6. Short-run restricted error correction regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-59.51718	6.346196	-9.378402	0.0000*
D(DMC)	-0.007067	0.006488	-1.089164	0.2945
D(DMC(-1))	0.024636	0.007158	3.441967	0.0040*
D(FDI)	-0.080117	0.018256	-4.388628	0.0006*
D(FDI(-1))	0.081072	0.019934	4.066972	0.0012**
D(GXT)	0.244814	0.086507	2.829998	0.0134**
D(GXT(-1))	0.462429	0.114283	4.046341	0.0012**
D(RXT)	-0.355683	0.126539	-2.810855	0.0139**
D(RXT(-1))	0.759607	0.166120	4.572639	0.0004*
D(SVA)	0.613719	0.379408	1.617569	0.1281
D(SVA(-1))	-1.880067	0.358108	-5.250001	0.0001*
D(WGP)	2.394798	3.864370	0.619713	0.5454
D(WGP(-1))	-14.99935	4.099022	-3.659252	0.0026*
CointEq(-1)*	-0.700125	0.074259	-9.428193	0.0000*

*, ** indicates significance at 0.01 and 0.05 significance level

Services value added is positive but insignificant in the current period and exerts a significant negative impact on services export a year after. It is reasonable in this circumstance to infer that if services export declines as production grow, then domestic consumption outweighs foreign demand for services. There is thus a large room to plug into the global services value chain and secure a share of the growing global demand for services. World real GDP does not immediately exert any significant positive influence on services export from Nigeria. The impact is however significantly negative with a one period lag. The error correction term [cointEq(-1)] is -0.700125 and significant at 1% level, implying that previous deviations from the steady-state equilibrium converge to long-run equilibrium in the current period at the rate of 70%.

The diagnostic tests results in Table 7 show that the restricted ECM satisfied all necessary conditions for valid inference and reliable conclusions.

Table 7. Diagnostics tests from the ECM

Test	Test Statistic	p-value
Normality	JB = 0.129570	0.9373
Serial Correlation LM	F = 2.626019	0.1291
Heteroscedasticity - White	F = 0.525725	0.9079
Ramsey RESET (df) = 13	F = 1.069405	0.3199

6. Conclusion

In the long run, growing real-world income, increasing local capacity for service production, and appropriately priced exchange rate are the paramount determinants of Nigeria's services export. The current state of affairs in services export from Nigeria points to a comparative advantage in low technology, low productivity services in transport and travel services. In travel services, for instance, Nigeria holds no share of the more sophisticated business, education, and health-related services export. In transport services, Nigeria's exports are exclusively in services auxiliary to all modes of transport with no export representation in the more technology intensive maritime, air, rail, and pipeline transport services. These service areas are capital intensive and long-term in nature, which makes them attractive to FDI inflows and a good share of domestic credit.

A huge natural gas deposit and the expanding global market for clean energy should provide the impetus for pipeline transport services. Maritime transport may leverage on Nigeria's crude oil deposit and the ongoing efforts at increasing domestic refining capacity. A re-industrialisation policy with outward orientation should provide additional stimulus for maritime and air transport services development. The ongoing steps in the reintroduction of a national air carrier for Nigeria with private sector participation hold good potential for an additional source of sophisticated services export. High productivity and productivity-enhancing services are human, technological and financial capital intensive. FDI has proved as a veritable conduit of these essentials. A business-friendly environment with an appropriate incentive structure will stimulate the required development in these services area diversifying services export away from low to high technology exports.

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