EFFECT OF MANUFACTURED EXPORTS, FINANCIAL DEVELOPMENT AND FOREIGN DIRECT INVESTMENT ON SERVICE EXPORTS IN KENYA

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Abstract

Trade in services has been proved to be the new engine at driving economic growth based on its increasing contribution towards the GDP and employment in many economies. Trade in services is also least affected by economic shocks. With Kenya's global service exports having dropped by 11.3%, the purpose of this paper therefore was to determine the factors that affect Kenya's service exports using ARDL cointegration model approach. The specific objectives were to evaluate the effect of Manufacturing Exports, Financial Development and Foreign Direct Investment on Kenya's Service Exports. The study applied explanatory research design and was guided Heckscher-Ohlin theory of international trade. Stata statistical software was used to analyze the data for the period 1980-2017 and the findings indicated that; Kenya's service exports are positively and significantly determined by manufacturing exports and financial development both at one percent level of significance. The study recommended: first, the government should emphasize on policies that promote value addition in agriculture and mining sectors where most of Kenya's manufactured exports raw materials come from and further formulate policies that will enable easy access to foreign markets. Second, the government should enact policies to ensure that there is an enabling environment for transparency and proper reporting systems within the financial sector to ensure investor's confidence. In conclusion, the government should pursue long term policies that can attract foreign direct investment in industries that have the more capital inputs and able to compete internationally.

Keywords: Services Exports, Manufactured Exports, Financial Development, Foreign Direct Investment

INTRODUCTION

Foreign trade takes place when a country exchanges goods and services with other countries within a legal framework. International trade comes about because no country can be completely self-sufficient (Salvatore, 1998). Countries differ in terms of labour, technology, climatic conditions, land resources, business language, financial and infrastructure development. International trade enables a country to increase its production capacity, meet its domestic demand, generate foreign exchange, and improve the living standards of citizens, not to forget boosting economic growth. Carbaugh (2005) summarizes it well by saying that all economic aspects of a nation, including its industries, service sector, employment, levels of income and living standards are linked with other partners.

According to (UNCTAD, 2018), service sector has emerged as the largest segment of most national economies, contributing a growing share to GDP, trade and employment, and becoming a major driving force of the world economy. It is no longer possible to conceive sustainable economic growth and development without taking into account service sector developments. Though services trade has stronger presence in developed economies, among developing countries, the service sector has a stronger presence in Latin America and the Caribbean, where the sector's share in national income has increased to 63 percent (UNCTAD, 2018).

Moreover, the service sector has been the main economic activity and source of employment in the world economy for decades. In 2015 it accounted for around two-thirds of the world's output and about 55.5 percent of global employment (UNCTAD, 2018). Statistics from the (UNCTAD, 2018) report indicates that the sector's global output reached $49 trillion and it provided employment for 1.8 billion people around the world. The sector's contribution to national economic activities, however, is not the same across all economies. While its share is about 75 percent in developed countries, it is only about 53 percent in developing countries (UNCTAD, 2018). This is because services trade is a new frontier for most developing countries, and there is still lack of supply capacity and competitiveness, as well as insufficient regulatory and institutional capacities, which constitutes a binding constraint on their growth potential. Further, since 1995, world trade in services has recorded a negative annual growth only once (-9 % in 2009), in the wake of the global financial crisis (WTO, 2015). In 2010, services trade resumed its pre-crisis level and has continued to expand steadily despite sluggish economic growth.

By 2015, services accounted for two-thirds of the world Gross Domestic Product(GDP) and contributed to more than half of total employment in industrialized economies (WTO, 2015).This implies that improvement in the performance of service sector is crucial for growth

and poverty reduction in many developing countries. However, trade in goods rather than in services, has long been at the center of attention of both policy makers and the academia. Therefore with little research on services trade, there is little empirical understanding of determinants of trade in services globally. This has been the case thanks to scarcity of data and the intangible nature of services.

Services in earlier times have often been produced and consumed in the same time and space, which implied that for trade in services to take place, either the service provider had to move to the premises of the customer or the other way round. However, with the development of information and communication technological tools, the international trade in services has greatly increased and more available (Covaci and Moldovan, 2015).

Though there is no international consensus on the definition of services as a result of its heterogeneous nature, the United Nations defines services as the change in the condition of an economic agent (including a person) or in the condition of a good or an asset (wealth) belonging to an economical agent, as a result of some activity of a second economic agent, carried out with the prior agreement of the first agent.

As a result of intangible nature of services trade, services were not treated as trade, leading to their non-inclusion in the initial negotiation of the 1947 General Agreement on Trade and Tariffs (GATT). However, in the mid-1980s, services gained recognition as a subject of trade and were included for the first time in the WTO's Uruguay round of trade negotiations, held between 1986 and 1993. Under the General Agreement on Trade in Services (GATS), services trade was classified into four modes of supply (Mattoo and Stern, 2007):

Mode 1(cross-border supply): only the service crosses the border. The delivery of the service can take place, for example, through telecommunications (telephone, fax, television, Internet), or through sending of documents, disks, tapes.

Mode 2(consumption abroad): this occurs when consumers consume services while outside their country. Visits to museums in a foreign country as well as medical treatment and language courses taken abroad are typical examples.

Mode 3(commercial presence): the service supplier establishes its commercial presence in another country through branches or subsidiaries. Examples are medical services provided by a foreign-owned hospital, and banking services supplied by a subsidiary of a foreign bank.

Mode 4 (presence of natural persons): occurs when an individual (Services supplier) has moved temporarily into the territory of the consumer in the context of the service supply, whether self-employed or as an employee of a foreign supplier. For instance, architects moving abroad to supervise construction work are providing services under this mode of supply.

Moreover, Services have unique characteristics that affect their tradability. These include; first is intangibility, which makes international transactions in services often difficult to monitor, measure and tax. Second is nonstorability, where production and consumption often must occur at the same time. The third one is differentiation, whereby services are often tailored to the specific needs of customers. Lastly is joint product, whereby both the producer and consumer of the product must participate in the production process (Hockman and Mattoo, 2008).

According to the WTO 2015, travel exports are an important source of revenue for Least Developed Countries(LDCs), representing 1.6 percent of their GDP in 2014, up from 1.2 percent in 1995. Travellers expenditure has greatly influenced the tourism value chain in industries such as accommodation, food and beverages, transport, retail, recreation and cultural activities creating employment in rural areas. Just as in the other LDCs, the service sector has been an important source of income and employment in Africa and in particular Kenya. However, services trade in Africa lags behind that of developed countries as a result of several factors that include poor records for trade in services (scarce data), poor institutional quality, low technological advancement, poor infrastructure and financial development and slow economic integration in the global markets. In this regard, Kenya is not an exception to these challenges facing the African Continent. It is important to note that with the increasing importance of service sector to economic growth and employment in many countries in Africa, little research has been done on individual countries determinants of service exports. In addition, the studies carried do not address individual county's needs since the African continent has several heterogeneous characteristics ranging from poor infrastructure connectivity, varying GDP among the economies, poor financial services, reducing manufactured exports, low institutional quality and political conflicts. For instance, the northern African countries are to a big extend different from those in the South of Sahara in terms of technological advancement, regional blocks, national(business) languages, implying that a general study on trade in services on Africa does not provide the appropriate tools for analysis and policy formulation for the individual countries.

UNCTAD (2017) report indicates that Kenya recorded an annual global decrease of 11.3 percent in services trade. However, Kenya is notably among the eleven African countries (Cape Verde, Djibouti, Egypt, Eritrea, Kenya, Mauritius, Morocco, Namibia, Seychelles, Tunisia and Tanzania) that have consistently been net service exporters since 2005 (UNCTAD, 2015).World Bank (2016), further adds that service exports in Kenya have fared much better than its peers with travel services taking the largest share, followed by transport. Trade in services in Kenya is increasingly becoming a key component of the economy and an important element towards achieving the vision 2030. The tourism and travel related services are the leading services sub-

sector, followed by transport and logistics, telecommunications then banking and insurance services (CUTS-Consumer unity and trust society- Africa, 2014).

In the Eastern African region, Kenya dominates the service sector; since the coming into force of the EAC Common market protocol in July 2010, Kenya has registered an increasing presence in the regional markets, especially in the financial sector. The service sector has registered a consistent upward trend over the years with the export of services increasing from $ 577 million in 1980 to $4,845 million in 2012 (UNCTAD, 2014).There was also a significant increase in the values of service exports from the year 2010 which may be attributed to the coming into force of the EAC Common Market protocol that increased investment opportunities. Kenya major services sector has been tourism and travel related services due to its beautiful beaches at the Coast, blended with the Arab culture and the vast wild life parks across the country. With the four international airports in Mombasa, Eldoret, Kisumu and JKIA in Nairobi, the tourism sector has gone hand in hand with transport sector thanks to the dominance of Nairobi as the East and Central Africa entry point in addition to its direct flights to North America.

Dihel (2011) asserts that Kenya is in a unique position to export business services such as accounting, architectural, legal services, business process outsourcing (BPO), information communication technology (ICT) and more to the rest of the world. However, despite Dihel (2011) assertions on Kenya service exports, the World Bank's 2010 report on Kenya Economic Update describe Kenya's exports as a "weak engine". The study clearly implies that increasing exports of services especially high value added business services offers an opportunity to drive economic growth in Kenya. Moreover, while most of the developing countries tend to export basic business services like back office tasks or low value offshoring, Kenya has several world class firms that provide and export higher value offshoring services such as product development, research and development, business ventures and transformational sourcing (Dihel, 2011)

International trade plays a crucial role in Kenya's economy with trade in services leading with a significant contribution of 60 percent to the country's GDP (Republic of Kenya, 2015).The need for smart policies arises due to the existing huge balance of payment deficit that has put pressure on Kenyan shilling due to limited foreign exchange from the country's exports. From CUTS (2008) report, Kenya trade objectives includes moving towards a more open regime that involves strengthening and increasing overseas market access for Kenyans services and a further integration into the world economy that can be pursued through unilateral liberalization and regional and bilateral trade negotiations through its participation in the multilateral trading system at the WTO. As per the WTO framework, Kenya has membership in East African

Community (EAC), Common Market for Eastern and Southern Africa (COMESA),Tripartite Free Trade Area (COMESA, EAC and South African Development Corperation [SADC]), Africa Growth Opportunity Act (Agoa) and EAC-European Union Economic Partnership Agreement (EPA). These trade agreements are aimed at making the country to be a competitively export led economy with a thriving domestic market.

To achieve better policies that can expand the Kenyan export market and in particular the service exports, this research was done in exploring the determinants of service exports as has been the trend in most advanced nations that control trade in services globally. By exploring the determinants of service exports, Kenya will have a better platform to begin on, in formulating better policies to expand its service exports globally.

UNCTAD (2017) report that Kenya global service exports dropped by 11.3 percent and the description of Kenya's exports by the World Bank's 2010 report as "weak engine" raises questions on Kenya's service exports potential and factors determining Kenya's service exports. Further, WTO (2010) points out that while global services trade has been expanding in last fifteen years, Kenya service sector has not increased its global share. This points out clearly that Kenya has not fully exploited its potential in service exports that could enable it improve its global exports potential. Therefore seeking answers on determinants of service exports in Kenya can lay a good foundation for better policy framework that can increase its service exports and make them competitive, which will help in stimulating the economic growth and in achieving the goals of vision 2030.

Therefore the main purpose of this research was to empirically investigate the determinants of Kenya's service exports while the specific objectives are;

 (i) To determine the effect of manufactured exports on Kenya's service exports.

(ii) To establish the effect of financial development on Kenya's service exports.

(iii) To investigate the effect of foreign direct investment on Kenya's service exports

In line with the objectives of the study, the following hypotheses were tested:

H_{01}: Kenya manufactured exports have no significant influence on its service exports.

H_{02}: Financial development in Kenya has no significant effect on Kenya service exports.

H_{03}: Kenyan foreign direct investment has no significant impact on its service exports.

This study contributes to applied international trade literature on service exports by filing the knowledge gap in the case of Kenya through modeling the determinants of Kenya' service exports within the framework of ARDL model by looking at Kenya's individual characteristics in terms of manufactured exports, financial development and foreign direct investment. The findings from this research will assist in formulating policy framework that will assist to expand

Kenya's service exports globally and accelerate economic growth, all geared towards the achievement of the goals of vision 2030.

EMPIRICAL LITERATURE

Barcenilla and Molero (2003) applies cointegration techniques to estimate the determinants of service export in the European Union(15 countries) by estimating the demand function for the period 1970-2000. The study found that the effect of rising foreign income on the volume of exports was positive for all countries. Furthermore, the values for income elasticity were very large for several countries with different patterns of service trade. They also found that price and exchange rate elasticity were significant in explaining the patterns of service export in most of the countries concerned.

A study by Wong *et al.*(2009) explored empirically the relationship between FDI and service trade for Malaysia and Singapore. The study examined the causal linkages between inward FDI and the country's engagement in service trade, using bivariate and trivariate (Vector Autoregressive) VAR frameworks. The empirical findings for Singapore showed evidence of bidirectional causality between inward FDI and the total trade volume in services as well as between FDI and service import.

Sandeep (2011) examined the potential of the US services sector for export to Asian trading partners (Japan, China, India, Singapore, South Korea and Hong Kong), using a panel data analysis based on the gravity model for the period 2000-2008. The study revealed that the US had export potential in services to India and Japan. Additionally, it was found that the US exports converged with those of Hong Kong, India and Korea and diverged from those of Japan, China and Singapore. The findings also indicated that there was a large scope for export expansion to Hong Kong, India and Korea.

Ahmadzadeh *et al.* (2012) examined the competitiveness of service export and its determinants among the Organisation of Islamic Cooperation (OIC) member countries for the period 1996–2010, using the Revealed Comparative Advantage (RCA) and the panel data method. The findings from the RCA analysis showed that the comparative advantage of exporting travel and transportation services amongst the OIC member countries had increased and that the percentage of countries for which the RCA index is less than one had decreased. The number of countries that had no comparative advantage in the export of other commercial services had increased. The study further found that GDP per capita, real effective exchange rates, foreign investment inflow and communication infrastructure had significant and positive effects on service export. The variables of inflation and institutional index reduced service

export. Furthermore, the membership of these countries in the regional blocks increased the service export.

Saleena (2013) applied econometric tools to study the impact of FDI on service exports from India. The study finds that FDI positively affects service exports as it results in increase in productive capital stock, technological growth, and facilitates transfer of managerial skills, besides improving global market access. The study further found trade in services to have grown more rapidly than merchandise trade and that Information technology and business process outsourcing to be among the fastest growing sectors in terms of service export.

Sahoo *et al.* (2013) analyzed the factors affecting India performance in service exports using ARDL (autoregressive distributed lag model). The results revealed that India aggregate service exports were determined by world demand, exchange rate, manufactured exports and endowment factors (human capital, physical infrastructure and financial development).For modern services, factors such as institution regulation, FDI and financial development had significant effect on their exports while traditional service exports were significantly depended on world demand, exchange rate, manufactured exports and infrastructure development.

Covaci and Moldovan (2015) study investigated the determinants of aggregate service exports and the determinants of 7 service subcategories (transport, travel, communication, computer and information, financial, construction and other business services) of Lithuania using gravity model and panel dataset over the period 2003-2012. The results showed that GDP of the destination country and a common spoken language exert a positive effect on trade in services. Time zone differences, EU membership and relative human capital were found to have a heterogeneous effect across service subcategories. Also, the significance of physical distance between Lithuania and its partners varied in dependence of the type of service. Remoteness of the destination country was found to be insignificant for the majority of service subcategories, except transport services, other business services, and computer & information services.

Martin (2016) study applied OLS estimation technique to identify the factors that affect service exports in Kenya using time series secondary data over the period 1970-2015. The results showed that merchandized goods, real exchange rate were positively related to export of services and were significant while GDP, trade liberalization and trade openness were negatively related to the export of services.

Ahmad, Kaliappan and Ismail (2017) study empirically examined the determinants of service export in selected developing Asian countries (China, Hong Kong, South Korea, India, Iran, Indonesia, Malaysia, Philippines, Singapore, Thailand, Kuwait, Saudi Arabia and Turkey). The study conducted a static linear panel data analysis on annual data covering the period of 1985-2012. The main finding indicated that exchange rate, foreign income, foreign direct

investment (FDI), the value added by services and communication facilities influenced service exports in the selected developing Asian countries.

RESEARCH METHODOLOGY

The study used annual secondary data (1980-2017) that were sourced from the UNCTAD, World Development Indicators (WDI) and a few secondary sources that were deemed credible for the study. Secondary data was chosen because of the macroeconomic nature of the study in addition to its availability and organized nature. The thirty eight year (1980-2017) period is chosen because of the challenges of services data availability. Therefore the sample size is n=38 based on judgmental sampling.

This study employed both descriptive and inferential statistics in analysis. Stata software version 14 was used in the analysis of the time series data. Autoregressive distributed lag model (ARDL) was used to determine the relationship of variables. The p value of each variable is calculated to establish the significance in the model in which the threshold for rejecting null hypothesis is set.

The Kenya service exports is first modeled as a function of manufactured exports, financial development and foreign direct investment as shown in equation (3.1) and then transformed into ARDL model as shown in equation (3.2)

TSE=F (MNEXP,FNDEV, FDI)…………………………………………………………...…..(3.1)

Where;
TSE= Total service exports of Kenya that is measured in US dollars

MNEXP= Manufactured exports that a ration of Kenyan merchandise exports

FNDEV= Financial Development that is an average index of depth access and efficiency of Kenyan financial institutions.

FDI= Foreign Direct Investment is measured in US dollars

The advantages of the ARDL approach are that the model provides consistent and robust estimates for the long-run and short-run relationship among variables. Another advantage of adopting ARDL is that the method yields consistent estimates of the long-run coefficients, being asymptotically normal irrespective of I(1) or I(0). Further, this approach does not require pretesting of variables (Waliullah *et al.,* 2010).ARDL model applied to cointegration also tend to be more efficient to capture the long-term relationship data in small samples, and the model perform well irrespective of whether variables are stationary I(0), non-stationary I(1), or even mutually cointegrated (Pesaran and Shin, 1999).

In formulating the empirical model, this research borrows from Sahoo *et al.* (2013) as follows and analyzed using ARDL model.

$\Delta LnTSE = \alpha + \sum_{n=1}^{n} \beta i \Delta Ln(MNEXP)_{t-i} + \sum_{n=1}^{n} \delta i \Delta Ln(FNDEV)_{t-i} + \sum_{n=1}^{n} \mu i \Delta Ln(FDI)_{t-i} + \lambda_1 Ln(MNEXP)_{t-1} + \lambda_2 Ln(FNDEV)_{t-1} + \lambda_3 Ln(FDI)_{t-1} + \varepsilon_i$………………………………………(3.2)

Where, Ln is the natural logarithm, α is the drift component, the first part of the equation with β_i, δ_i, and μ_i represent the short-run dynamics of the model whereas the parameters λ_1, λ_2, and λ_3 represents the long-run relationships and ε_i is white noise error term with zero mean and constant variance.

ANALYSIS

The empirical analysis of this study was based on Autoregressive Distributed Lag (ARDL) model applied to cointegration, as proposed in Pesaran and Shin (1999) and Pesaran *et al.* (2001). According to Nkoro and Uko (2016) the model is chosen due to its advantage over the cointegration tests in non-stationary variables, such the ones developed by Engle and Granger (1987), Phillips and Hansen(1990) and Johansen (1991), as well as over the traditional VAR methodology.

Prior to the application of the ARDL approach, one needs to check the order of integration. In this study, traditional Augmented Dicker Fuller (ADF) test was used to check for the unit root in every variable in model and thus determine the order of integration. This isto ensure that the variables were not I(2) stationary so as to avoid spurious results as the bounds test is based on the assumption that the variables are I(0) or I(1) or both.

The first step in the ARDL bounds testing approach is to estimate equation (3.2) by ordinary least squares (OLS) in order to test for the existence of a long-run relationship among the variables by conducting an F-test for the joint significance of the coefficients of the lagged levels of the variables. The null hypothesis model will be;

$H_O: \lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = \lambda_6 = 0$ (Long- run relationship does not exist)……………………….…(3.3)

$H_1: \lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq \lambda_5 \neq \lambda_6 \neq 0$ (Long run relationship exist)………………………………..(3.4)

First, the bounds test for the null hypothesis of no cointegration is conducted. The calculated F-statistic is compared with the critical value tabulated by Pesaran (1997) and Pesaran *et al.* (2001). If the test statistics exceeds the upper critical value, the null hypothesis of a no long-run relationship can be rejected regardless of whether the under lying order of integration of the variables is 0 or 1. Similarly, if the test statistic falls below a lower critical value, the null hypothesis is not rejected. However, if the test statistic falls between these two bounds, the result is inconclusive. When the order of integration of the variables is known and

all the variables are *I(1)*, the decision is made based on the upper bound. Similarly, if all the variables are *I(0)*, then the decision is made based on the lower bound.

After establishing the long-run relationship, the next step is to select the optimal order of lag by using Akaike Information Criterion (AIC), Schwarz Bayesian Criterion (SBC) or Hannan-Quinn Criterion (HQC),the long-run estimates are estimated using ARDL approach (Pesaran, 1997).

In order to estimate the short-run model, the error correction model is derived by a simple transformation in the ARDL model allowing the error correction term to show the speed of adjustment from disequilibrium to equilibrium. The presence of an error-correction term informs that any deviations from the long run equilibrium are the response on the changes in the dependant variable. The error correction model (ECM) is as below;

$$\Delta LnTSE = \alpha i + \sum_{n=1}^{n} \beta i \Delta Ln(MNEXP)_{t-i} + \sum_{n=1}^{n} \delta i \Delta Ln(FNDEV)_{t-i} + \sum_{n=1}^{n} \mu i \Delta Ln(FDI)_{t-i} + \phi_t ECM_{t-1} + \varepsilon_t \dots\dots(3.5)$$

Where,

ECM_{t-1} is the error correction term while Φt shows the speed of adjustment to the long run equilibrium.

Pre-estimation Tests

Time series data are usually influenced by trends and movements. Therefore the following tests were done to enhance the analysis involving time series data.

Multicollinearity

Multicollinearity occurs when two or more independent variables are highly related. This study applied Vector Integrating Factor (VIF) test whereby a conclusion was made based on its value. If the VIF value is greater than 10 or 1/VIF is less than 0.1 then there is multicollinearity. Alternatively, if the VIF is less than 10 and 1/VIF is greater than 0.1 then multicollinearity does not exist. If multicollinearity is present, the affected variables are dropped or left depending on the level of collinearity.

Table 1: VIF and 1/VIF Findings

Variable	VIF	1/VIF	Status
Logmnexp	1.75	0.571	MULTICOLLINEARITY ABSENT
Logfdi	1.48	0.677	MULTICOLLINEARITY ABSENT
Logfndev	1.31	0.765	MULTICOLLINEARITY ABSENT
Mean VIF	1.51		

The above results shows that multicollinearity was absent in all the variables since their VIF is less than 10 and 1/VIF is greater than 0.1, therefore all the variables were retained in the model.

Correlation Analysis

Correlation analysis was carried out to aid in identifying the strength and direction of the relationship between the independent variables and the dependent variable. Table 2 presents a summary of the correlation coefficients among the variables that affect service exports.

Table 2: Pearson Correlation Coefficient

	LOGTSE	LOGMNEXP	LOGFNDEV	LOGFDI
LOGTSE	1.0000			
LOGMNEXP	.8618	1.0000		
	0.0000			
LOGFNDEV	-.2344	-0.3977	1.0000	
	.1566	0.0134		
LOGFDI	.7174	0.5048	0.0387	1.0000
	0.0000	.0012	0.8175	

The correlation result in Table 2 shows that there is a positive relationship between service exports and manufacturing exports, and foreign direct investment. On the other hand there is a weak and negative relationship between service exports and the financial development. The observed positive relationship maybe due to overall Structural Adjustment Programs (SAPs) that showed overall decline towards the year 2000 when the programs were in process of implementation together with political instability that was experienced towards the year 2000 and an overall increase after the year 2002 when the country experienced some political stability and the SAPs had taken full effect. The weak negative relation between the service exports and the financial development may be due to the application of the new financial development index that looks at both the financial institutions and financial markets which as in Kenya are not well developed as in advanced economies.

Lag length selection Criteria

Since the unit root tests requires identification of the lag structure of a particular variable, the Likelihood Ratio (LR), the Akaike Information Criterion(AIC), the Hannan Quinn Information Criterion (HQIC) and the Swartz Bayesian Information Criterion (SBIC) were used to determine the optimal number of lags for each variable prior to testing for stationarity. However the optimal lags for the ARDL modeling was based on the AIC because of its advantages for small sample

size as it is the case in this study. Further, since determination of the optimal lag length is so crucial in ARDL model, AIC helps to address the issue of over parameterizations and to save the degree of freedom (Kripfganz and Schneider, 2016).

Unit Roots Test

Since the ARDL model was used in this study, it was important to determine stationarity of the variables. This wasto ensure that the variables were not I(2) stationary so as to avoid spurious results. According to (Waliullah *et al.,* 2010) in the presence of I(2) variables the computed F-statistics provided by Pesaran *et al.*(2001) are not valid because the bounds test is based on the assumption that the variables are I(0) or I(1).

Enders (1995) suggested using both the Augmented Dickey Fuller (1981) and Phillips-Perron (PP) unit root tests. The unit root tests were estimated both at level and first difference. Therefore the Augmented Dickey Fuller test was first used to test for the stationarity of the variables in levels and first difference then followed by Phillips-Perron (PP) unit root test. However this study relied on Augmented Dickey Fuller (ADF) as is a powerful tool for testing for stationarity of variables as it accounts for serial correlation through inclusion of lags of the variables. The null hypothesis is that the variable under consideration has a unit root or is not stationary while the alternative hypothesis is that the variable of interest is stationary. The null hypothesis is rejected if the absolute value of the computed ADF test exceeds the absolute critical value at one percent and 5 percent. Since the ADF requires identification of the lag structure of a particular variable, the Likelihood Ratio (LR), the Akaike Information Criterion(AIC), the Hannan Quinn Information Criterion (HQIC) and the Swartz Bayesian Information Criterion (SBIC) were used to determine the optimal number of lags for each variable prior to testing for stationarity. Table 3 presents the ADF results of the unit root tests and corresponding lags.

Table 3: ADF Unit Root Test Results

Variable(lags)	Test statistic	1% critical value	5% critical value	10% critical Value	Status
LOGTSE(1)	-0.841	-3.675	-2.969	-2.617	NON-STATIONARY
LOGMNEXP(4)	-2.413	-3.696	-2.978	-2.620	NON-STATIONARY
LOGFNDEV(1)	-1.692	-3.675	-2.969	-2.617	NON-STATIONARY
LOGFDI(4)	-0.275	-3.696	-2.978	-2.620	NON-STATIONARY

The results in Table 3 shows that all the variables are non-stationary at both levels, therefore the variables were differenced and the results are as shown in Table 4 below.

Table 4: ADF Unit Root Test Results for Differenced Variables

Variable	Test statistic	1% critical value	5% critical value	10% critical value	Status
LOGTSED1	-5.391***	-2.642	-1.950	-1.604	STATIONARY
LOGMNEXPD1	-9.306***	-2.642	-1.950	-1.604	STATIONARY
LOGFNDEVD1	-6.818***	-2.642	-1.950	-1.604	STATIONARY
LOGFDID1	-9.582***	-2.642	-1.950	-1.604	STATIONARY

Note: *** shows significant level at one percent

Based on ADF test, all the series were found to be stationary at their first differences. The ADF results shows that all the variables considered in this study are integrated of order one, I (1). Following Enders (1995) suggestion of using both the Augmented Dickey Fuller (1981) and Phillips-Perron (PP) unit root tests,the results for Philip-Perron unit root test at level are presented in Table 5.

Table 5: Philip-PerronUnit Root Test Results

Variable	Test statistic	1% critical value	5% critical value	10% critical value	Status
LOGTSE(1)	-1.268	-18.016	-12.884	-10.440	NON STATIONARY
LOGMNEXP(4)	-3.874	-18.016	-12.884	-10.440	NON STATIONARY
LOGFNDEV(1)	-5.377	-18.016	-12.884	-10.440	NON STATIONARY
LOGFDI(4)	-19.468***	-18.016	-12.884	-10.440	STATIONARY

Note: *** shows significant level at one percent

From Table 5, only the variable for foreign direct investment was stationary at level while the others were non stationary. Therefore the non stationary variables were differenced after which they were all stationary as shown in Table 6.

Table 6: Philip-Perron Unit Root Test Results for Differenced Variables

Variable	Test statistic	1% critical value	5% critical value	10% critical value	Status
LOGTSED1	-34.458***	-23.908	-18.736	-16.128	STATIONARY
LOGMNEXPD1	-60.655***	-23.908	-18.736	-16.128	STATIONARY
LOGFNDEVD1	-37.464***	-23.908	-18.736	-16.128	STATIONARY

Note: *** shows significant level at one percent

Thus, with the establishment of the order of integration, the study proceeded to testing for long-run relationship expressed in equation (3.2).

Bounds Tests for Cointegration

The first step of the ARDL bounds analysis was to investigate presence of long-run relationship among the variables included in the equation (3.2).The model was estimated by OLS for each variable and the optimal lag was selected by Akaike Information criterion (AIC) method because of its advantages for small sample size as it is the case in this study. After estimation, the F-test was conducted on joint significance of the lagged variables in levels. The result of the F-test is presented in Table 7. The Table also provides the upper and lower Kripfganz and Schneider (2018) critical values. These critical values have been obtained with response surface regressions based on large-scale simulations and they are available for any sample size and any number of regressors, and they also properly account for the number of short-run coefficients in the model.

Table 7: Bounds F-test for Cointegration Analysis

Critical value	level of significance	Lower bound value	Upper bound value
F=14.465***	1%	.119	7.666
	5%	4.193	5.408
	10%	3.390	4.458

*Note:*** shows significant level at one percent(F-statistic: 14.465 Significant at 0.01 marginal values with 7.666 as upper bound value).

The results in Table 7 show that the calculated value of the F-test is 14.465 which was compared with the upper and lower bound of Kripfganz and Schneider (2018) critical values. From the Table, the F-calculated is more than the upper bound of F test at one percent significant level. Therefore, it was concluded that there is a significant long run relationship between the dependent and independent variables. This means rejecting the null hypothesis of no co-integration at one percent significant level. This confirmed the existence of long run relationship among the variables Manufactured Exports, Financial Development, Foreign Direct Investment and Kenya service exports. Since the results from ARDL bounds tests indicated that there exists a long-run relationship among variables, Error Correction Method (ECM) model was employed to investigate short-run, long-run relationships and the speed of adjustment to equilibrium state by using the ECM.

Long-run ARDL Relationship Analysis

In the Table 8 the results are generated from ARDL model (1, 4, 2, 0) estimated the long-run coefficients of the variables in the study. The lag structure of the ARDL model was determined by the Akaike Information criterion because of its advantages for small sample size as it is the case in this study and its ability to address the issue of over parameterizations and to save the degree of freedom (Kripfganz and Schneider, 2016).

Table 8: Long- run Coefficient using ARDL Model (1, 4, 2,0)

Dependent variable(lnTSE)	Coefficient	Standard Error	t-statistic	Prob
LnMNEXP	1.668	0.202	8.27	0.000***
LnFNDEV	1.235	0.403	3.06	0.006***
LnFDI	0.044	0.062	0.71	0.484
CONSTANT	10.09	2.311	4.37	0.000***

Note: *** means significant level at one percent

The results in Table 8 of estimated long run results reveal that the Manufactured Exports have a positive and statistically significant long-run relationship with the Kenya service exports. Therefore the null hypothesis that manufactured exports have no significant influence on Kenya service exports was rejected at one percent level of significance. This implied that a one percent increase in manufactured exports increased the Kenya services exports by 1.67 percent. This result is in line with the study of Sahoo *et al*. (2013) on determinants of India service exports, as an increase in manufacturing exports leads to a higher demand for services due to network effect. The manufacturing exports significance is also supported by Hoekman and Mattoo (2008) study that links the use of knowledge intensive business, transport, financial and communication services in manufacturing productivity to be positively correlated. Further, as Sahoo *et al*. (2013) and Lodefalk (2012) puts it, the exports of services are linked closely with and rise of exports of manufactured goods since services such as transport, traveling communication and business services are used as inputs. Dash and Mishra (2013) in their application of Autoregressive Distributed Lag (ARDL) model in analyzing India's service exports also found manufactured exports to have a positive and significant effect on service exports. This therefore shows the spillover effect of manufactured exports on the service exports. In general, this result is supported by (Hoekman and Mattoo, 2008) study which opines that the use knowledge intensive business and financial, transport and communication services in the manufacturing production to be positively correlated to international trade.

Similarly, the estimated long run result revealed positive and significant relationship between financial development and service exports. Therefore, the null hypothesis of financial development in Kenya has no effect on service exports was rejected at one percent significance level. This means that a one percent increase in financial development leads to an increase of 1.23 percent on the Kenya's service exports. This is also in line with Sahoo *et al*. (2013) as easier access to financial assistance by the business communities encourages business expansion and also a well developed financial sector reduces transactional costs that are incurred in service exports. Moreover, Rajan and Zingales (1998) study explains that financial development helps firms avoid moral hazard and adverse selection problems and to enhance export growth by using external financing. Korhan *et al.* (2015) study also points out that financial development may represent a certain degree of comparative advantage for at least those industries that have a higher dependence on external financing. Therefore such industries are likely to have higher shares of exports and obtain more trade benefits in countries that have higher levels of financial development as in the case of Kenya in the region.

Further, the FDI had a positive but insignificant relationship with the Kenya service exports. Therefore the null hypothesis that Kenyan foreign direct investment has no significant impact on its service exports was not rejected. This result supports the argument by (Sharma, 2000) that whether FDI contributes to the exports growth or not depends on the nature of policy regime. This study finding is contrary to the study by Wong *et al*. (2009) that revealed that some of the component of trade in services such as education, banking and insurance are best conducted through FDI and another one by Ahmad, Kaliappan and Ismail (2017) on the determinants of service export in selected developing Asian that found foreign direct investment (FDI) to influence service exports in the selected developing Asian countries.

However its positive relationship with service exports is in line with the study of Majeed *et al*. (2006), Mkpado (2013) Sahoo *et al*. (2013) and Martin K (2016) as service trade been progressively consolidated with the globalization with business operations.

Short-run ARDL Relationship Analysis

The results in Table 9 show that the short-run relationship estimated by ARDL model depicts there is a negative relationship between Manufactured Exports and Total Service exports. The negative short-run relationship between Service Exports and Manufactured Exports implies that a one percent increase in the manufactured exports decreases the Kenya's service exports by 0.80 percent of Kenya. The positive short-run relationship between the Total Service Exports and Financial Development indicates that one percent increase in financial development leads to a 0.79 percent increase in Kenya service exports. The error correction term is negative and

significant at one percent level, thereby affirming the existence of co-integration among the variables. The coefficient of the error correction term (ECM_{t-1}) of 57.46 percent shows the speed of adjustment to equilibrium state within a year, as the frequency of the data is annual. Since the error correction term is significant and large, the speed of adjustment towards the long-run equilibrium is therefore high. The reported R squared presented in 9 implies that the variables in the estimated model explain 60.04 percent of the variation in Kenya service exports.

Table 9: Results for Error Correction Model using ARDL (1, 4, 2, 0)

Dependent variable SER	Coefficients	Standard errors	t-statistic	P-values
LogMNEXP				
D1	-0.429	0.216	-1.98	0.06**
LD	-0.446	0.215	-2.07	0.05**
L2D	-0.802	0.271	-2.96	0.007***
L3D	-0.613	0.249	-2.46	0.022***
LogFNDEV				
D1	-0.189	0.325	-0.58	0.568
LD	0.792	0.269	2.94	0.007***
Cons	10.094	2.310	4.37	0.000***
ECM_{t-1}	-0.575	0.146	-3.94	0.000***
R	.6004			

Note: *** , ** means significant at level 1 and 5 percent respectively

Post-estimation Diagnostic Tests

Results of the Breusch – Godfrey serial correlation test are presented in Table 10. The null hypothesis of no serial correlation was tested against the alternative hypothesis of the existence of serial correlation. The null hypothesis is rejected if the probability value of the calculated chi-square statistic is less than 0.05. The probability value of the computed Chi-square statistic was not significant at 5 percent level of significance. Therefore, the null hypothesis was not rejected implying that the residuals were not serially correlated.

The Breusch –Pagan Heteroskedasticity test was used to test the residuals in terms of whether they are homoscedastic or not, the null hypothesis being a homoscedastic disturbance term against the alternative hypothesis of heteroscedastic disturbance term. Rejection of the null hypothesis depends on the significance of the computed Chi-square statistic at 5 percent level of significance. The results of the Breusch –Pagan Heteroskedasticity test are presented in Table 10. The probability value of the computed chi-square statistic was greater than 5 percent

level of significance. Therefore, the null hypothesis was not rejected implying that the residuals were homoscedastic.

Normality of the residuals was tested by the Shapiro-Wilk normality test. The null hypothesis is that the residuals are normally distributed while the alternative hypothesis is that residuals are not normally distributed. The results of the Shapiro-Wilk normality test are presented in Table 10. The probability value of Shapiro-Wilk test was not significant at 5 percent level of significance. Therefore, the null hypothesis was not rejected; hence the residuals were normally distributed.

The Ramsey–reset test was used to test if the estimated ARDL (1, 4, 2,0) is stable and correctly specified, the null hypothesis being the model is correctly specified against the alternative hypothesis that the model is mis-specified. The results of the Ramsey-reset test are presented in Table 10. The probability value of the F-statistic was insignificant. Therefore, the null hypothesis was not rejected implying that the model was correctly specified.

A plot of the Cumulative Sum of Recursive Residuals (CUSUM6) in figure 1 shows that the coefficients are stable as the recursive residuals lie within the 5 percent level of significance.

Table 10: Post-estimation Diagnostic Tests

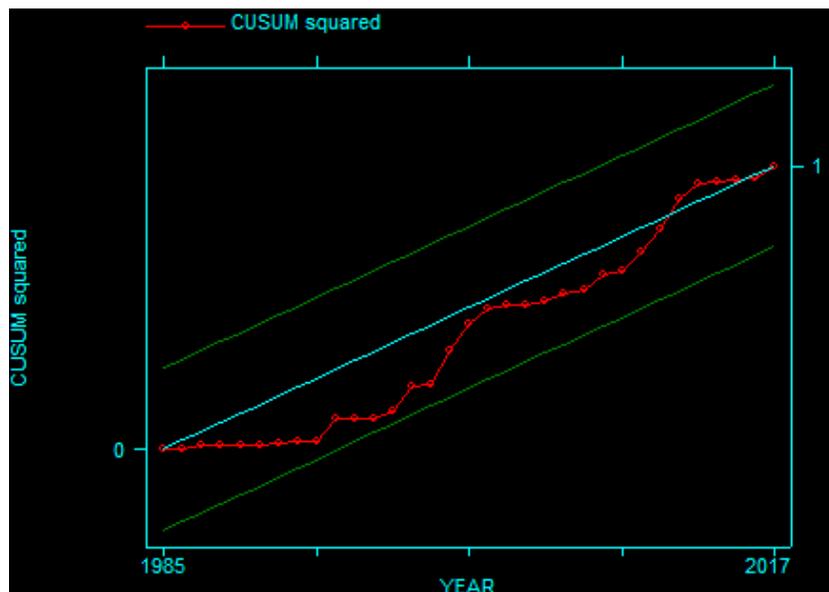| Test series	Coefficient	P-values
Autocorrelation (Breusch-Godfrey LM)	1.455	0.228
Heteroskedasticity (Breusch-Pagan/Cook-Weisberg)	1.18	0.278
Normality test (Shapiro-Wilk test)	1.165	0.374
Model specification(Ramsey RESET test)	1.20	0.326

Figure 1: plot of the Cumulative Sum of Recursive Residuals

SUMMARY OF THE FINDINGS

This study investigated the determinants of Kenya service exports within ARDL model, using time series data for the period 1980-2017. The study used the Autoregressive distributed lag (ARDL) bounds testing procedure developed by Pesaran *et al.* (2001) to examine the presence of long-run relationship among the variables, and the Vector Error Correction Model to investigate the short-run dynamics.

First the variables were tested for multicollinearity using Vector Integrating Factor (VIF) and multicollinearity was confirmed absent for all the variables. Therefore the variables were retained in the model. Correlation analysis showed existence of positive correlation between service exports, manufactured exports and the foreign direct investment.

Empirical results of stationarity analysis revealed that all the variables attained stationarity after first difference therefore the variables were ofI(1). The estimated F-Statistics was above the upper Kripfganz and Schneider (2018) critical values at one percent significant level confirming the presence of long run relationship among the variables. Empirical results further showed that there was a significant long–run equilibrium relationship among manufactured exports, financial development and service exports at one percent level of significance. While the foreign direct investment had a positive but insignificant relationship with service exports. The estimated long-run parameters indicated that manufactured exports and financial development had a significant positive impact on Kenya service exports while foreign direct investment had a positive relation but not significant on service exports.

The coefficient of ECT_{t-1} was negative and statistically significant. This confirmed the existence of long-run relationship among the variables. The stability of the coefficients was confirmed using cumulative sum of residuals (CUSUM6) that showed that the coefficients were stable at 5 percent level of significance.

CONCLUSIONS

This study looked at the effect of manufactured exports, financial development and foreign direct investment on Kenya service exports. Though other studies have used other variables as potential determinants of service exports, this study chose manufactured exports because of its center stage of government programme on manufacturing (one of the big four agenda) and the financial development based on recent advancement in technology and expansion of Kenyan financial institutions regionally. Further, the two variables have not been analyzed with respect to service exports in Kenya's perspective. Foreign direct investment was also chosen based on its importance on the transfer of technology and skills that are fundamental for trade to the recipient country. This study applied ARDL model in testing the significance of the variables.

The bounds test found that there is cointegration among factors that affect Kenyan service exports. The manufactured exports and financial development were found to have a significant impact on the Kenyan service exports in the long-run while foreign direct investment had a positive but had no significant effect on the service exports. The significance of manufacturing exports is supported by supported by Hoekman and Mattoo (2008) study that linked the use of knowledge intensive business, transport, financial and communication services in manufacturing productivity to be positively correlated and therefore positively affecting the service exports. The significance of financial development on service exports is supported by the view held by Sahoo *et al.*(2013)that easier access to financial assistance by the business communities encourages business expansion and also a well developed financial sector reduces transactional costs that are incurred in service exports

Though not significant, the positive relationship between FDI and service exports points to the fact that service exports are largely driven by information and communication technology, and a further advancement in information and communication technology (ICT) in Kenya is likely to generate significant effect service exports. This further explains the view held by Dihel (2011) that Kenya has a vast potential for expansion of its service export and therefore the need to boost its competitiveness on FDI inflows in order to expand its global service exports.

POLICY RECOMMENDATIONS

From the results, manufactured exports and financial development plays significant contributions on Kenya service exports. It is therefore important for the government to implement policies and provide incentives for the continuation of the development of the manufacturing and financial sectors for growth and global expansion of Kenya service exports.

For the manufacturing exports, the government can emphasize on policies that promote value addition in agriculture and mining sectors where most of Kenya's manufactured exports raw materials come from. Further, since most Kenyan manufacturing exporters feel that direct incentives, such as tax incentives for exporters are unnecessary, the government can formulate policies that will enable easy access to foreign markets by emphasizing on brand quality and come up with a more active industry association that can sponsor international conventions or events to showcase the Kenya manufactured exports.

In relation to the financial development, the government should enact policies that ensure that there is an enabling environment for transparency and proper reporting systems within the financial sector to ensure investor's confidence that can attracts both domestic and foreign investors. A well developed and regulated financial sector will increase savings that

provides the requisite capital for the investment in the economy both in manufacturing and other services related sectors. In addition, the policies should ensure that there is continuous growth in areas of financial inclusion, financial stability, financial institutions and products offered in order to make the sector more competitive and more efficient.

Consequently, on the FDI section, the government should pursue a long term policies to attract foreign direct investment in those industries that have the potential to compete internationally and   attract   more capital inputs. Such industries can increase their marketing competence, product-process technology and channels of distribution that is significant in the service sector and therefore help in the expansion of Kenya service exports globally.

SCOPE FOR FURTHER RESEARCH

This study recommends further research on determinants of Kenya service exports by use of other variables especially infrastructure development and institutional quality and different methodology from ARDL model. Furthermore, studies should go beyond just factors that affect the Kenya service exports but also examine competitiveness of Kenya service exports to the international market.

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