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Research Article

Effects of Internet Adoption on International Trade: Evidence from Nigeria and Its Major Trading Partners

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Abstract

The study investigated the effects of internet adoption on international trade among Nigeria and its major trading partner. The study adopted a gravity model and sourced data from world development indicators (WDI) database between 1960 to 2020. Empirical findings from the study reveal that with regards to trade volume and trade intensity, on the average, United states of America is Nigeria's largest trading partner followed by India, France, United Kingdom and China. Furthermore, the study revealed that the effects of distance, language, colony and contagion on international trade were insignificant. A plausible explanation could be that internet adoption to a large extent has made the world a global village and brought global technological transformation that has permeated all sectors of the economy. The study further found out that the gross domestic product of Nigeria and those of its major five trading partners significantly influence total export and import of goods and services.

Keywords: Effects of Internet Adoption, International Trade, Major Trading Partners

1. Introduction

The advent of the internet has reformed the world economy; basically all sectors and aspect of daily life; and reshaping the way economic agents learn, toil, trade, mingle, and access public and private services and information (World Bank 2019). In 2016, the world digital economy was worth USD 11.5 trillion, comparable to 15.5% of the global

overall gross domestic product. It is anticipated to reach 25% in less than a ten years, rapidly outpacing the growth of the over-all economy (World Bank 2019). However, countries such as Nigeria are presently reaping only a portion of this growth and need to tactically invest in the foundational rudiments of their digital economy to keep pace.

Nigeria has been a laggard in the utilisation of modern digital technologies such as the internet in bilateral trade. In other words, Nigeria has not been fully integrated into the digital global economy. Over the years, Nigeria and even the entire world has suffered significant increase in trade costs. Trade costs are defined in the context of this study as the costs of transferring property in a good and the good itself from a seller to its buyer. These costs include (i) Costs related to trade policy, such as tariffs and non-tariff trade barriers, (ii) transport costs which consists of time costs and freight expense and (iii) transaction costs which comprises of communication and information costs, contract enforcement, and costs of settling clashes. (Anderson and van Wincoop 2004, Emlinger et al. 2008, World Trade Organisation 2009). The major fall in trade costs between 2000 and 2014 was the adoption of internet in trade issues. This was justified when Hung Oh et al. 2020 introduced digital technology variables such as the internet into empirical analysis and discovered a drastic drop in trade cost in 2014 as against 2000.

Further, bilateral trade has also been hampered by lack of innovative payment systems and the wide information gap between the buyers and sellers. Meanwhile, the advanced world has attained the era of digital financing where crypto currencies such as bitcoins, entherium and so on have been adopted to facilitate bilateral trade transactions and bridge the information asymmetry gap that exists between buyers and sellers. However, Nigeria is still yet to get fully integrated into the digital economy and as such has not begun to grossly reap the benefits from digital financing (World Bank 2019).

Therefore, this study is motivated by the fact that there has been dearth of studies in the relationship between internet adoption and international trade. Digital information technology has found varieties of unanticipated applications; it has established novel industries and intensely changed others. For these reasons it is considered as a general purpose technology (GPT) equivalent with electricity (Jovanovic and Rousseau 2005). The internet can be used for various motives. Moreover, GPTs have a substantial prospective for being combined with other technologies to establish innovative technologies (Mokyr 2002). When this occurs, digital technologies are utilised persistently and the creation of the digital technologies translates to economies of scale, which fosters the utilisation of the digital technologies. It is clear from the characteristics in the evolution of digital computers which used to be tremendously luxurious specialised machines for number crunching and which have developed into affordable personal digital assistants (Jovanovic and Rousseau 2005). The relevance of the information revolution for foreign trade transactions is the intensely reducing costs of communication, processing, and storing information and knowledge. The effect of this

reduction in cost goes far beyond decreasing transaction costs. These larger impacts, which include production and sharing of knowledge (Mokyr 2002), are, however, beyond the scope of this study.

Meanwhile, most studies focused majorly on technology and export trade (Adeoti 2011, Ogunkola 2002, Marque-Ramos et al. 2010,) but this study will focus majorly on how internet adoption in particular can influence bilateral trade in total export of goods and services, total exports and imports of agricultural sector and total exports and imports of oil sector. Further, a significant objective of the current economic reform in Nigeria is to ensure the economy is diversified by revamping the manufacturing sector and making export of manufactures a major avenue for the generation of forex, and thus drastically decrease the dependency on crude oil as the significant source of forex. In this respect, it is germane to analyse the direction of influence of current economic reform on firms' utilisation of digital technology with the aim to modify policy implementation strategy. This study also provided some intuitions on this, and help further the capacity of current reform to achieve the target of diversifying the economy and fostering of foreign trade.

In addition, this study, seeks to establish insights that will be vital for policy making that foster investment in the product upgrading and production processes with the aim of revamping the deteriorating Nigeria's terms of trade situation.

Therefore, it is germane to critically analyse the potential for trade among countries, and examine how the internet can contribute to improving trade potential.

2. Literature Review

2.1 Internet and International Trade

The literature on the effects of internet on international trade became prominent in the early 2000s. For instance, one of the foremost scholars that examined the relationship between internet infrastructure and trade was Freund et.al (200, 2004). The authors discovered that a 10% change in number of web hosts will translate to about 0,2% change in US exports in the same direction. This implies that internet infrastructure has a positive effect on trade. Furthermore, Portugal-Perez and Wilson (2010) further reinforced the argument that internet infrastructure positively influences international trade. Meanwhile other studies also analysed the effects of internet use on trade. For instance, Liu and Nath (2013) discovered in a study of 40 emerging economies that internet subscriptions and internet hosts exhibits a significant positive relationship with international trade. In the same vein, Gelvanovska et. al (2014) found that broad band use has positive significant effect on international trade in Middle East and North Africa. Some other studies examined the direction of causality between internet penetration and international trade. Clarke et. al (2004) accounting for possible endogeneity using instrumental variable method found that causality exists from internet to trade. Kneller

et. al (2016) further reinforced the findings of Clarke et.al (2004). Kneller et. al (2016) accounting for possible endogeneity bias found out that there exists a causal effect from internet to international trade.

2.2 Channels of internet effects on Trade

Several researchers also investigated the direct and indirect effects of internet on international trade. Researchers such as Bugamelli et.al (2003), Das et.al (2001) and Fink et.al (2005) posit that the direct effect of internet on international trade is reduced trade cost. The studies therefore, concluded that increase in internet infrastructure and use will lead to reduced trade cost and increased export trade. Some other authors assert that internet use could indirectly enhance international trade through a boost in labour productivity. More precisely, internet use leads to an increase in labour productivity and then increased productivity leads to decrease in marginal costs of production which then facilitates a firm entry into the international market. Although, it is evident in the literature that the effects of internet on labour productivity is difficult to identify and qualify. For instance, Robert Solow in 1987 asserted that internet exhibits zero or negative effect on productivity and surprisingly by the recent century Solow found that internet had a lower contribution than expected. The ambiguous results could be as a result of measurement errors.

Meanwhile, studies particularly in Europe and America found that internet contribution to productivity in USA was more than that of the European Union. For instance, Crafts (2008) outlined that the reason could be insufficient investment in intangible capital. Furthermore, Renda (2016) highlighted that development of high quality education system and digital skills can improve labour productivity and thus export. With respect to firm level studies, Baldwin et.al (2022) discovered that positive relationship between internet and labour productivity. This was reinforced by Commander et.al (2011) that internet has positive effects on productivity of manufacturing firms in Brazil and India.

Succinctly, internet exhibits diverse effects on international trade via internet infrastructure and internet use by reducing trade costs.

3. Methodology

3.1 Variables Sources and Description

The variables used were derived from various sources (see Table 1). However, in the regression of the equation 2 below, quarterly data from 2000 to 2020 was used. The major trading partners will be identified via the extent of Nigeria's trade intensity with its trading partners.

Trade intensity is calculated as follows;

$$TI = \frac{NE_j + NI_j}{TT}$$ ……………………………………1

Where

TI is trade intensity

NE is Nigeria export (total exports, agricultural exports and oil and gas exports) to country j

NI is Nigeria import (total imports, agricultural imports and oil and gas imports) to country j

TT is Nigeria total trade with the world (total exports and imports of goods and services, total agricultural imports and exports of goods and services and total exports and imports of oil and gas sectors)

In an attempt to examine the nexus between internet adoption and bilateral trade performance, this study follows Freund et.al (2004) and Yushkova (2014). Thus, the augmented gravity model is specified thus;

$LTrade_{ij} = \log a_0 + a_1 LGDPPC_i + a_2 LGDPPC_j - a_3 \log LDistance_{ij} + a_4 contigious_{ij} + a_5 language_{ij} + a_6 colony_{ij} + a_7 Linternet\ uisers_{ij} + U_{ij}$ ……………………………………………2

Where;

$LTrade_i$ = Log of trade

$LGDPPC_i$ = Log of gross domestic product per capita of Nigeria

$LGDPPC_i$ = Log of gross domestic product per capita of Nigeria's trading partners

LDistance = log of Distance

LInternet users =Log of internet users

Table 1: Description of variables

variable	Definition
Trade	Logarithm of total exports and imports of goods and services, total exports and imports of agricultural products and total imports and exports of oil and gas sectors
Distance	Trade cost
Contigious	(Yes =1, No =0)
Language	(Yes =1, No =0)
Colony	(Yes =1, No =0)
Internet User	Number of Internet users/hundred persons
lnGDPPC	Logarithm of GDP/capita

Source: World development indicator (WDI 2020)

4. Results and Discussions

4.1 Introduction

This section provides detailed analyses of the trend of Nigeria's trade and those of its major trading partners. It also shows the results obtained from the gravity model estimated.

4.2 Analysis of Nigeria's trade in terms of volume with its major trading partners from 1960 to 2019

The chart below clearly shows that between 1960 to 2019, on the average, United States of America has been the largest trading partner with Nigeria in terms of volume of exports and imports of goods and services followed by India, France, United Kingdom and China. However, in recent times, China has been Nigeria's largest trading partner.

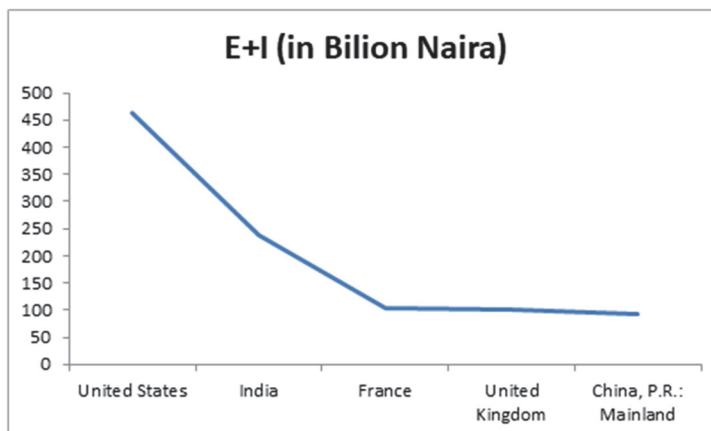**Figure 2:** Showing total world trade volume between Nigeria and its top five major trading partners

4.3 Analysis of the intensity of Nigeria's trade with its major trading partners

Furthermore, figure 2 below clearly shows Nigeria's trade intensity with its trading partners. Based on trade intensity, United States has the highest trade intensity with Nigeria followed by India, France, United Kingdom and China.
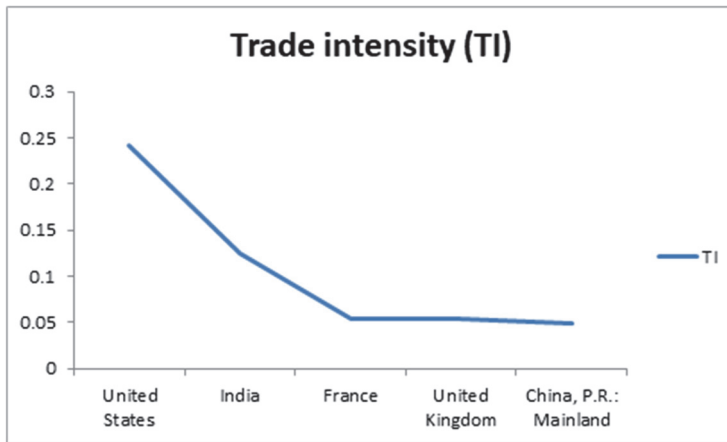
Figure 3: Showing trade intensity of Nigeria and its major trading partners.

The table 2 below shows the top five major trading partners of Nigeria. The essence of the table 2 is to reinforce figure 1 above. The rationale behind the selection of major trading partners was discussed in section 4.0 and the trade intensity of Nigeria with all its trading partners as contained in UNCTAD database is shown in the appendix.

Table 2: Showing total trade from 1960 to 2019 between Nigeria and its major trading partners

Country	Trading partner	Export + Import (Billion dollar)	World trade (trillion dollars)	Trade intensity
Nigeria	United States	462	1.9	0.242092
Nigeria	India	238	1.9	0.124897
Nigeria	France	104	1.9	0.0546
Nigeria	United Kingdom	103	1.9	0.053817
Nigeria	China, P.R.: Mainland	93	1.9	0.048712

Source: Computed by the Author

4.4 Gravity model results

Table 3 below clearly reveals gross domestic product per capital (GDPPC) of Nigeria and those of its top five trading partners positively and significantly influence Nigeria's total export and import of goods and services. This implies that as the GDPPC of Nigeria and its top five major trading partners increase, there will be a corresponding positive increase in Nigeria's total export and import of goods and services. A plausible explanation for this might be an increase in gross domestic product per capital signifies an increase in national income per head which might increase consumption and

investments thereby increasing productivity and trade in total export and import of goods and services. Meanwhile, the OLS estimates show that between Nigeria and USA(UK), language dummy variable is not a barrier to trade because it does not significantly influence trade. However, language barrier hampers trade and this might be because Nigeria and India (France and China) do not speak a common language. Further, the OLS estimates reveal that distance and colony were not significant implying that they do not influence bilateral trade because of global technological transformation. Meanwhile, internet adoption significantly and positively influences Nigeria's trade with its top five major trading partners. These findings are consistent with Liu and Nath (2013) and Commander et.al (2011).

Table 3: Showing OLS results of the effect of internet adoption on international trade of total export and import of goods and services between Nigeria and its trading partners

	Nigeria and USA	Nigeria and India	Nigeria and France	Nigeria and UK	Nigeria and China
LGDPPC$_i$	0.617***	0.807***	0.241**	6.527***	0.331*
	(0.239)	(0.312)	(0.017)	(2.075)	(0.114)
LGDPPC$_j$	0.727***	6.639***	0.149***	0.387***	0.214***
	(0.525)	(0.391)	(0.005)	(0.016)	(0.003)
Language	0.231***	-0.224***	-0.422***	0.198***	-0.418***
	(0.000)	(0.033)	(0.001)	(0.052)	(0.101)
Contagious	0.322	0.067	0.212	0.109**	0.311
	(0.300)	(0.056)	(0.671)	(0.048)	(0.218)
Colony	0.234	0.111	0.376	0.237	0.511
	0.(211)	(0.023)	(0.319)	(0.225)	(0.615)
LDistance	-0.092	-0.006***	-0.121	-0.003	-0.028
	(0.018)	(0.028)	(0.100)	(0.113)	(0.182)
LInternet user$_i$	0.581***	0.473***	0.412***	0.201**	0.522***
	(0.025)	(0.047)	(0.023)	(0.001)	(0.185)
LInternet user$_j$	0.511***	0.432***	0.515***	0.410**	0.417***
	(0.078)	(0.114)	(0.141)	(0.115)	(0.011)

Notes: *, **, *** represent 10%, 5%, 1% level of significance respectively.
Also, country i represents Nigeria while country j represents major trading partners.
Source: Computed by the Author

In contrast, the fixed results in table 4 also clearly shows that the GDPPC of Nigeria and her top five trading partners significantly influence total export and import of goods and services of Nigeria. Further, language, contagious, colony and distance do have significant effect on Nigeria's trade in total goods and services. This might likely be a result of the effect of digital technology. In this presence existence of global technological transformation, Language, distance, colony and contagious might not significantly affect bilateral trade. Meanwhile, similar to the OLS estimates, internet

adoption positively and significantly influences Nigeria's bilateral trade with its top five major trading partners. This clearly implies that internet adoption significantly facilitates bilateral trade between Nigeria and its top five major trading partners. These findings further reinforce studies by Gelvanovska (2014) and Kneller (2016).

Table 4: Showing fixed effect results of the effect of internet on international trade of total export and import of goods and services between Nigeria and its trading partners.

	Nigeria and USA	Nigeria and India	Nigeria and France	Nigeria and UK	Nigeria and China
LGDPPC$_i$	0.201***	0.426*	0.952***	0.884***	0.812***
	(0.05)	(0.238)	(0.057)	(0.090)	(0.038)
LGDPPC$_j$	0.451***	0.728***	0.366***	0.845***	0.489***
	(0.038)	(0.183)	(0.041)	(0.058)	(0.031)
Language	0.413	0.803	0.994	0.731	0.462
	(0.552)	(0.723)	(0.769)	(0.695)	(0.352)
Contagious	0.063	0.484	0.105	0.202	0.045
	(0.023)	(0.542)	(0.150)	(0.198)	(0.039)
Colony	0.174	0.238	0.135	0.115	0.116
	(0.157)	(0.224)	(0.063)	(0.099)	(0.050)
LDistance	**-0.233**	**-0.426**	-0.119	-0.334	-0.189
	(0.227)	**(0.351)**	(0.296)	(0.244)	(0.239)
LInternet user$_i$	0.739***	0.508***	0.514***	0.573***	0.511***
	(0.125)	(0.133)	(0.135)	(0.188)	(0.117)
LInternet user$_j$	0.621***	0.713***	0.600***	0.511***	0.527***
	(0.222)	(0.312)	(0.218)	(0.027)	(0.044)

Notes: *, **, *** represent 10%, 5%, 1% level of significance respectively.
Also, country i represents Nigeria while country j represents major trading partners.
Source: Computed by the Author

Furthermore, in order to ascertain the effects of digital technology on the total exports and imports of agricultural products, a gravity model was also estimated and the results are in table 5 below. Table 5 OLS estimates clearly show that GDPPC of Nigeria and those of its top five trading partners significantly influence Nigeria's total trade of goods and services in the agricultural sector. Meanwhile, language, contagious, colony and distance do not significantly influence total export and import of agricultural goods and services. This also might be a result of the effect of internet adoption on bilateral trade. However, internet adoption positively and significantly influences agricultural trade and this is because the internet, in this present existence of lockdowns and global technological transformation has permeated trade across all sectors of the economy including the agricultural sector. These findings are consistent with Baldwin et. al (2022).

Table 5: Showing OLS results of the effect of internet on international trade of total export and import of goods and services in agricultural sector between Nigeria and its trading partners

	Nigeria and USA	Nigeria and India	Nigeria and France	Nigeria and UK	Nigeria and China
LGDPPC$_i$	0.374** (1.436)	0.345*** (0.000)	0.662*** (0.002)	0.511*** (0.001)	0.484*** (0.005)
LGDPPC$_j$	0.542*** (0.096)	0.412*** (0.119)	0.411*** (0.136)	0.411*** (0.172)	0.042 (0.096)
Language	0.173 (0.109)	0.346 (0.298)	0.213 (0.214)	0.141 (0.142)	0.173 (0.109)
Contagious	0.014 (0.841)	0.031 (0.014)	0.131 (0.321)	0.221 (0.112)	0.014 (0.841)
Colony	0.433 (0.299)	0.229 (0.000)	0.388 (0.231)	-0.049 (0.033)	0.148 (0.027)
LDistance	-0.542 (0.096)	-0.512*** (0.119)	-0.311*** (0.026)	-0.611*** (0.072)	-0.442 (0.006)
LInternet user$_i$	0.174*** (0.057)	0.238 (0.224)	0.135** (0.063)	0.115 (0.099)	0.116** (0.050)
LInternet user$_j$	0.814*** (0.141)	0.531** (0.214)	0.331*** (0.021)	0.221 (0.112)	0.067*** (0.026)

Notes: *, **, *** represent 10%, 5%, 1% level of significance respectively.
Also, country i represents Nigeria while country j represents major trading partners.
Source: Computed by the Author

In the same vein table 6 clearly shows the fixed effects version of OLS estimates in table 5. Table 6 also reveals that GDPPC of Nigeria and its top five trading partners significantly influence Nigeria's trade in total export and import of good and services. Further, language, colony and contagious significantly affect agricultural trade in total export and import of goods and services. In addition, all digital technology variables also significantly affect trade in total agricultural products.

Table 6: Showing fixed effect results of the effect of internet on international trade of total export and import of goods and services in agricultural sector between Nigeria and its trading partners

	Nigeria and USA	Nigeria and India	Nigeria and France	Nigeria and UK	Nigeria and China
LGDPPC$_i$	0.617*** (0.239)	0.807*** (0.312)	0.741** (0.317)	6.527*** (2.075)	0.331* (0.114)
LGDPPC$_j$	4.027*** (0.525)	6.639*** (0.391)	0.549*** (0.185)	11.387*** (3.316)	0.214 (0.313)
Language	0.231*** (0.000)	0.224*** (0.033)	0.422*** (0.001)	0.198*** (0.052)	0.418*** (0.101)

	Nigeria and USA	Nigeria and India	Nigeria and France	Nigeria and UK	Nigeria and China
Contagious	0.202* (0.118)	0.045** (0.019)	0.302** (0.112)	0.192*** (0.057)	0.304** (0.215)
Colony	0.271*** (0.034)	0.134*** (0.041)	0.110 (0.216)	0.111 (0.171)	0.214 (0.113)
LDistance	-0.092 (0.018)	-0.096 (0.028)	-0.121 (0.100)	-0.003 (0.113)	-0.028 (0.182)
LInternet user$_i$	0.519*** (0.117)	0.511*** (0.077)	0.646*** (0.112)	0.557*** (0.044)	0.609*** (0.036)
LInternet user$_j$	0.516*** (0.211)	0.229** (0.019)	0.611*** (0.192)	0.315*** (0.010)	0.539*** (0.081)

Notes: *, **, *** represent 10%, 5%, 1% level of significance respectively.
Also, country i represents Nigeria while country j represents major trading partners.
Source: Computed by the Author

Meanwhile, the results of the effects of digital technology on total export and import of goods and services of the oil and gas sector are also presented in tables 7 and 8. Table 7 reveals that GDPPC of Nigeria and the top 5 trading partners significantly influence total trade of goods and services in the oil and gas sector. Further, contagious, colony and distance significantly influence total export and import of goods and services in the oil and gas sector. Distance might affect trade in the oil and gas sector because vessels are involved in the carriage of crude oil and refined crude oil products.

Moreover, internet adoption in the model clearly show that internet adoption significantly influences total export and import of goods and services in the oil and gas sector. This signifies that the oil and gas sector heavily requires the adoption of internet in the execution of most of its activities. These findings are consistent with ismail and Mahyideen (2015) and Clarke et.al (2004).

Table 7: Showing OLS results of the effect of internet on international trade of total export and import of goods and services in oil and gas sector sector between Nigeria and its trading partner.

	Nigeria and USA	Nigeria and India	Nigeria and France	Nigeria and UK	Nigeria and China
LGDPPC$_i$	0.072*** (0.013)	0.132*** (0.023)	0.021 (0.120)	0.121*** (0.013)	0.171 (0.123)
LGDPPC$_j$	0.231*** (0.012)	0.140 (0.114)	0.121 (0.111)	0.123 (0.124)	0.242** (0.117)
Language	0.313 (0.401)	0.214*** (0.001)	0.412 (0.501)	0.214 (0.211)	0.214 (0.312)
Contagious	0.389*** (0.040)	0.339*** (0.051)	0.522*** (0.185)	0.453*** (0.001)	0.512*** (0.054)
Colony	0.412*** (0.043)	0.366*** (0.060)	0.417*** (0.011)	0.413*** (0.216)	0.611*** (0.011)
LDistance	-0.614*** (0.111)	-0.921*** (0.122)	-0.715*** (0.211)	-0.921*** (0.122)	-0.821*** (0.213)

	Nigeria and USA	Nigeria and India	Nigeria and France	Nigeria and UK	Nigeria and China
LInternet user	0.516*** (0.114)	0.421*** (0.122)	0.554*** (0.151)	0.521*** (0.162)	0.211** (0.101)
LInternet user	0.219*** (0.041)	0.416*** (0.074)	0.513*** (0.114)	0.515*** (0.123)	0.271** (0.121)

Notes: *, **, *** represent 10%, 5%, 1% level of significance respectively.
Also, country i represents Nigeria while country j represents major trading partners.
Source: Computed by the Author

Meanwhile table 8 further upholds the fact that GDPPC of Nigeria and its top five major partners significantly influence total trade in the oil and gas sector. Further, language influences trade in the oil and gas sector between Nigeria and USA (India). This may be a result of the fact that USA and India are major oil and gas trading partners in Nigeria. Further, distance significantly influences total export and import of oil and gas sector. This might be a result of the fact vessels are involved in the transportation of crude oil and other refined products of crude oil.

More so, internet adoption significantly influences total trade of goods and services in the oil and gas sector and this clearly shows that digital technology is very essential in the total export and import of goods and services in the oil and gas sector. These findings are also consistent with ismail and Mahyideen (2015) and Clarke et.al (2004).

Table 8: Showing fixed effect results of the effect of internet adoption on international trade of total export and import of goods and services in oil and gas sector between Nigeria and its trading partners

	Nigeria and USA	Nigeria and India	Nigeria and France	Nigeria and UK	Nigeria and China
LGDPPC$_i$	0.519** (0.217)	0.577*** (0.162)	0.445*** (0.122)	0.545*** (0.192)	0.6u14*** (0.132)
LGDPPC$_j$	0.616*** (0.211)	0.225** (0.103)	0.517*** (0.104)	0.325*** (0.122)	0.523*** (0.140)
Language	0.138** (0.109)	0.175** (0.082)	0.105 (0.157)	0.121 (0.111)	0.081 (0.171)
Contagious	0.332 (0.214)	0.140 (0.114)	0.121 (0.111)	0.123 (0.124)	0.242 (0.217)
Colony	0.214 (0.402)	0.241 (0.001)	0.412 (0.501)	0.214 (0.211)	0.214 (0.312)
LDistance	-0.611*** (0.122)	-0.922*** (0.142)	-0.784*** (0.141)	-0.614** (0.241)	-0.801*** (0.142)
LInternet user$_i$	0.761*** (0.244)	0.211*** (0.011)	0.761*** (0.132)	0.213*** (0.024)	0.345*** (0.113)
LInternet user$_j$	0.076*** (0.016)	0.143*** (0.043)	0.160*** (0.052)	0.229*** (0.092)	0.443*** (0.001)

Notes: *, **, *** represent 10%, 5%, 1% level of significance respectively.
Also, country i represents Nigeria while country j represents major trading partners.
Source: Computed by the Author

5. Summary, Conclusion and Policy Recommendation

5.1 Summary of findings

➢ The study clearly shows that the gross domestic product of Nigeria and those of its top five trading partners significantly influence total export and import of goods and services, (total export and import goods and services of agricultural products, and total export and import of goods and services of oil and gas sector) between Nigeria and its top five major trading partners.

➢ Internet adoption positively influences Nigeria's trade with its top five major trading partners.

➢ In terms of trade volume and trade intensity, on the average, United states of America is the largest trading partner followed by India, France, United Kingdom and China.

➢ The effects of distance, language dummy, colony dummy and contagious dummy were subsumed in most of the model. This was likely due to the fact that internet adoption to a large extent has made the world a global village and the present existence of social distancing and lockdowns has brought global technological transformation that has permeated across all sectors of the economy.

5.2 Conclusion

The study involves the effect of internet on international trade between Nigeria and its top five major trading partners. From the study, it is clear that the relevance of internet in this present existence of social distancing, lock downs and global technological transformation cannot be over emphasized. Meanwhile, the research investigated how digital technology influence bilateral trade in total export and import of goods and services. Further, it asks how digital technology influence bilateral trade in total export and import of agricultural sector. Meanwhile, the study further reveals how internet influences international trade in total export and import of oil and gas sector.

Moreover, the conceptual framework and the methodology reveals that internet and international trade are endogenous and this justifies the adoption of a gravity model. Succinctly, the results are clear that internet adoption can significantly influence international between Nigeria and its major trading partners.

5.3 Policy recommendations

The federal government of Nigeria and the Nigerian communication commission should implement policies that will promote the adoption of internet by firms and individuals in order to facilitate international trade since it is evident from the study that internet

adoption positively and significantly influences international trade. Furthermore, firms should endeavour to invest in research and development in the areas of digital technologies especially internet since it is evident that free flow of vital information can lead to reduction in trade cost and thereby facilitating international trade.

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