

INTERNATIONAL TRADE FLOWS AND SUSTAINABLE DEVELOPMENT: A CASE STUDY OF AFRICAN CONTINENTAL FREE TRADE AREA (AfCFTA) MEMBER COUNTRIES

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ABSTRACT

The inability of trade policy implementation of African countries to achieve the desired goals of sustainable development necessitates the introduction of African Continental Free Trade Area (AfCFTA). AfCFTA is not just a free trade agreement but also a catalyst for Africa's economic transformation, job creation and poverty reduction. Hence, the study investigated the impact of international trade flows on sustainable development of AfCFTA member countries between 2005 and 2019. The data considered for the study were culled from World Development Indicator (WDI) across 14 countries. The data were analyzed using Eviews 9. The techniques employed include unit root, descriptive statistics, correlation matrix, Hausman test, fixed and random effect models, panel co-integration and granger causality tests. The result from the unit root test indicates that the variables have unit roots at level but stationary at first difference $I(1)$. Based on the Hausman test, random effect model revealed that trade openness, foreign direct investment, electricity consumption, trade facilitation, and domestic credit to private sector were positively related to human development index while expenditure on education depicts a negative relationship with human development index. The findings also show the existence of short run but no evidence of long run relationships among the variables as reported by granger causality and co-integration tests. The study concludes that trade across borders facilitates sustainable development of AfCFTA member countries. The study therefore recommends among others that government should improve on infrastructural facilities in order to attract more foreign investors to the country and the amount of money expended on knowledge and skills should be doubled in order to harness the benefits of skilled labour.

Key Words: Trade, International Trade, Infrastructures, Sustainable Development

Introduction

The introduction of Sustainable Development Goals (SDG) in 2015 reinvigorates the purpose of achieving sustainable development in developing and emerging countries. United Nations (2020) sees sustainable development as a development process that satisfies the present needs of the citizens without endangering the needs of the upcoming generations. It is also a method of classifying society into different aspects to maintain healthy state for a long term. Hence, it becomes necessary for every country to consider the present and future needs by achieving sustainable economic growth, reduce inequality, preserve

the environment and prudently manage lean resources to eradicate poverty through adequate knowledge diffusion and provision of decent work for all (United Nations Economic Commission for Europe, 2017).

Despite the objectives and benefits of sustainable development, some countries especially in Africa are still struggling to achieve all or one-third of these objectives. Thus, the urge to find the appropriate policy for economic sustainability, has drawn policy makers and researchers to shift attention towards international trade and regional trade agreements (United Nations, 2020).

Economic reform is pivotal to the achievement of Sustainable Development Goals (SDGs). Regional integration that is complemented with strong institutions can accelerate the pace of sustainable development through effective cross border investments and trade flows. Regional Trade Agreements (RTAs) in the form of customs union is a form of economic integration that allows members to exchange goods freely across boundaries but place restrictions on non-members (Jordan, 2014). Countries involving in trade integration are expected to achieve greater output, improved balance of trade, domestic market stability and socio-economic development. This is attributed to the objectives of efficient resource allocation and improvement in economic wellbeing of the state embedded in the regional trade agreements. For instance, many developing countries especially Latin America (e.g. Argentina) and Asian countries such as South Korea and China have witnessed an improvement in education, reduction in poverty and improved life span due to their involvement in trade agreements. Economic integration also promotes trade diversion and helps to achieve the goals of international trade arrangements contained in World Trade Organization (WTO) and General Agreement on Trade and Tariff (GATT).

Some studies have established that involvement in regional trade helps to reallocate resources, enhance resource efficiency and create decent jobs with efficient production system. It will enhance environmental standards, social inclusion and empowerment among citizens (Safaeimanesh & Jenkins, 2020). Active participation in international trade is a recipe for revenue generation to support sustainable development and drive investors to engage in trade practices that support economic growth. The accompanying benefits of economic integration gave birth to Arab Maghreb Union (AMU) in North Africa, Economic Community of West African States (ECOWAS) in West Africa, Common Market for Eastern and Southern Africa (COMESA) in East and South Africa, Economic Community of Central African States (ECCAS) in Central Africa and to mention but a few (Safaeimanesh & Jenkins, 2020). However, the minimal achievement of these integrations necessitate the newly signed African Treaty called 'African Continental Free Trade Agreement (AfCFTA)' in 2018.

Statement of the Problem

The success story of trade has been hampered due to the fact that benefits or losses are not evenly distributed; some 'win' while others 'lose'. It has been established that specialization serves as a detriment to the environment, and over-exploitation of the commons, both globally and domestically, as the case of fisheries. However, if the gains exceed losses, compensation is theoretically possible, thus trade could be assumed to yield a net benefit. While trade pessimists argued that trade exacerbates a 'race to the bottom' in international environmental standards, the optimists view that trade contributes to production efficiency and technology progress.

Several regional and sub-regional trade agreements in Africa such as ECOWAS and COMESA have recorded minimal success compared to those of European Unions. Consequently, trade activities and many other economic variables that support economic growth are performing poorly to support sustainable development. The poor integration and economic performance of developing countries were attributed to infrastructural decays, trade facilitators, low foreign investment and insecurity (Hoekman & Shepherd, 2015).

It is settled that the aforementioned challenges cannot sway the strong economic arguments for regional integration in African countries. However, the question of whether international trade flows can drive sustainable development remains unsettled in the literatures. As a result, some studies have explained the influence of trade across borders on sustainable development (Sheikh, Malik & Masood, 2021), while others argued that trade across borders without diffusion of knowledge and technology is detrimental to sustainable growth and development (Farahere & Heshmar, 2020). Hence, the inconsistencies in the literatures coupled with sparse record of success of the past regional integration agreements to engender sustainable development necessitate the reason for embarking on this research in order to establish the significant impact of international trade flows on the economic member states of the newly integrated African Continental Free Trade Area (AfCFTA).

Objectives of the Study

The study aims to achieve the under listed objectives:

- i. Investigating the impact of international trade on sustainable development in AfCFTA member countries
- ii. Examining causal and long run relationship between international trade and sustainable development in AfCFTA member countries

Research Questions

In respect of the stated objectives, the following research questions were raised:

- i. To what extent does international trade impact sustainable development in AfCFTA member countries?
- ii. Is there any causal or long run relationship between international trade and sustainable development in AfCFTA member countries?

Literature Review

Trade, International Trade and Economic Development

Traditionally, trade is the act of buying and selling of goods and services. It is an economic concept involving the exchange of products and services between parties with a compensation paid by one party (the buyer) to the other (the seller). Trade entails a transaction that can either be done internally or externally. If it is internal, it is trade within a country or an economy, often known as domestic or local trade, but external or inter-regional trade is a transaction across borders. It is also known as trade across borders, international, foreign or global trade. According to Okenna (2020), international trade is an economic activity that entails trading between countries of which the items traded are usually goods and

services. Goods involved can be consumer or capital goods, while services may include travelling, foreign patent, insurance, payments etcetera. Hence, these transactions are facilitated by the international payment system as well as trading policies between countries. Global trade is impetus for market expansion of goods and services and enhances domestic production and consumption activities of a country (Afaha & Oluwatobi, 2012). This compares to globalization due to its transactions across borders. Countries engage in trading with others due to various reasons. Nickels, McHugh and McHugh (2002) state that no country can single-handedly produce all the goods and services needed by her citizens, even if it is a self-sufficient one, other countries would engage in trading with them to cater for the need of their people. For instance, countries like China and Russia with endowed natural resources but little technological know-how may seek trading with Taiwan, Japan and Switzerland with sophisticated technology but blessed with few natural resources and vice versa. Thus, trade relationship exists to enable each country specializes on what it is capable of producing and purchase what it needs in a mutually beneficial manner. This is the bedrock of comparative advantage theory propounded by David Ricardo in 1817.

The term 'development' is an evolutionary process which denotes increase in human capacity in the form of new structural initiatives, adapting continuous changes, challenges and problems as well as the attainment of new goals. Development is associated with social condition of a country in which the desires of the people are met and satisfied by the rational and sustainable use of natural resources and systems. Salami, Tilakasiri and Ahmed (2017) pointed out that development occurs when these three factors are present in a country. First, improvement in domestic food supplies due to investment in fertilizers and farm machineries. Second, electricity grid extended from urban to rural areas of the country, and lastly, improvement in literacy level throughout the country. Earlier, there are two most important indices for measuring development, including Gross National Product (GNP) and Gross Domestic Product (GDP). Genuine Progress Indicator (GPI) was introduced in 1995 as the first alternative to the GDP. Earlier, Gross National Happiness (GNH) in 1970s; and Happy Planet Index (HPI) in 2006 among others (Heikkinen, 2011).

AfCFTA: Trade and Sustainable Development

In 2018, the African treaty called 'African Continental Free Trade Agreement (AfCFTA)' was signed. The multilateral agreement is made up of 54 African countries of about 1.3 billion people coming together to form a single market. AfCFTA does not only epitomise a free trade agreement, it was conceived and designed as an engine of Africa's economic transformation, job creation and poverty eradication (Boateng & Dankyi, 2020). To achieve this, the treaty aims at challenging the hindrances and barriers to intra-Africa trade, thus enhancing Africa integration.

From the inception, trade policy experts place emphasis on income level of various countries while formulating the policy. The policy also supports sustainability, conservation and poverty reduction (World Trade Organization, 2010). This is because trade has proved to drive production efficiency through technology transfer, specialization, competition, and exploitation of economies of scale. Hence, the relationship between trade, economic growth and sustainable development is of interest to some

researchers (Adeleye, Adeteye & Adewuyi, 2015) while some studies provide different views on the extent to which trade openness impact economic growth (Afaha, & Oluwatobi, 2012).

Sustainability is a reaction to economic crises, social inequalities, and environmental problems. It is a set of actions, programmes, and initiatives put in place to preserve particular resource. It also involves a process of enhancing a healthysocial, economic, and ecological system of human development. Sustainable Development (SD) on the other hand is an important concept within global developmental policy and provides a system through which society can relate with the environment while avoiding the risk of damaging resources for the future of others (Abubakar (2017). SD is also an organized criterion for achieving human development goals and sustaining the ability of nature to produce resources and ecosystem services upon which the society and economy depend (Evers, 2018).

In 2015, the United Nations (UN) summit agreed on a new benchmark of global development, popularly known as '17 Sustainable Development Goals' (SDGs) (United Nations, 2015). Expected to guide development efforts till 2030, the goal is a successor to the UN Millennium Development Goals (MDGs). It covers areas like; health, poverty, environment, justice, partnership and institutions among others. Sustainable development encompasses economic, social and environment sustainability. In view of this, the UNDP introduced Human Development Index (HDI) in 1990 as an indicator of sustainable development. It is used to provide comparative analysis of socio-economic development in both developing and developed economies. The index includes knowledge (education), measured by weighted average of adult literacy and year of schooling; longevity, measured by life expectancy at birth; and GDP measured in purchasing power (United Nations, 2015).

Theoretical Review

Heckscher-Ohlin (HO) theory of international trade (Ohlin, 1933) is considered suitable as theoretical foundation for this work. The former consists of 2 countries, 2 factors and 2 tradable goods (2x2x2 model) assumptions. The theory explains the differences in factor endowments as the major determinants of trade relationship and assumed constant technology across countries, mobile factors (and domestic industries) within nations but immobile across countries, and constant return to scale. It further elucidates that countries should export goods they can efficiently produce in excess and should also take full advantage of the resource imbalance to boost their earnings and capital base across regions.

Empirical Review

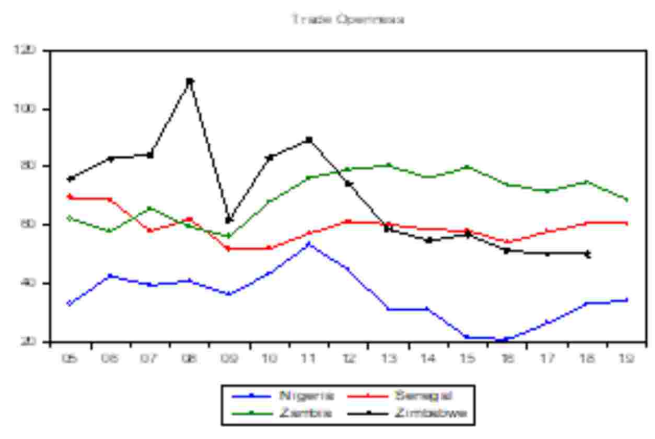
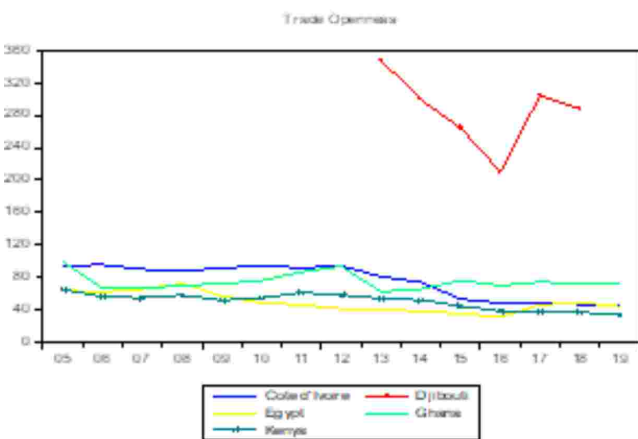
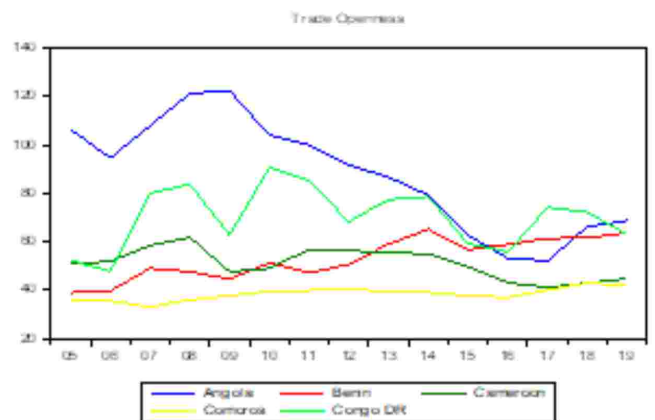
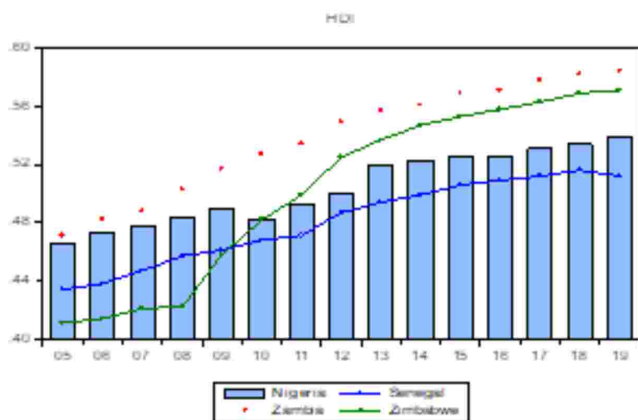
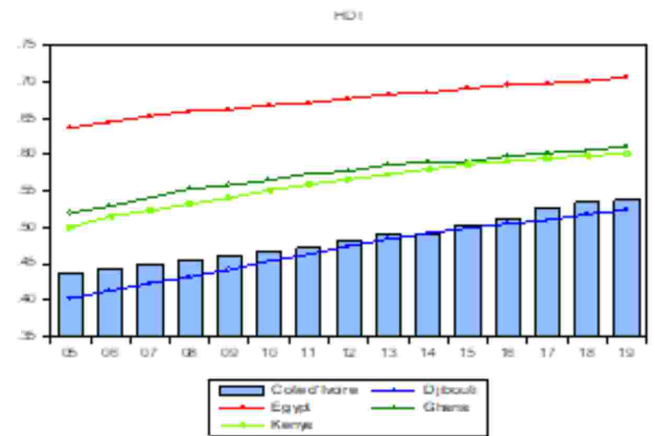
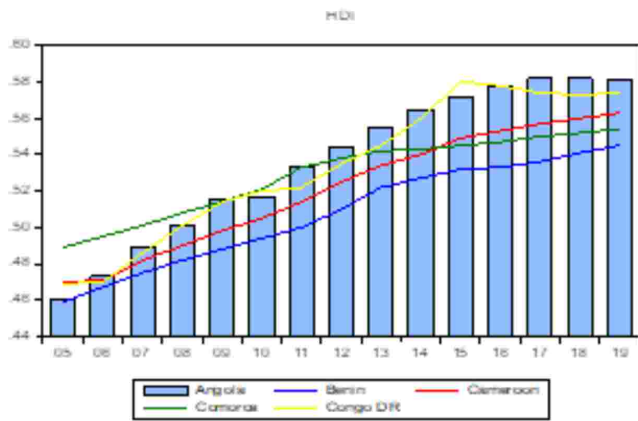
Several studies have been conducted on the effects of international trade on sustainable economic growth and development of different countries of the world. Some of the conclusions of these researches show a positive relationship, while others reveal negative. Xu, Li, Chau, Dietz, Li, Wan, Zhang, Zhang, Li, Chung and Liu (2020) employed 17 sustainable development goals to investigate the impact of international trade on global sustainable development. It was discovered that international trade positively influences the global progress of achieving nine (9) environment- related goalsto SDG targets. Furthermore, a far distance trade contributes more to sustainable development compared to trade between adjacent countries. Okenna (2020) sourced for data from World Development Indicators (WDI) between 2000 and

2019 to evaluate the importance of foreign trade to developing economies. It was found out that international trade contributes positively to economic development of developing countries. The study, therefore, concludes that trade, as macroeconomic driver should be encouraged as its multiplier effects have the potentials to achieve development goals of various countries. However, Sheikh, Malik & Masood (2020) also used Auto Regressive Distributed Lag ARDL to investigate the effects of trade openness on sustainable development in India. From the results, it was found that trade negatively correlates with green gross domestic product (GGDP) growth and positively related with the gap between GGDP and conventional GDP. The study therefore concludes that openness to trade is perverse and inimical to up-coming generations.

Belloumi and Alshehry (2020) assessed the relationship between international trade and sustainable development in Saudi Arabia covering the period between 1971 and 2016. The findings show that trade openness has negative relationship with both economic growth and environmental quality in the long run but zero effect in the short run. In conclusion, trade openness could pervert sustainable development and cause environmental degradation in Saudi Arabia.

Data and Stylized Facts

The study gathered data from World Development Indicators (WDI) covering the period of 15 years between 2005 and 2019. The countries such as Angola, Benin, Comoros, Cameroon, Congo Republic, Cote d'Ivoire, Egypt, Djibouti, Ghana, Kenya, Nigeria, Senegal, Zambia and Zimbabwe were considered. The selected countries are prioritized based on their level of income (lower-middle income) as categorized by the World Bank. Data on human development index (proxy for sustainable development); trade openness (measured by ratio of trade of gross domestic product); foreign direct investment; electricity consumption; linear shipping connectivity (proxy for trade facilitation); expenditure on education; and domestic credit to private sector were considered in this study. The Human Development Index (HDI) of 0.49% is found in Comoros which is the highest HDI rate in 2005 among the first five countries while the overall highest HDI rate is seen in Angola which stood at 0.58% in 2019. In the second group comprising of Cote d'Ivoire, Djibouti, Egypt, Ghana and Kenya, Egypt seems to produce overall highest HDI rate at 0.71% in 2019 while Djibouti produce the least at 0.54% in the same year. In 2005, the HDI of Nigeria, Senegal, Zambia and Zimbabwe show 0.46%, 0.43%, 0.47% and 0.41% respectively while 0.53%, 0.51%, 0.58%, and 0.57% are found in 2019. As regards trade openness, Angola recorded highest rate of trade to GDP in 2009 estimated at 122% among the first five countries. In the second group, there are no record of data for trade openness for Djibouti between 2005 and 2012 while the highest rate of trade to GDP is also found in Djibouti estimated at 347.9% in 2013 among the second five countries. Between 2005 and 2019, Nigeria recorded the lowest trends of trade openness among the last group of countries. The highest rate of trade to GDP is seen in 2012 estimated at 44.5% while the least is found in 2016 at 20.7%. Other stylized facts about individual country can be seen and explained in the figure below.



Sources: Eviews

Methodology and Estimation Techniques

The study employed ex post facto research design. It carried out a panel data analysis on the international trade flows and sustainable development for selected members of African Continental Free Trade Area (AfCFTA). The panel analysis is chosen because it reports both the common and individual behaviors of the group and gives adequate information on the variability of the variables. To achieve this, unit root, normality, multicollinearity and Diagnostics test were carried out to validate the results and Hausman Test was estimated to select the appropriate model between fixed effect and random effect. Panel Co-integration and granger causality are also considered to establish both short run and long-run relationships among the variables.

Model Specification

The following model is specified to achieve the aims of the study:

$$HDI = f(TOP, FDI, ELCTYCM, TFCON, EXPONED, DCTPS) \dots\dots\dots 1$$

In explicit form

$$HDI_{it} = \alpha_0 + \alpha_1 TOP_{it} + \alpha_2 FDI_{it} + \alpha_3 ELCTYCM_{it} + \alpha_4 TFCON_{it} + \alpha_5 EXPONED_{it} + \alpha_6 DCTPS_{it} + \mu_{it} \dots\dots\dots 2$$

The model is further transformed into logarithm form as stated below:

$$LHDI_{it} = \alpha_0 + \alpha_1 LTOP_{it} + \alpha_2 LFDI_{it} + \alpha_3 LELCTYCM_{it} + \alpha_4 LTFCON_{it} + \alpha_5 LEXPONED_{it} + \alpha_6 LDCTPS_{it} + \mu_{it} \dots\dots\dots 3$$

Where T represents the number of observations over time, I denote the number of individual country in the panel. The dependent variable is HDI which signifies human development index and the independent variables include TOP depicts trade openness, FDI means foreign direct investment, ELCTYCM signifies electricity consumption, TFCON represent trade facilitation connectivity, EXPONED symbolizes government expenditure on education and DCTPS means domestic credit to private sector. The μ_{it} represent the ignored variables, $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$, and α_6 depict the coefficient of the parameters and the constant parameter is shown with α_0 .

Based on economic theories and previous empirical studies, it is expected that trade openness, foreign direct investment, electricity consumption, trade facilitation, expenditure on education and domestic credit to private sector to have positive effect on human development index.

Results and Interpretation

Table 1: Descriptive Statistics

Variables	Lhdi	Ltop	Lfdi	Lelectycm	Ltfcon	Lexpned	Ldctps
Mean	-0.27875	1.778142	0.332254	2.402193	1.199679	0.581577	1.179209
Median	-0.27984	1.765491	0.330470	2.315411	1.224980	0.600623	1.196657
Maximum	-0.15058	2.541575	1.362462	3.226811	1.824263	0.924602	1.711617
Minimum	-0.39577	1.316443	-1.09964	1.867991	0.201014	0.041282	0.079570
std. Dev.	0.048487	0.183802	0.431966	0.359950	0.264135	0.175811	0.250695
Skewness	0.303064	1.237648	-0.54801	0.788875	-0.40388	-0.509673	-0.87315
Kurtosis	3.275540	6.859122	3.958731	2.691707	4.129070	3.349312	4.922245
jarque-bera	3.878991	175.1660	17.14011	12.92171	14.45465	5.757058	58.17184
Probability	0.143776	0.000000	0.000190	0.001563	0.000726	0.056217	0.000000
Observations	210	200	194	120	180	119	207

Source: Authors' Computation and Eviews

Table 1 shows the attributes of the human development index; trade openness; foreign direct investment; electricity consumption; linear shipping connectivity; expenditure on education; and domestic credit to private sector for the period 2005-2019. Based on the results, the data set reveal high level of consistency as the mean and median values fell within the range of maximum and minimum values. For instance, the mean of LHDI is -0.27875, median (-0.27984), maximum (-0.15058) and minimum of -0.39577. The standard deviation of LHDI is 0.048487: LTOP (0.183802); LFDI (0.431966); LELCTYCM (0.359950); LTFCON (0.264135); followed by LEXPONED at 0.175811 and LDCTPS (0.250695). It can also be inferred that all the data series are moderately skewed. This implies that the values of the variables tend towards zero. To sum up the descriptive statistics, probability value of Jacque bera shows that only HDI among the variables considered for the study is normally distributed. This is because the probability value of HDI (0.143776) exceeds 5% level of significance.

Table 2: Correlation Matrix

VARIABLES	LHDI	LTOP	LFDI	LELCTYCM	LTFCON	LEXPONED	LDCTPS
LHDI	1.000000						
LTOP	-0.09959	1.000000					
LFDI	0.498124	0.268956	1.000000				
LELCTYCM	0.577955	0.111475	0.372801	1.000000			
LTFCON	0.503978	0.126288	0.382426	0.853611	1.000000		
LEXPONED	0.137646	0.190626	-0.00377	0.196845	0.268267	1.000000	
LDCTPS	0.349828	-0.13916	0.004800	0.459710	0.584477	0.597576	1.000000

Source: Authors' Computation and Eviews

The table 2 depicts the correlation between variables considered in this study. From the results, it was discovered that negative and low correlation exists between human development index and trade openness at -0.09 while positive and moderate correlation is found between human development and foreign direct investment at 0.49; HDI and electricity consumption at 0.57 as well as HDI and trade facilitator. Between HDI and expenditure on education, positive and weak linear relationship is found at the rate of 0.13 while that of HDI and domestic credit to private sector shows positive correlation at 0.34. However, high and positive correlation is found between electricity consumption and trade facilitator. Furthermore, there exists of weak and moderate linear relationship among other variables considered for the study.

Table 3: Panel Unit Root Test

Variable	Test	Level	P-Value	Difference	P-value
LHDI	ADF	1(0)	0.9979	1(1)	0.0501
LTOP	ADF	1(0)	0.0959	1(1)	0.0004
LFDI	ADF	1(0)	0.0365	-	-
LELCTYCM	ADF	1(0)	0.382	1(1)	0.0489
LTFCON	ADF	1(0)	0.4481	1(1)	0.0005
LEXPONED	ADF	1(0)	0.2571	1(1)	0.0106
LDCTPS	ADF	1(0)	0.0555	-	-

Source: Author's Computation and Eviews

The findings of this study can only be relevant if the policy makers can accept the validity of the results. Therefore, this study employs Augmented Dickey Fuller (ADF) to examine the stationarity between the data set in order to prevent spurious results. Considering the threshold of 5%, the results of the unit root indicate that the variables of study are stationary at first difference I(1) except the foreign direct investment and domestic credit to private sector. This implies that human development index, trade openness, electricity consumption, trade facilitator, and expenditure on education are stationary at first difference while foreign direct investment and domestic credit to private sector have no unit roots at levels. We therefore conclude that the study is free of spurious regression.

Table 4: Hausman Test

Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.097775	6	0.2310

Source: Author's Computation and Eviews

The Hausman test is employed to determine the most appropriate model to be considered between Fixed and Random Effect. Thus, the following hypothesis is formulated:

H_0 : Random effect model is appropriate

H_1 : Fixed effect model is appropriate

Decision: If the p-value is less than 5% critical value, we accept alternative hypothesis (H_1) and vice versa. Based on the results, the Hausman test probability value is 0.2310 which is greater than 5% critical value. Therefore, we accept the null hypothesis (H_0) which posits that random effect model is more appropriate.

Table 5: Fixed Effect and Random Effect

Variable	Fixed Effect			Random Effect		
	Coefficient	p-value 5%	Remarks	Coefficient	p-value 5%	Remarks
C	-0.962114	0.0000	Sig.	-0.93356	0.0000	Sig.
LTOP	0.029683	0.1211	Insig.	0.027648	0.1459	Insig.
LFDI	0.01071	0.0004	sig.	0.01085	0.0003	Sig.
LELCTYCM	0.187064	0.0000	sig.	0.179538	0.0000	Sig.
LTFCON	0.031611	0.0457	sig.	0.031784	0.0436	Sig.
LEXPONED	-0.051771	0.0019	sig.	-0.05129	0.0019	Sig.
LDCTPS	0.140957	0.0000	sig.	0.139853	0.0000	Sig.
R-squared	0.987372			0.91066		
Adjusted R squared	0.983723			0.900352		
F-statistic	270.645			88.34125		
Prob(F-statistic)	0.0000	Sig.		0.0000	Sig.	

Source: Authors' Computation and Eviews

Based on the results of Hausman test, the random effect model revealed that trade openness; foreign direct investment, electricity consumption, trade facilitation and domestic credit to private sector were positively related to human development index while expenditure on education depicts a negative relationship. This means that 1% increase in trade openness, foreign direct investment, electricity consumption, trade facilitation, and domestic credit to private sector will increase human development index at 2%,1%,17%,3% and 13% respectively. However, expenditure on education will decrease it by 5%. Also, it was revealed that foreign direct investment, electricity consumption, trade facilitation, expenditure on education and domestic credit to private sector have a significant impact on human development index except trade openness. F-statistics depicts that trade across border have a significant impact on sustainable development and have a positive relationship.

Table 6: Panel Cointegration

Pedroni Residual Cointegration Test Null Hypothesis: No cointegration Alternative hypothesis: common AR coefs. (within-dimension)				
			Weighted	
	Statistic	Prob	Statistic	Prob
Panel v-Statistic	-0.6076	0.7283	-0.4394	0.6698
Panel rho-Statistic	2.353749	0.9907	2.060456	0.9803
Panel PP-Statistic	-0.16441	0.4347	-0.72026	0.2357
Panel ADF-Statistic	0.155511	0.5618	-0.52459	0.2999
Alternative hypothesis: individual AR coefs. (between-dimension)				
Group rho-Statistic	2.706425	0.9966		
Group PP-Statistic	-1.00298	0.1579		
Group ADF-Statistic	-1.07459	0.1413		

Source: Author's Computation and Views

In an attempt to analyze long run relationship between variables of study, Pedroni's residual based panel cointegration statistics was conducted. This statistic introduced seven-sister tests and allows heterogeneity in the panel in both short-run and long-run dynamics as well as intercept coefficients. It doesn't reveal the exact number of cointegrating relationship unlike normal time-series analysis. The tests are grouped into: group mean statistic and panel statistic as shown in table 6. Basically, the test shows eleven outcomes across seven groups. Considering the 5% significant value, we can accept null hypothesis since their probability values exceed 0.5. For instance, the Panel v-Statistic of 0.7283 (p-value) and its weighted statistics of 0.6698 were reported in the table among others. Since all the eleven results agreed on null hypothesis, we can therefore conclude that there is no long run relationship between the variables of study.

Table 7: Panel Granger Causality

Null Hypothesis:	F-Statistic	Prob.
LTOP does not Granger Cause LHDI	3.07872	0.0486
LHDI does not Granger Cause LTOP	0.96103	0.3846
LFDI does not Granger Cause LHDI	0.47088	0.6254
LHDI does not Granger Cause LFDI	0.45932	0.6326
LELCTYCM does not Granger Cause LHDI	1.69971	0.1885
LHDI does not Granger Cause LELCTYCM	3.58738	0.0317
LTFCON does not Granger Cause LHDI	1.72043	0.1825
LHDI does not Granger Cause LTFCON	0.49490	0.6106
LEXPONED does not Granger Cause LHDI	2.56226	0.0843
LHDI does not Granger Cause LEXPONED	1.71924	0.1867
LDCTPS does not Granger Cause LHDI	1.70792	0.1843
LHDI does not Granger Cause LDCTPS	3.07576	0.0487

Source: Author's Computation and Eviews

Table 7 shows the causal effect of one variable on the other. It was revealed that there is no existence of any causal relationship between foreign direct investment and human development index, trade facilitation, linear connectivity and human development index, expenditure on education and human development index and vice versa. However, human development index granger cause electricity consumption and equally granger cause domestic credit to private sector while trade openness granger cause human development index.

Discussion of Findings

The unit root test carried out on the variables revealed no presence of unit root test, which implies that the analysis is devoid of spurious regression. Random effect was selected as an appropriate model as predicted by the Hausman test. It was revealed that all the variables were significant to explain sustainable development except trade openness. The increase in the amount spent on trade facilitation, electricity consumption and expenditure on education reflects significantly the achievement of sustainable development among the member's countries of African Continental Free Trade Area (AfCFTA). Also, improvement on credit to private sectors as a way of enhancing productivity has a significant impact on sustainable development. The trade facilitation performance in the country was very helpful as the connectivity with other countries revealed the positivity on sustainable development. Furthermore, the quantity of money spent on infrastructure help to improve the impact of foreign direct investment positively on sustainable development. Therefore, the variable gives an overall indication of the quality of infrastructure in each country, focusing on the types of infrastructure such as electricity consumption and other physical infrastructures that are very crucial to boost trade among countries. While short run relation is found between human development index and electricity consumption and domestic credit to private sector in granger causality test, a cointegration test also suggested no long-run relationship between international trade flows and sustainable development.

Conclusion and Recommendations

Based on the findings, the study concluded that the presence of foreign direct investment, trade facilitation, expenditure on education and electricity consumption will facilitate trade across borders to achieve sustainable development among African Continental Free Trade Area (AfCFTA) members. There exists a positive relationship between international trade flows and sustainable development but there is no evidence of long run-run relationship in the panel model. From the policy implications stance, the study therefore recommends that:

Government should improve on infrastructural facilities in order to attract more foreign investors to the country and the amount of money expended on knowledge and skills should be doubled in order to harness the benefits of skilled labour.

Government should facilitate more channels for accessing funds by firms. By doing this, it will enhance the productivity of the country.

Finally, investments in bridges, roads, ports infrastructure, education, and health are likely to increase the marginal productivity of AfCFTA member countries and move their economics towards sustainable development.

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