Impact of Foreign Direct Investment on Export : An Empirical Analysis of the Ecowas Region

By

ADJEI, Evans Elikem

THESIS

Submitted to

KDI School of Public Policy and Management

In Partial Fulfillment of the Requirements

For the Degree of

MASTER OF PUBLIC POLICY

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Committee in charge:

Professor Lee, Siwook, Supervisor

Professor Lee, Changkeun

Professor Lee, Jongyearn

Approval as of December, 2021

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Abstract

Foreign Direct Investment is a key tool for stimulating economic growth, especially in developing countries where poverty remains a key challenge. As such, there is a need to comprehensively understand the dynamics of this economic tool for better policy recommendations. The overall objective of this research study is to examine the impact of Foreign Direct Investment on Export, a crucial component of economic growth. Specifically, this study intends to explore the causality effect between Foreign Direct Investment and Export. This study explores annual time series data over the period of 1971-2019 from the World bank open data. The study employed Panel Vector Autoregressive (VAR) approach and the Vector Auto Regression (VAR) Granger causality test to analyze the causal relationship between foreign direct investment and export in the ECOWAS region. According to the findings, 1% increase in previous values of FDI for these countries causes the increase in FDI by 0.5 % whilst 1% increase in previous values of export increases FDI by 0.7 %. *Likewise, there is an unidirectional causality from export to foreign direct investment*.

Declaration

I, Evans Elikem Adjei, hereby declare that this research is my own work and all secondary data employed in analysis and discussions in this thesis are acknowledged accordingly. No part in this has therefore been presented in any form to any institution for the award of any other degree.

Signed

Evans Elikem Adjei

October 21, 2021

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List of Acronyms

AfCFTA-	African continental Free Trade Area
AIC-	Akanke's Information Criterion
ECOWAS-	Economic Community of West African States
FDI-	Foreign Direct Investment
GDP-	Gross Domestic Product
GMM-	Generic Method of Moment
OECD-	Organization for Economic Co-operation and Development
SIC-	Schwarz's Information Criterion
US-	United States
UNCTAD-	United Nations Conference on Trade and Development
VAR-	Vector Auto Regression

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Acknowledgements

Great glory unto the Lord Almighty for the strength He lavished on me towards the success of my research work. I appreciate my supervisors, Prof. Siwook Lee and Chankeung Lee for their constructive suggestions and guidance without which this work would have not been a reality. Also, I very much appreciate Mr. George Lusekelo for his effort shown to make this work a success. Finally, I convey my honest thanks to My family for their support for our work.

Dedication

I dedicate this work to God who through His divine power and ability has made provision for this thesis work to become a reality. I also dedicate this work to my ever-supportive family for their immense support and understanding right from start to finish.

SECTION ONE

1.0 INTRODUCTION

1.1 Background of study

The quest to reduce poverty has been a major aim for African countries since independence. Although deputes and political instabilities have affected the development of this continent, leaders have made significant progress through regional integration such as ECOWAS and AfCFTA to promote peace, unity, trade, and fight against poverty. Through all these efforts, extreme poverty remains rampant as many people still live below the poverty line. As at 2012, over 100 million people were still living under extreme poverty although there was decline from 57 percent in 1990 to 43 percent in 2012 (Beegle et al., 2016). In the advancement towards economic growth, countries consider investment as a vital feature in raising productivity levels by boosting technological progress and reducing poverty rates. Key among these investment initiatives is foreign direct investment.

Foreign direct investment is considered as a long term investment in a country where the investor exerts significant control on management of the enterprise in the host country (Samsudin et al., 2012). Over the past decade, there has been a global consensus on the intentions of foreign direct investment which have been classified into three areas. The motives include resource seeking, efficiency seeking and market seeking. For market seeking motives, investors consider market size and its growth in the domestic market whereas the resource seeking motive involves the situation where investors could have access to natural resources, human capital and among others at the

lowest cost. The efficiency seeking motive involves the situation where investors could take advantage of positive externalities such as technological spillovers.

Over the years, developed countries in their quest for sustained growth were engaging in foreign direct investments, either in other advanced countries or in an emerging country, depending on the purpose of the investment. It is believed that preliminary countries that started promoting foreign direct investment (FDI) in Sub-Saharan Africa were the United States, Germany, the United Kingdom and France (Stohldreier, 2009). Recently, the world is seeing new trends in countries that are heavily engaging in foreign direct investment. Many rising economies including China and India cannot be left out of foreign direct investment (FDI) key players in Africa recently whereas Spain, the Netherlands and France cannot be overlooked.

It has been strongly argued that FDI promotes employment and helps in reducing poverty, however, many ECOWAS countries who turn to have almost all the three purposes for foreign direct investment (market seeking, resource seeking and efficient seeking) are still poor and poverty reduction has remained major concerns for these countries. As a result, most countries within this region have seen the essence to promote policies that will help boost development domestically and create jobs for its members as an effective approach to combat poverty. Hence, policy makers in emerging countries, especially in the ECOWAS region have made several efforts towards attracting foreign direct investments (FDI) to step up progress of development, boost employment and to reduce poverty.

Foreign Direct Investment performs a significant role in the economy of many Africa countries such as Ghana, The Gambia, Senegal, and others. It creates employment, thereby enhances productivity, and promotes development in host countries.

Export, which involves production of goods and services for sales or exchange in the global market has been brazenly pointed out in its crucial effect on economic growth. It is argued that export lays out salient gains for all firms within a country irrespective of the size (Atkin & Jinhage, 2017). All countries, both developed and developing require investment and export for economic growth. Policy makers have argued that foreign direct investments are crucial for economic growth especially in developing countries. As a result, businesses in emerging countries can siphon from the technology and increase their productivity at lower costs for export due to foreign direct investments. Poverty reduction policies are important to developing countries and requires comprehensive structures and mechanisms. For this reason, exports, a key component of economic growth cannot be left out. Research shows that manufacturing exports per capita has a positive correlation with GPD per capita of countries(Easterly, 2014).

1.2 Problem statement

It is of no doubt that foreign direct investment has contributed to economic growth of developing countries over the decades of which ECOWAS countries of which Burkina Faso, Cote D'Ivoire, Ghana, Niger, Senegal, The Gambia and Togo are inclusive. The ECOWAS region has recognized the importance of foreign direct investment and has over the years implemented policies such as tax waivers and subsidies to provide a conducive environment for foreign investors.

Although foreign direct investment is a vital tool for development, there are contrasting views as some foreign direct investments' benefits are overlooked and somewhat seek to exploit the resources of the domestic country and lessen its development role(Mohanasundaram & Karthikeyan, 2015). Over the decade, the value of the ECOWAS region export has increased considerably and projected at approximately 137.3 billion dollars (ECOWAS, 2021). However, the region is unable to export more because of challenges such as capacity constraints, competitive

infrastructures and among others. A few study have presented findings on the role of foreign direct investments in the region, but these seems to be far from satisfactory as they do not clearly establish the causality effect and impact of foreign domestic investment on export (a key component of economic growth). It is deemed prudent to recognize the correlation between foreign direct investments and export in countries to strengthen policies that will lead to full utilization of these sectors.

1.3 Objectives of the study

Many developing countries have over the years adopted policies and enacted laws geared towards an creating enabling environment for foreign direct investments. However, there are questions regarding the impact of these foreign direct investment on other key growth indicators such as export. These questions arise because most developing countries in the ECOWAS region depend heavily on exports of their natural commodities. The overall aim of this study is to attempt to understand the correlation between Foreign Direct Investment and export in the ECOWAS region. More specifically, the project will attempt to understand the causality effect direction between foreign direct investment and exports among these countries.

1.4 Research questions

The study will attempt to address the following questions

i. What is the impact of foreign direct invest on export in these countries (the ECOWAS region)?
ii. What is the causality relationship between FDI and Export among these countries?
iii. What is the influence of other economic indicators such as inflation, growth on export?

1.5 Study hypothesis

- Null Hypothesis H0: No causality between FDI and Exports.
- Alternative Hypothesis: causality exists between FDI and Exports.

1.6 Justification of the study

The need for this study arises because the findings from it could be beneficial to the policymakers who are to formulate policies aimed at improving the ECOWAS economy through the Foreign Direct Investment. Many researchers have done research on the relationship between Foreign Direct Investment and and other economic indicators; however, this study is of importance as it extends the knowledge base that currently exists and establishes a relationship with exports. The other purpose of this study is to judge whether the policymakers should try and attract more of FDI in these developing countries for economic growth and if FDI is not reliable, what are the other approach necessary to stimulate growth.

1.7 Limitations to the study

It is not denying a fact that not all foreign direct investments (FDI) are intended for exports. Investments in the banking and transport sectors in host countries are not intended for exports. However, the percentage of investment in these sectors for the countries in focus are small and not significant enough to cause many variations. Given the time constraints and data availability, certain important variables such as import, exchange rates and among others were excluded from the analysis of this research and I hope further researchers could consider these variables in their studies.

1.8 Organization of study

The study is divided into five (5) sections and organized as follows:

Section 1: This section introduces background and the introduction which includes the research problem statement, study objectives, research questions, study hypothesis, justification of the study and the identified limitation to this study.

Section 2: This Section presents the literature reviews, both empirical and theorical studies in relation to foreign direct investment and exports. In this section, the concepts of foreign direct investment, exports and their significance were discussed.

Section 3: This Section presents a research methodology in relation to establishing the causal relationship between foreign direct investment and export across the various countries. This Section also consists of the statistical techniques used in conducting this study. These techniques include forming economic models, testing for unit root, and estimating long run equations. The Im-per saran-Shim model is used in this Section to test for the unit root whilst the Granger causality test has been adopted to establish a causal relationship between Foreign Direct Investment and export

Section 4: This Section provides discussions of results, analysis, and findings from methodology

This Section includes the details and interpretation of results from data outcome.

Section 5: This Section provides the summary of the study, recommendations, and concluding remarks.

SECTION TWO

LITERATURE REVIEW

2.0 INTRODUCTION

The literature review entails relevant secondary data, records, information and essentially various case studies or precedence that cement the floor on which the field data can build on and analyze. This section consisted of the concept of foreign direct investment (FDI), the notion of trade, the need for FDI and international trade, repercussions of FDI, FDI and trade in ECOWAS region, foreign direct investment and trade in the other world and conclusion.

2.2 THE NOTION OF FOREIGN DIRECT INVESTMENT AND TRADE

Foreign Direct Investment as according to Enderwick (2017) is when a company in one country establishes a new company in another country. This can happen conventionally, where the firm starts afresh in the new country or non-conventionally whereby the company out rightly invest in an already existing firm. Assuming the investment was into assets, it should be beyond ten percent, ownership per IMF standards, otherwise, it would be referred to as a portfolio investment. Foreign Direct Investment could be horizontal, in that, the new investment in the new country is in the same product line or a substitute product. For instance, Puma US investing in Nike Australia. Vertical Foreign Direct Investment meanwhile means the firm now extends its wings into a supply company of her products in a different country via investing in the latter. Conglomerate Foreign

Direct Investment would then revolve around the parent company establishing another firm to go into a completely different type of business in a new country (Harms & Meon, 2011). If KFC US invests in Samsung South Korea, that will be a suitable instance of a conglomerate Foreign Direct Investment taking place.

2.3 THE CONCEPT OF TRADE

Trade in an economic space is the transfer of goods and services from a seller to a buyer on an agreement that the buyer is going to pay the seller on terms and conditions agreed but both parties. Consequently, should this happen beyond borders, it becomes international trade. Businesses can trade business cards, crude oil, minerals, tourism, banking, coal, salt, shipping, and the lot (Holcomb & Byrn, 2010). Several frameworks and theories have been developed to understand international trade and its' importance. According to Hecksher-Ohlin framework, the disparities in the factor endowment and prices across countries lead to international trade. However, as factors become mobile across borders, there is a reduction in the volume of international trade because the difference in factor prices become increasingly trivial (Lee Siwook,2010). Import trade happens when goods and services are bought into a receiving country. When the country/business personnel sell to another in a different country, it is called export trade. International trade brings various benefits to parties involved. It has been argued that during international trade, consumers benefit from a commodity that is little or extinct in their region of abode (Holcomb & Byrn, 2010: da Silva & Casson, 2012).

2.4 THE NEED FOR FOREIGN DIRECT INVESTMENT

Foreign direct investment usually bodes well in open economies where copious skills are available for the investor to benefit from. The investor may invest capital, management or technology in the new field or country. The merits of foreign direct investment to the investor and the host country are immense (Duarte, Kedang, & Xuemei, 2017). A considerable number of studies have indicated its' importance to the host country suggesting that it serves as a stimulus and a valuable tool for development (Barthel, Fabian; Busse, Matthias; Osei, 2010; Makki & Somwaru, 2004). A group and scholars have contended that Foreign Direct Investment serves as a mechanism that helps to provide the avenue for human and physical investment, stimulating trade and financial development of the domestic country as well as providing the avenue for domestic countries to exploit other opportunities which otherwise would not have been done (Aryeetey et al., 2008; Sataloff et al., 2005). In particular, foreign direct investment can contribute to expansion in exports, provides technological spillovers, increase employment and economic growth, and provides a competitive market.

However, a few scholars hold contrasting views. A study in 10 new EU countries revealed that FDI inflows in these 10 countries do not contribute to higher export and economic growth (Jevcak et al.,2010 as cited in Selimi et al., 2016). A study by Durham (2004) inferenced that these countries need to have the capacity to absorb technology to attract the flow of FDI

2.4.1 Increase Exports

The advent of Foreign Direct Investment has offered companies and economies greater opportunity to make goods and services that have higher demand at the global market, readily available. The other boost could be the establishment of the free zone enclaves throughout the

world. This assists in sending commodities over borders to areas where if restrictions are placed, there would be little or no trade (Narula & Dunning, 2010). It is argued that FDI in itself is likely to promote a trade creating opportunity (export) from one foreign firm to another (intra-firm trade) although it is sometimes treated as an alternative means to serve the foreign market(Lee, 2007).

2.4.2 Increase Employment and Economic Growth

Perhaps a crucial advantage to developing economies, Foreign Direct Investment creates direct and indirect jobs in the country of its' establishment. The teeming educated youth tend to get employed and earn a living. Whether skilled or unskilled, the labour force turns to benefit immensely. Eventually, the economy receives taxes from the employment and operations of the Foreign Direct Investment to help transform the economy drastically (Arain, Han, Sharif & Meo, 2020).

In foreign direct investment, the country who is at the receiving end gains access to financing tools, machinery, technology and new practices or processes in operation from other countries. This will in turn set a tone on efficiency and effectiveness of business operations in the recipient economy (Aynawu, 2012). Foreign direct investment firms are viewed to be technologically superior to domestic firms and as such, such knowledge is transferred through the interactions with domestic firms and this leads spillovers(Newman et al., 2015)

In developing countries, it is commonplace to identify a huge gap between places that are purportedly more industrialized than little or no industrialized areas. The mechanism of Foreign Direct Investment offers investors the best ideas to establish companies at zones with no notice of potential, suitability, and viability to harbor business operations. This totally transforms these backward regions of the recipient country (OECD, 2016).

2.4.3 Competitive Market and Human Resource Development

Another assurance Foreign Direct Investment brings is a competitive market. When a foreign organization appears in the local market, economies where operations are monopolized turn to lose their grounds to a competitive environment. It means companies tend to innovate more to provide competitive products at competitive prices to consumers. The locals now have a variant of product lines at various cost prices to select from (Narula & Dunning, 2010). In simple terms, the existence of foreign investment in a country is more likely to drive domestic firms to operate more efficiently. Though the notice could be less noticed, the rippling effect of human capital development is very rewarding. The deployment of new technology, practices, and operational procedures in the receiving country during Foreign Direct Investment means individuals are trained on the acquisition of new skills and knowledge. And since, human capital is mobile these skills can be transferred to other institutions in the economy (OECD, 2016).

2.5 FOREIGN DIRECT INVESTMENT AND INTERNATIONAL TRADE

The growth coupled with increment of Foreign Direct Investment has become tremendous over the years since the 1960s with many ascertaining if it has overtaken international trade or it still a modicum of international trade (da Silva & Casson, 2012). The development of this avenue transcends especially from the United States to Asian Economies up to Latin America. Hitherto, international trade was conducted over a limited distance as compared to the current operations. NGUYEN (2020) opined those changes to international trade are due to several reasons. They

identified that the incessant recovery of many world economies in the US, Asia and Latin America from their innervated economy crises has accounted for the fast pace of FDI.

A second-tier reason behind this change in the economy toward FDI was also the fact that the arrangement of trade liberalization organizations has given way to decrease or remove trade tariffs and embargoes. Many countries now accorded the need to liberate their economies toward this avenue due to the tumultuous imperatives that have been felt over the last three decades. The structural regime of many countries shifting focus to privatization and easing off entrenched trade restrictions has also enabled private investors to establish companies in host nations (Vitenu-Sackey, 2020). Foreign direct investment and international trade are at the forefront of globalization meanwhile foreign direct investment is a greater stimulant to exports (Salavrakos, 2010). That proposes that foreign direct investment is complementary and interrelated to International Trade. Foreign direct investment benefits businesses by lowering production costs and ensuring cross-border operational efficiency (Kukulski & Ryan, 2011).

2.6 THEORIES OF FOREIGN DIRECT INVESTMENT

This subsection is to provide an overview of a few theories around foreign direct investment. For the geographical location approach, it has been argued that most foreign direct investment motives are centered around three categories- market seeking, resource seeking and efficiency-seeking. The according to Popovici and Calin (2014), a notion of natural resource endowment is a vital contributing element to the success of FDI investment. Availability of labor, infrastructure, and good government policies are crucial factors to a countries' progress in foreign direct investment. The gravity model, which asserts that nations with similar geographical, cultural, and economic characteristics are more likely to have the highest foreign direct inflows than countries that are not

can be compared to this approach (Makoni,2015). However, foreign direct investment is more complex than just physical characteristics of nations. Makoni (2015), argued that geographical characteristics could be a contributing factor to Foreign direct investment success, however, the effect is minimal since it may reduce transportations costs and not labor fees.

The International trade theory is one approach that has provided reasons to many countries around the world. This theory is founded on the comparative advantage theory that indicates that a country should specialize in producing goods and services that it has the lowest opportunity cost. This model heavily emphasizes the factor-proportions model which indicates that the disparities in the cost of production are because of prices variations in factors of production for countries. Factors prices are cheaper in a country where it is relatively abundant than when it is scarce. This indirectly makes countries to produce at cheaper prices for export which in turns.

2.7 CONSEQUENCIES OF FOREIGN DIRECT INVESTMENT

2.7.1 Reduce Local Competition among Domestic Companies

Foreign Direct Investment must happen in a harmonious economy where domestic policies of trade are shaped in a direction that do not put local firms out of business or make them look unattractive to local consumers. The impact is felt in most developing countries, because the new company would come with an improved technology and system; produce large quantities of commodities at less cost and sells at relatively cheaper prices (Vitenu-Sackey, 2020). A conscious effort should be made by the government to protect its domestic market as well.

2.7.2 The Focus is on Growth and not Development

There is not a direct correlation between Foreign Direct Investment and development. Governments of most developing countries provide incentives to foreign investors to establish companies or take a stake in local businesses to boost economic growth. The focus is on Gross Domestic Product, more on economic terms than development/infrastructural development (Anyawu, 2012: Duarte, Kedang, & Xuemei, 2017)).

2.7.3 Employment Opportunities and Balance of Payment Boost

Both developed and developing countries have experienced significant increment in employment opportunities from flows via Foreign Direct Investment. The fact that the recipient economy most at times in the developing world presents cheap labour to the investor, it becomes an opportune time to employ local hands. The youth who has little or no experience in that sector snatch these vacancies to develop their skills, grow in the business and earn a living. This helps to alleviate poverty in the developing economy (Agrawal & Khan, 2011).

The advent of foreign investors in the economy means production would surge up. Gross Domestic Products, Income Tax and Foreign exchange are going to increase if the established company has been exporting. Economies that have a balance of payment deficit may drastically receive a decline in these problems toward a balance of payment surplus (Pegkas, 2015).

Investments in the local economy mean quoting prices in the local currency. From capital investment, supply of raw materials, labour, export, or imports and keeping annual reports; the company in one way or the other must convert into domestic currency units. This provides an economic valve, value, and buffer to the local currency (Kurtishi-Kastrati, 2013). It is argued that

Foreign Direct Investment aids in bridging the gap between a host country's foreign exchange gap (Ali, 2014)

2.8 FOREIGN DIRECT INVESTMENT AND TRADE IN WEST AFRICA AND THE OTHER WORLD

Foreign direct investors are equally profit seeking just like any firm in the world and will consider a lot of factors such as political stability, resources and market size before making any substantial commitment. Foreign Direct Investment has achieved a remarkable feat in West Africa due to trade and globalization, despite even the recent pandemic-COVID 19- era. Nigeria for instance, recorded an increment from 2.3 billion US dollars to 2.4 billion US dollars in the year 2020. The highest increase countrywide within the same time occurred in Senegal. The inflows were 39 percent in Senegal, an increment up to 1.5 billion US dollars due to investment in energy. On the other hand, there had been a decline in the total FDI in the sub-region by 18 per cent equaling 8.9 billion US dollars (Shittu, Yusuf, El Houssein & Hassan, 2020). Comparably, outflows of FDI rather took a nosedive with a downward slope. The biggest outflows were from Togo and Ghana. Surprisingly, all these investments were significantly into other African countries (Wiredu, Nketiah & Adjei, 2020).

There are noticeable measures that had led to these significant increments though the total inflows decline in some cases. As stated by (Shittu, Yusuf, El Houssein & Hassan, 2020: Wiredu, Nketiah & Adjei, 2020) this impact was felt due to increase in domestic investment, openness in local trade, the discovery of resources or natural resource endowment (in oil, metals, and minerals) and monetary allocations. Some other reasons that were perceived to have accounted for these positive increments are the Continental Free Trade Area Agreement, the elimination of various tariffs,

regional incorporations, and the quest to introduce sub-regional currencies- For instance, ECO as a currency for West Africa (Wiredu, Nketiah & Adjei, 2020). As of 2016, the intra-regional economic community trade in the ECOWAS region was valued at 11.4 billion dollars (UNCTAD, 2019) while is it believed that a huge percentage of intra-regional trade is not usually reported in official statistics as it takes place on an informal basis (Seters, 2016)

However, to achieve rapid development and economic recovery in West Africa post COVID-19 era, more investors must be attracted, ensure it occurs in more employment intensive areas and export-oriented or green sectors.

Foreign Direct Investment and trade have in recent times become complementary players to every economy (Zhan, 2020). Trade within one's own economy is a domestic investment, while trade or investment in a different country is basically a Foreign Direct Investment. Records posited that Foreign Direct Investment completely collapsed in 2020. The fall was 42 per cent from 1.5 trillion US dollars in 2019 to 859 billion US dollars. The only time in congruence with this, was in the 1990s (Fang, Collins & Yao, 2021). The doubt remains though predictions for 2021 about Foreign Direct Investment and Trade are positive. The uncertainty emanates from the covid-19 pandemic. The developed world was the one hit most by the pandemic and recorded heaviest decline in Foreign Direct Investment, which in turn reduced trade. A whopping 46 per cent of decline was experienced in the North American enclaves. An estimated 134 billion dollars decrement was the figure in the United States of America. It was admitted that this decline occurred in three major sectors-wholesale trades, financial services, and manufacturing (Zhan, 2020).

Europe had the worst of flows as these flows fell by two-third. The United Kingdom experienced a fall up to zero-no flows. Sweden and Spain on the other hand, benefited from Foreign Direct Investment in this same period due to investment from the United States.

Australia also had a struggle in flows. The fall was 46 per cent from the initial figures. Meanwhile, Japan had an increment- from 15 billion US dollars to 17 billion US dollars. Technology and healthcare are projected to witness flows in Foreign Direct Investment even if the pandemic persists (Ho & Gan, 2021).

2.8 CONCLUSION

Foreign Direct Investment, though in one sense might be considered as a unit on its own; in many circumstances it also means trading activities would be involved and for this reason is inseparable with trade. The benefits of foreign direct investment are immense, yet challenges may be felt by local investors within the host country and a decline in local competition. Foreign Direct Investent is a golden policy to West Africa as it offers countless opportunities in employment, economic growth, and human capital development, just to mention a few. A reduction in trade restrictions across the world regions, creations of regional integrations and trade associations and or liberations form the reasons behind the surge in Foreign Direct Investment and Trade. The last three decades has experienced total increment in FDI worldwide pre-covid-19 era. Yet, healthcare and technology still posit sectors that will continue to receive massive investment and growth from FDI.

SECTION THREE

3.0 RESEARCH METHODOLOGY

This section provides the model specification to be used in testing whether there is a causal relationship between Foreign Direct Investment and Export in selected countries within the ECOWAS region between the period of 1971 and 2019. Section 3.2 shows the model specification, 3.2.1 is the definition of variables. 3.2.2 provides confirmation of data sources, 3.2.3 is for the unit root testing, 3.2.4 is for lag selection, 3.2.5 is for stability test, and 3.2.6 for Granger Causality Test. Also, the role of variables such as, imports, exchange rates, interest rate, trade openness, capital are very crucial to be incorporated into the model but are omitted due to limited data availability. However, not using these variables will give future researchers an opportunity to use these variables.

The study explores the Im-pesaran-shin (2003) test stationarity of the variables: Export, Foreign Direct investment, Growth, and Inflation. The study will also be adopting the application of Granger causality test to test for causality between FDI and Export.

3.2 MODEL SPECIFICATION

Several model specifications have been explored in identifying the impact between export and FDI using time series data. To this study, the Vector Auto Regression model is considered, limiting the variables to Export, Import, Growth rate and Inflation.

The model specification for this study is shown below:

$$lnFDI_t = \beta_{11} lnfdi_{t-1} + \beta_{12} lnEx_{t-1} + \beta_{13} lnGr_{t-1} + \beta_{14} lnInfl_{t-1} + e_{1t}$$
$$lnEx_t = \beta_{21} lnfdi_{t-1} + \beta_{22} lnEx_{t-1} + \beta_{23} lnGr_{t-1} + \beta_{24} lnInfl_{t-1} + e_{2t}$$

$$Gr_t = \beta_{31} lnfdi_{t-1} + \beta_{32} lnEx_{t-1} + \beta_{33} lnGr_{t-1} + \beta_{34} lnInfl_{t-1} + e_{3t}$$
$$Inf_t = \beta_{41} lnfdi_{t-1} + \beta_{42} lnEx_{t-1} + \beta_{43} lnGr_{t-1} + \beta_{44} lnInfl_{t-1} + e_{4t}$$

3.2.1 Definition of variables

Export: Described by the amount of goods and services that is exchanged across the borders of these selected countries measured by the American dollar

Foreign Direct Investment: Indicating the total FDI inflows in selected countries measured by the American dollar

Growth: Refers to the average annual GDP growth rate in the selected countries measure by the American dollar

Inflation: Average annual price changes measured by the American dollar.

Where lnEx = log form of Export, (non-stationery at real value but the difference (change) is stationery at the first lag)

lnfdi= Log for of Foreign Direct Investment, (non-stationery at real value but the difference (change) is stationery at the first lag)

Gr= Growth rate, (stationery at real value)

Inf= inflation, stationery at real value

Each difference is a linear function of its own lagged difference and of the lagged differences of each of the other variable in the model.

3.2.2 Data Sources

This study considers annual data between the period of 1971 to 2019 from the world bank open data portal

3.2.3 Unit root testing

In statistics and econometrics, a unit root tests offers the prospect to determine whether a time series variable is non-stationary using an autoregressive model. Stationarity analysis is crucial to prevent spurious regression. There are several tests of stationarity, but this study will adopted the im-Pesaran-Shim (2003) unit root testing. Thus, approach tests against the null hypothesis that all panels contain unit root against alternative hypothesis that panel does not contain a unit root.

3.2.4 Lag Order Selection

For a lag model, there is a need to select an appropriate number of lags. This is because too many lags can cause the result to lose degrees of freedom and can cause multicollinearity among the regressors and can also lead to serial correlation within the error terms.

3.2.5 Stability test

A stability test is used to ensure that the parameters in the model are fit for the data samples used. This is since the time-series data used in this study is often non-stationary.

3.2.6 Granger Causality Test in VAR (Vector Auto regression)

The Granger causality test is a statistical hypothesis test that can be used to verify whether one time series can be used to foretell another. This concept is founded on the idea of Prediction. Regressions often show "simple" correlations, but Granger proposed that causality in economics may be captured via tests. The Granger test only finds "predictive causality," according to econometricians, because the subject of "real causality" is highly philosophical (Granger, 1969).

SECTION FOUR

4.0 DISCUSSION OF RESEULTS

This Section gives a clear discussion of results and further analyses of all methodologies used for this study. The panel data is used in this study, the results below show the average, minimum and maximum values of the variables

Table 1: Descriptive statistics of used variables

Variable	Obs	Mean	std.dev	Min	Max
lnexport	392	20.84725	1.742856	16.70798	25.69096
lnfdi	358	17.89619	2.312022	9.903487	22.90267
growth	392	3.533099	4.627604	-17.0476	15.32916
inflation	392	10.20261	15.51665	8.400719	122.8745

4.2 Formal Unit root testing

In statistics and econometrics, Im-Pesaran-Shim (2003) model is a test for non-stationarity of a time series sample. It is a good version for testing a larger and more complex set of time series models. The Im-Pesaran-Shim statistic, applied in the test, is a negative number. The more negative the number is, the greater the rejection of the hypothesis that there exists a unit root at a certain level of confidence. The formal testing procedures available for testing the unit root requires that each variable is at level and then at a first difference when necessary due to the reason that when a variable is tested stationary, there will not be a need to test it at the first difference.

From the output in table 1 below, export and FDI were significant at their first logs whilst growth and inflation were significate at levels (only export and FDI are in log forms).

Table 2: Unit root test

Variables	**Actual** Statistics	**First Lag** statistics	**Result**
Log(Export)	-0.3233	-9.5307***	I(1)
Log(FDI)	0.6267	-12.3843***	I(1)
Log Growth	-9.1742***		I(0)
Log Inflation	-5.6880***		I(0)

* p<0.1, ** p<0.05 *** p<0.01

4.3 Lag Selection

There are numerous criterions that are used for the best possible selection of lags for a model. The number of lags to be included in a VAR model is decided by minimizing the SIC or AIC. In the current investigation, almost all criterions namely Akanke's Information Criterion (AIC), Schwarz's Information Criterion (SIC), Hannan and Final Prediction Error (FPE) suggest one lag. The Rule of Thumb for model specification indicates that we chose a model that gives the lowest values of selecting a criterion. The lag selection criteria are critical as they reduce the possibility of underestimating whilst maximizing the opportunity of selecting the true lag length.

Per our lag regression, the first lag values were significant at 10% hence we select the first lag for the purpose of this research.

Table 3: Lag selection table

Lag	CD	J P Values

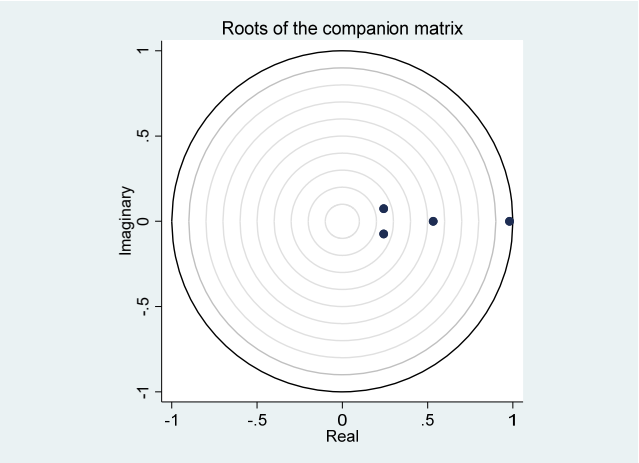
1	0.90868	0.079541*
2	0.99874	0.224
3	0.99903	0.99879
4	0.99822	

* p<0.1, ** p<0.05 *** p<0.01

4.4 Stability Test

To prevent invalid findings, a stability test is conducted. The findings of the model used are revealed as stable and not invalid, as the overall distributions of the roots lie inside the unit circle and are less than one. This means the model is sufficient for policy analysis and the process is stationary. The stability test results are shown in the figure below

Figure 1: Stability test



4.5 Generic Method of Moment (GMM Estimation)

The Panel Vector Autoregressive (VAR) approach is used to for estimating panel data for this study. The findings from the data reveals that export is significant at its' first lag at 1% significant level. This means that export is dependent on its previous values. For Foreign Direct Investment (FDI), the first lags of foreign direct investment and exports are significant at 1% levels. That is, a 1% increase in previous values of FDI for these countries causes the increase in FDI by 0.5 % whilst 1% increase in previous values of export increases FDI by 0.7 %. The first lag of growth is significant but at 5% level, meaning that lagged growth does not have a strong effect on FDI when compared to lagged FDI and export.

In addition, even the magnitude of the coefficient on lagged growth is small as a 1% increase in lagged growth explains only 2.8% variations in the log of FDI. For inflation, the first lags of export and inflation are significant at 1% level, implying likewise that inflation is influenced by its lagged values and previous export. Lastly, growth is influenced only by the previous values of growth. That is, the previous values of the growth explain growth by roughly 20 percentage points.

Table 4: Panel data regression

				No. of obs = 319 No. of panels = 8 Ave. no. of T = 39.875	
	Coefficient	z	P>|z|	[95% conf. interval]	
lnexport					
lnexport L1.	0.921918*** (0.03581)	25.72	0.000	0.8509048	0.9912789
lnfdi L1.	0.030761* (0.016125)	1.91	0.056	-0.0008433	0.0623654

inflation					
L1.	-0.0010731 (0.001843)	-0.58	0.56	-0.0046858	0.0025396
growth					
L1.	0.0038063 (0.003205)	1.19	0.235	-0.0024759	0.0100886
lnfdi					
lnexport					
L1.	0.7024711*** (0.138755)	5.06	0.000	0.4305174	0.9744249
lnfdi					
L1	0.5339324*** (0.082452)	6.48	0.000	0.3723289	0.695536
Inflation					
L1	0.0028121 (0.004421)	0.64	0.525	-0.0058522	0.0114765
growth					
L1.	0.0280649** (0.011232)	2.5	0.012	0.0060514	0.0500785
Inflation					
lnexport					
L1.	-4.535625*** (1.420586)	-3.19	0.001	-7.319922	-1.751327
lnfdi					
L1.	1.149025 (0.754371)	1.52	0.128	-0.3295144	2.627565
Inflation					
L1.	0.3401679*** (0.119615)	2.84	0.004	0.105726	0.5746098
growth					
L1.	-0.1415731 (0.200168)	-0.71	0.479	-0.5338943	0.250748
growth					
lnexport					
L1.	0.9157455 (0.629412)	1.45	0.146	-0.3178784	2.149369
lnfdi					
L1.	0.1155941 (0.340106)	0.34	0.734	-0.5510022	0.7821904
Inflation					
L1.	0.1155941 (0.340106)	0.34	0.734	-0.0162812	0.7821904
growth					
L1.	0.202746** (0.082978)	2.44	0.015	0.040091	0.3653582

* p<0.1, ** p<0.05 *** p<0.01

4.6 Granger Causality Test in VAR (Vector Auto regression)

The Granger causality test is a useful statistical hypothesis test for determining whether one time series is useful in forecasting another. This concept is founded on the idea of Prediction. Regressions often show "simple" correlations, but Granger proposed that causality in economics may be captured via tests. The Granger test only finds "predictive causality," according to econometricians, because the subject of "real causality" is highly philosophical (Granger, 1969). Considering the objective of this study which is to establish causality effect between Foreign direct investment and export, it can be seen from the findings below that there is a unidirectional causality from export to foreign direct investment (FDI) which is significant at all levels.

Table 5: Granger Causality Test

	Equation	Chi2	prob>chi2
lnexport	lnfdi	3.639	0.0560*
	inflation	0.339	0.5600
	Growth	1.41	0.2350
	All	5.718	0.1260
lnfdi	lnexport	25.631	0.000***
	inflation	0.405	0.525
	Growth	6.244	0.012**
	All	39.192	0.000***
Inflation	lnexport	10.194	0.001***
	Lnfdi	2.32	0.128
	Growth	0.5	0.479
	All	19.919	0.000***
Growth	lnexport	2.117	10.146
	inflation	0.116	0.734
	Growth	2.002	0.157
	All	10.405	0.015**

* p<0.1, ** p<0.05 *** p<0.01

4.6 CONCLUSION

In conclusion, the data used in this analysis were stationary at levels or first different where necessary and the findings revealed a one-way causality effect between Export and FDI. According to the findings, 1% increase in previous values of FDI for these countries causes the increase in FDI by 0.5 % whilst 1% increase in previous values of export increases FDI by 0.7 %. Also, there is an unidirectional causality from export to foreign direct investment.

SECTION FIVE

5.0 SUMMARY AND RECOMMENDATIONS

This Section provides overview to all research Sections and conclusions drawn from results. This Section will further make some recommendations for further or future considerations by ECOWAS countries

5.1 Summary

The aim of this study this study is to attempt to establish the correlation between Foreign Direct Investment and export in the ECOWAS region. More specifically, the project attempted to understand the direction of causality between foreign direct investment and exports among these countries. This study draws on data from the World bank data website for the period of 1971 to 2019 for 8 ECOWAS countries to establish a causal relationship between foreign direct Investment and export.

Section one of this study presents the questions below: What is the impact of foreign direct invest on export, what is the causality relationship between foreign direct investment and exports among these ECOWAS countries. This Section also provides background to this study and justification for the study.

Section two discusses existing literature relevant to this topic to solidify the basis for analysis. This Section also reviews empirical literature to examine the concepts of foreign direct investment and trade and the need for foreign direct investment.

Section three provides research methodologies adopted for this study. This Section provides the model specifications and descriptions of the various statistical approaches and methodologies for this study. The unit root test approach uses the im-Pesaran-Shim (2003) unit root technique. The Akanke's Information Criteria is used to select the optimal lag for data analyses, and the Granger Causality test in VAR to establish a causal relationship.

Section Four provides detailed discussions on the results from all research methodologies explored. It is seen from the outcome that foreign direct investment and export were stationary at their first difference whilst Growth rate and Inflation were stationery at levels. The Granger Causality test in VAR reveals a unidirectional causal relationship that runs from export to foreign direct investment.

5.2 Policy Recommendations

The findings of the study reveal that there exists a unit directional causal relationship amongst these two variables (from export to foreign direct investment). For these ECOWAS countries to fully benefit from foreign direct investments, there is equally a need to undertake policies to stimulate exports. However, most ECOWAS countries depend heavily on raw natural resources for export which requires steering policy interventions to add value to its export products. Since data findings present one directional causal effect, there is a need for these countries to diversify their export destinations as a strong tool to attract more foreign direct investments.

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