

**FOREIGN DIRECT INVESTMENT AND POVERTY  
IN THE ECOWAS REGION**

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**PhD 2020**

**FOREIGN DIRECT INVESTMENT AND POVERTY IN THE ECOWAS  
REGION**

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**A thesis submitted in partial fulfilment of the requirements of the  
Manchester Metropolitan University for the degree of Doctor of  
Philosophy**

**MANCHESTER METROPOLITAN UNIVERSITY  
FACULTY OF BUSINESS AND LAW  
DEPARTMENT OF ECONOMICS POLICY AND  
INTERNATIONAL BUSINESS**

**2020**

## **DECLARATION**

I, Emmanuel Brima Kallon, declare that this thesis, submitted in partial fulfilment of the requirements of the Manchester Metropolitan University for the degree of Doctor of Philosophy, is my original research work and it has never been submitted anywhere by anybody for the candidature of any degree, diploma or certificate.

## **ACKNOWLEDGEMENTS**

First, I thank God Almighty for the good health, blessings and wisdom that he bestowed upon me to do this research from start to finish.

I am incredibly grateful to the Commonwealth Scholarship Commission (CSC) and the Department for International Development (DfID) for allowing me to study a PhD programme in the United Kingdom. Also, I am grateful to Dr Emmanuel A. Cleeve, Dr Tidings Ndhlovu and Dr Yontem Sonmez, my supervisory team, for their relentless efforts in all the steps of this thesis: my debt is immeasurable in terms of their advice, constructive criticism, support and flexibility.

It is a great honour for me to acknowledge the general support and assistance I have received from my parents, Mr & Mrs Vincent Dauda Kallon, my aunty and uncle, Bernadett Sovula and David Sovula, and other members of my family for their prayers and exclusive support from the very beginning to the end of this undertaking. Thank you, all.

Finally, to my Manchester friends Allieu Badara Hassan King, Agnes Katta and Mohamed Menjor Mansaray, as well as those back home, especially Mr Allieu Bakarr-Conteh, Bryan Shyllon and all those who inspired me while studying at the university, directly and indirectly to complete and submit this work, I extend a huge thanks!

## **DEDICATION**

This piece of work is dedicated to the Almighty God for giving me the strength and knowledge to complete it successfully. This work is also dedicated to all members of my family and every peace-loving Sierra Leonean.

## **ABSTRACT**

This study aims to examine the impact of FDI on poverty in the ECOWAS region, covering the period between 1990 and 2018. The research design is a mixed-methods quantitative approach that uses two phases of data collection and analysis. The first phase is the secondary data quantitative study and is followed by the second phase, a primary data quantitative study, the latter of which complements the findings of the former. The data sources were both secondary and primary, collected from renowned websites, questionnaires and documentary reviews. The data were analysed using quantitative estimation techniques, and the study employed the static estimation techniques OLS, FE and RE, and a dynamic estimation technique, namely GMM. Four poverty measures were utilised as dependent variables (infant mortality, the Human Development Index, GDP per capita and household consumption), along with FDI inflow based on United States Dollars at current prices as the main independent variable.

The result of the study indicates that the impact of FDI on poverty in the ECOWAS region is mixed, in that it has a positive effect when using HDI and GDP per capita as poverty measures. However, FDI has a negative impact on poverty when using HCON as a measure, and when using MORT as a poverty measure, the result is inconclusive. Therefore, it is concluded that the impact of FDI on poverty in the ECOWAS region is sensitive to the poverty measure used in the study, and it is also dependent on econometric techniques.

The study recommends that ECOWAS members and other stakeholders, when examining FDI and poverty relationships, should be critical of the poverty measure adopted, in order to assure the maximum impact of the result. Moreover, ECOWAS member countries should explore new avenues to attract more FDI inflow and diversify it to all sectors of the economy for a more significant effect on poverty reduction and the attainment of SDGs. This study contributes empirically to the extant literature in diverse ways, i.e. its unique findings and its novelty, since it is the first to be undertaken in the ECOWAS region.

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## LIST OF TERMS AND ACRONYMS

ADB	Africa Development Bank
BLUE	Best Linear Unbiased Estimator
CEO	Chief Executive Officer
CORR	Corruption
CRS	Corporate Social Responsibility
DOMCR	Domestic Credit
ECOWAS	Economic Community of West African States
ETLS	ECOWAS Trade Liberalisation Scheme
FE	Fixed Effect
FDI	Foreign Direct Investment
GMM	Generalised Methods of Moment
GDP	Gross Domestic Product
HCON	Household Consumption
HDI	Human Development Index
IMF	International Monetary Fund
LNGDPP	Log of Gross Domestic Product Per Capita
LNTEL	Log of Telephone
LNGSP	Log of Government Spending
MDG	Millennium Development Goal
ML	Maximum Likelihood
MNC	Multi-National Corporations
MPI	Multidimensional Poverty Index
MORT	Infant Mortality
OLS	Ordinary Least Square Regression
PDF	Probability Density Function
PPP	Purchasing Power Parity
RE	Random Effect

RFV	Residual Versus Fitted
SDG	Sustainable Development Goal
TNC	Transnational Corporations
UN	United Nations
UNDP	United Nations Development Programme
UNCTAD	United Nations Conference on Trade and Development
US	United States
VIF	Variance Identification Factor
WIR	World Investment Report

## CHAPTER ONE

### INTRODUCTION

#### 1.0 General Background to the Research

The United Nations' (UN) 2016 Sustainable Development Goals (SDGs) symbolise a new era in the fight against poverty. The SDGs<sup>1</sup> are aimed at the eradication of extreme global poverty by leaving no one behind and reaching those furthest behind first. According to the UNDP (2019), 10% (713 million) of the earth's inhabitants survived on less than \$1.90 a day in 2015. In the Economic Community of West African States (ECOWAS), poverty eradication also remains a primary objective – and therefore a development goal. ECOWAS is a regional economic bloc in West Africa which was established on 28<sup>th</sup> May 1975 (ECOWAS, 2016). Fifteen<sup>2</sup> member nations signed a revised treaty in Cotonou, Benin Republic in July 1993 with a mandate to promote economic integration in all fields of activity participated in by the countries. Demographically, ECOWAS sits on the west coast of Africa and has a population of 353,224 million people located across a vast land mass of about 5.1 million hectares, the second-largest sub-region in Africa (UNDP, 2015). People living below the international poverty line (\$1.90 a day) are estimated to account for around 43% of the region's entire population (West Africa Economic Outlook, 2018).

SDG 1: No poverty of the 2030 agenda acknowledges that eradicating poverty in all its dimensions is universally the most significant global challenge facing the world today (UN, 2019). In the past, various economic intervention schemes introduced by international financial institutions (World Bank, International Monetary Fund, Africa Development Bank) and donor organisations to reduce poverty in the ECOWAS region have been unsuccessful because of a lack of adequate funding, lack of understanding and interpretation of crucial poverty policies and poor implementations of such schemes by many ECOWAS nations (Igboanusi, 2014). For instance, after a decade and a half of implementation and completion of the Millennium Development

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<sup>1</sup> SDGs: the global effort to eradicate poverty, protect the earth and ensure that all individuals enjoy peace and prosperity by 2030.

<sup>2</sup> ECOWAS countries: Benin, Burkina Faso, Cape Verde, Cote d' Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal and Togo.

Goals (MDGs)<sup>3</sup>, ECOWAS was one of the regions or sub-regions in the world that failed to achieve them (United Nations Economic Commission for Africa Report, 2017). The region therefore needs to intensify its efforts to eradicate poverty by 2030, as more than 60% of the countries in the area continue to register more than 40% of their people living in extreme poverty. One of the main reasons why ECOWAS countries have failed to achieve their MDG targets and other national poverty reduction strategy development programmes is the lack of adequate funding to undertake development projects (in terms of infrastructure, education, and health). Currently, it is estimated that the cost of ending extreme poverty (SDG 1) would be about \$66 billion annually until 2030 (United Nations Economic Commission for West Africa Report, 2017). However, Sub-Saharan Africa and ECOWAS countries continue to face a persistent lack of resources to finance public and private capital investments, which has restricted their ability to spend money on the infrastructure and social services needed to accelerate growth and poverty reduction (Economic Report on Africa, 2006).

One of the principal sources of external capital investment flows for developing nations is foreign direct investment (FDI), which increased in importance during the 1990s, becoming the most critical component of total capital flows into developing countries (WIR, 1999). In recent years, FDI flows have become much more than just a form of external capital revenue, in that they serve as key economic engines of a country's growth (Ganic, 2019; Klein et al., 2001). FDI can reduce poverty in emerging and developing countries, due to its ability to steer positive economic development and growth (WIR, 2012). As a critical source of external finance to developing countries, it is a vital source for economic development, modernisation, technology and knowledge transfer, income growth, employment and poverty reduction (Osabutey and Jackson, 2019; Kaulihowa and Adjasi, 2018). In 2018, global FDI inflows peaked at \$1.3 trillion, whilst external investment in Africa rose by 11% to \$46 billion (WIR, 2019). In ECOWAS, the FDI trend since the 1990s has increased, reaching \$26 billion in 2008. However, it fell 15% to \$9.6 billion in 2018 (WIR, 2019).

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<sup>3</sup> The United Nations Millennium Development Goals were eight goals that all 191 UN member states have agreed to try to achieve by the year 2015

The importance of FDI to ECOWAS nations cannot be over-emphasised. ECOWAS is known to be primarily characterised by inadequate capital resources, owing to dwindling contributions made by each member country to the bloc's account pool, and each member country within the bloc has been entrapped for a long time in a vicious cycle of poverty (Ajide and Raheem, 2016). Given the importance of foreign direct investment to the economic growth of a developing nation, most governments in the ECOWAS region have for many years adopted a policy of attracting foreign direct investment to aid structural adjustment (United Nations Economic Commission for West Africa Report, 2015). For instance, Sierra Leone has put in place one of West Africa's most ambitious reform agendas, including investment-related issues, the objectives of which are to improve the country's investment framework and attract FDI to invigorate economic development (UNCTAD Investment Policy Review Sierra Leone, 2009). Similarly, Ghana, during the mid-90s, formed the Ghana Investment Promotion Centre (GIPC) as the arm of government in charge of the facilitation, promotion and coordination of all investment activities in the country (Osabutey and Debrah, 2012). While Niger took steps to improve its business climate, including making reforms to liberalise the economy, encourage privatization and increase import and exports (Investment Climate Statements Niger Report, 2018).

Against this background, it is worth noting that, with a few exceptions, this rosy interpretation of the role of FDI as an instrument for economic growth and poverty reduction has rarely been supported by much empirical evidence at either the micro or the macro-level (Kaulihowa and Adjasi, 2018; Mold, 2004). Therefore, understanding how FDI activities translate into poverty reduction can provide useful insights into developmental impacts. The impact of FDI on poverty has been tested empirically in Africa and other developing countries but not in ECOWAS, and so, in this context, it is a crucial undertaking. The conflicting findings about the relationship between FDI and poverty reduction have left policymakers with several questions about the benefits that can be derived from liberal policies that encourage FDI flows. Hence, this study focuses on the impact of FDI on poverty in the ECOWAS region.



This study contributes to our understanding of how FDI contributes to poverty in the ECOWAS region, especially for policymakers, donor organisation and governments, and contributes to the existing literature in this regard.

### **1.1 Problem Statement**

FDI is considered a key contributor to economic growth and poverty reduction, and a vital source of external capital investment, in Africa and other developing countries. In the extant literature, previous studies on its impact on these regions have shown that it contributes positively (Ahmad et al., 2019; Tsauroi, 2018; Nagou, 2017; Fowowe and Shuaibu, 2014; Gohou and Soumare, 2012; Jalilian and Weiss, 2002). This has led to countries and territories globally embracing policy changes that will increase their inflow. However, other studies of the impact of FDI on poverty have shown similarly that a negative and insignificant relation exists in this regard (Akinmulegun, 2012; Ali et al., 2010; Huang et al., 2010). The debate amongst scholars is whether FDI promotes economic growth and poverty reduction in host countries, and this discourse and inconsistency in the literature have engendered the need for further investigation. In ECOWAS, FDI inflow trends have progressed steadily since the 1990s. However, there is a significant dearth of information in the literature on the impact of FDI on poverty reduction in ECOWAS. Most previous studies on FDI and poverty in the ECOWAS region have been on individual countries within ECOWAS (De-Graft 2019; Gokmenoglu et al., 2018; Adu, 2018; Ogunniyi and Igberi, 2014; Isreal, 2014), while studies undertaken for the entire ECOWAS have focused exclusively either on FDI or FDI and other different variables and not FDI and poverty (Adam, 2018; Nagou, 2017; Sane, 2016; Eregha, 2015; Ajide, 2014; Odumosu-Ayanu, 2012). So, this research was conducted in order to examine the existence of such a relationship and whether the inflow of FDI has a significant effect on poverty. As such, the purpose of this study is to investigate the impact of FDI on poverty in the ECOWAS region between 1990 and 2018.

In addition, the current empirical literature is plagued with methodological limitations and dominated by a single poverty measure/indicator (Jugurnath et al., 2016; Mahmood and

Chaudhary, 2012; Hung, 2005; Jalilian and Weiss, 2002) in terms of value income, expenditure or output, which fails to capture the critical aspects of other forms of poverty. Therefore, “It would be wrong to conclude a priori that FDI contributes automatically to poverty reduction because FDI raises average growth” (Te Velde & Morrissey, 2004:350). Nevertheless, recent empirical studies on FDI and poverty have taken a multidimensional measurement approach (Ahmad et al., 2019; Ganic, 2019; Uttama, 2015; Lehnert et al., 2013; Sharma and Gani, 2004), since other forms of poverty measurement, multidimensional or non-income indicators may play a crucial role in identifying omitted welfare attributes in monetary poverty measures (Ravallion, 1996). The use of different poverty indicators shows the limitations in the literature, as very few researches combine both unidimensional and multidimensional poverty measures (Kaulihowa and Adjasi, 2018). This study thus uses varying poverty measures/indicators to study the impact of FDI in ECOWAS.

## **1.2 Contributions to Knowledge**

This research contributes to knowledge, as it is the first to be conducted in the ECOWAS region. Although there are many studies on FDI and poverty in the extant literature, these examples focus on developing nations, Africa or specific countries, but not exclusively on the ECOWAS region. Another contribution relates to the robust methodological approaches and empirical analysis tools adopted in the study. Previous researchers, in most cases, have used a single approach or methodology; however, this study employs a multi-methods quantitative methodology and multiple econometric techniques, which makes it different from earlier investigations and contributes to knowledge. In particular, it enriched the findings of the study, increased the research reliability and validity and resolved common methodological issues relating to each estimation technique. Furthermore, the study utilises various poverty measures to investigate the FDI-poverty relationship, which provides depth in the analysis and contributes to knowledge by unravelling the effects of FDI on each poverty measure in the ECOWAS region. Finally, the study provides a deeper understanding on the subject for policymakers, institutions,

investors and development agencies, and it paints a clearer picture of the country-specific effect of FDI and policy implications in terms of the increase in FDI flow within the region.

### **1.3 Research Aim and Objectives**

#### **1.3.1 Research Aim**

This research aim is to investigate and assess the impact of FDI on poverty in the ECOWAS region.

#### **1.3.2 Research Objectives**

At the end of this research, the researcher will have been able to:

- a. Analyse FDI inflow trends for the ECOWAS region for the period 1990-2018.
- b. Examine background information on ECOWAS, FDI and poverty.
- c. Examine various poverty measures/indicators critically.
- d. Investigate and assess the impact of FDI on poverty in the ECOWAS region.
- e. Examine if there are any specific differences in terms of some countries within the ECOWAS region achieving poverty alleviation more than others?

### **1.4 Research Questions and Hypothesis**

The objectives above inspire several questions this research will seek to answer:

- i. How have the inflow of FDI trend into the ECOWAS region changed during the period specified (1990-2018), and why?
- ii. What are the impacts of FDI on poverty in the ECOWAS region?
- iii. What are the specific differences in terms of some countries within the ECOWAS region achieving poverty alleviation more than others?
- iv. Does FDI have a significant impact on poverty in the ECOWAS region [null hypothesis,  $H_0$ = no effect] ?

## **1.5 Research Methodology**

This research adopts a multi-method quantitative research methodology to study the impact of FDI on poverty. The justification for choosing this research design is to enrich the study, increase robustness and to gain a broader knowledge of the effects of FDI inflows on poverty in the ECOWAS region. In the extant literature, earlier studies have either used quantitative or qualitative methodology. Therefore, using a multi-method quantitative research methodology in this study does not only enrich it but also increase its reliability and validity since it permits the use of more than one method within the same research.

The study employs both primary and secondary data collection tools. For primary data, questionnaires were used, based on their appropriateness and effectiveness. Also, it is less costly to administer a questionnaire compared to other methods of primary data gathering. The questionnaires were administered to ECOWAS officials, government officials from the respective countries, top-level development organisation officials (UNDPs), chamber of commerce attachés to embassies and CEOs from some of the biggest multi-national companies within the ECOWAS region. This study also uses secondary sources of data collection, as fewer resources needed, they are unobtrusive, their feasibility with longitudinal studies and the availability of comparative and contextual data (Saunders et al., 2019). Types of secondary data used in this study are published data, survey-based secondary data, documentary secondary data, the internet and websites. These were obtained directly from the databases of the institutions concerned, such as the United Nations Conference on Trade and Development (UNCTAD) database, the UNDP database and the World Bank Data indicator. Also, other internet sources, books, journals and articles were used.

The estimation techniques used in the study for analysis were ordinary least square regression (OLS), fixed and random effects regression and generalised methods of moment (GMM). Employing four different estimation techniques in the study was a deliberate strategy, as it enhanced the various results and analyses. The statistical tool used for the analysis was STATA

16. The reason for adopting various econometric techniques is to enhance the robustness and increase the validity and reliability of the study. In the extant literature previous studies have used various econometric techniques to study the impact of FDI on poverty (Tsauroi, 2018; Magombeyi and Odhiambo, 2018; Gohou and Soumare, 2012).

## **1.6 Structure of the Thesis**

This study comprises eight chapters, organised as follows.

Chapter one – Introduction: This chapter introduces the thesis with a critical focus on the general background to the study, the problem statement, the contribution of the study, research aims and objectives, the research methodology and the structure of the thesis.

Chapter Two – FDI and Poverty: A Theoretical and Empirical Literature Review- This chapter examines both the theoretical and the empirical literature linking FDI and poverty. It also provides detailed theoretical explanations of FDI and poverty and assesses previous empirical researches before identifying a gap in the literature.

Chapter Three – Background: ECOWAS, FDI and Poverty: This chapter presents background information on ECOWAS, mainly focusing on the aim and objectives, and macroeconomic and socio-economic variables. Also, the chapter examines FDI factor, trends, and analysis. Furthermore, it examines the FDI impact and poverty in trends in ECOWAS.

Chapter Four – Research Methodology: This chapter examines the methods used to undertake the research. It states the philosophical underpinning of the study, the methodology, data collection methods, analysis and the models and variables used herein.

Chapter Five –Secondary Data Quantitative Analysis and Results: This chapter reveals the results of the detail secondary data quantitative analysis, highlighting all the results of the empirical analysis and the findings.

Chapter Six –Primary Data Quantitative Analysis and Results: This provides detailed results and analysis of the primary data. This chapter complements the results of the secondary data quantitative analysis provided in Chapter Five.

Chapter Seven – Discussion of Secondary and Primary Quantitative Data Analysis Results: This chapter discusses the results of both the primary and secondary data quantitative analyses and links these results to the theories and literature introduced in the earlier chapters.

Chapter Eight – Summary and Policy Implications: This chapter concludes the research and provides recommendations to policymakers and donor agencies. Furthermore, it establishes the limitations of the study and provides recommendations for future research.

### **1.7 Chapter Summary**

In summary, this chapter has summarised the main body of the research and highlighted the general background to the study, the problem statement, its contribution, the research aim and objectives, the research question and hypotheses, the research methodology and the structure of the thesis. This meaningful insight into the nature of the study, how it has been undertaken and the expected contributions have shaped the direction and nature of the entire research, thereby paving the way for more in-depth knowledge of some of the concepts mentioned above. The next chapter focuses on FDI and poverty's theoretical and empirical relationship, and it links the core economics and FDI theories explaining the FDI and poverty linkage.

## CHAPTER TWO

### FDI AND POVERTY: A THEORETICAL AND EMPIRICAL LITERATURE REVIEW

#### 2.0 Introduction

Throughout the history of development economics, FDI has been thought of as a critical factor affecting poverty. As a result, there has been an increasing interest in the linkage between FDI and poverty; however, to date, there has been little agreement on it. This chapter presents a theoretical and empirical overview of varying works of literature with the related theme of FDI and poverty linkage, by examining the following areas: FDI (definition, motives and types), poverty concept and measures, FDI and poverty theoretical framework, and the FDI and poverty empirical literature.

#### 2.1 FDI: DEFINITION, MOTIVES AND TYPES

This section examines the definition of FDI, motives and types.

##### 2.1.1 Definition of Foreign Direct Investment (FDI)

*“FDI refers to an investment made to acquire lasting interest in enterprises operating outside of the economy of the investor. Some degree of equity ownership is almost always considered to be associated with a compelling voice in the management of an enterprise; it suggests a threshold of 10 per cent of equity ownership to qualify an investor as a foreign direct investor (IMF, 2009; UNCTAD, 2019).”* Defining FDI is crucial to understanding the concept. As stated in Chapter One, it plays a significant role in influencing a country’s development efforts (Osabutey and Jackson, 2019; Anyanwu and Yameogo, 2015), so a clear definition helps distinguish it from other types of investments, such as portfolio investment.

There are two types of FDI, namely horizontal and vertical. In horizontal FDI, a foreign firm may choose to locate production in an overseas market, due to cost savings (Sondermann and Vansteenkiste, 2019; Cieřlik, 2019; Ramondo et al., 2011). In other words, firms set up plants in

several markets to exploit firm-specific assets and to avoid transport costs and trade barriers. According to Moritz et al. (2019), horizontal FDI is undertaken in order to gain access to new markets. Vertical FDI denotes the international fragmentation of the production process for cost-saving reasons (Moritz et al., 2019), and it involves the geographical separation of production and headquarters activities to exploit factor-cost differentials caused by different relative factor supplies (Shi, 2019; Lankhuizen, 2014; Helpman, 1984). According to Kinda (2013), vertical FDI primarily happens when a firm can break down its production processes into different parts and different locations, based on factor costs in these locations.

In addition, modes of entry into overseas markets are another essential factor relating to the study of FDI. Greenfield investments, cross-border mergers and acquisitions and joint ventures are the three main routes through which investors enter a host country (Calvelli and Cannavale, 2019; Wu and Xie, 2018; WIR, 2005). Greenfield FDI is defined as the establishment of investment projects, and it involves new entities and the setting up of new offices, buildings, plants and factories (Calvelli and Cannavale, 2019; Wu and Xie, 2018; UNCTAD Manual, 2009). It may take the form of a branch, incorporated or unincorporated firms. Mergers and acquisitions FDI is defined as the taking over or merging of the capital, assets and liabilities of existing enterprises (Calvelli and Cannavale, 2019; Wu and Xie, 2018; UNCTAD Manual, 2009). One of its main advantages is gaining knowledge and access to a network of suppliers, raw materials, established channels of distribution, brand names and local and international clientele. Finally, joint venture FDI involves two or more companies aligning together to undertake an investment project.

### **2.1.2 Motives behind Foreign Direct Investment**

There are many motives behind why a firm may choose to invest abroad, and they vary across a broad range of enterprises. For instance, a firm's motivation may vary following an upsurge in experience and successful growth. According to Dunning and Lunda (2008), there are four main reasons, as discussed in the following subsections.



### **2.1.2.1 Natural Resource-Seeking FDI:**

Firms are encouraged to invest in a foreign country to gain access to precise resources at a reasonable cost and of better quality than available in their home country. The key reason for this type of FDI is to increase the profitability and competitiveness of investing firms in their respective markets. There are three categories of resource seeking FDI. The first focuses on seeking physical resources such as agricultural products, fossil fuels, raw materials and minerals. FDI of this nature comprises primary producers and manufacturers, and investors' motivations are based on cost minimisation and the establishment of secure channels of supply. This type of FDI usually involves a considerable capital outlay, and it is location bound. The second category focuses on firms seeking abundant supplies of inexpensive and well-motivated unskilled or semi-skilled labour. This type of FDI is common amongst developed countries' manufacturing and service firms with high labour costs, seeking cheaper labour by acquiring subsidiaries in a foreign country. The last category sees firms seeking to obtain technological skills, management or marketing expertise and organisational skills (Dunning 2014; Dunning and Lunda, 2008). Natural resources-seeking FDI is the most common type of FDI in Africa and ECOWAS, since most countries are endowed with natural resources. Asiedu (2006) claims that natural resources in developing nations are the main reason for FDI, based on an investigation of panel data between 1984 and 2000. However, Okafor et al. (2015), surprisingly, found that FDI in Sub-Saharan Africa was not resource-seeking.

### **2.1.2.2 Market-seeking FDI:**

Firms invest in specific countries abroad with the intention of supplying goods and services in these markets or in other markets in adjacent countries (Dunning, 2014). In most instances, these investment firms have previously exported to these countries. However, due to host countries levelling tariffs, raising costs, putting up barriers or potential market size, the firms invest abroad instead. There are four key factors associated with FDI market-seeking, excluding market size and growth potential. The first relates to the investing firm's key customers or suppliers setting up production facilities abroad. The second relates to foreign firms undertaking production, which

espouses local tastes, cultural needs and natural resources and capabilities. Thus, firms are better placed to serve and compete locally with indigenous companies. A third reason relates to the lower transaction and production costs associated with serving the local market from an adjacent facility. A final reason for market-seeking relates to the idea that firms want to be physically present and involved in a global production and marketing strategy (Dunning, 2014; Dunning and Lunda, 2008).

#### **2.1.2.3 Efficiency-Seeking FDI:**

These investors are diversified large firms with experience in producing reasonably standardised products in cross-border activities (Dunning, 2014). The reason for this type of FDI is to justify the platforms established for resource-based or market-seeking investments in a way that foreign firms can benefit in terms of governance activities. There are two types of efficiency-seeking FDI. The first is intended to focus on the merits of different endowments in various nations, including natural resources, labour and technology. The second type of efficiency-seeking FDI generally occurs in countries with the same economic structures, and the purpose is to derive benefit from economies of scale and scope (Dunning, 2014; Dunning and Lunda, 2008).

#### **2.1.2.4 Strategic Asset-Seeking FDI:**

Strategic asset-seeking FDI represents the fourth type of FDI whereby foreign firms typically advance their long-term strategic purposes by seeking overseas assets to strengthen their global competitiveness. The main incentive is that it costs less than enhancing a global portfolio in human capabilities and physical assets (Dunning, 2014). This practice does not exist to a great extent in Africa, and in other least developing countries, firms form joint ventures to gain access to technology. A joint venture is not typical in ECOWAS.

In summary, this section has examined the definition, motives and types of FDI. This has provided a meaningful depth in our understanding with regards the broader aspect of FDI.

## **2.2 Poverty: Concept and Measures**

This section explains the concepts and measures of poverty.

### **2.2.1 The Concept of Poverty**

The concept of poverty herein is compared to the story of the blind men and the elephant, and how every person arrives at a different conclusion after touching various parts of the animal (Ndhlovu, 2019). The story illustrates the diverse views and characteristics held by different schools of thought on the concept of poverty. Academics' viewpoints are based on their ideological and political stance, theories that explain poverty as a natural phenomenon, a social fact of life, on to debates relating to poverty being the result of the different processes of accumulation, and of the power relations in capitalism. These divergent viewpoints have moulded the classification of poverty into one-dimensional and multi-dimensional concepts (Salcedo and Llanes, 2019). According to Ndhlovu (2019), poverty means either a natural manifestation or the result of a lack of minimum requirements and capabilities, or one that is explicable from the contradictory accumulation process in capitalist society. The World Bank Institute (2019) denotes those affected by poverty as individuals whose expenditure is below a certain threshold, whilst the UNDP (2000) refers to poverty as a marked denial of well-being, i.e. being without food, clothing, shelter, proper medical care or a basic education. According to Ndhlovu (2019), a discussion relating to the concept of poverty stems from the 'trickle-down' to 'solidarity economy (neoclassical approach, basic needs approach, Sen's entitlements and capability approach and participatory models, and Marxian arguments of solidarity economy)'. Similarly, this research adopts the same approach to discussing the concept of poverty, except that the researcher will discuss the neoclassical, basic needs and Sen's entitlements and capability approaches. The reason for choosing these three approaches is due to their applicability to the research area.

The neoclassical approach considers poverty as a natural phenomenon that reflects the lack of opportunities for the poor and therefore explains their low level of productivity, and even their alleged laziness (Ndhlovu, 2019). Neoclassical economists traditionally postulate that the steps

to development involve changes in income over time and that more substantial income levels attained through positive economic growth would constitute higher levels of development (Vink et al., 2019). For example, the neoclassical approach to the trade-growth nexus invokes general equilibrium models with constant or decreasing returns to scale. This income measure, however, fails to reflect development sufficiently, in that per-capita income, in terms of its levels or changes to it, does not adequately correlate with measures of development, such as life expectancy, child/infant mortality and literacy.

The basic need approach was proposed in 1976 at the United Nations Global Employment Conference to address the perceived shortcomings of absolute poverty. Its guiding principle is that development policy must first and foremost focus on reducing absolute poverty or satisfying basic human needs (Weigel, 1986). As noted by Weigel (1986), there are two distinctive characteristics of the approach: it focuses on real consumption from a disaggregated micro-level perspective and draws attention to the role of public goods in the development of the country. According to Jolly and Santos (2016) and Ndhlovu (2019), a basic need approach emphasises meeting the basic needs of persons with disabilities, in order to maintain life and productive employment, without which it is difficult. These basic needs are considered as food, shelter, clothing and other public services. Due to the varying degrees of interpretations and contradictions of the basic need approach, the World Bank (1990) expressed scepticism about its success without economic growth (Ndhlovu, 2019). This resulted from its second characteristic, which has created a good deal of disagreement amongst scholars. Key social objectives (for instance health care, education, drinking water and sanitation), as stressed by basic needs theorists, can only be achieved by public investment in public goods destined for poor communities. The logic behind the approach to public goods is that the poor do not have sufficient demand to promote the supply of these goods through the market system (Ndhlovu, 2019; Jolly and Santos, 2016). Therefore, this approach has been criticised.

Sen's (1993) entitlements and capability approach argues that the neoclassical stance does not deal with issues of well-being and welfare, instead it is striving to make the market better than

the state (Ndhlovu, 2019). Although Sen tries to go beyond the basic need approach, his analysis reveals the same tension as the previous one, namely "between micro and macro, between individual and social, and between formalism, not specificity." Sen's work emphasises individualism, just like the initial work he criticised and failed to challenge in the form of the World Bank Consensus (Ndhlovu, 2019; O'Hearn, 2009). According to Sen (1984a), "the capability approach is concerned with evaluating a person's advantage in forms of his or her actual ability to achieve various valuable functionings as a part of living." Additionally, it interprets poverty in terms of deprivation of space or the failure to meet a minimum or an essential capability, where 'basic capabilities' are referred to as "the ability to satisfy certain crucially important functionings up to certain minimally adequate levels" (Sen, 1993).

The capability approach, like other frameworks, is challenged with issues regarding its evaluation of poverty, the most essential of which is the explanation of necessary capabilities and levels of achievement. In defining basic capabilities, Sen failed to show a list of the minimal essential capability approach as well as guidelines for drawing up a comprehensive list (Stewart et. al, 2007). Alkire (2002) states that the failure to provide a list was considered a willful act, due to the choice across societies and in order to maintain relevance to different cultures.

In summary, the concept of poverty has evolved and remains a challenge for academics, due to the emergence of new theories which contradict existing ideas by focusing on the multidimensional nature of poverty.

### **2.2.2 Poverty Measures (Indicators)**

The purpose of poverty measures/indicators is to enable comparison and to assess the magnitude of extreme disadvantage that occurs to individuals in a society (Alkire and Jahan, 2018; Ravallion, 2017). Besides, the measurement of poverty is essential for monitoring and assessing policy objectives and their impacts on programmes, in order to identify the poor (OECD, 2001). There are many alternative measures, but the most common metrics are listed below.

### 2.2.2.1 The Watts Index

Watts (1968) propounded a poverty measure as a severe constriction on the set choice of households, in that “a measure of poverty should be related to the individual’s or family’s ‘permanent’ level of command over goods and services” (Watts, 1968: 325). The statement that “poverty becomes more severe at an increasing rate as successive decrements of incomes are considered” (Watts, 1968:326) recommends the implication of the logarithmic function

$$PW = 1/n \sum_{i=1}^n \ln(z/y_i) \quad (\text{Eq. 1})$$

The sensitivity of distribution is the fundamental limitation of the Watts Index. The index uses logarithmic functions in its calculations, and it also assumes that poverty is reduced by giving equal support, such as money, to every individual in a state. Nonetheless, transferring equal amounts of money to every individual does not take into account the more affluent homes in the state. Zheng (1993) notes that poverty-related research has not adopted the Watts measure despite evidence revealing its fulfilment of the fundamental axioms of poverty. However, many other studies have indeed implemented it (Chakravarty et al. 2008; Ravallion and Chen, 2003).

### 2.2.2.2 Poverty Gap Approach

The poverty gap approach (PGA) is the second most popularly used approach after the headcount approach, and it represents the average ratio of the poverty gap to the poverty line, shown in the form of a percentage of the poverty line for a nation. A poverty or income gap ratio answers some measurement problems, but some problems still remain. The income gap ratio indicates the relative gap between the poverty line and the average income of the poor:

$$PIGR(y) = \sum_{i=1}^n (z - y_i) / n \quad (\text{Eq. 2})$$

where  $y_i$  - is a well-being indicator (say, income or consumption).

A limitation of the PGA is that it is non-sensitive to income redistribution within the poor unit, in that it fails to account for inequality among the poor and cannot capture severe poverty differences among this cohort. Sen (1976) disapproves of the PGA index, as it fails to account for the income distribution of the poor.

### 2.2.2.3 Headcount Approach

The poverty headcount approach is the most popular index, in which the proportion of the population with incomes below the poverty line is:

$$PH(y,z)= \frac{q}{n} , \quad (\text{Eq. 3})$$

where  $q$  = number of poor,  $z$  = poverty line,  $n$  = number of total populations and  $y$  = the measure of well-being. Nevertheless, the headcount approach has some shortcomings. First, it disregards poverty depth, and it fails to show when the poor become more miserable, as the headcount does not change. In other words, the headcount ignores the severity of poverty in a nation. The calculation of the headcount focuses on households instead of individuals, but the headcount ratio also fails to consider the income distribution of the poor. Regardless of the limitations of its limitations, though, it remains the most popular approach.

### 2.2.2.4 The Sen Measure

Based on the limitations of the headcount and poverty approaches, Sen's (1976) axiomatic approach helps resolve such issues. The Sen measure for large numbers of poor is:

$$PS(y)=PH [PIGR+(1-PIGR)IGp] , \quad (\text{Eq. 4})$$

where  $IGp$  indicates the Gini coefficient among the poor. In comparative terms, Sen's poverty index fulfils the following axioms: focus, symmetry, population replication invariance, increasing poverty line, weak monotonicity and weak transfer. Nevertheless, it fails to satisfy the subgroup decomposability axiom.

Several other researchers have developed alternatives and variations to Sen's index (Giorgi and Crescenzi, 2001; Chakravarty, 1997; Shorrocks, 1995; Vaughan, 1987; Chakravarty, 1983; Kakwani, 1980).

### 2.2.2.5 The Foster-Greer-Thorbecke Approach

Foster-Greer-Thorbecke's (1984) well known decomposable poverty index is widely used in numerous studies:

$$PFGT(y)=1-n\sum_{z-y_i} \alpha q_i \quad (\text{Eq. 5})$$

This approach can be rewritten as the result of the headcount approach  $q/n$  and the average of transformed normalised gaps of the poor:  $\sum(z-y_i)^{\alpha}/q=1$ . It is sensitive to the proportion of the poverty population. As  $\alpha \rightarrow 0$ , the index approaches PH, whereas, for  $\alpha = 1$ , it coincides with the poverty gap ratio PHPIGR.

Since first proposed, the Foster-Greer-Thorbecke (1984) has received several modifications. Ray (2006) adopts the FGT measures and develops a metric to evaluate the efficiency of transfer systems in the attainment of their predetermined objectives. Other researchers (Bourguignon and Fields, 1997; Foster and Shorrocks, 1991) have contributed to improving the model.

#### **2.2.2.6 Human Development Index (HDI)**

The HDI is a composite statistic intended to measure the human development level of any nation and to permit cross-country comparison (UNDP, 2019; Hou et al., 2015). The HDI categorises nations into three development levels, namely developed, developing and underdeveloped, and it denotes a summary measure of mean accomplishment in key dimensions of human development: a long and healthy life (life expectancy), knowledge (education) and a better standard of living (gross domestic per capita) (UNDP, 2019; Human Development Report, 1990). Furthermore, it uses the geometric mean of standardised indices for all three of its dimensions. The main thrust of the HDI is that people and their capabilities should be the ultimate criteria for assessing the development of a nation, and not economic growth (UNDP, 2019).

However, the HDI has been criticised heavily in relation to its methodology. The averaging of the three components (longevity, knowledge and living standards) of the index, in the same way, proposes a flawless substitution between them – and therefore implied trade-offs between the three dimensions (Hou et al., 2015; Ravallion, 1998; Desai, 1991). Scholars argue that nations ranked very closely together can have considerably different development indexes in each dimension. Another criticism focuses on the choice of dimensions incorporated in the HDI (Hou et al., 2015). According to Stewart et al. (2007), a multi-dimensional process should include development features, for instance peace, security, environmental concerns, cultural freedom



and access to social services. Lastly, a more modest criticism of the HDI is a combination of both flow and stock variables (Ephrenesis, 1994). Despite its criticisms, however, it remains a key non-monetary poverty measure.

#### **2.2.2.7 Multidimensional Poverty Index (MPI)**

The MPI was launched in 2010 by the United Nations Development Programme (UNDP) Human Development Report Office (HDRO) and the Oxford Poverty and Human Development Initiative at University of Oxford (UNDP, 2019). According to the Human Development Report (2011:50), “The MPI measures serious deficits in health, education and living standards, looking at both the number of deprived people and the intensity of their deprivations,” and it mirrors the HDI. In addition, the MPI captures multiple overlapping deprivations that individuals in developing nations find challenging in terms of their health, education and standard of living (UNDP, 2019).

The MPI presents a picture of both the incidence of non-income multidimensional poverty (a headcount of those in multidimensional poverty) and its intensity (the average deprivation score experienced by poor people). The MPI, based on its deprivation score level, categorises individuals as follows: near multidimensional poverty, multi-dimensionally poor or in unembellished poverty (UNDP, 2019). As noted by Dotter and Klasen (2014), its key contribution relates to its breadth of nation coverage and its international comparability, whilst another contribution relates to its actionable nature and policy-relevant indicator for nations and agencies, more than the HDI, due to its base on household survey information. Further, the MPI is consistent with the axiomatic methodologies for poverty measurement in a manner that the HDI is not. However, the main criticism of the MPI is based on an ordinal version of the dual cut-off multidimensional poverty measures proposed by Alkire & Foster (2011a).

In summary, this section has examined various poverty measures/indicators, which is important for the study, as it seeks to provide an explanation for the third research objective. The study thus adopts various poverty indicators to examine the impact of FDI in ECOWAS.

## **2.3 FDI and Poverty Theoretical Linkage**

In the literature, no single theory uniquely explains the relationship between FDI and poverty, which appears to be intricate and inconsistent at times, because of the various theories put forward (Kaulihowa and Adjasi, 2018). Thus, previous researchers have used both economics and international trade theories to elucidate this theoretical relationship. This study is no exception, as it draws theories from both economics and international trade to explain the theoretical linkage between FDI and poverty.

### **2.3.1 Economics Theories Linking FDI and Poverty**

The theoretical linkage between FDI and poverty originated in neoclassical or endogenous growth economics theories. Traditional economists propounded economic growth theories to substantiate their argument that increased economic growth and production contribute to economic development and poverty reduction. As noted by Kaulihowa and Adjasi (2018), proponents of endogenous growth theories (Romer, 1990; Lucas, 1988; Koopmans, 1965; Solow, 1956) claim that a rise in national income will likely benefit the poorest income quintile, particularly for inequality-neutral economies, because a rise in the national income will lead to a rise in the income of individuals.

The early works of Solow (1956), Swan (1956), Cass (1965) and Koopmans (1965) culminated in the birth of the neoclassic economic growth theories. Outstanding in this instance was Solow (1956), who developed a growth model with a different vintage of capital. The core contribution of the neoclassical economic growth theories focuses on the economy moving towards a fixed growth rate that depends solely on the rate of technological progress and the rate of labour force growth. However, like any other model, its weakness lies in its failure to explain the long-run growth rate, knowledge accumulation and institutional strength (Romer, 1990). Neoclassical economists consider technology exogenous, as growth cannot explain the reason for technological advances.

During the 1980s, the endogenous growth theory emerged, due to the failure of the neoclassical growth theories to explain long-run growth. According to Ahmad et al. (2019), the endogenous growth theory claims that human capital and technology play crucial roles in development and are the key contributors to self-sustained growth in GDP per capita. Its main contribution is the interpretation of factors related to the long-term growth path. This theory infers that FDI can cause economic growth through knowledge spillover and technology diffusion (Pegkas, 2015; Li and Liu 2005; Borensztein et al., 1998; Romer, 1990; Lucas, 1988). In the framework of endogenous growth, the proponents (Romer, 1990; Lucas, 1988) modelled human capital as an element of long-run growth. Romer (1990) argued that growth in the model is determined by technological change that arises from intentional investment decisions made by profit-maximising agents. The key conclusion of Romer (1990) is that it is an endogenous (internal) factor that is causing growth, not an exogenous factor as claimed by Solow.

The fundamental contribution of endogenous growth theory is to revive and study the determinants of the long-run growth path. In empirical analysis, theoretical differences in the endogenous growth theory are not always clearly identifiable. However, neo-classic and endogenous growth theories have different views on human capital. Romer's (1990) model is a complement to Lucas' (1988) assessment, because human capital promotes technological development, and it remains a factor of production in the model. According to endogenous growth theory, it must be inferred that foreign direct investment can stimulate economic growth through knowledge spillover and technology diffusion. As noted by Dollar and Kraay (2000), growth tends to increase the incomes of the poor proportionately with overall growth, and FDI is the main factor causing growth, and thus it is a central element for poverty reduction.

### **2.3.2 International Trade Theories of FDI and Poverty**

The following are some of the fundamental theories used to explain FDI.

#### **2.3.2.1 Internalisation Theory**

This theory describes the growth of transnational firms and their motivations for undertaking FDI (Denisia, 2010; Buckley, 2009). Buckley and Casson advanced the internalisation theory in 1976,

followed by the parallel pioneering work of Hennart in 1982 and Casson in 1983. The theory states that FDI occurs due to firms' efforts to substitute markets transactions with internal transactions (Buckley and Casson, 2016). Buckley (2009) postulate that multinationals engage in FDI by internalising overseas markets because of imperfections in vital intermediate products (knowledge, human capital, marketing expertise, technology). For instance, a steel company experiencing challenges in the market when seeking to buy iron ore may decide to buy a foreign firm producing the iron ore. The advantages of internalisation include buyer uncertainty, removing bargaining and the avoidance of business time lag (Buckley and Casson, 2016; Agarwal, 1980). On the other hand, the cost of internalisation is high when a single foreign market becomes pluralistic in domestic markets (Buckley and Casson, 2016).

The theory increases understanding of why firms reject export and licensing in favour of FDI, due to high transaction costs (Moosa, 2002). However, it is contended that the internalisation theory is too general compared to other theories representing a subcategory of the general theory (Nayak and Choudhury, 2014; Moosa, 2002). Rugman (2010), for instance, claims that the theory lacks empirical content, as it is too general and attempts to reconcile the internalisation theory with the Dunning eclectic theory. However, the author notes that the fit is imperfect, and the main reason behind this misalignment is that Dunning focuses on outward foreign direct foreign investment in host countries, while the Rugman matrix considers the company-wide strategy for MNEs in both the domestic country and the host country.

### **2.3.2.2 Location Theory**

This theory assumes that FDI exists due to production factors (labour and natural resources) being affected by international immobility, which causes variances in the costs involved in production and is linked to location advantage (Moosa, 2002). Such an example is low wages. Hence, the wage gap in home and home nations is pivotal to FDI. Location theory arguably is the reason why nations such as China and India continue to attract more labour-intensive MNCs (for

example clothing and footwear) from high-wage nations (Lei and Chen, 2011; Demirbag et al., 2007; Nagesh, 1994).

However, it should be noted that high-quality labour attracts higher wages, which does not support the cheap labour and FDI hypothesis. For example, banking and research & development work is never relocated to other countries because of cheap labour (Wheeler and Mody, 1992). Studies supporting the theory that low- wages lure FDI are mixed (Moosa, 2002), in that some see positive effects (Love and Lage-Hidalgo, 2000; Culem, 1988) and others find no connection (Kravis and Lipsey, 1982; Nankani, 1979).

It is also vital to note that apart from the wage rate as an FDI determinant, cross-country labour productivity differences are also a crucial factor (Moosa, 2002). The location advantage theory's applicability is not primarily limited to low wages but also to the other production factors. A firm, for instance, may decide to locate its factory overseas in a nation where it is cheap to generate hydroelectric power. Equally, a copper firm could build its factory overseas closer to the limestone mine, because of the pivotal nature of the copper. This represents a significant location advantage in terms of cost savings, shipment delays and other constraints related to trade barriers (Moore, 2002). Lastly, capital is another important production factor, as it will flow into low-capital nations. The above factors illustrate the reasons why multinationals get involved in FDI irrespective of the risks related to setting up industrial activities overseas (Moosa, 2002; Hood and Young, 1990).

### **2.3.2.3 Market Size Theory**

This theory states that the size of the market determines the host nation's quantity of inward FDI. This is calculated according to the GDP of the nation or a firm's sales in the host economy. The theoretical model that establishes output and domestic investment association is founded on the neoclassical domestic investment theory in which business investment soars, based on

sales (Denisia, 2010; Moosa, 2002). When the size of the host nation market becomes more prominent, and the economies of scale attract firms, FDI inflow aims at a rise in the economy (Lim, 2001; Shatz and Venables, 2000; Tsai, 1994).

One drawback of this theory relates to the importance of GDP calculation to determine market size from a theoretical perspective. This theory does not have the foundation to support it even though FDI empirical researches used it, because of the lack of an overseas firm's sales data in the host nation (Moosa, 2002). Hence, several researches represent the market size measure as a macro-level variable. Key to this notion is that FDI seeks to aid domestic markets and not export; hence, market size leans towards FDI (Denisia, 2010; Moosa, 2002). Several studies supporting this theory reveal that market size plays a pivotal role in explaining a host nation's inward FDI location (Nayak and Choudhury, 2014; Fukumi and Nishijima, 2010; Greenaway et al., 2007; Asiedu, 2006). However, other researchers find a negative relationship between market size and inward FDI flow (Radulescu and Robson, 2008; Filippaios et al., 2003; Lipsey, 2000).

#### **2.3.2.4 Monopolistic Advantage Theory**

This theory seeks to explain why MNCs decide to internalise their activities. The monopolistic advantage theory suggests that the presence of "monopolistic" advantages is an indispensable condition for a company to produce in another country (Lall and Siddharthan, 1982). Multinational companies are often at a disadvantage compared to domestic corporations, because they must deal with external obligations, lack of local knowledge and the high cost of obtaining this information in other countries; however, the presence of a "monopolistic" advantage offsets some of the costs multinational companies incur. Therefore, a monopolistic advantage helps multinationals make profits that are not easily accessible to local businesses and are successful in the international arena (Salimath, 2009). Some criticism of this theory relates to its failure to explain how monopolistic advantages occur, that it is static and that it assumes a large firm is going international for the first time. Another criticism relates to the suitability of

the theory to explain the activities of firms in emerging markets engaging in FDI that do not have monopolistic advantages that permit them to succeed in overseas markets.

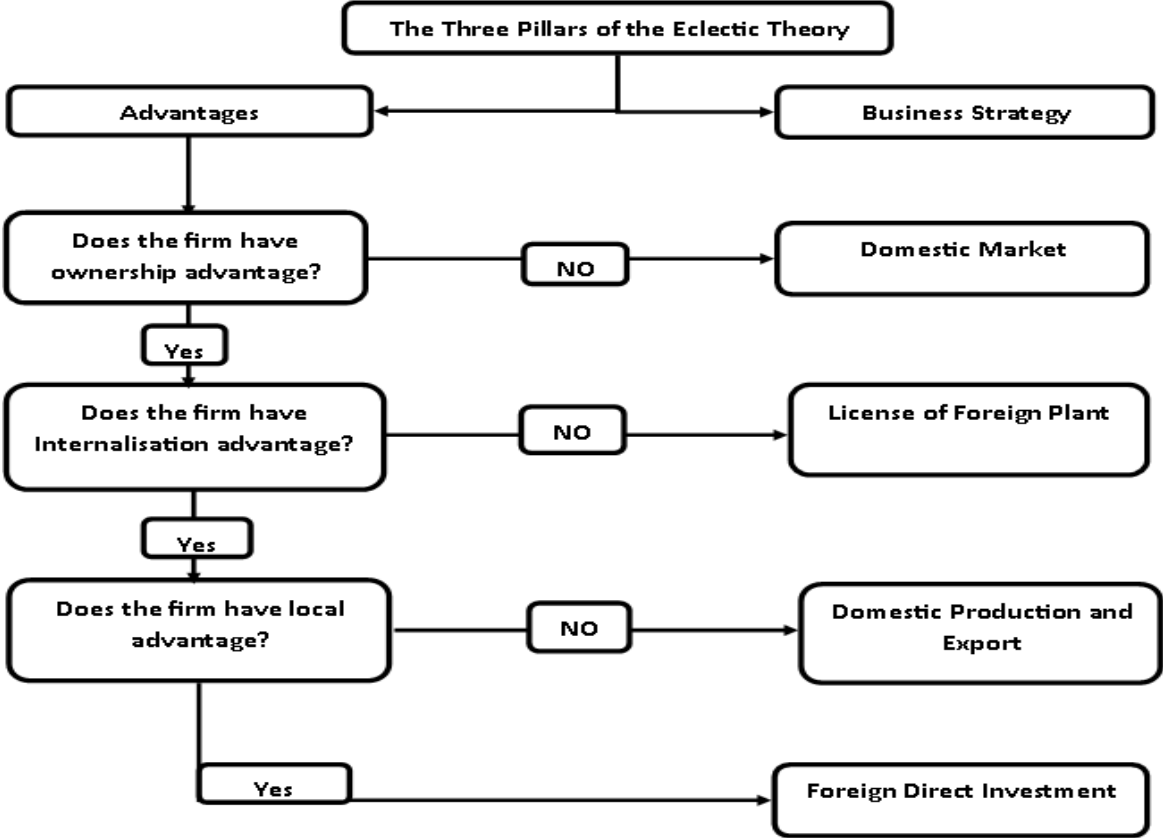
### **2.3.2.5 Eclectic Theory**

The eclectic paradigm is a general guide with regards to the extent and pattern of determining production abroad by the host nation's enterprise, and that of local production owned or controlled by overseas enterprises (Dunning and Lundan, 2008). In the last three decades, the eclectic paradigm has been the fundamental theory adopted to explain the activities of MNEs, and it has been widely applied in many social science fields (Nayak and Choudhury, 2014; Cantwell and Narula, 2003). The theory integrates the three conditions of international production: ownership (O), location (L) and internalisation (I) to provide the most detailed explanations of firms' foreign production. A firm should fulfil all three of these conditions to undertake an FDI (Nayak and Choudhury, 2014; Moosa, 2002). First, it must have ownership of intangible assets which give it a comparative advantage over other enterprises. Second, the ownership advantage must be more beneficial for the enterprise to use instead of selling or leasing to other enterprises. And third, the enterprise must benefit from the use of these advantages simultaneously with at least some factor inputs located overseas. In Figure 3.1, the process leading to FDI is explained in diagrammatic form.

Dunning and Lundan (2008) explains the advantages of all three conditions. Ownership advantage includes property rights and intangible asset advantages, the ability to reduce the cost of inter-firm transactions and advantages seen with collective governance, i.e. organising with complementary assets. Location advantage includes natural and created resource endowments and markets, international transport and communication costs and investment incentives and disincentives, artificial barriers (e.g. import controls) to trading in goods and services, societal and infrastructure provisions (commercial, legal, educational, transport and communication) and cross-country ideological, language, cultural, business and political differences. Internalisation advantages include avoiding search and negotiating costs, costs of moral hazard and adverse

selection and protecting the reputation of the internalising firm, avoiding costs related to unfulfilled contracts and ensuing litigation, capturing economies of interdependent activities, compensating for the absence of future markets and avoiding or exploiting government intervention. Narula and Santangelo (2012) argue that the benefits of location are not always public goods, as they may not be available to all businesses at a similar or marginal cost.

**Figure 2.1: The Three Pillars of the Eclectic Theory**



Source: Author’s design.

**2.4 FDI Impact on Poverty**

In many nations, both developed and developing, FDI plays a significant role, as it is considered the engine of economic growth and development (Pegkas, 2015). However, the economic and social impacts of FDI are nearly impossible to measure exactly. This relationship has been plagued with controversies and has caused more current investigations to unmask the benefits of FDI on



poverty. Both FDI and poverty have independently inspired extensive theoretical and empirical literature, yet a gap still exists in the literature.

A large and growing body of literature has investigated FDI and poverty theoretical impacts and divided it into two categories: direct and indirect (Ahmad et al., 2019; Ucal, 2014; Hansen and Rand, 2006; Calvo and Hernandez, 2006). Based on endogenous growth theories, FDI may directly affect poverty via the labour market in terms of creating employment and human development, and indirectly via increased economic activities and productivity. However, the bundle of asset FDI possibly will offer to host nations generally includes capital, technology, market access, employment, skills and management techniques (WIR, 1999). We now review the literature on the impact of FDI and poverty, using both the direct and the indirect approach.

#### **2.4.1 Indirect Impact of FDI on Poverty**

The indirect effect of FDI on poverty occurs at the macroeconomic level through economic growth (Chanegriha et al., 2018; Pegkas, 2015; Ucal, 2014; Gohou and Soumare, 2012; Hemmer et al., 2002; Klien et al., 2001; Dollar and Kraay, 2000). This may occur through various channels, including raising capital, backward and forward linkages, technology and knowledge transfer, infrastructure and management and marketing skills (Adams, 2009a; WIR, 2007; Calvo and Hernandez, 2006; Hemmer et al., 2002; Borensztein, 1997). The reduction of poverty through economic growth leads to a better standard of living due to an increase in GDP, enhanced technology and productivity and a better economic environment (Ucal, 2014). The indirect channel is now examined further.

##### **2.4.1.1 Raising Capital**

Economic underdevelopment is frequently envisioned because of capital shortage. A generally acknowledged principle in economic growth analysis is that nations must dedicate considerable efforts to improving and increasing the quality and quantity of their physical stock of capital (WIR, 1992). This hypothesis remained to be fundamental to the classical political economy of the nineteenth-century era. According to the Harrod-Domar's 1940 economic growth model, a nation

dedicated to savings which are transformed with physical capital must increase its share in output. Solow's (1956) model indicates that the result of an increase in capital stock is growth, and even current economic models support the claim that the expansion and mobilisation of savings follow growth through the advancement of the financial system. For this reason, FDI is considered an economic growth accelerator, due to the supplementary role in domestic capital formation (Amighini et al., 2017; Calvo and Hernandez, 2006; Jalilian and Kirkpatrick, 2002), because of the external finance provided by FDI, which may decrease the financial constraints on investment due to low savings in developing countries. However, Yiheyis and Cleeve (2018) find no evidence that FDI contributes to domestic capital formation in Africa.

The raising of total capital formation may lead to domestic subsidiaries being established by TNCs. This goes together with the creation of employment and increasing tax revenues for the national government. All the phenomena mentioned above are anticipated to contribute to poverty alleviation in developing countries. Nonetheless, the lack of adequate regulatory agencies may not always lead to new capital formation; instead, mergers and acquisitions may take precedence. Regardless of new capital formation, it is contended that TNCs tend to be more competitive compared to domestic firms, and yet this may still lead to the crowding out of domestic firms.

#### **2.4.1.2 Backward and Forward Linkages**

A backward linkage refers to *'every non-primary economic activity which will induce attempts to supply through domestic production the inputs needed in that activity'* (Hirschman, 1958:100). In other words, backward linkage means an increase in local production, triggered because of non-primary economic activity. Forward linkage refers to *'every activity that does not by its nature cater exclusively to final demands'*, and which *'will induce attempts to utilise its output as inputs in some new activities'* (Hirschman, 1958:100). A large volume of published studies describes the role of linkages as a critical ingredient in economic development (Amendolagine et al., 2013; Smarzynska, 2004; Hirschman, 1958). Rodriguez-Clare (1996), for instance, draws our attention to the distinctive theoretical role often observed in backward and forward linkages relative to

FDI in developing nations, by highlighting in the model that the positive effect of an MNCs in the host nation hinges on its relative proclivity to create backward linkages compared to local firms. As noted by Wang (2010), FDI generates robust effects on total factor productivity growth through both forward and backward inter-industry linkages.

Since the increase in FDI is anticipated to raise the productivity of local firms as well as the host economy's wage rates, a backward linkage could be considered a key factor in reducing poverty (Ha and Giroud, 2015; Calvo and Hernandez, 2006). On the contrary, poverty will increase if backward linkages via FDI are smaller compared to local firms, since the latter are then displaced by the competition effect (Markusen and Venables, 1999). Additionally, FDI may crowd home-grown investment through backward and forward linkages pushing economic growth. However, if MNCs export their output, then overall welfare will increase. Amendolagine et al. (2013) suggest that good institutions and a reliable legal system are prerequisites for increasing the linkages created by foreign businesses.

#### **2.4.1.3 Advanced Technology and Knowledge Transfer**

FDI is considered a crucial channel for the spread of technology in various developing nations (Malikane and Chitambara, 2017; Osabutey et al., 2014), because FDI typically comes with original technologies and innovations. Furthermore, it is a crucial element of growth in productivity, since it can enhance local firms in developing nations catch up with international technology (Newman et al., 2015). Also, FDI transfers knowledge and products to local firms, which in turn enhances their technological knowhow through productive spillover (Demena et al., 2017; Osabutey et al., 2014; Alfaro et al., 2009). A key advantage of foreign firms over domestic firms in developing nations is superior technology, and the existence of foreign firms in developing nations is anticipated to be linked to the transfer of more advanced technological and managerial knowledge to local host nation firms (Osabutey and Jackson, 2019).

The transfer of superior technology and knowledge to domestic firms promotes economic growth and development (Newman et al., 2019; Calvo and Hernandez, 2006). According to Meyer and

Sinani (2009), local firms can attract productivity spillovers from overseas firms, but this differs based on domestic firms' capability and motivation to respond to foreign entry. Domestic firms, through FDI, benefit from advanced technology, knowledge spillover and an increasing source of competition. These effects are contingent on the domestic firms' catch-up potential, for example by imitating a foreign firm, management skills, environmental standards and training home-grown workers. However, in the absence of absorptive capacity (education and institutions), the nation will not benefit fully from spillovers (Osabutey and Jackson, 2019; Demena et al., 2017; Nunnenkamp, 2004; Borenszein, 1997).

#### **2.4.1.4 Infrastructure**

There is no macroeconomic theory to explain the economic effect of infrastructure on development. However, the general assumption is that infrastructure promotes economic growth (Marozva and Makoni, 2018; Carlsson et al., 2013). It has been pointed out that a nation with a well-developed infrastructure raises investment productivity and hence stimulates FDI flow (Marozva and Makoni, 2018; Asiedu, 2002). According to Palei (2015), a reliable and efficient infrastructure development promotes economic growth and influences the investment potential and attractiveness of a nation. Due to the influx of FDI, the central government of a host nation may be influenced to undertake infrastructural development projects such as roads, bridges, harbours, water and electricity supply, which might facilitate domestic investment as well. This in turn will improve economic growth and, hence, reduce poverty. Infrastructure is a crucial determinant of FDI, so governments seeking to attract more FDI should concentrate on expanding existing infrastructure.

#### **2.4.2 Direct Impact of FDI on Poverty**

FDI direct impacts occur at the microeconomic level and through various channels. Below the researcher discusses some of the key channels through which FDI directly affects poverty.

#### **2.4.2.1 Employment**

Labour costs are an essential factor in influencing inward FDI. Therefore, a country with cheaper labour costs has the potential to attract more FDI, which in turn leads to employment creation. According to Hemmer et al. (2002), FDI directly affects poverty by providing opportunities, mainly with regards to employment creation and training for home-grown workers. Employment creation is considered a critical effect of FDI on poverty (Kaulihowa and Adjasi, 2018; Ucal, 2014). As noted by Ucal (2014), FDI (particularly labour-intensive) provides direct and significant support to the diminishing poverty triggered by unemployment.

In this regard, the mode of FDI entry into the host country has a significant effect on the reduction of unemployment. For FDI to have a desirable effect in this regard, greenfield investment is more preferable than mergers and acquisition modes of entry of FDI, because greenfield is argued to create more employment opportunities in the host country. On the contrary, FDI may increase unemployment when it takes the form of a merger and acquisition, since it is followed by the restructuring of the merged firms (Ucal, 2014; WIR, 1999). For this channel to have a more significant impact on poverty, FDI-related activities should create more employment than lost jobs.

#### **2.4.2.2 Human Capital Development**

The concept of human capital is explained as the set of intangible resources entrenched in the labour factor that enhances better-quality productivity (Goldin, 2016). These are linked to knowledge and skills developed through learning and experience. The theory of economics assumes that human capital is one of the vital determinants of FDI inflows (Cleeve et al., 2015). Human capital advances the quality of labour and collectively, its productivity (Cleeve et al., 2015; Bodman and Le, 2013; Mankiw et al., 1992), but it also fosters the absorption of innovative ideas (absorption capacity) and products previously developed by other nations. Campos and Kinoshita (2003) contend that education simplifies the absorptive capacity of indigenous workers and hence reduces training costs for overseas investors, while Barro (2001) points out that human capital is the most important vehicle for the diffusion of technology. Previous researches have

shown there is a positive correlation between FDI and human capital (Kottaridi et al., 2019; Salike, 2016; Cleeve et al., 2015; Moosa, 2009; Asiedu, 2006). However, results from other studies have shown that the relationship is insignificant (Bhaumik and Dimova, 2009; Hsiao and Shen, 2003; Kucera, 2002; Morisset, 2000).

#### **2.4.2.3 Increase in Government Revenue (through Taxes and Royalties)**

FDI through taxes and royalties paid to government contributes directly to poverty reduction, as a result of increased government revenue, which in turn means that governments can increase spending on essential items as health, education and infrastructure.

#### **2.4.2.4 Corporate Social Responsibility**

FDI directly influences poverty through corporate social responsibility (CRS) programmes, by providing school and medical facilities for employees and their families (Akwaowo and Swanson, 2016; Ucal, 2014; Jenkins and Thomas, 2002). According to Ndlovu (2011), CSR in South Africa, unlike many African nations, involves not only corporate citizenship, but also affirmative action and skills development. CRS is defined as a process that aims to accept responsibility for a company's activities and to encourage a positive impact through its activities on the environment, consumers, employees, communities, stakeholders and all other members in the public domain who can also be considered as stakeholders (Tai and Chuang, 2014). Both nationally and internationally, CRS is becoming an increasingly vital element in national and transnational political programmes (Williamson et al., 2014). Therefore, its role in poverty reduction is vital. Akwaowo and Swanson's (2016) study of CRS and poverty reveals that in order to reduce poverty in developing countries, and the world in general, it will take a concerted effort from both corporations and the public sector, because CRS programmes aimed at benefiting the poor are not actually effective. Hence, they recommend that the poor should have a stake in such companies.

#### **2.4.2.5 Financial Development**

Financial development is explained as “the improvement in quantity, quality and efficiency of financial intermediary service (Calderon and Liu, 2003: 326).” FDI can be an important component of financial market development in small economies (Fauzel, 2016), as it symbolises the heart of a modern economy and is the main engine for fostering economic development (Aibai et al., 2019). Financial development also encourages economic growth, reduces poverty and inequality and finances small and medium-sized enterprises. A good financial system can help convert savings into investments, optimise the allocation of resources, irrespective of time and place, and share risks for investors (Aibai et al., 2019). Hence, it is argued that in the long run, nations with advanced financial systems grow quicker (World Bank, 2018). Many quantitative researches on the subject underscore that financial development is positively correlated with economic growth (Aibai et al., 2019; Levine 2005; Pagano 1993). Hermes and Lensink (2003) argue that the advance nature of the financial system of the host nation is a vital prerequisite for FDI to have a positive influence on economic growth. Lee and Chang’s (2009) findings indicate that FDI potential gains are associated with financial development. However, Dutta and Roy (2011) claim that the effect of financial development on FDI becomes negative beyond a threshold level of financial development.

#### **2.5 FDI and Poverty in the Empirical Literature**

Considerably many disagreements cloud the empirical literature on the effect of FDI on poverty. These discrepancies revolve around the impact of FDI on host countries’ economic growth and poverty reduction in the form of positive, negative and insignificant results. Initial empirical studies on FDI support its growth-enhancing hypothesis characteristics. While this study does not focus on the FDI and economic growth impact, it does review the literature in order to add more depth to the research. In this study, the empirical literature review is separated into two parts. The first part examines the literature on FDI and growth, while the second part examines FDI and poverty. These are systematically reviewed below:

Grounded in economics theories, orthodox economists propose that increased economic growth will reduce poverty. As noted by Dollar and Kraay (2000), growth tends to increase the incomes of the poor proportionately with overall growth; FDI is the main factor causing growth, and thus it is a central element for poverty reduction. By drawing on the FDI and poverty linkage, Klein et al. (2001) confirm that economic growth is the most crucial factor affecting FDI, and its indirect impact on decreasing poverty through economic growth leads to better living standards due to an increase in GDP and improvements in technology and productivity. Several studies thus far have linked FDI with positive economic growth (Bouchoucha and Ali, 2019; Adams, 2009; Borenszein, 1997).

A recent study by Bouchoucha and Ali (2019) examines FDI impacts on economic growth in Tunisia, using time series data between 1980 and 2015. The empirical results confirm that FDI has a positive impact on economic growth in both the short and the long term. Iamsiraroj's (2016) results from the FDI and growth analysis show that the overall effects of FDI are positively associated with growth. A study by Carkovic and Levine (2002) uses modern statistical methods and two new databases to re-examine the FDI and economic growth relationship. After resolving biases troubling previous researches, the authors' analysis reaches a different conclusion that the exogenous component of FDI fails to exert a strong, independent effect on growth. Zandile and Phiri (2019) study FDI impacts on economic growth in Burkina Faso for the period 1970-2017, using the ARDL bounds cointegration analysis. The authors' result did not establish any direct or indirect effects of FDI on economic growth, and they concluded that policy-makers should prioritise policy reforms and develop a robust economic relationship with global partners to build investors' confidence, which has been lacking. Adam (2018) investigates the causal relationship between FDI and economic growth in thirteen ECOWAS countries, using both time domain and frequency domain testing procedures for the period 1970-2015. The finding indicates that the time domain is not adequate in detecting causality, and the author recommends that economic growth leads FDI calls for ECOWAS heads to reconsider the level of sacrifices they make to attract investment into the region.



Also, numerous other studies have attempted to explain not only the FDI and economic growth linkage, but also the agents of growth (De Mello, 1999; Borenszein, 1997). According to Borenszein (1997), FDI is pivotal for technological transfer and impact growth far more than local investment. The author concludes that with only enough absorptive capacity of the latest technology in the host country, FDI can contribute more to growth. Wang (2010) argues that an increase in a firm's absorptive capacity increases the impact of FDI on total productive growth through forward inter-industry linkages. De Mello (1999), however, indicates that even though it is anticipated that FDI will influence long-run growth in the host nation through technological upgrades and knowledge spillovers, the growth-enhancing effect is based on the complementary and substitution relationship between local investment and FDI.

Adams (2009) reviewed the FDI and growth literature in Africa and other developing nations. The results reveal that FDI can contribute to the economic development of the host nation in two main ways, namely the augmentation of domestic capital and enhancement of efficiency through the transfer of new technology, marketing and managerial skills, innovation and best practices. Further, FDI has both benefits and costs, and its impact is determined by country-specific conditions in general and the policy environment in particular in terms of the ability to diversify, the level of absorption capacity, targeting of FDI and opportunities for linkages between FDI and domestic investment. The findings of the review suggest that FDI is a necessary but not adequate condition for economic growth.

Alfaro et al. (2004) studied FDI, growth and financial market linkages. Using a continuum as indexed for the economy model, the authors' results suggest that with good financial markets in the host economy, FDI will benefit from spillover of knowledge. The authors conclude that if the positive impact of FDI on growth is to be attained, the advancement of the domestic financial market is essential. Li and Liu (2005) examined if FDI can affect growth, by using a different panel data approach from 1970 to 1999 for 84 nations. Using a different approach from early researchers, the authors find a positive effect of FDI on growth in developing nations. The result suggests that FDI not only influences growth directly, but it also does it through interaction with

other variables. The authors conclude that FDI interacting with human skills affects growth positively, while interacting with technology has a negative effect. This contradicts the earlier findings of Borensztein (1997) that technology transfer is pivotal for economic growth.

The second aspect of the empirical literature focuses on the FDI and poverty linkage, which has been widely investigated, albeit the results are inconclusive (Kaulihowa and Adjasi, 2018; Lehnert et al., 2013; Jalilian and Weiss, 2004; Klein et al., 2001). Some previous papers examined the relationship by adopting a unidimensional measure, whilst others adopted a multidimensional poverty measure. This section of the empirical literature review is separated into two subsections. First, the researcher examines studies assessing FDI and poverty using a unidimensional/monetary poverty measure, and second, it assesses studies using a multidimensional poverty measure.

In the early years of FDI and poverty studies in development economics, several researchers adopted a unidimensional/monetary measure for poverty. The widely accepted notion at that time was that economic growth was the only factor enhancing poverty reduction, and so many of the studies undertaken used unidimensional poverty measures such as GDP per capita, the poverty gap and the headcount ratio for international comparisons and analysis.

Hung (2005) analysed the relationship between FDI and poverty between 1992 and 2002 in a sample of 12 provinces and cities in Vietnam. Using poverty incidence as a measure of poverty, and using panel data, the study found FDI reduced poverty. The result quantified the impact of FDI inflow, stating that a 1% increase reduced the number of people living in poverty by 0.05%. The results further confirm that the direct effect of FDI on poverty reduction is higher compared to the indirect effects seen through GDP growth. Jalilian and Weiss (2002) studied FDI and poverty in the ASEAN region, and they noted the ongoing debate on the direct and indirect impacts, for which formal quantitative testing of these propositions was minimal. After a careful review of the theoretical model and examining data of sample nations to quantify the FDI-growth-poverty relation. The authors' results confirm a positive relationship between FDI and

poverty reduction, particularly noting that FDI inflows in the ASEAN region are related to higher economic growth, and poor people's income and income growth have a close relationship.

Jugnath et al. (2016) examined the extent to which FDI flowing into Mauritius reduced poverty or increased welfare for the period between 1980 and 2013, using time series data. The findings suggest that FDI enhances poverty reduction, but they also suggest a unidirectional causality between FDI and poverty reduction and that FDI reduces poverty through various channels, such as employment, government spending and trade openness, while debt does not contribute to poverty reduction. Zaman et al. (2012) examined the FDI and poverty relationship in Pakistan between 1985 and 2011, employing a poverty headcount as a key determinant variable and Ordinary Least Squares. The results indicated that a positive FDI and poverty reduction relationship exists at the rural, urban and national levels. The result also highlights that a 1% increase in FDI reduced poverty by 0.47% in urban areas, 0.44% in rural areas and 0.46% at the national level.

Mahmood and Chaudhary (2012) examined the relationship between FDI and poverty reduction in Pakistan between 1973 and 2003, employing the poverty headcount as a proxy for poverty and the autoregressive distributed lag (ARDL) approach, with their result confirming that FDI decreases poverty in Pakistan. In a similar study, Fowowe and Shuaibu (2014) carried out a study of the FDI inflow and poverty relationship in designated African nations. Using the GMM approach, the results indicate a positive relationship between FDI and poverty reduction. Furthermore, the result confirms that institutional quality, human capital and financial development are associated with poverty reduction. Ucal (2014) investigated the FDI and poverty relationship in designated developing nations at the macro level, by developing a set of data and an econometric model. The investigation indicates that an empirically positive relationship exists between FDI and poverty, and hence FDI decreases poverty in the selected developing nations. As noted by Israel (2014), the ECM-based estimation results found that FDI and poverty reduction are positively related, and hence additional FDI to Nigeria should be tolerated, particularly proposals offering employment opportunities.

Uttama (2015) examined the determinants of FDI and other related factors in ASEAN countries, using a spatial panel data model and spatial data between 1995 and 2011. The results show that FDI has a positive impact on poverty reduction, based on the sample of economies. Ogunniyi and Igberi (2014) investigated the FDI and poverty relationship in Nigeria from 1980-2012, using the ordinary least square estimation approach. The authors found a positive but not significant FDI impact on real per capita income. Thus, FDI has the potential to reduce poverty in the country. Klein et al. (2001) claimed that in the effort to reduce poverty, FDI – amidst other approaches – remains the most effective. The authors found growth and poverty to be complementary, and growth is the main factor affecting poverty reduction, for which FDI is key to realising it. Economic growth is essential, due to the funding of programmes such as social services to the poor, water and energy and roads, which evidently benefit from reliance on foreign investors.

In addition, a considerable amount of literature that has been published in developing regions and country-specific contexts has found the FDI and poverty relationship to be negative. Nagou (2017) examines foreign capital effects on poverty reduction in ten West Africa nations between 2000-2014, using a simultaneous equation model. The empirical findings show that foreign capital affects poverty through growth and inequality, and the total effect on poverty alleviation is adverse when the inequality effect outweighs the growth effect. The author recommends that foreign capital inflow policies should take into consideration mutations in socio-economic countries. Mold (2004) disputes previous papers suggesting that, by accelerating economic growth, FDI is a determining feature in poverty reduction, by considering the stylistic facts and existing empirical evidence on its contribution in this regard. Using a framework and the work of trade economists to present a simple breakdown of FDI impacts, segregated into “growth-enhancing” and “distributional”, the results find differing views on the present conventional wisdom, and there is little evidence to show that FDI is a vital tool for poverty reduction. De-Graft Yankson (2019) examines FDI inflow impacts on household consumption expenditure in Ghana between 1975 and 2016, using the ordinary least square estimation technique. The findings reveal that FDI negatively influences household consumption, because it is mainly directed at the

extractive sector and MNCs' profits are repatriated back to their home countries, leaving nothing to invest in domestic consumption. The author recommends that the government should divert excellent policies and incentives provided to foreign investors, in order to develop human capital and improve infrastructure for domestic investors, as this can have a significant positive impact on household expenditure compared to foreign direct investment.

Bharadwaj (2014) examines FDI impacts on poverty for the period 1990 – 2004 for 35 developing nations, using FDI as a globalisation measure, the headcount ratio and poverty gap as poverty proxies and panel regression as an estimation technique. The authors' results reveal a negative FDI relationship when headcount is used as a proxy. Huang et al. (2010) investigate the FDI and poverty relationship for 12 Eastern and Latin American nations for the period 1970 - 2005. Using an estimation technique involving unbalanced panel data, and the mean income of the poorest quintile of the population as a measure of poverty, the results suggest a negative FDI and poverty relationship. In a similar study, Ali et al. (2010) examine the connection between FDI and poverty from 1973 to 2008, using estimation time series data techniques and autoregressive distributed lag (ARDL), and the poverty headcount as a poverty measure. The findings suggest a negative impact of FDI on poverty reduction in Pakistan, in both the short and the long run. Tsai and Huang (2007) examine the effect of inward FDI on poverty in Taiwan, employing a time series data estimation technique between 1964 and -2003. The study uses the mean income of the bottom quintile as a poverty measure, and the results suggest an insignificant FDI effect on the average income of the poor.

In addition to unidimensional poverty measures, a new wave of FDI and poverty studies that has recently emerged emphasises the multidimensional nature of poverty, because poverty, according to the UNDP (2019) is multifaceted and there are limitations to the unidimensional poverty approach, as discussed in Chapter Two. Several researchers have adopted a multidimensional indicator to study the impact of FDI on welfare. These poverty and welfare empirical studies are discussed as follows: positive results, negative results and mixed results. Gökmenoğlu et al. (2018) investigate the impact of FDI on the Human Development Index in

Nigeria between 1972 and 2013, using Johansen's cointegration and Toda-Yamamoto's estimation techniques. The results indicate that FDI has a significant impact on HDI in Nigeria. The authors conclude that the effect, however, is a complicated issue; hence, policymakers should consider the merits and demerits of FDI inflow in relation to various areas of HDI, in order to derive maximum impact.

Sharma and Gani (2004) investigate the impact of FDI on human development for middle- and low-income nations between 1975 and 1999, using HDI as a proxy. The conclusion of the analysis shows a positive FDI and human development relationship for both categories of nations. Similarly, Lehnert et al. (2013) study FDI and the mediating impact of a nation's local governance on the welfare and knowledge infrastructure of host nations. Using five years of panel data for 175 nations, the results show that, in general, FDI significantly influences the host nation's welfare and knowledge infrastructure, and local governance positively mediates these relationships.

Ahmad et al. (2019) reinvestigate the impact of inward FDI on poverty reduction in the ASEAN and SAARC economies. Using FDI net inflows per capita and HDI as the primary variables from 1990 and 2014, the study confirms the positive, robust and significant relationship between FDI net inflows and poverty reduction in Asia. On the other hand, the study points out the considerable dissimilarities between South Asia and Southeast Asia. Adu (2018) examines the impacts of FDI in the mining sector on rural poverty in Ghana, using a qualitative research technique, and employs New Institutional and Marxist theoretical perspectives. The results show that although mining can reduce rural poverty through income generation, job creation and corporate social responsibility, the country's weak institutional capacity, coupled with the capital-intensive nature of mining activities and the limited amount of CSR, limit mining opportunities to reduce poverty in Ghana's mining communities.

Ganic (2019) examines the validity of FDI and the poverty relationship in 12 European transition and post-transition nations for the period 2000-2015. The results indicate that this connection

varies between two regions (the Western Balkan region and the Central European region), with a positive effect seen in the Western Balkan region. Reiter and Steensma (2010) examine the FDI and human development relationship, using HDI as a proxy for human development and unbalanced panel data, in a sample of 49 developing nations from 1980-2005. The authors' results show that FDI has a robust, positive impact on human development and poverty reduction, but only when certain restraints and discrimination are placed on FDI. Gohou and Soumare (2012) re-examine the FDI and poverty relationship in Africa, using FDI/GDP and HDI as crucial variables. The authors' results find a robust and significant FDI and poverty relationship on the continent, but within Africa, the results reveal some significant differences and find that FDI is less impactful in rich nations compared to developing nations.

Soumaré (2015) investigates the FDI and welfare relationship in North African nations, using FDI/GDP and HDI as proxies. The results indicate a robust and positive FDI and welfare improvement relationship in North Africa, though there are sizeable variances between nations in the region. Furthermore, the results indicate that FDI enhances growth at the aggregate level by increasing government revenue, and in specific industries (such as extractive, services and tourism, construction and utilities) FDI is predominant compared to other industries in the non-extractive primary industries, where few exist – this shackles pro-poor sectors and highly labour-intensive industries with a higher possibility of spillover effects in society. Kaulihowa and Adjasi (2018) studied the impact of FDI on welfare in Africa between 2000 and 2003, using panel data to explore multifactorial and non-monetary measures of welfare and the nonlinear FDI and welfare impact. Additionally, they used Driscoll and Kraay's standard errors and the augmented mean group (AMG) estimator by Eberhardt and Teal (2010) to account for cross-sectional dependence, endogeneity and heterogeneity within panel units. The authors found that even though FDI does indeed influence welfare, the nonlinear terms results are mixed. Nevertheless, robust evidence shows that FDI is ultimately welfare-enhancing when a non-monetary indicator is used.

Magombeyi and Odhiambo (2018) examined the FDI and poverty causal relationship for the period 1980-2014, using time series data. The study used the autoregressive distributed lag (ARDL) bounds testing approach to cointegration and ECM-based causality tests. The authors found a distinct unidirectional causality effect caused by FDI on welfare in the short run and the long run when welfare is measured by the infant mortality rate and life expectancy. Nevertheless, the research did not indicate any causality, regardless of the period considered, when poverty was proxied by household consumption. The authors concluded that the FDI and poverty reduction causal relationship is sensitive to whatever proxy is used to determine poverty. Calvo and Hernandez (2006) formulate a model, in this case, capital is assumed to be the limiting factor, while labour units are idle, despite a functioning local factor market. Using panel data derived from 20 Latin-American nations, the results found a lack of capital shortage as the determining factor affecting poverty. Thus, FDI is a contributor to poverty reduction. The results also confirm that domestic and foreign investments are important determinants of poverty changes and that the impact of FDI differs across nations; hence, FDI may decrease poverty in some conditions and yet fail in others.

Contrary to other studies, Quiñonez et al. (2018) examine FDI impacts on poverty in Latin America, using a panel data analysis of 13 nations between 2000 and 2014. The study confirms that FDI does indeed significantly affect the reduction of poverty in Latin America, in addition to macroeconomic stability, infrastructure, human capital development and financial development, all of which are significantly connected with poverty alleviation in the region. Tsauroi (2018) investigates if the complementarity relationship between FDI and natural resources availability reduces poverty in Southern and Western African regions, using four econometric techniques (FE, RE, OLS and GMM) during the period 2002 to 2012. The study employed three measures of poverty, namely life expectancy at birth, household consumption expenditure and infant mortality rates (per 1 000 live births). The outcome indicates that the four econometric techniques produced similar results, namely that FDI and natural resources interactions reduce poverty in Southern and Western Africa. Akinmulegun (2012) examines the FDI and welfare



relationship in Nigeria for the period 1986-2009, using vector autoregression. The author's results show an insignificant FDI effect on welfare.

**Table 2.1: Summary of the Empirical Literature**

Author (s)	Title	Region/Country	Findings
<b>FDI and Economic Growth Literature</b>			
Alfaro, L., Chanda, A., Kalemli-Ozcan, S. and Sayek, S., 2004	FDI and economic growth: the role of local financial markets	Developed and developing countries	FDI alone plays an ambiguous role in contributing to economic growth
Borensztein, E., De Gregorio, J. and Lee, J.W., 1998	How does foreign direct investment affect economic growth?	Developing countries	FDI is pivotal for the transfer of technology, contributing relatively more to growth than domestic investment
Carkovic, M. and Levine, R., 2005	Does foreign direct investment accelerate economic growth?	Developed and developing countries	Exogenous component of FDI fails to exert a strong, independent influence on growth
Li, X. and Liu, X., 2005.	Foreign direct investment and economic growth: an increasingly endogenous relationship	Developing countries	The interaction of FDI with human capital exerts a robust positive effect on economic growth in developing nations
Asiedu, E., 2006	Foreign direct investment in Africa: The role of natural resources, market size, government policy,	Africa	The results suggest that large local markets, natural resource endowments, good

	institutions and political instability		infrastructure, low inflation, an efficient legal system and a good investment framework promote FDI. In contrast, corruption and political instability have the opposite effect
Adams, S., 2009.	Foreign direct investment, domestic investment, and economic growth in Sub-Saharan Africa	Sub-Saharan Africa	FDI is positive and significantly correlated with economic growth.
Bouchoucha, N. and Ali, W., 2019.	The impact of FDI on economic growth in Tunisia: An estimate by the ARDL approach.	Tunisia	FDI has a positive impact on economic growth in both the short and the long term
De Mello Jr, L.R., 1997.	Foreign direct investment in developing countries and growth: A selective survey.	Developing countries	The ultimate impact of FDI on output growth in the recipient economy depends on the scope for efficiency spillovers to domestic firms, as a result of which FDI leads to increasing returns in domestic production and increases the value-added content of FDI-related production

Jugurnath, B., Chuckun, N. and Fauzel, S., 2016.	Foreign direct investment & economic growth in Sub-Saharan Africa: An empirical study	Sub-Saharan African	The evidence from the statistical analysis suggests that aggregated FDI does have a positive and significant impact on economic growth
Owusu-Nantwi, V. and Erickson, C., 2019	Foreign direct investment and economic growth in South America	South America	The long-term estimates of the study found a significant positive impact of FDI on economic growth in the region. The VECM results found short-term bidirectional causality between FDI and economic growth
Iamsiraroj, S., 2016	The foreign direct investment–economic growth nexus	Developing countries	Results from the estimation indicate that the overall effects of FDI are positively associated with growth, and vice versa
<b>FDI and Poverty- using unidimensional Poverty Proxy</b>			
Jalilian and Weiss, 2002	Foreign direct investment and poverty in the ASEAN region	ASEAN	Positive association between FDI and poverty reduction
Mahmod and Chaudhay, 2012	A Contribution of Foreign direct investment in	Pakistan	Positive association between FDI and poverty reduction

	poverty reduction in Pakistan		
Shamim et al., 2014	Impact of foreign direct investment on poverty reduction in Pakistan	Pakistan	Positive association between FDI and poverty reduction
Fowowe and Shuaibu, 2014	Is foreign direct investment good for the poor? new evidence from African countries	Africa	Positive association between FDI and poverty reduction
Ucal, 2014	Panel data analysis of foreign direct investment and poverty from the perspective of developing countries	Developing countries	Positive association between FDI and poverty reduction
Baradwaj, 2014	Reviving the globalisation and poverty debate: Effect of real and financial integration on the developing world	Developing world	Positive association between FDI and poverty reduction
Uttama, 2015	Foreign direct investment and poverty reduction nexus in Southeast Asia	Southeast Asia	Positive association between FDI and poverty reduction
Huang et al., 2010	Inward and Outward Foreign Direct Investment and Poverty: East Asia and Latin America	East Asia and Latin America	Negative association between FDI and poverty reduction
Tsai and Huang, 2007	Openness, growth and poverty: The case of Taiwan	Taiwan	Insignificant impact

Klein, M., Aaron, C. and Hadjimichael, B., 2001	Foreign direct investment and poverty reduction	Developed and Developing countries	Foreign direct investment is a key ingredient for successful economic growth and development in direct-developing countries
<b>FDI and Poverty: Using multidimensional poverty proxy</b>			
Zaman et al., 2012	The relationship between foreign direct investment and pro-poor growth policies in Pakistan	Pakistan	Positive association between FDI and poverty reduction
Andrew, M.O.L.D., 2004	FDI and poverty reduction: a critical reappraisal of the arguments	Developing countries	The result reveals little evidence to show that FDI is a major instrument in poverty reduction
Ali and Nishat, 2010	Do foreign inflows benefit Pakistan poor?	Pakistan	Negative association between FDI and poverty reduction
Hung, T.T., 2005	Impacts of foreign direct investment on poverty reduction in Vietnam	Vietnam	Positive relationship between FDI and poverty reduction
Quinonez, P., Saenz, J. and Solorzano, J., 2018	Does foreign direct investment reduce poverty? The case of Latin America in the twenty-first century	Latin America	FDI is not significantly associated with the reduction of poverty in Latin America
Ogunniyi and Igberi, 2014	The Impact of foreign direct investment on	Nigeria	Insignificant impact

	poverty reduction in Nigeria		
Calvo, C.C. and Hernandez, M.A., 2006	Foreign direct investment and poverty in Latin America	Latin America	FDI reduces poverty only under certain circumstances and fails in others.
Fauzel, S., Seetanah, B. and Sannasse, R.V., 2015	Foreign direct investment and welfare nexus in sub-Saharan Africa	Sub-Saharan Africa	FDI is an efficient tool in fighting poverty in both the short run and the long run with the sample of countries considered
Akinmulegun, S.O., 2012	Foreign Direct Investment (FDI) and the standard of living in Nigeria	Nigeria	The relationship between FDI and the standard of living is insignificant
Reiter and Steensma, 2010	Human development and foreign direct investment in developing countries: The influence of foreign direct investment policy and corruption	Developing countries	Positive association between FDI and poverty reduction
Gohou and Soumare, 2012	Does foreign direct investment reduce poverty in Africa and are there any regional difference?	Africa	Positive association between FDI and poverty reduction in Central and East Africa
Israel, 2014	Impact of foreign direct investment on poverty reduction in Nigeria 1980–2009	Nigeria	Positive association between FDI and poverty reduction

Soumare, 2015	Does foreign direct investment improve welfare in North Africa countries	Northern Africa	Positive association between FDI and poverty reduction
Ali M., Nishat M. and Anwar T. 2010	Do foreign inflows benefit Pakistan poor?	Pakistan	Negative association between FDI and poverty reduction
Lehnert, K., Benmamoun, M. and Zhao, H., 2013	FDI inflow and human development: analysis of FDI's impact on host countries' social welfare and infrastructure	Developed and developing countries	FDI has a positive impact on both host country welfare and knowledge infrastructure, and the national governance positively mediates these relationships
Sharma, B. and Gani, A., 2004	The effects of foreign direct investment on human development	Middle- and low-income countries	Positive effect of FDI on human development for both groups of countries
Kaulihowa, T. and Adjasi, C., 2018.	FDI and welfare dynamics in Africa	Africa	FDI is welfare-enhancing, the nonlinear terms report mixed findings
Ahmad, F., Draz, M.U., Su, L., Ozturk, I., Rauf, A. and Ali, S., 2019.	Impact of FDI Inflows on Poverty Reduction in the ASEAN and SAARC Economies	ASEAN and SAARC	Positive and strongly significant relationship between FDI net inflows and poverty reduction in Asia
Ganic, M., 2019.	Does Foreign Direct Investment (FDI) Contribute to Poverty Reduction? Empirical	Central European and Western Balkan countries	FDI and poverty reduction vary between two regions (the Western Balkan

	Evidence from Central European and Western Balkan Countries		region and the Central Europe region)
Magombeyi, M. T., and N. M. Odhiambo, 2018	FDI inflows and poverty reduction in Botswana: an empirical investigation	Botswana	FDI has a positive impact on poverty reduction in the short run and a negative impact in the long run when life expectancy is used as a poverty reduction measure
Zandile, Z. and Phiri, A., 2019	FDI as a contributing factor to economic growth in Burkina Faso: How true is this?	Burkina Faso	The findings did not establish any direct or indirect impact of FDI on economic growth
Adam, A.M., 2018	Foreign direct investment and growth causal-nexus in the economic community of West African States: Evidence from spectral causality	West Africa	The findings indicated that the time domain is not adequate in detecting causality
Nagou, M., 2017	Foreign Capital and Poverty Reduction in West Africa	West Africa	The results find that foreign capital affects poverty through growth and inequality
Adu, G. 2018	Impacts of foreign direct investment (FDI) on rural poverty in developing	Ghana	The result shows that the mining industry can decrease rural poverty, but weak institutional



	countries: The case of mining FDI in Ghana		capacity and the limited scope of CSR have limited the mining sector's potential to alleviate poverty in Ghana
Gökmenoğlu, K.K., Apinran, M.O. and Taşpınar, N., 2018	Impact of foreign direct investment on the Human Development Index in Nigeria	Nigeria	The findings suggest that FDI has a significant impact on the HDI in Nigeria
De-Graft Yankson, E., 2019	Impact of Foreign Direct Investment on Household Consumption Expenditure	Ghana	The finding indicates that FDI has a negative impact on household consumption in Ghana
Tsaurai, K., 2018	Investigating the Impact of Foreign Direct Investment on Poverty Reduction Efforts in Africa.	Africa	The finding suggests that the four estimation techniques produced similar results, namely that the interaction between FDI and natural resources decreased poverty levels in African countries

Source: Author's compilation.

## 2.6 Evaluation of Research Gap

The empirical review of the extant literature above reveals significant disagreement amongst scholars about the impact of FDI on poverty. The empirical review illustrates positive, negative

and insignificant results from previous scholars. Table 2.1 summarised the empirical literature, and based on this review, the following gaps in the literature were identified. First, there is no single study exclusively relating to FDI and poverty in the ECOWAS, and any studies on ECOWAS and West Africa have focused on economic growth or foreign capital. Second, the studies reviewed herein adopt a purely quantitative or qualitative approach, and none uses a quantitative approach with both primary and secondary data. Third, the studies adopt different econometric analysis tools, and none attempts to test all the different econometric tools in a single study while focusing on FDI and poverty in the ECOWAS. Lastly, the studies use either a unidimensional or a multidimensional poverty approach, but not both. The current study will thereby contribute to the extant literature by filling the established gaps identified in the literature.

## **2.7 Chapter Summary**

In summary, these studies collectively provide essential insights into the theoretical and empirical literature on FDI and poverty linkages. The chapter examined FDI (definition, motives and types), poverty concept and measures and the theoretical literature emphasises both economics and international trade theories linking FDI and poverty. The economics theory in this regard involves the neoclassical and endogenous growth theories, while the international trade theories mention the eclectic paradigm, location theory and internalisation. Also, the chapter assessed the indirect and direct impacts of FDI and poverty. The theoretical studies presented thus far provide evidence that economic growth supports the indirect impact of FDI and poverty linkage, whilst direct impacts support the employment relationship.

Overall, there seems to be some evidence in the empirical literature to suggest a linkage between FDI and growth, and FDI and poverty. The review reveals several weaknesses and potential gaps. In the first instance, the empirical review confirms that FDI and poverty link is divided and inconclusive. Most of the studies on poverty employ unidimensional measures of poverty, and very few capture the multidimensional measures thereof. The review also indicates a dearth of

FDI and poverty studies in ECOWAS countries, since many of the previous studies undertaken on the subject are based in Asia, South America and other developing regions. Limited studies have been carried out in West Africa, Africa and countries within the ECOWAS area (Gohou and Soumaré, 2012; Soumaré, 2015; Nagou, 2017; Adu, 2018). Also, most of the studies either employ a unidimensional/multidimensional or an indirect/direct approach to poverty, and none of the studies in Africa utilises both measures, except for Kaulihowa and Adjasi (2018), Tsaurai (2018) and Gohou and Soumaré (2012). This gap in the literature demonstrates the need for primary research that examines the impact of FDI on poverty in the ECOWAS region. All the above have necessary implications in terms of the consistency and impartiality of the resulting parameters. Consequently, this research will address the gaps by adopting various poverty measures within a panel framework, which in turn will produce a broader perspective on the impact of various poverty measures/indicators and a robust set of analysis results. The next chapter will present background information on ECOWAS, FDI and poverty.

## **CHAPTER THREE**

### **BACKGROUND: ECOWAS FDI AND POVERTY**

#### **3.0 Introduction**

The focus of this chapter is to present background information on ECOWAS, FDI and poverty, which is critical to the context of this research. In this regard, the chapter is divided into three parts. The first provides vital knowledge about ECOWAS's aim and objectives and current economic status. The second part focuses on factors that attract FDI, trends and analysis. Lastly, the third part examines poverty trends and country's specific differences in ECOWAS. All three aspects provide rich background information which is useful to the overall study.

#### **3.1 Background Information on ECOWAS**

ECOWAS aims to foster cooperation and integration, raise living standards, uphold and improve economic stability, promote relations among member nations and support the overall progress and development of this large African region (ECOWAS, 2016). The following set objectives of ECOWAS are based on its stated aim:

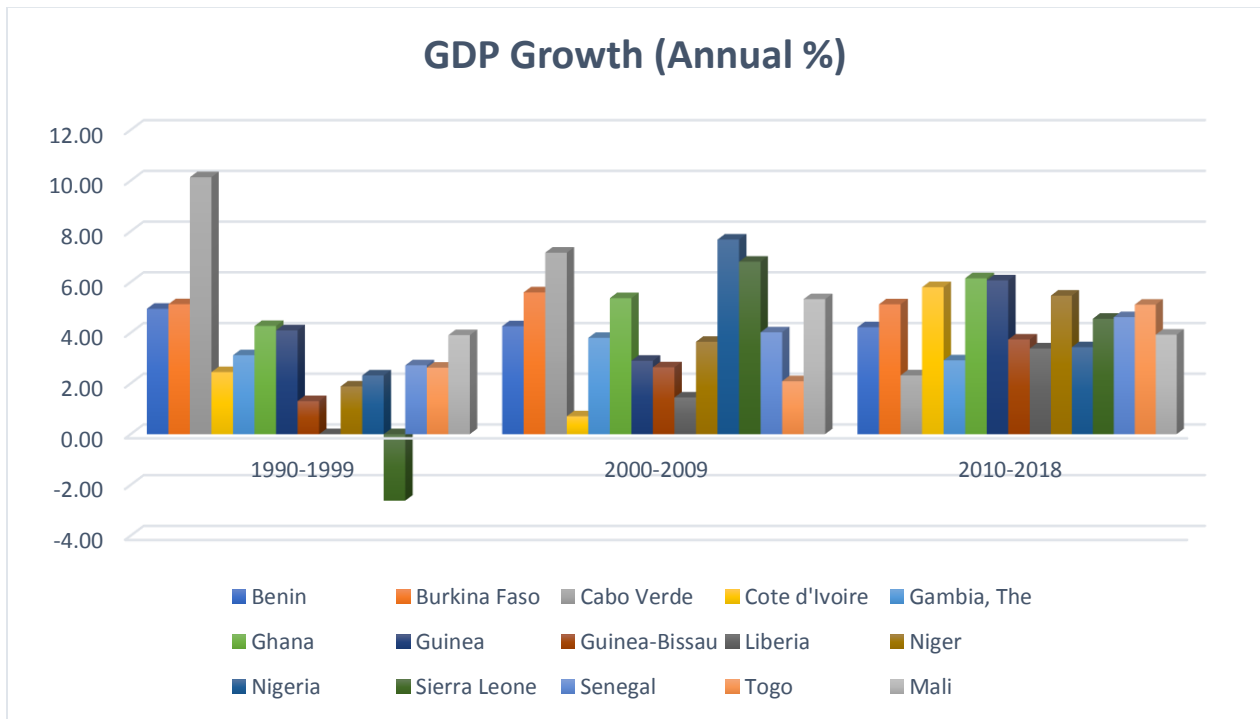
- ❖ The harmonisation and co-ordination of national policies and the promotion of integration agendas, projects and activities.
- ❖ The harmonisation and co-ordination of policies for the protection of the environment, and the synchronisation of standards and measures for its member states.
- ❖ The promotion of the establishment of joint production enterprises, and the establishment of a common market.
- ❖ The establishment of an economic union through the adoption of standard policies and the creation of a monetary union.
- ❖ Any other activity that the member states may decide to undertake jointly to attain community objectives.

The vision of ECOWAS is the establishment of a borderless territory whereby people benefit from its precious resources (ECOWAS, 2016). Within this integrated region, people benefit from free movement and access to better education and health systems, and they participate in economic and commercial activities in a dignified atmosphere of peace and security (ECOWAS, 2016). Governance is based on the principle of democracy, the rule of law and good relations.

In terms of economic and social development, ECOWAS countries have been making progress, but this has been somewhat uneven. Economic and social performance statistics relate to the overall performance of the economy in terms of output, similar to a report card on how the country is performing. These data are essential for this study, since it is argued that better economic and social performance contributes to poverty reduction.

With regards to economic accomplishments, growth is a crucial indicator. In 2015, the ECOWAS region recorded 28% GDP, the best in the African continent. ECOWAS countries overall enjoyed increased growth between 2012 and 2015, but it slumped in 2016 to an average of 0.5% (West African Economic Outlook, 2018), due to the Ebola outbreak and the fall in commodity prices. The 2016 slump was so extensive that Nigeria and Liberia experienced negative growth, while Côte d'Ivoire recorded the highest progress at 9%. This general slowdown affected overall average of growth in ECOWAS, but it recovered in 2017, averaging 2.5%, while in 2018, it increased to 3.6%, and was forecasted to increase to 3.8% in 2019 (West African Economic Outlook, 2018). The leading economies in ECOWAS, namely Côte d'Ivoire and Ghana, jointly contributed about 11% of the total regional GDP in 2017, and their predictable growth in 2018-2019 will reinforce Nigeria's recovery (West African Economic Outlook, 2018). The positive outlook in ECOWAS is based on the recovery of oil prices and increased oil production for Nigeria and Ghana, aligned with strong agricultural performance. In terms of annual GDP growth, Figure 3.1 shows the ten-year average GDP growth as an annual percentage for all ECOWAS nations for the period 1990 – 2018.

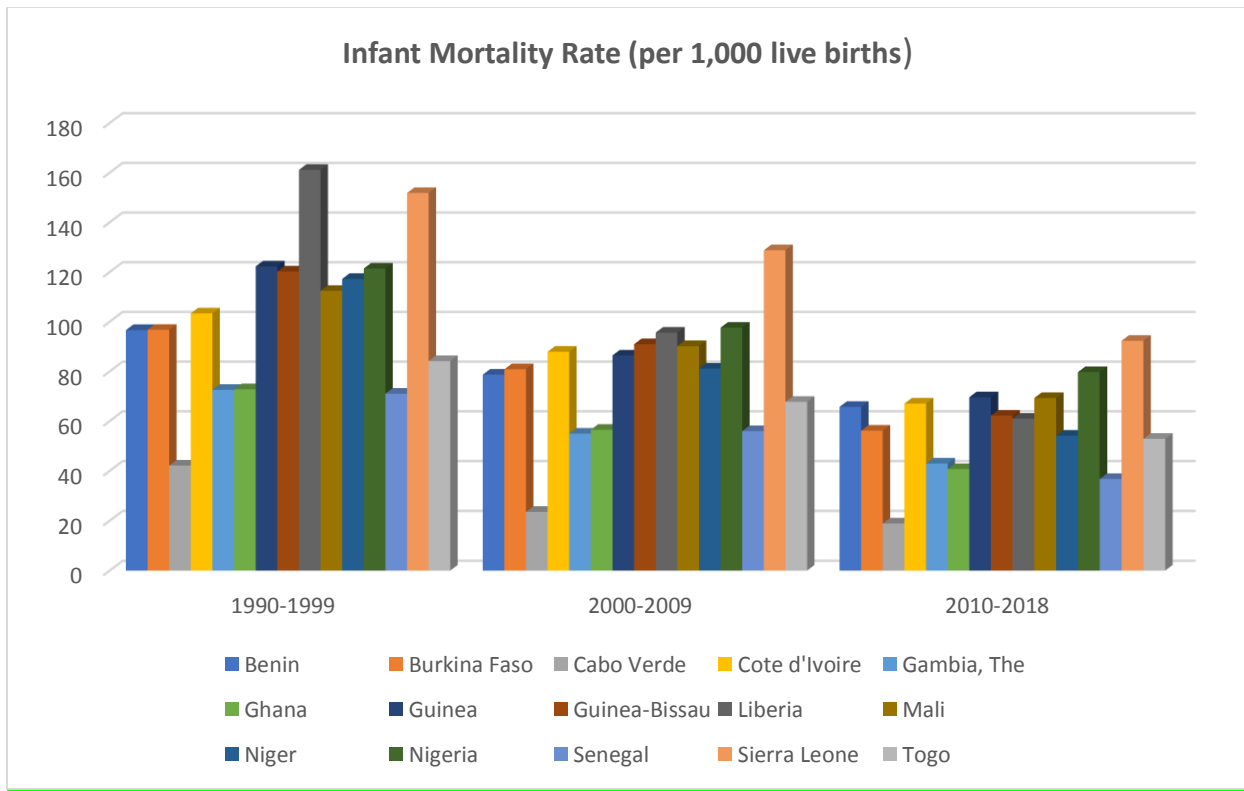
**Figure 3.1: ECOWAS Countries GDP Growth (Annual %)**



Source: Author’s computation based on World Bank data (2019).

Similarly, the infant mortality rate (per 1,000 live births) is a vital socio-economic indicator used to assess development levels across countries. Social dimensions are numerical measures used to define the welfare of people or nations, and they emphasise poverty eradication, reducing inequalities, enhancing gender equality and access to education, health, water, sanitation and other socio-economic infrastructure and services (United Nations Economic Commission for Africa Report, 2015). Mortality rates are often used to identify vulnerable populations (World Bank, 2019). In Figure 3.2, the ten-year average infant mortality rates in ECOWAS countries are shown. ECOWAS member states are characterised by high infant mortality rates, which in turn are usually associated with under-development.

**Figure 3.2: ECOWAS Countries Infant Mortality Rate (Per 1,000 live births)**



Source: Author's computation based on World Bank data (2019).

Household consumption is another crucial key indicator used to assess the development of a country. Table 3.1 shows the average household consumption as a percentage of GDP for ECOWAS countries. In 2018, Gambia, Guinea, Guinea-Bissau, Liberia, Nigeria and Sierra Leone's average household consumption expenditure exceeded the overall mean of 77.72% of GDP. Liberia, with 133%, and Burkina Faso, at 55.03%, are considered outliers, since Liberia far exceeded the mean household expenditure percentage of 77.72%, while Burkina Faso was far below this figure.

**Table 3.1: ECOWAS Households and NPISHs Final Consumption Expenditure (% of GDP)**

<b>Countries</b>	<b>1990-1999</b>	<b>2000-2009</b>	<b>2010-2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Benin	75.93	75.89	70.48	75.02	76.1	70.39
Burkina Faso	68.47	71.74	60.87	58.95	55.07	55.03
Cabo Verde	0	18.76	64.35	63.19	65.25	61.29
Cote d'Ivoire	68.36	68.06	65.9	66.53	65.69	65.88
Gambia	85.63	88.74	86.74	88.38	87.58	90.34
Ghana	80.8	85.25	79.16	66.99	70.21	71.99
Guinea	73.54	81.8	82.55	83.54	73.97	79.79
Guinea-Bissau	90.16	89.4	90.87	87.15	87	86.54
Liberia	0	146.1	136.08	142.82	137.73	133
Mali	81.42	71.87	75.47	77.42	74.66	73.59
Niger	79.26	75.01	68.28	65.59	66.83	65.91
Nigeria	49.43	59.58	70.03	81.54	80.13	76.58
Senegal	79.57	54.52	24.48	71.59	72.06	71.92
Sierra Leone	87.21	93.11	95.62	102.11	93.08	98.96
Togo	80.48	77.73	79.39	70.63	67.05	64.58
Overall Mean	66.68	77.17	76.68	80.1	78.16	77.72

Source: Author's computation based on the UNDP 2019 online database.

The Human Development index likewise is an important indicator used to assess the level of development in a country. As stated in section 2.2.2.6, HDI is a composite statistic intended to measure the human development level of any nation and to permit cross-country comparison (UNDP, 2019; Hou et al., 2015). Table 3.2 shows the HDI for ECOWAS countries. The 2017 HDI ranking for ECOWAS is high with Cabo Verde ranked 125<sup>th</sup> the lowest and Niger 189<sup>th</sup> the highest. Also, average HDI for ECOWAS in 2017 is 0.482. The following countries (Benin, Cabo Verde, Côte d'Ivoire, Ghana, Nigeria, Senegal and Togo) are above the ECOWAS average of 0.482, while (Burkina Faso, Gambia, Guinea, Guinea-Bissau, Liberia, Niger, Mali and Sierra Leone) are below the average. Overall, the high ranking and low HDI index signifies a low level of development in the ECOWAS region.



**Table 3.2: ECOWAS Countries Human Development Index (HDI)**

Human Development Index (HDI)									
HDI Rank (2017)	Country	2010	2011	2012	2013	2014	2015	2016	2017
163	Benin	0.473	0.479	0.489	0.5	0.505	0.508	0.512	0.515
183	Burkina Faso	0.375	0.385	0.394	0.401	0.405	0.412	0.42	0.423
125	Cabo Verde	0.629	0.635	0.636	0.642	0.644	0.647	0.652	0.654
170	Côte d'Ivoire	0.442	0.445	0.454	0.462	0.465	0.478	0.486	0.492
174	Gambia	0.441	0.44	0.445	0.453	0.454	0.457	0.457	0.46
140	Ghana	0.554	0.563	0.57	0.577	0.576	0.585	0.588	0.592
175	Guinea	0.404	0.418	0.428	0.435	0.44	0.443	0.449	0.459
177	Guinea-Bissau	0.426	0.435	0.437	0.44	0.445	0.449	0.453	0.455
181	Liberia	0.407	0.417	0.42	0.429	0.431	0.432	0.432	0.435
182	Mali	0.403	0.408	0.408	0.408	0.414	0.418	0.421	0.427
189	Niger	0.318	0.325	0.336	0.34	0.345	0.347	0.351	0.354
157	Nigeria	0.484	0.494	0.512	0.519	0.524	0.527	0.53	0.532
164	Senegal	0.456	0.467	0.476	0.481	0.486	0.492	0.499	0.505
184	Sierra Leone	0.385	0.392	0.407	0.419	0.423	0.413	0.413	0.419
165	Togo	0.456	0.463	0.466	0.472	0.481	0.495	0.5	0.503
	<b>ECOWAS Average</b>	<b>0.444</b>	<b>0.451</b>	<b>0.459</b>	<b>0.465</b>	<b>0.469</b>	<b>0.474</b>	<b>0.478</b>	<b>0.482</b>

Source: UNDP Database (2019) online.

High unemployment is also a major socio-economic and political problem in ECOWAS. After falling from 4.2% in 2010 to 3.7% in 2015, the average unemployment rate in the region increased to 5.2% in 2018 (United Nations Economic Commission for West Africa Report, 2017). This high rate is a socio-economic problem leading to increased income poverty, since individuals without jobs cannot afford the necessities of life. Similarly, high inflation is another cause of increased poverty, because the cost of goods and services becomes too expensive for less privileged individuals to afford, thereby creating a huge challenge for the region. Persistent, uncontained

inflation distorts economic growth, and average inflation for ECOWAS rose from 8.2% to 13.3% between 2014 and 2017 (African Economic Outlook, 2019), albeit this figure is projected to drop moderately but stay in double digits at 11.6% in 2018 and 11.0% in 2019. The reason for high inflation forecasts mirrors negative macroeconomic developments in key economies such as Nigeria, with 2017 inflation estimated at 16.8%, Ghana at 17.5% and Sierra Leone at 19.3%. The gravity of the situation is due to exchange rate depreciation and domestic imbalances during declines in both commodity prices and global demand.

### **3.2 FDI: Factors, Trend and Analysis of FDI Trends**

#### **3.2.1 Factors that Attracts FDI to ECOWAS**

FDI inflows are crucial in addressing resource shortages in low-income countries and avoiding increasing debt while directly addressing the causes of poverty. Factors that attracts FDI are key to explain the reason for FDI in the ECOWAS region. Abimbola and Oludiran (2017) and Anyanwu and Yameogo (2015) find natural resources, openness of the host country, human capital, infrastructure, institutions, and political risk factors as key to attracting FDI to the ECOWAS region. This section briefly explains the significance and importance of these factors for the relationship between FDI and poverty.

##### **3.2.1.1 Natural Resources**

The abundance of natural resource in host nations is historically a key factor that attracts FDI (Aseidu, 2006; WIR, 1998). As stated in section 2.2.2.1 Natural Resource-Seeking is one of the main reasons for FDI to occur. Natural resources in developing nations are the main reason for FDI (Asiedu, 2006) and plays a crucial role in attracting FDI (Frynas and Paulo, 2007). ECOWAS countries are rich in natural resources and minerals, including gold, diamonds, iron ore, uranium, aluminum, crude oil, bauxite, manganese, tin and columbite (Jalloh, 2013). For example, Nigeria is one of the richest countries in sub-Saharan Africa and attracts more FDI due to its natural resources such as oil and gas, mineral deposits, good vegetation, and its Known oil reserves may last another 30-40 years (Dinda, 2008). In addition, Ghana the leading recipient of ECOWAS FDI

is one of the world's largest exporters of cocoa and has abundant natural resources (Timber, gold, diamonds, bauxite, manganese and oil), which contribute to making Ghana one of the richest countries in ECOWAS. Sierra Leone is rich in iron ore deposits (one of the world's largest iron ore deposits) containing about 12.8 billion tons, rutile (the world's largest reserves) with 167,600 tons, diamond, bauxite and gold. Guinea has more than half of the world's reserves of bauxite (aluminum ore), has more than four billion tons of high-quality unused iron ore, and significant reserves of gold and diamonds. Senegal is one of the top phosphorite producers globally and produces other mineral products such as gold, cement, lime, limestone, natural gas, oil, salt and sand. The availability of natural resources in the ECOWAS region attracts FDI. Several empirical studies (Anarfor et al., 2017; Sane, 2016; Anyanwu and Yameogo, 2015) have found a positive correlation between natural resources and FDI to ECOWAS countries. Therefore, natural resources are expected to increase FDI inflow thereby contribute to reduce poverty in the ECOWAS region.

### **3.2.1.2 Trade Openness of the Host Country**

The opening of a country to trade is the degree to which its regulatory environment in the business sector contributes or hinders the investment of companies. In 1979, ECOWAS approved the Trade Liberalization Scheme (ETLS) for agricultural, artisanal and unprocessed products and expanded it to industrial products in 1990 (ECOWAS, 2016). ETLS is the main framework for the integration of trade and markets in ECOWAS, as it relates to free trade protocols for the movement of goods, people and vehicles. Similarly, West Africa (ECOWAS + Mauritania), according to the GATT article XXIV established free trade between Europe and West Africa, gradually lifting trade restrictions between the two trading partners (ECOWAS, 2016). It is widely acknowledged that higher degree of openness fortifies the connection between domestic and international markets and creates of new investments opportunities (Tsurai, 2018; Anarfo et al., 2017).

ECOWAS has implemented a customs control and communications program to facilitate the movement of goods in the region. For example, the ECOWAS external common tariff has been

in force since 2015, and member states are increasingly applying the uniform form of the ECOWAS customs declaration to their customs administrations. However, in some ECOWAS countries, restrictive and open trade / FDI policies have been applied for several years. For example, the Nigeria Business Promotion Ordinance 62 (NEPD) and the policies of the Federal Government of Nigeria on indigenous peoples in the early 1970s imposed many boundaries on the import of FDI, as some commercial activities were considered an exclusive reserve for investors. Nigerians, while authorized foreign involvement was restricted to 60% of foreign ownership in 1972 after NEP, and subsequently increased to 40% owing to the 1977 indigenisation policy. Ghana is one of the most open economies to have foreign capital in Sub-Saharan Africa. Most of its main sectors are fully open to foreign capital and the Ghanaian government does not have a common economic or industrial strategy that discriminates against companies with foreign capital. Similarly, there are no laws or practices in Togo that discriminate against foreign investors. In January 2012, the National Assembly adopted a new investment code that provides equal treatment for Togolese and foreign companies and investors; free capital management and appeal to foreign investors; respect for private property; protection of private investment against eviction; and regulation of investment dispute resolution (Investment Climate Report, 2019).

Some researchers claim that liberal trade regimes generate positive investment climates (Khamphengvong et al., 2018; Mina, 2007; Chakrabarti, 2001). Similarly, other studies as well find an insignificant result (Wheeler & Mody, 1992). While Filippaios et al. (2003), shows that a negative relationship between trade openness and inward FDI means that inward FDI is used to provide for the home-grown market in the host nations. Asiedu (2002), argues that the role of trade liberation in promoting FDI in Africa is ineffective in comparison to other regions around the globe since African trade reforms would be deemed not credible by foreign investors. However, in ECOWAS countries, economic openness is found to be a pivotal determinant to attract inward FDI (Sane, 2016). Openness to trade is expected to have a positive impact on poverty reduction.

### **3.2.1.3 Human Capital**

As stated in section 2.5.2.2, human capital is linked to knowledge and skills developed through learning and experience. Human capital is one of the vital determinants of FDI inflows (Cleeve et al., 2015) and it advances the quality of labour and collectively, its productivity (Mankiw et al., 1992). In ECOWAS, the human capital is an essential factor that attract FDI into the region. Literacy rates documented for member states in ECOWAS show relatively higher levels and an improving situation in comparison with the other sub-regions. In 1990, West Africa had the highest proportion of African countries with an illiteracy rate of 60% or more. However, between 1995 to 2011, the situation improved, reflecting the joint efforts of West African countries to eradicate illiteracy (United Nations Economic Commission for West Africa Report, 2017). Overall, Cape Verde and Togo (for primary school enrollment) and Cape Verde and Ghana (for secondary school enrollment) performed well. The net enrollment rate in primary education has improved in all countries except Liberia during this period, which means that children in primary education generally receive more access to primary education.

Previous researches have shown there is a positive correlation between FDI and human capital (Cleeve et al., 2015; Anyanwu and Yameogo, 2015; Asiedu, 2006). However, results from other studies have shown that the relationship is insignificant (Morisset, 2000). Human capital is expected to attract FDI and reduce poverty in the ECOWAS region.

### **3.2.1.4 Institutions**

There are reliable, convincing reasons to be sure that a good quality institutional environment (for instance, less bureaucracy, reduced corruption and secure property rights) attract additional FDI (Ali et al., 2010). According to Ali et al. (2010), institutions are a strong predictor of FDI, and appear to have a direct effect on FDI in different circumstances. In ECOWAS, ease of doing business remains a challenge and corruption is endemic throughout the region. Institutional quality as determined by the World Bank, ease of doing business indicators includes setting up a business, obtaining credit , getting electricity, obtaining construction permits, resolving

insolvency, property registration, protection of minority investors, tax payments, , trading across borders and contract enforcements to score and rank countries. Table 3.4 shows the world Bank ease of doing business ranking and scores for ECOWAS countries. The table indicates that ECOWAS countries remains one of the weak- performing regions of the 190 countries globally on the ease of doing business with an average of score 53.4 well below the OECD average of 78.4 and the global average of 63.0. However, ECOWAS countries are making progress with the ECOWAS average of 53.4 well above the Africa average of 51.8. Togo, Ghana and Cote D'Ivoire have made rapid progress in their ease of doing business, while Liberia, Guinea and Guinea Bissau remain at the bottom.

**Table 3.4: World Bank Ease of Doing Business Ranking for period 2020**

<b>Rank</b>	<b>Country</b>	<b>Doing Business Score</b>
149	Benin	52.4
151	Burkina Faso	51.4
137	Cabo Verde	55.0
110	Cote D'Ivoire	60.7
118	Ghana	60.0
155	Gambia	50.3
156	Guinea	49.4
174	Guinea Bissau	43.2
175	Liberia	43.2
148	Mali	52.9
132	Niger	56.8
131	Nigeria	56.9
123	Senegal	59.3
163	Sierra Leone	47.5
97	Togo	62.3
	Average Score	53.42

Source: World Bank Ease of Doing Business Report (2020).

Host nation institutional quality designated as a vital FDI location determinant has gained increasing attention (Hyun, 2006; Ajide and Raheem, 2016). Some outstanding papers support

the claim that institutional quality is a significant FDI determinant (Bailey, 2018; Ajide and Raheem, 2016; Cleeve, 2012; Acemoglu and Robinson, 2006). Asiedu (2006), argues that small nations in Africa with deficiency in natural resources can attract FDI through improving the quality of the institutions and policy environment. Ajide and Raheem (2016), find the existence of prevalent weak governance structure among ECOWAS countries. Hence, institutional quality is a factor that attract FDI in ECOWAS and it is expected to have positive impact on FDI.

### **3.2.1.5 Infrastructure**

The infrastructure network in Sub-Saharan Africa and ECOWAS remains poor on average, despite recent government efforts to improve it (World Bank, 2016). It has been pointed out that a nation with well-developed infrastructure upsurges the productivity of investments and hence stimulates FDI flow (Marozva and Makoni, 2018; Asiedu, 2002). A reliable and efficient infrastructure development promote economic growth and influences the investment potential and attractiveness of a nation (Palei, 2015). The evolution of infrastructure in ECOWAS is evaluated for different sectors, namely, telecommunications, energy, transport, and water and sanitation. Infrastructure development is a key factor taking place in ECOWAS and in Africa and is a fundamental facilitator of productivity and sustainable economic growth. It contributes significantly to human development and poverty reduction and is essential for achieving sustainable development goals (United Nations Economic Commission for West Africa Report, 2017).

Despite its enormous mineral and other natural resources, ECOWAS has the lowest productivity of any region in the world (United Nations Economic Commission for Africa, 2017). This is largely attributed to serious infrastructural shortcomings across all the subsectors: energy, water, sanitation, transportation, and communications technology. ECOWAS's infrastructure deficit limits regional-integration initiatives raise transaction costs of business and limits growth. For example, the scarcity of electricity, water, roads and telecommunications in Sierra Leone is a serious obstacle to future development and investment in the country (Investment Policy Review

of Sierra Leone, 2010). Current regional initiatives, such as the Africa Infrastructure Development Program (PIDA), should continue vigorously to support infrastructure development on the continent as governments of many developing countries, including Asia, have started allowing foreign investors to participate through built owned and transfer (BOTs) or related schemes to finance infrastructure projects.

A predominant number of papers that measured the quality of infrastructure within the host country uses number of telephones mainlines per 1000 population as a proxy (Marozva and Makoni, 2018; Cleeve, 2012; Ranjan and Agarwal, 2011; Demirhan and Masca, 2008; Asiedu, 2002). With this measurement, it is anticipated that a high volume of telephone mainline will increase FDI flow.

### **3.2.1.6 Political/Country Risk**

It is widely recognised that economic development and poverty reduction is held back when the economy is politically unstable. Political stability builds confidence for investors, while the reverse discourages investors since it creates uncertainty and increases risks and, consequently, the cost of doing business in the country (Adi et al, 2015). ECOWAS is experiencing increasing political instability, contributing to the weak development of the regions due to adverse effects on government revenues, production, savings, investment, growth, income distribution and poverty. The political risk assessment of member countries of the International Political Risk Service Directive (ICRG), which shows the degree of political uncertainty, shows that ECOWAS countries are unstable at the political level. In many ECOWAS countries, the average was less than 60% for several years, indicating serious political problems. (Nurudeen et al., 2014). For example, political, religious, and ethnic violence continue to affect Nigeria. Boko Haram, and the Islamic State in West Africa (ISIS-VA) launched a brutal campaign to destabilize the Nigerian government, and environmental damage caused by oil spills have left Nigeria's oil rich Niger Delta region vulnerable to renewed violence. In Burkina Faso, there are still violent extremist elements active across the country. Last year, there were several incidents of violent extremist against local



and foreign companies, including attacks on security forces who escorted convoys to mining company employees, as well as vehicle hijackings and staff kidnappings (Investment Climate Report, 2019).

However, Ghana offers investors a relatively stable and predictable political environment with its strong democratic traditions. Cape Verde is considered a free country, according to the Freedom house index. The Economist Democracy Index ranked Cape Verde 33rd in democracy in the world and second in Africa since there has never been a political, social or religious conflict that has led to violence (Investment Climate Report, 2019). The probability of a change in government is usually used as a proxy for political risk while political violence is measured by the sum of frequency of political assassinations, politically motivated strikes and violent riots (Ayanwale, 2007; Asiedu, 2002;). Several studies have shown that political risk contribute to FDI (Cleeve, 2015; Nurudeen et al., 2014). The general perception of risk in ECOWAS and Africa at large is still high and this continues to hamper FDI inflows (Agwu, 2014).

### **3.2.2 Inward FDI Flow Trends**

This section seeks to explain trends relating to inward FDI flow into Africa and the ECOWAS sub-region over the past few decades.

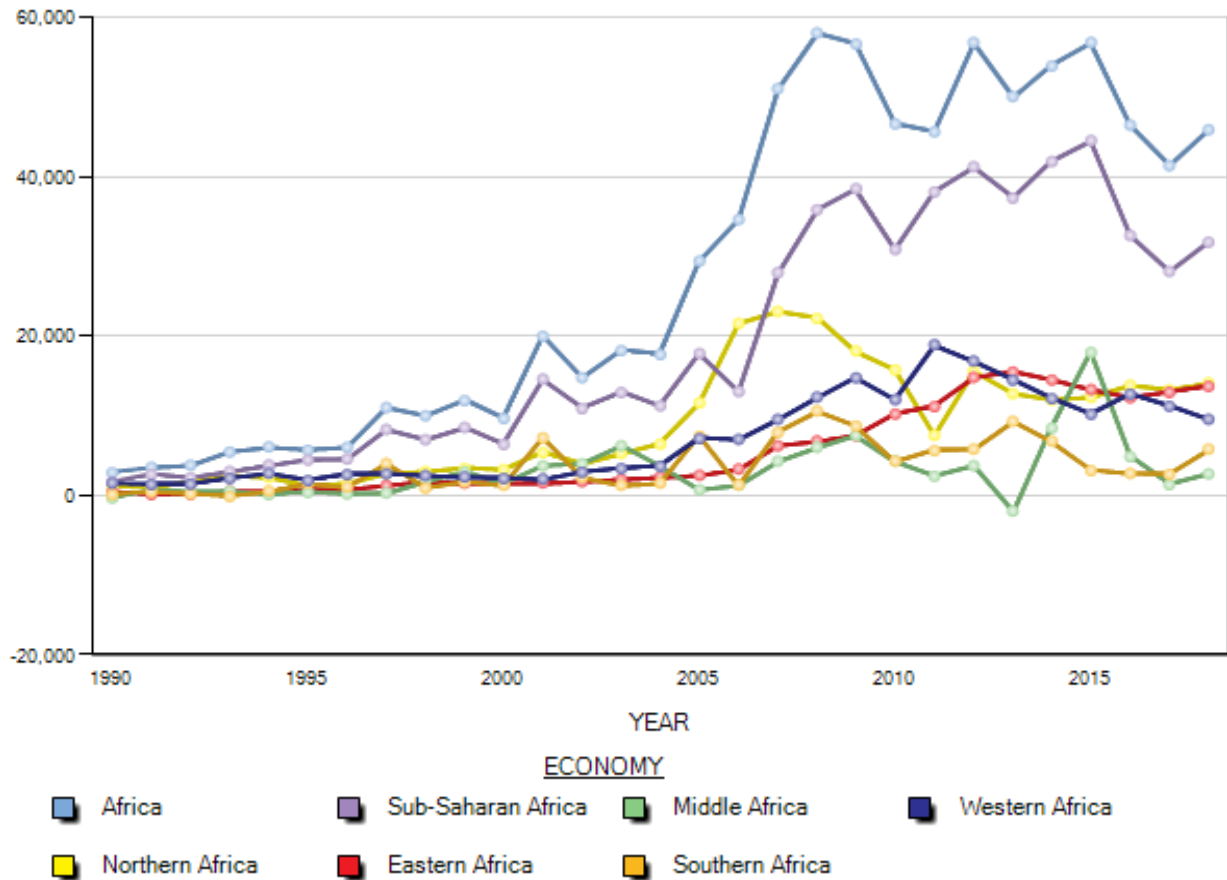
#### **3.2.2.1 Africa's Regional FDI Inflows**

Africa is divided geographically into five regions: Eastern, Central, Northern, Southern and Western. Various cyclical activities typify foreign direct investment in the continent. Figure 3.3 shows the higher and lower levels in this regard. After a slow start, Africa's FDI inflows increased significantly during the 1990s, and in 2007, the milestone figure of \$53 billion was attained, even with the global financial crisis. This robust growth in foreign direct investment was the third year in a row and was driven by a developing global commodity market, which increased corporate return on investment (ROI), and a more favourable environment (WIR, 2008). The flow of foreign direct investment into African regions in 2018 challenged the global downward trend and increased by 11% to \$46 billion after successive declines in 2016 and 2017. The main reasons for

this growth were rising demand, price hikes for some commodities and sustained non-resource-seeking investments in a few nations (WIR, 2019).

Figure 3.3 shows Africa's inward FDI trend disaggregated by sub-region, aligned with a steady increase. North Africa has been the largest recipient of FDI. In 2018, for instance this figure amounted to \$14 billion, with Egypt attracting the most significant FDI inflow in the region, even though it decreased by 8% to \$6.8 billion (WIR, 2019). West Africa recorded \$9.6 billion, the lowest level since 2006 and a decrease of 15% (WIR, 2019). A substantial drop in Nigeria for the second consecutive year caused a decrease in West African FDI. Central Africa remained stagnant at \$8.8 billion, while Southern Africa recovered to approximately \$4.2 billion (from -\$925 million in 2017) (WIR, 2019).

**Figure 3.3: FDI inflows to Africa and its Regions (US Dollar Current Prices in Millions)**



Source: UNCTAD online database (2019).

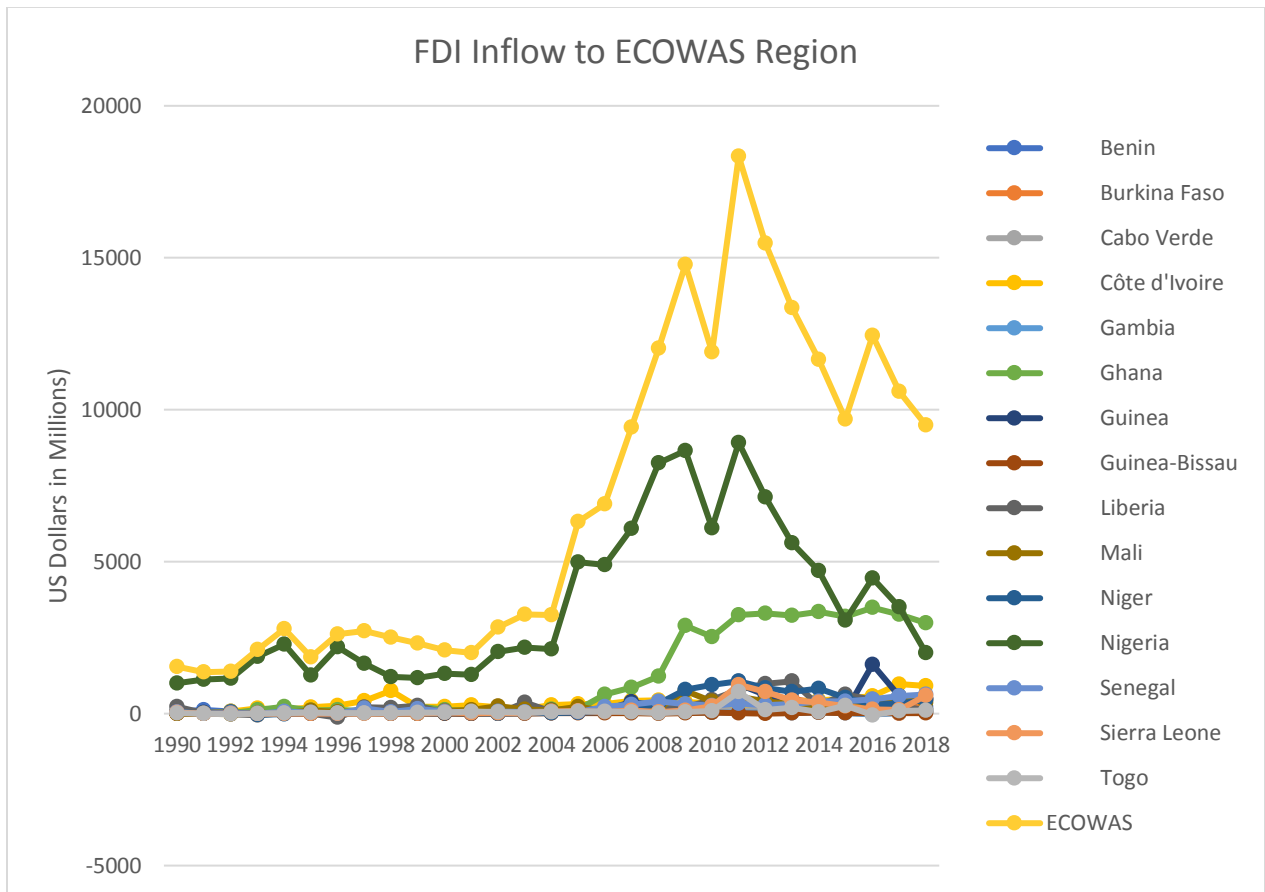
### 3.2.2.2 FDI Inflows to ECOWAS

The contribution of FDI as an external source of investment within the ECOWAS sub-region is evident from its inward FDI, which has undergone a series of transformations since the 1990s. Inflows progressed gradually between 1990 and 2011, but thereafter they fell into decline, as illustrated in Figure 3.4. In 2014, for instance, inward FDI dropped by 10% to \$12.8 billion (WIR, 2015). The main factors were the Ebola outbreak and regional conflicts, as well as drops in commodity prices, which affected several countries. In ECOWAS countries affected by Ebola, several companies either stopped or suspended their expansion; for instance, in Sierra Leone, Africa Minerals closed its Tonkolili flagship mine, and in Liberia ArcelorMittal suspended its iron

ore expansion project after contractors moved personnel out of the country. In 2018, FDI slumped by 15% to \$9.6 billion, the lowest level since 2006 (WIR, 2019), mainly owing to the massive drop in inward FDI flow into Nigeria for two successive years.

As evidenced in Figure 3.4, Nigeria attracted the most foreign direct investment, followed by Ghana, between 1990 and 2018, with Ghana taking pole position in 2018 (WIR, 2019). FDI flows to these countries are due to their natural resources (Asiedu, 2006). Several factors are associated with the increasing FDI in ECOWAS as indicated in section 3.2.1. Abimbola and Oludiran (2017) indicate that nations with high potential market size (GDP per capita), significant trade openness and more business-friendly environments (low political risk) are more successful in this regard. Similarly, Anyanwu and Yameogo (2015) reveal that real per capita GDP, domestic investment, trade openness, natural resources exports and monetary integration positively and significantly affect FDI inflows into West Africa.

**Figure 3.4: FDI Inflow into ECOWAS and its Member States (US Dollar Current Prices in Millions)**



Source: Author’s computation based on the UNCTAD database (2019).

### 3.2.3 Analysis of FDI Inflow Trends to ECOWAS

Considering the above, understanding how FDI inflow trends have changed, and why, during the specified period (1990-2018) is key to answering the research question. As a result, disaggregating the trend into periods is vital, so the researcher disaggregated the inward FDI trend into three periods: 1990-1999, 2000-2009 and 2010-2018. Table 3.3 shows an average ten-year trend for all countries and ECOWAS. In addition, it illustrates that FDI inflow into ECOWAS increased during the period 1990-1999, from \$2,121,638,589.52 (ten-year average) to \$ 12,550,252,468.00 (nine-year average) between 2010-2018, while Figure 3.5 shows the percentage increase, in this case 10%. Also, during the period 2000-2009, as illustrated in Table

3.3, the trend increased to \$ 6,285,585,442.95, or a 30% increase in percentage terms, as shown in Figure 3.5. This increase is significant compared to 1990-1999. Furthermore, the FDI inflow between 2010-2018, as depicted in Table 3.3, represents a 60% increment in the total average figure, which is a significant increase.

As noted in both Table 3.3 and Figure 3.5, the average increase in inflow of FDI is unevenly distributed between the three periods. According to the World Investment Report (1999), three factors account for this scenario: the nature and pace of knowledge, and particularly technological knowledge, change, a shrinking economic space and changing competitive conditions, and changing attitudes and policy regimes.

Given the importance of FDI to a developing country's economic growth, most governments within the ECOWAS sub-region have implemented over the years policies geared towards attracting FDI under structural adjustment (United Nations Economic Commission for Africa Report, 2015). These changes in policies were on the recommendation of UNCTAD and led to countries adopting FDI-specific regulatory frameworks to support their investment-related objectives. According to UNCTAD (1998), 45 out of 53 countries in Africa established an FDI-specific regulatory framework. These changes included the setting up of investment promotion agencies and facilities, the establishment of specialised schemes to attract investment such as export processing zones and through the signing of international investment agreements such as bilateral investment treaties and double taxation treaties. Also, most new measures taken by developing and transition economies reduced sectoral restrictions to foreign entry, or liberalised operations in industries previously closed or restricted to FDI (WIR, 2000). Some incentive regimes were revised and rationalised, while additional incentives – mainly tax incentives – were offered to promote investment in priority industries and activities. This supports Cleeve (2008), claims that traditional variables and government policies particularly tax holidays are seemed to be the most significant to attract foreign investment to Africa. In addition, the factors listed in

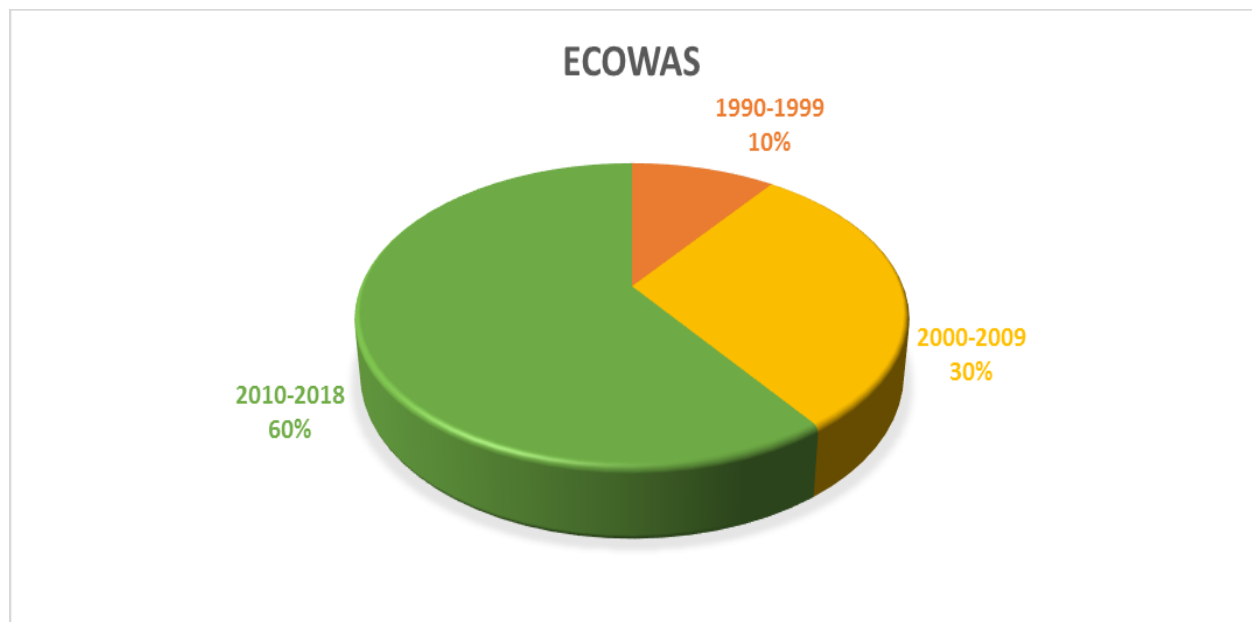
section 3.2.1 are key to explaining what attracts FDI to ECOWAS and its increasing effect in ECOWAS.

**Table 3.3: Average FDI Inflow into ECOWAS (1990-2018)**

<b>Average Ten-year FDI Inflow into ECOWAS Countries (US Dollar at current prices)</b>			
<b>YEAR</b>	<b>1990-1999</b>	<b>2000-2009</b>	<b>2010-2018</b>
Benin	38,297,214.50	89,128,866.95	230,468,097.67
Burkina Faso	7,383,378.63	70,582,057.36	273,167,171.64
Cabo Verde	14,439,529.42	98,231,022.64	126,975,985.72
Côte d'Ivoire	232,056,659.90	304,917,015.20	530,465,897.00
Gambia	18,212,000.00	50,992,170.87	23,021,298.76
<b>Ghana</b>	<b>113,470,000.00</b>	<b>626,629,000.00</b>	<b>3,173,677,777.78</b>
Guinea	20,239,000.00	123,484,000.00	511,862,962.96
Guinea-Bissau	3,135,712.37	8,381,278.45	20,990,573.10
Liberia	71,942,000.00	130,334,115.92	556,445,425.14
Mali	24,226,366.67	198,985,766.61	374,575,133.02
Niger	9,922,946.22	140,659,659.64	668,533,088.65
<b>Nigeria</b>	<b>1,494,062,337.93</b>	<b>4,178,671,437.05</b>	<b>5,050,767,240.55</b>
Senegal	56,807,284.21	158,245,725.34	410,176,133.82
Sierra Leone	3,439,211.07	53,601,569.80	426,044,618.98
Togo	14,004,948.60	52,741,757.12	173,081,063.20
<b>ECOWAS</b>	<b>2,121,638,589.52</b>	<b>6,285,585,442.95</b>	<b>12,550,252,468.00</b>

Source: Author's computation based on UNCTAD online database (2019).

**Figure 3.5: Total Average FDI Inflows into ECOWAS (1990-2018)**



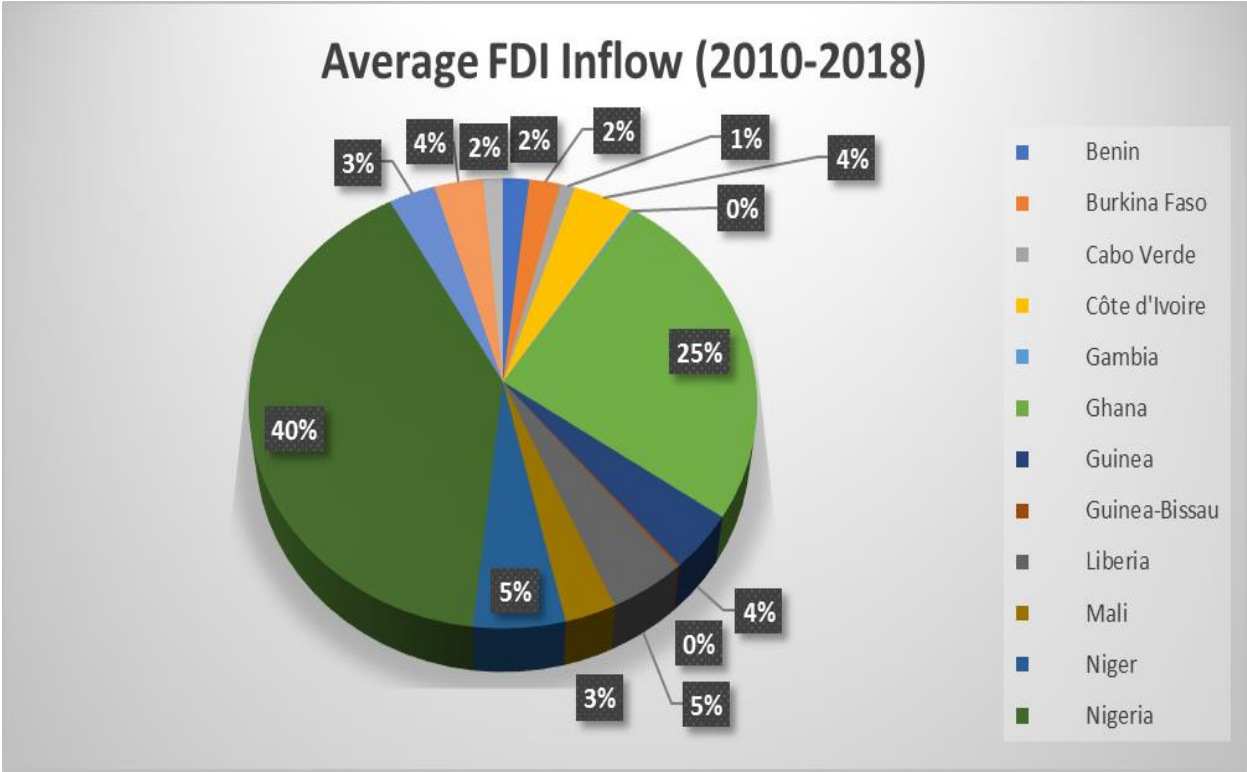
Source: Author's computation based on UNCTAD online database (2019).

Similarly, it should be noted from Table 3.3 that even though the FDI trend has increased on average, it varies amongst countries. The top destination countries in this regard are highlighted, but the notable ones are Nigeria and Ghana. In Figures 3.6 to 3.8, the percentage increases for the three periods (1990-1999, 2000-2009 and 2010-2018) are illustrated. In Figure 3.8, the average percentage of FDI inflow between 1990-1990 shows Nigeria at 70%, Cote D'Ivoire at 11% and Ghana at 5% as the top recipients of FDI. In Figure 3.7, the average percentage of FDI inflow between 2000-2009 shows Nigeria at 66%, Ghana 10% and Côte d'Ivoire 5%. In Figure 3.6, the average percentage of FDI inflow between 2010-2018 shows Nigeria at 40%, Ghana 25%, Niger 5%, Liberia 5%, Guinea 4%, Sierra Leone 4% and Cote D'Ivoire 4%. In 2018, Ghana became the largest FDI recipient in West Africa (ECOWAS), even though FDI inflows decreased by 8% to \$3 billion (WIR, 2019). Based on these statistics, FDI flowing into ECOWAS countries increased over the stated periods, due to several factors, including government policy reforms, natural resources and trade liberalisation. For instance, Ghana's formation of the GIPC and its activities during the 1990s led to a surge in FDI (Osabutey and Debrah, 2012).



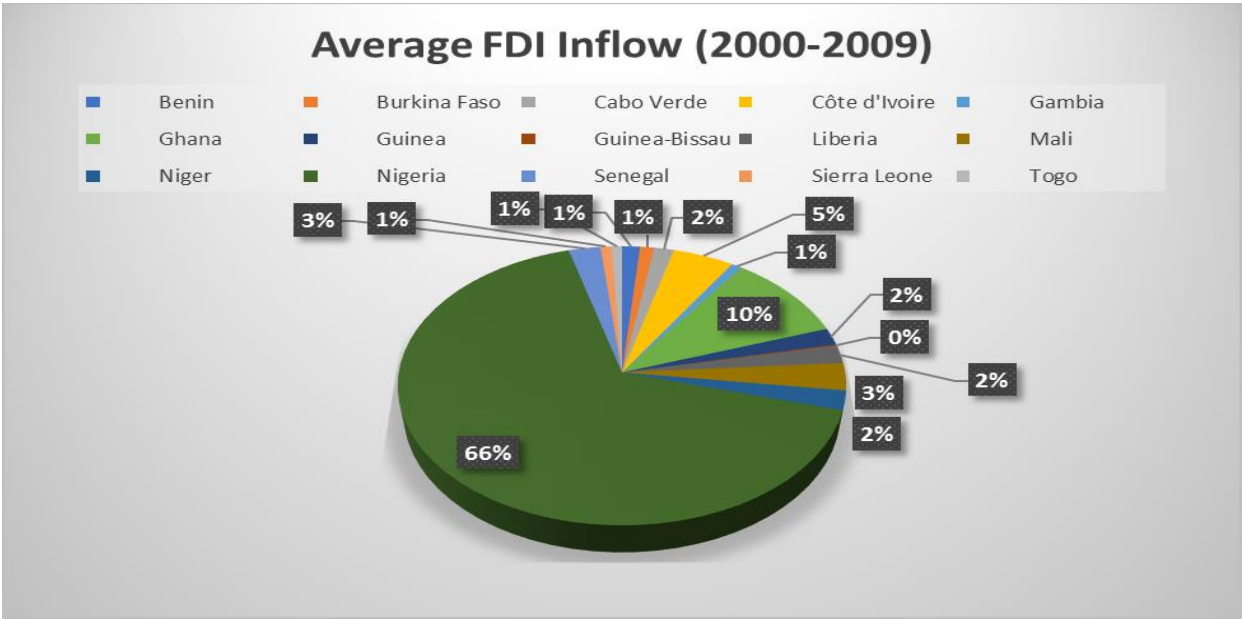
Also, FDI inflows into West Africa (ECOWAS) are mainly earmarked for natural resources management (oil and gas, gold, iron ore, magnesium, wood) and are directed towards countries rich in those resources (Economic Commission for Africa Report, 2017). Nigeria and Ghana are no exceptions, as they are natural resources-rich, and hence they attract more investment compared to other ECOWAS countries which do not have such natural riches (Asiedu, 2006). However, Folger (2018) found no evidence that countries with higher natural resource endowments actually receive more foreign direct investments, when looking at in the case of Guinea-Bissau with regards to FDI from China.

**Figure 3.6: Average FDI Inflow into ECOWAS Countries (2010-2018)**



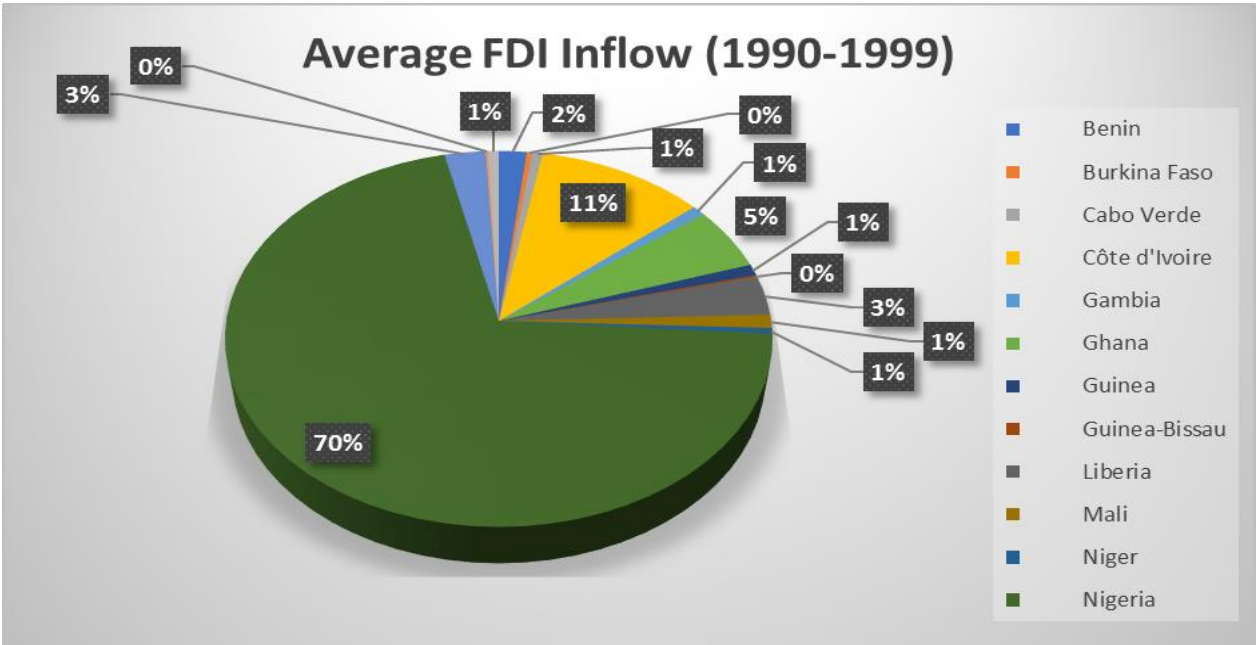
Source: Author’s computation based on the UNCTAD online database (2019).

Figure 3.7: Average FDI Inflow into ECOWAS Countries (2000-2009)



Source: Author’s computation based on the UNCTAD online database (2019).

Figure 3.8: Average FDI Inflow into ECOWAS Countries (1990-1999)



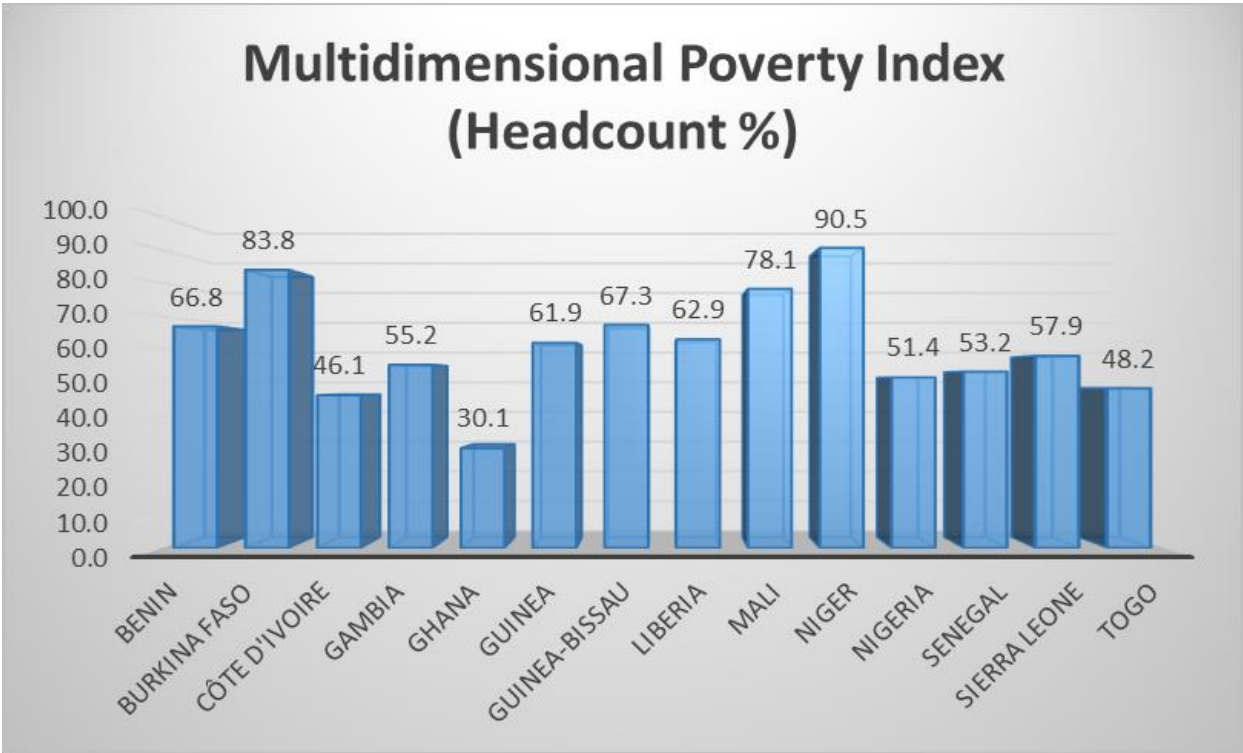
Source: Author’s computation based on the UNCTAD online database (2019).

### 3.3 Poverty Trends in the ECOWAS Region

Since 1990, tens of millions of people have survived poverty each year, and the average annual poverty rate fell between 1990 and 2015 (World Bank, 2018). Poverty on a global scale is therefore decreasing. As noted in section 1.0, 713 million of the earth's inhabitants survived on less than \$ 1.90 a day in 2015 (UNDP, 2019). Similarly, the MDG Report (2014) states that poverty is decreasing in ECOWAS, which accounts for more than 40% of the globe's poor, with many of these inhabitants being rural farmers mainly depending on subsistence farming for their living (Igboanusi, 2014). In this section, the researcher examines the poverty trend in ECOWAS, using two key poverty indicators: the multidimensional index (MPI) and the headcount ratio.

Poverty rates and poverty reduction in ECOWAS countries vary from country to country. Figure 3.9 depicts the multidimensional poverty index (MPI) between 2007 and 2018. The MPI is the latest indicator for measuring acute multidimensional poverty worldwide (see section 2.3.2.7). Based on Figure 3.9, Niger, Burkina Faso and Mali had the highest rates of MPI, with 90.5%, 83.8%, and 78.1%, respectively, while Ghana, with 30.1%, experienced the lowest. A high MPI indicates severe deficiencies in multidimensional poverty in the region.

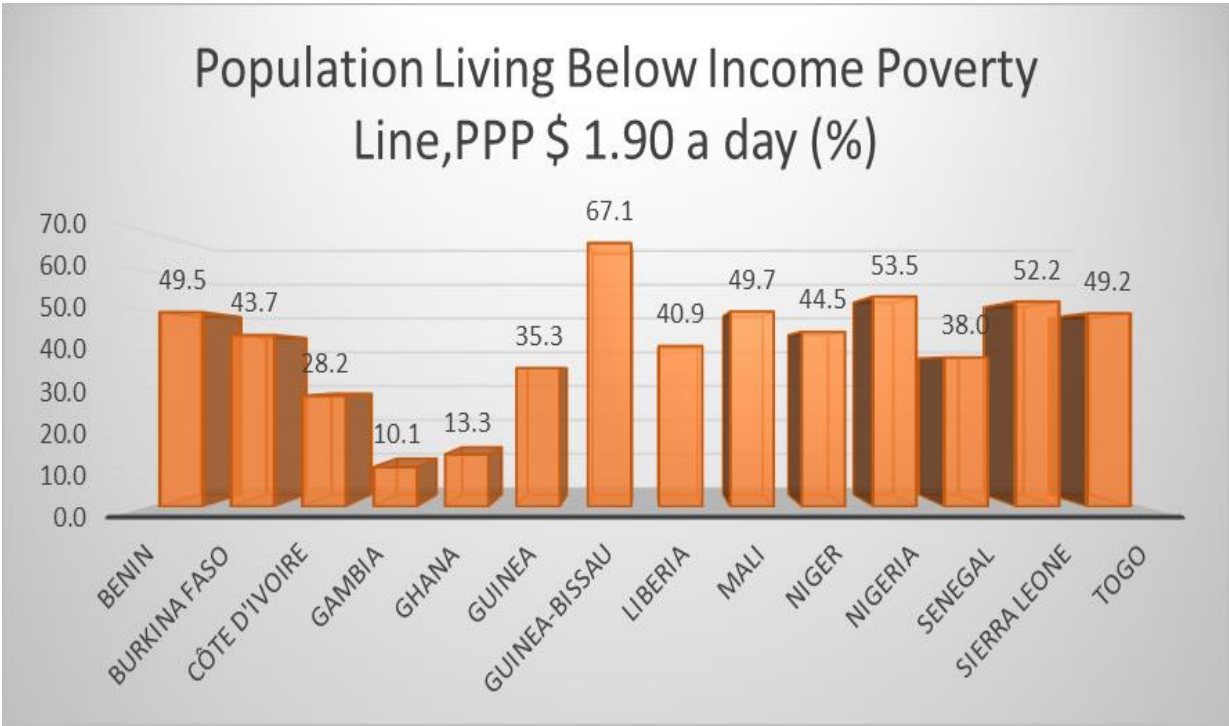
**Figure 3.9: ECOWAS Countries, Population Living in Multidimensional Poverty (Headcount %)**



Source: Author’s computation based on UNDP 2019 online database.

However, based on the World Bank’s poverty line of \$1.90 per day, poverty is declining in ECOWAS countries, with improvements seen mainly in urban communities. Figure 3.10 shows the monetary trend of poverty levels in ECOWAS based on the population living below \$1.90 per day, estimated at around 43% of the total population (West Africa Economic Outlook, 2018). Much of the populace living in extreme poverty reduced from 56.5% in 1990 to 48.5% in 2010 in West Africa (United Nations Economic Commission for Africa, 2015). However, the alleviation of poverty differs according to country. Based on Figure 2.10, Guinea Bissau, with 67.1%, Nigeria 53.5%, Sierra Leone 52.2% and Mali 49.7% experienced more significant poverty levels compared with Gambia 10.1% and Ghana 13.3%.

**Figure 3.10: Population Living Below the Income Poverty Line, PPP \$1.90 a Day (%)**



Source: Author’s computation based on UNDP (2019) online database.

**3.4 Country-specific Differences in Poverty Reduction in the ECOWAS**

During the period 1990-2018, several ECOWAS countries made a series of strides to reduce their poverty levels as indicated in section 3.3. However, such a progress is uneven and hence there are country specific differences in the region. In order to assess the real impact of FDI on the poverty of each member state in the region, it is necessary to consider the characteristics of the main sectors or industries that attract FDI and possible indirect effects on the economy and well-being of the population. FDI to ECOWAS countries as indicate in section 3.2 are mainly driven by natural resources and hence flow to the extractive sector. FDI to other sectors are very minimal. Several studies (Nunnenkamp and Spatz, 2003; Alfaro, 2003) have shown the impact of FDI on growth by sectors and industry varies. Therefore, the impact of FDI on poverty in a region may vary depending on the type of FDI that a country receives and the absorption capacity of each country and may have different absorptive effects. Economic growth and poverty reduction

through better job creation for the poor, the accumulation of human capital, and increased financial income for governments to finance development programs can have a positive effect on the region. For some countries in the region, this effect can be completely negative or negative in the short term, and negative or reverse in the long term.

In Benin, poverty based on \$1.90 a day (2011 PPP) fell from 53.1 to 49.5% between 2011 and 2015 (World Bank, 2019). Between 2013 and 2018, poverty remained widespread in Benin due to low GDP growth; however, the World Bank estimated it would reduce from 46.4% in 2017 to 42.0% in 2021. Similarly, during the period 2009-2014, Burkina Faso's poverty fell from 55.3% to 43.7% (World Bank, 2019). Cabo Verde is the only ECOWAS country to have made significant progress in the alleviation of poverty: based on a PPP of \$5.40 per day, this was the result of a decrease from 57% to 35% between 2001-2015 (World Bank, 2019). Poverty is expected to decline further in Cabo Verde from 2016 upwards, due to increased economic growth and expansion in commerce and manufacturing activities. The poverty rate in Cote d'Ivoire declined from 34% to 28% (\$1.90 a day poverty line, 2011 PPP) between 2011-2015, due to robust economic growth, and in the Gambia, 10.1% of the population lived below the international poverty line in 2015 (World Bank, 2019).

Throughout the period 1991 - 2012, the incidence of poverty in Ghana was halved. Ghana's poverty rate in 1991 was 47.4% (\$1.90 per person per day, 2011 PPP) and reduced down to 13.3% in 2016, which was lower than the African mean poverty rate (World Bank, 2019). Guinea Bissau has the highest poverty rate in ECOWAS, with 67.1% of its population living below the income poverty line of \$ 1.90, whilst poverty remains widespread in Guinea at 35% (\$1.90 per day, 2011 PPP) (World Bank, 2019). In Liberia also, poverty remains widespread, with more than half of the population (50.9%) experiencing it in 2016, according to the latest Household Income and Expenditure Survey (World Bank, 2019). In Mali, between 2001 and 2009, the poverty incidence reduced quickly from 51% to 41%, due to increased investment and growth. However, between 2011 and 2013, poverty increased from 47.8% to 50.4% because of economic slowdown that

followed the 2012 conflict and political crisis. In 2015, the extreme poverty rate declined to 46.3% and 41% in 2019 (World Bank, 2019). In Niger, between 2011 and 2014, the incidence of poverty (\$1.90 a day, PPP 2011) declined from 50.3% to 44.5% (World Bank, 2019).

Also, in Nigeria, poverty continues to be a key development challenge for the country despite it being one of the largest recipients of FDI in the ECOWAS region. Extreme poverty data available for 2009 projected poverty at 53.5% based on the \$1.90 per person per day (2011 PPP) international poverty line, and in 2018, poverty was estimated at 50%, thereby suggesting a modest improvement in the incomes of the bottom half of the population in the preceding years. In Senegal, the proportion of people living below the \$1.90 level declined from 38% to 33.45% between 2010 and 2018, and this has been projected to decline further to 30.9% by 2021 (World Bank, 2019). The downward trend of poverty is associated with increased economic activities such as good agricultural performance and pro-poor urban services, construction and the bolstering of essential social services for the benefit of rural residents. Sierra Leone's poverty rate, based on available data, was 52.2% in 2011, again using the international poverty line (\$1.90 2011 PPP) (World Bank, 2019). This denotes a 13.5 percentage point decrease from 66.4% in 2003. Finally, in Togo, poverty continues to be high and is focused in rural areas. The poverty rate (using the national poverty line of CFAF 943.58 per day) declined between 2011 and 2015 from 58.7% to 55.1% (World Bank, 2019). Extreme poverty (measured using 1.90 USD PPP international line) is estimated to remain on this declining path of 43.7% by 2021, due to the implementation of inclusive growth policies via targeted social spending.

In summarising, it is noted that the trend in poverty is decreasing in ECOWAS nations; however, it still prevails in the region, as shown by both indicators above. The progress of poverty reduction varies among countries. Therefore, an increase in FDI inflow is anticipated to contribute more to reducing the problem.

### **3.5 Chapter Summary**

In summary, this chapter has provided useful background information on ECOWAS, FDI and poverty, by illustrating the objectives and aims of ECOWAS. Also, the chapter examined the critical background information on, FDI and poverty in relation to ECOWAS. The essence of these terms is to ensure ease of understanding concerning the broader study area. In the next chapter, the research adopts a methodology that will explain the various poverty measures used to test the impact of the FDI and poverty association, based on the theories discussed in previous chapters, to aid our understanding. In this regard, various econometrics and statistical methods will be employed to study the gap in the literature.



## CHAPTER FOUR

### RESEARCH METHODOLOGY

#### 4.0 Introduction

This research aims to shine new light on the debates on the impact of FDI on poverty, so designing and adopting the most effective methodology to undertake the research is crucial. A research methodology is an integrated statement of, and a justification for, the technical decisions involved in planning a research project (Blaikie, 2010). It constitutes a constructive framework used by researchers to answer research questions and can be explained as a comprehensive theoretical inquiry which justifies the choices of research approaches, methods, techniques (and their combination) adopted in the research (Howell, 2013). This chapter contributes to this growing area of research by exploring a detailed methodology that will provide adequate answers to the research questions and objectives stated in Chapter One. It includes the philosophical assumption, research strategy, research design, chosen research methodology and justification, research data collection and analysis methods and conclusion.

#### 4.1 Philosophical Assumption/Paradigm

Philosophical assumptions or worldviews are a general philosophical orientation about the world and the nature of research that a researcher brings to a study (Creswell and Creswell, 2018) and represent a system of beliefs and assumptions regarding the development of knowledge (Saunders et al., 2019). All studies are supported by a series of implicit or explicit philosophical assumptions that form the research practice as well as the theoretical conclusions we draw from the data we collect and analyse (Bell et al., 2019). However, when conducting a study, most researchers do not ponder on these philosophical assumptions; instead, they merely follow standard procedures recognised within their specific disciplines (Creswell and Creswell, 2018; Slife and William, 1995). According to Saunders et al. (2019), a well-designed and consistent set of assumptions will constitute a reliable research philosophy that will inspire the methodological choice, research strategy, data collection methods and analysis procedures. This will allow the researcher to develop a coherent research project in which all elements of the study are

combined. Therefore, before a researcher identifies a suitable research paradigm, it is vital to study the philosophical assumptions and make clear whether they are appropriate for the study. Generally, the philosophy behind social science tries to provide an explicit understanding of these assumptions from three perspectives: ontology, i.e. understanding what constitutes reality, epistemology, namely gaining an understanding of how we can know reality, and methodology – understanding the best way to carry out research, given our ontological and epistemological assumptions. Also, in the social sciences, several paradigms vary in their basic philosophical hypotheses. Saunders et al. (2019) state five main philosophical assumptions: positivism, interpretivism, pragmatism, postmodernism and critical realism. In section 4.1.1, the researcher discusses the positivist paradigm, which has been adopted for the study, and its justification. Inevitably, the chosen paradigm shapes the researcher's understanding of the research questions, methods and interpretations of findings.

#### **4.1.1 Positivism**

Positivism is a philosophical position that involves the natural scientist interested in working with an observable social reality to produce a law like generalisation (Saunders et al., 2019). Positivism is a predefined method of associating deductive logic with empirical observations of specific behaviour to determine and allow a set of causal laws of probability that can be used to imagine broad models of human activity (Neuman, 2014). The positivist strongly emphasises empirical scientific approaches designed to produce unpolluted data and evidence that are unaffected by human interpretations or prejudices (Saunders et al., 2019).

The researcher has adopted a positivist approach for the study of FDI and poverty in the ECOWAS region because it includes statistical and numerical measurements used to test, validate, or correct theories used in scientific research. The positivist approach directs research based on the assumption of logically constructed causal relationships associated with previous studies, when the researcher objectively examines at each stage the indicators that measure the social world, in order to confirm or reject certain assumptions of everyday relationships in the social world.

This means that information can be obtained and produced using quantitative methods, such as surveys and statistical analysis, to collect and analyze research data (Black, 1999).

#### **4.2 Research Approach/Strategy**

A research strategy is an action plan employed to achieve a goal (Saunders et al., 2019), and it sets out how the researcher will answer the research question(s). In other words, a research strategy, or logic of enquiry, provides a starting point and a set of steps that help answer ‘which?’ ‘what?’ or ‘why?’ questions (Blaikie, 2010). This represents a methodological connection between the philosophy and the subsequent selection of methods for collecting and analysing data (Saunders et al., 2019; Denzin and Lincoln, 2018). There are four types of research strategy: inductive, deductive, retroductive and abductive (Blaikie, 2010). This research utilises a deductive approach to study the impact of FDI on poverty. A deductive approach seeks an explanation for the association between two concepts by proposing a theory, the relevance of which can be tested (Blaikie, 2010). In other words, it is viewed as a simple relationship between theory and research (Bell et al., 2019; Bryman and Bell, 2015). The adoption of deductive approach aligns with the research design used in the study. Previous studies on the impact of FDI on poverty have similarly used a deductive approach (Kaulihowa et al., 2018; Ucal, 2014; Gohou and Soumare, 2012).

#### **4.3 Research Design**

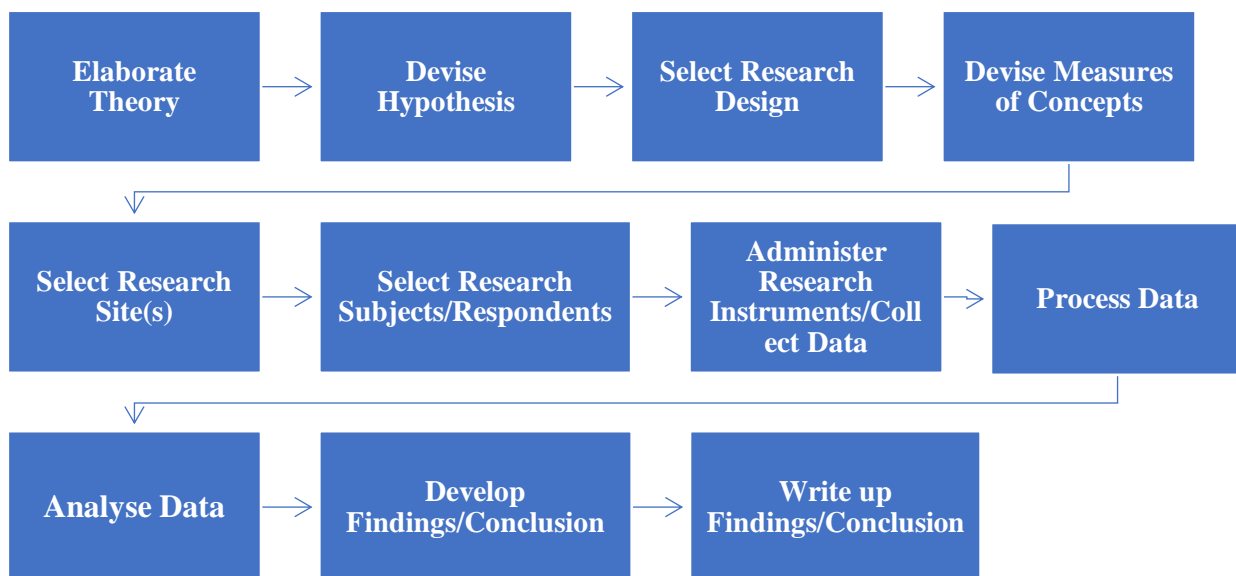
This is an integrated statement of, and justification for, the technical decisions involved in planning a research project (Saunders et al., 2019; Blaikie, 1993). According to Leedy and Ormrod (2001), a research methodology refers to the overall approach the scholar follows in undertaking a research project and how the said researcher intends to answer the research questions (Saunders et al., 2019). This includes clear objectives, data collection sources and analysis. It is also a type of inquiry within qualitative, quantitative and mixed-method approaches which gives specific direction to procedures in a research work (Creswell and Creswell, 2018). The type of research design selected reflects decisions about the priority given to a range of dimensions

(Bryman and Bell, 2015), and there are three kinds of research design: quantitative, qualitative and mixed methods (Creswell and Creswell, 2018). Based on the study’s chosen philosophical paradigm, i.e. positivism, the research design for this study is multi-method quantitative approach, as elucidate below.

#### 4.4 Quantitative Research Design

A quantitative research design is specific, well structured, tested for their validity and reliability and are openly defined and recognised (Kumar, 2019). According to Creswell and Creswell (2018), it is the collection of data that allows you to statistically quantify and process information to support or refute “claims for alternative knowledge”. This type of research uses an empirical query to collect, analyse and present data in numeric rather than non-numeric format (Saunders et al., 2019; Howell, 2013; Given, 2008). Below Figure 4.1 illustrates the main steps involved in a quantitative research design. The researcher has followed similar steps in undertaking this study.

**Figure 4.1: The Main Steps in Quantitative Research Design**



Source: Adopted from Bell et. al. (2019)

The research philosophy that is common in quantitative research design is positivism and the research approach is deductive. The merits of quantitative research include:

- ❖ The relationship between numerical measurement and analysis is studied using a number of statistical and graphical methods.
- ❖ Also, it so often uses probability sampling methods to ensure generalisability.
- ❖ It can use a single data collection technique called the mono method, or more than one data collection technique called the multiple method.

However, the well-known quantitative research criticism relates to the fact that individuals and social institutions are indistinguishable from nature. The research strategies of a quantitative study are primarily linked to experiments and surveys (Saunders et al., 2019).

#### **4.5 Types of Quantitative Research Design**

There are broadly two type quantitative research designs. A mono method quantitative study which can use one technique for collecting data, such as a questionnaire and the related quantitative analysis procedure; and a multi-method quantitative study which uses multiple quantitative data collection techniques and related analytical procedures (Saunders et al., 2019). Multi-method is the branch of multi-method research that uses more than one quantitative or qualitative method but does not combine the two. The use of multiple methods has been advocated in business and management research (Bell et al., 2019; Bryman 2006), as this is likely to overcome the weaknesses of using a single method and enable a more comprehensive approach to data collection, analysis and interpretation. This study has adopted a multi-method quantitative research design for a more comprehensive results and it is explained in section 4.5.1.

##### **4.5.1 Multi-Method Quantitative Research Design**

A Multi-method quantitative research design uses more than one quantitative data collection technique and corresponding analytical procedure (Saunders et al., 2019). This diversity of

methods implies rich opportunities for cross-validating and cross-fertilising research procedures, findings, and theories (Brewer and Hunter, 2006). The study of the impact of FDI on poverty in the ECOWAS region has adopted the multi-method quantitative research design. This has permitted the use of multi-methods of data collection and analysis within the same study. The study utilises two methods and phases of data collection and analysis. The first phase involves collecting and analysing the secondary data (see Chapter Five). Since the secondary data quantitative study alone cannot explain the behaviour of every variable in the results in-depth, a follow-up study is undertaken. This follow-up primary data quantitative study (the second phase of data collection and analysis) uses primary data in the form of questionnaires to elaborate on other vital factors affecting the impact of FDI on poverty in the ECOWAS region, and it addresses questions the initial secondary data quantitative results did not explain (see Chapter Six). The results of the primary data quantitative study help the researcher understand more precisely the reasons for the initial secondary data quantitative results. Hence, the primary data quantitative study complements the initial secondary quantitative results of the impact of FDI on poverty in the ECOWAS region. Both sets of results are interpreted and discussed in Chapter Seven.

#### **4.6 Justification for Selecting the Research Design**

The research design chosen for the study of FDI and poverty in the ECOWAS region is a multi-method quantitative research design. The researcher has used multi-method quantitative approach to answer the research questions and hypothesis, because it helps collect credible, reliable and relevant data to address the research questions. In the literature, several studies on the impact of FDI on poverty have been undertaken based on either qualitative, quantitative, and mixed method approaches. The justification for adopting a mixed method quantitative approach in this study is because the information from the secondary data may not be adequate to explain all the factors that affect poverty in the ECOWAS region. Hence, the mixed method quantitative approach emerged as a better research design compared to the rest for a number of reasons. Firstly, the research question required statistical evidence and with the mixed method quantitative study, it was possible with secondary data and the questionnaire questions was tailored to reflect statistical analysis. The two stages (primary and secondary) of data collection

and analysis both produced a statistical evidence vital in the study of FDI and poverty in the ECOWAS. Second, a literature review generated many hypotheses that needed to be statistically verified. Therefore, focusing on quantitative data was essential to facilitate hypothesis testing procedures. Hence, selecting a multi-method quantitative research was relevant for the study, since both methods complement, corroborate and cross-validate the results of the research project by examining different aspects of the same phenomenon.

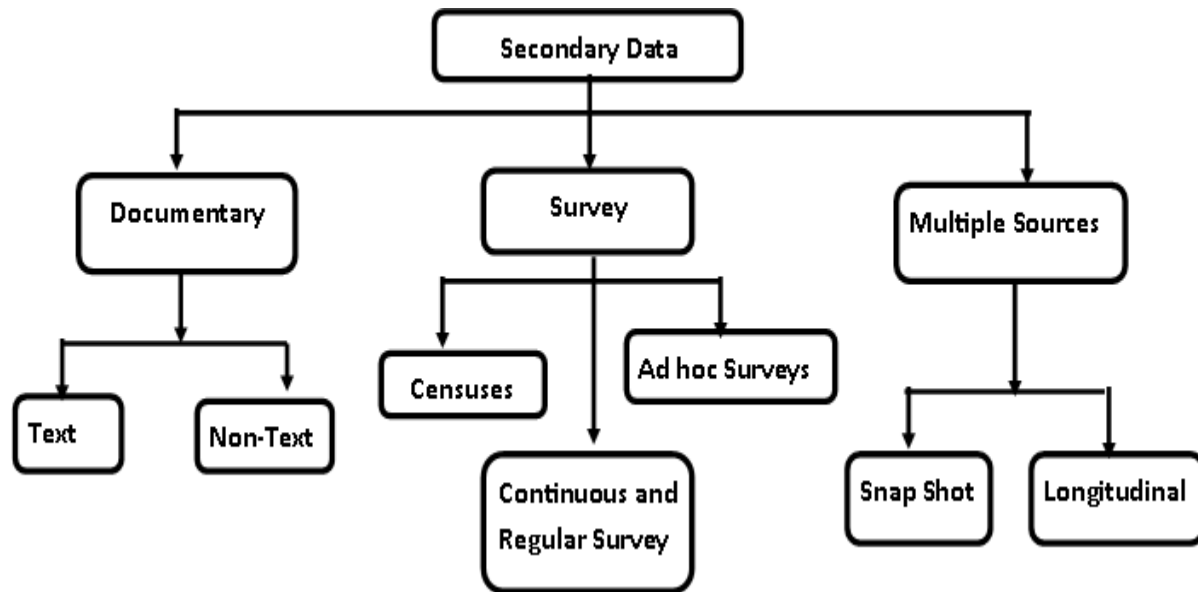
#### **4.7 Data Collection Methods**

This section examines the two methods of quantitative data collection methods which involves two phases. The first phase is the collection of secondary quantitative data, and it is followed up by the second phase, a questionnaire.

##### **4.7.1 Secondary Data Collection (Phase One)**

The quantitative data collection method adopted in this research is secondary. According to Saunders et al. (2019), secondary data have already been processed by other sources, based on their suitability and advantages, such as fewer resources needed, unobtrusiveness, their suitability for longitudinal studies and making comparative and contextual data available. However, their drawbacks include data collected for a motive that does not suit the intended purpose, they are difficult and costly to access and there is no control over the quality. At present, the amount of data collected and archived globally is huge; therefore, the thirst for utilising secondary data in researches is not only becoming more predominant, but they are also very much needed, due to its practicality (Myers, 2013; Andrews et al., 2012; Schutt, 2012; Smith, 2008). There are different types of secondary data, namely survey-based, documentary and multi-source, as illustrated in Figure 4.2.

Figure 4.2: Types of Secondary Data



Source: Adopted from Saunders et al. (2019).

The current research uses secondary longitudinal data. The researcher collected these secondary data from various sources from the Manchester Metropolitan University (MMU) Library search services and other internet sources. The data for all 15 ECOWAS countries were obtained from the following websites: United Nations Conference on Trade and Development (UNCTAD), UNDP, ECOWAS, UN, World Bank Data indicator and the Google internet search engine. Also, other sources include books, journals and articles. The types of secondary data used in the study are official statistics and surveys from the various databases and websites mentioned above.

#### 4.7.2 Primary Data Collection (Phase Two)

In addition to secondary data collection, this study has also employed a questionnaire to collect primary data. A questionnaire is a common term describing any data collection method in which every research participant is asked to answer the same set of questions in a prearranged order (Saunders, 2019; De Vaus, 2014; Matthews and Ross, 2014). It is used in various social research situations and to uncover all kinds of social problems and phenomena. Questionnaires are mainly applied in quantitative research to generate quantitative data, although qualitative data can be generated by using open questions (Quinlan et al., 2019; Quinlan, 2011). The design of a



questionnaire differs according to whether the respondent or the researcher completes it, and how it is delivered, returned or collected (Saunders et al., 2019).

The choice of questionnaire for the study of FDI and poverty in the ECOWAS region was influenced by a variety of factors related to the research questions and objectives. The following factors contributed to the choice of questionnaire for the study:

- ❖ characteristics of the respondents from whom you wish to collect data;
- ❖ importance of reaching a particular person as respondent;
- ❖ importance of respondents' answers not being contaminated or distorted;
- ❖ size of sample you require for your analysis, taking into account the likely response rate;
- ❖ types of question you need to ask to collect your data;
- ❖ number of questions you need to ask to collect your data.

The above factors have inspired the choice of questionnaire for this study which is a self-administered questionnaire. Self-administered questionnaires are usually completed by respondents and distributed to respondents over the Internet (Internet questionnaire). The selected questionnaire method confirmed how confident the researcher can be that the participant is the person who answers the questions and, therefore, the reliability of the answers.

The design of the questionnaire is divided into several sections, and each section relates to the variables identified in the literature. The first page which is the cover letter serves to motivate the respondents and build their confidence and trust. The researcher introduced himself, describes the study, the aim of the research and anticipated benefits of the study. This research used a five-point Likert scale in the questionnaire, which is useful because, in addition to measuring the direction of the relationship, it also measures the strength of the relationship. Likert scales can be three-, five- or seven-point scales (Quinlan et al., 2019; Quinlan, 2011), and the more points in the scale, the more data can be gathered in terms of the strength of the attitudes held. Previous studies have purported that using the five-point Likert scale will increase the likelihood that participants will complete the questionnaire, and thus the study will result in

a higher and better response rate (Buttle, 1996). To maintain participant confidentiality, the questionnaires were given reference numbers instead of the participant's name.

Following the designing of the questionnaire, a pilot test was performed to test the validity and reliability of the questionnaire. Bell and Waters (2014) and Saunders et al. (2019) suggest a researcher should use the following points to check each completed pilot questionnaire:

- How long did the questionnaire take to complete?
- Were the instructions clear?
- Which, if any, questions were unclear or ambiguous?
- Which, if any, questions did the respondents feel uneasy about answering?
- In their opinion, were there any significant topic omissions?
- Was the layout clear and attractive?

In this study, the first step in the pilot testing of the questionnaire was to follow the points mentioned above during the design of the questionnaire. Second, the questionnaire was sent to my supervisory team for comments on its suitability, as these comments enable the researcher to make changes with regards to the appropriateness of specific questions. Lastly, the questionnaire was distributed to individuals with knowledge in the area of study, and who were not part of the study, as a pilot test. Comments from the pilot testing respondents on required changes were subsequently considered.

The questionnaire after a successful pilot test was emailed to participants. The researcher maintains a list of government sectors, donor agencies and companies together with contact names, numbers and email addresses of key individuals involved. An official letter from the MMU was emailed to participants requesting for their participation. The participants were briefed about the motivation for the research, how information obtained from them would be used and stored, and that their confidentiality would be guaranteed. According to Dillman et al. (2014) and Bell et al. (2019), an explicit guarantee of confidentiality is essential for research participants. The

questionnaire was emailed to individuals from all ECOWAS member states in equal proportion. The research participants were selected from specific government departments, agencies, businesses and development partners focusing on FDI and poverty in ECOWAS. The questionnaires were distributed using electronic mail (email). A total of 120 emails were sent to the respective research participants. The questionnaires were administered between 1<sup>st</sup> July 2019 and 31<sup>st</sup> July 2019. The targeted respondents by countries are shown in Table 4.1. The questionnaires were distributed equally to all countries within the ECOWAS region.

**Table 4.1: Total Targeted Respondents**

<b>No</b>	<b>ECOWAS Countries</b>	<b>Targeted No. of Respondents</b>
1.	Benin	8
2.	Burkina Faso	8
3.	Cabo Verde	8
4.	Cote D'Ivoire	8
5.	Gambia	8
6.	Ghana	8
7.	Guinea	8
8.	Guinea-Bissau	8
9.	Liberia	8
10.	Mali	8
11.	Niger	8
12.	Nigeria	8
13.	Senegal	8
14.	Sierra Leone	8
15.	Togo	8
	<b>Total Targeted</b>	<b>120</b>

Source: Author's computation

The participants in the study hailed from the ECOWAS region, and they were selected via the purposive sampling non-probability technique, whereby the researcher does not try to sample on a random basis all study participants. The aim of purposive sampling is that participants are sampled strategically and in an order that is relevant to the research question (Bryman and Bell, 2015; Sekaran and Bougie, 2016). For this study, the groups of participants selected were both

from the government and non-governmental agencies based on their expected knowledge and experience of FDI and poverty. The total number of targeted questionnaires initially sent out was 120, and a total of 102 completed questionnaires were received back, out of which ten were rejected due to incomplete information, thus reducing the number to 92 respondents. These 92 respondents represent 76.6% of the total questionnaires sent out. The researcher sent an email showing gratitude to all the participants who had completed the questionnaire and encouraged and prompted those who failed to do the task to do so. Table 4.2 shows the characteristics of the total number of participants and their rate of response.

**Table 4.2: Questionnaire response rate**

Action	Electronic Mail Sent out	Total
Questionnaires distributed	120	120
Initial responses	50	
Responses after 1 <sup>st</sup> reminder	20	
Responses after 2 <sup>nd</sup> reminder	32	
Rejected incomplete questionnaires	10	
Accepted questionnaires	92	92
Response rate as percentage	76.67%	76.67%

Source: Author's computation.

#### **4.8 Estimation Techniques**

To answer the research questions and hypothesis stated in Chapter One on the FDI and poverty linkage, this study employs varying estimation techniques to test the empirical relationship. These research estimation techniques are as follows.

### 4.8.1 Regression Model

In exploring the impacts of FDI on poverty, the study utilises regression models. A regression model explores the link between a dependent variable, sometimes called a 'regressand' or an explained variable, and at least an independent variable, sometimes called a regressor or an explanatory variable. The dependence between explained and explanatory variables is mathematically represented as follows:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_n X_{ni} + \varepsilon_i \quad (1)$$

where  $Y_i$  represents the dependent variable,  $X_{1i}, X_{2i}, \dots, X_{ni}$  represent the independent variables,  $\beta_1, \beta_2, \dots, \beta_n$  are parameters and  $\varepsilon_i$  represents the disturbance or error term. It is a stochastic variable that represents all factors affecting the dependent variable, but it is not explicitly accounted for in the regression model.

The aim is typically to estimate the parameters in a regression model. The numerical estimates of the parameters in a regression model underline the regression analysis. In particular, the regression analysis focuses on the study of dependence between an explained variable and one or more explanatory variables, in order to estimate and/or predict the population mean of the explained variable in terms of the fixed values of the explanatory variables (Gujarati, 2009).

#### 4.8.1.1 Estimation of Regression Models

There are two basic ways of estimating regression models: ordinary least squares (OLS) and maximum likelihood (ML). OLS is the most standard method in regression analysis, because it is intuitively appealing and mathematically more uncomplicated than ML (Gujarati, 2009).

#### 4.8.1.1.1 Ordinary Least Squares Method

The regression model represented in Eq. 1 is an unobservable population regression function, and it is estimated from the sample regression function. The estimate of Eq. 1 is mathematically represented in Eq. 2 as:

$$Y_i = \hat{\beta}_0 + \hat{\beta}_1 X_{1i} + \hat{\beta}_2 X_{2i} + \dots + \hat{\beta}_n X_{ni} + \hat{\varepsilon}_i \quad (2)$$

With  $\hat{Y}_i = \hat{\beta}_0 + \hat{\beta}_1 X_{1i} + \hat{\beta}_2 X_{2i} + \dots + \hat{\beta}_n X_{ni}$  consider the estimated conditional mean of  $Y_i$ , in which case Eq. 2 becomes

$$Y_i = \hat{Y}_i + \hat{\varepsilon}_i \quad (3)$$

This implies that  $\hat{\varepsilon}_i = Y_i - \hat{Y}_i$  (4)

Substituting the expression for  $\hat{Y}_i$  into Eq. 4 to obtain

$$\hat{\varepsilon}_i = Y_i - \hat{\beta}_0 - \hat{\beta}_1 X_{1i} - \hat{\beta}_2 X_{2i} - \dots - \hat{\beta}_n X_{ni} \quad (5)$$

The method of OLS minimises the sum of square residuals. That is, it minimises the sum of squares of Eq. 5:

$$\hat{\varepsilon}_i^2 = \left( Y_i - \hat{\beta}_0 - \hat{\beta}_1 X_{1i} - \hat{\beta}_2 X_{2i} - \dots - \hat{\beta}_n X_{ni} \right)^2 \quad (6)$$

With the objective focusing on the minimising sum of square residuals, the optimal value is derived with the differentiating Eq. 6 with respect to  $\hat{\beta}_0, \hat{\beta}_1, \hat{\beta}_2, \dots, \hat{\beta}_n$ .

#### OLS Assumptions

Apart from obtaining  $\hat{\beta}_0, \hat{\beta}_1, \hat{\beta}_2, \dots, \hat{\beta}_n$  from Eq. 1, the focus of the regression model is also to make inferences about the true  $\beta_0, \beta_1, \beta_2, \dots, \beta_n$ . Given this notion, there are underlying assumptions regarding the regression model.

i. **Linearity:** The regression model in Eq. 1 must be linear in terms of parameters but not necessarily linear in variables (Kennedy, 2003). This implies that the parameters  $\hat{\beta}_0, \hat{\beta}_1, \hat{\beta}_2, \dots, \hat{\beta}_n$  must be in linear form, but the regressand  $Y_i$  and the regressor  $X_i$  may be nonlinear.

ii. **Independence between the Regressor and the Error Term:** The values of regressor  $X_i$  are independent of the error terms  $\varepsilon_i$ . This relationship is mathematically represented by

$$Cov(X_i, \varepsilon_i) = 0 \tag{7}$$

iii. **Mean of Error Term:** With a given value of  $X_i$ , the expected value of the random error term  $\varepsilon_i$  is zero. Put differently, the mean value of  $\varepsilon_i$ , conditional upon the given  $X_i$ , is zero. This can be represented by

$$E(\varepsilon_i / X_i) = 0 \text{ or } E(\varepsilon_i) = 0 \tag{8}$$

iv. **Homoscedasticity of Error Term:** The variance of the error term  $\varepsilon_i$  is constant, regardless of the value of  $X_i$ :

$$Var(\varepsilon_i) = E[\varepsilon_i - E(\varepsilon_i / X_i)]^2 \tag{9}$$

With Eq. 8, Eq. 9 becomes  $Var(\varepsilon_i) = E[\varepsilon_i]^2$  (10)

$$Var(\varepsilon_i) = \sigma^2 \tag{11}$$

Eq. 11 states that the variance of  $\varepsilon_i$  for each  $X_i$  (the conditional variance of  $\varepsilon_i$ ) is a positive constant  $\sigma^2$ . This represents the assumption of homoscedasticity – equal (homo) and spread (scedasticity) – or equal variance. Stated differently, Eq. 11 implies that the  $Y$  populations for various  $X$  values have constant variance, or the variation around the regression line is the same across the  $X$  values.

v. **Autocorrelation between Two Error Terms:** This assumption of no serial correlation or autocorrelation postulates that two error terms are not correlated. Given any two values of  $X, X_i$  and  $X_j$  ( $i \neq j$ ), the correlation between their corresponding  $u_i$  and  $u_j$  ( $i \neq j$ ) is zero.

This implies that  $Cov(u_i, u_j) = 0$  (12)

All five assumptions are called ‘assumptions of the classical linear regression model’. The OLS estimator that satisfies all these assumptions is considered the best linear unbiased estimator (BLUE). Specifically, an estimator is considered BLUE if the following requirements are satisfied:

- a. The estimator is linear: it is a linear function of a random variable, such as the dependent variable in the regression model.
- b. The estimator is unbiased: its expected value is equal to the actual population value.
- c. It has a minimum value in the class of all such linear unbiased estimators. Such an unbiased estimator with the least variance is considered an efficient estimator (Gujarati, 2009).

Apart from the heightened assumptions, other assumptions are expected in a regression model. One such fundamental assumption is the normality assumption of the error terms.

- i. **Normality Assumption of the Error Term:** The normality assumption states that each error term  $\varepsilon_i$  is normally distributed with a mean of zero and variance  $\sigma^2$ .

$$E(\varepsilon_i) = 0 \quad (13)$$

$$Var(\varepsilon_i) = \sigma^2 \quad (14)$$

$$Cov(u_i, u_j) = 0 \quad i \neq j \quad (15)$$

The assumption could be compactly stated as  $u_i : N(0, \sigma^2)$

- ii. **Multicollinearity:** The assumption of multicollinearity postulates that there is no exact linear relationship between the  $X$ s. This implies that no  $X$  can be written as a linear combination of another  $X$



#### 4.8.1.1.2 Method of Maximum Likelihood

The method of maximum likelihood (ML) is a point estimation with stronger theoretical properties than OLS (Gujarati, 2009). This method consists of estimating the unknown parameters in a manner that the probability of observing the given  $Y$ . Suppose all the occurrences of  $Y_i$  in Eq. 1 are normally and independently distributed with mean  $Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_n X_{ni}$  and variance  $\sigma^2$ . The joint probability density function (PDF) of  $Y_1, Y_2, \dots, Y_n$  is written as  $f(Y_1, Y_2, \dots, Y_n | \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_n X_{ni}, \sigma^2)$

With the independence of the  $Y$ 's, the PDF can be written as the product of the  $n$  individual PDFs as:

$$f(Y_1, Y_2, \dots, Y_n | \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_n X_{ni}, \sigma^2) = f(Y_1 | \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_n X_{ni}, \sigma^2) f(Y_2 | \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_n X_{ni}, \sigma^2) \dots f(Y_n | \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_n X_{ni}, \sigma^2)$$

where  $f(Y_i) = \frac{1}{\sigma\sqrt{2\pi}} \exp\left\{-\frac{1}{2} \frac{(Y_i - \beta_0 - \beta_1 X_{1i} - \beta_2 X_{2i} - \dots - \beta_n X_{ni})^2}{\sigma^2}\right\}$ , which is the density function of a normally distributed variable with a given mean and variance. Substituting this into the PDF, we obtain:

$$f(Y_1, Y_2, \dots, Y_n | \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_n X_{ni}, \sigma^2) = \frac{1}{\sigma^n (\sqrt{2\pi})^n} \exp\left\{-\frac{1}{2} \sum \frac{(Y_i - \beta_0 - \beta_1 X_{1i} - \beta_2 X_{2i} - \dots - \beta_n X_{ni})^2}{\sigma^2}\right\}$$

If  $Y_1, Y_2, \dots, Y_n$  are known but  $\beta_1, \beta_2, \dots, \beta_n$  and  $\sigma^2$  are unknown, the PDF is called a likelihood function and is denoted by  $LF(\beta_0, \beta_1, \dots, \beta_n)$  and written as:

$$LF(\beta_0, \beta_1, \dots, \beta_n, \sigma^2) = \frac{1}{\sigma^n (\sqrt{2\pi})^n} \exp\left\{-\frac{1}{2} \sum \frac{(Y_i - \beta_0 - \beta_1 X_{1i} - \beta_2 X_{2i} - \dots - \beta_n X_{ni})^2}{\sigma^2}\right\}$$

Taking natural logs of both sides, we obtain

$$\ln LF = -n \ln \sigma - \frac{n}{2} \ln(2\pi) - \frac{1}{2} \sum \frac{(Y_i - \beta_0 - \beta_1 X_{1i} - \beta_2 X_{2i} - \dots - \beta_n X_{ni})^2}{\sigma^2} . \text{ This simplifies to:}$$

$$\ln LF = -\frac{n}{2} \ln \sigma^2 - \frac{n}{2} \ln(2\pi) - \frac{1}{2} \sum \frac{(Y_i - \beta_0 - \beta_1 X_{1i} - \beta_2 X_{2i} - \dots - \beta_n X_{ni})^2}{\sigma^2} \quad (16)$$

Eq. 6 is differentiated partially with respect to  $\beta_1, \beta_2, \dots, \beta_n$  and  $\sigma^2$ .

### **Robust Regression**

The regression model in Eq. 1 is based on the highlighted assumptions, the violation of any of which has implications for the result of the regression model. Specifically, the violation of some underlying OLS assumptions could result in misleading results (Kennedy, 2003). A review of most regressions shows that these assumptions are sometimes violated, resulting in a non-robust regression model. However, the robust regression is designed to overcome certain limitations prevalent in traditional regression techniques.

In particular, the robust regression technique is designed to be overtly unaffected by violations of underlying assumptions in the data-generating process. For instance, OLS estimates are sensitive to outliers, and such outliers could bias the OLS estimates (Kuosmanen & Johnson, 2010). This is because the OLS predictions are dragged towards outliers, which can be masked due to the artificial inflation of variance of the estimates' (Kennedy, 2003). Similarly, the presence of heteroscedasticity can result in spurious results in OLS estimations. However, the adoption of robust regression can overcome the violation of the homoscedasticity assumption and the presence of outliers.

#### **4.8.2 Fixed and Random Effects Models**

One of the underlying assumptions of Eq. 1 is the absence of individual effects among the countries involved in the panel data. Such an assumption is considered a very strong assumption in studies involving countries considering the heterogeneity of various countries. While it is expedient to include such individual country effects into the regression model, the individual

effect is often unobservable or unmeasurable. With the introduction of the unobservable effect in Eq. 1, it becomes

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_n X_{ni} + v_i + \varepsilon_i \quad (17)$$

One major question confronting researchers using the model in Eq. 17 is whether  $v_i$  changes over time or is fixed. This underlines the fixed and random effect estimation. The focus of both fixed and random effect estimation is the modelling treatment effects regarding the unobserved individual effects (Clark & Linzer, 2015). The model parameters are non-random or fixed in the fixed-effect model. While such a model assists in controlling for the unobserved heterogeneity that is constant over time, differencing is used to remove such heterogeneity (Bell & Jones, 2015). However, the random effect model, or variance component model, is a linear model with a hierarchy, which is based on analysed data being drawn from various hierarchical populations with differences relating to the hierarch (Tufanaru et al., 2015).

#### **4.8.3 Generalised Method of Moments (GMM)**

The GMM is the centrepiece of the semi-parametric estimation framework. GMM estimators are constrained from the exploitation of the sample moment counterparts of orthogonality or population moment conditions (Hansen, 2008). Specifically, GMM is an estimation procedure that allows model specification without unnecessary assumptions, such as specifying a distribution for errors. Further, it is characterised by consistency, efficiency and asymptotic normality (Hansen, 2008). GMM is superior to the ML estimation in various ways. For instance, it does not require complete knowledge of data distribution; rather, it requires only specified moments from an underlying model. Similarly, GMM provides an easy way to test the model specification when such a model has more moments than the parameters of the model.

#### 4.9 Model Specification and Variable Description

The UN's 2016 Sustainable Development Goals declaration outlines 17 SDGs to be achieved by 2030. As stated in Chapter One, based on UNDP (2019) estimates, a total of \$ 4.5 trillion is needed for the successful implementation of the SDGs. However, Sub-Saharan Africa and ECOWAS countries continue to face a persistence lack of resources in terms of public and private investment (Gohou & Soumaré, 2012). FDI serves as a source of capital investment, and most African countries require continuous FDI to stimulate their economies and trigger poverty reduction. This in turn has galvanised the attraction of FDI to various African countries, both in terms of FDI as a proportion of GDP, and net inflow per capita.

Moreover, there is an improvement in the real GDP per capita and the Human Development Index (HDI). Despite these suggesting that FDI is linked to poverty reduction or enhanced welfare, a vast body of literature – such as Alfaro et al. (2004), Carkovic & Levine (2005) and Hansen & Rand (2006) – has explored the overall impact of FDI on economic growth. While these studies assume a perfect positive link between welfare and economic growth, a strand of literature, such as Anand & Sen (2000), has questioned this assumption. For instance, it is argued that economic growth that is not pro-poor, even if it is necessary to enhance well-being, may create inequality and worsen welfare or poverty (Gohou & Soumaré, 2012). Given this point, this study contributes to the existing literature by exploring the impact of FDI on poverty, based on the following hypotheses:

**$H_0$** : FDI has no significant impact on poverty

**$H_1$** : FDI has a significant impact on poverty.

The exploration of this relationship will be based on the regression model, represented in matrix form as follows:

$$Y_{it} = X_{it}\beta + \varepsilon_{it} \quad (18)$$

where  $Y_{it}$  represents poverty, while  $X_{it}$  represents control variables affecting poverty, such as FDI. A review of the extant literature shows that there is no specific variable for poverty; instead, it is proxied by some fundamental variables. Based on the extant literature, this study adopts four proxy variables for poverty: infant mortality rate, HDI, GDP per capita and household consumption expenditure (Magombeyi & Odhiambo, 2018). On the other hand, a huge body of literature exploring the direct impact of FDI on poverty utilises the following variables as part of the independent variables: domestic credit, government spending, inflation, corruption, human capital, trade openness, infrastructural development and employment (Tsaurai, 2018; Gohou & Soumaré, 2012). To explore the relationship between FDI and poverty in the ECOWAS region, we specify a model based on Quinonez et al. (2018) and Fowowe & Shuaibu (2014), but differ in that they both used a single proxy, i.e, poverty headcount index while this research in fact measure poverty using four poverty proxies (infant mortality, HDI, GDP and Household Consumption) as a more appropriate poverty measures. Also, we differ in measuring FDI through FDI inflow as current prices in United States dollars instead of FDI inflows as a percentage of GDP and FDI inflows per capita, and in measuring macroeconomic stability through inflation instead of debt as a percentage of GDP and finally, human capital development is measured as mean years of schooling instead of the life expectancy. The general specification of the model is as follows:

$$POV_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + \varepsilon_{it} \quad (19)$$

where  $POV_{it}$  represents poverty in the country  $i$  at time  $t$ ,

$FDI_{it}$  represents net FDI inflow in the country  $i$  at time  $t$ ,

$LNTEL_{it}$  represents the infrastructure development of the country  $i$  at time  $t$ . This is proxied by fixed telephone subscriptions,

$LNGSP_{it}$  represents government spending in the country  $i$  at time  $t$ ,

$SCH_{it}$  represents the human capital development of the country  $i$  at time  $t$ . The mean years of schooling is used as its proxy,

$DOMCR_{it}$  represents domestic credit provided to the private sector in the country  $i$  at time  $t$ ,

$CORR_{it}$  represents a governance indicator in the country  $i$  at time  $t$ . This is proxied by the control of corruption,

$X_{it}$  represents control variables in the country  $i$  at time  $t$ . The control variables used for this study are openness, inflation and unemployment,

$\varepsilon_{it}$  represents the error term.

The study adopts four proxies for poverty: Human Development Index (HDI), infant mortality (MORT), household consumption (HCON) and GDP per capita (GDPP). Previous studies have similarly used these poverty proxies (Kaulihowa and Adjasi, 2018; Magombeyi & Odhiambo, 2018). These proxies are selected because they represent key determinants of underdeveloped and poverty-stricken nations. In addition, most empirical studies in Africa have focused on single-dimension and monetary measures of poverty, disregarding its non-monetary or multi-dimensions with exception of Kaulihowa and Adjasi (2018) Gohou and Soumaré (2012) and Soumaré (2015). The use of single dimension could pose shortcomings since poverty has been referred to as multi-dimensional in nature. Hence, failure to account for various and specific non-monetary aspects may not adequately capture the links between FDI and poverty in the ECOWAS. To capture both the unidimensional and the multidimensional aspects of poverty, this research employs four indicators (infant mortality rate, household consumption expenditure, GDP per capita and HDI as proxies for poverty). Thus, the results will explain in a much improved way the effects of FDI on poverty in ECOWAS countries. With the adoption of these four proxies, the regression model in Eq. 19 becomes four regression models as follows:

$$HDI_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + \varepsilon_{it} \quad (20)$$

$$MORT_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + \varepsilon_{it} \quad (21)$$

$$HCON_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + \varepsilon_{it} \quad (22)$$

$$GDPP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + \varepsilon_{it} \quad (23)$$

The study utilises four regression techniques: OLS, fixed and random effects.

On the other hand, the study takes the dynamic nature of poverty into consideration, implying that the current level of poverty is influenced by the previous level of poverty. Given this, the study includes lag of poverty as one of the independent variables. This translates the models in Eqs. 20 to 23 into dynamic models as follows:

$$HDI_{it} = \beta_0 + \beta_1 HDI_{it-1} + \beta_2 FDI_{it} + \beta_3 LNTEL_{it} + \beta_4 LNGSP_{it} + \beta_5 SCH_{it} + \beta_6 DOMCR_{it} + \beta_7 CORR_{it} + \beta_8 X_{it} + \varepsilon_{it} \quad (24)$$

$$MORT_{it} = \beta_0 + \beta_1 mort_{it-1} + \beta_2 FDI_{it} + \beta_3 LNTEL_{it} + \beta_4 LNGSP_{it} + \beta_5 SCH_{it} + \beta_6 DOMCR_{it} + \beta_7 CORR_{it} + \beta_8 X_{it} + \varepsilon_{it} \quad (25)$$

$$HCON_{it} = \beta_0 + \beta_1 HCON_{it-1} + \beta_2 FDI_{it} + \beta_3 LNTEL_{it} + \beta_4 LNGSP_{it} + \beta_5 SCH_{it} + \beta_6 DOMCR_{it} + \beta_7 CORR_{it} + \beta_8 X_{it} + \varepsilon_{it} \quad (26)$$

$$GDPP_{it} = \beta_0 + \beta_1 GDPP_{it-1} + \beta_2 FDI_{it} + \beta_3 LNTEL_{it} + \beta_4 LNGSP_{it} + \beta_5 SCH_{it} + \beta_6 DOMCR_{it} + \beta_7 CORR_{it} + \beta_8 X_{it} + \varepsilon_{it} \quad (27)$$

The four dynamic models are evaluated using GMM.

The justification and description for each variable included in the model above is based on existing literature review.

FDI variable: The independent variable in this study is FDI inflow. In the empirical literature, FDI is measured as net FDI inflows as a percentage of GDP (Quinonez et al., 2018; Cleeve, 2015; Soumaré, 2015; Gohou and Soumaré, 2012; Alfaro et al., 2004), stock of FDI to GDP (Kaulihowa and Adjasi, 2018; Nunnenkamp and Spatz, 2004; Balasubramanyam et al., 1996), FDI inflows as a

ratio of GDP (Lensink and Morrissey, 2006; Hermes and Lensink, 2003; Carkovic and Levine, 2002), FDI per capita and the ratio of FDI to gross domestic investment. Since we are interested in the impact of FDI inflow on poverty, this study utilises the inflow of FDI based on the test undertaken of the most appropriate proxy.

**Infrastructure:** Infrastructure development and the use of modern technology improve the living standards of a population, and the use of technical gadgets is a sign of social and economic development to reduce poverty. The study measures infrastructure, using the number of fixed and mobile phone users per 100 habitants. Several studies in the literature have applied this variable (Ahmad et al., 2019; Kaulihowa and Adjasi, 2018; Cleeve et al., 2015; Gohou and Soumaré, 2012; Asiedu, 2006). Infrastructure is expected to have a positive effect on poverty reduction.

**Government final consumption expenditure:** This is the primary source of investment in economic and social infrastructure, including economic performance, health education and the development of roads and markets to improve human development in a country. It is measured as the government's final consumption expenditure as a share of GDP. Government spending is expected to promote welfare, and several studies in the literature have used it (Soumaré, 2015; Ucal, 2014; Gohou and Soumaré, 2012).

**Domestic Credit to private sector:** Financial intermediaries' credit measures this to the private sector and stock market capitalisation. Financial development contributes to poverty reduction indirectly by stimulating economic activities (Beck et al., 2007; Levine, 2005). The role of the private sector in developing economies is vital in economic development, but its impact may vary in different regions. Several studies in the literature have used it (Aibai et al., 2019; Tsaurai, 2018; Soumaré, 2015; Alfaro et al., 2009; Cleeve, 2008). Therefore, financial development is expected to exhibit a positive relationship.



**School:** Economic theory assumes that human capital is one of the most important determinants of FDI inflows. Education demonstrates improvements to and the prospects of human capital in a country; therefore, it is a vital contributor to public welfare. Education is amongst the core pillars of economic development as stated in the SDGs. In addition, human capital is expected to affect poverty negatively. Several studies in the literature have adopted this variable (Ahmad et al., 2019; Kaulihowa and Adjasi, 2018; Cleeve et al., 2015; Gohou and Soumaré, 2012; Asiedu, 2006). School is expected to have positive impact on poverty reduction.

**Unemployment:** It is argued in the literature that one of the direct effects of FDI on poverty is an increase in employment. The employment contributes to economic development through its potential to reduce the unemployment rate and poverty (Colen et al., 2008). This study adopts a percentage of the working-age population without employment as a proxy. The coefficient of employment is estimated to be negative and statistically significant based on the literature review, which indicates that employment does indeed reduce poverty. Further, unemployment is expected to influence poverty negatively. Several studies in the literature have used it (Ahmad et al., 2019; Soumaré, 2015; Ucal, 2014; Gohou and Soumaré, 2012).

**Trade Openness:** An increase in trade openness is expected to improve economic development and reduce poverty. Trade openness promotes improved economic growth that will eventually lead to a fall in absolute poverty (Dollar and Kraay, 2004). This measures the attractiveness of a country to trade. Trade openness is measured in two ways, namely exports and imports, divided by GDP and based on the size of the nation's trade relative to world trade. This study uses exports and imports divided by GDP. Several studies have used a similar approach (Ganic, 2019; Kaulihowa and Adjasi, 2018; Ucal, 2014; Cleeve, 2012; Gohou and Soumaré, 2012; Tsai and Huang, 2007; Asiedu, 2006). A positive link between FDI and trade openness is expected herein.

**Inflation:** This is used to measure the macroeconomic stability of a nation. Sound macroeconomic stability increases a nation's stability and investors' confidence. However, if there is macroeconomic instability, investors lose confidence, and it poses a high risk for a nation. Inflation is expected to have a negative impact on poverty, due to the direct influence of price increases on consumers, which leads to an increase in suffering for the poor. High and unstable inflation will distort the value of money (Bailey, 1956). It is measured as the percentage change in the GDP deflator or consumer price index growth rate (annual percentage). Several studies in the literature have used it (Ganic, 2019; Soumaré, 2015; Cleeve, 2008).

**Governance indicator:** Good governance and institutional rules promote robust macroeconomic management and the general wellbeing of the nations' population in an impartial manner (Rodrick et al.,2004). Thus, a solid governance indicator is anticipated to attract FDI and reduce poverty. This measures the control of corruption, and its values range between -2.5 (weak) and 2.5 (strong) in terms of governance performance. In essence, it reflects the perception of the government's ability to formulate and implement sound policies and regulations that permit and promote private-sector development.

#### **4.10 Variable Measurements and Data Sources**

A variable is anything that may take on a changeable value (Sekaran and Bougie, 2016). These values may vary countless times for the same subject or person, or at the same time for varying objects. This Table 4.3 summarises all the variables (dependent, independent and control) measurements and sources of data used in the study.

**Table 4.3 Summary of Variables, Measurements, and Data Sources**

Variable name	Description	Measure/Scale	Data Sources
<b>Dependent Variables</b>			
HDI	Human Development Index	Index	UNDP
GDP PPP	Real per capita gross domestic product (GDP)	Constant 2010 \$	World Development Indicators (WDIs)
MORT	Infant mortality rates	Per 1,000 live births	World Development Indicators (WDIs)
HCON	Household consumption	Percentage of GDP	World Development Indicators (WDIs)
<b>Independent Variables</b>			
FDI Inflow	FDI inflow	Current Prices in US Dollar	UNCTAD
<b>Control Variables</b>			
Infrastructure	Fixed and mobile phones users per 100 inhabitants	Per 100 inhabitants	WDIs
Human Capital Development	Mean year of schooling	ratio	WDI
Trade openness	Imports + exports/GDP	Ratio	WDIs
Government final Consumption	Government consumption/GDP	Ratio	WDIs
Financial Development	Credit by financial intermediaries to private sector/GDP	Measured as a percentage to GDP	WDI

Inflation	Annual percentage change in a consumer price index	percentage	World development (WDI) indicators
Unemployment	Percentage of working-age population without employment	Percentage	World development (WDI) indicators
Governance Indicator	Measured by control of corruption. Its values range between -2.5 (weak) to 2.5 (strong) governance performance.	scale	WDI

Source: Adapted from the Literature on FDI and Poverty

**4.11 Data Analysis Methods**

The quantitative data analysis is done in two stages. The secondary data is analysed separately in Chapter Five, and the primary data are analysed next in Chapter Six.

**4.11.1 Secondary Data Quantitative Analysis Methods (Phase One)**

Quantitative data, in their raw form, fail to convey enough meaning and understanding (Saunders et al., 2019). They are only processed or analysed once, making them very useful and understandable to the researcher and audience. Irrespective of the method of data collection, the first step in processing data is to ensure they are ‘clean’, i.e. free from inconsistencies and incompleteness (Sekaran and Bougie, 2016). This cleaning process is referred to as ‘data editing’.

In this study, the researcher cleaned the data and accounted for missing data as well (see Chapter Five). To address the research questions, the check for Pre-Testing of Assumptions (Checking OLS Regression Assumptions). The significance of undertaking a pre-testing is to ensure that all the

underlying regression assumptions are fulfilled firmly (Hair et al., 1995). This was also followed by descriptive analysis of the data. The descriptive statistics can show if there is a problem with the data, since if there are substantial differences between the trimmed mean and mean values, the data needs further investigation. This study uses the estimation techniques (see section 4.8 above) and STATA 16 to analyse the secondary data in Chapter Five.

#### **4.11.2 Primary Data Quantitative Analysis Methods (Phase Two)**

The primary data was analysed using Microsoft excel 2016. All the data were imputed into excel and analysed using charts and graphs to explain the relationship between FDI and poverty variables.

#### **4.12 Reliability and Validity**

The conventional approach to determining research quality is via its validity and reliability. A research approach which encompasses the concept of reliability ensures the repetitions of the results (Maimbo and Pervan, 2005). In addition, reliability refers to the question of whether the results of a study are repeatable (Bryman et al., 2019). On the other hand, validity refers to the integrity of the conclusions that are generated from a piece of research (Bryman et al., 2019). This section exemplifies how the issue of validity and reliability are addressed in the study.

#### **Phase One (Secondary Data)**

Reliability and validity attributed to secondary data are functions of the methods and sources from which these data are collected (Saunders et al., 2019). Dochartaigh (2012) recommended several areas for the preliminary assessment of the authority of records accessible through the internet. First, it is essential to find the person or organisation responsible for the data and additional information that can be used to assess the credibility of the source. In this study, the secondary data were collected from credible and trustworthy internationally recognised databases and websites. No data were collected from any unknown database or website, and all of them used herein are referenced correctly to reflect credibility. The researcher examined the

initial methodology used by the institutions and websites used to collect the initial data if they were credible and reliable for use in this study.

### **Phase Two (Questionnaire)**

The internal validity and reliability of the data collected, and the response rate obtained, depend mainly on the design of the questions, the structure of the survey and the difficulty of the pilot test (Saunders et al., 2019). A valid questionnaire will allow the researcher to collect accurate data that measures the concepts of interest to the study, and a reliable example means that these data will be collected consistently. According to Saunders et al. (2019), the various types of validity test used in a questionnaire include measurement (internal) content, predictive (criterion-related) construct, convergent and discriminant.

To ensure the validity of this study, it went through different steps, starting with a literature review to compile the questionnaire topics, which was later reviewed by the supervisory team. Subsequently, several experts expressed their views on improving the questionnaire. The next step was to conduct a pre-pilot study, in which the researcher held informal discussions with government officials, recipients and interested organisations. Regarding reliability, Bryman et al. (2019) report three types of reliability measures: stability, internal and interdependent. According to Saunders et al. (2019), for the questionnaire to be valid, it must be reliable, but this alone is not enough. Another option is the Cronbach Alpha statistic, which is the sum of all half-divided when evaluating the internal consistency of a tool. This study accepted a Cronbach's Alpha of 0.69, obtained from the pilot questionnaire, which is considered an acceptable result.

#### **4.13 The Code of Ethics**

Ethical approval relating to data collection for this study was received from Manchester Metropolitan University (MMU) through the Ethos ethical guidance form. Ethos is the University's new online ethics application system and ensures that all research activities are compliant. Ethos also aids the management of ethical approval processes for all student research

projects, which includes application and submission, review, approval, amendments and reporting. In addition, the process involves completing the consent and applicant's information forms. MMU is dedicated to ensuring that its research activities lessen the risk to participants, researchers and third parties. Therefore, all research activities within the university system are mandatory when accepting an appropriate ethical review. This study went through all the processes involved, and ethical approval was given to undertake the study.

#### **4.14 Chapter Summary**

In summary, this chapter has highlighted the methodology guiding the examination of the impact of FDI on poverty in the ECOWAS region. Overall, it specifically examined the philosophical assumptions, research approach, research methodology and research methods (including data collection and analysis). The philosophical assumption/paradigm is positivism, due to the nature of the study, while the research methodology adopted is mixed-method quantitative, using both primary and secondary data, which has the advantage of enriching the study and corroborating the results of the data from both data collection methods.

In the secondary data quantitative research, the type of data was panel data for all 15 ECOWAS countries. The study employs various estimation techniques, including ordinary least square regression (OLS), fixed and random effects and the GMM, to test the impact of FDI on poverty. Analysis of quantitative data is done using STATA 16. On the other hand, the data collection technique employed for the primary data aspect is questionnaire. The collected data are analysed using excel 2016.

In the next chapter, both primary and secondary data collected through mixed method quantitative methods are analysed and presented. To examine properly the impact of FDI, the results from the secondary data analysis are complemented with the primary data analysis method. Empirical results show whether there is a relationship between FDI and poverty – and if

it is significant. The primary data analysis results either validate or refute the empirical findings, based on the various estimation techniques and statistical packages employed in the study.



## CHAPTER FIVE

### SECONDARY DATA QUANTITATIVE ANALYSIS AND RESULTS

#### 5.0 Introduction

The earlier chapters aimed at developing a conceptual framework and methodology to be adopted in this empirical part of the thesis. Consequently, this chapter presents the empirical analysis and the results of the econometric models used to study the impact of FDI on poverty in the ECOWAS region. The study focuses on exploring the effect of FDI on poverty in the ECOWAS region, using the various estimation techniques and econometric tools outlined in Chapter Four. In this chapter, both static and dynamic regression models are used in the secondary data quantitative analysis.

#### 5.1 Data Transformation

Data transformation ensures that the data used in the study are appropriate. It involves data cleaning, accounting for missing data and checking that the OLS assumptions are met, to ensure validity. Missing data and the pre-testing of OLS assumptions are now discussed.

##### 5.1.1 Missing Data

During the data collection process, there were missing data for some countries, and so the researcher used interpolation to account for them. Interpolation is a mathematical and statistical tool used to estimate values between two points (Sekaran and Bougie, 2016). It is useful not only in statistics, but also in science, business or when there is a need to predict values that fall within two existing data points.

Table 5.5 (see section 5.3) enumerates the descriptive statistics of the variables used in the four models. MORT (infant mortality) has 420 observations, while other variables have fewer. The discrepancy in the number of observations was due to missing data for various countries at

different times. It needs to be stressed that the missing data were not specific to a country, but rather, they cut across all the countries in our sample. For example, data for the variable HDI were missing for Nigeria, Liberia, Guinea Bissau, Burkina Faso and Cape Verde for certain periods. However, the missing data were filled, using interpolation, which employs a linear trend to fill missing data based on the estimates of the existing data. This exercise was based on the following formula:

$$y = y_1 + (x - x_1) \frac{y_2 - y_1}{x_2 - x_1} \quad (1)$$

where  $(x_1, y_1)$  and  $(x_2, y_2)$  are known values.

## 5.2 Pre-Testing of Assumptions (Checking OLS Regression Assumptions)

This section checks the OLS regression assumptions stated in Chapter Four (methodology) section 4.8.1.1.1. The significance of undertaking a pre-testing is to ensure that all the underlying regression assumptions are fulfilled firmly (Hair et al., 1995). The four models in Eqs. 20 to 23 (see section 4.9) involve the utilisation of OLS techniques as one of its regression techniques. However, with OLS, the violation of any of the assumptions could lead to spurious results. Given this, the study proceeds to evaluate the validity of the underlying OLS assumptions. The four models satisfy the linearity assumption, since they are linear in terms of not only parameters, but also variables. On the other hand, the homoscedasticity assumption focuses on a constant variance for the error terms. The violation of the homoscedasticity assumption will lead to inefficient estimators, as it affects the variance and distribution of the coefficients of the model.

Figure 5.1 shows the residual versus fitted (rvf) plot of our first model (HDI) in Eq. 20 (see section 4.9). An rvf plot will exhibit no established pattern in a well-fitted model. Apart from a few outliers, there is an increasing or decreasing variation in residuals, suggesting the presence of heteroscedasticity.

Figure 5.1: Residual versus Fitted Plot of Model 1 (HDI)

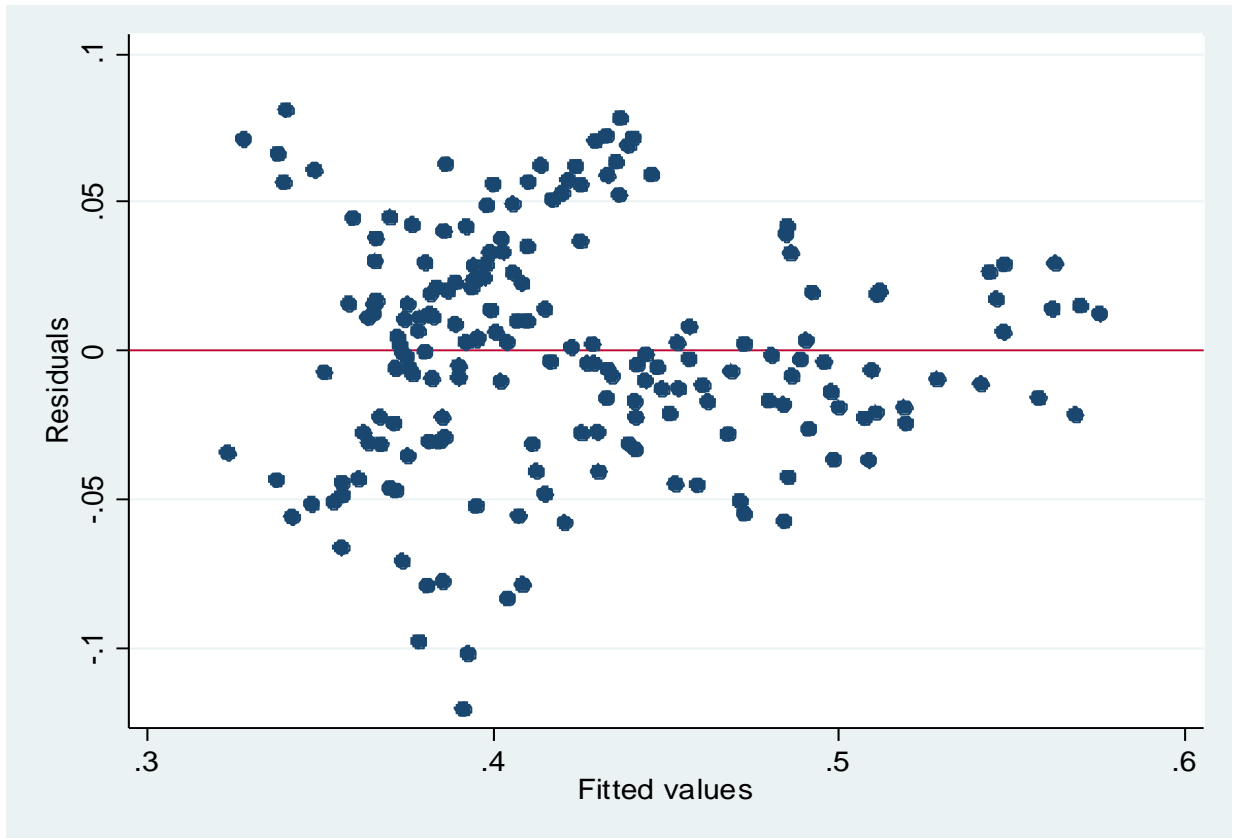
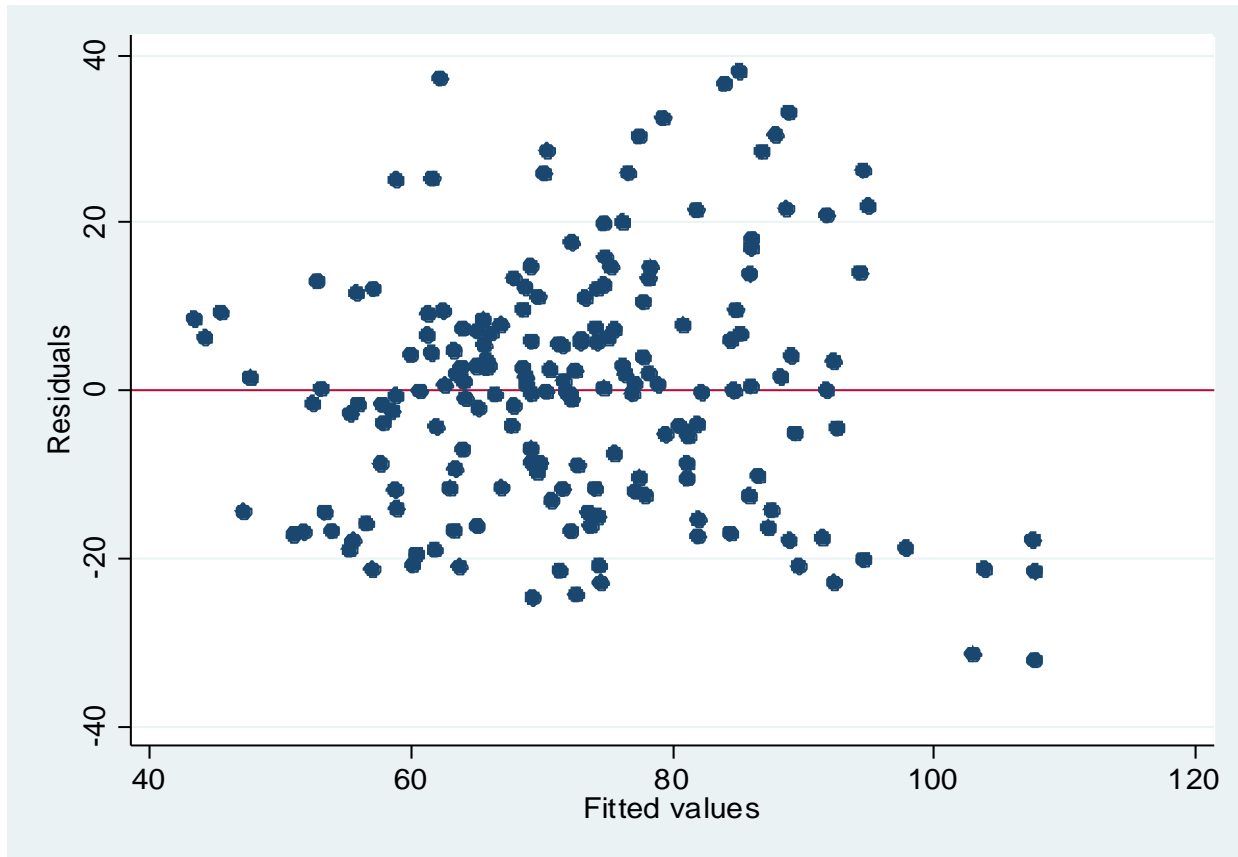


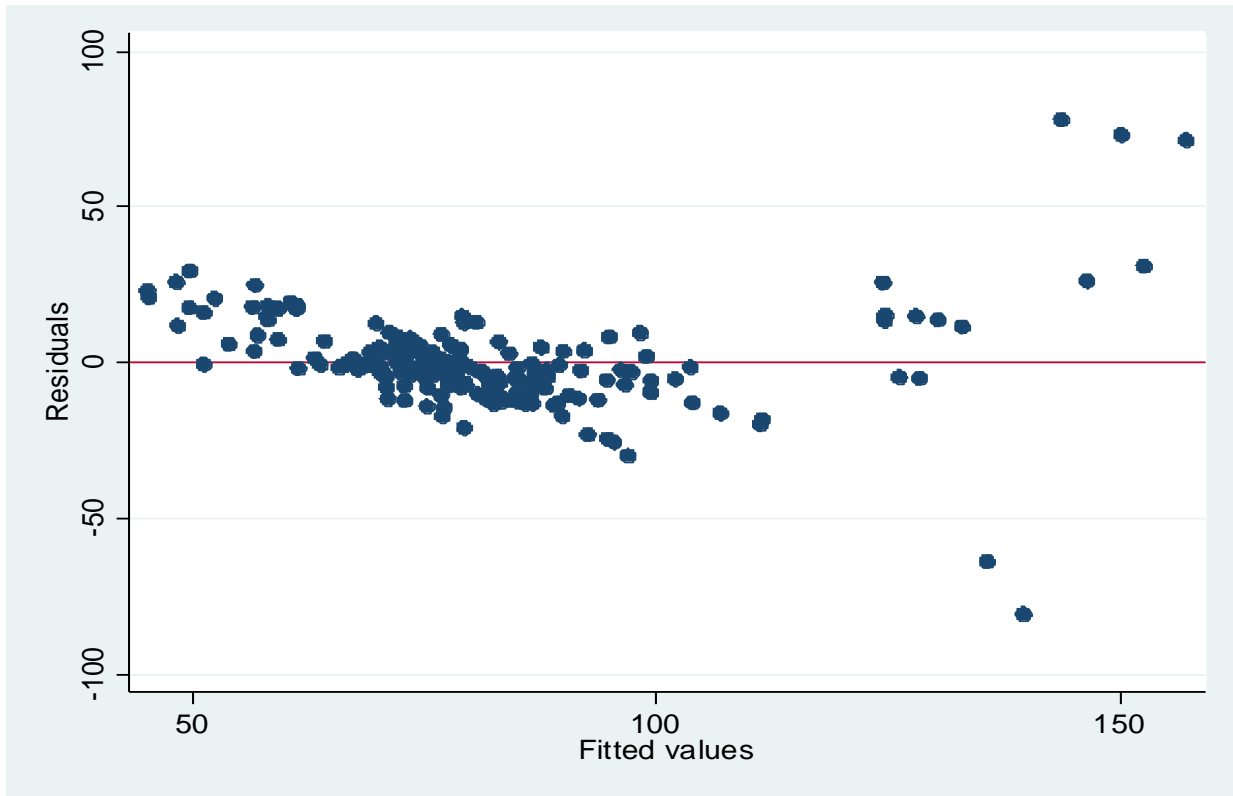
Figure 5.2 shows the rvf plot for our second model (MORT) in Eq. 21 (see section 4.9). Like the first model, there are a few outliers, and there is an increasing or decreasing variation in the residuals, which suggests the presence of heteroscedasticity

Figure 5.2: Residual versus Fitted Plot of Model 2 (MORT)



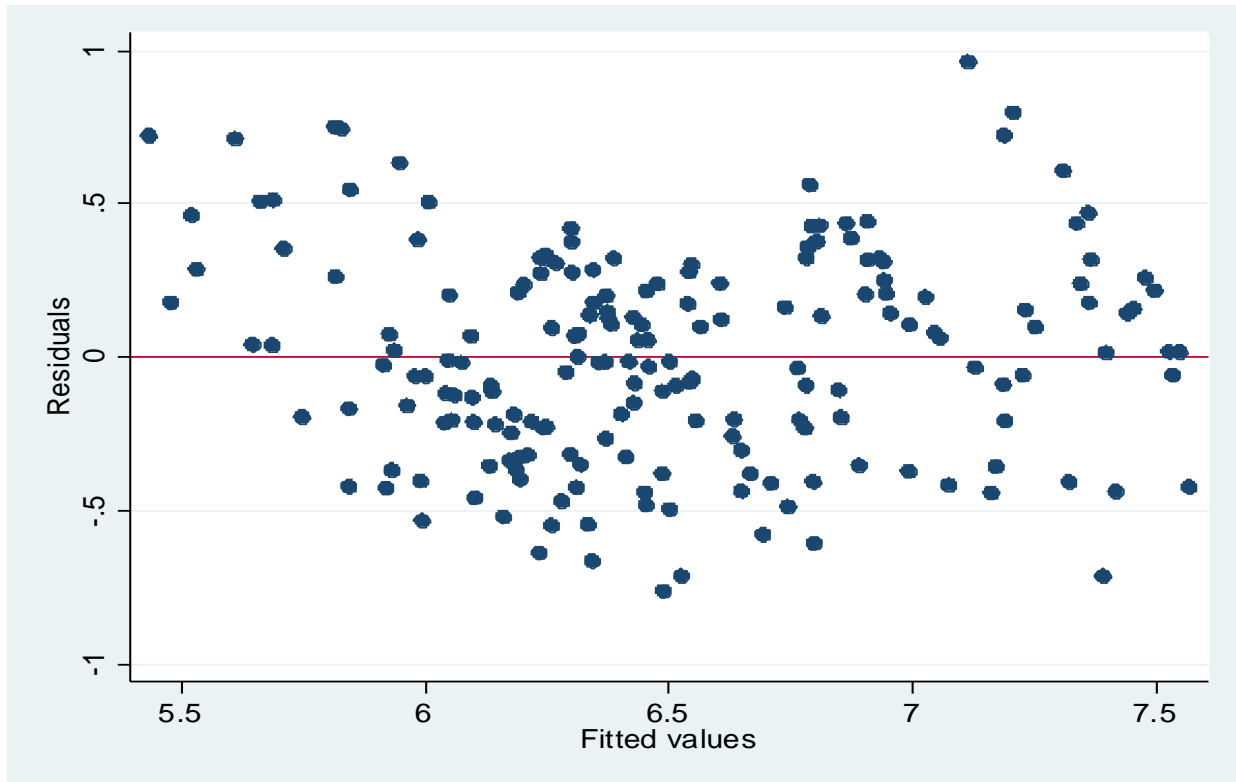
Similarly, Figure 5.3 shows the rvf plot of our third model (HCON) in Eq. 22 (see section 4.9). Apart from outliers at the tail end of the plot, the plot mimics the first two models. There is seeming increasing or decreasing variation in the residuals, suggesting the presence of heteroscedasticity.

Figure 5.3: Residual versus Fitted Plot of Model 3 (HCON)



Furthermore, Figure 5.4 shows the rvf plot of our fourth model (GDPP) in Eq. 23 (see section 4.9). The plot shows some outliers at the tail end. Also, it suggests the presence of heteroscedasticity with the increasing or decreasing variations in the residuals.

Figure 5.4: Residual versus Fitted Plot of Model 4 (GDPP)



However, the rvf plot is only suggestive of the presence of heteroscedasticity. On the other hand, the numerical technique provides an effective method of detecting any violation of the homoscedasticity assumption. The Breusch-Pagan Lagrange Multiplier (LM) test is the common test evaluating the presence of heteroscedasticity in a model. It checks if the variance of errors in a model depends on the values of the independent variables. The Breusch-Pagan LM test is based on the following hypotheses:

$H_0$ : all error terms have constant variance

$H_1$ : at least one error term has a different variance.

The results of the test for our four models (see section 4.9) are the same, since they have the same set of independent variables. The result is tabulated in Table 5.1:

**Table 5.1: Breusch-Pagan LM Test**

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity						
Ho: Constant variance						
Variables: FDI LNTEL OPENESS LNGSP UNEMP SCH DOMCR CORR INFLATION						
chi2(9) = 33.26						
Prob > chi2 = 0.0001						

The p-value of 0.0001 is less than the traditional 5% (0.05), and so we can reject the null hypothesis of constant variance. Hence, heteroscedasticity is present in the four models, which can be partly explained by the heterogeneous nature of the countries in our model, and this reflects the huge difference in all variables used in our models. The presence of heteroscedasticity in our models precludes the use of the traditional OLS, so instead we adopt the robust OLS for our analysis.

The multicollinearity assumption prohibits a perfect linear relationship between two independent variables. Although a correlation between two independent variables is desirable in a regression model, a perfect linear relationship violates the multicollinearity assumption. This implies that one independent variable cannot be written as a linear combination of the other. Intercorrelations among the independent variables is a central component of the multicollinearity assumption.

Table 5.2 provides the correlation matrix for all the independent variables used in the four models (see section 4.9). It demonstrates that there is a negative link between FDI and other independent variables, except INFLATION and OPENESS. Similarly, LNTEL (Natural Log of Telephone) has a negative correlation with other variables, OPENESS and INFLATION, while OPENESS also has negative correlation with LNGSP (Natural log of government spending),

UNEMP (Unemployment), CORR (Corruption) and INFLATION. On the other hand, UEMP is positively correlated with three variables: SCH (Human Capital), DOMCR (Financial Development) and CORR. While DOMCR is positively correlated with CORR, it is negatively correlated with INFLATION. On the other hand, SCH is positively correlated with LNTEL, OPENESS, LNGSP and UNEMP, but negatively correlated with FDI.

**Table 5.2: Correlation Matrix**

	FDI	LNTEL	OPENESS	LNGSP	UNEMP	SCH	DOMCR	CORR	INFLATION
FDI	1.0000								
LNTEL	-0.3480	1.0000							
OPENESS	0.2046	-0.2845	1.0000						
LNGSP	-0.4736	0.5555	-0.0995	1.0000					
UNEMP	-0.1542	0.3415	-0.0179	0.2817	1.0000				
SCH	-0.1269	0.4833	0.0566	0.0327	0.1796	1.0000			
DOMCR	-0.1732	0.4616	0.2596	0.3282	0.1649	0.2927	1.0000		
CORR	-0.0451	0.2554	-0.2118	-0.0548	0.2234	-0.0795	0.1568	1.0000	
INFLATION	0.1568	-0.0983	-0.0923	-0.2383	-0.0258	0.2652	-0.4243	-0.2110	1.0000

The correlation matrix does not show the presence of multicollinearity among our variables, since no two variables have a correlation coefficient of 1. However, the variance correlation factor (VIF) quantifies the degree of multicollinearity in a model. VIF is a measure of the extent to which the variance is inflated and fundamentally measures the effect of collinearity on the increased variance of an estimated regression coefficient. In addition, it quantifies the degree of the link between two predictors in a model and is calculated as

$$VIF = \frac{1}{R^2} \tag{2}$$



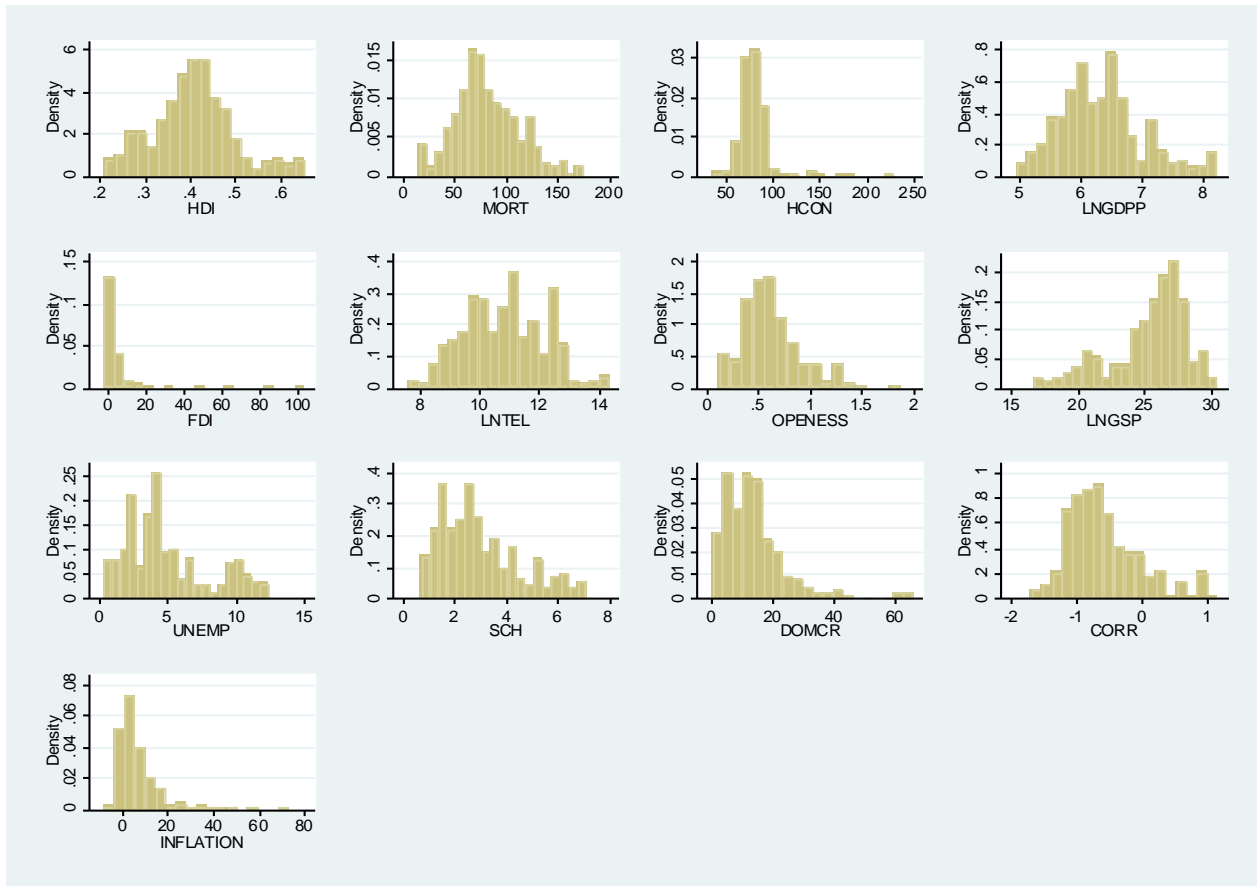
The VIF of the independent variables used in the four models is tabulated in Table 5.3. A VIF value of less than 5 is considered acceptable. With our VIF value of 1.89, it can be affirmed that our four models do not violate the multicollinearity assumption.

**Table 5.3: VIF**

Variable	VIF	1/VIF
LNTEL	3.37	0.296634
LNGSP	2.32	0.431185
SCH	2.07	0.482897
DOMCR	2.05	0.488175
INFLATION	1.60	0.625192
OPENESS	1.55	0.643135
CORR	1.45	0.691566
FDI	1.38	0.722148
UNEMP	1.23	0.812823
Mean VIF	1.89	

Evaluations of the underlying OLS assumptions show that our four models (see section 4.9) satisfy all OLS assumptions, except for the homoscedasticity assumption. The heteroscedasticity problem can be resolved by using the robust OLS method for our analysis. Apart from the underlying OLS assumption, the normality assumption is equally evaluated for our four models (see section 4.9), and it focuses on the normal distribution of residual terms. The validity of the assumption can be evaluated either graphically or numerically. With a graphical evaluation, the histogram distribution of the variables used in the models is evaluated. One central feature of the models in Eqs. 20 to 23 (see section 4.9) is that they have the same independent variables but different dependent variables. The histogram distributions of all the variables – both dependent and independent – used in the four models are shown in Figure 5.5.

Figure 5.5: Histogram



The histograms for most variables do not appear to be normally distributed, as they do not exhibit a bell-shaped curve. However, using their histograms to evaluate their distribution might be somewhat subjective, and so the graphical representation cannot provide an accurate representation of their distribution. On the other hand, the numerical approach evaluates the normality assumption of OLS, using a statistical value, in this case the Shapiro-Wilk test, which is premised on the following hypotheses:

**$H_0$ :** The population is normally distributed

**$H_1$ :** The population is not normally distributed

The results of the test are tabulated in Table 5.4:

**Table 5.4: Shapiro-Wilk Test**

Shapiro-Wilk W test for normal data				
Variable	W	V	z	Prob>z
HDI	0.98162	4.64	3.635	0.00014
MORT	0.98195	5.192	3.928	0.00004
HCON	0.67632	86.711	10.604	0.00000
LNGDPP	0.97353	7.45	4.784	0.00000
FDI	0.33932	185.95	12.448	0.00000
LNTEL	0.98797	3.35	2.878	0.00200
OPENESS	0.94624	11.013	5.619	0.00000
LNGSP	0.92176	21.201	7.261	0.00000
UNEMP	0.91673	23.179	7.484	0.00000
SCH	0.93016	18.018	6.857	0.00000
DOMCR	0.81123	52.781	9.445	0.00000
CORR	0.94557	12.62	5.978	0.00000
INFLATION	0.70338	71.553	10.091	0.00000

Recall that the objective of hypothesis testing is to reject the null hypothesis. The p-value for all variables is less than the traditional 5% (0.05), which implies that all of variables are not normally distributed.

### 5.3 Descriptive Statistics

Although there are four static models (Eqs. 20 - 23) for this analysis, each model contains ten variables, comprising nine independent variables and one dependent variable (see section 4.9). The nine independent variables are FDI (Foreign Direct Investment), LNTEL (Natural Log of Telephone), OPENESS (Openness to Trade), LNGSP (Natural log of government spending), UNEMP (Unemployment), Human Capital (SCH), CORR (Corruption), Financial Development (DOMCR) and INFLATION (Inflation). The dependent variables relating to each model are HDI, MORT, HCON and LNGDPP (Natural Log of GDP per capita). while the data for all variables were

extracted directly from different sources, the data on OPENNESS were constructed based on the following formula:

$$OPENESS = \frac{(EXPORT+IMPORT)}{GDP} \quad (3)$$

The descriptive statistics of various variables in Table 5.5 are polarised into two measures: a measure of central tendency and measures of dispersion. A measure of central tendency utilises a single value to represent the centre of data distribution (Deshpande et al., 2016). The common measures of central tendency are mean, median and mode. For the study, the mean values for all the variables range between -0.5898349 for CORR and 82.07524 for MORT.

However, a measure of dispersion depicts the variability in a variable and shows the heterogeneity in the data (Deshpande et al., 2016). The basic measures of dispersion are range, variance, skewness and kurtosis. While variance shows the degree of variability in the data, Table 5.5 shows that MORT has the highest variance, implying that there is a huge spread in the data. Similarly, skewness measures the symmetry of the data. Regarding our data, all are positively skewed, except for LNGSP.

Positive skewness is linked with long right tails and implies that there are more higher values around the mean. However, negative skewness is linked with long left tails and suggests that there are more lower values around the mean. Furthermore, kurtosis checks whether a variable is light- or heavy-tailed relative to a normal distribution. All the variables except LNGDPP, LNTEL, UNEMP and SCH have kurtosis greater than 3, and thus they are leptokurtic while others are platykurtic. This implies that LNGDPP, LNTEL, UNEMP and SCH have thinner tails than a normal distribution and they are faced with fewer outliers.

**Table 5.5: Descriptive Statistics**

Variable	Observation	Mean	Variance	Skewness	Kurtosis
HDI	363	0.4083581	0.0080602	0.2832834	3.232851
MORT	420	82.07524	1010.2	0.4400879	3.020001
HCON	388	79.79966	414.938	3.77072	24.71442
LNGDPP	410	6.339312	0.4765112	0.4765112	0.5554011
FDI	410	3.870295	85.79794	7.573136	69.33897
LNTEL	405	10.83197	1.808893	0.1000608	2.411303
OPENESS	287	0.6163681	0.0788978	0.9547368	4.344613
LNGSP	393	25.33485	8.482866	-0.9236383	3.214082
UNEMP	405	4.937689	9.423008	0.764416	2.584417
SCH	372	2.985753	2.396481	0.8058925	2.838522
DOMCR	407	14.52709	129.3889	2.084912	8.716125
CORR	305	-0.5898349	0.3007319	0.8713429	3.567284
INFLATION	345	8.05567	141.7321	2.675186	11.33003

#### 5.4 Static Models Estimates

This section estimates the coefficients used in the four models in Eq. 20-23, using three techniques: OLS, fixed effects and random effects. The results from the three techniques will be evaluated and compared with other empirical studies, while recommendations will be made based on the chosen techniques.

### 5.4.1 OLS Estimates

The OLS regression, sometimes referred to as ‘linear regression’, evaluates the link between a dependent variable and at least an independent variable. This technique represents a non-deterministic relationship between the dependent and independent variables and provides a set of coefficients. The OLS technique subtracts the sum of squared differences between the observed and the predicted values.

Recall that our four models eq. 20-23 violated the homoscedasticity assumption, and this study thereby recommended the adoption of a robust OLS method to remove the effect of heteroscedasticity in the estimated coefficients. Table 5.6 illustrates the result of the robust OLS for our first model:

$$HDI_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + \varepsilon_i \quad (20)a$$

The result shows an R-squared of 0.6832, implying that the independent variables explain 68.32% of the variations in our dependent variable. Also, seven variables – FDI, LNTEL, OPENNESS, SCH, DOMCR, CORR and INFLATION – have positive coefficients, while the remaining two variables – LNGSP and UNEMP – have negative coefficients. Regardless of whether the impact is negative or positive, the impact of each of the variables on HDI is very minimal. As expected, infrastructural development (LNTEL) has a positive effect on the Human Development Index (HDI). In particular, a percentage increase in infrastructural development increases the Human Development Index by 0.006%, provided other variables remain constant.

Similarly, INFLATION has a positive impact on HDI. This positive impact can partly be explained by three proxy components of HDI - health, education and a decent standard of living (Stanton, 2007). With an enhanced standard of living, which is accompanied by high purchasing power (demand-push inflation), an increase in inflation should correspond to a rise in HDI. For this study, a 1% increase in inflation rate leads to a 0.002% increase in HDI, provided that other factors remain constant.

Furthermore, the result of our estimate shows that openness to trade (OPENNESS) increases human development. Specifically, a 1% increase in trade openness leads to an approximately 0.02% rise in human development, and this aligns with an empirical study which found that trade openness in developing countries directly galvanises human development (Kabadayi, 2013). In addition, our study found that enhanced human capital proxied by the mean years of schooling increases HDI. Specifically, the study found that an additional mean year of schooling increases HDI by 0.027%.

Regarding our primary variable, FDI, the study found that a 1% increase in FDI results in a 0.00021% increase in HDI. However, a review of the extant literature shows that there is no consensus on the effect of FDI on HDI. Empirical findings show that the effect of FDI on HDI is a complicated issue (Gökmenoğlu et al., 2018). However, it needs to be emphasised that all seven variables with a positive impact on HDI are statistically significant, except LNTEL, OPENNESS and CORR. While SCH, DOMCR and INFLATION are statistically significant at the traditional 5% (0.05), FDI is statistically significant at 10% (0.1), with its p-value of 0.064 less than 0.1.

On the other hand, LNGSP and UNEMP have negative coefficients. In particular, a 1% increase in government spending (LNGSP) reduces HDI by 0.0019%. This is often the case when government spending in this regard is inefficient. In particular, evidence abounds that inefficiency in government spending might not improve social outcomes, even if there is a higher budgetary allocation to the social sectors (Gupta and Verhoeven, 2001).

**Table 5.6: Robust OLS Results for Model 1 (HDI)**

Linear Regression			Number of Observation = 190			
					F(9,180)	78.33
					Prob > F	= 0.0000
					R-squared	0.6832
					Root MSE	0.03935
Robust						
HDI	Coef.	Std. Err.	t	p> t	[95% Conf. Interval]	
FDI	0.0002072	0.0001113	1.86	0.064	-0.0000123	0.0004267
LNTEL	0.005955	0.0038285	1.56	0.122	-0.0015994	0.0135094
OPENESS	0.0198535	0.0141453	1.4	0.162	-0.0080584	0.0477654
LNGSP	-0.0019	0.0010884	-1.75	0.083	-0.0040477	0.0002476
UNEMP	-0.000694	0.0013568	-0.51	0.610	-0.0033715	0.0019831
SCH	0.0269707	0.0022204	12.15	0.000	0.0225892	0.0313521
DOMCR	2.26E-03	0.0004486	5.05	0.000	0.0013796	0.0031501
CORR	0.0111822	0.0076867	1.45	0.147	-0.0039855	0.0263498
INFLATION	0.002525	0.0006033	4.19	0.000	0.0013347	0.0037154
_cons	0.2655935	0.0393461	6.75	0.000	0.1879545	0.3432325

Table 5.7 shows the OLS estimates of our second model,

$$MORT_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + \epsilon_{it} \quad (21)a$$

The model yields an R-squared of 0.4377, suggesting that 43.77% variations in our dependent variable, MORT, is explained by all the independent variables. On the other hand, the results show that all of the variables are statistically significant at either the 5% or 10% significant levels, except UNEMP. Similarly, two variables – LNGSP and SCH – showed positive coefficients on infant mortality (MORT), while six variables – FDI, LNTEL, OPENESS, UNEMP, DOMCR and INFLATION – showed negative coefficients on infant mortality. The study found that increases in openness to trade reduces infant mortality, and specifically, a percentage increase in trade openness



reduces infant mortality by 12.82%. Similarly, improvements in physical infrastructure reduce infant mortality in our sampled countries. For instance, percentage improvement in physical infrastructure decreases infant mortality in ECOWAS countries by 4.8% when other variables remain constant. In addition, increases in net FDI increases infant mortality. Specifically, a percentage increase in net FDI increases infant mortality by 0.102%.

**Table 5.7: Robust OLS Results for Model 2 (MORT)**

Linear Regression			Number of Observation = 190			
					F(9,180)	13.54
					Prob > F =	0.0000
					R-squared	0.4377
					Root MSE	14.765
	Robust					
MORT	Coef.	Std. Err.	t	p> t	[95% Conf. Interval]	
FDI	-0.1028074	0.0586167	-1.75	0.081	-0.2184716	0.0128568
LNTEL	-4.835241	1.7591840	-2.75	0.007	-8.306516	-1.363965
OPENESS	-12.8195	5.4501670	-2.35	0.020	-23.57393	-2.06506
LNGSP	1.361191	0.6260897	2.17	0.031	0.125772	2.596611
UNEMP	-0.0104892	0.4811770	-0.02	0.983	-0.9599624	0.9389841
SCH	1.698233	0.9780038	1.74	0.084	-0.2315943	3.62806
DOMCR	-1.250153	0.1688529	-7.4	0.000	-1.5833390	-0.9169677
CORR	-11.6557800	3.7356100	-3.12	0.002	-19.0270000	-4.2845640
INFLATION	-0.7184479	0.2383734	-3.01	0.003	-1.1888140	-0.2480822
_cons	110.3764	17.69014	6.24	0.000	75.4696500	145.2831

Table 5.8 presents our OLS result for our third model:

$$HCON_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + \varepsilon_{it} \quad (22)a$$

The third model (HCON) yielded an R-squared of 0.6172, implying that the independent variables explain a 61.72% variation in HCON. The OLS results show only five variables – LNTEL, OPENESS, LNGSP, UNEMP and INFLATION – with statistically significant coefficients. Although our focused variable (FDI) has a negative coefficient, the result is not statistically significant with the p-value of 0.774 higher than the traditional significant level of 5% (0.05). However, physical infrastructure proxied by LNTEL decreases household consumption (HCON). Specifically, a percentage increase in infrastructure, LNTEL, decreases household consumption, HCON, by approximately 6.09%. This can partly be explained by the ‘crowding out’ effect where governments in ECOWAS access loans in the same market with households.

**Table 5.8: Robust OLS Results for Model 3 (HCON)**

Linear Regression				Number of Observation = 190		
				F(9,180) = 14.36		
				Prob > F = 0.0000		
				R-squared = 0.6172		
				Root MSE = 16.49		
Robust						
HCON	Coef.	Std. Err.	t	p> t	[95% Conf. Interval]	
FDI	-0.0532426	0.1854399	-0.29	0.774	-0.4191583	0.3126730
LNTEL	-6.087643	1.729879	-3.52	0.001	-9.501093	-2.674192
OPENESS	25.18708	8.868616	2.84	0.005	7.687258	42.68691
LNGSP	-4.210039	1.693432	-2.49	0.014	-7.551571	-0.8685081
UNEMP	0.7687947	0.4339427	1.77	0.078	-0.0874743	1.625064
SCH	-1.37872	1.724744	-0.8	0.425	-4.782039	2.024599
DOMCR	-0.192359	0.1833785	-1.05	0.296	-0.5542070	0.169489
CORR	4.337616	6.663006	0.65	0.516	-8.8100320	17.48527
INFLATION	0.6976159	0.2382416	2.93	0.004	0.2275102	1.167722
_cons	248.4522	32.24959	7.70	0.000	184.8163	312.0881

In addition, Table 5.9 presents the result of our fourth model:

$$GDPP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + \varepsilon_{it} \quad (23)a$$

The model produced an R-squared of 0.6744, implying that all the independent variables explain 67.44% of variations in GDP per capita (GDPP). Similarly, all the coefficients are statistically significant except for OPENESS, LNGSP, DOMCR and CORR. Furthermore, all of the variables, except CORR, have positive coefficients. Our focused variable, FDI, has a positive coefficient of 0.0068843, implying that a percentage increase in FDI increases GDP per capita minimally by approximately 0.007%.

**Table 5.9: Robust OLS Results for Model 4 (GDPP)**

Linear Regression				Number of Observation = 190		
				F(9,180) = 44.09		
				Prob > F = 0.0000		
				R-squared = 0.6744		
				Root MSE = 0.32256		
<b>Robust</b>						
LNGDPP	Coef.	Std. Err.	t	p> t	[95% Conf. Interval]	
FDI	0.0068843	0.0015871	4.34	0.000	0.0037527	0.010016
LNTEL	0.2015962	0.036832	5.47	0.000	0.128919	0.2742731
OPENESS	0.078868	0.140432	0.56	0.575	-0.198230	0.3559729
LNGSP	0.0173106	0.015974	1.08	0.280	-0.014210	0.0488315
UNEMP	0.049112	0.0104939	4.71	0.000	0.0287044	0.0701181
SCH	0.1223277	0.024971	4.9	0.000	0.073054	0.1716016
DOMCR	0.006280	0.0041306	1.52	0.130	-0.0018701	0.0144309
CORR	-0.086762	0.076871	-1.13	0.261	-0.2384459	0.06492
INFLATION	0.0231049	0.0064670	3.57	0.000	0.0103440	0.0358657
_cons	2.806272	0.4507175	6.23	0.000	1.916902	3.695641

#### **5.4.1.1 Summary of OLS Estimates**

The four models used for OLS estimates utilised four measures for poverty – HDI, MORT, HCON and LNGDPP – while nine independent variables – FDI, LNTL, OPENNESS, LNGSP, UNEMP, SCH, DOMCR, CORR and INFLATION – were utilised. While the estimates have been discussed and analysed, the results are summarised in Table 5.10. Although FDI produced positive coefficients with both the Human Development Index (HDI) and GDP per capita (LNGDPP), it produced a negative coefficient with infant mortality (MORT). While FDI is statistically significant with models using HDI and MORT at the 10% significance level, it is statistically significant with the model using LNGDPP at 1%. The use of robust OLS techniques on the four models produces the following findings: FDI inflow improves the Human Development Index (HDI), FDI inflows reduce infant mortality (MORT) and FDI inflow increases GDP per capita (LNGDPP). With HDI, MORT and LNGDPP serving as proxies for poverty, this study concludes that FDI inflows decrease the level of poverty in the ECOWAS region, using the robust OLS techniques.

**Table 5.10: Summary of OLS Estimates**

VARIABLES	(1) OLSHDI	(2) OLSMORT	(3) OLSHCON	(4) OLSLNGDPP
FDI	0.000207* (0.000111)	-0.103* (0.0586)	-0.0532 (0.185)	0.00688*** (0.00159)
LNTEL	0.00595 (0.00383)	-4.835*** (1.759)	-6.088*** (1.730)	0.202*** (0.0368)
OPENESS	0.0199 (0.0141)	-12.82** (5.450)	25.19*** (8.869)	0.0789 (0.140)
LNGSP	-0.00190* (0.00109)	1.361** (0.626)	-4.210** (1.693)	0.0173 (0.0160)
UNEMP	-0.000694 (0.00136)	-0.0105 (0.481)	0.769* (0.434)	0.0494*** (0.0105)
SCH	0.0270*** (0.00222)	1.698* (0.978)	-1.379 (1.725)	0.122*** (0.0250)
DOMCR	0.00226*** (0.000449)	-1.250*** (0.169)	-0.192 (0.183)	0.00628 (0.00413)
CORR	0.0112 (0.00769)	-11.66*** (3.736)	4.338 (6.663)	-0.0868 (0.0769)
INFLATION	0.00253*** (0.000603)	-0.718*** (0.238)	0.698*** (0.238)	0.0231*** (0.00647)
Constant	0.266*** (0.0393)	110.4*** (17.69)	248.5*** (32.25)	2.806*** (0.451)
Observations	190	190	190	190
R-squared	0.683	0.438	0.617	0.674

Robust standard errors in parentheses

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

### 5.4.2 Fixed Effects and Random Effects Estimates

While this study utilises grouped data, observations in the panel dataset often have a complex relationship which involves nested and non-nested groupings. This often leads to complications in the modelling of such data, and these complications are extensively explored in literature focusing on statistics and econometrics (Greene, 2008). Specifically, researchers often face a fundamental question of whether to deploy fixed or random effects while modelling such data, in order to account for unobservable effects. Accounting for unobservable effects transformed our regression model in Eqs. 20 – 23 to:

$$HDI_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \epsilon_{it} \quad (31)$$

$$MORT_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \epsilon_{it} \quad (32)$$

$$HCON_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \epsilon_{it} \quad (33)$$

$$GDPP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \epsilon_{it} \quad (34)$$

where  $v_t$  is the unobservable effects.

#### 5.4.2.1 Fixed Effect Estimates

Fixed and random effects are used to evaluate the models in Eqs. 31 - 34. The differences between them lie in the way the unobservable effect is treated. In the fixed effect, the unobservable effect is assumed to be constant over time, while the random effect assumes it varies across time. Specifically, the random effect considers the individual effect as a random variable that is uncorrelated with the explanatory variable, while the fixed effect model allows the random variable to be correlated with the explanatory variables (Schmidheiny & Basel, 2011).

Table 5.11 tabulates the result and utilises the fixed effect technique to evaluate our model:

$$HDI_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \varepsilon_{it} \quad (31)$$

Apart from changes in the signs of coefficients for five variables, FDI, LNGSP, UNEMP, CORR and INFLATION, the result of the fixed effects aligns with that of the robust OLS. Similarly, all the variables are statistically significant, except for FDI, OPENNESS, CORR and INFLATION. This is contrary to the result of the robust OLS, wherein LNTEL, OPENNESS, UNEMP and CORR are not statistically significant. In absolute terms, the magnitudes of the coefficients of the fixed effect are bigger than the robust OLS, except for FDI, DOMCR, CORR and INFLATION. Although our focused variable, FDI, is not statistically significant in this model, its coefficient is -0.0000971, which implies that a percentage increase in the net FDI to the ECOWAS region decreases the human developing index (HDI) minimally by 0.00001%.

**Table 5.11: Fixed Effect Results for Model 1 (HDI)**

Fixed-effects (within) regression			Number of obs =		190		
Group variable: <b>year</b>			Number of groups =		13		
R-sq:			Obs per group:				
within	= 0.9137		min	= 5			
between	= 0.4517		avg	= 14.6			
overall	= 0.4474		max	= 22			
			F(9,168)		= 197.58		
corr(u_i,Xb)	= 0.7044		Prob > F		= 0.0000		
<b>HDI</b>	<b>Coef.</b>	<b>Str. Err.</b>	<b>t</b>	<b>P&gt; t </b>	<b>[95% Conf. Interval]</b>		
FDI	-0.0000971	0.0000802	-1.21	0.228	-0.0002553	0.000061	
LNTEL	0.0074407	0.001745	4.26	0.000	0.003996	0.0108853	
OPENESS	0.0027193	0.004887	0.56	0.579	-0.006932	0.0123705	
LNGSP	0.0131831	0.001886	6.99	0.000	0.009460	0.0169065	
UNEMP	0.0052503	0.0007082	7.41	0.000	0.0038522	0.0066483	
SCH	0.0437499	0.003824	11.41	0.000	0.036200	0.0512998	
DOMCR	0.0014525	0.0002294	6.33	0.000	0.0009997	0.0019053	
CORR	-0.0013483	0.003517	-0.38	0.702	-0.0082889	0.00559	
INFLATION	-0.0000234	0.0002460	-0.1	0.924	-0.0005090	0.0004623	
_cons	-0.1973913	0.0477751	-4.13	0.000	-0.291708	-0.103074	
sigma_u	0.07238264						
sigma_e	0.01084126						
rho	0.97805903	(fraction of variance due to u_i)					
F test that all u_i=0; F(12,168) = 183.64				Prob>F = 0.0000			

Table 5.12 tabulates the result of the fixed effect for our second model:

$$MORT_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \varepsilon_{it} \quad (32)$$

The result is statistically significant for all variables, except DOMCR, CORR and INFLATION. However, FDI is only statistically significant at 10%. Similarly, the signs of the coefficients reflect



those obtained with the robust OLS, except for LNGSP, SCH and CORR. The coefficient of our primary variable, FDI, is -0.0487882, implying that a percentage increase in the FDI inflow reduces infant mortality by approximately 0.05%, provided other variables held constant.

**Table 5.12: Fixed Effect Results for Model 2 (MORT)**

Fixed-effects (within) regression			Number of obs =		190	
Group variable: <b>year</b>			Number of groups =		13	
R-sq:			Obs per group:			
within	= 0.9079		min	= 5		
between	= 0.0093		avg	= 14.6		
overall	= 0.0535		max	= 22		
			F(9,168)		= 183.91	
corr(u_i,Xb)	= 0.7044		Prob > F		= 0.0000	
MORT	Coef.	Str. Err.	t	P> t	[95% Conf. Interval]	
FDI	-0.0487882	0.0292287	-1.67	0.097	-0.1064912	0.008915
LNTEL	-1.815681	0.636169	-2.85	0.005	-3.071597	-0.559765
OPENESS	-4.685294	1.782440	-2.63	0.009	-8.204161	-1.166428
LNGSP	-6.216587	0.687663	-9.04	0.000	-7.574161	-4.859013
UNEMP	-1.364373	0.2582001	-5.28	0.000	-1.8741080	-0.854638
SCH	-17.71849	1.394359	-12.71	0.000	-20.471210	-14.96576
DOMCR	-0.0987443	0.0836253	-1.18	0.239	-0.2638325	0.066344
CORR	0.7082180	1.281824	0.55	0.581	-1.8223400	3.23878
INFLATION	-0.082406	0.0896889	-0.92	0.360	-0.2594685	0.0946565
_cons	326.5219	17.41897	18.75	0.000	292.1336	360.9101
sigma_u	38.163767					
sigma_e	3.9527639					
rho	0.98938634	(fraction of variance due to u_i)				
F test that all u_i=0; F(12,168) = 195.28				Prob>F = 0.0000		

Table 5.13 tabulates the results of the fixed effect of our model:

$$HCON_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \varepsilon_{it} \quad (33)$$

Two variables – LNGSP and UNEMP – have the signs of their coefficients changed compared to the OLS estimates. Similarly, the coefficients of five variables – LNGSP, UNEMP, SCH, DOMCR and INFLATION – are not statistically significant. Furthermore, the absolute magnitudes of the coefficients are smaller in the fixed effect model than in the robust OLS, except for DOMCR and CORR. The coefficient of FDI implies that a percentage increase in FDI inflow reduces household consumption (HCON) by 0.39%.

**Table 5.13: Fixed Effect Results for Model 3 (HCON)**

Fixed-effects (within) regression			Number of obs =		190	
Group variable: <b>year</b>			Number of groups =		13	
R-sq:			Obs per group:			
within	= 0.2378		min	= 5		
between	= 0.1659		avg	= 14.6		
overall	= 0.1721		max	= 22		
			F(9,168)		= 5.82	
corr(u_i,Xb)	= -0.0432		Prob > F		= 0.0000	
HCON	Coef.	Str. Err.	t	P> t	[95% Conf. Interval]	
FDI	-0.3861391	0.0996771	-3.87	0.000	-0.5829201	-0.189358
LNTEL	-7.919211	2.169491	-3.65	0.000	-12.202190	-3.636234
OPENESS	19.01501	6.078550	3.13	0.002	7.014829	31.0152
LNGSP	1.425374	2.345097	0.61	0.544	-3.204281	6.055029
UNEMP	-0.2348672	0.8805247	-0.27	0.790	-1.9731860	1.503452
SCH	-0.5884418	4.755101	-0.12	0.902	-9.975892	8.799009
DOMCR	-0.2644260	0.2851763	-0.93	0.355	-0.8274167	0.2985648
CORR	11.2217400	4.371329	2.57	0.011	2.591931	19.85156
INFLATION	-0.0445856	0.3058608	-0.15	0.884	0.6484115	0.5592403
_cons	137.6296	59.40289	0.022	0.022	20.35734	254.9019
sigma_u	20.482645					
sigma_e	13.479879					
rho	0.6977823	(fraction of variance due to u_i)				
F test that all u_i=0; F(12,168) = 8.45					Prob>F = 0.0000	

Table 5.14 presents the result of FE estimates of our fourth model:

$$GDPP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \varepsilon_{it} \quad (34)$$

The signs on the coefficients are the same as those obtained for the robust OLS except for INFLATION. However, only five variables are statistically significant: LNTEL, LNGSP, UNEMP, SCH and CORR. On the other hand, the absolute magnitudes of the coefficients are smaller in the fixed effect model than in the robust OLS.

**Table 5.14: Fixed Effect Results for Model 4 (GDPP)**

Fixed-effects (within) regression			Number of obs =		190	
Group variable: <b>year</b>			Number of groups =		13	
R-sq:			Obs per group:			
within	= 0.8054		min	= 5		
between	= 0.3341		avg	= 14.6		
overall	= 0.3635		max	= 22		
			F(9,168)		= 77.27	
corr(u_i,Xb)	= -0.7328		Prob > F		= 0.0000	
LNGDPP	Coef.	Str. Err.	t	P> t	[95% Conf. Interval]	
FDI	0.0007138	0.0010964	0.65	0.516	-0.0014508	0.002878
LNTEL	0.1002626	0.023864	4.2	0.000	0.053150	0.147375
OPENESS	0.019301	0.066863	0.29	0.773	-0.112699	0.151301
LNGSP	0.2387053	0.025796	9.25	0.000	0.187780	0.289631
UNEMP	0.0324711	0.0096857	3.35	0.001	0.0133499	0.051592
SCH	0.1963086	0.052306	3.75	0.000	0.093048	0.299569
DOMCR	0.0041132	0.0031369	1.31	0.192	-0.0020796	0.010306
CORR	-0.0965900	0.048084	-2.02	0.045	-0.191886	-0.00203
INFLATION	-0.001327	0.0033644	-0.39	0.694	-0.0079690	0.005315
_cons	-1.822731	0.6534238	-2.790	0.006	-3.112711	-0.53275
sigma_u	0.70762127					
sigma_e	0.14827687					
rho	0.95793869 (fraction of variance due to u_i)					
F test that all u_i=0; F(12,168) = 70.80			Prob>F = 0.0000			

### 5.4.2.2 Summary of Fixed Effect Estimates

Table 5.15 summarises the results of the fixed effect estimate for the four models. The summary shows that the models with MORT and HCON as dependent variables produce statistically significant results for FDI. Based on these two models, it could be inferred that increases in FDI reduce infant mortality (MORT) and household consumption (HCON). However, the result for HCON is more reliable, since it is statistically significant at 1% compared to the statistical significance of MORT at the 10% level. As such, this study relies on the result of the HCON. With the reduction in HCON, this implies that there is limited income for a household to spend, so a reduced HCON is equivalent to impaired income and increased poverty. Thus, this study concludes that FDI increases poverty in the ECOWAS region, based on the fixed effect technique.

**Table 5.15: Summary of Fixed Effect Estimates**

VARIABLES	(1) FEHDI	(2) FEMORT	(3) FEHCON	(4) FELNGDPP
FDI	-9.71e-05 (8.02e-05)	-0.0488* (0.0292)	-0.386*** (0.0997)	0.000714 (0.00110)
LNTEL	0.00744*** (0.00174)	-1.816*** (0.636)	-7.919*** (2.169)	0.100*** (0.0239)
OPENESS	0.00272 (0.00489)	-4.685*** (1.782)	19.02*** (6.079)	0.0193 (0.0669)
LNGSP	0.0132*** (0.00189)	-6.217*** (0.688)	1.425 (2.345)	0.239*** (0.0258)
UNEMP	0.00525*** (0.000708)	-1.364*** (0.258)	-0.235 (0.881)	0.0325*** (0.00969)
SCH	0.0437*** (0.00382)	-17.72*** (1.394)	-0.588 (4.755)	0.196*** (0.0523)

DOMCR	0.00145*** (0.000229)	-0.0987 (0.0836)	-0.264 (0.285)	0.00411 (0.00314)
CORR	-0.00135 (0.00352)	0.708 (1.282)	11.22** (4.371)	-0.0970** (0.0481)
INFLATION	-2.34e-05 (0.000246)	-0.0824 (0.0897)	-0.0446 (0.306)	-0.00133 (0.00336)
Constant	-0.197*** (0.0478)	326.5*** (17.42)	137.6** (59.40)	-1.823*** (0.653)
Observations	190	190	190	190
R-squared	0.914	0.908	0.238	0.805
Number of id	13	13	13	13

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Standard errors in parentheses

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

### 5.4.2.3 Random Effect Estimates

In the same way, the study explores four models in Eqs. 31-34, using the random effect technique. Table 5.16 tabulates the result of the random effect of our model:

$$HDI_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \varepsilon_{it} \quad (31)$$

The signs of variables coefficients mimic those of the fixed effects. Similarly, all variables, except FDI, OPENNESS, CORR and INFLATION, are statistically significant. In absolute terms, the magnitudes of the coefficients using random effects are smaller compared to the fixed effect, except for OPENNESS, UNEMP and DOMCR.

**Table 5.16: Random Effect Results for Model 1 (HDI)**

Random-effects GLS regression			Number of obs =		190	
Group variable: <b>id</b>			Number of groups =		13	
R-sq:			Obs per group:			
within	= 0.9133		min	= 5		
between	= 0.4734		avg	= 14.6		
overall	= 0.4658		max	= 22		
Wald chi2(9) =			1680.50			
corr(u_i,Xb)	= 0 (assumed)	Prob > chi2		= 0.0000		
<b>HDI</b>	<b>Coef.</b>	<b>Str. Err.</b>	<b>z</b>	<b>P&gt; z </b>	<b>[95% Conf. Interval]</b>	
FDI	-0.0000738	0.0000821	-0.9	0.368	-0.000235	0.000087
LNTEL	0.0065669	0.001772	3.71	0.000	0.003095	0.0100394
OPENESS	0.0042886	0.004995	0.86	0.391	-0.005501	0.0140786
LNGSP	0.011866	0.001797	6.6	0.000	0.008344	0.0153879
UNEMP	0.0053545	0.0007222	7.41	0.000	0.0039390	0.00677
SCH	0.0433339	0.003597	12.05	0.000	0.036283	0.0503844
DOMCR	0.0015628	0.0002325	6.72	0.000	0.0011071	0.0020185
CORR	-0.0012758	0.003591	-0.36	0.722	-0.008313	0.00576
INFLATION	-0.0000153	0.0002517	-0.06	0.952	-0.0005087	0.0004781
_cons	-0.1482361	0.0485996	-3.05	0.002	-0.2434895	-0.052983
sigma_u	0.0520249					
sigma_e	0.0108413					
rho	0.95838245 (fraction of variance due to u_i)					

On the other hand, Table 5.17 tabulates the result of the second model:

$$MORT_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \varepsilon_{it} \quad (32)$$

The signs of all coefficients using the random effect are the same as those obtained with the fixed effect. However, the absolute magnitudes of the coefficients are greater when using the random effect, except for LNTEL, LNGSP, SCH and CORR. Similarly, all of the coefficients, except for CORR and INFLATION, are statistically significant. Although our principally focused variable, FDI, is

statistically significant at the 10% level, its coefficient of -0.0584608 implies that a percentage increase in FDI inflow reduces infant mortality (MORT) by 0.058%.

**Table 5.17: Random Effect Results for Model 2 (MORT)**

Random-effects GLS regression			Number of obs =		190	
Group variable: <b>id</b>			Number of groups =		13	
R-sq:			Obs per group:			
within	= 0.9059		min	= 5		
between	= 0.0084		avg	= 14.6		
overall	= 0.0592		max	= 22		
Wald chi2(9) =			1270.98			
corr(u_i,Xb)	= 0 (assumed)	Prob > chi2		= 0.0000		
MORT	Coef.	Str. Err.	z	P> z	[95% Conf. Interval]	
FDI	-0.0584608	0.0326998	-1.79	0.074	-0.122551	0.005630
LNTEL	-1.41957	0.704131	-2.02	0.044	-2.799642	-0.039499
OPENESS	-5.815085	1.989187	-2.92	0.003	-9.713821	-1.91635
LNGSP	-5.940065	0.700877	-8.48	0.000	-7.313758	-4.566371
UNEMP	-1.443693	0.2874169	-5.02	0.000	-2.0070200	-0.880367
SCH	-15.50095	1.397756	-11.09	0.000	-18.240510	-12.7614
DOMCR	-0.1975641	0.0923478	-2.14	0.032	-0.3785624	-0.016566
CORR	0.1195477	1.429657	0.08	0.933	-2.682528	2.92162
INFLATION	-0.0689702	0.1002959	-0.69	0.492	-0.2655465	0.1276062
_cons	308.5991	18.83236	16.39	0.000	271.6883	345.5098
sigma_u	16.350639					
sigma_e	3.9527639					
rho	0.94478401 (fraction of variance due to u_i)					

Furthermore, Table 5.18 presents the result of our third model:

$$HCON_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \varepsilon_{it} \quad (33)$$

The result shows that three variables, LNGSP, SCH and INFLATION, have the signs of their coefficients reversed compared to what was obtained with the fixed effect. On the other hand, the results for four variables – UNEMP, SCH, DOMCR and INFLATION – are not statistically significant. Similarly, the absolute magnitudes of coefficients are bigger when using random effects compared to fixed effects, except for FDI, UNEMP and DOMCR.

**Table 5.18: Random Effect Results for Model 3 (HCON)**

Random-effects GLS regression				Number of obs =	190	
Group variable: id				Number of groups =	13	
R-sq:				Obs per group:		
within	= 0.2038			min	= 5	
between	= 0.7532			avg	= 14.6	
overall	= 0.5773			max	= 22	
			Wald chi2(9) =	101.31		
corr(u_i,Xb)	= 0 (assumed)		Prob > chi2	= 0.0000		
HCON	Coef.	Str. Err.	z	P> z	[95% Conf. Interval]	
FDI	-0.2477685	0.0982812	-2.52	0.012	-0.440396	-0.055141
LNTEL	-9.051692	1.769608	-5.12	0.000	-12.520060	-5.83325
OPENESS	23.93487	5.716456	4.19	0.000	12.730820	35.13891
LNGSP	-3.120142	0.940555	-3.32	0.001	-4.963597	-1.276687
UNEMP	0.1908244	0.7172121	0.27	0.790	-1.2148850	1.596534
SCH	0.8723835	1.688824	0.52	0.605	-2.436509	4.181276
DOMCR	-0.0752664	0.2346721	-0.32	0.748	-0.5352154	0.3846825
CORR	9.4262630	3.877945	2.43	0.015	1.825631	17.02690
INFLATION	0.2694232	0.2767619	0.97	0.330	-0.2730201	0.8118665
_cons	253.7885	24.96025	10.17	0.000	204.8673	302.7097
sigma_u	7.4395245					
sigma_e	13.479879					
rho	0.23347678 (fraction of variance due to u_i)					



Table 5.19 tabulates the results of the random effect for our fourth model:

$$GDPP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \varepsilon_{it} \quad (34)$$

The result shows that the signs of the coefficients are the same as those obtained in the fixed effect. Apart from LNTEL, LNGSP, CORR and inflation, the absolute magnitudes of coefficients using random effects are bigger than those obtained in the fixed effect. Similarly, the results of all coefficients, except FDI, OPENNESS and INFLATION, are statistically significant. However, CORR is significant at the 10% level.

**Table 5.19: Random Effect Results for Model 4 (LNGDPP)**

Random-effects GLS regression			Number of obs =		190	
Group variable: <b>id</b>			Number of groups =		13	
R-sq:			Obs per group:			
within	= 0.2038		min	= 5		
between	= 0.7532		avg	= 14.6		
overall	= 0.5773		max	= 22		
			Wald chi2(9)	101.31		
corr(u_i,Xb)	= 0 (assumed)		Prob > chi	= 0.0000		
LNGDPP	Coef.	Str. Err.	z	P> z	[95% Conf. Interval]	
FDI	0.0014593	0.0011488	1.27	0.204	-0.007924	0.003711
LNTEL	0.0796503	0.024319	3.28	0.001	0.031987	0.1273137
OPENESS	0.0474818	0.069602	0.68	0.495	-0.088935	0.183899
LNGSP	0.1755459	0.021811	8.05	0.000	0.132797	0.218295
UNEMP	0.0383231	0.0100063	3.83	0.000	0.0187112	0.057935
SCH	0.2465788	0.042593	5.79	0.000	0.163098	0.330059
DOMCR	0.0071687	0.0031794	2.25	0.024	0.0009372	0.0134002
CORR	-0.0962421	0.049941	-1.93	0.054	-0.1941236	0.0016395
INFLATION	-0.0009454	0.0035157	-0.27	0.788	-0.0078361	0.0059454
_cons	-0.1297439	0.585787	-0.22	0.825	-1.277865	10.01378
sigma_u	0.36381811					
sigma_e	0.14827687					
rho	0.85755698	(fraction of variance due to u_i)				

#### 5.4.2.4 Summary of Random Effect Estimates

The estimates of the four models using random effects are summarised in Table 5.20, which demonstrates that the FDI coefficient is statistically significant in models with MORT (infant mortality) and HCON (household consumption) as dependent variables. In the model with MORT, it is established that a percentage increase in FDI inflow reduces infant mortality by 0.05%. However, in the model with HCON, a percentage increase in FDI inflow decreases household consumption (HCON). While the model with MORT as a dependent variable found that FDI reduces poverty, the model with HCON found FDI increases poverty. Given this fact, the study concludes that the effect of FDI on poverty is inconclusive, when using the random effect.

**Table 5.20: Summary of Random Effect Estimates**

VARIABLES	(1) REHDI	(2) REMORT	(3) REHCON	(4) RELNGDPP
FDI	-7.38e-05 (8.21e-05)	-0.0585* (0.0327)	-0.248** (0.0983)	0.00146 (0.00115)
LNTEL	0.00657*** (0.00177)	-1.420** (0.704)	-9.052*** (1.770)	0.0797*** (0.0243)
OPENESS	0.00429 (0.00499)	-5.815*** (1.989)	23.93*** (5.716)	0.0475 (0.0696)
LNGSP	0.0119*** (0.00180)	-5.940*** (0.701)	-3.120*** (0.941)	0.176*** (0.0218)
UNEMP	0.00535*** (0.000722)	-1.444*** (0.287)	0.191 (0.717)	0.0383*** (0.0100)
SCH	0.0433*** (0.00360)	-15.50*** (1.398)	0.872 (1.688)	0.247*** (0.0426)
DOMCR	0.00156*** (0.000232)	-0.198** (0.0923)	-0.0753 (0.235)	0.00717** (0.00318)
CORR	-0.00128 (0.00359)	0.120 (1.430)	9.426** (3.878)	-0.0962* (0.0499)
INFLATION	-1.53e-05 (0.000252)	-0.0690 (0.100)	0.269 (0.277)	-0.000945 (0.00352)
Constant	-0.148*** (0.0486)	308.6*** (18.83)	253.8*** (24.96)	-0.130 (0.586)
Observations	190	190	190	190
Number of id	13	13	13	13

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### 5.4.3 Hausman Test

While we evaluated four models with both fixed and random effects, our analysis so far has not selected the optimal technique between the two techniques for each model. The Hausman test is a test for selecting the optimal technique between fixed and random effect model in panel data analysis. The test is based on the following hypotheses:

$H_0$ : the random effect is preferred

$H_1$ : the fixed effect is preferred

Table 5.21 presents the results of the Hausman test for our first model:

$$HDI_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \varepsilon_{it}$$

The test has a p-value of 0.000, signifying that it is statistically significant at the traditional 5% (0.05). Recall that the objective of a hypothesis testing is to reject the null hypothesis. With the statistically significant result, the study rejects the null hypothesis - the random effect is preferred – under the Hausman test. Thus, the fixed effect is chosen for the first model.

**Table 5.21: Hausman Test for Model 1 (HDI)**

	----- coefficients -----				
	(b)	(B)	(b - B)	sqrt(diag(V_b - V_B))	
	FEHDI	REHDI	Difference	S.E.	
FDI	-0.0000971	-0.0000738	-0.0000233	.	
LNTEL	0.0074407	0.0065669	0.0008738	.	
OPENESS	0.0027193	0.0042886	-0.0015693	.	
LNGSP	0.0131831	0.011866	0.0013171	0.001	
UNEMP	0.0052503	0.0053545	-0.0001042	.	
SCH	0.0437499	0.0433339	0.0004160	0.001	
DOMCR	0.0014525	0.0015628	-0.0001103	.	
CORR	-0.0013483	-0.0012758	-0.0000725	.	
INFLATION	-0.0000234	-0.0000153	-8.10E-06	.	
b=consistent under Ho and Ha; obtained from xtreg					
B=inconsistent under Ha, efficient under Ho; obtained from xtreg					
Test: Ho: difference in coefficients not systematic					
chi2(9) = (b - B)'[(V_b - V_B)^(-1)](b-B)					
= 46.01					
Prob>chi2 = 0.0000					
(V_b - V_B is not positive definite)					

On the other hand, Table 5.22 tabulates the results of the Hausman test for our second model:

$$MORT_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \varepsilon_{it}$$

The result is statistically significant at 5% significant level based on the p-value. This implies that the fixed effect is considered as the appropriate model for our second model.

**Table 5.22: Hausman Test for Model 2 (MORT)**

	----- coefficients -----			
	(b)	(B)	(b - B)	sqrt(diag(V_b - V_B))
	FEMORT	RMORT	Difference	S.E.
FDI	-0.0487882	-0.0584608	0.0096726	.
LNTEL	-1.8156810	-1.41957	-0.3961110	.
OPENESS	-4.685294	-5.815085	1.129791	.
LNGSP	-6.216587	-5.940065	-0.2765220	.
UNEMP	-1.3643730	-1.443693	0.0793200	.
SCH	-17.71849	-15.50095	-2.2175400	.
DOMCR	-0.0987443	-0.1975641	0.0988198	.
CORR	0.708218	0.1195477	0.5886703	.
INFLATION	-0.082406	-0.0689702	-0.0134358	.
b=consistent under Ho and Ha; obtained from xtreg				
B=inconsistent under Ha, efficient under Ho; obtained from xtreg				
Test: Ho: difference in coefficients not systematic				
chi2(9) = (b - B)'[(V_b - V_B)^(-1)](b-B)				
= -3.23    chi2<0				

Table 5.23 presents the results of the Hausman test for our third model:

$$HCON_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \epsilon_{it}$$

The result shows that random effect is a preferred model for our third model with the p-value of 0.3927 larger than the traditional 5% (0.05) significant level.

**Table 5.23: Hausman Test for Model 3 (HCON)**

	----- coefficients -----				
	(b)	(B)	(b - B)	sqrt(diag(V_b - V_B))	
	FEHCON	REHCON	Difference	S.E.	
FDI	-0.3861391	-0.2477685	-0.1383706	0.0166234	
LNTEL	-7.9192110	-9.051692	1.1324810	1.255	
OPENESS	19.01501	23.93487	-4.9198600	2.067	
LNGSP	1.4253740	-3.120142	4.5455160	2.148	
UNEMP	-0.2348672	0.1908244	-0.4256916	0.511	
SCH	-0.5884418	0.8723835	-1.4608253	4.445	
DOMCR	-0.2644260	-0.0752664	-0.1891596	0.162	
CORR	11.22174	9.426263	1.7954770	2.017	
INFLATION	-0.0445856	0.2694232	-0.3140088	0.130	
b=consistent under Ho and Ha; obtained from xtreg					
B=inconsistent under Ha, efficient under Ho; obtained from xtreg					
Test: Ho: difference in coefficients not systematic					
chi2(9) = (b - B)'[(V_b - V_B)^(-1)](b-B)					
= 9.50					
Prob>chi2 = 0.3927					
(V_b - V_B is not positive definite)					

The result of the Hausman test is presented in Table 5.24 for our fourth model:

$$GDPP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LNTEL_{it} + \beta_3 LNGSP_{it} + \beta_4 SCH_{it} + \beta_5 DOMCR_{it} + \beta_6 CORR_{it} + \beta_7 X_{it} + v_{it} + \epsilon_{it}$$

The p-value of 0.0002 shows that the test is statistically significant at 5%. Thus, the fixed effect is an appropriate model for our fourth model.

**Table 5.24: Hausman Test for Model 4 (GDPP)**

	----- coefficients -----				
	(b)	(B)	(b - B)	diag(V_b - V_B)	
	FELNGPP	RELNGPP	Difference	S.E.	
FDI	0.0007138	0.0014593	-0.0007455	.	
LNTEL	0.1002626	0.0796503	0.0206123	.	
OPENESS	0.019301	0.0474818	-0.0281808	.	
LNGSP	0.2387053	0.1755459	0.0631594	0.0137731	
UNEMP	0.0324711	0.0383231	-0.0058520	.	
SCH	0.1963086	0.2465788	-0.0502702	0.030	
DOMCR	0.0041132	0.0071687	-0.0030555	.	
CORR	-0.096959	-0.0962421	-0.0007169	.	
INFLATION	-0.001327	-0.0009454	-0.0003816	.	
	b=consistent under Ho and Ha; obtained from xtreg				
	B=inconsistent under Ha, efficient under Ho; obtained from xtreg				
	Test: Ho: difference in coefficients not systematic				
	chi2(9) = (b - B)'[(V_b - V_B)^(-1)](b-B)				
	= 32.16				
	Prob>chi2 = 0.0002				
	(V_b - V_B is not positive definite)				

#### 5.4.4 Summary of Static Models

Recall that the study adopted four static models as espoused in Eqs. 20 – 23. In analysing these models, three techniques were utilised – OLS, the fixed effect and the random effect. When selecting between the fixed and random effects, the Hausman test was adopted. The result of the test shows that the fixed effect is preferred for the three models with dependent variables, HDI, MORT and LNGDPP, while the random effect is preferred for the model with the dependent variable HCON. Regarding the OLS technique, models using HDI, MORT and LNGDPP as dependent variables produced a statistically significant result for FDI. The result found that FDI inflow improves the Human Development Index (HDI), reduces infant mortality (MORT) and

increases GDP per capita (LNGDPP). The results conclude that FDI has a positive effect on poverty in the ECOWAS region, when using the robust OLS method.

With the Hausman test preferred a fixed effect for models using HDI, MORT and LNGDPP as dependent variables, this shows that the model using MORT as a dependent variable produced a statistically dependent variable for FDI. It was established that increases in FDI reduce infant mortality (MORT), and thus FDI reduces poverty. On the other hand, the Hausman test preferred a random effect for the model using HCON as the dependent variable. The adoption of the random effect for the model with HCON as dependent variable establishes that a percentage increase in FDI inflow decreases household consumption (HCON). This suggests that FDI increases poverty in the ECOWAS region.

### 5.5 Estimates of Dynamic Models

The generalised methods of moment (GMM) will be utilised to explore the dynamic models in Eqs. 24 – 27. With an assumed population moment conditions, the GMM estimation method minimises a quadratic form in the sample counterparts of these moment conditions (Smith, 1997). Table 5.25 gives the GMM estimations for the first dynamic model:

$$HDI_{it} = \beta_0 + \beta_1 HDI_{it-1} + \beta_2 FDI_{it} + \beta_3 LNTEL_{it} + \beta_4 LNGSP_{it} + \beta_5 SCH_{it} + \beta_6 DOMCR_{it} + \beta_7 CORR_{it} + \beta_8 X_{it} + \varepsilon_{it}$$

The result shows that seven variables have positive coefficients, namely HDI lag, LNTEL, OPENNESS, LNGSP, SCH, CORR and INFLATION. On the other hand, three variables – FDI, UNEMP and DOMCR – have negative coefficients. Although our major variable FDI is not statistically significant, it has a negative coefficient of -0.0000509.



**Table 5.25: GMM Results for Model 1 (HDI)**

Dynamic Panel-data estimation, one-step system GMM						
Group variable: id					Number of obs = 187	
Time variable: year					Number of groups = 13	
Number of instruments=187					Obs per group: min = 4	
Wald chi2(10) = 6934.83					avg = 14.38	
Prob > chi2 = 0.000					max = 22	
HDI	Coef.	Str. Err.	z	P> z	[95% Conf. Interval]	
HDI L1.	0.93622	0.0278927	33.21	0.000	0.8715512	0.9808887
FDI	-0.0000509	0.0000453	-1.12	0.261	-0.0001398	0.0000379
LNTEL	0.0011625	0.0010148	1.15	0.252	-0.0008265	0.0031515
OPENESS	0.0085512	0.0028456	3.01	0.003	0.002974	0.0141284
LNGSP	0.0015005	0.0007777	1.93	0.054	-0.0000238	0.0030248
UNEMP	-0.0001054	0.000354	-0.30	0.766	-0.0007984	0.0005877
SCH	0.0026536	0.0022037	1.20	0.229	-0.0016657	0.0069728
DOMCR	-0.000137	0.0001732	-0.79	0.429	-0.0004764	0.0002025
CORR	0.0055591	0.0020468	2.72	0.007	0.0015475	0.0095707
INFLATION	0.0002565	0.0001383	1.85	0.064	-0.0000146	0.0005276
_cons	-0.0250787	0.0205903	-1.22	0.223	-0.0654349	0.152775
Instruments for first differences equation						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
L(2/27). INFLATION collapsed						
L(2/27). UNEMP collapsed						
L(2/27). OPENESS collapsed						
L(2/27). HDI collapsed						
Instruments for levels equation						
Standard						
_cons						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
DL.INFLATION collapsed						
DL.UNEMP collapsed						
DL.OPENESS collapsed						
DL.HDI collapsed						
Arellano-Bond test for AR (1) in first differences: z = -5.97 Pr > z = 0.000						
Arellano-Bond test for AR (2) in first differences: z = 0.46 Pr > z = 0.647						
Sargan test of overid. Restrictions: chi2(97) = 1111.501 Prob > chi2 = 0.149						
(Not robust, but not weakened by many instruments.)						
Difference-in-Sargan tests of exogeneity of instruments subsets:						
GMM instruments for levels						
Sargan test excluding group: chi2(93) = 87.68 Prob > chi2 = 0.636						
Difference (null H = exogenous): chi2(4) = 23.82 Prob > chi2 = 0.009						

Similarly, Table 5.26 shows the GMM result for the second model:

$$MORT_{it} = \beta_0 + \beta_1 mort_{it-1} + \beta_2 FDI_{it} + \beta_3 LNTEL_{it} + \beta_4 LNGSP_{it} + \beta_5 SCH_{it} + \beta_6 DOMCR_{it} + \beta_7 CORR_{it} + \beta_8 X_{it} + \varepsilon_{it}$$

Six variables – lag of MORT, LNGSP, SCH, DOMCR and INFLATION – have positive coefficients, while four variables – LNTEL, OPENNESS, UNEMP and CORR – have negative coefficients. However, all variables, except for DOMCR and INFLATION, are statistically significant, and FDI is only significant at the 10% level. Moreover, it has a coefficient of 0.0038642, implying that a percentage increase in FDI inflow increases infant mortality (MORT) by approximately 0.004%.

**Table 5.26: GMM Results for Model 2 (MORT)**

Dynamic Panel-data estimation, one-step system GMM						
Group variable: id				Number of obs = 190		
Time variable: year				Number of groups = 13		
Number of instruments=190				Obs per group: min = 4		
Wald chi2(10) = 438145.50				avg = 14.62		
Prob > chi2 = 0.000				max = 22		
MORT	Coef.	Str. Err.	z	P> z	[95% Conf. Interval]	
MORT L1.	1.003784	0.0034117	294.22	0.000	0.9970976	1.010471
FDI	0.0038642	0.0022551	1.71	0.087	-0.0005557	0.0082841
LNTEL	-0.1670784	0.0555068	-3.01	0.003	-0.2758698	-0.058287
OPENESS	-0.64737	0.1546323	-4.19	0.000	-0.9504438	-0.344296
LNGSP	1.003679	0.0497089	20.19	0.000	0.9062516	1.101107
UNEMP	-0.400695	0.019084	-21.00	0.000	-0.4380989	-0.363291
SCH	0.163193	0.0767157	2.13	0.033	0.0128329	0.3135531
DOMCR	0.001248	0.0079750	0.16	0.876	-0.0143826	0.016879
CORR	-0.4128042	0.1016281	-4.06	0.000	-0.6119917	-0.2136167
INFLATION	0.0032169	0.0070447	0.46	0.648	-0.0105905	0.0170242
_cons	-25.93571	1.32365	-19.59	0.000	-28.53002	-23.3414
Instruments for first differences equation						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
L(2/27). INFLATION collapsed						
L(2/27). UNEMP collapsed						
L(2/27). OPENESS collapsed						
L(2/27). MORT collapsed						
Instruments for levels equation						
Standard						
_cons						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
DL.INFLATION collapsed						
DL.UNEMP collapsed						
DL.OPENESS collapsed						
DL.MORT collapsed						
Arellano-Bond test for AR (1) in first differences: z = -6.58 Pr > z = 0.000						
Arellano-Bond test for AR (2) in first differences: z = 2.87 Pr > z = 0.004						
Sargan test of overid. Restrictions: chi2(97) = 765.74 Prob > chi2 = 0.000						
(Not robust, but not weakened by many instruments.)						
Difference-in-Sargan tests of exogeneity of instruments subsets:						
GMM instruments for levels						
Sargan test excluding group: chi2(93) = 457.54 Prob > chi2 = 0.000						
Difference (null H = exogenous): chi2(4) = 308.20 Prob > chi2 = 0.000						

Table 5.27 tabulates the GMM estimation for the third model:

$$HCON_{it} = \theta_0 + \theta_1 HCON_{it-1} + \theta_2 FDI_{it} + \beta_3 LNTEL_{it} + \beta_4 LNGSP_{it} + \beta_5 SCH_{it} + \beta_6 DOMCR_{it} + \beta_7 CORR_{it} + \beta_8 X_{it} + \varepsilon_{it}$$

The result shows that five variables – LNTEL, UNEMP, SCH, DOMCR and INFLATION – are not statistically significant. Our focused variable, FDI, has a negative coefficient of 0.193733, which signifies that a percentage increase in FDI inflow decreases household consumption (HCON) by approximately 0.19%.

**Table 5.27: GMM Results for Model 3 (HCON)**

Dynamic Panel-data estimation, one-step system GMM						
Group variable: id				Number of obs = 190		
Time variable: year				Number of groups = 13		
Number of instruments=108				Obs per group: min = 5		
Wald chi2(10) = 285.33				avg = 14.62		
Prob > chi2 = 0.000				max = 22		
HCON	Coef.	Str. Err.	z	P> z	[95% Conf. Interval]	
HCON L1.	0.666794	0.0651823	10.22	0.000	0.5385245	0.7940343
FDI	-0.193733	0.0908498	-2.13	0.033	-0.3717954	-0.0156706
LNTEL	-2.678841	2.3509590	-1.14	0.255	-7.286637	1.928954
OPENESS	18.99442	6.2701200	3.03	0.002	6.705214	31.28363
LNGSP	-4.065289	1.9489560	-2.09	0.037	-7.88172	-0.2454052
UNEMP	0.3418453	0.773257	0.44	0.658	-1.17371	1.857401
SCH	-1.179464	3.6623190	-0.32	0.747	-8.357477	5.998549
DOMCR	0.0945714	0.3881220	0.28	0.78	-0.5694883	0.7586311
CORR	14.39893	4.5586460	3.16	0.002	5.464148	23.3337100
INFLATION	0.3078357	0.2985881	1.03	0.303	-0.2773863	0.8930577
_cons	161.8221	51.46397	3.14	0.002	60.95455	262.6896
Instruments for first differences equation						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
L(2/27). INFLATION collapsed						
L(2/27). UNEMP collapsed						
L(2/27). OPENESS collapsed						
L(2/27). HCON collapsed						
Instruments for levels equation						
Standard						
_cons						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
DL.INFLATION collapsed						
DL.UNEMP collapsed						
DL.OPENESS collapsed						
DL.HCON collapsed						
Arellano-Bond test for AR (1) in first differences: z = -3.42 Pr > z = 0.001						
Arellano-Bond test for AR (2) in first differences: z = -1.627 Pr > z = 0.106						
Sargan test of overid. Restrictions: chi2(97) = 765.74 Prob > chi2 = 0.000						
(Not robust, but not weakened by many instruments.)						
Difference-in-Sargan tests of exogeneity of instruments subsets:						
GMM instruments for levels						
Sargan test excluding group: chi2(93) =85.02 Prob > chi2 = 0.710						
Difference (null H = exogenous): chi2(4) = 11.98 Prob > chi2 = 0.018						

Furthermore, Table 5.28 tabulates the result of our fourth model:

$$GDPP_{it} = \beta_0 + \beta_1 GDPP_{it-1} + \beta_2 FDI_{it} + \beta_3 LNTEL_{it} + \beta_4 LNGSP_{it} + \beta_5 SCH_{it} + \beta_6 DOMCR_{it} + \beta_7 CORR_{it} + \beta_8 X_{it} + \varepsilon_{it}$$

The result shows that only four variables – LNGDPP, LNTEL, SCH and INFLATION – are statistically significant. However, INFLATION is only significant at the 10% level.

**Table 5.28: GMM Results for Model 4 (LNGDPP)**

Dynamic Panel-data estimation, one-step system GMM						
Group variable: id				Number of obs = 190		
Time variable: year				Number of groups = 13		
Number of instruments=109				Obs per group: min = 5		
Wald chi2(10) = 2334.77				avg = 14.62		
Prob > chi2 = 0.000				max = 22		
LNGDPP	Coef.	Str. Err.	z	P> z	[95% Conf. Interval]	
LNGDPP L1.	0.7445317	0.0413150	16.5	0.000	0.6560757	0.8329877
FDI	-0.0010178	0.0007700	-1.32	0.186	-0.002527	0.0004913
LNTEL	0.1228577	0.0185910	6.61	0.000	0.0864199	0.1592954
OPENESS	0.0721358	0.0541848	1.33	0.183	-0.034065	0.1783362
LNGSP	-0.0031539	0.0164836	-0.19	0.848	-0.035461	0.0291533
UNEMP	-0.0065667	0.005812	-1.13	0.259	-0.0179572	0.004824
SCH	0.1133702	0.0317426	3.57	0.000	0.0511558	0.1755846
DOMCR	-0.0027159	0.0026658	-1.02	0.308	-0.007941	0.0025089
CORR	-0.0299967	0.0344107	-0.87	0.383	-0.09744	0.0374469
INFLATION	0.0041313	0.0041313	1.82	0.069	-0.000327	0.0085899
_cons	0.0090357	0.3919706	0.02	0.982	-0.7592125	0.777284
Instruments for first differences equation						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
L(2/27). INFLATION collapsed						
L(2/27). UNEMP collapsed						
L(2/27). OPENESS collapsed						
L(2/27). LNGDPP collapsed						
Instruments for levels equation						
Standard						
_cons						
GMM-type (missing=0, separate instruments for each period unless collapsed)						
DL.INFLATION collapsed						
DL.UNEMP collapsed						
DL.OPENESS collapsed						
DL.LNGDPP collapsed						
Arellano-Bond test for AR (1) in first differences: z = -4.08 Pr > z = 0.000						
Arellano-Bond test for AR (2) in first differences: z = -0.89 Pr > z = 0.375						
Sargan test of overid. Restrictions: chi2(98) = 197.75 Prob > chi2 = 0.000						
(Not robust, but not weakened by many instruments.)						
Difference-in-Sargan tests of exogeneity of instruments subsets:						
GMM instruments for levels						
Sargan test excluding group: chi2(94) = 159.66 Prob > chi2 = 0.000						
Difference (null H = exogenous): chi2(4) = 38.09 Prob > chi2 = 0.000						

### 5.5.1 Summary of Dynamic Models

The study focuses on four dynamic models, as presented in Eqs. 24 – 27. The GMM was used to evaluate the four models, and the results are summarised in Table 5.29. Two models with MORT and HCON dependent variables produced statistically significant results for FDI. The results established that increases in FDI inflow increases infant mortality (HCON) and reduce household consumption (HCON). With MORT and HCON as proxies for poverty, this result implies that FDI has a negative impact on poverty, when using GMM techniques.

**Table 5.29: Summary of GMM Effect Estimates**

VARIABLES	(1) GMMHDI	(2) GMMMORT	(3) GMMHCO N	(4) GMMLNGDPP
L.HDI	0.926*** (0.0279)			
FDI	-5.09e-05 (4.53e-05)	0.00386* (0.00226)	-0.194** (0.0908)	-0.00102 (0.000770)
LNTEL	0.00116 (0.00101)	-0.167*** (0.0555)	-2.679 (2.351)	0.123*** (0.0186)
OPENESS	0.00855*** (0.00285)	-0.647*** (0.155)	18.99*** (6.270)	0.0721 (0.0542)
LNGSP	0.00150* (0.000778)	1.004*** (0.0497)	-4.065** (1.949)	-0.00315 (0.0165)
UNEMP	-0.000105 (0.000354)	-0.401*** (0.0191)	0.342 (0.773)	-0.00657 (0.00581)
SCH	0.00265 (0.00220)	0.163** (0.0767)	-1.179 (3.662)	0.113*** (0.0317)



DOMCR	-0.000137 (0.000173)	0.00125 (0.00798)	0.0946 (0.339)	-0.00272 (0.00267)
CORR	0.00556*** (0.00205)	-0.413*** (0.102)	14.40*** (4.559)	-0.0300 (0.0344)
INFLATION	0.000257* (0.000138)	0.00322 (0.00704)	0.308 (0.299)	0.00413* (0.00227)
L.MORT		1.004*** (0.00341)		
L.HCON			0.666*** (0.0652)	
L.LNGDPP				0.745*** (0.0451)
Constant	-0.0251 (0.0206)	-25.94*** (1.324)	161.8*** (51.46)	0.00904 (0.392)
Observations	187	190	190	190
Number of id	13	13	13	13

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Standard errors in parentheses

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

Source: Author's estimate.

### 5.6 Hypothesis 2: Are there any country-specific differences in the alleviation of poverty?

To address our second hypothesis, i.e. whether FDI reduces poverty more in some ECOWAS countries than in others, the study deepens its findings by exploring differences amongst countries. In so doing, a dummy variable is introduced for each country, to represent their effect. However, 14 dummy variables were introduced to avoid the dummy variable trap, with Benin Republic used as the base country. Although four techniques – robust OLS, FE, RE and GMM – were used in other analyses, only robust OLS was used in this instance. The results are tabulated in Table 5.31 and show that there are country differences – as evidenced by the different

coefficients for each country, using all the four measures for poverty: HDI, MORT, HCON and LNGDPP. However, the magnitude of the differences depends on the poverty measure adopted for the study.

The results of Table 5.31 show that there are country differences, and their magnitudes vary across models (poverty measures). For the first model (HDI), the result shows that the impact of FDI on HDI is positive for two countries – Guinea Bissau and Liberia. On the other hand, it is negative for eleven countries – Benin, Burkina Faso, Cote D’Ivoire, Ghana, Guinea, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo. The result shows that an additional \$1 net inflow of FDI decreases HDI minimally in our base country, Benin, by 0.000091%. This result indicates that for any additional \$1 net inflow of FDI into ECOWAS countries, HDI (poverty) will be reduced by 0.000091%. However, the magnitude of the negative impact is more severe in these countries: Mali 0.155%, Nigeria 0.125%, Cote D’Ivoire 0.122%, Sierra Leone 0.0721%, Burkina Faso 0.0612%, and Togo 0.0606% in that order. However, the result is not significant in either Ghana or Guinea. A review of the extant literature shows that there is no consensus on the effect of FDI on HDI, and it is a complicated issue (Gökmenoğlu et al., 2018). Empirical studies with regards to Nigeria indicate a mixed result. Gökmenoğlu et al. (2018) suggest that FDI has a significant impact on HDI in Nigeria, whilst Akinmulegun (2012) finds that the relationship between FDI and standard of living is insignificant.

Regarding the second model, with MORT as the dependent variable and a poverty measure, the result is not significant in our base country, Benin. However, FDI has a positive impact on MORT in six countries: Cote D’Ivoire, Ghana, Mali, Nigeria, Sierra Leone and Togo. On the other hand, FDI has a negative effect on MORT in six other countries: Burkina Faso, Guinea, Guinea Bissau, Liberia, Niger and Senegal. In terms of magnitude, Nigeria produces the most significant result, with an additional \$1 FDI inflow decreasing infant mortality by 71.73%, and Togo has the smallest positive impact of 8.67%. Similarly, Liberia has the most significant negative impact, with an

additional \$1 FDI inflow aggravating the infant mortality by 64.87%, and Guinea the smallest at 11.04%. The result for Benin compares favourably with Magombeyi and Odhiamba (2018).

Likewise, for the third model (HCON), the result illustrates that the impact of FDI on HCON is positive for ten countries – Cote D’Ivoire, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Nigeria, Senegal, Sierra Leone and Togo. On the other hand, it is negative for three countries – Benin, Burkina Faso and Niger. The result shows that an additional \$1 net inflow of FDI decreases HCON minimally in our base country, Benin, by 0.386%. In terms of the magnitude of the impact of FDI on poverty in these ECOWAS countries, Liberia has the most significant magnitude, with an additional \$1 FDI inflow decreasing HCON by 72.96%. However, the result is not significant in other countries. In the empirical literature, a study in Ghana indicates FDI has a negative impact on household consumption (De-Graft Yankson, 2019), but this result does not support our finding on Ghana. The key reason attributed to the negative impact of FDI on poverty is associated with FDI being concentrated in the extractive industry, which provides limited employment and hence limited income for individuals to expend. Also, MNCs’ substantial profits are repatriated to their home countries, with not much invested locally to boost domestic consumption.

Finally, the fourth model, with LNGDPP as the poverty measure, does not produce a significant result in our base country, Benin. However, FDI has a positive impact on LNGDPP in four countries: Benin, Ghana, Guinea Bissau and Liberia. On the other hand, FDI has a negative effect on LNGDPP in nine other ECOWAS countries: Burkina Faso, Cote D’Ivoire, Guinea, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo. In terms of magnitude, Liberia has the largest positive magnitude, with an additional \$1 FDI inflow decreasing LNGDPP by 1.954%, and Guinea Bissau at 0.637% the smallest. Similarly, Mali has the largest negative impact, with an additional \$1 FDI inflow aggravating the LNGDPP by 0.604% and Nigeria, with the smallest magnitude of 0.143%. In the extant literature, FDI and growth studies are inconclusive, and FDI is considered a key factor responsible for economic growth, while growth is responsible for poverty reduction (Klein et al., 2001). The results for Ghana, Guinea and Cote D’Ivoire compare favourably with Antwi et

al. (2013), Lamine and Yang (2010) and Johnston and Ramirez (2015), albeit they contrast for Nigeria and Burkina Faso. Okegbe et al. (2019) indicate that FDI in the financial sector is positive and significantly affects GDP in Nigeria. In Burkina Faso, there is no established relationship between FDI and economic growth (Zandile and Phiri, 2019). Explanations for these results relate to several factors, such as human capital, economic structure, absorption capacity, limited CRS and government policy.

In concluding this section, it can be stated that the magnitude of the impact of FDI on poverty varies from country to country, ranging from -64.87% to 72.96%, based on the poverty measure used in the study.

**Table 5.31: Summary of the Impact of FDI on Poverty Country Differences in ECOWAS**

	(1)	(2)	(3)	(4)
VARIABLES	OLS1	OLS2	OLS3	OLS4
FDI	-9.71e-05*	-0.0488	-0.386*	0.000714
	(5.83e-05)	(0.0306)	(0.223)	(0.000635)
LNTEL	0.00744***	-1.816***	-7.919***	0.100***
	(0.00162)	(0.589)	(2.218)	(0.0241)
OPENESS	0.00272	-4.685**	19.02**	0.0193
	(0.00495)	(1.859)	(8.577)	(0.0613)
LNGSP	0.0132***	-6.217***	1.425	0.239***
	(0.00203)	(0.838)	(3.933)	(0.0269)
UNEMP	0.00525***	-1.364***	-0.235	0.0325***
	(0.000708)	(0.222)	(0.663)	(0.00863)
SCH	0.0437***	-17.72***	-0.588	0.196***
	(0.00409)	(1.397)	(3.879)	(0.0492)
DOMCR	0.00145***	-0.0987	-0.264	0.00411

	(0.000272)	(0.0913)	(0.247)	(0.00290)
CORR	-0.00135	0.708	11.22	-0.0970*
	(0.00263)	(1.415)	(9.338)	(0.0516)
INFLATION	-2.34e-05	-0.0824	-0.0446	-0.00133
	(0.000193)	(0.0812)	(0.223)	(0.00341)
BUF	-0.0612***	-23.33***	-7.523	-0.236**
	(0.00963)	(2.911)	(9.640)	(0.117)
CIV	-0.122***	43.61***	1.029	-0.202**
	(0.00656)	(2.770)	(5.724)	(0.0841)
o.CAV	-	-	-	-
GHA	-0.0355	21.35***	23.09	0.903***
	(0.0218)	(8.173)	(28.37)	(0.267)
GUI	-0.0132	-11.04***	4.764	-0.139
	(0.0101)	(3.776)	(11.68)	(0.132)
o.GAM	-	-	-	-
GUB	0.0344***	-20.47***	6.152	0.637***
	(0.00811)	(3.371)	(11.06)	(0.124)
LIB	0.120***	-64.87***	72.96***	1.954***
	(0.0146)	(6.011)	(19.46)	(0.199)
MAL	-0.155***	38.27***	0.132	-0.604***
	(0.00443)	(2.171)	(4.267)	(0.0766)
NGE	-0.0633***	-39.44***	-3.547	-0.327***
	(0.00623)	(1.980)	(5.694)	(0.0774)
NIG	-0.125***	71.73***	17.81	-0.143
	(0.0108)	(4.261)	(14.02)	(0.133)
SEN	-0.0602***	-14.57***	8.015	-0.0350
	(0.00695)	(2.335)	(8.179)	(0.0895)

SIL	-0.0721*** (0.00575)	39.52*** (2.539)	6.775 (9.163)	-0.514*** (0.0796)
TOG	-0.0606*** (0.00807)	8.674*** (3.090)	5.989 (10.02)	-0.399*** (0.0961)
Constant	-0.144*** (0.0511)	321.6*** (20.40)	127.5 (87.75)	-1.834*** (0.688)
Observations	190	190	190	190
R-squared	0.978	0.962	0.761	0.946

7 Robust standard errors in parentheses

8 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Author's estimate.

## 5.7 Overall Summary of the Main Findings

The study focuses on exploring the impact of FDI on poverty. In achieving its aim, it utilises both static and dynamic models to evaluate causality. However, four dependent variables were used for poverty: the Human Development Index (HDI), infant mortality rate (MORT), household consumption (HCON) and GDP per capita (LNGDPP). Similarly, four estimation techniques were utilised in the analysis: OLS, fixed effects, random effects and GMM. However, three of these – OLS, fixed effects and random effects – were used for the static models, while GMM was utilised for the dynamic models. With fixed and random effects focusing on the unobservable effects, the Hausman test was deployed to select the optimal model between the two in our three static models. The results of the test show that the fixed effect was preferred for three models, while the model using HCON as a dependent variable preferred the random effect.

The results of the fixed effects, using HDI as the dependent variable and their counterparts OLS and GMM, are tabulated in Table 5.31. The coefficients of FDI in the model using the robust OLS technique are statistically significant and show a positive impact of FDI on poverty. Thus, FDI has

a positive effect on poverty using the HDI as a proxy for poverty. This implies that an increase in FDI inflow will result in increases in the Human Development Index (HDI) in the ECOWAS region.

**Table 5.31: Summary of the Effects of FDI on HDI**

	(1)	(2)	(3)
VARIABLES	OLSHDI	FEHDI	GMMHDI
L.LNGDPP			0.926*** (0.0279)
FDI	0.000207* (0.000111)	-9.71e-05 (8.02e-05)	-5.09e-05 (4.53e-05)
LNTEL	0.00595 (0.00383)	0.00744*** (0.00174)	0.00116 (0.00101)
OPENESS	0.0199 (0.0141)	0.00272 (0.00489)	0.00855*** (0.00285)
LNGSP	-0.00190* (0.00109)	0.0132*** (0.00189)	0.00150* (0.000778)
UNEMP	-0.000694 (0.00136)	0.00525*** (0.000708)	-0.000105 (0.000354)
SCH	0.0270*** (0.00222)	0.0437*** (0.00382)	0.00265 (0.00220)
DOMCR	0.00226*** (0.000449)	0.00145*** (0.000229)	-0.000137 (0.000173)
CORR	0.0112 (0.00769)	-0.00135 (0.00352)	0.00556*** (0.00205)
INFLATION	0.00253*** (0.000603)	-2.34e-05 (0.000246)	0.000257* (0.000138)
Constant	0.266***	-0.197***	-0.0251

(0.0393)                      (0.0478)                      (0.0206)

---

Standard errors in parentheses

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

Source: Author’s estimate.

Similarly, the fixed effects results, using MORT as the dependent variable, along with the result for OLS and GMM is tabulated in Table 5.32. The three econometric techniques produced significant results for FDI, and the results show that increases in FDI decrease infant mortality in both OLS and FE. However, using GMM, the result shows that increases in FDI increase infant mortality. With infant mortality (MORT) being a measure for poverty, this implies that the impacts of FDI on poverty in the ECOWAS region are mixed. Hence, the results of the impact of FDI on poverty using MORT as a dependent variable are inconclusive, due to the mixed results.

**Table 5.32: Summary of the Effects of FDI on MORT**

VARIABLES	(1) OLSMORT	(2) FEMORT	(3) GMMMORT
L.MORT			1.004*** (0.00341)
FDI	-0.103* (0.0586)	-0.0488* (0.0292)	0.00386* (0.00226)
LNTEL	-4.835*** (1.759)	-1.816*** (0.636)	-0.167*** (0.0555)
OPENESS	-12.82** (5.450)	-4.685*** (1.782)	-0.647*** (0.155)
LNGSP	1.361**	-6.217***	1.004***



	(0.626)	(0.688)	(0.0497)
UNEMP	-0.0105	-1.364***	-0.401***
	(0.481)	(0.258)	(0.0191)
SCH	1.698*	-17.72***	0.163**
	(0.978)	(1.394)	(0.0767)
DOMCR	-1.250***	-0.0987	0.00125
	(0.169)	(0.0836)	(0.00798)
CORR	-11.66***	0.708	-0.413***
	(3.736)	(1.282)	(0.102)
INFLATION	-0.718***	-0.0824	0.00322
	(0.238)	(0.0897)	(0.00704)
Constant	110.4***	326.5***	-25.94***
	(17.69)	(17.42)	(1.324)

---

Standard errors in parentheses

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

Source: Author's estimate.

Furthermore, Table 5.33 tabulates the result of the three models – OLS, RE and GMM – using HCON as the dependent variable. With the HCON as the dependent variable, the result of the FE and GMM techniques produces statistically significant results for FDI, which suggests that increases in FDI decrease household consumption (HCON). This in turn implies that net FDI inflow decreases the income of households and hinders them from consuming more. Specifically, the result signifies that net FDI amplifies poverty in the ECOWAS region when household consumption is used as a measure for poverty. Thus, FDI has a negative effect on poverty, when using HCON as a measure for poverty.

**Table 5.33: Summary of the Effects of FDI on HCON**

VARIABLES	(1) OLSHCON	(2) REHCON	(3) GMMHCON
L.HCON			0.666*** (0.0652)
FDI	-0.0532 (0.185)	-0.248** (0.0983)	-0.194** (0.0908)
LNTEL	-6.088*** (1.730)	-9.052*** (1.770)	-2.679 (2.351)
OPENESS	25.19*** (8.869)	23.93*** (5.716)	18.99*** (6.270)
LNGSP	-4.210** (1.693)	-3.120*** (0.941)	-4.065** (1.949)
UNEMP	0.769* (0.434)	0.191 (0.717)	0.342 (0.773)
SCH	-1.379 (1.725)	0.872 (1.688)	-1.179 (3.662)
DOMCR	-0.192 (0.183)	-0.0753 (0.235)	0.0946 (0.339)
CORR	4.338 (6.663)	9.426** (3.878)	14.40*** (4.559)
INFLATION	0.698*** (0.238)	0.269 (0.277)	0.308 (0.299)
Constant	248.5*** (32.25)	253.8*** (24.96)	161.8*** (51.46)

Standard errors in parentheses

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

Source: Author's estimate.

In addition, Table 5.34 tabulates the results of OLS, FE and GMM for models using LNGDPP as the dependent variable. The result shows that the model using the OLS technique produces a statistically significant result for FDI and establishes that increases in FDI inflow increase GDP per capita (LNGDPP). The results indicate a positive relationship between FDI and GDP per capita, thus implying that the inflow of FDI reduces poverty in the ECOWAS region.

**Table 5.34: Summary of the Effects of FDI on LNGDPP**

	(1)	(2)	(3)
VARIABLES	OLSLNGDPP	FELNGDPP	GMM LNGDPP
L.LNGDPP			0.745*** (0.0451)
FDI	0.00688*** (0.00159)	0.000714 (0.00110)	-0.00102 (0.000770)
LNTEL	0.202*** (0.0368)	0.100*** (0.0239)	0.123*** (0.0186)
OPENESS	0.0789 (0.140)	0.0193 (0.0669)	0.0721 (0.0542)
LNGSP	0.0173 (0.0160)	0.239*** (0.0258)	-0.00315 (0.0165)
UNEMP	0.0494*** (0.0105)	0.0325*** (0.00969)	-0.00657 (0.00581)
SCH	0.122*** (0.0250)	0.196*** (0.0523)	0.113*** (0.0317)
DOMCR	0.00628	0.00411	-0.00272

	(0.00413)	(0.00314)	(0.00267)
CORR	-0.0868	-0.0970**	-0.0300
	(0.0769)	(0.0481)	(0.0344)
INFLATION	0.0231***	-0.00133	0.00413*
	(0.00647)	(0.00336)	(0.00227)
Constant	2.806***	-1.823***	0.00904
	(0.451)	(0.653)	(0.392)

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Standard errors in parentheses

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

Source: Author's estimate.

Overall, Hypothesis 1: Does FDI significantly impact poverty in the ECOWAS region?

The result shows that the impact of FDI on poverty in the ECOWAS region is mixed. FDI has a positive effect when using HDI as a measure for poverty. Similarly, FDI has a positive impact on poverty, using GDP per capita as a poverty measure. However, FDI has a negative effect when using HCON as a measure, while the results of the impact of FDI on poverty, using MORT as a poverty measure, are inconclusive. Therefore, it is concluded that the impact of FDI on poverty in the ECOWAS region is dependent on the poverty measure used in the study, as well as on the econometric techniques adopted, since the four poverty measures and econometric techniques produced different or mixed results. This result is evidence of the challenges faced when utilising poverty measures for international comparison.

**Hypothesis 2:** Are there any country-specific differences in the alleviation of poverty more in some countries than in others in the ECOWAS region?

The results highlighted differences between ECOWAS countries, with the magnitude of these differences varying substantially from country to country, depending on the measure adopted for poverty. The study used the OLS estimation technique and four poverty measures (HDI, MORT, HCON and LNGDPP). With HDI as a poverty measure, the first model (HDI) result revealed the magnitude of the impact of FDI on poverty: Liberia (LIB) has the highest positive magnitude of 0.120%, and Guinea Bissau (GUB) has the smallest at 0.0344% in terms of country-specific differences. In the meantime, Nigeria (0.125%), Mali (0.155%) and Cote D'Ivoire (0.122%) had the highest negative magnitudes. Using MORT as a poverty measure, the results indicate that Nigeria (71.73%) and Togo (8.674%) have the highest and lowest positive impacts on poverty respectively, whilst Liberia (64.87%) has the biggest and Senegal the smallest (14.57%) negative magnitudes on poverty. Using HCON as a poverty measure, Liberia has the biggest positive magnitude of (72.96%) and Cote D'Ivoire the smallest (1.029%), whilst Burkina Faso has the highest negative magnitude of 7.523% and Benin the smallest at 0.386%. Lastly, using LNGDPP as a poverty measure, FDI has a positive impact on LNGDPP in terms of magnitude: Liberia has the largest positive magnitude of 1.954%, whilst Mali has the biggest negative impact, with an additional \$1 FDI inflow aggravating the LNGDPP by 0.604%. This result denotes that FDI contributes both positively and negatively to poverty reduction, and more so in some ECOWAS countries than in others. This reason for the result is associated with the structure of the economy. Some ECOWAS countries have higher economic growth and better developed than others. Similarly, government policies is another reason use to explain the country specific differences as government policies varies amongst ECOWAS countries (as noted with the substantial repatriation of profits and dividends that countries have experienced in recent years).

## **5.8 Chapter Summary**

In summary, this chapter has revealed a crucial turning point in the study of the impact of FDI on poverty. The chapter has presented the statistical results of the quantitative analysis, which can now be related to the initial research objectives stated in Chapter One. A series of pre-tests were conducted to confirm that the data collected for the research were suitably adequate. These

comprised missing data and checking for the OLS assumptions, including homoscedasticity and multicollinearity. Also, a descriptive analysis was conducted to describe the measure of central tendency and measures of dispersion.

In achieving its aim, the study utilises both static and dynamic models to evaluate the causality between FDI and poverty. Four techniques were utilised in the analysis: OLS, fixed effects, random effects and GMM. However, three – OLS, fixed effects and random effects – were used for the static models, while GMM was utilised for the dynamic models. On that note, this analysis assisted in testing the respective hypotheses. The results of the secondary quantitative analysis can be used to discuss the outcome in relation to the specific research objectives in the next chapter, which presents the results of the primary data quantitative analysis used to complement the results of the secondary data quantitative analysis.

## CHAPTER SIX

### PRIMARY DATA QUANTITATIVE ANALYSIS AND RESULTS

#### 6.0 Introduction

In this chapter, the researcher presents the results and analysis of the primary data on the impact of FDI on poverty. The primary data analysis aspect of the study is meant to complement the findings of the secondary data quantitative results. This chapter focuses on the attitudes of respondents towards the impact of FDI on poverty, using questionnaires administered to a wide range of relevant actors. The researcher analyses the respondents' responses, based on the questionnaire. The aim of the questionnaire, as explained in section 4.7.2, was to collect primary data related to the opinions and thoughts of people about the impact of FDI on poverty in the ECOWAS region. This was necessary, as it would further strengthen and complement the analysis of the secondary data quantitative results in Chapter Five. The sequence of the chapter is as follows: population and participants, demography, a primary data analysis of the results for each research question, a summary of primary data results and a conclusion.

#### 6.1 Population and Participants in the Study

As stated in Chapter Four, the primary data were collected from questionnaires (see Appendix A) emailed to various participants. These included ECOWAS officials, government officials from the respective countries, top-level development organisation officials, chamber of commerce attachés to embassies and CEOs from some of the biggest multi-national companies within the ECOWAS region. The questionnaires were administered between 1<sup>st</sup> July -31<sup>st</sup> 2019, and 120 were sent out. A total of 102 completed questionnaires were received, ten of which were rejected, due to incomplete information, thereby reducing the number to 92 respondents, representing 76.6% of the total questionnaires sent out. Table 6.1 shows the characteristics of the total number of participants, and their rate of response.

**Table 6.1: Questionnaire response rate**

Action	Electronic Mail Sent out	Total
Questionnaires distributed	120	120
Initial responses	50	
Responses after 1 <sup>st</sup> reminder	20	
Responses after 2 <sup>nd</sup> reminder	32	
Rejected non-complete questionnaires	10	
Accepted questionnaires	92	92
Response rate as percentage	76.67%	76.67%

## 6.2 Demographic Information

This section provides demographic data about the research participants. The questionnaire (see appendix A) contained information relating to the participants' demographic data, namely gender, age, work experience, employment status and education level.

Table 6.2 shows the gender frequency and percentage of the participants in this study, illustrating that more than 77% of the participants are male, while nearly 23% are female. The number of male participants dominates, because fewer female participants were available in key sectors and businesses in the study area.

**Table 6.2: Gender of the Participants**

Gender	Frequency	Percentage
Male	71	77.17
Female	21	22.83
Total	92	100



Table 6.3 depicts the age group of participants in the study. More than 27% of the participants in the study age group fell between 36 and 55 years. The age groups between 26 and 35 and above 56 years account for more than 26%, while up to 25 years account for 20.65%. This is important, as it shows that more youthful people were involved in the study.

**Table 6.3: Age Group of the Participants**

<b>Age Group</b>	<b>Frequency</b>	<b>Percentage</b>
26-35 years	24	26.09
36-55 years	25	27.17
Above 56 years	24	26.09
Up to 25 years	19	20.65
Total	92	100

Table 6.4 depicts the educational level of participants in the study. With the highest figure, 28% held a bachelor's degree, 26.09% had a master's degree, 19.57% has a diploma, 3.26% held a doctoral degree and more than 22% held other types of educational qualifications. Thus, ECOWAS individuals participating in this research are well-educated.

**Table 6.4: Educational Level of the Participants**

<b>Education Level</b>		
<b>Qualification</b>	<b>Frequency</b>	<b>Percentage</b>
Bachelor	26	28.26
Diploma	18	19.57
Master	24	26.09
Others	21	22.83
PhD	3	3.26
<b>Grand Total</b>	<b>92</b>	<b>100</b>

Table 6.5 depicts the occupations of participants. The information indicates that more than 31% were government employees. Also, 26.09% were business individuals, 25% in other forms of work and 17.39% professionals.

**Table 6.5: Occupation of the Participants**

Occupation	Frequency	Percentage
Business	24	26.09
Employee	29	31.52
Others	23	25.00
Professional	16	17.39
total	92	100

Table 6.6 shows years of work experience in their respective field. The information indicates that 34.78% of the participants in this research had work experience of between 6 and 10 years. Also, 20.65% of the respondents had work experience of between 11 and 15 years, 17.39% between 21 years and above, 15.22% between 16 and 20 years and 11.96% had worked for 5 years and below. The years of experience of participants was vital, as they had a wealth of knowledge of the industry or sectors used in this study.

**Table 6.6: Work Experience of the Participants**

Work Experience of the Respondents		
Years of Work Experience	Frequency	Percentage
5 years and below	11	11.96
6 - 10 years	32	34.78
11 - 15 years	19	20.65
16 - 20 years	14	15.22
21 years and above	16	17.39
Total	92	100.00

### 6.3 Primary Data Analysis and Results of the Research Questions

#### 6.3.1 Research Question 1: How have the inflow of FDI trend into the ECOWAS region changed in the period specified (1990-2018), and why?

The contribution of FDI as an external source of investment within the ECOWAS sub-region is evident from its trend of inward FDI, which has undergone a series of transformations since the

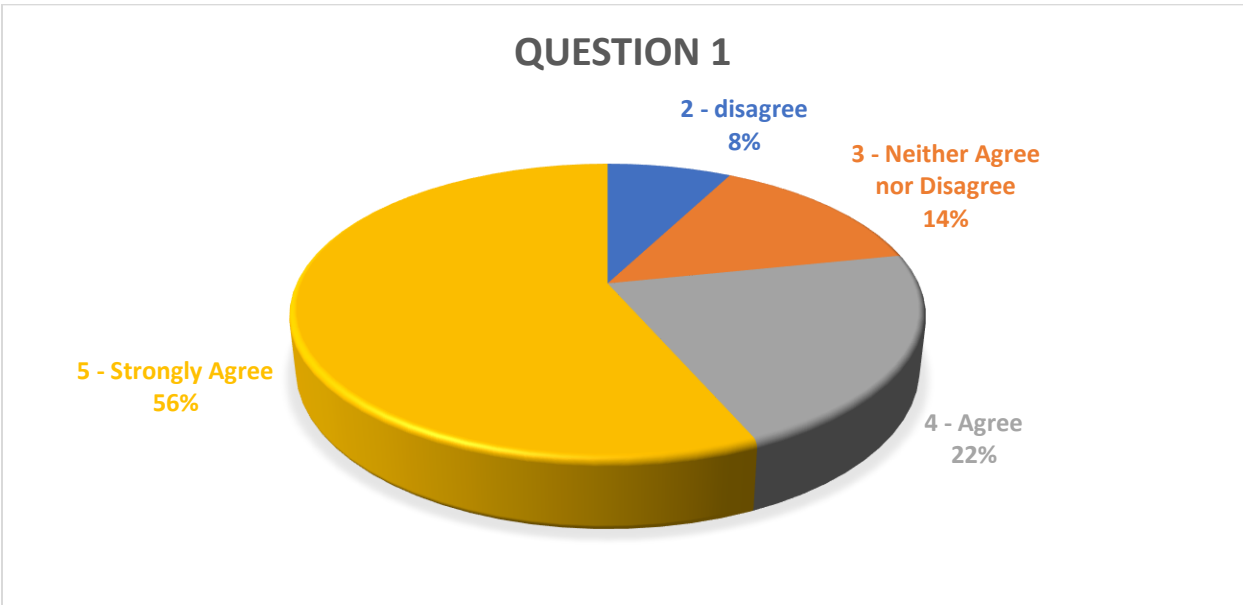
1990s and up to 2018. To answer the above question, the researcher made several statements in the questionnaire (see appendix A):

**Q1. The trend of FDI inflow to ECOWAS countries has increased between 1990-2018**

In the analysis of the questionnaire (see appendix A), Figure 6.1 shows that 56% of the respondents strongly agree that FDI inflow into ECOWAS has changed during the period 1990-2018, 22% agree, 14% neither agree nor disagree and 8% disagree. This result supports the claim that the inflow of FDI into the ECOWAS region has changed during the period between 1990 and 2018.

This result is consistent with the analysis of the secondary data. In section 3.2.2, it was established that FDI inflows into ECOWAS has increased between 1990 and 2018. Table 3.2 (see Chapter Three) shows FDI inflow into ECOWAS changed on average during the period 1990-1999, from \$ 2,121,638,589.52 (ten-year average) to \$ 12,550,252,468.00 (nine-year average) between 2010 and 2018. The positive change in FDI inflow into ECOWAS is good for the region, as it will contribute to economic development and poverty reduction.

**Figure 6.1: Results for Question 1**



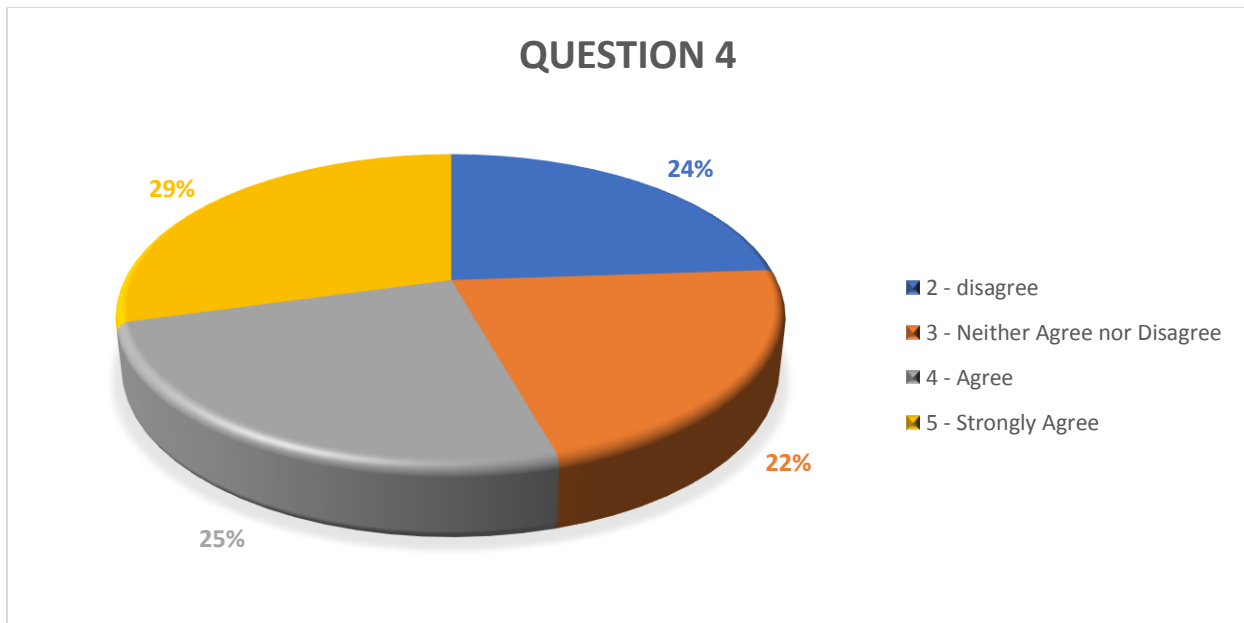
**Q4. The following factors have contributed to the change in FDI inflow into ECOWAS**

**countries:** **a.** Natural resources **b.** Government policy reforms **c.** Trade liberalisation **d.** Financial development **e.** Robust institutions **f.** Infrastructure

Figure 6.4 shows the response results. Based on the results of the 92 questionnaires received and analysed, 29% of the respondents strongly agree, 25% agree, 24% disagree and 22% neither agree nor disagree. This result shows that the following factors identified in the literature are amongst the key factors responsible for the change in FDI inflow into the ECOWAS region between 1990 and 2018.

The outcome complements the analysis of secondary data. Various factors identified in the literature are responsible for the changes in FDI inflow over the past decades into the ECOWAS region. According to the World Investment Report (1999), three factors were stated as the reasons for changes in the context of FDI: The nature and pace of knowledge – and, particularly, technological knowledge – change; shrinking economic space and changing competitive conditions; and changing attitudes and policy regimes. Also, given the importance of FDI to a developing country's economic growth, most governments within the sub-region have implemented these policies over the years, in order to attract FDI under structural adjustments (United Nations Economic Commission for West Africa Report, 2015).

**Figure 6.4: Results for Question 4**



In summary, FDI inflow into ECOWAS countries has significantly increased over the past decades. Many factors are associated with this trend, but one notable aspect is the availability of natural resources and the changes in policies to attract FDI inflow. This finding is consistent with Anyanwu and Yameogo (2015), in that FDI inflows not only vary across sub-regions in the continent, but there is also a very significant and dramatic increase in several West Africa (ECOWAS) countries. Overall, the increase in FDI inflow into ECOWAS is good for the region, as it will contribute to economic development and poverty reduction.

### **6.3.2 Research Question 2: What are the effects of FDI on poverty reduction in ECOWAS?**

To seek an answer to the question, the researcher designs the following statement in the questionnaire (see Appendix A):

Q7. FDI has a more significant impact on the various poverty measures in the ECOWAS:

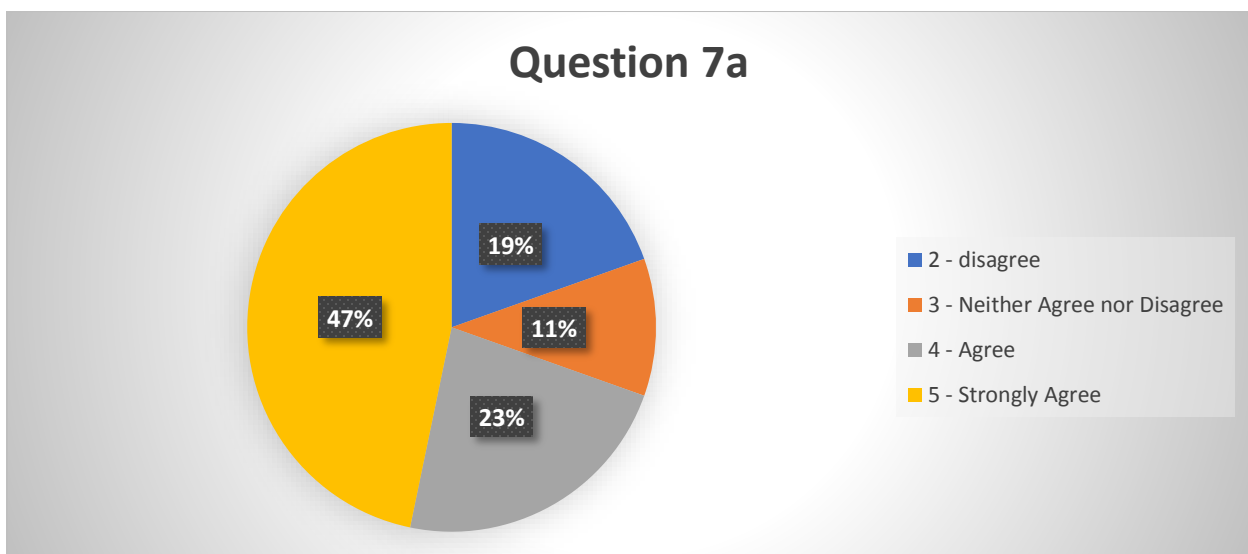
#### **a. Economic Growth (GDP)**

Figure 6.5 shows the responses to this statement. Based on the results of the 92 questionnaires received and analysed, 47% of the respondents strongly agree, 23% agree, 11% neither agree nor

disagree and 19% disagree. This result indicates that FDI reduces poverty by increasing economic growth, thereby suggesting that an increase in the inflow of FDI into the ECOWAS region will lead to an increase in economic growth and hence poverty reduction. This result is consistent with previous researches in the literature. Klein et al. (2001), for instance, claim that growth and poverty are complementary, and that growth is the main factor affecting poverty reduction and FDI is key to realising it. However, Mold (2004) disputes previous papers stating that by accelerating economic growth, FDI is a determining feature in poverty reduction, by considering the stylistic facts and existing empirical evidence on the contribution of FDI to growth and poverty reduction.

This result complements the findings of the secondary data analysis in Chapter Five. In section 5.7, Table 5.34's summary of the effect of FDI on LNGDPP, the results of the OLS, FE and GMM for models using LNGDPP as the dependent variable, shows that the model using the OLS technique produced statistically significant results for FDI and established that increases in GDP per capita reduce poverty. Both results are consistent with the empirical literature in Chapter Three. Several empirical studies of the impact of FDI on poverty have found the results to be positive (Bouchoucha and Ali, 2019; Adams, 2009; Borenszein, 1997).

**Figure 6.5: Results for Question 7a**

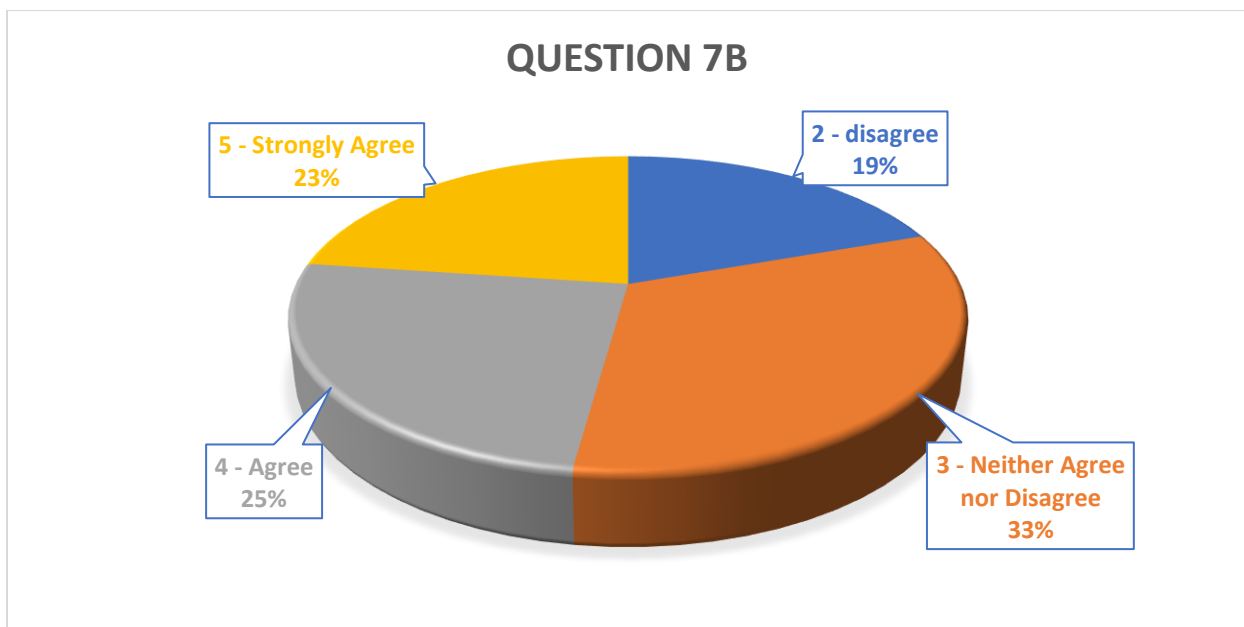


### b. Infant Mortality

In question 7b (see Appendix A), the following statement was made: 'FDI has a more significant impact on infant mortality as a poverty measure in the ECOWAS.' Figure 6.6 shows the responses. Based on the results of the 92 questionnaires received and analysed, 33% of the respondents neither agree nor disagree, 25% agree, 23% of the respondents strongly agree and 19% disagree. This result indicates that the impact of FDI on poverty, using infant mortality as a poverty measure in the ECOWAS region, is mixed, and it suggests that the research participants neither agreed nor disagreed in this regard.

Similarly, the results of the secondary data quantitative analysis in Chapter Five state that the result of the impact of FDI on poverty is inconclusive, because the results of the three techniques (OLS, FE and GMM) used in the quantitative study produced different results. The result shows that increases in FDI decrease infant mortality in both OLS and FE but increase infant mortality when using GMM (see Table 5.32). This mixed result indicates that the effect of FDI can be both positive and negative, when using infant mortality as a poverty measure.

**Figure 6.6: Results for Question 7b**

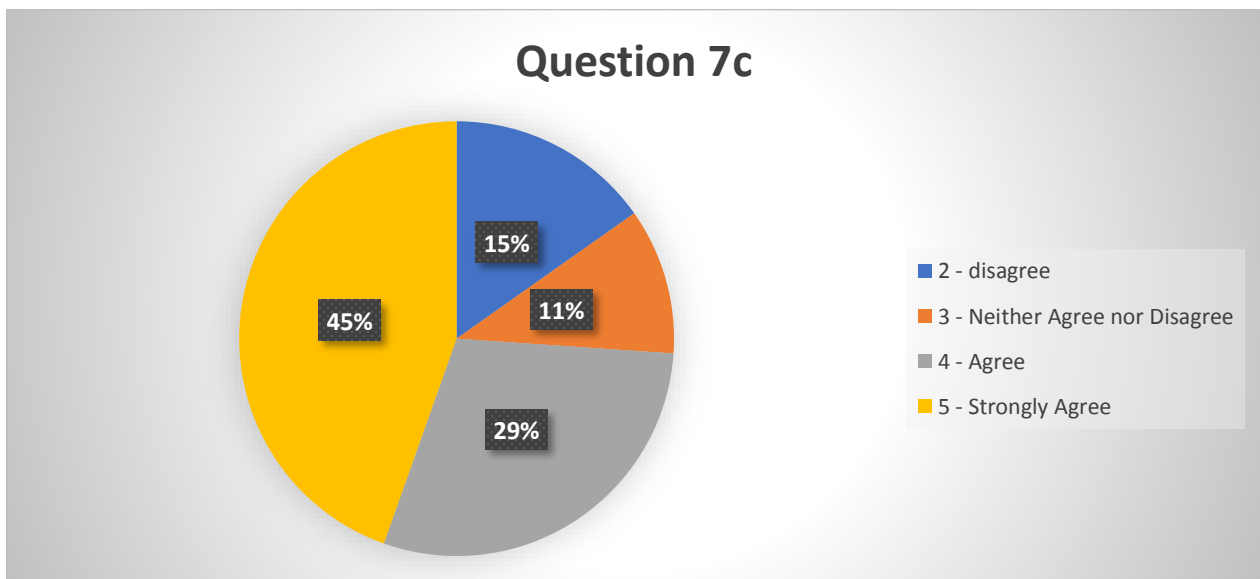


**c. Human Development Index (HDI)**

Question 7c of the questionnaire (see Appendix A) made the following statement: ‘FDI has a more significant impact on the Human Development Index as a poverty measure in the ECOWAS.’ Figure 6.7 shows the responses. Based on the results of the 92 questionnaires received and analysed, 45% of the respondents strongly agree FDI has a more significant impact on HDI, 29% agree, 11% neither agree nor disagree and 15% disagree. This result suggests that FDI influences poverty positively, thus suggesting that increases in FDI inflow into the ECOWAS region increase the Human Development Index in the region. Hence, an increase in HDI means improvements in the quality of life of individuals in the ECOWAS region, aligned with poverty reduction. Previous researches have indicated a positive relationship exists between FDI and poverty, when using HDI as a proxy (Ahmad et al., 2019; Lehnert et al., 2013; Gohou and Soumare, 2012; Reiter and Steensma, 2010; Sharma and Gani, 2004).

This result complements the finding of the quantitative analysis in Chapter Five. In section 5.7, Table 5.31 shows that FDI positively affects poverty in the ECOWAS region, when using HDI as a poverty measure. Both results are consistent with the results of previous researches in the empirical literature (see Chapter Two).

**Figure 6.7: Results for Question 7c**



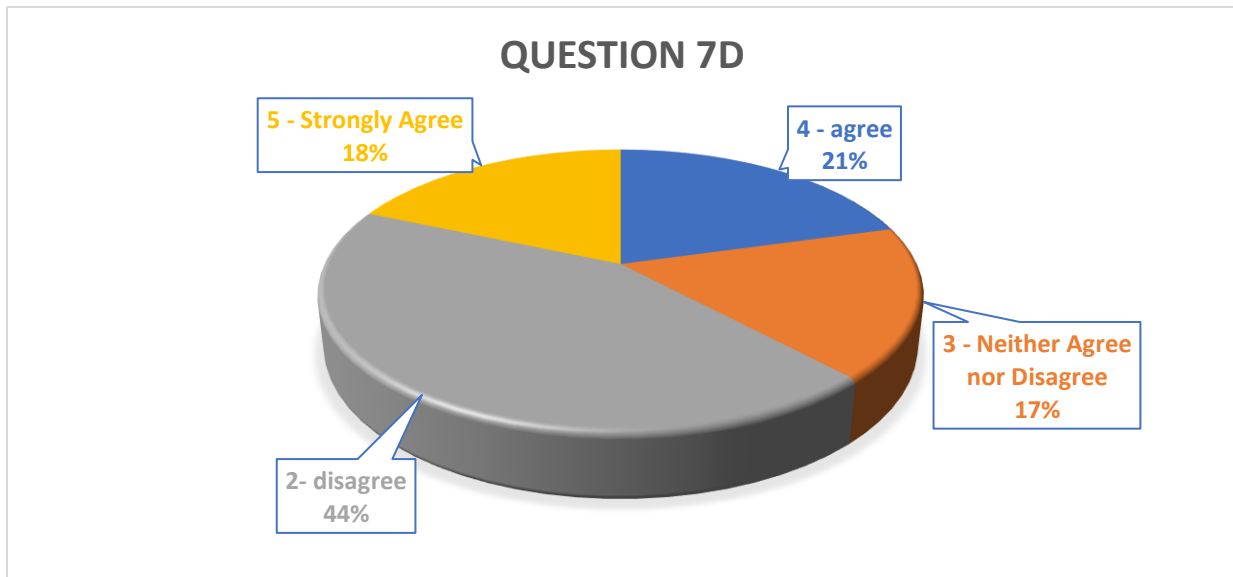


**d. Household Consumption**

Question 7d of the questionnaire (see Appendix A) states: ‘FDI has a more significant impact on household consumption as a poverty measure in the ECOWAS.’ Figure 6.8 shows the responses in this regard. Based on the results of the 92 questionnaires received and analysed, 44% of the respondents disagree that FDI has a more significant impact on poverty, 21% agree, 18% strongly agree and 17% neither agree nor disagree. This result indicates that FDI does not have a significant impact on poverty, when using household consumption as a proxy. This denotes that an increase in the inflow of FDI into the ECOWAS region does not reduce poverty in line with household consumption decreasing.

Similarly, this result complements the findings of the secondary data quantitative analysis in Chapter Five. In section 5.7, Table 5.33 shows that increases in FDI decrease the household consumption of individuals in the ECOWAS region and hence increase poverty.

**Figure 6.8: Results for Question 7d**



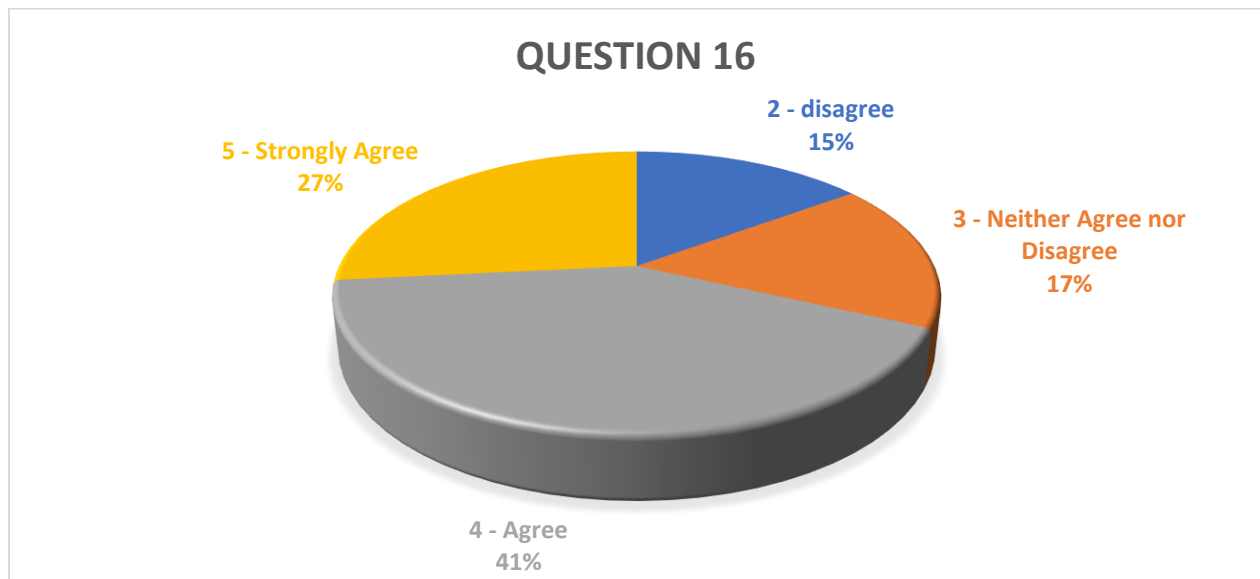
In concluding the answer to the research question, what are the effects of FDI on the various poverty measure in the ECOWAS region? The results of the primary data analysis are mixed and sensitive to poverty measures used in the study. All four poverty measures used in the study

produced different results. The impact of FDI on poverty, using economic growth as a poverty measure, indicates a positive result. The impact of FDI on poverty in the ECOWAS region, using infant mortality as a poverty measure, is inconclusive. The impact of FDI on poverty, using HDI as a poverty measure, reveals a positive result. Finally, the impact of FDI on poverty in the ECOWAS region, using household consumption as a poverty measure, indicates a negative result. These outcomes complement the finding of the quantitative analysis. The results of the secondary quantitative analysis are also mixed, and there are both positives and negatives in both studies (see Chapter Five). Hence, it can be concluded that the impact of FDI on poverty in the ECOWAS region is dependent on the poverty measure adopted for the study.

### **6.3.3 Research Question 3: What are the countries' specific differences resulting from FDI inflow on poverty reduction?**

To examine if FDI affects poverty more in some countries than in others, question 16 (see Appendix A) stated: 'FDI inflow decreases poverty more in some ECOWAS countries than in others.' Figure 6.15 shows the relevant responses. Based on the results of the questionnaire, 31% of the respondents agree that the rate of poverty reduction differs by country, 22% strongly agree, 27% neither agree nor disagree and 20% disagree. This result indicates that the effect of FDI on poverty reduction varies according to countries, which means the more FDI inflow a country within the region attracts, the more significant impact FDI will have on poverty reduction.

**Figure 6.15: Results for Question 16**



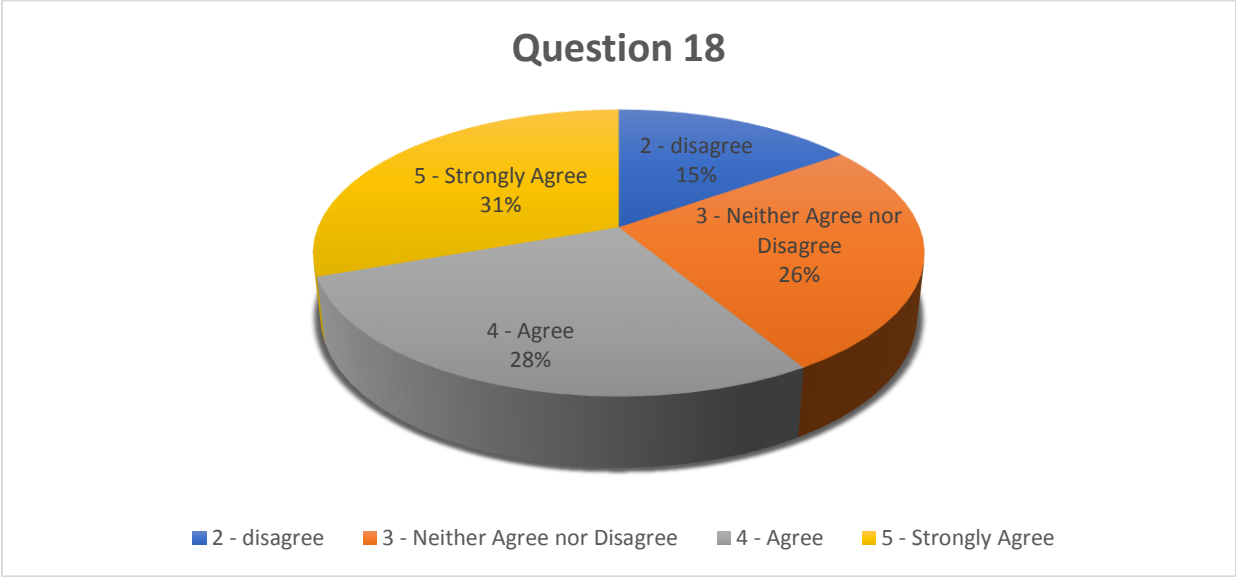
In addition, the comments section from the questionnaire revealed the following critical factors associated with country-specific differences in the alleviation of poverty in the ECOWAS: GDP growth rate, FDI characteristics/sectors which attract FDI, corruption, political instability and civil unrest and government policies and strategies. In the questionnaire, the participants were asked in question 18 to react to the following: 'The following factors have contributed to FDI affecting poverty more in some ECOWAS countries more than in others:

- i. GDP growth rate
- ii. FDI characteristics/sectors which attract FDI
- iii. Corruption
- iv. Political instability and civil unrest
- v. Government policies and poverty alleviation strategies in the country

Based on the responses to the questionnaire, a total of 31% respondents strongly agree, 28% agree, 26% neither agree nor disagree and 15% disagree, as illustrated in Figure 6.16. This result

suggests that the above factors are critical in explaining why FDI influences poverty more in some countries than in others in the ECOWAS region.

**Figure 6.16: Question 18**



The result of this primary data analysis complements the secondary data quantitative results in Chapter Five in terms of country-specific differences.

**6.4 Summary of the Primary Data Quantitative Analysis Findings**

In summarising the results, the researcher states the following research questions and their findings.

**Research Question 1: How have the inflow of FDI trend into the ECOWAS region changed in the period specified (1990-2019), and why?**

Based on the responses and their analysis, it is concluded that FDI inflow into the ECOWAS region significantly changed in the form of an increased between 1990 and 2018. This complements the initial finding in the analysis of the secondary data. Both results demonstrate that FDI in the ECOWAS region changed positively in the form of an increased between 1990 and 2018 and that natural resources, government policy reforms, trade liberalisation, financial development, robust

institutions and infrastructure are some of the critical factors associated with the reasons for the change.

**Research Question 2: What are the effects of FDI on poverty reduction in ECOWAS?**

Based on the responses and analysis, it is concluded that the impact of FDI on poverty is mixed. All the questions asked about the four poverty measures used in the study produced different results. The majority (47%) of the respondents to question 7a strongly agreed that FDI has a more significant impact on economic growth as a poverty measure in the ECOWAS. Similarly, the majority (45%) of the respondents to question 7c strongly agreed that FDI has a more significant impact on the Human Development Index as a poverty measure in the ECOWAS. However, 33% of the respondents neither agreed nor disagreed with question 7b that FDI has a more significant impact on infant mortality as a poverty measure in the ECOWAS. Lastly, the majority (44%) of the respondents to question 7d disagreed that FDI has a more significant impact on household consumption as a poverty measure in the ECOWAS. These results complement the findings of the secondary data quantitative analysis (see Chapter Five). The results of the secondary data analysis are also mixed, and so there are both positives and negatives in both studies. Hence, it can be concluded that the impact of FDI on poverty in the ECOWAS region is dependent on the poverty measure adopted for the study.

**Research Question 3: What are the countries' specific differences resulting from FDI inflow on poverty reduction?** The results of the primary data analysis indicate FDI influences poverty more in some countries than in others within the ECOWAS region. Moreover, GDP growth, FDI characteristics/sectors that attract FDI, corruption, political instability and civil unrest and government policies and poverty alleviation strategies are some of the critical factors used to explain the reason for these country-specific differences. This result complements the findings of the secondary data analysis.

## **6.5 Chapter Summary**

In summary, this chapter has presented the results and analysis of the primary data, by establishing a connection to the three research questions, showing how the data linked to the questions and revealing an overview of the findings. In the summary section, the chapter presented all of the results together, to look specifically at the impact of FDI on poverty. This chapter has broadened our understanding of the views of respondents on the subject.

In Chapter Seven, which now follows, the researcher discusses both primary and secondary data analysis findings and relates them to the theories and pieces of literature discussed in the earlier Chapters Two and Three. In this discussion, the researcher focuses on completing the circle by combining and mixing the both results. Finally, in Chapter Eight, 'Summary and Policy Implications', the limitations of the entire study are discussed, and recommendations for further research are also suggested.

## CHAPTER SEVEN

### DISCUSSION OF PRIMARY AND SECONDARY QUANTITATIVE DATA RESULTS

#### 7.0 Introduction

In this chapter, the researcher discusses the results for both the primary and secondary quantitative data analysis. It combines the findings from previous chapters and links them to previous studies and a theoretical body of knowledge, taking into consideration the impact of FDI on poverty in ECOWAS. Chapter Five presented a quantitative analysis of the secondary data, followed or complemented by the primary quantitative data analysis from the questionnaire. Based on these analyses, this chapter discusses the key findings from the research.

#### 7.1 Discussion of the Research Findings

Before discussing the findings, it is important to remind the reader that this research has answered the following research objectives and questions throughout the entire thesis. The research objectives are:

- f. To analyse FDI inflow trends for the ECOWAS region for the period 1990-2018.
- g. To examine background information on ECOWAS, FDI and poverty.
- h. To examine various poverty measures/indicators critically.
- i. To investigate and assess the impact of FDI on poverty in the ECOWAS region.
- j. To examine if there are specific differences in terms of some countries within the ECOWAS region achieving poverty alleviation more than others?

The objectives above inspired the following research questions:

- v. How have the inflow of FDI trend into the ECOWAS region changed during the period specified (1990-2018), and why?
- vi. What are the impacts of FDI on poverty in the ECOWAS region?
- vii. What are the specific differences in terms of some countries within the ECOWAS region achieving poverty alleviation more than others?

- viii. Does FDI have a significant impact on poverty in the ECOWAS region [null hypothesis,  $H_0$ = no effect] ?

The research has fulfilled all the set objectives and research question throughout the various chapters of the research using a mixed-methods quantitative methodology and various econometrics techniques and hence we discuss the findings of the research.

#### **7.1.1 Discussion of Research Finding 1**

Research Question 1: How have the inflow of FDI trend into the ECOWAS region changed in the period specified (1990-2018), and why?

##### **Discussion:**

*The results of both the secondary and primary data analysis indicates that the trend of FDI inflow into ECOWAS countries, and ECOWAS generally, significantly increase between 1990 and 2018. The results of the primary quantitative data analysis complemented the secondary data quantitative analysis by further identifying natural resources, government policy reforms, trade liberalisation, financial development and infrastructure as the key factors associated with the increase in FDI flowing into the ECOWAS region.*

This result reveals that between the period 1990-2018 FDI inflow to ECOWAS has increased. However, it still lags in comparison to other regions, and hence its impact on poverty is not too significant (see section 3.2.2.1). FDI inflow is considered a critical factor for economic development and poverty reduction. A surge in FDI inflow in host countries is expected to positively reduce poverty and hence, the reason why countries are desperate to attract FDI. In section 3.2, it is shown that inward FDI has increased and that natural resources, institutions, infrastructure, political risk, human capital and openness to trade are the main factors that attracts FDI to ECOWAS. Ajide and Raheem (2016), states why FDI is central to ECOWAS: “FDI promote export of the host countries; the bloc is also known for inadequate capital resources owing to dwindling contributions of each member country to the bloc’s account pool; and each



member country within the bloc has been entrapped for a long time in a vicious cycle of poverty.” Therefore, attracting more FDI would serve the twin purposes of reducing both the rates as well as incidences of poverty, while at the same time, creating improvement in the over-all human well-being as stated in the SDGs.

This finding represents a significant milestone for ECOWAS, considering the persistent lack of resources to finance development projects, growth, poverty reduction and achieve the SDGs. Therefore, the finding of this research is vital for policymaking, as the increase in FDI will have a spillover effect on the region and its member states. The implication of increased inward FDI will be: additional funds provided for governments of ECOWAS nations to undertake vital development projects (infrastructure, schools, and hospitals) and poverty reduction, transfers knowledge and products to local firms, which in turn enhances their technological knowhow through productive spillover (Demena et al., 2017; Osabutey et al., 2014; Alfaro et al., 2009) and provide opportunities, mainly with regards to employment creation and training for home-grown workers (Ucal, 2014; Hemmer et al., 2002).

Overall, the result is consistent with findings of previous studies (Sane, 2016; Anyanwu and Yameogo, 2015; Anyanwu and Erhijakpor, 2014) that found the inflow of FDI to ECOWAS regions has increased over the years. Also, this result is similar with previous studies as it finds natural resources (due to its abundance), government policies, trade liberalisation, and infrastructure development are key determinants of FDI attractiveness. This is very significant for effective and efficient policy design as to how governments should continue to attract more inward FDI into ECOWAS for the foreseeable future and how natural should be managed well for the benefits of all citizens and poverty reduction. Although, it is stated in the literature that most governments within the sub-region have implemented policies over the years geared towards attracting FDI under structural adjustment (United Nations Economic Commission for West Africa Report, 2015). However, policy vacuums and/or policy ineptitude affect the inflow of FDI to ECOWAS

nations. Therefore, the need for policy coordination as nations seek to attract new investments is imperative in the ECOWAS (Osabutey and Debrah, 2012; injarak, 2007).

However, the result differs with other previous studies in several ways. Firstly, in terms of methodology. While this study has used both primary and secondary data collection (mixed method quantitative methodology) to answer the research question, previous studies have only used secondary data (Sane, 2016; Anyanwu and Yameogo, 2015; Anyanwu and Erhijakpor, 2014) and this has increased the validity and robustness of the results. Secondly, previous studies used shorter time frame between 1990-2014. However, this study has extended the study time frame to 1990-2018. This study has covered more periods than other similar studies. Lastly, this study has used more FDI determinants not used in previous studies of FDI determinants. This finding is important as it has contributed to our understanding of FDI inflow to ECOWAS and hence to contribute to knowledge.

### **7.1.2 Discussion of Research Finding 2**

Research Question 2: What are the impacts of FDI on poverty in the ECOWAS region?

#### **Discussion:**

*The result of the secondary quantitative analysis shows that the impact of FDI on poverty in the ECOWAS region is mixed. FDI has a positive effect on poverty when using HDI and GDP per capita as a measure of poverty. However, FDI has a negative effect on poverty when using HCON as a measure for poverty, and the results of the impact of FDI on poverty when using MORT as a poverty measure are inconclusive. Therefore, it is concluded that the overall impact of FDI on poverty in the ECOWAS region is sensitive to the poverty measure, and it is also dependent on the econometric techniques adopted in the study (see Chapter Five).*

*Similarly, the result of the primary quantitative data analysis complemented the findings from the secondary data quantitative study. Based on the responses and analysis of the questionnaires (see Appendix A,) it is concluded that the impact of FDI on poverty is mixed. All of the questions asked about the four poverty measures used in the study produced different results. The majority (47%) of the respondents to question 7a (see section 6.3.2) strongly agreed that FDI has a more significant impact on economic growth as a poverty measure in the ECOWAS. Similarly, the majority (45%) of the respondents to question 7c (see section 6.3.2) strongly agreed that FDI has a more significant impact on the Human Development Index as a poverty measure in the ECOWAS. However, 33% of the respondents neither agreed nor disagreed with question 7b (see section 6.3.2) that FDI has a more significant impact on infant mortality as a poverty measure. Lastly, the majority (44%) of the respondents to question 7d (see section 6.3.2) disagreed that FDI has a more significant impact on household consumption in this regard. Hence, it can be concluded that the impact of FDI on poverty in the ECOWAS region is sensitive to the poverty measure adopted for the study.*

This result is consistent with previous studies undertaken in other developing nations and in Africa (see section 3.2). In particular, the result matches Magombeyi and Odhiambo's (2018) empirical finding that the impact of FDI on poverty reduction is sensitive to the poverty reduction proxy and Kaulihowa and Adjasi (2018), finding that the optimal efficacy of FDI welfare impacts in Africa differs across the various dimensions of welfare.

However, the result contrast with other previous studies in various ways. Firstly, this is the first study to investigate the impact of FDI on poverty in the ECOWAS region. This is significant since ECOWAS countries strive to achieve the SDGs, economic development and poverty reduction remains the primary focus for their development initiatives. In addition, FDI is strategically positioned to help these countries achieve these goals, therefore, understanding their impact on poverty is important for formulating and reviewing development policies in these countries. Secondly, a review of the extant literature shows, the impact of FDI on poverty are often mixed

with some studies that have found positive effects, while others claim that FDI increases host country poverty. The results of this study somewhat explain the reasons for these differences, as it has been shown that FDI reduce poverty of some countries, while it does not in other parts of the region. These can be explained in two ways. First, it is associated with methodological and econometric techniques used to collect and analyse data. Most previous studies have only used a quantitative or qualitative methodology and also a single econometric technique. This study enhances the validity and robustness of the results by using four estimation techniques OLS, fixed effects, random effects and GMM. The four different econometric techniques enables comparison and reveals different results. This is important for policy making as ECOWAS countries gear towards ending extreme poverty by 2030, policy markers and governments should be weary of the fact that the econometric techniques adopted is key to producing maximum impact of FDI and hence for effective planning and policy design.

Secondly, the study also adopted four poverty measures to enhance the robustness of the study and compare poverty measures: The Human Development Index (HDI), infant mortality rate (MORT), household consumption (HCON) and GDP per capita (LNGDPP). However, most previous studies have used a single or two poverty measures. All the poverty measures used for the study produces different results except HDI and GDP. This is similarly important for guiding policy making. The different poverty measures provide insights to countries about the contribution of FDI to the various sectors of the economy. For example, FDI has a negative impact on household consumption (HCON). The negative impact of FDI on HCON is associated with FDI being concentrated in the extractive industry, which provides limited employment and hence limited income for individuals to expend and also, MNCs' substantial profits are repatriated to their home countries, with not much invested locally to boost domestic consumption. This is a very important result which can be used by governments and policy markers to boost FDI in other sectors and encourage MNCs to reinvest profits. Effective policy design will encourage FDI diversification and limit profit repatriation in order to boost economic growth and poverty reduction. This finding has contributed to the extant literature methodologically and empirically.

However, future research is encouraged to delve more into the debate by examining the adequacy of poverty measures to determine FDI impact.

### **7.1.3 Discussion of Research Finding 3**

Research Question 3: Are there any country-specific differences in achieving poverty alleviation within ECOWAS?

#### **Discussion:**

*The results of both the primary and secondary quantitative data analysis show that FDI impact poverty differently among countries, and the magnitudes of these differences are equally sensitive to the measure adopted for poverty. Using the OLS estimation technique and four poverty measures (HDI, MORT, HCON and LNGDPP), the results indicated varying magnitudes of country-specific differences. With HDI as a poverty measure, Liberia has the highest positive magnitude of 0.120% and Guinea Bissau (GUB) the smallest at 0.0344%, whilst Nigeria at 0.125%, Mali at 0.155% and Cote D'Ivoire with 0.122% have the highest negative magnitudes. Using MORT as a poverty measure, Nigeria has the highest positive impact of 71.73% and Togo the smallest of 8.674%, whilst Liberia at 64.87% has the biggest and Senegal the smallest at 14.57% negative magnitude on poverty. Using HCON as a poverty measure, the result shows that in terms of magnitude, Liberia has the biggest of 72.96% and Cote D'Ivoire the smallest at 1.029%, whilst Burkina Faso the highest negative magnitude of 7.523% and Benin the smallest at 0.386%. Lastly, using LNGDPP as a poverty measure, Liberia has the largest positive magnitude of 1.954%, and Mali has the biggest negative impact of 0.604%. This result indicates that the poverty measure adopted in the study is key to explaining the magnitude of country-specific differences in terms of the impact of FDI on poverty in the ECOWAS region. The results of the primary data quantitative analysis indicate that there are specific differences between countries, and that GDP growth rate, FDI characteristics/sectors which attract FDI, corruption, political instability and civil unrest, government policies and poverty alleviation strategies are namely the factors used to explaining the differences.*

The result shows that FDI impact poverty differently for each ECOWAS country. The most critical aspect of the result is that the magnitude of the impact varies amongst countries and the degree of the magnitude are equally sensitive to the measure adopted for poverty. This is significant as the result will help policy makers and governments to understand the level of FDI impact on poverty in their respective countries. This result is very meaningful and it is key to understanding the impact of FDI on poverty at country specific level in ECOWAS. This result corroborates the findings of a great deal of the previous work in this field (Soumare, 2015; Gohou and Soumare, 2012) that confirms significant differences between countries in Northern Africa and Africa regions.

However, this result differs from previous studies in the following ways. A review of the literature shows, the effects of FDI on poverty are often mixed with some studies having positive, negative and insignificant effect. The results of this study somewhat explain the reasons for these differences, as it has been shown that FDI reduce poverty more in some countries, while it does not in other parts. These can be explained in two ways. First, most ECOWAS countries are characterised by huge development gaps between urban and rural areas of the same country. This gap plays a crucial role in the ultimate goal of most foreign investment projects, as they are mainly located in urban areas, with much better infrastructure and more affordable workforce. This widens the gap of opportunity between the poor, who live in predominantly rural areas and live in the lowest quantities of poor individuals, and the already affluent city dwellers. This is important because, as a review of household surveys from ECOWAS countries shows, city residents have a much higher level of well-being than their rural counterparts.

Secondly, in addition natural resources, which remain the main engines of foreign investment in the ECOWAS, a significant part of foreign investment in the region also goes to the services sector, which benefits some parts of the region more than others. The characteristics of FDI or the sector to which FDI flows are important for the overall impact on poverty reduction. The majority of the inward FDI to ECOWAS countries seeks natural resources, and hence it flows to

the extractive industry, which is capital-intensive. FDI particularly labour intensive FDI provides direct and significant support to lessening poverty otherwise triggered by unemployment (Ucal, 2014). FDI concentrated in the extractive industry influences poverty less, due to its minimal impact on employment. The agricultural sector accounts for a significant percentage of the employed, but FDI flowing into agriculture is very limited in ECOWAS, hence the country-specific differences in inward FDI flow on poverty. The results of this study further find economic growth as a pivotal factor in attracting FDI, and growth tends to increase the income of the poor. Therefore, countries with high economic growth reduce poverty more in the ECOWAS region than countries with low growth. This provides an opportunity for policymakers to improve the impact of FDI on those countries with low economic growth. Such a policy should be aimed not only at attracting foreign investors, but also at creating opportunities for rural residents to benefit from FDI flows.

Lastly, political instability and civil unrest pose a serious risk that serve as a major impediment to the inflow of FDI to ECOWAS countries. ECOWAS countries are plagued with political instability and civil unrest. For example, Sierra Leone and Liberia civil war forced the closure of foreign firms in the countries, while Nigeria continues civil disturbances affect FDI. Therefore, political instability and civil unrest is used to explain the reason why FDI impact some countries more than others in the ECOWAS region. Other factors to include corruption, government policies and poverty alleviation strategy in the country similarly explain the country-specific differences of FDI impact on poverty in the ECOWAS. Future research on this issue may focus on studying the impact of FDI flows to specific countries using case studies.

## **7.2 Overall Assessment of the Findings**

The results from both the primary and secondary data quantitative analyses have answered the research questions and objectives stated in Chapter One. This chapter has deepened our understanding of how FDI inflow in ECOWAS has changed, and why. Also, the chapter reveals the

results of FDI impacts on poverty and the country-specific differences in the alleviation of poverty in the ECOWAS region.

### **7.3 Chapter Summary**

In summary, the discussion chapter has linked the findings of this research to the research questions initially stated in Chapter One. The data collection process, the quality of the data, the choice of the variables and the analysis techniques were adequate to provide enough answers to the research enquiry. The results of both the primary and secondary quantitative studies show the impact of FDI on poverty, which is very important for the ECOWAS region, as we now know it is dependent on the poverty proxy and the econometric approach. The next chapter will offer recommendations based on the findings and the limitations encountered during the study.



## CHAPTER EIGHT

### SUMMARY AND POLICY IMPLICATIONS

#### 8.0 Introduction

This thesis has examined the impact of FDI on poverty in the ECOWAS region. It also considered the FDI inflow trend to the ECOWAS region and the country specific differences of the impact of FDI on poverty. This chapter aims to summarise the key findings, policy implications and the knowledge contributed by this research. Also, it proffers recommendations, discusses limitations encountered during the study and makes suggestions for future research.

#### 8.1 Summary of Main Findings

The main aim of the thesis was to investigate and assess the impact of FDI on poverty in the ECOWAS region. FDI plays a significant role in a country's development efforts including supplementing domestic savings, employment generation and growth, integration into the global economy transfer of modern technology and raising the skills of local supplies. The study adopted a mixed method quantitative approach (secondary and primary data), a systematic literature review method and four estimation techniques (OLS, FE, RE, and GMM) to fulfill the research objectives and answer the research questions. The discussion chapter has sufficiently addressed the research question using the findings derived from Chapters Five and Six. The main findings of the thesis are Summarised as follows:

##### **Key Findings on FDI inflow Trend Analysis**

The inflow of FDI to host countries is considered a significant factor associated to increased economic growth and poverty reduction. Similarly, the analysis of the FDI inflow trend to the ECOWAS region was aimed at its development impact. The result of both the secondary and primary data analysis indicates that the trend of FDI inflow into ECOWAS countries, and ECOWAS generally, significantly increase between 1990 and 2018. The results of the primary quantitative

data analysis further identify natural resources, government policy reforms, trade liberalisation, financial development and infrastructure as the key factor associated with the increase in FDI flowing into the ECOWAS region.

### **Key Findings from Empirical Analysis**

The impact of FDI on poverty in the literature is plagued with controversies. Many previous studies have found FDI to impact poverty positively, others found a negative impact while others found an insignificant impact. The result of this study using both our secondary and primary quantitative analysis shows that the impact of FDI on poverty in the ECOWAS region is mixed. FDI has a positive effect on poverty when using HDI and GDP per capita as a measure of poverty. However, FDI has a negative effect on poverty when using HCON as a measure for poverty, and the results of the impact of FDI on poverty when using MORT as a poverty measure are inconclusive. Therefore, it is concluded that the overall impact of FDI on poverty in the ECOWAS region is sensitive to the poverty measure, and it is also dependent on the econometric techniques adopted in the study.

### **Key Findings on Country Specific Difference**

The impact of FDI on poverty generally relates to economic growth, technology transfer, revenue etc. However, the level of FDI impact varies from country to country. The result of both the primary and secondary quantitative data analysis reveals that FDI impact poverty differently among countries in the ECOWAS region, and the magnitudes of these differences are equally sensitive to the measure adopted for poverty. The results of the primary data quantitative analysis further indicate that GDP growth rate, FDI characteristics/sectors which attract FDI, corruption, political instability and civil unrest, government policies and poverty alleviation strategies are namely the factors used to explain the country specific differences in the ECOWAS region.

## **8.2 Policy Implications of the Study**

The following are the policy implications of the study of FDI and poverty in the ECOWAS region:

### **Attract Additional FDI inflow to ECOWAS**

FDI inflow into the ECOWAS region increased significantly between 1990 and 2018, however, on a country basis, the current annual FDI inflow trend for specific countries (Nigeria, Guinea, Liberia and Sierra Leone) between 2016 and 2018 decreased, thus harming economic growth and efforts to reduce poverty. The policy implication for ECOWAS countries is to explore more avenues to attract FDI inflow. In the ECOWAS poverty is decreasing, but nations differ in their various development dimensions and the persons living below the international poverty line (\$1.90 a day) are estimated to be around 43% in ECOWAS (West Africa Economic Outlook, 2018). Attracting additional FDI inflow, means providing more funds for ECOWAS governments to undertake development projects, increase economic growth and poverty reduction since it is argued that promoting export, inadequate capital resources, and the vicious cycle of poverty are the principal reasons why FDI is central to ECOWAS (Ajide and Raheem, 2016). Therefore, attracting more FDI would serve the twin purposes of reducing both the rates as well as incidences of poverty, while at the same time, creating improvement in the over-all human well-being as stated in the Sustainable Development Goals (SDGs).

Similarly, ECOWAS was one of the regions or sub-regions in Africa that failed to achieve the Millennium Development Goals(MDGs) and therefore needs to intensify its efforts to eradicate poverty by 2030, as more than 60% of the countries in the region continue to register more than 40% of their people living in extreme poverty. Currently, it is estimated that the cost of ending extreme poverty (SDG 1) would be about \$66 billion annually until 2030. However, ECOWAS countries continue to face a persistent lack of resources to finance public and private capital investments, which has restricted their ability to spend money on the infrastructure and social services needed to accelerate growth and poverty reduction. Therefore, attracting additional will contribute meaningfully to ECOWAS economic development, poverty reduction and achieving the SDGs.

## **Economic Diversification**

FDI inflow to ECOWAS is mainly to the extractive industry, with the exception of few service industries. This is mainly due to the availability of natural resources. However, FDI to the extractive industry impacts poverty less compared to other sectors since the extractive industry is more capital intensive in nature and creates less employment opportunities. Therefore, for FDI to have a greater impact on poverty and contribute to attaining the SDGs, ECOWAS countries should design policies that lead to economic diversification. These policies should be in line with international standards and be able to attract FDI from all sectors, and not just the extractive sector. These policies should include the service sector and the extractive sector, but not solely from the point of view of extracting resources and exporting them; additionally, they should set up industries that will process the raw materials before being exported. This, in turn, will create more employment and reduce unemployment, which will influence poverty.

## **Political Instability**

FDI is important to host countries because of its potential to transfer knowledge and technology, create jobs, increase overall productivity, increase competitiveness and entrepreneurship, and ultimately eradicate poverty through economic growth and development (Ahmad et al., 2019; Consensus, 2002). Political stability is a key factor that attracts FDI into a host nation and it is widely recognised that economic development and poverty reduction is held back when the economy is politically unstable. Political stability builds confidence for investors, while the reverse discourages investors since it creates uncertainty and increases risks and, consequently, the cost of doing business in the country (Adi et al, 2015). The political risk assessment of member countries of the International Country Risk Guide (ICRG), which shows the degree of political uncertainty, shows that ECOWAS countries are unstable at the political level. This has a negative implication to attract FDI, therefore, ECOWAS should remain politically stable in order to attract more FDI.

## **Infrastructure**

FDI contributes to infrastructural development in the host country. A reliable and efficient infrastructure development promote economic growth and influences the investment potential and attractiveness of a nation. Despite its enormous mineral and other natural resources, ECOWAS has the lowest productivity of any region in the world. This is largely attributed to serious infrastructural shortcomings across all the subsectors: energy, water, sanitation, transportation, and communications technology. ECOWAS's infrastructure deficit limits regional-integration initiatives raise transaction costs of business and limits growth. Therefore, ECOWAS countries should improve their infrastructural development capability in order to improve the living standard of its citizens and attract more FDI. This should be done through several ways to include public private partnership agreements.

### **8.3 Theoretical Implication**

ECOWAS, like many other developing regions in the world, needs a large inflow of external resources to fill the savings and exchange gaps and leapfrog itself to sustainable level of growth to eliminate its current level of poverty. Therefore, governments, international donor organisations and other stakeholders should prioritise the need to test various econometrics approaches and decide on the most suitable option when studying the impact of FDI on poverty. This will help them adequately design policies based on accurate data. In addition, instead of relying on a single method or approach to study poverty, multiple measures should be employed alongside different econometric approaches. As the results reveal in this study, the impact of FDI on poverty is mixed, with both positive and negative results, and it is concluded that the result is dependent on the poverty measure and the econometric approach used. Therefore, ECOWAS governments and developmental agencies should consider very seriously the poverty measures they use when carrying out a study, in order to ensure they determine the maximum FDI impact on poverty and design the most effective policies.

#### **8.4 Research Contributions**

This thesis aimed to study the impact of FDI on poverty in the ECOWAS region. In the process of achieving its aim and objectives, theoretical, contextual and methodological contributions have been made. These research contributions to knowledge are discussed as follows.

First, the study of the impact of FDI on poverty in the ECOWAS region is unique. According to the researcher's knowledge, it is the first of its kind to be conducted in ECOWAS as a region, and this was made possible through the research gap established by the analysis of several previous empirical and theoretical bodies of literature that studied the impact of FDI on poverty. In Chapter Two, the analysis of previous empirical studies revealed the gap in the literature. Most of the previous studies on the impact of FDI on poverty focused on growth and other variables, and very few examined the direct relationship between FDI and poverty. Furthermore, even those studies that did examine this topic concentrated on developing country samples, Africa as a region, other sub-regions in Africa and single countries (Ahmad et al., 2019; Magombeyi and Odhiambo, 2018; Quinonez et al., 2018; Soumare, 2015; Uttama, 2015; Israel, 2014; Fowowe and Shuaibu, 2014; Ucal, 2014; Jalilian and Weiss, 2002). Moreover, studies that focused on ECOWAS (Adam 2018; Nagou, 2017; Sane, 2016; Ajide and Raheem, 2016; Ajide, 2014; Alege and Ogundipe, 2014; Adamu and Oriakhi, 2013; Eregha, 2012; Usman and Ibrahim, 2012) did not include FDI and poverty in the region. In this regard, and to the best of the researcher's knowledge, this is the first scholarly attempt to link the impact of FDI on poverty in ECOWAS.

Second, another contribution of this study relates to its methodology, namely a mixed-method quantitative approach. Previous researches investigating the impact of FDI on poverty mostly employed a single methodology in the form of either a quantitative or a qualitative approach. Consequently, this research sought to provide deeper insights with a mixed-method approach, using primary and secondary data. The primary data quantitative approach was incorporated to complement the findings of the secondary quantitative study and to provide additional insights into the impact of FDI on poverty in the ECOWAS region. Hence, it could be argued that this

combination adds confidence and validates the findings of the research, thereby contributing to the literature.

Third, the empirical findings of this research constitute a significant shift in our understanding of the impact of FDI on poverty in ECOWAS. In this regard, it is essential to remind the reader that the main result of the study shows that the impact of FDI on poverty in the ECOWAS region is mixed. The results of the analysis indicate a positive impact for HDI, a positive impact for GDP per capita, a negative impact for HCON and an inconclusive outcome for MORT as poverty measures. Hence, it can be concluded that the impact of FDI on poverty in the ECOWAS region is mainly dependent on the poverty measure used in the study, and it is also dependent on the econometric techniques adopted. This thesis clarified that in the context of analysing the impact of FDI on poverty, the poverty measure and the econometric techniques adopted are vital for the results. While this is a unique finding in this particular context, it encourages further research to form an understanding of the different poverty measures and econometric approach used to study this subject. Therefore, the study recommends that ECOWAS countries and development partners should be critical of the various poverty measures and econometrics tools when testing the impact of FDI on poverty.

Finally, the results from the study noted that the impact of FDI on poverty alleviation differs from country to country in the ECOWAS region. Using different poverty measures, the results show that the magnitude in this regard differs from geographically, based on the poverty measure (see section 5.6). This study has demonstrated that in assessing this factor, the poverty measure adopted for the study is vital in determining the extent of the magnitude of the country-specific differences in relation to the impact of FDI. The four poverty measures adopted in the study produced mixed results for each poverty measure (see 5.6). Therefore, it very prudent for ECOWAS countries to adopt several of them in a similar study and select the best example that will yield the maximum impact of FDI, in order to design policies that will attract more FDI inflows and reduce poverty in the region.

## **8.5 Limitations of the Research**

During the process of undertaking research, researchers mostly encounter constraints or limitations that affect the overall investigation; hence, acknowledging certain limitations is a must for any study. These limitations stem from the identification of several difficulties, obstacles and perhaps alternatives that were not feasible at the time of conducting the research, and this particular study is no exception in this regard, as explained below.

One limitation relates to the variables adopted herein. Although the study used key variables to survey the impact of FDI on poverty in ECOWAS, there were still other variables that were not included. For most of the initial variables selected for the study, especially poverty measures, for instance headcount and poverty gap, there were no data available. These variables were therefore not included, due to this reason. These omitted variables serve as a limitation, since it is possible that they could have changed the results if otherwise used during the study. Even with the variables selected, there were still some missing data for specific countries and periods.

Also, the researcher encountered a challenge in recruiting research participants, due to refusal to take part, thereby reducing the total numbers. Also, a few questionnaires were not received back, resulting in a response rate of 76.67%, and so it is possible that if all the questionnaires had been returned, the results might have been different.

Furthermore, most of the questionnaires were limited to English-speaking (Anglophone) countries, because ECOWAS countries speak different languages (English, French and Portuguese), due to their different historical colonisers. Since the researcher can only speak and write in English, and it was difficult to find participants in the francophone and Portuguese countries that could communicate in English, very few non-English speakers were selected in this regard.



Lastly, due to the expense involved, alongside time constraints and a lack of adequate funding to visit all 15 ECOWAS countries to conduct an interview, the researcher selected a less expensive solution to collecting data. Hence, it is possible that if the researcher had visited all of the countries and conduct interviews in person, more relevant data would have been gathered that was not stated initially, thus probably changing the final results.

### **8.6 Suggestions for Future Research**

This study has contributed to the existing body of knowledge on the impact of FDI on poverty. However, as with any empirical research within any body of knowledge, it offers a range of recommendations and suggestions for future research in the same or similar areas. Firstly, future research should adopt a mixed method (Quantitative and qualitative) for the qualitative, an indepth interview should be conduct rather than questionnaire. This will provide more in-depth knowledge and understanding about various factors affecting FDI and poverty relationship in ECOWAS. Secondly, future research should include the various poverty variables that were could not be used in this study. This will enable comparison of results. Lastly, future research should also separately examine the channels through which FDI influences poverty, to determine fully the impacts of FDI inflow on poverty.

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## **APPENDIX A**

### **Questionnaire**

#### **All questions related to FDI and Poverty in the ECOWAS region**

Dear Participant,

This questionnaire is intended to serve the purpose of collecting data for PhD research. The main aim of this study is to examine the impact of FDI on poverty in the ECOWAS region. As an important stakeholder (investor/government official/development partners/employee), I wish to invite you to participate in this research by completing this questionnaire, which is quite easy to fill and less time-consuming.

Would you like to participate in this research?

Yes

No

Questionnaire No:.....

Job Title: .....

**SECTION A: DEMOGRAPHIC**

Gender: a. Male  b. Female

Age: a. Up to 25  b. 26-35  c. 36 – 55  d. Above 56

Occupation: a. Government Employee  Company Employee

b. Professional  c. Business  d. Others

Work Experience: a. 5 years and below  b. 6-10 years  c.11-15 years

d. 16-20 years  e. 21 years above

Education Level: a. Diploma  b. Bachelor Degree  c. Master Degree

d. PhD  e. Others

**SECTION A. FDI TREND**

1 – Strongly Disagree    2 – Disagree    3 – Neither Agree nor Disagree    4 – Agree    5 – Strongly Agree

No.	Statements	1	2	3	4	5
1.	The trend of FDI inflow to ECOWAS countries has changed between 1990-2018					
2.	The FDI inflow trend to the ECOWAS region is increasing					
3.	The inflow of FDI to ECOWAS countries is uneven					
4.	The following factors have contributed to the change in FDI inflow trend to ECOWAS countries: Natural Resources Government policy reforms Trade Liberalisation Financial Development Robust Institutions					



	Infrastructure					
5.	The trend of FDI inflow to ECOWAS has changed compared to other Africa regions					
6.	FDI is more focused on the following sectors in ECOWAS: a. Mining b. Agricultural c. Exploration					

### SECTION B. FDI and Poverty

1 – Strongly Disagree    2 – Disagree    3 – Neither Agree nor Disagree    4 – Agree    5 – Strongly Agree

No.	Statements	1	2	3	4	5
7.	FDI has a more significant impact on the various poverty measures in the ECOWAS: Economic Growth (GDP) Infant Mortality Human Development Index (HDI) Household Consumption					

### SECTION C. Channels Through which FDI impact poverty

1 – Strongly Disagree    2 – Disagree    3 – Neither Agree nor Disagree    4 – Agree    5 – Strongly Agree

No.	Statements	1	2	3	4	5
8.	FDI offers employment opportunities in ECOWAS					
9.	Employment creation through FDI reduces poverty in ECOWAS					
10.	FDI increases corporate social responsibility in ECOWAS					
11.	Corporate social responsibilities practices affect poverty reduction in ECOWAS					
12.	Increase education and skills contribute to poverty reduction					
13.	Economic growth contributes to poverty reduction					
14.	FDI through taxes and royalties increases government revenues					
15.	Financial development contributes to poverty reduction					

**SECTION D. Differences in country's specific poverty reduction**

1 – Strongly Disagree    2 – Disagree    3 – Neither Agree nor Disagree    4 – Agree    5 – Strongly Agree

No.	Statements	1	2	3	4	5
16.	FDI inflow decreases poverty more in some ECOWAS countries than in others					
17.	The rate of poverty reduction differs in different ECOWAS countries					
18.	The following factors have contributed to FDI impacting poverty more in some ECOWAS countries than in others: GDP growth rate FDI characteristics/sectors which attract FDI Corruption Political instability and civil unrest Government policies and strategy towards poverty reduction in the country					

**Please give your suggestions regarding the impact of FDI on poverty in the ECOWAS**

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**Thank You**