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FOREIGN DIRECT INVESTMENT AND WELFARE: EVIDENCE FROM SUB-SAHARAN AFRICA

BY

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THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PHILOSOPHY (M.PHIL) DEGREE IN ECONOMICS

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DECLARATION

I, IDDRISU ABDUL GANIYU, hereby declare that this thesis is the original research undertaken by me under the guidance of my supervisors. Neither the whole nor a part of this thesis has been presented for another degree elsewhere. All references used in this work have been accordingly acknowledged.

I bear sole responsibility for any shortcomings.

…….. ……

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CERTIFICATION

I hereby certify that this thesis was supervised in accordance with procedures laid down by the University.

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Supervisor

DEDICATION

To the Andani and Musah families in consolidation of our family ties.

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LIST OF ACRONYMS/ABREVIATIONS

ARDL	Auto Regressive Distributed Lag
ASEAN	Association of Southeast Asian Nations
BEA	Bureau of Economic Analysis
DOLS	Dynamic Ordinary Least Squares
ECM	Error-Correction Modeling
FDI	Foreign Direct Investment
FSFDI	Financial Sector Foreign Direct Investment
FEM	Fixed Effect Model
FMOLS	Fully Modified Ordinary Least Squares
FE-IV	Fixed Effect Instrumental variable
GDP	Gross Domestic Product
GCF	Gross Capital Formation
GMM	Generalized Method of Moments
GNP	Gross National Product
GNI	Gross National Income
HDI	Human Development index
IMF	International Monetary Fund
MNE(s)	Multinational(s)
MDG(s)	Millennium Development Goal(s)
MPI	Multidimensional Poverty Index
MFR	Mixed Fixed and Random
NIPC	Nigerian Investment Promotion Commission
NEPAD	New Partnership for Africa's Development

OPHI	Oxford Poverty and Human Development Initiative
OLS	Ordinary Least Squares
PPP	Purchasing Power Parity
PVECM	Panel Vector Error Correction Model
REM	Random Effect Model
RE-IV	Random Effect Instrumental variable
SSA	Sub-Saharan Africa
UNCTD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNCTAD	United Nations Conference on Trade And Development
UN	United Nations
UMCs	Upper-Middle-income Countries
VIF	Variance Inflation Factor
WB	World Bank
WDI	World Development Indicator
2SLS	Two Stage Least Squares

ABSTRACT

Developing countries all over the world have come to realize the importance of FDI as an important source of economic growth and invariably welfare improvement. This is because it supplements domestic investment and brings positive spillover effects which are vital in economic development. As a result, developing countries including countries in SSA are now pursuing economic policies explicitly intended to improve conditions to attract FDI and to maximize its benefits.

This study empirically examines the direct and indirect (through economic growth) relationship between FDI and welfare improvement in SSA. It is based on data collected from the World development indicators, UNDP, and Freedom house, for 38 Sub-Saharan African countries covering the period 1990-2013. The study employs panel data estimation techniques in estimating the model. Taking unobserved country heterogeneity and endogeneity of the FDI variable into account, and correcting for serial correlation and heteroskedasticity, the findings were that FDI directly exerts positive impact on welfare improvement in SSA. However, there was no enough evidence to conclude on FDI's transitional impact (through growth effects) on welfare in SSA.

The study therefore indicates the need for Sub-Saharan African countries to adopt policies that will attract more FDI inflows into their respective countries in order to benefit from its presence.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In the year 2000 at the Millennium Summit of the United Nations, eight (8) Millennium Development Goals (MDGs) were established for a target year of 2015. This was as a result of the adoption of the United Nations Declarations. The aim of all these goals was to propel human development and improve welfare in developing and emerging countries. Unfortunately, as of 2013, progress towards achieving the goals were not uniform - some countries realized most of the goals but others were not on track to achieve any (Ki-moon, 2013). In particular, most African countries were off-track in achieving these goals. As it stands now, in the case of Sub-Saharan Africa (SSA), certain obstacles like population growth, conflict and fall in aid will make achieving many MDGs targets by the end of 2015 impossible despite increased in development assistance in 2013 (Ki-moon, 2013).

To correct the situation, there should be a significant amount of capital investments. The importance of foreign direct investment (FDI) cannot be under estimated, this has been confirm empirically by many authors including Jalilian and Weiss (2002), and Gohou and Soumaré (2012). "FDI is defined as the investment made to acquire a lasting management in an enterprise operating in a country other than that of the investor" (WorldBank, 1990). In most African countries, the driving force of growth is the private sector, as a result, FDI as an important source of capital investment is needed to achieve the MDGs. According to Assembly (2000), SSA can achieve its MDG of reducing poverty rate by half at the end of 2015 if FDI increases. Again, the New Partnership for Africa's Development (NEPAD) declaration has stressed the importance of FDI in

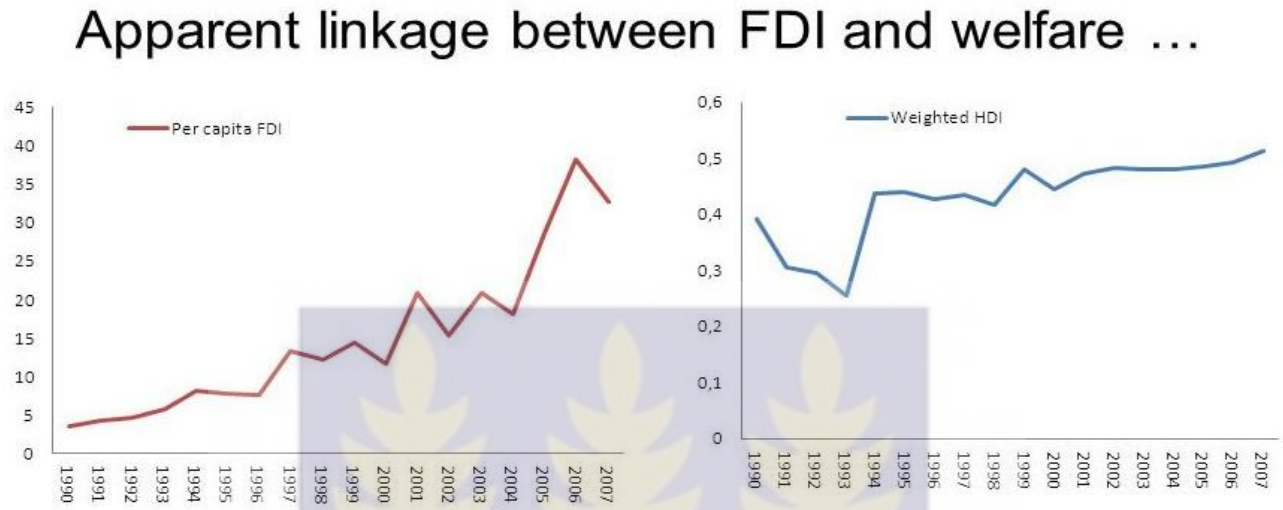
improving welfare as it stated that, for SSA to achieve the MDG, an annual resource gap of US$64 billion (approximately 12% of GDP) have to be filled (Asiedu, 2006) . This calls for large finance from abroad since income level and domestic savings in SSA are woefully inadequate.

However, as a result of the financial and economic crises, foreign assistance to the sub region has been falling. Besides, most developed countries have started restricting capital outflows by putting up some fiscal and economic policy measures[1], thus worsening the chance of SSA in achieving the MDGs (Gohou and Soumaré, 2012). As a result, resources from FDI has become an important factor capable of achieving the welfare improvement aim (MDG1).

According to the United Nations Conference on Trade And Development UNCTAD (2012), reception of FDI to Africa has increased in recent decades in terms of its average net inflows per capita as well as its proportion of the gross domestic product (GDP). This trend has been consistent with the improvement of Human Development Index (HDI) and real per capita GDP at the same time (United Nations Development Programme (UNDP, 2010).Figure 1.1 shows the relationship between FDI and HDI from 1990 to 2007.

[1] Some of these policies are; macroeconomic adjustment, ban on foreign exchange forward transactions, freezing the trading of short term treasury bills, lengthening the maturity of domestic debt, practical restrictions on transfers abroad by nonresidents.

Figure 1.1: FDI and HDI trends in Africa (1990-2007)



Source: G. Gohou and I. soumare (2010)

This means that an increase in FDI leads to better welfare or decrease in poverty. According to Jenkins and Thomas (2002), FDI also increase tax revenue, add to integration of international trade, help in the development of human capital of the host country, and stimulate local investment. No wonder currently, the economic policy strategy followed by most African countries is clearly intended to boost FDI inflows to those countries. For example, according to Jenkins and Thomas (2002), in the past few decades, many African countries have implemented some economic reforms that includes, privatization of state owned assets and liberalization of domestic markets. This has had influence on the trend and inflow of FDI to those countries. However, despite an appreciable increase in global flows, on average Africa has failed in relative terms in attracting FDI. Even South Africa, which stands out in Africa in terms riches and development has attracted relatively less FDI than expected, in the global statistics, despite their investor-welcoming macroeconomic policy framework (Jenkins and Thomas, 2002).

Furthermore, there are regional differences within the African region in terms of impact of FDI on welfare improvement. The welfare improving impact of FDI is felt more in some regions than others. Empirically, Gohou and Soumaré (2012) have investigated the impact of FDI on welfare in Africa and its regions. They find that, the welfare improving effect of FDI was higher in Central and East Africa than Northern and Southern Africa, but ambiguous in West Africa. They concluded that, the impact of FDI on welfare is felt more in poorer countries than in richer countries. This can be explained for various reasons, ranging from the direction of flow of FDI as a result of the region's macroeconomic policy framework to socio-political reasons[2]. As stated by (Jenkins and Thomas, 2002), the reasons foreign investors feel reluctant to invest in Southern Africa included corruption, crime, political insecurity and economic instability. This can be applicable to the whole of Africa, as similar factors are raised by Dupasquier and Osakwe (2006) in assessing FDI Performance, challenges, and responsibilities in Africa. Dupasquier and Osakwe (2006) identified Factors such as political and macroeconomic instability, low growth, weak infrastructure, poor governance, inhospitable regulatory environments, and ill-conceived investment promotion strategies as responsible for the poor FDI record of the region.

Poverty remains a cancer in African countries, 48% of people in SSA are living on less than $1.25 per day (WorldBank, 2013). Therefore efforts should be made to improve welfare, and clearly, international capital inflows are essential in its eradication. Rural and urban unemployment is a key contributing factor to the existence of poverty (Jenkins and Thomas, 2002). This is because unemployment stagnates or even lowers the income of the local population. Therefore, investment is important because it creates job opportunities directly in the formal sector and indirectly in the

[2] Whether FDI is directed to capital-intensive, labor intensive or pro-poor sectors

informal sector of an economy. There is an empirical evidence that FDI has a positive impact on employment in developing countries (Aaron, 1999) FDI is also necessary in closing savings-investments gap in SSA when domestic resources to finance investments are inadequate. For instance, according to Dupasquier and Osakwe (2006), the gap between domestic savings and investment in SSA was -1.9% of GDP within the 1975-1984 and the period 1995-2002 recorded a gap of 1.0% of GDP.

Empirical studies on the transitional effect of FDI on welfare improvement has generally been given less attention. To the best of my knowledge no such study exist for African countries. Theoretically, FDI improves welfare at the macroeconomic level where the overall net transfer of revenues of a country is positive (Gohou and Soumaré, 2012). In this case, there is the likelihood that the country's total investments will be increased by FDI which is expected to increase economic growth. On this bases, other researchers have concentrated on the impact of FDI on economic growth, with the assumption that, economic growth is highly and negatively correlated with welfare (see Alfaro (2003); Alfaro, Chanda, Kalemli-Ozcan, and Sayek (2004)). This therefore mean that FDI has a transitional effect on welfare improvement through economic growth. Moran's (1998) works on the Benign model which formed the theoretical basis of this study also suggest that FDI reduces poverty directly by exerting positive influence on government policy and indirectly through income equality effects and growth effects.

Despite the importance of FDI in improving welfare in Africa, there is a dearth of research on the direct relationship between FDI and welfare and none on the indirect relationship.

Owing to the above discussions, it is important to assess the extent to which FDI improve welfare in SSA both directly and indirectly. The study differs from previous literature in the

sense that, to the best of my knowledge, it is the first study to investigate both the direct and indirect effects of FDI on welfare improvement in SSA, using HDI data from UNDP datasets. What is predominant in the literature is theoretical argument that FDI indirectly improves welfare through economic growth.

1.2.Problem Statement

The increase in FDI inflows into developing and emerging economies has long been considered an essential element for economic growth and improvement of welfare. Jalilian and Weiss (2002) has examined the causality between FDI and economic growth, and the causality between economic growth and growth of income of the poor in ASEAN region. They concluded that FDI inflows leads to economic growth, and economic growth to welfare improvement. A good strategy to achieving this objective lies on the macroeconomic policy design of developing and emerging nations to attract FDI flows from developed countries into their countries.

Several other studies in the literature analyse the overall impact of FDI on economic growth, with the thought that an increase in economic growth necessarily leads to higher welfare. Alfaro (2003) examines the causality between FDI and economic growth and whether the sector matters. Again, Alfaro et al. (2004), examines the causality between FDI and economic growth and the role of local financial markets. Others are; Alfaro, Chanda, Kalemli-Ozcan, and Sayek (2006); Hansen and Rand (2006), just to mention a few. Recently, some authors have challenged this assumption and evidence from several sources now indicates that GDP can grow even as poverty is on the rise. As indicated by Anand and Sen (2000), the effect of growth in a country if not pro-poor can lead to large inequality that will worsen welfare. Further, Ravallion (2007), has it that, even if economic growth is important in improving welfare, it should be pro-poor (redistributive) otherwise it may

create inequality and may negatively impact welfare. This therefore leaves a gap to be filled in the literature.

Another limitation of the literature has to do with the difficulty in measuring welfare and economic development. GDP per capita is readily available for all countries on yearly basis and widely used as a result, though it only measures economic aspect of development and welfare. A good measure of welfare is poverty incidence (headcount index). Unfortunately, it is hard to get data for all countries, and even countries use different measurement indicators (Gohou and Soumaré, 2012). Yet some authors have done their studies using the available data on poverty headcount index (eg. Fauzel, Seetanah, and Sannassee (2015)). This therefore creates avenue for further studies in this area.

The Human Development Index (HDI) computed by the United Nations Development Programme (UNDP) has also been widely used to measure welfare. HDI is considered as a better measure of welfare than Per Capita GDP and available for all countries. To the best of my knowledge, only one study has been carried out in Africa using HDI as a proxy for welfare. According to Sharma and Gani (2004), the few works[3] that used HDI as a proxy for welfare to assess the causality between FDI and welfare are concentrated on Asian or on low-and-middle-income countries. This study will therefore assess the direct and indirect impact of FDI on welfare improvement, using HDI as a measure of welfare and employing panel regression technics. This will provide us with more robust findings which can be used for policymaking and implementation in Sub-Saharan Africa and other developing countries concerning the issue of FDI and welfare improvement.

[3]See for example: Uttama N. P (2015) "Foreign Direct Investment and the Poverty Reduction Nexus in Southeast Asia"; Assadzadeh A., and Pourqoly J. (2013) "The Relationship between Foreign Direct Investment, Institutional Quality and Poverty: Case of MENA Countries".

1.3 Research Objectives

Generally, the objective of this study is to assess the contribution of FDI to welfare improvement in Sub-Saharan Africa. Specifically, the study aims to investigate:

- How FDI contributes directly to welfare improvement in Sub-Saharan Africa, and
- To see whether FDI again contributes indirectly to welfare improvement (through economic growth) in Sub-Saharan Africa.

1.4 Research Questions

In an effort to address the above objectives, this study seeks to find answers to the following questions:

- Does FDI has a direct impact on welfare in Sub-Saharan Africa?
- Does FDI has a transitional impact on welfare (through economic growth) in Sub-Saharan Africa?

1.5 Significance of the Study

By following the trends of poverty in Sub-Saharan African countries, it is possible to assess how Foreign Direct Investment affect welfare in the region. It is obvious that, most Sub-Saharan African countries have passed through difficult transition periods. Therefore FDI in this transition could contribute to the welfare of the countries of SSA. An important reason that necessitates the attraction of FDI by this region is that, almost all the countries in SSA have cheap labour force and cheap resources for incoming investments, even though they lack capital and technology for further economic development. This study is significant as it seeks to use panel regression technics and HDI as a welfare variable to assess FDI's direct and indirect (through economic growth)

impact on welfare improvement in SSA. To our knowledge, it will be the first study in SSA to have considered additional objective of assessing the indirect impact of FDI.

Furthermore, the present study will help researchers with regard to economic and welfare effects of FDI. Policymakers will also benefit from the findings of the study. In particular, it will proffer key options for policymakers to initiate and implement useful policies that are geared towards poverty alleviation through FDI.

1.6 Scope of the Study

The study exclusively concentrates on foreign direct investment and welfare nexus in Sub-Saharan Africa. It uses data for 38 countries from three databases: the HDI data is from UNDP database, whiles data on FDI and the control variables are pulled from World Development Indicators (WDI), except political rights rating which is pulled from freedom house database.

1.7 Limitation of the Study

The study is limited to Sub-Saharan Africa. It uses panel data to determine the impact of foreign direct investment on welfare improvement. This study might not be able to draw a robust conclusion due to the gaps in the data of the welfare proxy for many years. Further, the HDI is used as a proxy for welfare. This means that other relevant indicators of welfare will not be captured, since HDI only uses three basic indicators of welfare (education, health and income). These problems do not, mean that the results from the research would be of less use for policymaking and implementation.

1.8 Organization of the Study

The study is divided into six chapters. The first chapter is the introduction to the study. Subsequent parts of the study are organized as follows: Chapter two considers the literature review mainly on models of growth, theoretical framework and arguments, and empirical review of the study which considers literatures of the causality between FDI and welfare, FDI and the role of financial markets, FDI- growth nexus and finally FDI-welfare nexus. Chapter three is the overview of the study. This chapter tries to make it possible to understand FDI and poverty concepts, and their trends especially in SSA. Chapter four discusses in detail the required methodology, comprising model specification, source of data, the dependent and independent variables, sample, panel regression techniques and diagnostic tests. Chapter five presents the results and discussions in line with the objectives and hypothesis stated above. Finally, Chapter six is the summary of the key findings of the study, makes policy recommendations, conclusions and points out the gaps for future research.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The general objective of this chapter is to present the theory and empirical evidence on the effect of FDI on welfare improvement in Sub-Saharan Africa (SSA). The section discusses some key theoretical models of growth as well as theoretical propositions on FDI and economic growth nexus. It also presents empirical literature on the causality between FDI and growth, the role financial markets play in the FDI-led growth, the impact of FDI on economic growth, and FDI and welfare (poverty reduction) nexus.

2.2 Theoretical Review

For a theoretical discussion of growth and welfare improvement, we need to consider the theoretical foundations of growth itself. To understand the theoretical dimensions of growth and poverty reduction, a review of growth theories is necessary.

2.2.1 Models of growth

There have been economic theories that attempt to explain the necessary conditions for growth to occur and also try to weigh up the relative importance of particular conditions. These theories have been put forward to explain the key determinants of economic growth and how such growth translates to development. Usually, an aggregate production function which describes the technological relations between various inputs and outputs is used. The various school of thoughts that have discussed the causes of growth and development are as follows:

Already in the 18th and 19th centuries, the question of which factors generate economic growth has been addressed by the then classical economist. The founder of modern economics, Adam Smith considered savings which are used for capital formation in an economy as a key factor for growth. This is because, it leads to higher labour productivity and, thus, to more output per worker. David Ricardo also outlined the importance of capital accumulation, but also emphasize the important role technical progress play. Both theories are not without faults, they incorporated important elements which are still relevant for the growth process in modern economies, but they also contain elements which turned out to be wrong. For instance, the prediction that limited availability of land brings economic growth to a standstill, is a fact which turned out to be incorrect.

These early classical writers fully believe in the Say's law which states that, supply creates its own demand. This belief was based on more especially the assumption of the efficient working of factor markets, and on the speedy adjustment of prices to their equilibrium levels at which demand equals supply. The functioning of this process was denied by Lord Maynard Keynes saying that unemployment of factors is even more likely in an economy than full employment. But he considers much the short run implications of his theory underlining income effect, that has resulted for instance from additional investment. He however neglected the capacity effect that results from increases in capital stock. Harrod and Domar took advantage of the neglected effect and formed a Keynesian theory of economic growth by integrating the capacity effect in their work.

The Harrod-Domar Growth Model

This growth model is based on the work by two authors (Hrrod and Domar) who developed their models independently, but the assumptions and results are basically the same. These two authors built their theories in the late 1930's and mid 1940's, reflecting on the industrialized countries

being faced with deep recessions which resulted in high unemployment rate and a sharp decline of gross domestic product in 1929 and 1930. The famous work by Keynes formed the basis of Harrod and Domar theory. Keynes provided an explanation of the reason markets may fail to bring about full employment. Because of the Keynesian character of this model, it should have all its variables growing at the same rate. For instance, according to Keynesian multiplier theory, the level of aggregate demand will remain constant for all years if investment is constant for these years. Except that, the productive capacity of the economy will steadily increase with even a constant level of investment. This means that there must be growth in investment in order to prevent the growth of demand from falling short of the growth of productive capacity.

The Horrod-Domar model portrays a growth path on which there is a warranted rate of growth (ie variables such as GDP, consumption, the capital stock and investment grow at the same rate). And this growth rate can only be achieved if the economy starts on the warranted growth path, otherwise it will diverge away from this path. Therefore the Harrod-Domar model reveals that market economies have an unstable equilibrium growth path. This instability problem in the model motivated the development of the neoclassical growth model propounded in the 1950's.

The Solow Growth Model

Robert Solow (1956) explained that a persistent increase in capital investments will increase growth rate temporarily, this explain the variation in growth rates among countries.

This model is said to be a good starting point for the following reasons. First, its assumption that consumers save a fixed fraction of their income makes it very easy to solve. This indeed makes the model mechanical. Assuming a fixed savings rate means that households are not optimizing

their choice of savings, and thus not necessarily maximizing utility. The Solow model is not truly modern in the sense of being fully founded on microeconomics because of this assumption. The Neoclassical Growth model is the version of Solow's model in which savings are optimally chosen by utility maximizing households, and David Cass in 1965 completed the solution to this model taking into consideration technological change and population growth. Second, for the purpose of testing of theory and evaluation of policy, the model turns out to be a good measuring device. This is because the purpose for which Solow (1956) developed this model has been met (ie to capture the long run performance of the US economy) as it matches the long run- growth experience of the United States since the beginning of the 20th century.

The Endogenous Growth Models

Endogenous growth encompasses diverse works (both theoretical and empirical) that emerged in the 1980s. What makes this work different from neoclassical growth is its emphasis that economic growth is an endogenous outcome of an economic system, not the result of outside forces. The theoretical work therefore does not use exogenous technological change in explaining why income per capita has increased by an order of magnitude since the industrial revolution. As in neoclassical growth theory, the focus of endogenous growth is on the behaviour of the economy as a whole. Some of the authors of endogenous growth who try to get away from conventional Solow-Swan postulation that the long term capital increase growth arises from exogenous technical progress are not far-fetched;

Romer (1986) started the endogenous growth literature with a model that exhibits increasing returns to scale at the economy level and a model with constant returns to scale at the firm level. The model then supports a non-optimal competitive equilibrium, in the sense that a higher growth

rate could be achieved if the externality component of investment could be internalized. His model produced a large literature as a result of its popularity. Arrow's work on the economics of learning by doing formed the basis for Romer's work. Arrow revealed a strong evidence of association between experience and increasing productivity from case studies. According to him investment is a good measure of increase in experience with the reason that "each new machine produced and put into use is capable of changing the environment in which production takes place, so that learning takes place with continuous new stimuli". Arrow then proxies experience by cumulative investment. The learning by doing assumption tries to explain the fact that investment increases the productivity of labour at a decreasing rate.

To a large extent, because Romer's model spawned a lot of literature, many people relate endogenous growth to increasing returns to scale. On the contrary, it can be seen from Rebelo's model of endogenous growth that increasing returns is not necessary, and from Romer's model that is not sufficient, since sufficiently large externalities are needed for endogenous growth to be possible.

Robert Lucas (1988) came out with his model of endogenous economic growth. In this model, the main feature is the use of human capital as the key to growth, as human capital accumulation increases the productivity of both physical capital and labour. Lukcas model became very important as it was the first human capital approach to endogenous growth. The rationale of the model is that, there is a trade-off between work and training as people divide their time between them. Just like the type appearing in physical capital accumulation, this trade-off is a matter of postponing income and for that matter consumption today for income tomorrow. This means that, decisions about the accumulation of human capital depend on the dynamic features of the economy, which makes it endogenous. This makes growth itself endogenous since human capital

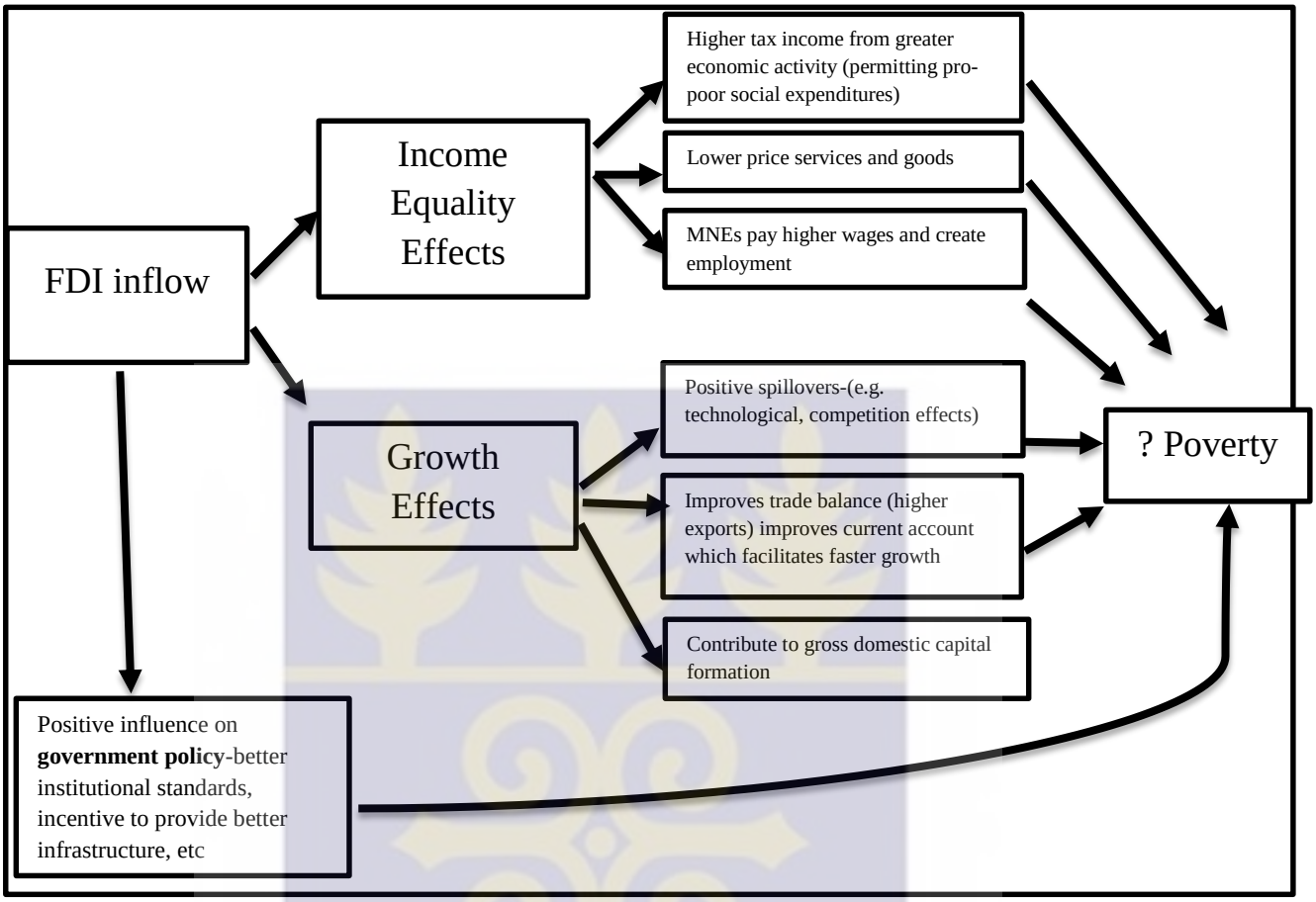
accumulation is the 'building block' of growth. The model uses both physical and human capital, with their marginal product being the same at steady-state, according to the fundamental equation of the model. Implying that the dynamics of the accumulation of physical and human capital are interlinked, which seems to practically make sense. Two basic assumptions underline this model making it quite simplistic. First, the consumers' welfare is given by an intertemporal constant-elasticity of substitution utility function. Second, the rate at which productivity is risen by one additional unit of training (effectiveness of training) is exogenous.

However, the various models discussed above only explain what influences growth without further explaining how such growth will contribute to improvement in the standard of living of the people.

2.2.2 Theoretical Framework

What forms a theoretical basis for FDI and welfare relations is Moran's (1998) work on Benign and Malign models of FDI and development. These models better explain the relationship between FDI and welfare in developing countries (Ucal, 2014). To meet the objectives of this study, we shall consider the Benign model as our theoretical framework. This is presented below.

Figure 2.1: The Benign Model



Source: Mold (2004).

The Benign model tries to identify the immediate effects of FDI on welfare. It shows that FDI can have a direct impact on poverty reduction (welfare) by way of exerting positive influence on government policy and an indirect impact through growth and income equality effects, something that is of interest to this study.

Following this model and recent literature on FDI and welfare, a clear argument has been made regarding the decomposition of the impact of FDI on welfare improvement into direct and indirect. The objective however, is to empirically assess this argument in the host country, so as to make the overall effect of FDI on welfare clearer.

2.2.3 Theoretical Arguments: the Link between FDI and Welfare

There are several developmental benefits of FDI, but are not automatically generated, therefore, in order to make a positive impact on poverty alleviation and social welfare, mechanisms may be put in place to ensure that the expected benefits of FDI are equitably distributed. Employment creation, the development of human capital, generation of spillovers to the private sector (forward and backward linkages) in the host country, giving the host economy access to world markets, boosting corporate tax revenues *inter alia* are the possible developmental benefits of FDI to the host country.

At least, the impact of FDI on human development can be explained from the following points of view. First, socially, the priorities of governments of developing countries are reduction of poverty and improvement of welfare. These goals can be achieved through foreign investment since investments create jobs, develop local skills and stimulates technological progress. Second, economically, as discussed in Lucas endogenous growth above, human capital may be seen to be the major contributor to self-sustained growth in GDP per capita. Human development is one of the main contributors to human capital, this makes it a prime interest to examine the impact of FDI on human development (welfare). The impact of FDI on human development can be seen through direct and indirect ways. The direct way has to do with the promotion of forward and backward linkages (spillovers to the private sector). Backward linkages takes place as a result of multinationals (MNEs) affiliate relationship with suppliers. This relationship may help to boost the efficiency and productivity of local firms. Forward linkages arises from their relationships with firms. There is more evidence of backward linkages than forward linkages, and basically the spillovers are geared towards the development of local distributors and sales organizations. FDI

spillover effect may also promote and enhance competition and cause the implementation of new technologies.

Aside from FDI's positive spillovers to local firms, it can also improve welfare directly by way of creating employment avenues for new workers. But the effectiveness of this channel can be realized if the number of jobs created outweighs the number of jobs lost as a result of FDI-related activities. Thus, FDI in pro-poor sectors such as agriculture and labor intensive sectors is likely to be welfare improving. The indirect impacts can be seen at the macroeconomic level where the overall net transfer of revenues of a country is positive. In this case, there is the likelihood that the country's total investments will be increased by FDI which is expected to increase economic growth. Any increase in welfare as a result of this link is deemed indirect.

From the above discussion, it is clear that the ability of FDI to improve welfare depends on its type and the policy regime. A resource-seeking FDI has limited spillovers and job creation effect viz a viz market-seeking FDI and therefore the ability of the latter to increase welfare is likely to be high.

2.3 Empirical Review

This section begins by discussing and reviewing recent findings on the causality between FDI and economic growth. It then discusses the role of a country's financial market development on the impact of FDI. It again reviews theories on the impact of FDI on economic growth. Finally, it presents the main findings on the impact of FDI on poverty reduction (welfare improvement).

2.3.1 Causality between FDI and Economic Growth

Many authors have employed econometric techniques such as the Toda-Yamamoto test and the Granger causality test to examine the direction of the causality between FDI and economic growth, and the findings have been mixed.

Zhang (2001) used the Granger causality test to assess the long-run causality relationship between FDI and GDP growth, based on an error correction model. He looked at 11 countries on a country-by-country basis. He divided the countries according to the time-series properties of the data. His results indicate a strong causal relationship between FDI and GDP growth. Zhang also finds that, only one country exhibited Granger causality from FDI to growth among six counties where there is no co-integration relationship between the log of FDI and growth.

Nair-Reichert and Weinhold (2001) used 24 years data (from 1971 to 1995) for 24 countries to test causality for cross-country panels. To them heterogeneity is a serious issue and to take it into consideration, they use what they refer to as the mixed fixed and random (MFR) coefficient approach to test the impact of FDI on growth. This approach allows for heterogeneity of the long-run coefficients to avoid the biases that will emerge from imposing homogeneity on coefficients of lagged dependent variables. They find that the relationship is highly heterogeneous across countries, but on average, FDI has a significant impact on growth.

Chowdhury and Mavrotas (2006) employed the Toda and Yamamoto (1995) specification to test the causality between FDI and GDP growth for Chile, Malaysia and Thailand. This method was used to avoid possible pre-testing problems in relation to tests for co-integration between series. They used data from 1969 to 2000 and find a unidirectional causality from GDP growth to FDI

net inflows in Chile. However, in the case of Malaysia and Thailand, they found a strong evidence of bidirectional causality between FDI inflows and GDP growth.

Furthermore, the study of Hansen and Rand (2006) analyses the causal relationship between FDI and GDP using a sample of 31 developing countries for 31 years (1970 to 2000). They used estimators for heterogeneous panel data (vector autoregressive models) and find a bi-directional causality between the FDI-to-GDP ratio and the level of GDP. According to them FDI has a lasting impact on GDP, while GDP has no long-run impact on the FDI-to-GDP ratio. They further used a different model for GDP and FDI as a fraction of gross capital formation (GCF) and find long-run effects from FDI to GDP.

In another study, Abu Nurudeen (2010) analyses the relationship between FDI and economic growth using data from 1970 to 2008 in Nigeria. He employed co-integration and Granger causality techniques for his estimations, and find the presence of a positive and significant relationship between FDI and economic growth.

The above literature generally show that FDI, on average, has an impact on economic growth in the Granger causal sense, although the relationship is highly heterogeneous across countries. However, there are exceptions from the general conclusion. Carkovic and Levine (2002) examined the relationship between FDI and economic growth using cross-country data for 72 countries over the period 1960 to 1995. They used Generalized Method of Moments (GMM) panel estimator designed by Arellano and Bover (1995) and Blundell and Bond (1997). Their empirical findings suggest that FDI inflows do not exert an independent influence on economic growth.

Another exception is Saad (2013) who investigates the causal relationship between FDI, economic growth and trade services (import and export) of Lebanon over the period from 1971 to 2011. He

used Johansen co-integration procedure and Granger causality test for this purpose. With the co-integration analysis, he finds a long equilibrium relationship between FDI and economic growth. However, the results of the Granger causality test show no causal relationship in any direction between FDI and economic growth.

As a result of these mixed findings at the general level on the causality between FDI and economic growth, some authors have studied the link in specific economic sectors or regions. Among them are Alfaro (2003) and Apergis, Lyroudi, and Vamvakidis (2008). Alfaro (2003) used cross-country data from 1981 to 1999 to examine the impact of FDI on economic growth in the primary, manufacturing and service sectors. He found great variance as he concluded that FDI impact on the primary sector is negative, positive on the manufacturing sector and unclear in the service sector. This makes FDI's general impact on growth ambiguous.

Apergis et al. (2008) did regional analysis using panel data from 27 transitional European economies over the period 1991 to 2004 to examine the impact of FDI on economic growth. They found that FDI shows a positive and significant relationship with economic growth, at least in transitional economies with successful privatization programs and high levels of income.

2.3.2 The Role of Financial Markets

For FDI-led growth to take place, the role of financial markets cannot be over emphasized. Many authors have argued that, FDI tends to flow to countries with more developed financial markets thereby leading to economic growth. This is evident from empirical findings that an advance financial market is a good predictor of FDI inflows. For example, Agbloyor, Abor, Adjasi, and Yawson (2013) examined the causality between financial markets and FDI in Africa. They used

banking sample comprising 42 countries and data coverage of 1970 to 2007. They also used stock market sample which made up of 16 countries and data covering the period 1990-2007. Using a 2SLS panel instrument variable approach and estimating them separately, they find that more advance banking system can lead to more FDI inflows and *vice versa.* Also, countries with better-developed stock markets are likely to attract more FDI and *vice versa.* This has called the attention of some authors to study how financial systems development strengthens the connection between FDI and economic growth, as follows.

Hermes and Lensink (2003) empirically investigates the role the development of the financial system plays in enhancing the positive relationship between FDI and economic growth. They used dataset from 67 countries, mostly in Latin America and Asia. Their argument was that, the development of the financial system of the recipient country is an important precondition for FDI to have a positive impact on economic growth. A more developed financial system positively contributes to the process of technological diffusion associated with FDI. The empirical findings suggest that, out of the 67 countries in data set, 37 have a sufficiently developed financial system in order to let FDI contribute positively to economic growth.

Alfaro et al. (2004) explore whether countries with better financial systems can exploit FDI more efficiently. They used cross-country data over the period 1975 to 1995 and find that FDI alone plays an ambiguous role in contributing to economic growth. However, countries with well-developed financial markets gain significantly from FDI.

Kholdy and Sohrabian (2005) employed Granger causality model and used data from 25 countries covering the period 1975 to 2002 to investigate various links between financial markets, FDI, and economic growth. Their findings suggested a bi-directional links between financial markets and

economic growth. They added that, in countries with low GDP per capita, economic growth stimulates financial development; however, the reverse is true for countries with high GDP per capita. The authors further found a bi-directional causality between FDI and financial markets in countries with more developed financial markets and high per capita GDP.

In another study, Eller, Haiss, and Steiner (2006) studied the impact of financial sector foreign direct investment (FSFDI) on economic growth. They use cross-country growth accounting framework to estimate a panel data model for 11 Central and Eastern European countries over the period 1996-2003. They found clearly that, a relationship between FSFDI and economic growth can exist. And that, approaching a medium degree of financial services, mergers and acquisitions is rewarded by higher economic growth after two periods, beyond which FSFDI appears to spur economic growth depending on a higher human capital stock. An explanation to this phenomenon is FSFDI-induced knowledge spillovers to domestic banks. Above a certain threshold, the crowding-out of local physical capital caused by the entry of a foreign bank appears to hamper economic growth.

Alfaro et al. (2006) investigates the issue at stake empirically. Their evidence was that countries with better developed financial markets gain significantly from FDI. They further argue that better financial markets allow an economy to take advantage of potential linkages from foreign to domestic firms. Their calibration exercise show that the same amount of increase in FDI, regardless of the reason of the increase, generates three times more additional growth in financially well-developed countries than in financially poorly-developed countries.

Further, Dutta and Roy (2011) contribute to this literature by exploring the role of political risks in the association between financial development and FDI inflows. Using a panel of 97 countries

over a period of 20 years, the results establish a non-linear association between financial development and FDI inflows. They argued that, financial Development leads to greater FDI inflows up to a certain level of financial development, beyond which the association becomes negative. They further stressed that, the presence of higher political stability adds a different flavor to the relationship. With higher political stability, the negative impact sets in at relatively higher levels of financial development. This means that advanced financial markets and political stability need to co-exist for a country to capture and enjoy fully the benefits of FDI.

Comparatively recently, Azman-Saini, Law, and Ahmad (2010) presented new evidence on the role financial market developments play in mediating the impact of FDI on growth, using data from 91 countries over the period 1975–2005. They adopted the regression model based on the concept of threshold effects to capture rich dynamic in the relationship between FDI, output growth, and financial markets. Their empirical findings is that, the positive effect of FDI on growth 'kick in' only after financial markets development exceeds a threshold level. Until then, the benefits of FDI are non-existent.

Nobakht and Madani (2014) empirically studied the intermediary roles of the financial system and trade liberalization as absorptive capacity factors on the FDI-led growth nexus. They used data from 33 Upper-Middle-income Countries (UMCs) over the period 1990 to 2011 to contribute to the existing literature. Using the dynamic panel "difference" GMM estimator proposed by Arellano and Bond (1991) their findings was that, in order to enhance the economic growth of UMCs, there should be development of the domestic financial system facilitated by FDI technology spillovers.

2.3.3 FDI and Economic Growth: Review of Literature

The relationship between FDI and economic growth has been extensively analysed by many authors with the aim of determining the extent to which FDI affects economic development. The common assumption these authors make is that economic growth leads to welfare improvement. There have been mixed conclusions, but most studies has it that FDI arouses economic growth. The mixed conclusions could be as a result of conceptual and methodological factors, such as different econometric specifications, the lack of comprehensive dataset, and different definitions of FDI.

Burnside and Dollar (1997) estimated a simultaneous equations model for growth, aid, and policy using the 2SLS method for a panel data of 56 countries. They make assumptions about the exogenous determinants of aid, policy and growth, and found that foreign aid had a robust positive impact on economic growth in a good policy environment. Foreign aid was insignificant when they factored it directly into the model, it only became significant when interacted with the policy index. And was also found skewed towards poorly growing countries when interacted with population and donor interest variables.

Hansen and Tarp (2001) looked at relationship between foreign aid and growth in per capita GNP for 56 countries over the period 1974 to 1993. They regressed the average rate of growth of GDP on several policy and institutional control variables and foreign aid. Their findings was that foreign aid in all likelihood increased the growth rate. However, there is decreasing returns to foreign aid, and the estimated effectiveness of foreign aid is highly sensitive to the choice of estimator and the set of control variables.

As reviewed earlier, the results of Carkovic and Levine (2002) show that the exogenous component of FDI does not exert a robust, independent influence on growth.

Alfaro (2003) investigates the effect of foreign direct investment on growth in the primary, manufacturing, and services sectors. Using cross-country data for the period 1981-1999, he finds that total FDI exerts an ambiguous effect on growth. Thus, FDI in the primary sector tend to have a negative effect on growth, while its impact on the manufacturing sector is positive. Evidence from the service sector is ambiguous.

Also Athukorala (2003) examined the FDI-led growth hypothesis in Sri Lanka using time series data from 1959 to 2002 and the response of civil society and foreign firms. The methodology of this paper involves calculating averages and percentages. The econometric framework of co-integration and error correction mechanism were also used to capture two way linkages between variables of interest as well as the Dickey-Fuller test. His empirical findings suggested that FDI inflows do not have any independent influence on economic growth, and that the direction of causality was rather from GDP growth to FDI.

Ghatak and Halicioglu (2007) examined the connection between FDI and economic growth using macroeconomic variables for 140 countries across the world from 1991 to 2001. They use single-equation and simultaneous equation estimates for their study. The results from the single equation ordinary least squares method show a positive and significant impact of FDI on real per-capita GDP in all regressions but one case.

Alfaro and Charlton (2007) examined the relationship between FDI and growth by distinguishing different qualities of FDI. They use 2SLS method to control for measurement error and

endogeneity. Considering data set of 29 countries from 1985 to 2000, they find that the growth effects of FDI increase when the quality of FDI is taking into account.

In another studies, Jyun-Yi and Chih-Chiang (2008) examines the influence of FDI on economic growth using threshold variables that include the initial GDP, human capital, and volume of trade. They undertake a cross-sectional study using data from 62 countries over the period 1975 – 2000. Adopting the instrumental variable estimation of a threshold regression approach developed by Caner and Hansen (2004), they found that, FDI alone plays an ambiguous role in contributing to economic growth. And that FDI is found to have a positive and significant impact on growth when host countries have better levels of initial GDP and human capital.

Tang (2008) investigates the spillover effect of FDI on growth at macroeconomic level by employing geographical variables, the size of the economy and lagged output per worker as instruments in order to solve the endogeneity problem. He rejects the conventional OLS and random effect models due to endogeneity problem, and use the IV estimation as the workhorse model. Using a panel data set of 98 countries over three decades, he finds that FDI leads to growth via technology spillover and the impact is economically significant. He also re-examined the interactions between FDI and per capita output level, trade, financial market and human capital and finds that the technological spillover effect of FDI is bigger for countries with lower level of development, weaker financial market and lower level of human capital.

Beugelsdijk, Smeets, and Zwinkels (2008) investigated the impact of FDI on host country economic growth by distinguishing between the growth effects of horizontal (market seeking) FDI and vertical (efficiency seeking) FDI. They used a new panel data of the US Bureau of Economic Analysis (BEA) on types of US outward FDI, and a sample of 44 host countries between 1983 and

2003, as well as traditional total FDI figures as a benchmark. They also used a standard empirical economic growth model and find that, horizontal and vertical FDI have positive and significant growth effects in developed countries. Moreover, their results indicate a superior growth effect of horizontal FDI over vertical FDI. However, their results show no significant effects of horizontal or vertical FDI in developing countries.

Darrat and Sarkar (2009) investigates the role FDI inflow plays in the economic growth process in Turkey, as well as the consequences of economic openness and human capital accumulation. Their co-integration test suggests that there exists a robust long-run (equilibrium) relationship linking real economic growth with FDI inflows, economic openness and the accumulation of human capital. They also use Error-correction Modelling (ECM) approach to confirm this findings. The ECM regression results also indicate that, among the three growth factors, only human capital accumulation can stimulate economic growth in the short-run.

Recently, Hoang, Wiboonchutikula, and Tubtimtong (2010) examine the effects of the foreign direct investment (FDI) on economic growth in Vietnam by using the panel data model and data across Vietnam's sixty-one provinces from 1995 to 2006. Their empirical findings suggest that there is a strong and positive effect of FDI on economic growth in Vietnam as a channel of increasing the stock of capital. FDI does not affect economic growth through the interaction effects of FDI with human capital and trade.

Koojaroenprasit (2012) explored the impact of FDI on economic growth in South Korea using secondary data for the period 1980 to 2009. Using a multiple regression model, he found a strong and positive impact of FDI on South Korean economic growth. He further indicated that human capital, employment and export also have positive and significant impact, while domestic

investment has no significant impact on South Korean economic growth. He interacted FDI with some of the endogenous variables and the interaction effects of FDI- human capital and FDI-export indicate that the transfer of high technology and knowledge has an adverse impact on South Korean economic growth.

Yalta (2013) using simulation based inference, investigated the causal relationship between FDI and gross domestic product in China for the 1982–2008 period, both in a bivariate and a multivariate framework. He employed maximum entropy bootstrap based approach and finds no statistically significant relationship between FDI and GDP growth. He factored the level of financial development into consideration and the results remained unchanged. He concluded that FDI does not necessarily lead to higher economic growth at the aggregate level and suggest the need for undertaking disaggregated analyses using industrial and provincial level data for the formulation of effective macroeconomic policies concerning the flows of FDI.

More recently, Temiz and Gökmen (2014) examined the issue of FDI and economic growth in Turkey empirically. Using the Johansen co-integration test and Granger causality analysis as well as least squares method and data coverage of 15 years (1992 – 2007), the results show no significant relation is between FDI inflow and GDP growth in Turkey both in the short and long run.

Tabassum and Ahmed (2014) found no influence of FDI on economic growth after examining the relationship between foreign direct investments and economic growth in Bangladesh for the period 1972 – 2011. Using multiple regression method, they evaluate the association between FDI and economic growth and considered the relationship between real gross domestic product, foreign direct investment, domestic investment and openness of the trade policy regime. Their results

suggested that domestic investments has a positive impact on economic growth whereas FDI, and trade openness are less significant.

Feeny, Iamsiraroj, and McGillivray (2014) examine the impact of FDI on growth of the Pacific region and found that the impact of FDI is lower in Pacific countries than it is in host countries on average. They estimated a number of empirical models and the results suggested that: A 10% increase in the ratio of FDI to host Gross Domestic Product (GDP) is associated with higher growth of about 2% in all countries on average but the impact in Pacific countries falls to between 0.1 and 0.4%.

Pegkas (2015) studied the relationship between FDI and economic growth and estimated the effects of FDI on growth of the Eurozone countries over the period 2002–2012. He employed panel data estimations methods and found positive long-run co-integrating relationship between FDI stock and economic growth. His Fully Modified OLS (FMOLS) and Dynamic OLS (DOLS) methods yielded a long-run elasticity of GDP with respect to FDI of 0.054% and 0.147%, respectively. Also using fixed and random country effects estimation methods, he found the stock of foreign direct investment to be a significant factor that positively affects economic growth in the Eurozone countries.

Silajdzic and Mehic (2015) empirically investigate the impact of FDI and the related externalities on economic growth in transition economies using data covering the period 2000-2013. According to their study, the measurement of FDI is more reliable (i.e. the share of FDI in the manufacturing gross value added) and depicts the character of FDI and related knowledge spillovers. Using panel data estimations method they found that FDI contribute to economic growth predominantly

through knowledge spillovers, and that the higher level of technological development is associated with better growth performance among transition economies.

2.3.4 FDI and Welfare: Review of literature

There has been poor investment response (foreign and domestic) in Sub-Saharan African countries over the years. This is a particular disappointment to the governments of this region that have changed economic policy with the aim of creating an investor-welcoming environment, because, primarily, their main objective is developmental. It is not secrete that foreign capital inflows is a *sine qua non* for economic performance, and invariably, poverty is virtually linked to both rural and urban unemployment. Many authors in the literature attested to the fact that investment is vital for creating job opportunities in the formal sector of an economy, with indirect effects on the informal sector (see Jenkins and Thomas (2002)). Therefore, foreign capital inflows are necessary where domestic resources to finance investment are limited. Unfortunately, literature regarding the impact of foreign capital flows and for that matter FDI on poverty reduction in developing countries is limited, only few studies tried to analyse empirically this relationship.

Klein, Aaron, and Hadjimichael (2001) theoretically argue that FDI is a key ingredient for successful economic growth in developing countries. Their reason was that the essence of economic development is the rapid and efficient transfer and adoption of "best practice" across borders and FDI is best suited to effect that. They also claim that FDI is considered the most important asset to reduce poverty because economic growth is a key factor in poverty reduction. And that FDI does not only stimulate growth and aid to achieving the goal of poverty reduction, but it can improve the quality of growth. They outlined some preconditions for the implementation of successful FDI that can lead to positive outcomes for poverty reduction. First, the right

environment for foreign investors must be provided. Second, preventing any kind of protection for domestic or foreign investors and providing an equal and competitive platform. Finally, and most importantly, the government to regulate foreign investors reasonably and without any burdensome and/or arbitrary regulations. According to them, FDI only reduce income poverty by promoting growth and neither effective in reducing other aspects of poverty nor deals with income inequality

Jalilian and Weiss (2002) investigates the FDI-growth-poverty relation in the ASEAN region using data from 26 countries, including eighteen developing countries (five of which were ASEAN) as well as eight developed ones. The variable used to measure poverty is the average income of the bottom quintile of the distribution, and change in poverty is measured by the change in the average income of this quintile. They considered a theoretical model of growth-accounting and growth-poverty, and then empirically examine the above sample to quantify the FDI-growth-poverty relation. Using a panel dataset and applying a fixed effect method to estimate the parameters of interest, they found that FDI inflows in the case of ASEAN is associated with higher economic growth, and that there is a close relation between average income growth and growth of the income of the poor. However, there was no direct link between FDI and poverty reduction in the large sample.

Hung (2005) empirically examines the impact of FDI on growth and poverty reduction across 12 provinces and cities of Vietnam using panel data from 1992 to 2002. He uses a wide range of variables to carefully distinguish between the direct and indirect effects of FDI. In considering the relationship between FDI and poverty reduction, Hung carried out a two-phased research, the results of which he believes would finally suggest that the increase in inflows of FDI leads to poverty reduction: First, he investigates whether inflows of FDI in a province affect the economic growth of that province positively. Second, he tries to see whether there exists a negative

correlation between economic growth and the number of people living below poverty line. His findings were that there is a positive correlation between FDI and economic growth. Using partial regression analysis, he also found that FDI indirectly reduces poverty in the host province.

In another study, Gohou and Soumaré (2012) assess the impact of FDI on poverty reduction in Africa and its regions using data from 52 African countries over the period 1990 to 2007. Their principal variables are FDI net inflows per capita and the United Nations Development Program's Human Development Index (UNDP's HDI). They also use real per capita GDP as an alternate welfare variable to check robustness. To obtain more specific and detail results, they use ratios such as FDI net inflows over gross capital formation and FDI net inflows per capita. Their findings suggest positive and strongly significant relationship between FDI net inflows and poverty reduction in Africa but find significant differences among African regions. Their findings also show that the impact of FDI on welfare is greater in poorer countries than in richer countries. For example, they found the impact of FDI on welfare to be positive and significant for economic communities in Central and East Africa and non-significant in Northern and Southern Africa. As for West Africa, the relationship was ambiguous.

More recently, Ucal (2014) investigates the relationship between FDI and poverty in selected developing countries using data of 26 countries from UNCTAD over a period of 24 years (1990-2009). The main variables used here are FDI inflows and poverty incidence, with a number of control variables including employment, inflation rate, gross domestic product growth rate, interest rate, gross domestic product growth rate, per capita income growth rate, employment. Using panel estimation method specifically the random effect model, he found a statistically significant relationship between FDI and poverty and concluded that FDI reduces poverty in selected developing countries.

Ogunniyi and Igberi (2014) empirically analyse the relationship between FDI and poverty reduction in Nigeria using secondary data from 1980 to 2012. The welfare measure used here is real per capita GDP and the econometric approach is Ordinary Least Square Estimation method. Their findings suggested that FDI has a positive but insignificant impact on real per capita income. Therefore they concluded that FDI have the potential of reducing poverty in the country and that the insignificant impact on the Nigerian economy may be due to the under development of human capital, backward institutions, crowding out of domestic investment among others.

Also, Shamim, Azeem, and Naqvi (2014) empirically examined the same issue in Pakistan using time series data from 1973 to 2011. The welfare variable used here is the Head Count Ratio. They use two estimation techniques: ARDL and co-integration techniques. Results of the former technique showed that there was positive relationship among Investment to GDP Ratio, Trade Openness, Exchange Rate, Political Stability, Financial Development and FDI. The latter estimation technique confirmed that FDI reduces poverty in the country.

Further, Fauzel et al. (2015) investigate the issue of FDI and poverty alleviation in selected Sub-Saharan African countries using data from 1990 to 2010. They used FDI net inflows and poverty headcount index as their main variables together with unemployment rate, inflation, openness, government debt and government expenditure, education level and GDP per capita as control variables. Given the endogeneity and causality issues, they adopted a dynamic Panel vector error correction model (PVECM) and find that, with the sample of countries under consideration, FDI reduces poverty both in the short-run and long-run. They also find a unidirectional relationship between FDI and poverty reduction and a bidirectional causality between FDI and economic growth.

2.4 Conclusion

Various studies that investigate the FDI-economic growth nexus using FDI and GDP growth variables arrived at mixed conclusions. Further, there are plethora of studies on the impact of FDI on economic growth, whiles literature on the impact of FDI on welfare improvement is dearth. Most authors have assumed that there are positive and perfect correlation between economic growth and welfare improvement and therefore used GDP growth as a proxy for welfare. Recently, some authors have challenged this assumption and evidence from several sources now indicates that GDP can grow even as welfare worsens. Owing to this limitation, a number of authors assess the direct relationship between FDI and welfare using other variables such as poverty incidence, Gini coefficient, poverty line, and Human Development Index (HDI) to measure welfare. This study differs by assessing both the direct and indirect impact of FDI on welfare levels in SSA using the HDI. To the best of my knowledge the first of its kind in this region.

CHAPTER THREE

OVERVIEW OF FOREIGN DIRECT INVESTMENT AND POVERTY

3.1 Introduction

The role played by FDI in global business is extraordinary and growing. Providing a firm with cheaper production facilities, new marketing channels, access to new products, new technology, new skills and financing are among the merits of FDI. It can provide the host country a source of capital, new technologies, processes, products, and management skills, and as such can provide a strong stimulus to economic development (Graham and Spaulding, 2005).

Many authors defined FDI in various ways, but all boils down to meaning the same thing. Classically, it is defined as a company from one country making a physical investment into building a factory in another country. The difference between FDI and portfolio investment is its direct nature in the form of buildings, machinery and equipment. Portfolio investment is considered an indirect investment. The definition has been broadened in recent times as a result of the change in investment patterns globally and rapid growth, this has included the acquisition of lasting management interest in the host country's firm. In this regard, FDI possibly will take many forms like directly acquiring a foreign firm, constructing a facility, licensing of intellectual property, investment in a joint venture or strategic alliance with a local firm with associated input of technology, among others.

Over the years, FDI has played a key role in the globalization of business. Talking of enhancing liberalization of the national regulatory framework that governs investment in enterprises, technological changes, and changes in capital markets, there have been measurable changes in the scope, size, and methods of FDI (Graham and Spaulding, 2005). The emergence of new

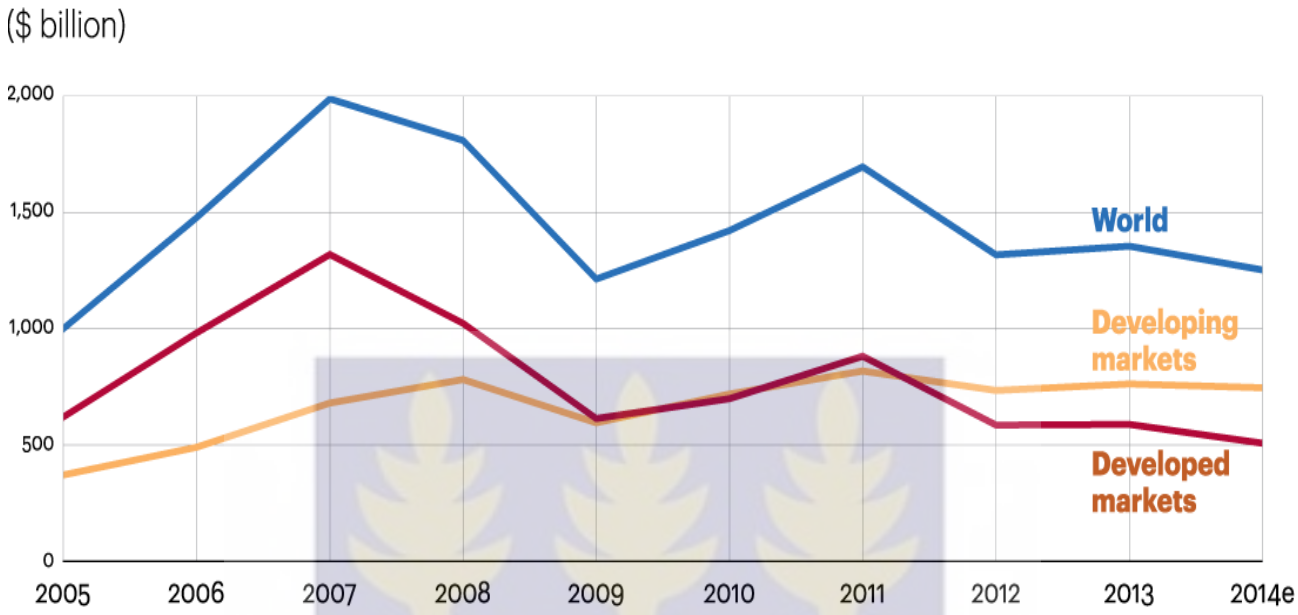
information technology systems and the decline in communication costs globally have made management of foreign investments far easier as compare to the past. The most important catalyst for FDI's expanded role can be attributed to the deep change in investment and trade policies and the global regulatory environment over the years, coupled with loosening of restrictions on foreign investment and on acquisition in many nations, liberalization of tariff and trade policy, and the privatization and deregulation of many industries (Graham and Spaulding, 2005).

3.2 Understanding FDI and Recent Trends

The inflow of FDI into developing countries has been most profound. According to the UNCTAD (2012) report, yearly FDI inflows on average have increased from less than $10 billion in the 1970's to less than $20 billion in the 1980's, and from $26.7billion in 1990 to $179 and to $208 billion in 1998 and 1999 respectively and as at 2005 formed a large portion of global FDI. As for developed countries, the report further states that the role of mergers and acquisitions and internationalization of production in a range of industries, rose FDI inflows to $636 billion in 2004 from $481 billion in 1998.

FDI flows across the world has been relatively steady. However, according to estimates from the UNCTAD, global FDI inflows declined by 8% to $1.26 trillion back at 2014. In spite of the relative stability, the levels of FDI remain at two-thirds of the record levels reached in 2007. The inflow of FDI in developed countries fell by 14% in 2014, whiles in the same year developing countries recorded an increase by 4% to a new height of $700 billion, comprising 56% of the global share. See Figure 2.1 below.

Figure 3.1: World FDI inflows trends (2005-2014)



Source: UNCTAD; A.T. Kearney analysis

Advocates of foreign investment has it that, both the home country and host country benefit from the exchange of investment flows, whereas opponents of FDI are of the view that multinational corporations are able to exercise great power over smaller and weaker economies and can drive out local competition (Graham and Spaulding, 2005).

FDI is an opportunity for small and medium sized companies to become actively involved in international business activities. The classic definition of FDI sketched above has change significantly in the past 25 years, however, this notion of change must be kept in the proper context. It is clear that about two-thirds of FDI is still made in the form of machinery, fixtures, equipment and buildings (Graham and Spaulding, 2005). In addition, bigger multinational corporations still make the vast percentage of FDI.

However, non-traditional forms of investment is anticipated to play an important role in the future owing to the increasing role of technology, the advent of the internet, decreasing communication costs, and relaxing the restrictions of direct investment in many markets. The investments that are made in the form of machinery, fixtures, equipment and buildings is mostly achieved through mergers and acquisitions. And this has been an efficient primary mechanism for investment in the case of traditional manufacturing. However, within the past two decades, the number of technology startups has increase dramatically. This coupled with the increase in importance of internet usage has promoted growing changes in foreign investment patterns. Most of these high tech startups are very small companies that emerge as a result of research and development projects and can easily store inventory without requiring huge manufacturing plants and immense warehouses, like the traditional manufacturers. Also of great concern has to do with the companies where an intellectual property right like a software program or a software-based technology or process is their primary product. These companies can be contained almost anywhere, as a result, making a capital investment in them requires not any huge outlays for machinery, fixtures, and plants.

The role played by large companies in investment activities of small but high tech oriented companies is still dominant in many cases. However, these larger companies do not necessarily acquire those smaller companies entirely like in the past. One important reason is most probable the risk nature of such high tech ventures. The manufacturer usually make a direct foreign investment with the aim of getting closer to its foreign market or circumventing some trade barrier. With this, they stand a risk of not selling enough of their products which they have added additional capacity. This capacity could be used in many ways in the case of multinational corporations.

The product of high tech ventures always need substantial development time. Consider the software and other intellectual property product types for instance, the product is continually changing even before it is brought to the marketplace, thereby making the investment decision more difficult.

To conclude, the growing role of intellectual property and technology has changed the FDI playing field. Foreign companies who are still moved to make investments are finding another ways to accomplish their goals as a result of the vagaries of technology investments (Graham and Spaulding, 2005).

3.2.1 Types of FDI

Two types of Foreign Direct Investment has been identified: 1. Horizontal FDI and 2. Vertical FDI.

1. Horizontal FDI:

For this type of FDI, Multinational (MNE) enterprises invest in multiple plants in the production of the same good or services in different countries, with each plant serving the local market using the local production. The presence of firm-level scale economies and positive trade costs are the two important factors responsible for the appearance of horizontal FDI. The main aim of horizontal MNEs is to get access to a foreign market which can only be served locally (avoid transportation costs).

2. Vertical FDI:

This has to do with the geographical fragmentation of MNE enterprises production by stages in order to exploit differences in relative factor costs. Here, the production stages in different countries are conducted one after another, hence the name vertical. This type of FDI is modelled

base on the idea that different parts of the production process have different input requirements. Therefore, for enterprises to make profit, it is wise to split production since the input prices vary across countries. For instance, labour intensive production stages should be conducted in countries with low labour cost.

3.2.2 Motives of FDI

The motives of Multinationals (MNE) behind foreign production has been classified by Dunning and Lundan (2008) into four as follows: Natural resource seekers, Market seekers, Efficiency seekers, and Strategic asset or capability seekers.

1. Natural resource seekers:

Here, MNE enterprises look for natural recourses at a comparatively lower cost (if they have any in their country) to use it to their advantage. Primarily, these enterprises aim is to acquire at a lower cost, high quality resources to be more profitable and competitive in their market domain. Resource seeking FDI are of three types. First, raw materials and physical resources seeking by MNE enterprises which are into primary production and manufacturing. Their main motivation is the low cost abundant resources, and the main resources most of them seek are minerals, fuels, metals, and agricultural products. Second, ‘‘labour seeking investment’’. Here, enterprises are looking for cheap semiskilled or unskilled labour as a result of high cost of labour in their home country. As a result, MNEs move to other low labour cost countries. Third, in this type, MNE enterprises want to get access to technology, management and organizational skills, information and marketing expertise.

2. Market seekers:

The aim of MNEs in market seeking FDI is to get access to large market by accessing domestic market as well as foreign markets. The advantages here are that, enterprises can decrease transaction cost, and can easily adopt local preferences in their production. They can also be familiarized with the business customs, local language, market procedures, and legal requirement, without encountering any trade barriers such as tariffs.

3. Efficiency seekers:

The motive of MNEs here is to invest in different countries to take the advantage of resource endowment and economies of scale. For instance, MNEs may invest in developed countries to produce capital intensive goods and in developing countries to produce labour intensive goods.

4. Strategic asset seekers:

MNE enterprises may invest in other companies abroad for the purpose of building strategic assets, such as distribution networks or new technology. This can take the form of partnerships with other existing foreign firms that specialize in certain aspects of production.

3.3 FDI in SSA: Historical Overview

Historically, SSA is the recipient of the smallest amount of global FDI. According to the UNCTAD (2012), SSA recorded only 5.1% of total global FDI inflows in 2009, Asia had a record of 26.0%, and Central and South America accounted for 11.9%. The expectation that this region should have a smaller share of the world FDI than other regions is reasonable to some extent. However, inward FDI flows as a percentage of African GDP has increased rapidly over the years which rises to 1.84% in 2000 from 0.09% in 1980, and accelerated further to 4.22% in 2009 (Juma, 2012).

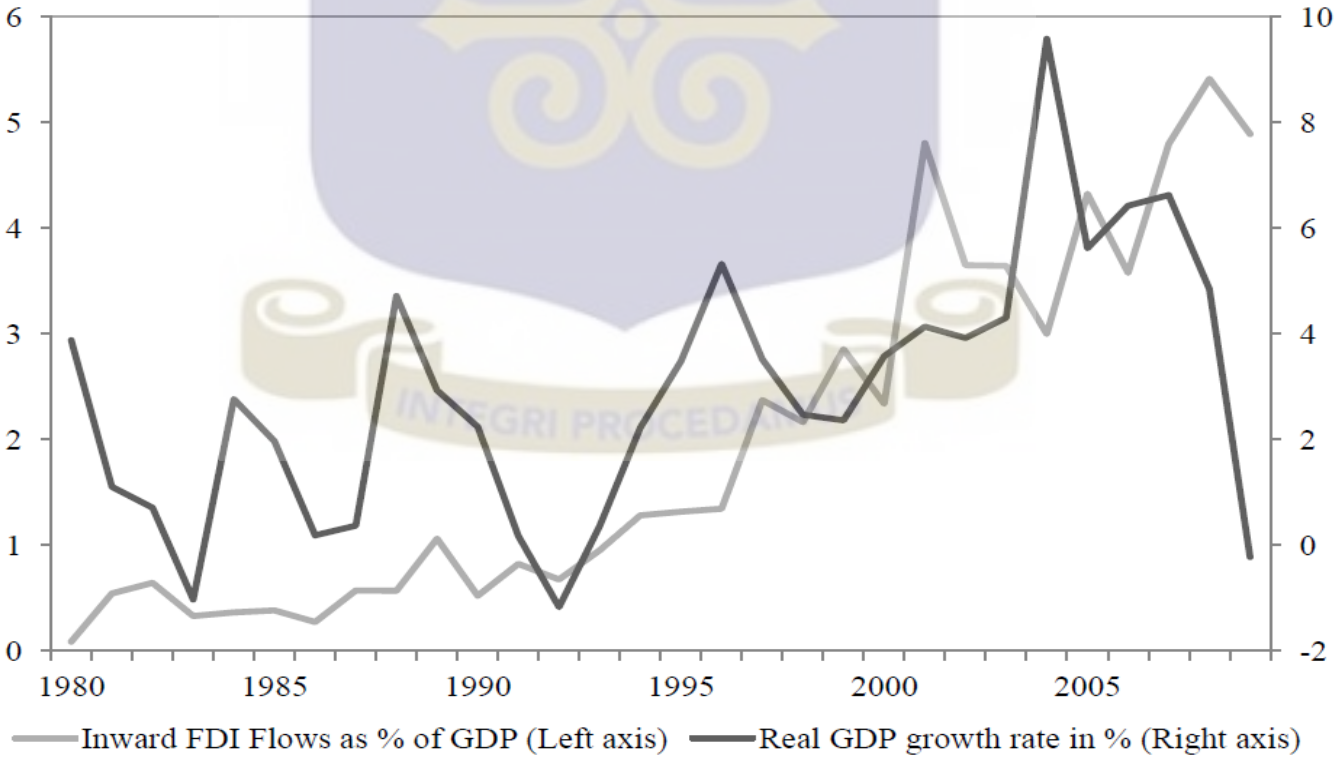
The increase in FDI inflows in the African region over the past few decades can be attributed to several possible reasons. Most African countries when gained independence after the 1960s were in the beginning not willing to open up their borders for foreign investment. This was as a result of post-colonial nationalism and cautious of the wounds dealt by extractive colonialism (Juma, 2012). To ensure national economic independence and prevent dependence on foreign resources, most nations imposed capital controls and put indigenization or nationalization policies in place. For instance, the Federal Republic of Nigeria (1972), has it that the Nigerian Enterprises Promotion Decree was publicized in 1972, with the clear objectives of increasing business ownerships among Nigerian citizens and reducing the participation of foreigners in certain sectors of the economy. Also, Ndongko (1980), admitted that similar policies were adopted in countries like Kenya, Tanzania, Ghana, Uganda, Zimbabwe, and Zambia. Certainly, these policies were the reasons for the low levels of foreign investment in the 1970s and 1980s across the continent. However, African countries started opening up their borders and removing capital controls and restrictions on foreign investment in the 1980s and 1990s (UNCTAD, 1998). Many countries cancelled indigenization decrees which led to increased FDI inflows in the 1990s and beyond. Going back to the previous example, the Nigerian Enterprises Promotion Decree was abolished, and the Nigerian Investment Promotion Commission (NIPC) Act was enacted, all in 1995 (Juma, 2012). Primarily, the objective of the NIPC was to initiate and support measures that would improve the investment environment in Nigeria for both Nigerian and foreign investors *inter alia* (NIPC, 2012)). This was a clear indication of the nation's attitudinal change towards foreign investment.

The New Partnership for Africa's Development (NEPAD) program was form by the African Union, with the United Nations as their partners in 2001 to improve economic conditions in African economies. NEPAD has stressed the importance of FDI in the development process, and

has been in partnership with African countries to create conducive legal and infrastructural environments for both domestic and foreign investors. The increase in FDI inflows to Africa in the 2000s was possibly promoted by the formation of NEPAD.

The rising commodity prices also supported the rapid increase in FDI inflows in African nations in the 2000s. In 2005 oil prices reached $60 per barrel, and Sub-Saharan Africa's top oil exporters (Nigeria and Angola) collectively recorded inward FDI flows exceeding $10 billion. Within five years from 2005, the average GDP growth of Angola was about 12%, from 7% in the preceding five years. Even though this profound growth can be attributed to the commodity boom, the clear possibility that the country's higher growth was as a result of the prior boost in FDI should not be under mind.

Figure 3.2: GDP growth and FDI in Sub-Saharan Africa (Total) 1980-2010

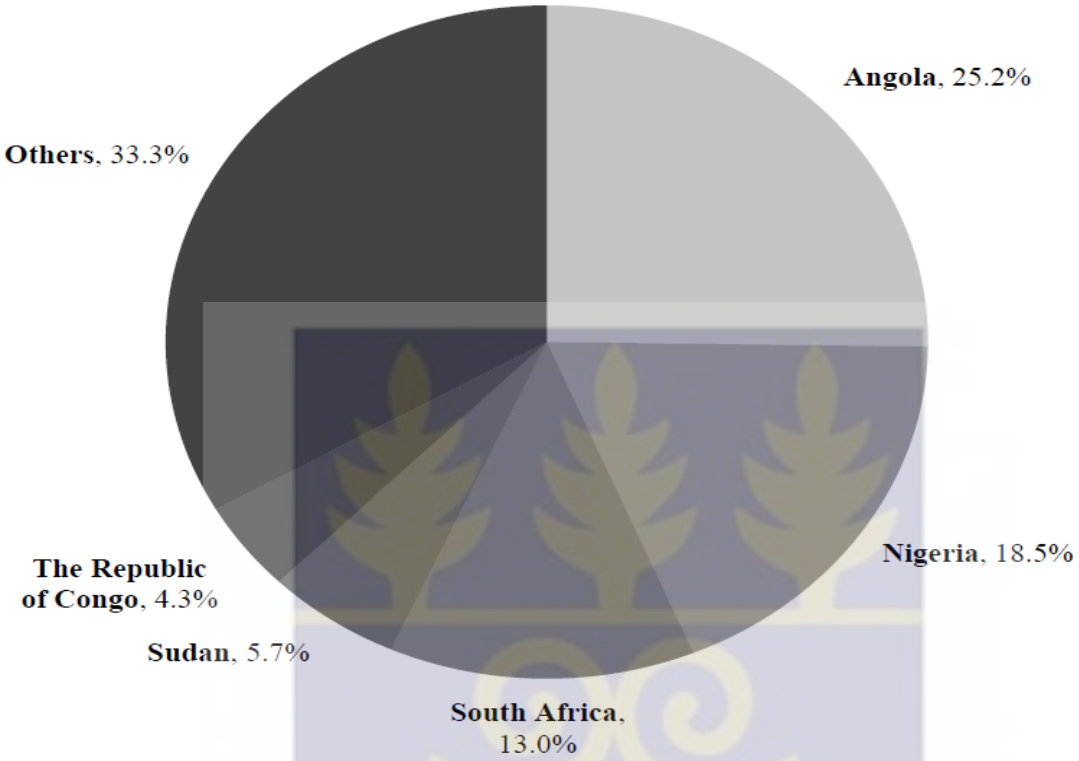


Source: UNCTAD (2012)

Bringing SSA into this preliminary analysis, Figure 2.2 compares annual FDI inward flows as a percentage of GDP to real GDP growth in this region from 1980 to 2010. From the diagram, we can see that the trend in GDP growth is generally higher in the years after 1995. This corresponds with the increase in FDI in this same period, indicating a positive correlation between FDI and welfare in Sub-Saharan Africa.

Although FDI flows to several African countries, its flow to selected number of countries is dominant. Over the past 30 years, Nigeria, Angola, South Africa, The Republic of Congo and Sudan were the largest five recipients of FDI which collectively have recorded an amazing 66.7% (two-thirds) of total FDI to SSA, see figure 2.3 for details. This can lead to the conclusion that FDI may go to countries that have abundant mineral resources. Nigeria, Angola, The Republic of Congo and Sudan are oil exporters, and South Africa exports other minerals like diamonds, gold, and coal.

Figure 3.3: Country shares of FDI flows to Sub-Saharan Africa (1980-2010)



Source: UNCTAD (2012)

To conclude, there has been a significant increase over the past few decades in FDI inflows in Africa. FDI inflows rises by a factor of fifteen, thus, it rise to $60.2 billion in 2009 from $400 million in 1980.

3.3.1 Determinants of FDI in SSA

There has been efforts to generate economic recovery in Africa over the years. But these efforts have not given enough attention to the extend to encourage investment beyond the belief that good policies should increase foreign capital inflows (Jenkins and Thomas, 2002).

Even though theoretically, why multinational enterprises engage in FDI is not beyond our understanding, this issue of foreign firms locating subsidiaries in developing countries empirically is a matter of controversy. Going through empirical studies on the determinants of FDI inflows to developing countries, there are conflicting findings. Ngowi (2001) in his study of FDI in Africa stated that determining the exact quality and quantity of each of the determinants of FDI required in a location to attract a given level of FDI inflows is difficult. However, Ngowi (2001) cited a stable and predictable political environment; favourable macroeconomic indicators; quality infrastructure; availability and quality of natural resources; well-functioning and transparent financial markets; the size, openness and competitiveness of the domestic market; low transactions and business costs; and an efficient and dependable legal system among others, as the possible factors that are believed all MNE enterprises consider when deciding whether or not to invest in a particular country.

In a different study, Anyanwu (2011) employ panel data technique to investigate the determinants of FDI inflow to African countries. He found large market size, openness to trade, high government consumption expenditure, high remittance, and natural resource endowment to have positive impact on FDI inflows to Africa.

Ngowi (2001) further points out in his study that, the main factors that prevent an increased inflow of FDI in African countries are the fact that most countries are seen as high risk as a result of lack of political and institutional stability and predictability.

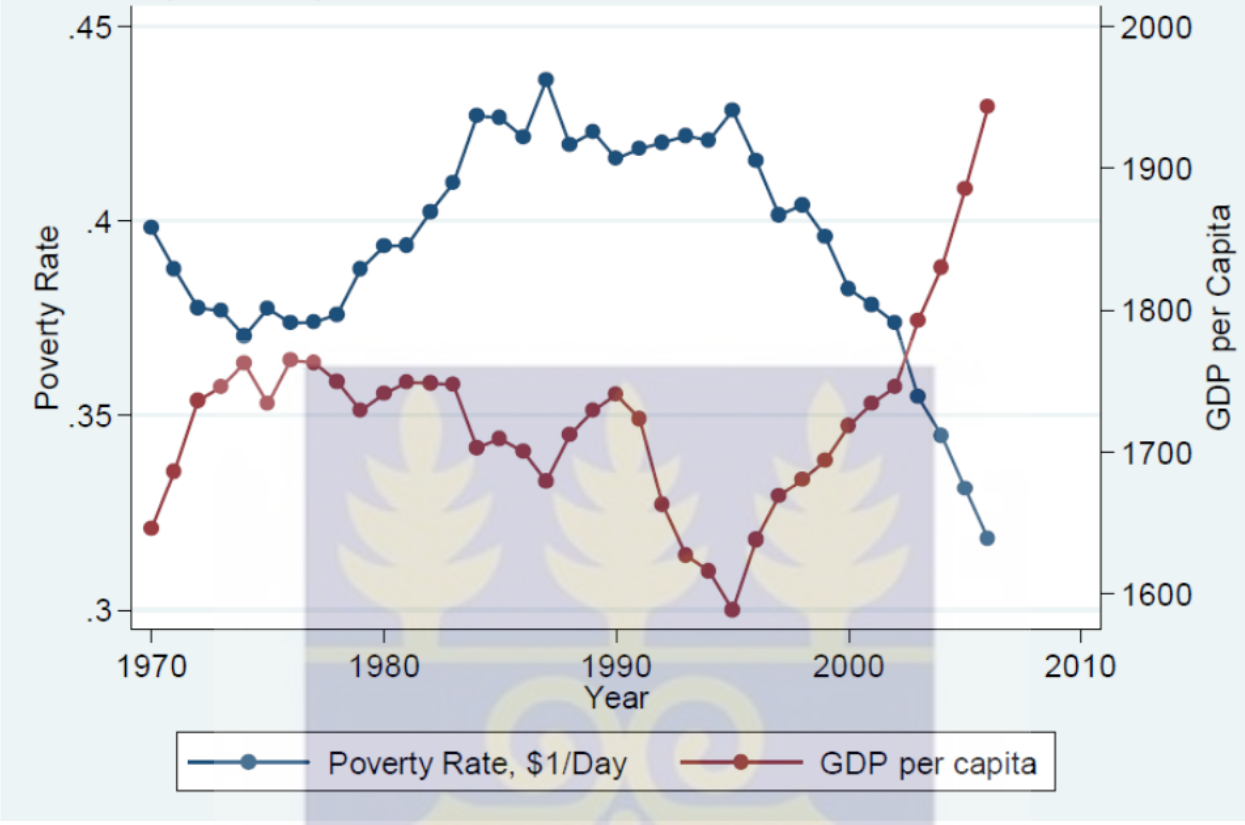
3.4 Concept of Poverty in SSA

There is the general consensus that poverty remains a teething problem especially in sub-Saharan Africa despite significant progress made in its reduction over the years. The WorldBank (2013)

report states that, 48.5% of the population in Sub-Saharan Africa is living on less than $1.25 per day, and 69.9% on less than $2.00 per day as at 2013. The report further points out that, about 637 million out of a little over 910 million people still live below the poverty line in this region. According to Chakravarty and D'Ambrosio (2013), governments and development organizations such as Non-Governmental Organizations (NGOs), the World Bank (WB), International Monetary Fund (IMF) and United Nations (UN) have made several attempts to alleviate poverty by embarking on poverty reduction strategies. On current evidence the global target of eradicating extreme poverty and hunger by 2015 (MDG1) is still not achieved. The World Bank's forecast reveal that 702.1 million people globally were still living in extreme poverty in 2015 from 1.75 billion in 1990, of which about 347.1 million people lived in SSA.

There has been an inverse relationship between poverty rate and GDP per capita in SSA over the years. This confirm some empirical studies, as will be seen in the next chapter. Figure 2.4 below shows the relationship.

Figure 3.4: $1/Day Poverty rate and GDP per capita in Sub-Saharan Africa, 1970-2006.



Source: Pinkovskiy and Sala-i-Martin (2010)

There has not been consensus on the definition of poverty. Various authors defined it the way they deem appropriate. David and Timothy (2002) defines poverty as having lack of resources relative to needs. However, Foster (1998) try to broaden the understanding of the definition of poverty by arguing that, in order to get a definite definition of poverty, it is necessary to define a threshold in terms of absolute and relative poverty. He argued further that, in the case of absolute poverty, a group- specific absolute poverty line or threshold (food, clothing, healthcare and shelter) is defined based on the resources needed to maintain basic needs among the group. And relative poverty, takes into consideration the living standard for the income distribution such as mean, median or other quintile that defines the cut off as some percentage of this standard.

To measure poverty, it is necessary to be able to compare resources to needs (Jabir, 2015). According to Foster (1998), one is said to be poor (absolutely or relatively) if his resources fall short of the poverty threshold. Going beyond the definition of poverty, Foster (1998) indicated several indices of poverty including the head-count ratio which provides important information on poverty such as the frequency of poverty among the population but ignores other relevant information on the depth and distribution of poverty. He also proposes a kind of "partial index" which is based on the sum of the income gaps of poor families and this "gap indices" add a second dimension of "depth" to poverty evaluations. Finally, he proposes indices of inequality among the poor such as the Gini coefficient.

3.4.1 Measurement of Poverty

Several indices have been used by international organizations to measure poverty. Widely used is the $1.25/day extreme poverty line which is used to measure headcount ratio (i.e. the percentage of people living below the line). The WorldBank (1990) defined extreme poverty as living on less than US $1.25 per day Purchasing Power Parity (PPP), and moderate poverty as less than $2 a day. This method has been criticized by various actors pointing out that, it is unable to capture other important measures such as depth of poverty, relative poverty and how people view their own financial situation *inter alia*.

To solve the problem, the 2010 Human Development Report introduced the Multidimensional Poverty Index (MPI), which takes into account income and basic needs (education and healthcare). The Human Development Index also compiled by the UNDP is another measure of poverty. Just like the MPI, the HDI also measures poverty in three areas of deprivation, namely healthcare, basic education and income provisions. The only difference is that whiles HDI uses aggregate level data,

MPI concentrates on individual level data. Leaning poverty to healthcare, there is an evidence of poverty in life when one dies below the age of forty (UNDP, 2006) report. Measuring poverty with regard to basic education, the report mentioned the fraction of adults who are illiterates, and the fraction of people without access to safe water and fraction of children underweight, for the economic provision. The Alkire-Foster Method is another useful version of MPI created by the Oxford Poverty and Human Development Initiative (OPHI). This can be decompose to reflect both the incidence and the intensity of poverty and can be used to determine the most likely causes of poverty within a region. Yet still, other authors (such as Odhiambo (2009) ; Quartey (2008)) used per capita consumption as a proxy for poverty. This measure is also appropriate as the WorldBank (1990), define poverty as "the inability to attain a minimal standard of living" using basic consumption as a measure.

3.4.2 Measurement of Inequality

Here, we are talking of inequality in terms of income distribution. This sometimes is also use to measure poverty. Two main types of measures are broadly used for inequality namely, size/personal distribution of income and functional distribution of income or distributive factor share of income. The most common among the two is the size/personal distribution of income, and it has to do with total income of individuals or households regardless of the sources. Typically, this type of measure arranges individuals/households by ascending order of income and divides total population into distinct groups. An example is the quintiles and deciles shares of income. Other examples are; Lorenz curve, Gini coefficient, Theil index, and Atkinson index. With functional distribution of income, it seeks to measure the share of income accruing to various factors of production (ie, labour, land, capital and entrepreneurship).

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

This chapter begins by discussing the models and the econometric techniques employed to analyse the data for the study. It then proceeds with the discussion of the variables, sample and source of data, highlighting the dependent and independent variables. The chapter also give an overview of the panel data regression model.

4.2 Model Specification

To address the two objectives set out at the beginning of this study, the study adopted the model specified below. This model was used by Gohou and Soumaré (2012) and was replicated more recently by Ucal (2014), to assess the FDI and welfare relations:

$$HDI_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 HIGH_{it} + \beta_3 FDIHIGH_{it} + \beta_4 EDUCATION_{it} + \beta_5 INTERNET_{it} + \beta_6 INFLATION_{it} + \beta_7 GOVSIZE_{it} + \beta_8 PRR_{it} + \varepsilon_{it} \quad (10)$$

Where,

HDI = human development index, FDI=foreign direct investment net inflows, HIGH= growth dummy, FDIHIGH = FDI net inflows*growth dummy, EDUCATION = education, INTERNET = internet users, INFLATION = inflation rate, GOVSIZE = general gov't final consumption expenditure, PRR= political rights rating, ε_i = error term, i denotes countries and t denotes time.

To take care of differences across countries which may influence the dependent variable (HDI), we apply the fixed effects and the random effects models.

Secondly, the study will employ the Durbin-Wu-Hausman test to diagnose the variable of interest (FDI). If FDI is found to be endogenous, the study will adopt the fixed effect instrumental variable (FE-IV) and the random effect instrumental variable (RE-IV) techniques. This is to address the endogeneity problem of FDI net inflows and also account for county effects. The lags of FDI net inflows will be used as an instrument for itself since the lags of a variable is a valid instrument for itself (Amuakwa-Mensah, Marbuah, andMubanga, 2016).

4.3 Variables and Sample

4.3.1 Variables

The main variables used to assess both the direct and indirect impact of FDI on welfare are the human development index, FDI net inflows, and the interaction between FDI net inflows and the growth dummy (FDIHIGH). A number of control variables are also used.

(a) Foreign direct investment

The net inflow of FDI is used to measure FDI. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors, and is divided by GDP. The FDI variable is used to measure its direct impact on welfare.

(b) FDIHIGH

Here, we interacted the FDI net inflows as defined above and the growth dummy. The growth dummy defined by HIGH takes the value 1 if Gross national income (GNI) per capita of a country is above the yearly threshold of lower income[4] and 0 otherwise. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad (WDI). The classification is done based on yearly thresholds because some countries can switch income level over two consecutive years. This variable is use to assess the indirect impact of FDI through economic growth.

(c) Welfare variables

Several measures including GDP per capita and poverty incidence has been used in the literature to assess countries' progress towards improved welfare. Per capita GDP only measures the economic aspect of welfare. This leaves a gap in the literature since some authors including Gohou and Soumaré (2012) attest to the fact that development is a multidimensional phenomenon, and welfare depends not only on economic factors but on health care, education, and other factors as well. On the other hand, poverty incidence is a comprehensive measure of a country's well-being, it encompasses all aspects of individuals' living conditions (health, education, access to basic services, nutrition, etc.) to the threshold needed for a decent standard of living (Gohou and Soumaré, 2012). However, it is not recorded annually and is too country-specific to be aggregated across countries (Gohou and Soumaré, 2012), therefore its use in empirical analysis is limited. As

[4] These are as follows; 1990-610, 1991-635, 1992-675, 1993-695, 1994-725, 1995-765, 1996-785, 1997-785, 1998-760, 1999-755, 2000-755, 2001-745, 2002-735, 2003-765, 2004-825, 2005-875, 2006-905, 2007-935, 2008-975, 2009-995, 2010-1005, 2011-1025, 2012-1035, 2013-1045.

a result, this study did not consider poverty headcount as a welfare measure because of its non-availability for a number of years.

The human development index (HDI) is used as the population welfare measure, despite the fact that it limits the definition of poverty to three basic aspects of human development. HDI as defined by the UNDP, is a summary composite index that measures a country's average achievements in three basic aspects of human development, namely health, knowledge, and standard of living. Health is measured by life expectancy at birth. Knowledge is measured by a combination of the adult literacy rate and the combined primary, secondary, and tertiary gross enrolment ratio. Standard of living is defined by GNI per capita (purchasing power parity US $) (UNDP, 2010). HDI is the most universally accepted measure of a country's human development.

(d) Control variables

To improve the empirical analysis, a number of control variables have been used. The phenomena we controlled for are believed to be factors that affect welfare and has been used by other authors including (Gohou and Soumaré, 2012) and Ucal (2014) to assess the FDI and welfare relations. This include the following:

Inflation (INFLATION):

Measured by the annual growth rate of the GDP implicit deflator, shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency. Inflation is used to capture macroeconomic instability and it is expected to have inverse relationship with welfare as high inflation leads to less FDI inflows and also increases the price of basic goods and directly impacts the poor.

Education (EDUCATION):

Measure by total enrolment in secondary education, regardless of age. A country's quality human capital is measured by the level of its population's education. This is expected to have a positive influence on welfare because, availability of quality human resource tend to attract investors especially MNEs who seek human resource.

Infrastructure (INTERNET):

An infrastructure variable, denoted by internet users per 100 people. Infrastructural development contributes to better living conditions as well as attract foreign investors. It is therefore expected to be positively related to welfare.

Government size (GOVSSIZE):

Measured by general government final consumption expenditure which include all government current expenditures for purchases of goods and services. It is expected to improve welfare because HDI is a composite measure of a countries' welfare, taking into consideration education, health, and income. All these receive government attention and/or FDI, especially in developing countries, citizens' basic needs are principally ensured by government spending.

Political rights rating (PRR):

This measures freedom for political activism. African countries are generally characterized by low level of institutional efficiency which adversely impact FDI. The study control for this effect using the Political rights rating (PRR) variable.

4.3.2 Sample

This study uses data from 38 Sub-Saharan African countries covering the period 1990 to 2013 (23 years). The data for each country over the 23 years period constitute time series data and data for all countries for a given year is cross-sectional data. Pooling them together yields a panel data set. The data on HDI is compiled from the UNDP database. The rest have been compiled from the World Development Indicators (WDI) database except Political rights rating (PRR) which is compiled from freedom house database. The list of countries included in the sample can be found in appendix.

The definition of variables together with their sources are given in table 4.1 below.

Table 4. 1: variables definitions and data sources

Variable	Definition	Source of data
HDI	Human development index	UNDP database
FDI	Foreign direct investment net inflows (% of GDP)	World Development Indicators (WDI)
HIGH	Growth dummy	Author's computation
FDIHIGH	FDI net inflows*growth dummy	Author's computation
EDUCATION	Secondary school enrollment (% of gross)	WDI
INFLATION	Inflation, GDP deflator (annual %)	WDI
INTERNET	Internet users (per 100 people)	WDI
GOVSIZE	General gov't final consumption expenditure (% of GDP)	WDI
PRR	Political rights rating	Freedom House

4.4 Panel Data Regression Model

Panel data estimations will be used for this study. According to Baltagi, Jung, and Song (2010), and Greene (2003), panel data regression model is specified as follows. It has space (cross-section) and time dimensions which is indicated by a double subscript on its variables. As mentioned by Gujarati and Porter (2009), there are space and time dimensions in panel data regression model, therefore it is the combination of cross-section and time series data.

$$Y_{it} = \alpha_i + \beta X'_{it} + u_{it} \qquad i= 1 \ldots N, t= 1 \ldots T \qquad (1)$$

In the model above, Y_{it} is the dependent variable, α_i is constant term, β is Kx1 vector of unknown parameter, X_{it} is the ith observation on K independent variables, u_{it} denotes error term, ***i*** denotes households, individuals, firms, countries... and t denotes time.

Baltagi et al. (2010), has indicated many benefits of panel data regression. Among them is the fact that panel data helps us to control for heterogeneity of cross-section units (such as individuals, states, firms, countries et al.) over time. Its estimation considers all cross-section units as heterogeneous and helps us to get unbiased estimation (Gichamo, 2012). According to Baltagi et al. (2010), panel data estimation is better in identifying and measuring effects of independent variables on dependent variables as compare to pure cross section and time series. Furthermore, ‘‘Panel data give more informative data, more variability, less collinearity among the variables, more degree of freedom and more efficiency’’ (Gichamo, 2012), page 27. Also, as stated by Baltagi et al. (2010), panel data estimation is a better estimation method to study the duration of economic states and the ‘‘dynamics of change’’ over time. Lastly, to ‘construct and test complicated behavioural models’, this estimation method is appropriate.

In order to make full use of the richness of the panel data, the study will rely on results from one of the following panel data regression models depending on the result of the Hausman test; 1. Fixed Effect Model and 2. Random Effects Model.

4.4.1 Fixed Effects Model (FEM)

The fixed effects model is also called Least squares dummy variables (LSDV) model. In this model, all cross-section units have their own fixed intercept (dummy variable). This is specified below.

$$Y_{it} = \beta_{1i} + \beta_2 X_{it} + \cdots + \beta_N X_{it} + u_{it} \quad (2)$$

i = 1 . . . N, t= 1 . . . T

Model (2) above shows that each unit has its own intercept (Subscript i in the intercept show that the units may have different intercepts). The individual intercepts brings about heterogeneity among the units. FEM has time-invariant unit intercepts even if they might be different among cross section units. It however assumes that the coefficients of the independent variables do not vary across cross-section unit or over time.

The way to create different intercepts among the cross section units is by using dummy variable technique. This is shown below in equation (3).

$$Y_{it} = \alpha_1 + \alpha_2 D_{2i} + \alpha_3 D_{3i} + \cdots D_{Ni} + \beta_2 X_{it} + \cdots + \beta_N X_{it} + u_{it} \quad (3)$$

i= 1 . . . N, t= 1 . . . T

Where α_1 is the intercept value of the first cross sectional unit, and the other α coefficients show by how much the intercept value of the other cross section units differ from α_1. For instance, α_2 tells us by how much the intercept value of the second cross section unit differs from α_1. When we add α_1 to α_2, we get the actual value of the second cross section unit. The estimators as a result of fixed effect model are called fixed effect estimators.

The fixed effects model specified in equation (2) is called one way fixed effects since we allow different intercepts for all units. However, if time dummies are included in one way fixed effect model, it will be two way fixed effects since the unit and time effect are allowed. Nevertheless, this study will only use one way fixed effects model. According to Gichamo (2012), introducing many dummy variables has multicollinearity and degree of freedom problem.

4.4.2 Random Effects Model (REM)

This is also known as Error Component Model (ECM). The cross section units of REM have random intercept instead of fixed intercept. In the fixed effects equation (2) above, we replace β_{1i} by the mean value of cross section unit intercepts and random error term which represent the deviation of individual intercept from the mean value (β_1) with mean value of zero and variance of $\sigma^2\varepsilon$ (ie β_1 and ε_i). See equation (6) below.

$$\beta_{1i} = \beta_1 + \varepsilon_i \qquad (6)$$

$$Y_{it} = \beta_1 + \varepsilon_i + \beta_2 X_{it} + \cdots + \beta_N X_{it} + u_{it} \qquad (7)$$

$$Y_{it} = \beta_1 + \beta_2 X_{it} + \cdots + \beta_N X_{it} + w_{it} \qquad (8)$$

$$w_{it} = \varepsilon_i + u_{it} \qquad (9)$$

From equation (9), W_{it} is the sum of ε_i and u_{it}, where ε_i cross section unit error term and u_{it} is a combination of both cross section unit and time series error term.

Hausman test will be applied to choose the best model with reliable result from the above two models. The Hausman test has a null hypothesis of no significant difference in the estimator of fixed effect model and random effect model. If the null hypothesis is rejected, the fixed effect model will be the appropriate model. Rejecting the null hypothesis means that, the error term (W_{it}) and dependent variables might be correlated.

4.5 Diagnostic tests

This study tests for endogeneity of FDI, and the presence of heteroskedasticity and serial correlation in the model. It also test for multicollinearity, despite among the advantages of panel data is that they contain less collinearity.

4.5.1. Serial Correlation and Heteroskedasticity

Baltagi et al. (2010), mentioned that the component of panel data model with the standard error assumes homoskedastic variance of the disturbance and constant serial correlation through the random individual effects. Empirically, with these assumptions, the applications of panel data models are weakened. Serial correlation and heteroskedasticity are often estimation problems associated with time series and cross sectional data respectively. And since panel data comprises of time series and cross section, it is by extension not free from the problem of serial correlation and heteroskedasticity. The presence of serial correlation (autocorrelation) in a model can make

the estimates of the regression coefficients inefficient, among others (Granger and Newbold, 1974).

With Heteroskedasticity (i.e the correlation between error terms of different periods). The assumption of constant variance of the error term [i.e var (ε_{it}) $\neq \sigma^2$, thus heteroskedasticity] is violated. Again, according to Wooldridge (2008), the presence of heteroskedasticity renders parameters inefficient, thereby making inferences from the t and F tests unreliable any longer.

As a result of these statistical problems identified with the two panel data devils, thus serial correlation and heteroskedasticity, the study tests for their presence by adopting the Wooldridge (2008) test for serial correlation in linear panel models and the Breuch-Pagan (BP) test for heteroskedasticity. In case the hausman test favours the fixed effects model, the modified Wald test which tests for heteroskedasticity in the fixed effects regression model will be conducted.

To correct for the presence of heteroskedasticity and serial correlation, we run a robust command as part of our panel estimation techniques. This method gives standard errors of regression coefficients that are robust to heteroskedasticity and serial correlation.

CHAPTER FIVE

DATA ANALYSIS AND DISCUSSION OF RESULTS

5.1 Introduction

In This chapter, we present and discuss issues concerning the panel model econometric estimation specified in chapter four above. We use STATA ahead of SPSS for the regression analysis. This is partly because of the argument of many scholars that, there is a limitation in dealing with the problems of serial correlation, multicollinearity and heteroskedasticity in the use of SPSS to compute time-series related regression analysis (Moon, Sekwat, andStanley, 2004). Our analysis starts with a descriptive analysis of the variables used in the study. We then proceed to carry out the diagnostic tests discussed in chapter four. Finally, we presented the results of the actual estimations and discussed.

5.2 Descriptive analysis

In this section, we give a brief discussion of the basic statistical properties of the variables used in the model over the period 1990 to 2013. Among the summary statistics examined are the mean, standard deviation, minimum and maximum values for the pooled sample. Table 5.1 below shows the details:

Table 5.1: Summary statistics of variables, 1990-2013

Variables	Mean	Standard Deviation	Minimum	Maximum
HDI	0.4649254	0.116928	0.216	0.771
FDI	3.863255	8.704093	-82.8921	91.00733
HIGH	0.3041998	.460329	0	1
EDUCATION	38.46481	29.48111	5.16489	122.2017
INTERNET	5.422798	12.34602	0	86.7
INFLATION	1.60e+07	9.76E+07	-29.17246	7.52E+08
GOVSIZE	14.19174	6.524889	2.060382	47.19156
PRR	4.355263	1.918451	1	7

Source: Author's computation using STATA
Note: For an explanation of abbreviations, see Table 2. For the list of African countries, see Table 1

The standard deviation column from Table 5.1 above measures the dispersion of the variables from their means. The presence of outliers are indicated by large standard errors which significantly influence the data. The difference between the maximum and minimum values of the variables can also help to determine the spread. The bigger the gap of a variable, the larger the standard deviation of the said variable.

HDI averaged about 0.465. The maximum and minimum values of HDI were 0.771 and 0.216 respectively over the period. The average of FDI net inflows (% of GDP) for the period was about 4%, with about -83% minimum and about 91% maximum. Breakdown of the rest of the control variables are all shown above in the table.

Table 5.2 below shows the correlation between HDI and the variables used in this study.

Table 5.2: Correlation matrix for African countries from 1990-2013.

	HDI	FDI	EDUCATION	INTERNET	INFLATION	GOVSIZE	HIGH	PRR
HDI	1.00							
FDI	0.09	1.00						
EDUCATION	0.85	0.08	1.00					
INTERNET	0.46	0.08	0.68	1.00				
INFLATION	-0.07	0.04	-0.10	-0.08	1.00			
GOVSIZE	0.37	0.17	0.26	0.04	0.24	1.00		
HIGH	0.75	0.06	0.71	0.52	-0.09	0.27	1.00	
PRR	-0.52	-0.09	-0.39	0.04	0.04	-0.30	-0.33	1.00

Source: Author's computation using STATA
Note: For an explanation of abbreviations, see Table 2.

From the table, the relationship between the welfare variable (HDI) and the other variables met the expectation of this study. The correlation between all the variables are generally low (below 0.50) except between the following; HDI and education which recorded about 0.85, political rights rating (PRR) and HDI which recorded about 0.52, internet and education about 0.68, HIGH recorded 0.75 with HDI, 0.71 with education, and finally about 0.52 with internet. The 0.85 correlation between HDI and education is understandable because the computation of HDI takes education into account. The high correlations between HIGH and HDI, education, and internet means that quality human development, education and internet services are associated with high grown countries.

5.3 The Hausman test

As mention earlier on, the study compared the fixed effect model with the random effect model using Hausman test. Results of which is shown in table 5.3 below.

Table 5.3: Hausman specification test

	Coefficients			
	(b) FE	(B) RE	(b-B) Difference	sqrt (diag (V_b-V_B)) Standard Errors
fdi	.0006635	.0004309	.0002326	.0000568
high	.0080412	.013466	-.0054249	.001105
fdihigh	-.0000473	.0002431	-.0002904	.0000521
education	.0025653	.0027549	-.0001896	.0000853
internet	.000267	.0001929	.0000741	.0000118
inflation	-.0003503	-.0001502	-.0002001	.0001308
govsize	.0004579	.0013445	-.0008866	.000316
prr	-.0084342	-.0091374	.0007033	.0006004

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 (8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 44.42
Prob>chi2 = 0.0000
Therefore (V_b-V_B is not positive definite)

Source: Author's computation using STATA
Note: For an explanation of abbreviations, see Table 2.

From the results, the Hausman test rejects the null hypothesis of no correlation between the regressors and the country heterogeneity error term. This makes the fixed effect model appropriate over the random effects model. This results confirm similar outcome of Gichamo (2012).Therefore, the study concentrates on results of the fixed effect (FE) model or the fixed effect instrumental variable (FE-IV) model depending on the outcome of the endogeneity test.

5.4 Diagnostic Tests

In order to make the appropriate correction for more robust results, the study test for the presence of endogeneity, multicollinearity, serial correlation, and heteroskedasticity.

5.4.1 Endogeneity

To be able to take a definite stand as to which model out of FE model and FE-IV model, we employ the Durbin-Wu-Hausman test, results of which is in table 5.4 below.

Table 5.4: Tests of endogeneity

Ho: variables are exogenous	
Durbin (score) chi2(1)	= 0.497013 (p = 0.4808)
Wu-Hausman F(1,213)	= 0.480102 (p = 0.4891)

Source: Author's computation using STATA

From the table, a Probability value of 0. 4808 accepts the null hypothesis that FDI is exogenous. We therefore use the FE model over the FE-IV model.

5.4.2 Multicollinearity

An important concern of multicollinearity is that, as its degree increases, the estimated coefficients become unstable and their standard errors can get wildly inflated. Also, a severe multicollinearity can cause the coefficients to change signs. To check for its presence, we employ the Variance Inflation Factor (VIF) test for multicollinearity. Results of which is shown in table 5.5 below.

Table 5.5: VIF test for Multicollinearity

Variable	VIF	1/VIF
education	3.53	0.283289
high	2.71	0.369192
internet	2.45	0.407777
fdihigh	2.10	0.476109
prr	1.56	0.639003
fdi	1.41	0.709817
govsize	1.31	0.765950
inflation	1.11	0.904464
Mean VIF	2.02	

Source: Author's computation using STATA
Note: For an explanation of abbreviations, see Table 2.

From the table, the VIF test revealed a general minimal correlation among the independent variables. The rule of thumb is that VIF should exceed 10 (Gujarati and Porter, 2009). The VIF of all the variables are less than 10. This means that each of the variables can be considered as a linear combination of the dependent variable (HDI).

5.4.3 Serial Correlation

Among the salient assumptions that yields consistent parameter estimates is the assumption of no correlation between the error term and the regressors. The study therefore employed the Wooldridge test to verify this assumption. Results of which is shown in table 5.6 below.

Table 5.6: Wooldridge test for serial correlation in panel data.

H0: No first-order autocorrelation
F (1, 23) = 81.250
Prob > F = 0.0000

Source: Author's computation using STATA

From the table, a Probability value of 0.0000 rejects the null hypothesis and confirms the presence of autocorrelation in the panel model.

5.4.4 Heteroskedasticity

Equal and constant variance error terms (homoscedasticity) are necessary for an efficient regression estimates. With Heteroskedasticity, the constant variance of the error term assumption is violated. The study therefore test for heteroskedasticity in the model using the Modified Wald test since the Hausman test recommends fixed effect model. See results in table 5.7 below.

Table 5.7: Modified Wald test for groupwise heteroskedasticity in fixed effect regression model

H0: sigma (i) ^2 = sigma^2 for all i
chi2 (34) = 4.5e+28
Prob>chi2 = 0.0000

Source: Author's computation using STATA

From the table above, the Wald test with probability value of 0.0000 confirmed the presence of heteroskedasticity in the model.

Having realized the presence of the two panel data devils (heteroskedasticity and serial correlation), the study presented a robust estimation of the fixed effects and random effects models.

5.5 Empirical Results and Discussion

The results shown in table 5.8 are obtained from estimating equation (10) using the fixed effect (FE) and random effect (RE) techniques. The outcome of the Hausman test in table 5.3 rejects the null hypothesis of no correlation between the independent variables and the country heterogeneity error term, making the use of the fixed effect model (FEM) appropriate. The results of the Hausman test confirm similar outcome of (Gichamo, 2012). Therefore, we concentrate on the parameter estimates obtained under the FE estimator.

The model specified above performed quite impressive as all coefficients of the variables are have their expected signs. FDI is significant with the expected sign across all regressions under the FE model except the 5th column where it is negative and insignificant, it is also insignificant though with the expected sign in column 3 under the RE model. On the other hand, 'FDIHIGH' is insignificant across all regressions though with the expected sign in columns 5 and 6 under the FEM. Education, infrastructure (internet), and government size, as expected, exert positive effects on welfare. Inflation and political rights rating which takes a value 1 if a country is free from political risk and 7 if it is highly risky, as expected, exert a negative impact on welfare. The constant term indicates that if all the coefficients of the independent variables were equal to zero, we would expect 0.373 increase in welfare due to FDI inflow into SSA.

Table 5.8: Estimates of equation (10) using RE and FE, 1990-2013.

Dependent Variable: Human Development Index (HDI)						
Independent Variables	Random Effect Model			Fixed Effect Model		
	(1)	(2)	(3)	(4)	(5)	(6)
fdi	0.00150***	-2.52e-05	0.000431	0.00145***	-8.92e-05	0.000663**
	(0.000473)	(0.000250)	(0.000315)	(0.000483)	(0.000231)	(0.000281)
high	0.0143	0.00520	0.0135	0.00708	-0.00425	0.00804
	(0.0109)	(0.00769)	(0.0131)	(0.0101)	(0.00501)	(0.0126)
fdihigh		3.01e-05	0.000243		-0.000149	-4.73e-05
		(0.000352)	(0.000488)		(0.000295)	(0.000510)
education	0.00270***	0.00141***	0.00275***	0.00253***	0.000290	0.00257***
	(0.000298)	(0.000380)	(0.000309)	(0.000376)	(0.000485)	(0.000396)
internet	0.000181	-0.000575**	0.000193	0.000251	-0.000986***	0.000267
	(0.000216)	(0.000280)	(0.000221)	(0.000218)	(0.000347)	(0.000220)
inflation	-0.000135	-0.000149*	-0.000150	-0.000289	-0.000106	-0.000350*
	(8.97e-05)	(8.07e-05)	(0.000105)	(0.000175)	(0.000140)	(0.000194)
govsize	0.00133*	0.00157**	0.00134	0.000619	0.00126	0.000458
	(0.000745)	(0.000770)	(0.000836)	(0.000893)	(0.000748)	(0.00102)
prr	-0.00932***	-0.00525	-0.00914***	-0.00853**	-0.00210	-0.00843**
	(0.00350)	(0.00356)	(0.00336)	(0.00392)	(0.00357)	(0.00380)
fdisq	-1.83e-05***			-1.48e-05**		
	(6.54e-06)			(6.76e-06)		
Constant	0.349***	0.351***	0.349***	0.369***	0.377***	0.373***
	(0.0229)	(0.0323)	(0.0236)	(0.0255)	(0.0263)	(0.0269)
Observations	221	221	221	221	221	221
R-squared				0.598	0.780	0.592
No. of country	34	34	34	34	34	34
Time effects	No	Yes	No	No	Yes	No

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. The coefficients of the year dummies are not stated for conciseness. For explanation of abbreviations see table 2.

5.5.1 FDI

In table 5.8, the coefficient of FDI in column 6 is positive and statistically significant, therefore we do not reject the hypothesis that increasing FDI leads to improvement in welfare. We also run the same model using the RE approach. Results of which is in column 3 indicating that, the coefficient of FDI inflow is statistically insignificant even though it exerts a positive impact on welfare. In this case, we would reject any hypothesis that, FDI directly improves welfare because the coefficient is possibly not different from zero. Nevertheless, FDI has the potential of directly improving welfare in the region, the insignificant impact may be due to the fact that the unobserved country heterogeneity is correlated with the regressors. However, in columns 2 and 5 under the RE and FE respectively where we threw in time effects, FDI is insignificant and exert negative influence on welfare. As mentioned earlier on, this is probably because of the fact that introducing many dummy variables has multicollinearity and degree of freedom problem (Gichamo, 2012). Therefore, since the FE approach corrects for the correlation between the country heterogeneity and the regressors, we concentrate on its results. Specifically, the results in column 6 indicates that, an extra percentage point increase in FDI leads to an increase in welfare by 0.000663 units, all other things being equal.

The positive effect of FDI and the negative effect of the square of FDI in columns 1 and 4 under RE and FE respectively imply that the relationship between FDI and welfare is an inverted U-shape (non-linear). This means that as FDI in SSA increases, there is more spillover effects, hence welfare increases. However, beyond a certain level (48.99%)[5] of FDI inflows, welfare decreases

[5] Taking the first derivative of the equation involving FDI and FDISQ with respect to FDI, and setting it to stationarity test; $(HDI)' = \beta_1 + 2 * \beta_8 FDI$, $0 = \beta_1 + 2 * \beta_8 FDI$, therefore $FDI = -\frac{\beta_1}{2*\beta_8}$, using values from the FE model $FDI = \frac{0.00145}{0.0000296} = 48.9864865$

as FDI inflows increases. This result is intuitive since foreign investment at the early stage creates more jobs, develops local skills and stimulates technological progress, so welfare will improve. As the investment increases, complemented with local and already existing investments, competition sets in making foreign investment less rewarding. This often drives away foreign investors thereby making the effect of foreign investment on welfare to start decreasing. The coefficient of FDI is greater than that of FDISQ in both RE and FE. This means that the decrease in welfare as FDI inflows rise above the 48.99% peak is less as compare to the initial increase. In the data under consideration, Liberia for example has exceeded the peak (48.99%) of FDI inflows in 2011 with 85.37% inflows. Comparing the corresponding HDI values of 2011, and 2012 reveals a confirmation of the non-linearity of FDI. Liberia in 2011 had HDI of 0.402 and 0.407 in 2012 despite a decline of FDI inflows to 37.29%. This confirmation is however not robust since there are inconsistencies in the data in terms of the relationship between FDI data points and their corresponding HDI data points across all countries. For instance high FDI value may correspond to low HDI at different years and vice versa.

To conclude, our results support the hypothesis of a positive and significant impact of FDI on welfare. That is, FDI directly improves welfare in Sub-Saharan African countries at the aggregate level. This outcome conforms to the results of Jalilian and Weiss (2002), Gohou and Soumaré (2012), Ucal (2014), Ogunniyi and Igberi (2014), and Fauzel et al. (2015). In particular Gohou and Soumaré (2012) looked at FDI's impact on welfare in African countries, and the regional differences using HDI as welfare measure and found a significantly positive relationship between them. They also found the relationship to be non-linear. Our outcome is also consistent with the Benign model which highlighted that FDI improves welfare (reduces poverty) directly by exerting

a positive influence on government policy (better institutional standards, incentive to provide better infrastructure inter alia).

5.5.2 FDIHIGH

The coefficient of the interaction term in columns 5 and 6 of table 5.8 is negative but not statistically significant. We therefore do not have enough evidence to accept or reject any hypothesis that, FDI has a transition effect and for that matter FDI improves welfare in countries with high growth less than those with low growth. The insignificance of FDI's indirect effect (through economic growth) on welfare in Sub-Saharan African countries may be due to low economic growth in the region.

Control Variables

The signs of the control variables are also confirmed by the regression results as we expected. To start with, a country's quality of human capital (EDUCATION) has a significantly positive impact on welfare. As we argued earlier, the higher a country's quality of human capital, the more likely the country to attract resource seeking (human resource) investors, and the more the spillover effect for better welfare. This findings is consistent with that of Fauzel et al. (2015) who also found that education significantly reduce welfare in SSA.

Furthermore, the macroeconomic instability variable (INFLATION) exerts negative and significant impact on welfare. Again, as we argued earlier, this can be attributed to the fact that high inflation discourages foreign investors and also increases the price of basic goods and directly impacts the poor. This conforms to the findings of Gichamo (2012), who finds negative and significant relationship between FDI inflows and inflation.

Finally, we observe that political rights rating (PRR) as a measure of political risk has a negative and significant impact on welfare. The PRR indicator awards high scores to countries with less freedom and low scores to countries where residents have freer environments. As a result, the negative impact of political rights is in line with our expectation that greater freedom contributes to better welfare.

However, the coefficient of the growth dummy (HIGH), infrastructure, measured by the number of internet users per 100 people (INTERNET), and government size (GOVSIZE) do not significantly influence welfare.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

In this chapter, we present the summary and conclusion of the study as well as some policy recommendations based on the findings of the study.

6.2 Summary and Conclusion

There has been poor investment response in Sub-Saharan African countries over the years. This is a particular disappointment to the governments of this region that have reformed economic policy with the aim of creating an investor-friendly environment. It is not secrete that foreign capital inflows is a prerequisite for economic performance, and invariably, low welfare is virtually linked to both urban and rural unemployment. Many authors in the literature attested to the fact that investment is essential for creating new job opportunities in the formal sector of an economy, with indirect effects on the informal sector. Therefore, foreign capital inflows are necessary where domestic resources to finance investment are limited. Unfortunately, literature regarding the impact of foreign capital flows and for that matter FDI on welfare in developing countries is limited, only few studies tried to analyse empirically this relationship. As a result, the main objectives of the study was to assess the direct contribution of FDI on welfare improvement in SSA and to see whether there is an indirect effect of FDI on welfare through economic growth in the region.

The study uses the HDI as a welfare measure and FDI net inflows (% of GDP) for FDI's direct impact. To measure the indirect impact of FDI, we interacted FDI net inflows with the growth dummy 'HIGH' which takes a value of 1 if economic growth is above the lower income threshold and 0 otherwise, to get 'FDIHIGH'. As seen in other works, we controlled for the phenomena that affect welfare. Using equation 10, the study estimated an unbalanced panel model using data from 38 Sub-Saharan African countries over the period 1990-2013. We presented a robust estimation results of the Fixed Effect and Random Effect Models. The robust estimation was to control for serial correlation and heteroskedasticity. Following the Hausman test rejection of the null hypothesis of no correlation between the unobserved heterogeneity and the regressors suggesting the appropriateness of the Fixed Effect Model over the Random Effect Model, we concentrate on the results from the Fixed Effect Model. This was done after the endogeneity test prove FDI to be exogenous, recommending the use of FE over the FE-IV. We found a positive and significant relationship between FDI and HDI indicating that FDI has a direct effect on welfare. However, at the very minimum, we found no evidence that FDI indirectly worsens welfare through economic growth in SSA.

6.3 Recommendations

Following the results obtained from the study, two main policy recommendations are suggested as follows:

To begin with, governments of Sub-Saharan African countries battling with poor welfare can use foreign direct investment as a tool for improving the level of welfare in their respective countries. This can be done if they are able to give more attention to the determinants of FDI as outlined by many authors in the literature. To mention a few, they include opening up their economies to free

trade, strengthening their educational curriculum and improving on their infrastructure, since these are noted to be the drivers of FDI inflows.

Also, governments in SSA should try to provide an enabling business and political environment for foreign direct investment to thrive. If these are done to ensure more FDI inflows into the region, then both the direct and indirect effects of FDI on welfare can be simultaneously realized since FDI will create jobs, develop local skills, and stimulate technological progress, among others, thus improving welfare in the whole region.

Better still, governments of Sub-Saharan African countries could use tax incentives to attract more foreign investments into their countries, especially countries that have favourable laws and environment.

Secondly, countries in SSA should be mindful that if welfare (HDI) is improving, it might be due to other factors and not the growth in per capita income. Therefore, governments of Sub-Saharan African countries should identify and adopt certain factors that translate FDI inflow to better welfare, alongside with policies that will attract FDI inflows in their countries.

6.4 Delimitation of the Study

The study does not deal with regional differences in terms of FDI's impact on poverty reduction. This is due to unavailability of data points of the welfare variable (HDI) and the fact that the study does not include all Sub-Saharan African countries. Also, as a result of the unavailability of data on poverty incidence, the study used human development index to proxy welfare. Another limitation is the lack of comparability of HDI and the fact that we do not account for panel unit root or panel co-integration in our analysis. Therefore, the study recommends that future works in

this area should consider as much as possible to include all countries in SSA that will enable them disaggregate the data to look at regional differences in SSA sub-regions. Especially the transitional impact of FDI through economic growth since Gohou and Soumaré (2012) have considered regional differences of the direct impact of FDI in African regions. Also, future studies can consider level interactions (interacting FDI variable directly with the growth variable) on this area and such a study can add more impetus to this study. Further, future works can consider adding FDI's impact on welfare through income equality effects as found in the Benign model.

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APPENDIX

Table 1: List of countries included in the study

1. Ghana	**20. Malawi**
2. Benin	**21. Mauritius**
3. Burkina Faso	**22. Mozambique**
4. Cote d'Ivoire	**23. Rwanda**
5. Guinea	**24. Seychelles**
6. Guinea Bissau	**25. Tanzania**
7. Liberia	**26. Uganda**
8. Mali	**27. Angola**
9. Niger	**28. Cameroon**
10. Nigeria	**29. Central Africa Republic**
11. Sierra Leon	**30. Chad**
12. Senegal	**31. Congo, Dem. Rep.**
13. Togo	**32. Gabon**
14. Mauritania	**33. Sao Tome and Principe**
15. Cape Verde	**34. Sudan**
16. Gambia	**35. Botswana**
17. Ethiopia	**36. Namibia**
18. Kenya	**37. South Africa**
19. Madagascar	**38. Swaziland**