

**IMPACT OF FOREIGN DIRECT INVESTMENT ON DOMESTIC
INVESTMENT:**

EVIDENCE FROM SUB-SAHARAN AFRICA

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DEDICATION

I dedicate this thesis to my family. My mother Rev. Elizabeth Geraldine Ansa Acquah, and my brothers Bernard and Claus. And to all my extended family and friends on whose shoulders I have come this far.

ABSTRACT

This study examines the impact of Foreign Direct Investment (FDI) on domestic investment for 36 countries in Sub-Saharan Africa (SSA) over the time period 1980–2014, and over two time sub-periods, 1980–1994 and 1995–2014. We investigate whether increased efforts in SSA to attract more FDI have resulted in positive implications of FDI on domestic investment over the years. Our results from the System Generalized Method of Moments (SYS-GMM) estimations suggest that FDI inflows have led to crowding-in of domestic investment for the total time period, and particularly in the second time sub-period. Next, we examine whether the positive effect of FDI on domestic investment occurs in the case of smaller regional groups in SSA. Therefore, we implement the empirical analysis for five selected Regional Economic Communities (RECs) in SSA, covering: Common Market for Eastern and Southern Africa (COMESA), East African Community (EAC), Economic Community of Central African States (ECCAS), Economic Community of West African States (ECOWAS), and Southern African Development Community (SADC). The results generally show positive impacts of FDI on domestic investment across these RECs, which are consistent with the results obtained for the full sample. We find significant positive effects for COMESA in the first time period, and for ECCAS, ECOWAS, and SADC in the second time period. We extend the empirical analysis by investigating the role played by three development variables (financial development, human capital, and export sector development) in the effect of FDI on domestic investment in SSA. The results show that financial development and human capital tend to lessen the crowding-in effect of FDI on domestic investment in SSA, and could eventually lead to a crowding-out of domestic investment after a certain threshold. In contrast, the results indicate that export sector

development tend to augment the crowding-in effect of FDI on domestic investment in SSA.

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LIST OF ABBREVIATIONS

A-H: Anderson-Hsiao

AU: African Union

CACEU: Central African Customs and Economic Union

COMESA: Common Market for Eastern and Southern Africa

COPAX: Council of Peace and Security in Central Africa

DIFF-GMM: Difference Generalized Method of Moments

EAC: East African Community

ECCAS: Economic Community of Central African States

ECGLC: Economic Community of the Great Lakes Countries

ECOWAS: Economic Community of West African States

EPA: Economic Partnership Agreement

EU: European Union

FDI: Foreign Direct Investment

FE: Fixed Effects Estimation

GDP: Gross Domestic Product

GMM: Generalized Method of Moments

HRS: Hecht Razin Shinar Model

IFI: International Financial Institution

IV: Instrumental Variable Estimation

MENA: Middle East and North Africa

MDGs: Millennium Development Goals

MNC: Multi-national Corporation

NEPAD: New Partnership for African Development

OAU: Organization of African Unity

OECD: Organization for Economic Co-operation and Development

OLS: Ordinary Least Squares

RE: Random Effects Estimation

REC: Regional Economic Community

SADC: Southern African Development Community

SAP: Structural Adjustment Program

SSA: Sub- Saharan Africa

SYS-GMM: System Generalized Method of Moments

UNCTAD: United Nations Conference on Trade and Development

CHAPTER ONE

1. INTRODUCTION

Due to the increasing globalization of the world economy and the liberalization of exchange controls and market access, there is a large amount of capital that moves across borders. Most economists encourage the free flow of capital across national borders mainly because it allows capital to seek the highest return. According to Feldstein (2000), the free flow of capital also assists in diversification of assets and reduction of the risks faced by capital owners. Further, global capital mobility encourages the transfer of best practices of corporate governance, accounting rules and legal traditions, especially to developing areas such as Sub-Saharan Africa (SSA), where most of the economies are still in the process of switching from primary production to industrial organization. Global capital mobility also limits governments from pursuing bad policies.

Generally, international capital flows are either in the form of portfolio investments, Foreign Direct Investment (FDI) or loans. FDI however makes up a large part of foreign capital flows. Whereas other forms of private capital flows typically experience large reversals during financial crises, FDI has proven to be remarkably stable and resilient during global financial turmoil. FDI presents a more locked-in or secured investment, and it is not likely to be reversed at the first sign of local or global financial crisis (Loungani and Razin, 2001). FDI flows have also been noted to increase even when world trade flows slow down (Moosa, 2002). Since the end of the Bretton Woods system, many studies have investigated the contribution of inward FDI to the development of host countries. The acclaimed benefits of FDI are needed most in developing regions such as SSA, where FDI

now serves as a vital means of private external finance. The increase in the volume of global FDI flows could have occurred because of the fact that most developing countries have accepted FDI as a key component in achieving economic development, and thus have engaged in various efforts to attract the maximum possible portion of global FDI into their economies. In principle, there are various channels through which FDI can contribute to investment and growth in host economies, especially developing ones. The advantages that FDI brings to host countries include the transfer of technology, mainly in the form of new varieties of capital inputs that cannot be achieved through domestic capital mobilization. FDI can also stimulate competition in the domestic input market. Host countries benefit from human capital development through employee training in the course of operating the new businesses. Profits from FDI also add to corporate tax revenue in the host countries (Feldstein, 2000).

The level of investment of a country is one of the main determinants of economic growth and development. However, in most developing economies, actual domestic investment falls short of the desired volume required to cause a significant increase in Gross Domestic Product (GDP) growth. FDI is therefore seen as a means to bridge the gap between a country's domestic investment and the optimal levels of investment. As suggested by modern growth theories, FDI greatly improves the economic prospects of a country, with linkage through channels like capital accumulation, transfer of technology, transfer of skills and financing current account deficits. As a result, policies and programs in developing regions like SSA have been geared towards attracting more foreign investment. This is also in line with the proposition of most post World War II economists,

who encouraged outward-oriented policies as opposed to inward-oriented policies as a means of achieving economic progress in developing countries¹.

The SSA region has evolved in the policies that it has enforced over the years to attract FDI and to ensure that the benefits of FDI are fully reflected in the continent's development. After gaining independence from various colonial regimes, regional integration efforts in Africa have gradually intensified. The focus began with import-substituting industrialization, but eventually the continent has opened up to International Financial Institutions (IFIs) in order to receive economic assistance. Although some regional economic communities (RECs; also referred to in this thesis as sub-regions or regional economic blocs) were initiated in the post-independence era, it was the idea of an African Economic Community under the Organization of African Unity (OAU) in the 1980s that cemented the establishment of RECs in Africa. These RECs struggled with success in the beginning, but in recent years with the reshaping of the continent's economic focus, there has been a new approach to regional integration aimed at achieving better economic success in Africa. Investment has been a core focus of these RECs from their inception, and they have been very instrumental in attracting and directing the course of FDI in SSA.

1.1 Background

Foreign direct investment is largely carried out by Multi-national Corporations (MNCs). MNCs carry out net transfers of real capital from one country to another, and they represent entry into a host economy by a business organization established in a foreign market. MNCs

¹ The so-called "Financing Gap Model" as evidenced in early growth theories by Harrod (1939) and Domar (1946).

are vital for carrying out important roles through direct investment. The FDI process occurs when parent corporations carry out vertical or horizontal expansion of operations. FDI also occurs when parent companies diversify conglomerates. By broadening their operations to produce the same good abroad, international corporations take advantage of horizontal expansions to profit from introducing some highly demanded commodity straight into geographically segmented or tariff controlled markets (Brainard, 1997; Barba-Navaretti et al., 2004). Vertical expansions are profitable to MNCs by providing cheaper markets within which to produce intermediary goods (Caves, 1971). This is often the case with developing regions like Africa, with favourable exchange rates and relative abundance of labour. MNCs continue to employ an increasing share of labour in developing countries.

Although MNCs introduce new technologies and fill-in investment, managerial, foreign exchange and tax revenue gaps, it is also argued that they mostly propagate high tastes and style of living, and thus widen the existing divide between the rich and the poor in developing countries. On the extreme end, some view FDI as a form of neocolonialism, considering that former colonized areas like Africa had to agree to open up their economies in the early 1980s in order to receive assistance from the World Bank and the International Monetary Fund (IMF). Host countries sometimes have to forgo the benefit of corporate tax revenue by cutting taxes in an attempt to attract FDI from other locations. There are also instances where operations of MNCs rather reduce foreign exchange earnings. In some cases, technologies introduced do not take into account local skills and thus stifle indigenous entrepreneurship. MNCs may also lower domestic investment by using their bargaining power to obtain exclusive production agreements that stifle local competition. Investment to the local firms also suffers when MNCs raise capital in the developing

country, since MNCs' profitability is often higher than that of domestic firms. All of these could have a potentially negative impact on economic development. Overall, it is mostly observed that these MNCs are mainly concerned with making profits and expanding their market power, and not with the development goals of their host economies.

Since domestic investment is recognized as a vital determinant of economic development, and FDI is being increasingly encouraged as a means to fill-in domestic investment gaps in developing regions, it is important that FDI would have a complementing (crowding-in) effect instead of crowding-out effect on domestic investment. For example, Moosa (2002) argues that a crowding-out effect of FDI would prove counter-productive to the economy. One may however argue in favour of a crowding-out effect of domestic investment, since studies such as Borensztein et al. (1998) find that FDI is more efficient than domestic investment in developing countries. This result is not surprising, since in most developing countries, not only is domestic capital below optimal levels, but technological constraints mean that domestic capital is less productive than foreign capital, especially from more technologically advanced economies. However, if foreign investment crowds out domestic investment, especially in a developing region like SSA, it would eventually create unstable economies that are solely dependent on foreign capital inflows. Overall, a crowding-in effect of FDI on domestic investment is most desirable because this generates spillovers to the domestic economy that make it possible to accomplish sustainable economic development. These include complementarity to domestic production, higher domestic capital efficiency, and many more benefits to the host country such as those outlined earlier in our study.

Africa, the world's most resource-rich continent continues to struggle with achieving significant economic development, and thus remains the world's poorest continent. All African countries are developing countries according to the IMF, and more than fifty percent of least developed countries in the world are in Africa. There appears to be a lapse in the continent's ability to capitalize on its rich resources to stimulate economic development and guarantee a better standard of living for its inhabitants. In the face of this challenge, the region has made efforts to increase investment in the continent, and much of it has been geared toward attracting FDI. Most African countries have improved the climate for business operation within their economies by increasing political and economic stability, and by implementing policies designed to attract more FDI. The African Union (AU) formed the Private Sector Development, Investment and Resource Mobilization Division, and all the regional economic blocs have investment initiatives. As a whole, the continent has also launched the New Partnership for African Development (NEPAD), which, according to Funke and Nsouli (2003), has the intensification of FDI flow towards the region as one of its key objectives.

One of the channels through which FDI improves the economic prospects of an economy is by making it more attractive to foreign investors. If FDI complements domestic investment, this increases economic activity and therefore increases the location advantages which attract FDI into the economy. Therefore, domestic investment has a key role to play here, since capital formation occurs when there is a functioning domestic cycle of production, income and savings. The capacity for domestic capital formation thus indicates the presence of a stable environment and profitable opportunities for investors, including foreign ones. Consequently, if foreign investment augments domestic investment it could

lay the foundation for a virtuous cycle of increased production that would bring about the kind of rapid and sustainable development much needed in developing regions such as SSA.

The potential of FDI to impact domestic investment and economic development makes it an area of extensive research. Many empirical studies have been conducted to explore the effect of FDI on domestic investment. Whether FDI complements or substitutes domestic investment remains an ongoing debate among economists and policy makers. Results of empirical research on this subject are mixed. This is mainly due to how broadly or narrowly the key variables are measured and the varying judgments of appropriate econometric models and tests of sensitivity. There are also differences due to the quality and detail of the actual data analyzed. A study by Ullah et al. (2014) considers the interaction between FDI, domestic investment and growth. The results in this study show that FDI is able to supplement domestic investment and vice versa. A study by Acar (2012) on the effect of foreign investment on domestic investment for countries located in the Middle East and North Africa (MENA) region shows, however, that FDI crowds out domestic investment in the region. A regional study by Fry (1993) for five Pacific Basin countries and a control group of eleven other developing countries finds that FDI causes domestic investment to fall for the total sample. Meanwhile, for the five Pacific Basin countries, FDI increases domestic investment by the full amount of the FDI flow. The study concludes that the impact of FDI on domestic investment differs significantly by location. Agosin and Mayer (2000) also conduct a study on developing countries, to explore the direction in which FDI affects domestic investment for countries in the developing regions of Africa, Asia and Latin America. The results in this study show strong crowding-in effect

in Asia, but less in Africa. In Latin America however, this study finds evidence of strong crowding-out effect.

Evidence from existing research therefore shows that the effect of FDI on domestic investment differs not only by country/region, but also depends on the existing economic conditions and policy of the country/region. These conditions encompass the absorptive capacity of a country's institutions and organizations, and are important factors in attracting FDI, and in determining a country's ability to derive positive spillover effects from FDI. It is believed that to succeed in the global market, MNCs must have some competitive advantages. These firm-specific advantages are often technological in nature. Host economies therefore need to be able to identify these advantages, and have the appropriate structures to adapt and develop them to fit domestic needs. According to Narula (2004), technology flows from FDI may have little or no effect on economic development without absorptive capacity, and also, different stages of development require different levels of absorptive capacity, and this relationship is not always in the same direction. There are numerous factors that can be considered to enhance FDI's effect on development, depending on how broadly we define the absorptive capacity of an economy. Some of these factors that make up a country's absorptive capacity include infrastructure, which consists of knowledge infrastructure (Smith, 1997) such as public research institutes, universities, organizations for standards, and intellectual property protection agencies. Again, according to Globerman and Shapiro (2002), the political, institutional and legal environment that make up the government infrastructure of a country is crucial to FDI inflows as well as outflows. The level of government infrastructure does not only draw in foreign capital, but also forms a constructive environment within which domestic industries can grow and also

emerge as MNCs. Subsequently, we consider three key factors – human capital, financial sector development and export sector development – that influence the effect of FDI on domestic investment for developing regions such as Africa.

First, we look at human capital level, which in itself is an indicator of economic development. The level of human capital in developing areas like Africa is known to be low. However, human capital is considered one of the most important determinants in attracting inward FDI, and affects the geographical distribution of FDI even within a country (Noorbakhsh et al., 2001). Human capital is also one of the channels through which FDI impacts a country's domestic investment and is therefore key in determining whether this effect is positive or negative. Human capital levels determine how knowledge from FDI technological innovations are diffused and consequently utilized in an efficient manner. A substantial level of human capital will aid in the adaptation of the superior managerial and organizational techniques that are part of MNCs' competitive advantage. As these get transferred to local industries, it improves the efficiency of domestic capital formation. Results in Borensztein et al. (1998) further show that the contribution of FDI to economic growth is enhanced by the interaction between FDI and the level of human capital in the host country.

There is also evidence showing that countries with developed financial markets gain more from FDI inflows. With or without the presence of FDI, financial development is needed for domestic capital formation. Among other things, the financial sector facilitates the conversion of a nation's savings into investment and local business financing. Financial development also creates a friendly business environment and makes an economy more attractive to foreign investors. Well-developed financial systems would make it easier for

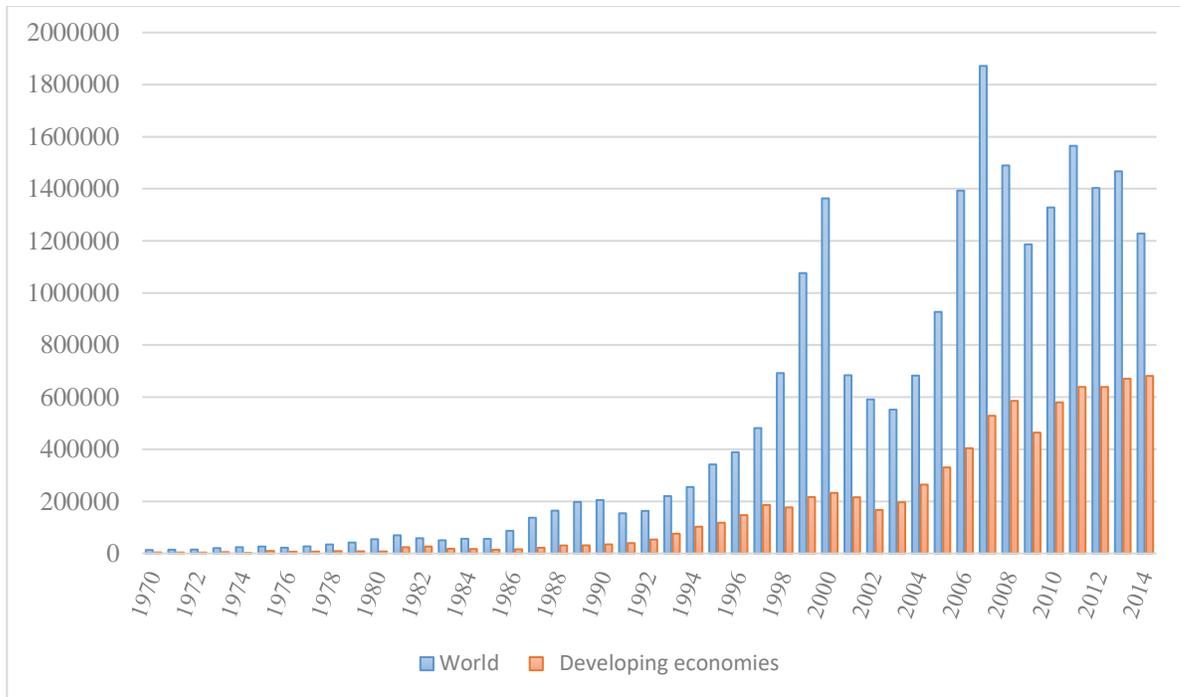
local industries in SSA to finance technological advancements adopted from foreign firms. Therefore a complementary effect between FDI and financial development creates forward and backward linkages that produce an overall positive effect of FDI on domestic investment. Results in Chee and Nair (2010) reveal a complementarity between FDI and financial development especially for least developed countries in the Asia and Oceania region.

Trade openness forms the basis for free movement of financial capital. Openness indicators like the size of a country's export sector contribute in depicting how attractive a country is to foreign investors. The Bhagwati hypothesis proposes that following an export promotion strategy increases the amount of FDI attracted by an economy and also promotes a more efficient use of FDI to benefit the economy. A highly-developed export market represents a functioning domestic economy. It is important to note that, although it is possible for MNCs to go into production in industries where local firms are restricted due to lack of capital or technical know-how, foreign firms often prefer to mimic the investment decisions of local firms, because local businesses have the best knowledge of the market. This creates competition, which could serve as an incentive for local firms to increase their efficiency. Nevertheless, it has been noted that MNCs have a competitive advantage even in the global market, and this edge often means that once they operate in the same markets as local firms, they drive domestic firms out of the market. In this case, it is essential to analyse whether MNCs produce for export destinations, or for the local market. With the existence of a thriving export sector, MNCs can produce for the global market, and also create spillovers for domestic firms to venture into the global market. This concentration of FDI in the tradable sector would therefore leave little room for FDI to crowd out

domestic investment. It also has the added advantage of improving the host economy's balance of payment situation and increasing foreign exchange reserves. Studies such as Balasubramanyam et al. (1996) conclude that developing countries following an export promotion (EP) strategy have a higher positive impact of FDI on growth as compared to countries that follow an import substitution (IS) strategy. The study further shows that EP strategy has neutral policies which allow for (i) free play of market forces and competition, (ii) promotion of investment in human capital and research and development, and (iii) specialization and economies of scale.

1.2 FDI Trends - World and Developing Regions

Over the past thirty years, global inward FDI flows have increased from US\$ 54 billion in 1980 to US\$ 1.2 trillion in 2014, with FDI flows growing faster than the growth rate of international trade. From 1970 to 1990, FDI flows averaged about US\$ 70 billion. Using data from the United Nations Conference on Trade and Development Statistics (UNCTADstat), developed countries accounted for 96% of FDI outflows and about 75% of FDI inflows. There was a short-lived boom of FDI flows between 1978 and 1982, led by the major oil producing countries. In the 1980s, developing countries received only 19% of FDI inflows. The late 1990s saw a rapid increase in FDI flows with average annual increases of 43% from 1998 to 2000. This brought world FDI inflows to a record level of US\$ 692 billion in 1998, in spite of unfavourable economic conditions in regions like Asia.



Source: UNCTADstat

Figure 1.1: Inward FDI flow – World and Developing Economies, measured in US dollars (millions) at current prices, 1970-2014

In 1999, developing regions received US\$ 216 billion, an increase of 22% from 1998. There has been further increase in developing countries' share of FDI flows, mainly due to continuing financial liberalization in developing regions and to the global financial crisis of 2008, which had the worst effects on developed countries. On average, developing countries accounted for 37% of FDI inflows and 18% of FDI outflows within the period 2001 – 2010. At the end of the Second World War, the Bretton Woods Institutions – The World Bank and IMF – were formed to rebuild the world economy. The activities of these organizations, as well as many other IFIs that came later, were guided by the theory of the Harrod (1939)-Domar (1946) model. This model was further developed by Chenery and Strout (1966) as the Two Gap Model. Around the world, the concept of a Financing Gap

became a significant economic issue. This gap refers to the difference between a country's investment requirements and the actual financing available from domestic private financing and saving. The major policy suggestion of this model was that this gap would be filled with foreign aid.

We earlier mentioned how one of the benefits of FDI is to prevent governments from pursuing bad policies. The issue of governance is very important to the developing world. In developing regions such as Africa, bad governance and lack of accountability continues to be a problem. Over the years, developing countries have received increasing amounts of development finance from governments of developed nations as well as from international organizations, aimed at filling the investment gap and promoting economic growth. However, it has been argued that pumping more aid to these economies encourages corruption and gives the opportunity for elected officials to neglect their core responsibility to manage their countries' resources to ensure sustainable development. This view is supported by economists such as Peter Bauer who defined foreign aid as *"a transfer of resources from the taxpayer of a donor country to the government of a recipient country"* (Bauer 1975). Also, the publication entitled "Dead Aid" by Dambisa Moyo (2009) draws on evidence from the World Bank and the IMF to support this view. This notion, coupled with the fungibility of aid, has resulted in the increasing substitution of FDI for foreign aid to fill the investment gap in developing countries. This is not to say that the inflow of FDI into developing countries does not bring along its own disadvantages. Some of the demerits have been mentioned earlier in this study, and a significant drawback of FDI is the possibility to stifle domestic investment.

Most African countries adopted inward-oriented policies after gaining independence in the 1960s. Since import substitution required the use of high tariffs and other trade barriers to protect infant industries, the African region missed the opportunity to integrate into the world economy and take advantage of the dynamic growth surge that came with globalization in the 1970s and 1980s. This led to economic stagnation, and to resolve this, Africa and other developing regions turned to the IFIs, mainly the World Bank and IMF at the time. African countries opened up in order to receive assistance from the international community which came through policies and strategies like the Structural Adjustment Programs initiated by the IFIs. The region also has economic integration initiatives that started with the formation of the AU, and subsequently Africa's regional economic blocs were formed to consolidate the economic efforts of member states. The main aims of these REC's include harmonization of general investment policy frameworks in participating countries. Subsequently, a lot of FDI flows to SSA are targeted specifically at certain RECs, for various reasons. The volume and kind of FDI (whether greenfield or mergers and acquisitions), and the direct investment enterprise chosen depends largely on the region's main prospects. These include vast natural resources, highly populated economies and high returns on investment. The policies initiated by these RECs have become more focused on foreign investment especially in recent years, and this is reflected in the investment agencies of most RECs which were either started or have become more active in the 1990s.

As various investment efforts in the continent and its sub-regions attract a greater portion of global FDI, it becomes increasingly important to analyse the impact of these foreign investment flows on domestic investment in the region, and to examine if increased

efforts in host regions have made any difference in the effect over time. Empirical studies such as Borensztein et al. (1998) and De Mello (1999) show that a positive effect of FDI through technology transfer and spillovers leads to development in the host country, but the level of development does in turn affect how much FDI is subsequently attracted. Looking at FDI's impact on domestic investment is one way to closely examine the development influence of FDI. This question has been investigated for developing regions in general and for specific geographic regions in studies such as, Agosin and Mayer (2000), Agosin and Machado (2005), and Bosworth and Collins (1999). By evaluating whether FDI crowds in or crowds out domestic investment in SSA, this thesis reveals insights into the region's progress in increasing its capital formation in order to achieve sustained economic development. Although most SSA economies have greatly improved in the conditions that attract FDI such as economic reforms, privatization and ensuring peace and political stability, there is still more that can be done. Most FDI to SSA still goes to resource rich economies, and RECs have struggled to streamline their policies towards investment. In order to ensure increased flows and more even distribution of foreign investment in SSA, it is critical to capitalize on the fact that the possible viable economic environment created by FDI plays a key role in attracting more foreign investment.

1.3 Objectives

This paper seeks to assess the relationship between FDI and domestic investment for the SSA region over time, to determine whether FDI causes crowding-in or crowding-out of domestic investment in SSA. In particular, the study seeks to:

1. Investigate the overall impact of FDI on domestic investment in SSA, whether it complements or substitutes the region's existing domestic capital over the chosen sample period. We investigate whether Africa's increased efforts over the years to attract and benefit from FDI reflects in FDI's impact on domestic investment. We estimate a dynamic fixed effects model using an annual panel dataset that covers a sample of 36 African countries from 1980 to 2014. The sample period is then broken down into two sub-periods, from 1980 to 1994, and from 1995 to 2014, to investigate changes in the effects of FDI on domestic investment in SSA over time.
2. Conduct a detailed analysis on five of SSA's regional economic blocs: Southern African Development Community (SADC), Common Market for Eastern and Southern Africa (COMESA), Economic Community of Central African States (ECCAS), East African Community (EAC), and Economic Community of West African States (ECOWAS) for the two sample periods. Hence, this study aims at examining the differences that may exist in the impact of FDI on domestic investment among SSA's economic sub-regions.
3. Conduct an analysis for both periods to evaluate the role of selected development variables (human capital, financial development, and exports) in the impact of FDI on domestic investment in SSA over time.

1.4 Thesis Contribution

Most of the existing research papers that investigate the effect of FDI on domestic investment employ different econometric approaches, cover different choices of sample regions, and span over various time periods. Also, there are varying conclusions from

existing research on the topic, owing to the fact that each studied region has different prevailing economic conditions. This thesis therefore seeks to contribute to the existing literature by investigating the impact of FDI on domestic investment for the SSA region based on evidence of increased efforts to attract greater FDI flows, and the promotion of policies that lead to a positive effect of FDI on the continent's development. The choice of the study period is also important, and begins from the 1980s when most SSA economies opened up to the world. By implementing the empirical analysis for the full sample period and then for the two sub-periods, we investigate the possibility of structural breaks through the effect of FDI on domestic investment in SSA. As mentioned earlier, we direct our focus into the earlier opening up time period (1980-1994) and the following time period (1995-2014), when the continent really intensified its FDI efforts.

Second, numerous previous studies on the topic that cover Africa either focus on the continent as a whole, particular economic region, or a particular country. This thesis thus contributes to the existing literature by further breaking down the analysis to the sub-regional level. We analyze the existing economic and political conditions of five sample regional economic blocs, and most importantly each sub-region's investment initiatives. The results from the sub-regional estimation breaks down the overall results, and information from this empirical analysis of the sub-regions helps creates linkages that make it easy to interpret the results from our estimations.

Lastly, it is widely accepted in the discussed literature that there are certain economic conditions that must prevail within a host country in order to ensure the maximum benefit of inward FDI on domestic investment. However, existing studies that investigate the impact of FDI on domestic investment do not generally consider these conditions. Studies such as Borensztein et al. (1998) that examine the impact of these

mediating factors are also not region specific. Therefore with the extended analysis for the two periods, this study seeks to find out how human capital, financial development and export development levels affect the impact of FDI on domestic investment in SSA, and to derive policy implications for the region.

1.5 Thesis Organization

The rest of the thesis is organized as follows: Chapter Two gives a background of FDI flows into SSA, and takes a look at the existing economic and political environment, as well as investment trends in the five RECs chosen for the study. We also discuss the trends in human capital formation, financial development, and export development for SSA. Chapter Three examines the existing literature on the impact of FDI on domestic investment. Chapter Four discusses the empirical specification, the econometric issues encountered through the estimation of the empirical model, and the source and characteristics of our dataset. Chapter Five presents and discusses the econometric results. Chapter Six provides the summary of results and conclusions.

CHAPTER TWO

2. TRENDS IN FDI

This chapter discusses the trends in FDI for our sample region. Since this study looks at the impact of inward FDI on domestic investment, we describe the historical trend of inward FDI to Africa. We also present a brief analysis of each of the African regional economic blocs chosen for the study. This is done by taking note of the investment initiatives of the sub-regions over the sample period, the types of FDI inflows attracted by each region, as well as various economic and political conditions. This chapter also analyzes trends in human capital building, financial sector development, and export sector growth in SSA, considering the respective complementarities they have with inward FDI's impact on domestic capital formation.

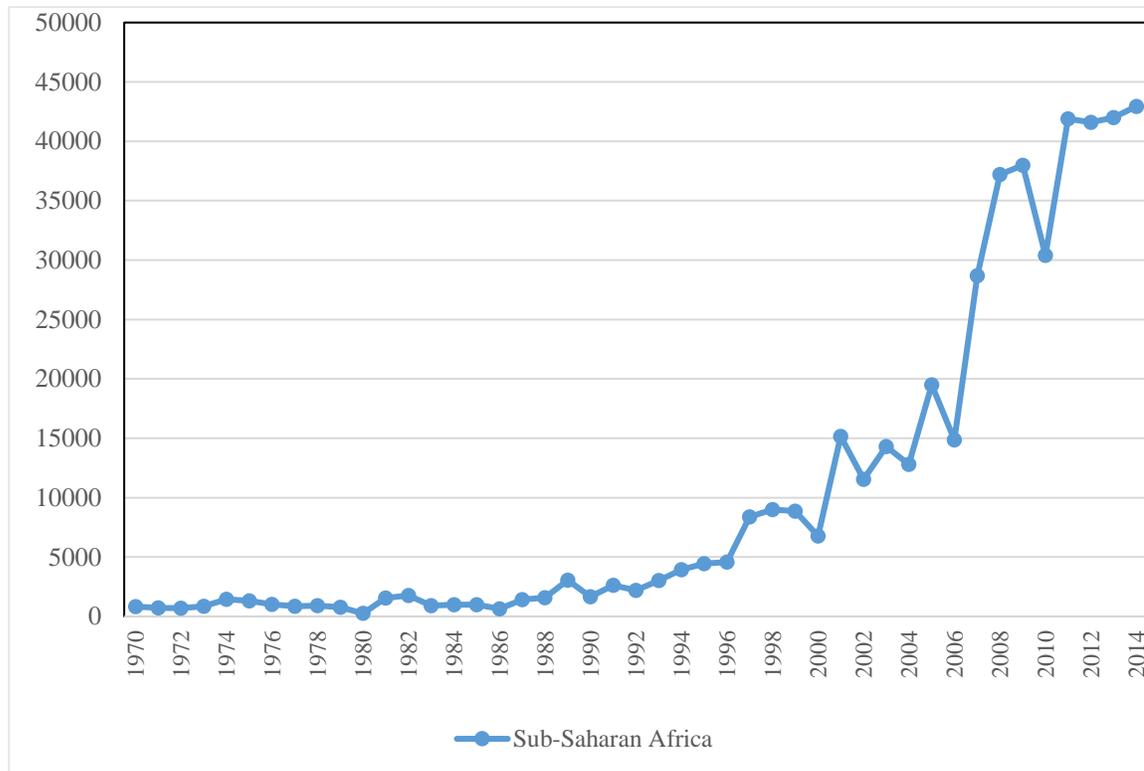
2.1 Inward FDI Trends in Africa and Regional Economic Communities

The average of FDI flows to Africa from 1970-1974 was US\$24.4 million but fell to \$22.6 million by the end of the decade, owing to the oil crises of the 1970s. Since the 1980s, FDI flows to the continent have recovered and keep increasing steadily, although there was an accelerated increase at the end of the 1990s, when the continent recorded average FDI inflows of more than US\$170 million. This can be attributed to the increase in political stability and the resulting surge in economic performance experienced by Africa in the mid-1990s. Actual FDI inflows to Africa increased from US\$2.4 billion in 1985 to US\$36 billion in 2006.

The AU set up the NEPAD in 2001. One of the main aims of the Economic and Corporate Governance Agency of NEPAD is promoting an enabling environment for

business, and effective regulatory framework for economic activities. Some of the early investment initiatives by NEPAD include the Africa Investment Initiative in collaboration with the Organization for Economic Cooperation and Development (OECD). There are also programs like the Program for Infrastructure Development in Africa (PIDA), Move Africa, E-Africa and Power Africa initiatives aimed at improving infrastructure in order to facilitate trade and investment in Africa. A look at recent trends of FDI flow into Africa shows that there has been a steady increase in the flow of foreign investment into the region. In 2006, about forty African countries adopted fifty-seven new policies affecting FDI, of which forty-nine encouraged inward FDI (UNCTAD, 2007). The resulting increase in global FDI inflows into Africa largely reflected relatively high economic growth and strong corporate performance in many parts of the world (UNCTAD, 2008). According to an attractiveness survey by Ernst and Young, since 2011, Africa has moved from the eighth to the second position in terms of most attractive investment destinations in the world. In 2012, there was a five percent increase in FDI flows to Africa in spite of the eighteen percent fall in global FDI (UNCTAD World Investment Report 2013). However, just fifteen countries accounted for over eighty percent of total FDI flows into Africa in 2012. Further, the largest inflows were either in sectors in which the region has a comparative advantage (such as natural resources and agriculture) or where there are high returns and there is a greater need for investment, such as construction. In 2013, global FDI increased by eleven percent. FDI directed towards developing countries altogether accounted for fifty-two percent of global flows in 2013, with flows to Sub-Saharan Africa experiencing a growth rate of ten percent between 2012 and 2013 (UNCTAD Global Investment Trends Monitor, 2014). Africa's share in global FDI increased to a high of 5.7 percent in 2013. Sub-Saharan Africa's share in African FDI also reached an all-time high of eighty-three

percent in 2013 (EY’s Attractiveness Survey: Africa 2014). In 2014, Africa ranked second only to North America in terms of investment attractiveness.

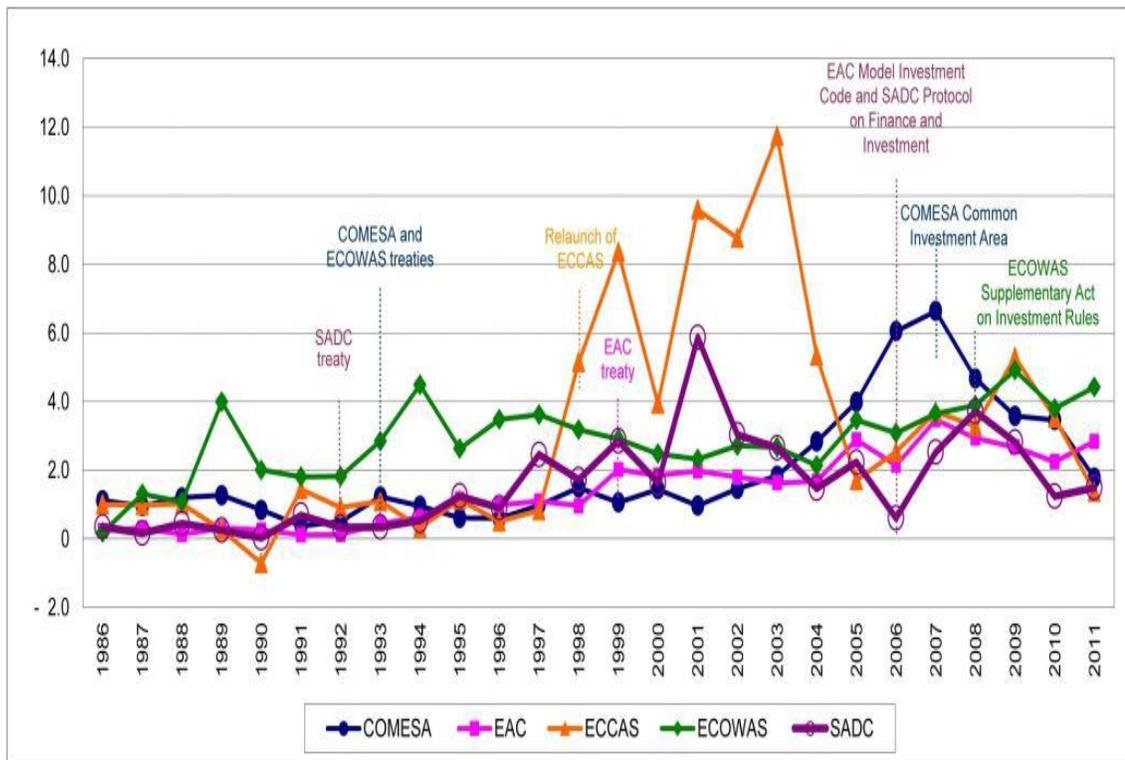


Source: UNCTADstat

Figure 2.1: Inward FDI flow to Sub-Saharan Africa measured in US dollars (millions) at current prices, 1970-2014

It is important to mention that while Africa is attracting increasing amounts of FDI in general, the continent’s share of global FDI flows remains relatively low compared to other developing regions even though the entire African continent accounts for one big developing region, and in spite of efforts being made to draw in FDI. Existing research further shows that the trend of FDI to Africa is volatile (Lensink and Morrissey, 2001; Nunnenkamp, 2003; Egwaikhide et al., 2005; Ogunleye, 2009). Also, in the area of financial globalization, contemporary studies, such as Ndikumana and Verick (2008),

concluded that the continent is sidelined. The impact of inward FDI on the region’s capital formation and resultant economic development may explain why the region attracts less FDI compared to other developing regions. As earlier noted, economic potentials play a key role in attracting FDI. However, if earlier foreign investment has not had the best effect on Africa’s economy, this will explain why the continent is unable to continue to secure a significant portion of global capital flows. Again, most of the factors that contribute to economic well-being also form the absorptive capacity that facilitates how SSA economies benefit from FDI spillovers.



Source: UNCTAD, FDI/TNC database

Figure 2.2: Evolution of FDI inflows to five RECs as a percentage of GDP

The major regional economic communities in SSA initially started as trade or

economic partnerships among geographically proximate countries. However, under the Abuja Treaty of 1991, all the RECs were incorporated into the African Economic Community. Sub-regional economic integration contributes to the continent's development agenda by streamlining key policies. Also, the common markets and free trade areas enjoyed by RECs provide a larger market that serves as a major locational advantage to attract foreign investment. All the RECs that have been formed out of the OAU (now African Union) have investment initiatives incorporated into their agendas, and each region has its strengths (and weaknesses) for attracting FDI. Regional integration efforts in Africa have been intensified since the 1990s, and these are reflected in the policies pursued by the RECs in recent years. We take a look at some key facts as well as at inward FDI trends in the five economic sub-regions chosen for this study.

The SADC was established in 1992 and currently comprises fifteen member states (Angola, Botswana, Democratic Republic of the Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe). The community's main objective is to achieve regional economic integration and poverty eradication by promoting economic development and by sustaining peace and security. The SADC generally practiced import substitution policies for much of the late 1980s and early 1990s. There was however a major surge of economic liberalization and privatization that led to a review of FDI regulations in the late 1990s. This has resulted in the initiation of the SADC's Protocol on Finance and Investment (SADC, 2006). According to Mahembe and Odhiambo (2013), the region's FDI inflows have increased by almost fifty times of its initial values in the preceding three decades from US\$372 million to US\$7 billion in 2008. The SADC has also started negotiations to form an Economic Partnership Agreement (EPA) with

the European Union (EU). Some of the SADC's strongest performing countries in terms of attracting inward FDI include Angola and Botswana. The latter has had stellar economic growth performance since its independence in 1966. South Africa, which has a vibrant economy in the SADC bloc and enjoys a wealth of resources in minerals and synthetic fuels, is the third largest recipient of FDI in Africa.

The ECOWAS was established in 1975 with fifteen member states (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Nigeria, Niger, Cabo Verde, Senegal, Sierra Leone, and Togo). This community seeks to promote economic integration in activities of its members in terms of industry, infrastructure, commerce, among other areas. It has institutions set up to spearhead the achievement of its goals. These institutions include its Parliament, Court of Justice, Specialized Technical Committees, as well as the ECOWAS Bank for Investment and Development. The ECOWAS has evolved from a Free Trade Area and is shaping up into an Economic Union, since its establishment. This high level of economic integration is definitely advantageous in attracting FDI to the entire regional bloc. One of the community's aims is to harmonize national investment codes, leading to the adoption of a single investment code for the economic community. The West African region has also initiated an EPA with the EU in 2002, to foster trade and development co-operations. Nigeria attracts the largest share of FDI in the West African sub-region and in SSA due to its oil resources and large population that naturally make it a hub for business. Ghana is also one of the countries in the region with a relatively high level of inward FDI, with net value above US\$3 billion recorded in 2014 (UNCTAD, 2014).

The ECCAS evolved from the combination of the Central African Customs and Economic Union (CACEU) and the Economic Community of the Great Lakes Countries

(ECGLC) in 1983. The regional bloc remained inactive from 1992 to 1998 mainly due to non-payment of membership dues by member states. A summit was organized to relaunch the ECCAS in 1998. The Central African sub-region has also suffered political and economic turbulences over the past three decades, particularly in seven of the eleven member states (Angola, Burundi, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Rwanda, and Sao Tome and Principe). Heads of states of the region therefore concentrated on the recent restoration of peace with the initiation of the Central African Council for Peace and Security (COPAX), which is set up in 1991. The ECCAS has also adopted a self-financing mechanism – the Community Integration Contribution – among member states (African Development Bank, 2009). Reconstruction activities in the region provided opportunities for governments to establish a partnership with foreign firms. One of the core aims of the ECCAS is to establish large regional transportation industries, especially in the airline and marine industries. A look at the effect of FDI on domestic investment in this region will therefore give valuable insights on the success of the region's economic integration process.

The Common Market for Eastern and Southern Africa (COMESA) is Africa's largest trade and investment area, and it comprises the following countries: Burundi, Comoros, Democratic Republic of the Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia, and Zimbabwe. According to the World Bank (2007), the COMESA sub-region includes thirteen of the nineteen countries listed as the poorest in the world. Economic theory suggests that returns on investment in such regions should be high since the need for capital is high and, therefore, this should attract more investment. The main focus for

COMESA's establishment was to form a large economic and trading unit that is capable of overcoming some of the barriers faced by individual states. However, the region faces challenges in achieving higher economic integration, mainly posed by the fact that eight of its member states are also part of the SADC, an economic sub-region that has a similar agenda. As part of the region's Regional Investment Agency, COMESA has a Competition Commission that gives guidelines for mergers and acquisitions, competition regulations and that also protects consumers in the COMESA region against false or misleading presentation of goods and services, unconscionable conduct, poor safety standards and unsafe goods. The Commission's standards are essential in ensuring that inward FDI in the form of mergers and acquisitions do not become exploitative of the region's economy. COMESA has also started negotiations with the EU to form an EPA. Egypt is the largest recipient of FDI in the region with an average inflow of US\$1.7 billion between 1980 and 2007. Sudan, Zambia, and Libya also attract large amounts of FDI, although this shows that FDI inflow to COMESA goes to the oil-rich countries (Egypt, Sudan, and Libya) and the mineral-rich countries (Zambia).

The East African Community (EAC) was relaunched in 1999 after the original EAC collapsed in 1977, and currently has six partner states (Burundi, Kenya, Rwanda, South Sudan, Tanzania, and Uganda). The community's economic integration has been, however, slowed down by disputes among member states over foreign investment liberalization in the community. The EAC still remains one of the largest, and also the fastest growing region in Sub-Saharan Africa in the past decade, with average GDP growth of 5.8%. It is also the second fastest growing economic bloc in the world. The region's well integrated market is a Common Market. Total FDI inflow to the region tripled from US\$1.3 billion in 2005 to US\$3.8 billion in 2012. The story seems to be

different in this SSA sub-region compared to other SSA sub-regions. Economic growth is less sharply skewed toward the resource-rich countries, and even the relatively small economies of the region like Burundi and Rwanda are undergoing significant restructuring. Also, the major proportions of FDI inflows go to the manufacturing and construction sectors in Uganda, and to the construction, manufacturing, and tourism sectors in Tanzania. Due to high political uncertainties, Kenya has been unsuccessful in attracting FDI despite its huge potential for investment in the manufacturing and service sectors (EAC, 2013). The EAC's Investment Promotion and Private Sector Development Agenda spans the region's industrialization, trade agreements and privatization reforms, and all these initiatives are key in increasing FDI inflows and ensuring a positive effect on the region's development.

2.2 Human Capital, Financial Development, and Export trends in Africa

Africa is the second most populous continent, with a population of more than 1.1 billion people. The African continent also has the youngest population in the world. While high population growth is leading to expansion of the labour force in Africa, education is needed to ensure that the continent builds a decent human capital base. Human capital refers to the knowledge and skills that the population possesses, and building human capital requires investing in education. Research shows that increasing the level and quality of education of Africa's population has the potential of reducing poverty and infant/child mortality rates, thereby positively impacting the development process of the region. Other regions such as Europe have already reached a population peak, and this creates the opportunity for Africa to draw in investments in labour intensive industries. However, the labour force needs to possess some degree of skills to attract all types of investments and not just labour intensive

ones, in order not to leave the region's economy susceptible to a few industries. Historically, education in Africa has been marked by lack of access, low enrollment rates, low quality, and lack of equity in terms of female education. Over fifteen years have passed since the establishment of the Millennium Development Goals (MDGs), and the continent's leaders remain focused on meeting these goals in terms of universal primary education. According to the 2015 Africa MDGs Report, most African countries have experienced impressive increases in net enrolment rates. Also, there has been an increase in government spending on education, as well as an increase in the adoption of holistic education policies in the region. Also, according to a report on human capital and labour trends by Knowledge Resources, which is a South African based business and management consultancy, the African region is making strides in literacy rates, mean schooling years, percentage of trained teachers, quality of education, enrolment at each educational level, and also enrolment in science and engineering fields. These developments would increase the innovation capacity and the absorptive capacity of the continent.

An efficient and dynamic financial system is critical in any economy to stimulate investment and drive economic development. The African region is increasingly integrating into the global economy through foreign capital inflows and direct investment in the financial sector. However, trends in Africa's FDI inflows show that continent is still sidelined in terms of financial globalization compared to other developing regions (Ndikumana and Verick, 2008). According to a World Bank report by Beck et al. (2009), African financial systems are included in the smallest across the globe. This leads to low productivity, and prevents financial institutions from enjoying economies of scale or technological expansion. Only one third of countries in the continent have stock markets, and the attempts at creating regional financial markets have not succeeded. Also, financial

systems in Africa have a limited scope, with less than one in five households having access to basic banking. In Africa, banking remains expensive with a wide margin between deposit and lending rates, creating disincentives to saving and lending. In pursuing financial sector development, African countries have initiated several reforms such as privatizing failing government banks, as well as making it easier for foreign banks to break into financial markets. International capital flows have contributed greatly to financial deepening and broadening in most African countries. There have been improvements in the financial institutional framework with the establishment of commercial courts, improvement of collateral registries, and the establishment of credit reference bureaus. There has been an upturn in statistical indicators such as liquid liabilities to GDP, bank deposits to GDP, and private credit to GDP. Policymakers in the region are increasing efforts to improve the financial infrastructure and developing the capital market. There have been advances in increasing banking sector scope. Increase in mobile telephone technology in Africa make it possible for banks to expand their services. All these improvements have been reflected in the steady increase of capital inflows into Africa.

In most developing regions, exports are largely made up of primary products, mostly raw goods and goods that require low levels of processing. This is the case in Africa where the majority of the continent's products to the world market are primary commodities. According to the World Trade Organization, Africa has a comparative advantage in agriculture, but has not been able to fully use this advantage to capture its full share of global trade. Also, Africa's manufactures have the lowest revealed comparative advantage of any export category. Furthermore, the competitiveness of agricultural exports appears to be eroding over time. The continent's main trading partners have been the OECD countries. What Africa needs is to gain sustainability in export revenues by

achieving greater integration in value chains, resulting in an increase in the share of value-added goods in its exports. Trends also show that there are increasing trade levels within Africa, which are largely attributable to rising value-added exports within the region. The continent is therefore pursuing trade related economic development by tapping into booming markets in Asia, Latin America, and within Africa itself. However, Africa's exports to Asia are still mostly primary products. Increasing domestic labour costs in countries like China have led to relocation of some production activities to Africa, which offers abundant and inexpensive labour and geographical proximity to Europe. As a result, the percentage of goods produced by Chinese firms in SSA for export to Western markets is significant. In this case, direct investment to the region is being focused in the export oriented production industry. This study contributes in analyzing how SSA's trade within and with the world will help to increase FDI inflows but not adversely affect domestic industries, leading to overall economic development for the region.

CHAPTER THREE

3. LITERATURE REVIEW

Evidence from the growth accounting theory shows that investment plays a key role in propelling a country's development. There are many notable empirical studies that investigate the dynamic relationships between FDI, domestic investment and economic growth. Paolino (2009) uses data from China for the period 1977 to 2007, and the results from the Ordinary Least Squares (OLS) estimation show that domestic investment has the highest level of positive effect on FDI inflow. Nair-Reichert and Weinhold (2001) investigate the possibility of a heterogeneous effect of FDI on growth using a panel covering twenty-four developing countries over twenty-five years. A causality test shows a heterogeneous causal relationship between both foreign and domestic investment, and growth. There is also evidence that the effect of FDI on growth is more efficient in more open economies. De Mello (1999) considers the impact of FDI on capital accumulation, output and total factor productivity growth in the host country. He analyses both time-series and panel data for a sample of OECD and non-OECD countries from 1970-1990. He finds that the degree of complementarity and substitution between FDI and domestic investment determines the extent to which FDI enhances economic growth. Apergis et al. (2008) consider the dynamic linkages between FDI inflows, domestic investment and growth using panel cointegration and causality techniques for twenty-seven transition economies. They find that the presence of FDI induces more capital intensive investment in host countries that have high income levels and that have implemented successful privatization programs. It appears therefore that FDI's effect on domestic investment depends on prevailing conditions within the host country. A study by Deok-Ki Kim and Jung-Soo (2003) for

Korea uses vector autoregression to investigate the dynamic relationship between inward FDI, domestic investment and economic growth for the period 1985-1999. The study finds that FDI is strongly dependent on domestic macroeconomic conditions. FDI has some positive effects on economic growth, though insignificant. In contrast, economic growth is found to have statistically significant influence on future FDI levels². In these empirical studies there are several angles through which the relationships between FDI, domestic investment and growth are examined. In this study, the impact of FDI on economic growth is examined through the impact of foreign investment on domestic investment.

Specifically, on the relationship between FDI and domestic investment, there have been varying conclusions from the existing empirical literature. Empirical results either show a positive or increasing effect, or a negative or decreasing effect of inward FDI on domestic investment. Fry (1993) investigates the effect of FDI on domestic investment for five Pacific Basin countries and a control group of eleven other developing countries. Results show that FDI causes domestic investment to fall for the total sample. However, for the five Pacific Basin countries, FDI increases domestic investment by the full amount of the FDI flow. Thus, Fry (1993) concludes that the impact of FDI on domestic investment differs significantly by location. Bosworth and Collins (1999) consider the effects of inward capital flows on domestic investment using data on developing countries for the period 1978-1995. They consider three main types of capital inflows: FDI, portfolio investment, and other financial flows (mainly bank loans). They find that an increase of one dollar in capital inflows is associated with an increase in domestic investment of about fifty cents,

² There is a large empirical literature that examined the implications of FDI (and multinational activities) for international trade, and that analyzed whether FDI and international trade are complements or substitutes (for example, Brainard, 1997; Barba-Navaretti et al., 2004; Head and Ries, 2004; Ghazalian and Furtan, 2008, 2009).

with both capital inflows and domestic investment expressed as percentages of GDP. The study further analyzed the significant differences in the impact of various capital flows on domestic investment. Among the various types of capital flows, FDI has the highest impact on domestic investment (almost a one for one). This is followed by the effect of loans, while there is no obvious effect of portfolio investment on domestic investment.

Evidence from Agosin and Mayer (2000) shows varying FDI effects on domestic investment for three developing regions: Asia, Latin America and Africa. These variations seem to be caused by many factors such as the division of the sample period for certain regions and the implementation of the analysis for each country separately. The study uses panel data from thirty-two developing countries for the period 1970-1996. Overall, the results suggest that FDI tends to substitute domestic investment in Latin America, while it tends to complement domestic investment in Asia. The results for African countries were inconclusive. As in Agosin and Mayer (2000), Agosin and Machado (2005) develop a model for investment that incorporates FDI. However, they use Generalized Method of Moments (GMM) estimation instead of seemingly unrelated regressions in the panel data analysis of thirty-six developing countries for the period 1971-2000. The results show crowding-out effect of FDI on domestic investment in Latin America over the full sample period, and a neutral effect of FDI on domestic investment in Africa and Asia. Breaking down the sample into various decades reveals the presence of crowding-out effect in Latin America in the 1970s, and in Africa in the 1990s. Although the main results stay the same for both studies, the two studies indicate how the analysis of various regions shows different effects of inward FDI on domestic investment. The two studies also highlight how the effect of FDI on domestic investment evolves over time. Agosin and Machado (2005) underline

some of the factors that lead to variations in the results across regions. These factors include the regulations laid out by various economies to control the effects of FDI inflow, and the existing economic conditions such as levels of industrialization. A study by Al-Sadig (2013) examines the impact of FDI on private domestic investment for ninety-one developing countries for the period 1970-2000. Using system GMM to control for the simultaneity between FDI and domestic investment, the results show that a one percentage point increase in FDI flows increases domestic private investment as a percentage of GDP by about nine percent. Also, the study finds that for middle and high income countries, FDI positively affects private domestic investment. However, for lower income countries, the positive impact of FDI on domestic private investment depends on human capital availability.

A panel data study by Wang (2010) assesses the impact of FDI on domestic investment in developed and less developed countries. The study looks at long-term and short-term effects, and it also compares developed countries to less developed countries. Using a sample of fifty countries from 1970-2004, the results show that in the short-term, FDI crowds out domestic investment in developed countries, but has a neutral effect in less developed countries. However, in developed countries, the long-term effect is neutral, while FDI crowds in domestic investment in less developed countries. Kamaly (2014) investigates the dynamic effect of FDI on total investment by estimating the effect of FDI on domestic investment using a dataset covering sixteen emerging economies over the time period 1978–2010. This study uses Three-Stage Least Squares (3SLS) method to estimate a system of equations that represents individual countries. The results generally reveal country-specific effects of FDI on domestic investment. It is important to note that these

cross-regional studies reveal the differing results that arise when the relationship is examined in different regions. This necessitates region-specific studies that take into consideration the regional policies, predominant types of FDI inflows, and the response of domestic industries, and that reveal deeper insights into the existing relationship between FDI and domestic investment in specific regions.

A study conducted by Ndikumana and Verick (2008) focuses on the linkages between FDI and domestic factor markets in Africa. The question is whether domestic investment impacted FDI inflows, and whether domestic investment was in turn influenced by FDI. Results in this study show that the impact runs both ways, with the impact of domestic private investment on FDI inflows proving stronger and more robust than the reverse relation. Evidence from this study supports the idea that FDI can have a positive effect on economic growth by improving domestic capital accumulation. Thus, from this study, FDI does not appear to boost domestic investment as much as domestic investment boosts FDI in Africa. Therefore, this study concludes that the continent will benefit from boosting domestic capital formation, since this will have a positive effect on development both directly and through the attraction of FDI. A study by Adams (2009) examines the relationship between FDI, domestic investment and economic growth for a panel of forty-two countries in SSA for the period 1990-2003. Using OLS and fixed effects estimation, the study finds a significant negative effect of current period FDI, but a significant positive effect of lagged FDI on domestic investment with both estimation methods. Thus, the results in this study show that FDI has an initial crowding-out effect on domestic investment, and a subsequent crowding-in effect in later periods. This study concludes that there is the need for the continent to have a guided approach to FDI. This

requires increasing the absorption capacity of local firms and intensifying cooperation between governments and MNCs. Eregha (2011) implements a panel cointegration analysis to determine the dynamic linkages between FDI and domestic investment in ten ECOWAS countries from 1970 to 2008. Although foreign investment inflows increased during the 1990s, this study shows that, the increase of foreign investment inflows in Africa was less than that of other developing regions. The results also affirm that there is a simultaneous relationship between inward FDI and domestic investment. The estimations reveal that FDI inflow substitutes domestic investment in the region. This study concludes that there is the need to attract different types of foreign investment, and also to introduce regulations for foreign investment activities.

In investigating the relationship between FDI, domestic investment and economic development, empirical analysis can be implemented to highlight the factors/linkages through which FDI affects domestic investment. Borensztein et al. (1998) consider the role of FDI in technology diffusion and economic growth in developing countries. This study posits that FDI contributes to economic growth either by crowding-in domestic capital, or by being more efficient than domestic capital, and therefore increasing total factor productivity. This study uses data on FDI flows from industrial countries to 69 developing countries over the period 1970 to 1989. It examines the complementary effect between human capital and the two types of investments (FDI and domestic investment). The interaction between FDI and human capital is positive and statistically significant, while the interaction between human capital and domestic investment is not statistically significant. The results show that at a threshold of 0.52 level of human capital (measured by the level of average years of male secondary schooling), FDI has a positive effect on

economic growth. This study concludes that any impact of FDI on economic growth is mostly realized by efficiency gains rather than by an overall increase in domestic investment. Chee (2010) investigates the importance of financial sector development in the ability of FDI to enhance economic growth in forty-four Asian and Oceanian countries for the period 1996 to 2005, taking into consideration the level of economic development. This study implements fixed effects and random effects estimation using the panel data. The results show that FDI and financial sector development are complementary in facilitating economic growth, regardless of the stage of development. However, the complementary effect is higher in least developed countries than in developing and developed countries. A study by Jyun-Yi and Chih-Chiang (2008) for sixty-two countries over the period 1975 to 2000 uses endogenous threshold analysis to explore the thresholds of three absorptive capacities – initial GDP, human capital, and trade. The study finds that FDI has a significant positive effect on economic growth when the host country has a high level of initial GDP and human capital, whereas the effect of trade is inconclusive.

The role played by absorptive capacity in FDI's impact on the economy has also been explored at the firm level. Girma (2005) investigates the absorptive capacity threshold for which the productivity spillovers from FDI are beneficial, and below which they are negligible or even negative. Using firm-level data from the United Kingdom's manufacturing industry from 1989-1999, this study finds a number of factors which determine FDI's spillover effects. In the case of technology-exploiting FDI, there exist non-linear threshold effects. The productivity benefit of FDI increases as absorptive capacity increases, until some threshold level beyond which it is less pronounced. Also, at some minimum level of absorptive capacity, FDI's productivity spillovers are negligible or even negative. However, in the case of technology-sourcing FDI, there is no evidence

of productivity spillovers. Barrios et al. (2005) analyze the impact of FDI on the development of local firms. They investigate the likelihood of a competition effect stifling domestic enterprises or fostering the development of local industry. Using plant-level data covering Irish firms from 1972 to 2000, they find that the effect of FDI on domestic firms is U-shaped, where competition effect dominates initially, but beyond a certain threshold, it is gradually outweighed by positive externalities. Also, alternative semi-parametric regression techniques leads to equivalent findings. The conclusions from this study suggests that for a greater positive effect of FDI on domestic industry, there is the need for larger quantity of foreign capital inflow as well as higher efficiency of local firms.

Conditions in host countries that impact the effect FDI on domestic investment include the existing social environment and institutional factors. A study by Kolstad and Villanger (2004) assesses the impact of social development variables on FDI and domestic investment, with a panel dataset covering seventy-five countries over the time period 1989-2000. The variables considered are political stability, religious freedom and socio-economic conditions. Using OLS and random effects estimation models, the results show that the variables have different effects on domestic investment and FDI. Political stability has a positive effect on FDI but negative effect on domestic investment. Religious tensions reduce FDI but have no effect on domestic investment. Lastly, though socio-economic conditions have no effect on FDI, they affect domestic investment positively. The effect of governance on the relationship between FDI and domestic investment is investigated in Morrissey and Udomkerdmongkol (2012). Their analysis uses data from forty-six developing countries covering the time period 1996-2009. The governance indicators considered in this study are corruption and political stability, where the latter emerges as

the most significant facet of governance with respect to the relationship between FDI and domestic investment. Results from this study show that, while good governance has an increasing effect on total investment (FDI and domestic private investment), there is evidence of FDI crowding-out domestic investment. Also, the degree of crowding-out effect is positively correlated with good governance, as measured by political stability. Farla et al. (2014) implement various robustness checks of the results in Morrissey and Udomkerdmongkol (2012) including, the choice of the proxy for domestic investment, and the choice of estimation method. This study compares the results when using gross fixed capital formation and when using domestic private investment. It also estimates an alternative method of the system GMM. The results show a crowding-in effect of FDI on domestic investment, with good governance reducing the positive effect of FDI on domestic investment.

In conclusion, studies on the impact of FDI on domestic investment have varying results, mostly due to differences in the geographic regions covered, existing economic conditions and policies, the types of FDI inflow, and the econometric methods used. Most studies do agree, however, that the existing economic conditions play a key role in harnessing the spillovers of inward foreign investments. Also, in the case of existing economic conditions, there will be different effect of FDI on domestic investment over time, as economic conditions change in host countries/regions.

CHAPTER FOUR

4. METHODOLOGY

Investment has been identified by economic growth theorists as one of the key determinants of an economy's development. As earlier noted in this study, the economic state of a country has an impact on the flow of FDI into its economy. Also, FDI inflow has an effect on domestic investment and overall development. Therefore, there is evidence of a dynamic relationship between FDI, domestic investment, and economic growth, with both forward and backward linkages between FDI and domestic investment. In this chapter we discuss the model for our study. We also discuss some econometric challenges related to the estimation of the model, and how the choice of the estimation technique tackles the econometric issues. Lastly, we discuss the data for our study, and the basis for our choice of sample period, variables, and countries.

4.1 Model Specification

As outlined in the background to this study, the Harrod-Domar and Chenery-Strout models consider foreign capital flows as a means to achieve the targeted domestic investment needed to reach a given level of economic growth. Obstfeld (1998) argues that this approach will only increase consumption, as capital flows often end up being used to carry out investments that government would have made. It is also argued that foreign capital flows introduce expensive consumption preferences, thereby increasing consumption and decreasing savings further. Obstfeld (1998) outlines a method of empirical estimation based on intertemporal utility maximization of foreign resource flows in an economy with limited access to international markets. Foreign resource inflows are considered in terms of an

income increase, and typical agents respond to FDI inflows with increases in consumption, except for when the intertemporal rate of substitution is high. Inflows are considered to affect income as well as consumption, and savings may either rise or fall. However, in such a framework, resource flows will likely contribute more to consumption smoothing than creating linkages to domestic investment and economic growth.

Neoclassical investment functions are difficult to estimate for developing countries due to insufficient data on the capital stock and the return to capital. Fry (1993) proposes using a flexible accelerator function to estimate the investment function. The accelerator model sets the desired level of capital stock K^* relative to real output y ; that is, some ratio (a) of real output.

$$K^* = ay \quad [1]$$

The desired level of capital stock can be expressed in terms of a desired investment ratio $\left(\frac{I}{Y}\right)^*$, that is, proportion of net investment to total product $\left(\frac{I}{Y}\right)$, where

$$\left(\frac{I}{Y}\right)^* = a\gamma \quad [2]$$

In equation [2], real output is replaced by the GDP growth rate which is denoted by γ . I is gross domestic investment at current prices, and Y is GDP at current prices. The study by Fry (1993) formulates a partial adjustment mechanism for the investment ratio, which takes into account the previous year's growth rate. The partial adjustment process allows the actual investment rate to adjust to the difference between the desired investment rate and the investment rate in the previous period:

$$\Delta\left(\frac{I}{Y}\right) = \lambda\left[\left(\frac{I}{Y}\right)^* - \left(\frac{I}{Y}\right)_{t-1}\right]$$

$$\text{or } \left(\frac{I}{Y}\right) = \lambda\left(\frac{I}{Y}\right)^* + (1 - \lambda)\left(\frac{I}{Y}\right)_{t-1} \quad [3]$$

The coefficient of adjustment is denoted by λ . The flexible accelerator model allows the coefficient of adjustment to be influenced by economic conditions. We have

$$\lambda = \omega_0 + \left[\frac{\omega_1 Z_1 + \omega_2 Z_2 + \omega_3 Z_3 + \dots + \omega_k Z_k}{\left(\frac{I}{Y}\right)^* - \left(\frac{I}{Y}\right)_{t-1}} \right] \quad [4]$$

The variables (Z_1, \dots, Z_k) are those that affect the adjustment coefficient λ , with corresponding parameters $(\omega_1, \dots, \omega_k)$. We may consider one of these explanatory variables as the intercept term for the depreciation rate, so that the flexible accelerator model can be estimated for the gross rather than for the net investment ratio. Since actual investment is influenced by the coefficient of adjustment in any given time period, it follows that actual investment is affected by economic conditions. Then, a dynamic fixed effect equation can be developed where current level of domestic capital formation depends on past level of domestic capital formation, FDI, previous year GDP growth rate, real interest rate, and domestic credit availability. In our study, we consider gross foreign and domestic investment, since we are interested in the spillover effects of FDI. The Z variables considered include GDP growth rate, real interest rate, and domestic credit availability.

Our study employs a dynamic fixed effects model for the empirical estimation, considering determinants of current investment level based on the existing economic literature. Panel data analysis allows us to control for time-invariant country-specific characteristics by acknowledging and incorporating country fixed effects. Also, a lagged

dependent variable in our model is able to control for omitted variables to a large extent. In assessing the impact of inward FDI on domestic investment for SSA, we assume a dynamic deterministic relationship between domestic investment and FDI, controlling for other variables such as GDP growth rate, real interest rate, and domestic credit availability, all of which have an effect on the gross capital formation of an economy. The equation specified for our study is adapted from the Hecht, Razin and Shinar (HRS) model³. This model is a four-equation system that was used in their research to capture the interactions between international capital flows and domestic investment. The dependent variables in the HRS model are domestic investment, GDP growth, foreign direct investment, portfolio investment and loans. The HRS model uses a lag of domestic investment as a dependent variable because the level of existing capital is relevant for capital formation in current and later periods. This lag also guards against omitted variable bias. For this study, only the equation for domestic investment will be used out of the four-system model, with some modification. We include more explanatory variables – domestic credit availability and real interest rate – in the original Domestic Investment (DI) equation of the four-system HRS model, and we also specifically consider FDI and not all international capital flows. The effect of FDI on domestic investment is the question of this study, and the coefficient of FDI from our estimation will reveal this impact. Thus from equation [4] above, we estimate domestic investment dependent on previous year level of domestic investment, current FDI, past year economic growth, real interest rate, and domestic credit availability. Assuming a dynamic linear form with fixed effects, we specify our regression equation as:

³ Hecht et al. (2002)

$$INV_{it} = \beta_0 + \beta_1 INV_{i,t-1} + \beta_2 FDI_{it} + \beta_3 G_{i,t-1} + \beta_4 INT_{it} + \beta_5 CRED_{it} + \delta_i + \varepsilon_{it} \quad [5]$$

(For $i = 1, 2, 3 \dots N$; $t = 1, 2, 3 \dots T$)

where domestic investment as a share of GDP (INV) is regressed on its lag ($INV_{i,t-1}$), FDI as a share of GDP (FDI_{it}), one period lag of GDP growth rate ($G_{i,t-1}$), real interest rate at time t (INT_{it}), domestic credit availability ($CRED_{it}$), the country-specific effect δ_i and the error term (ε_{it}). From the model stated above, domestic investment as a share of GDP for the previous time period is assumed to have a positive relationship with domestic investment in the current time period. This follows from the theory that indicates that the amount of existing capital is positively related to current and future capital formation. That is, a high level of capital formation leads to higher output, and all things being equal, higher savings and higher capital formation in subsequent years. FDI is considered an endogenous variable within the model. We assume a positive impact of inward FDI as a percentage of GDP on domestic investment, which is an ideal scenario. Yet, the results of our empirical estimation will show the true relationship for the regions being studied. We also assume that one period lag GDP growth has a positive relation with current period capital formation. Although we are considering a one period lag, including growth as a regressor poses an endogeneity problem that our estimation method must take into consideration. The interest rate is the “cost of borrowing” to engage in capital formation. We therefore assume an inverse relationship between capital formation and its cost. Domestic credit availability in the model refers to domestic credit provided by the financial sector, and we assume that this is negatively related to the current level of domestic investment. We assume that the lesser the stock of credit available in the domestic lending market, the higher the current level of domestic investment. This is because the borrowing done to invest domestically

will reduce the domestic credit stock. This is consistent with FDI policies in certain countries aiming at restricting MNCs ability to borrow in the domestic credit market.

It is important to note that the country effect in the model above are unobservable and potentially correlated with the error term. Also the forward and backward linkages between FDI and domestic investment, and the inclusion of the lag of domestic investment pose an endogeneity problem. The existence of these problems may lead to biased and inconsistent estimates, and calls for a careful choice of the estimation method.

In order to present an in-depth analysis of the impact of FDI inflows on domestic investment in SSA, we consider the contribution of selected development variables – human capital, financial development and export sector development – to the desired impact of FDI on domestic investment in our sample region. To estimate these effects we include the variable of interest, as well as an interaction of the variables of interest with FDI. The following three regressions are estimated:

$$\begin{aligned}
 INV_{it} = & \beta_0 + \beta_1 INV_{i,t-1} + \beta_2 FDI_{it} + \beta_3 G_{i,t-1} + \beta_4 INT_{it} + \beta_5 CRED_{it} + \\
 & \beta_6 FINDEV_{it} + \beta_7 FDI_{it} \times FINDEV_{it} + \delta_i + \varepsilon_{it}
 \end{aligned} \tag{6}$$

$$\begin{aligned}
 INV_{it} = & \beta_0 + \beta_1 INV_{i,t-1} + \beta_2 FDI_{it} + \beta_3 G_{i,t-1} + \beta_4 INT_{it} + \beta_5 CRED_{it} + \\
 & \beta_6 HUMCAP_{it} + \beta_7 FDI_{it} \times HUMCAP_{it} + \delta_i + \varepsilon_{it}
 \end{aligned} \tag{7}$$

$$\begin{aligned}
 INV_{it} = & \beta_0 + \beta_1 INV_{i,t-1} + \beta_2 FDI_{it} + \beta_3 G_{i,t-1} + \beta_4 INT_{it} + \beta_5 CRED_{it} + \\
 & \beta_6 EXPORT_{it} + \beta_7 FDI_{it} \times EXPORT_{it} + \delta_i + \varepsilon_{it}
 \end{aligned} \tag{8}$$

4.2 Estimation Method

As noted earlier, the dynamic model in equation [5] poses an endogeneity problem, because FDI is correlated with the current level of domestic investment. Also, due to the presence of a lagged dependent variable, estimating equation [5] by OLS will most likely generate inconsistent and biased estimates, because the dependent variable and its lagged values will be correlated. Again, OLS standard errors are often downward biased due to serial correlation. Choosing panel robust standard errors in OLS corrects for some serial correlation and heteroskedasticity, but does not eliminate the bias. For the model presented in equation [5], some common estimation methods are often used to solve its inherent problems, and they include Fixed Effects (FE), Random Effects (RE), Instrumental Variable (IV), Least Squares Dummy Variable (LSDV), Anderson-Hsiao (A-H), and the Arellano Bond GMM estimations.

The FE estimator does not perform well when the sample is small. We risk bias in the lagged dependent variable as with the OLS estimator of the first differenced regression. This is because the process of subtracting mean values of the dependent and independent variables from the respective variables creates a correlation between the regressors and error term, which is the Nickell bias illustrated in Nickell (1981). Our dynamic fixed effects model could also be estimated using the Two-Stage Least Squares (2SLS) method, but the possibility of weak instruments will lead to biased estimates similar to those obtained from OLS estimation.

The within estimator could be used by averaging over time for each country, and forming the transformed regression. The transformed regression is then estimated using

pooled OLS. Similarly, first difference estimation and dummy variable estimation can be also used, and estimated by pooled OLS. First differencing the original model removes both the constant term and the individual effect. Considering this, equation [5] becomes

$$\Delta INV_{it} = \beta_1 \Delta INV_{i,t-1} + \beta_2 \Delta FDI_{it} + \beta_3 \Delta G_{i,t-1} + \beta_4 \Delta INT_{it} + \beta_5 \Delta CRED_{it} + \Delta \varepsilon_{it} \quad [9]$$

However, in the above specification, $\Delta INV_{i,t-1}$ still contains $INV_{i,t-1}$, and $\Delta \varepsilon_{it}$ now contains $\Delta \varepsilon_{it-1}$, leading to correlation between the differenced lagged dependent variable and the differenced error term.

The instrumental variable approach implemented by the Anderson-Hsiao method considers instrumenting with second, third and further lags of the dependent variable to deal with the correlation between the differenced lagged dependent variable and the differenced error term. Assuming the error term to be independently and identically distributed, we have

$$(E(\Delta \varepsilon_{it} | INV_{i,t-2}, INV_{i,t-3}, \dots)) = 0$$

The GMM estimator, as developed by Arellano and Bond (1991), builds on the Dynamic Panel Data (DPD) approach developed in the earlier work of Holtz-Eakin, Newey and Rosen (1988). The DPD approach considers the instrumental variable with lags method to be insufficient, and builds on this approach in the GMM context to form more efficient estimates of the dynamic panel estimator. The ensuing works of Arellano and Bover (1995) and Blundell and Bond (1998), helped to further expand this method. There are two approaches – difference GMM and system GMM. The difference GMM estimator solves the problem of fixed effects by differencing the regression equation. System GMM approach instruments the identified endogenous variables with variables that are not

correlated with the fixed effects. Additionally, it simultaneously deals with the correlation between the lagged dependent variable and the error term.

The GMM estimation methods are designed for panels with small time periods compared to the number of observations (small T and large N), linear functional relationships with a dynamic dependent variable and endogenous explanatory variables. The difference and system GMM methods also deal with the presence of fixed effects, heteroskedasticity and serial correlation within observations. The GMM estimator is much preferred over the OLS and other approaches, especially in dynamic panel data models. An important revision in Agosin and Machado (2005), which follows Agosin and Mayer (2000), is the use of one-step GMM instead of the seemingly unrelated regressions approach employed in the earlier work. The Arellano-Bond approach, much like the Anderson-Hsiao approach, considers the best instruments to be internal; that is, based on deeper lags of the endogenous variables. However, Arellano and Bond (1991) discuss that the Anderson-Hsiao approach fails to consider all of the potential orthogonality conditions. Both estimators allow the inclusion of strictly exogenous instruments. In the situation where T is large or relatively close to N , the GMM estimations may not be the most efficient estimation method. However, estimating two sub-periods leaves T relatively smaller than N in our estimations. This study will therefore employ the A-H as well as GMM estimation methods for the full sample estimations, but it will rely on the System GMM in the extended analysis, because it shows improved efficiency (Roodman, 2006). In the GMM model used for this study, the basic set of external instrumental variables include export as a percentage of GDP, financial intermediation, and human capital.

We will estimate equation [5] for the full sample for both periods, and then for the RECs for both periods. This will help us to assess whether the impact of FDI on domestic investment differs between the two time periods in the case of SSA as a whole, and in the cases of economic sub-regions as well. This is because, as noted earlier, Africa's biggest advantages for attracting FDI include its vast natural resources and high returns on investment; and for each of the economic sub-regions these factors are among the prominent reasons for FDI inflows. Also, a lot of initiatives have been implemented across the continent and its sub-regions especially in the 1990s, in efforts to attract and benefit positively from foreign investment. Therefore testing separately for each period and each region will give more insight on whether increased investment efforts in SSA are yielding the desired results in terms of FDI's impact on domestic investment. This deliberate sub-sampling enables us to link our knowledge of the existing political and economic conditions, which include (but are not limited to) resource endowments and the RECs' investment policies, to the results from our estimation.

The extended empirical analysis will be implemented for the two sample periods to reveal the effect of selected development variables on FDI's impact on domestic investment in SSA. We use the System GMM technique to estimate the three equations, which include FDI interacted with human capital, financial development and export.

4.3 Data Description

This study uses a panel dataset from thirty-six selected SSA countries over the time period 1980-2014. The SSA region is selected mainly because it contains a large percentage of developing countries where domestic investment and economic development are expected

to be significantly impacted by FDI. The choice of countries from the SSA region is dependent on data availability of key explanatory variables.

To ensure an accurate representation of each of the SSA countries in the sample, five of the eight regional economic blocs in Africa are selected for the comparative analysis across regional blocs. The selected regional economic blocs are SADC, ECOWAS, ECCAS, EAC and COMESA. The non-random sub-sample selection would serve as a robustness check, and would also give us the opportunity to implement a more in-depth analysis of the relationship between FDI and domestic investment in Africa's sub-regions, taking into consideration the existing conditions and the various investment policies in each economic sub-region.

The impact of FDI on domestic investment has been an important area of research interest over the years. In order to contribute to the existing literature on the topic, the sample period is chosen to give a more recent view on the progression of trends in attracting FDI to the SSA region. Also, by considering two continuous sub-periods, we seek to highlight the prevailing impact of FDI flows on domestic investment in the SSA region. This is because during the chosen sample period, many changes have occurred in the SSA region, allowing it to attract a higher level of inward FDI. These changes include massive privatization, improvement of political conditions, and creation of favorable economic atmosphere in many SSA countries.

The data used for our study is taken from two main sources; the World Bank Development Indicators database and UNCTAD FDI Statistics database. The FDI measure for our sample is expressed as a percentage of GDP, and the data is taken from UNCTAD.

Data for gross capital formation as a percentage of GDP (domestic investment), GDP growth, real interest rate, domestic credit availability, secondary school enrollment rate (human capital), broad money as a percentage of GDP (financial development), and export as a percentage of GDP are taken from the World Bank's World Development Indicators database.

CHAPTER FIVE

5. EMPIRICAL ESTIMATION AND RESULTS

This chapter presents and discusses the econometric results of this study. The summary statistics and correlation matrix (presented in **Appendix B**) offer an initial insight into the data used for the study. We then go through the process of estimating our dynamic fixed effects model for the full sample and for the economic sub-regions, taking into consideration all the challenges associated with the empirical model. For dynamic panel models like the one presented in equation [5], the Anderson-Hsiao and GMM estimation methods are commonly used to cater for the problems presented in the empirical model. Therefore, the empirical analysis for the full sample will cover the different estimation methods. As discussed earlier, we will rely on the System GMM technique to carry out the analysis for the two sub-periods and to investigate the influence of human capital, financial development and export on the effect of inward FDI on domestic investment for our sample.

5.1 Impact of FDI on Domestic Investment for SSA

We first estimate the impact of FDI on domestic investment for the total sample period. Estimating the dynamic fixed effects model set out in Chapter Four of this study requires taking into account the fixed effects and endogeneity present. Therefore, the Anderson-Hsiao (A-H), Difference GMM (DIFF-GMM) and System GMM (SYS-GMM) methods are used for the total sample estimation. In the results presented in **Table 5.1**, the Arellano-Bond AR (2) test shows that we cannot reject the null hypothesis of no second order autocorrelation for both the SYS-GMM and DIFF-GMM results. Also, the Sargan test concludes that our estimation is not biased by too many instruments. The results show that FDI crowds-in domestic investment in SSA for the full sample period, evidenced by

positive and statistically significant coefficients for FDI through the three estimation methods. The results from the A-H method show that a one percentage point increase in FDI inflows as a percentage of GDP leads to 0.52 percentage points increase in domestic capital formation as a percentage of GDP. Meanwhile, the results from the DIFF-GMM and SYS-GMM estimations show that this effect is 0.58 and 0.45 percentage points increase, respectively.

Table 5.1 – GMM Estimation Results (SSA 1980-2014)

Effects of FDI on Domestic Investment
Dependent Variable: INV (Domestic Investment)
Group Variable: Country
Time Variable: Year

Variables	A-H	DIFF-GMM	SYS-GMM
INV _{t-1}	0.370*** (0.132)	0.498*** (0.092)	0.752*** (0.065)
FDI	0.524*** (0.126)	0.583*** (0.161)	0.454** (0.199)
G _{t-1}	0.099* (0.055)	0.158*** (0.054)	0.107*** (0.037)
CRED	0.003 (0.018)	0.072* (0.041)	-0.002 (0.008)
INT	0.060** (0.025)	-0.004 (0.015)	0.007 (0.019)
Constant			3.443*** (0.742)
Observations	730	742	792
AR(2) (<i>p-value</i>)		0.741	0.185
Sargan (<i>p-value</i>)		0.113	0.884

Notes: ***, ** and * represents 1%, 5% and 10% significance level respectively. Absolute values of robust standard errors are reported in parentheses.

The results from the three estimation methods for the two sub-periods 1980-1994 and 1995-2014 are presented in **Table 5.2** and **Table 5.3**, respectively. They show a crowding-in effect of inward FDI for SSA, though the results are only statistically significant in the second period. In the second period, the A-H estimation gives a coefficient of 0.607, indicating that a one percentage point increase in FDI inflows as a percentage of GDP leads to an increase in domestic investment as a percentage of GDP by 0.60 percentage points. Also, in the second time period, the DIFF-GMM estimation produces an estimated coefficient of 0.672, which indicates that a one percentage point increase in FDI inflows as a percentage of GDP generates 0.67 percentage points increase in domestic investment as a percentage of GDP for SSA as a whole. The SYS-GMM estimation generates a significant positive effect of FDI on domestic investment in SSA, indicating that a one percentage point increase in FDI inflows as a percentage of GDP is associated with 0.53 percentage points increase in domestic investment as a percentage of GDP.

These estimates are consistent with the results presented in many empirical studies that find a crowding-in effect of FDI on domestic investment for Africa (e.g., Ndikumana and Verick, 2008), and for other regions (e.g., Borensztein et al., 1998; Bosworth and Collins, 1999; and Agosin and Mayer, 2000). This is also partly similar to the results in Adams (2009) that conclude a varying effect – initial crowding-out effect, and positive effect in later periods. Overall, the results support the conclusions of the existing literature (De Mello, 1999; Agosin and Mayer, 2000) that the effect of FDI on domestic investment differs based on the region studied, the period considered, as well as the econometric method used. The observation of a significant positive effect of FDI on domestic investment in the full sample period and in the second sub-period implies that SSA's more

recent efforts to increase FDI are beneficial in augmenting the stock of domestic capital, and thus increasing the persistence of FDI through the dynamic linkages between FDI and domestic investment. The results however differ from the conclusion in Fry (1993), which underlines crowding-out effect of FDI on domestic investment for developing countries.

Table 5.2 GMM Estimation Results (SSA 1980-1994)

Effects of FDI on Domestic Investment
Dependent Variable: INV (Domestic Investment)
Group Variable: Country
Time Variable: Year

Variables	A-H	DIFF-GMM	SYS-GMM
INV _{t-1}	0.240 (0.462)	-0.052 (0.762)	0.850*** (0.164)
FDI	0.024 (0.170)	0.059 (0.307)	0.306 (0.287)
G _{t-1}	-0.116** (0.058)	-0.165 (0.205)	0.261** (0.129)
CRED	-0.037 (0.046)	0.123 (0.186)	0.032 (0.030)
INT	0.019 (0.055)	-0.337** (0.164)	-0.139 (0.136)
Constant			1.981 (1.956)
Observations	314	329	364
AR(2) (<i>p-value</i>)		0.369	0.835
Sargan (<i>p-value</i>)		0.276	0.282

Notes: ***, ** and * represents 1%, 5% and 10% significance level respectively. Absolute values of robust standard errors are reported in parentheses.

Table 5.3 GMM Estimation Results (SSA 1995-2014)

Effects of FDI on Domestic Investment
Dependent Variable: INV (Domestic Investment)
Group Variable: Country
Time Variable: Year

Variables	A-H	DIFF-GMM	SYS-GMM
INV _{t-1}	0.533*** (0.131)	0.435*** (0.059)	0.626*** (0.085)
FDI	0.607*** (0.139)	0.672*** (0.155)	0.531** (0.241)
G _{t-1}	0.188*** (0.033)	0.253*** (0.044)	0.258*** (0.067)
CRED	0.029 (0.043)	0.111** (0.049)	-0.001 (0.011)
INT	0.030 (0.024)	0.040 (0.029)	0.012 (0.023)
Constant			4.403*** (0.963)
Observations	374	393	426
AR(2) (<i>p-value</i>)		0.286	0.469
Sargan Test (<i>p-value</i>)		0.201	0.467

Notes: ***, ** and * represents 1%, 5% and 10% significance level respectively. Absolute values of robust standard errors are reported in parentheses.

Lagged domestic investment and GDP growth generally show statistically significant positive effects on current domestic investment (except in period one in the case of A-H and DIFF-GMM estimations), indicating that the existing level of economic growth is important in domestic capital formation. In period two, the effect of domestic credit available to investors is positive and statistically significant through the DIFF-GMM

estimation. However, this effect is negative and not statistically significant when implementing the SYS-GMM estimation. A decrease in domestic credit availability could signify an increase in domestic investment (because domestic investors borrow out of domestic credit). This could explain the negative relationship in the SYS-GMM results. However, a more expected situation is that increased availability of credit signifies financial deepening, and therefore has a positive effect on domestic investment. This is consistent with the positive and statistically significant DIFF-GMM results in the full sample period and in the second sub-period. For the full sample period, the A-H results show a positive and statistically significant effect of real interest rate on domestic investment. Real interest rate shows varying effects across the three estimation methods in period one, although only statistically significant for the DIFF-GMM. However, in period two, we find estimates that are positive but not statistically significant across all estimation methods. This varying effect could be explained as follows. The interest rate depicts the cost of capital and, therefore, is expected to affect domestic capital formation negatively. Meanwhile, increased interest rates would also indicate increased return on investments, and this could have a positive effect on domestic capital.

Over the long term, the results show that FDI has a positive effect on domestic investment in SSA. For the full sample period, the statistically significant positive long-run effect of FDI on domestic investment, determined as $\beta_2/(1 - \beta_1)$, ranges from 0.83 (A-H estimation) to 1.83 (SYS-GMM). The results for the sub-periods only show statistically significant estimates for the second period, and the long-run effect ranges from 1.19 (DIFF-GMM) to 1.42 (SYS-GMM).

As discussed earlier, the Anderson-Hsiao estimator and the Arellano-Bond GMM estimators are well-suited to solve the problems related to endogeneity, fixed effects and autocorrelation inherent in our dynamic fixed effects model. The simple A-H estimator uses differences to estimate, and instruments with lags. The DIFF-GMM estimator transforms equation [5] using first differences. This removes the fixed effects, and also makes it possible to instrument with further lags of the dependent variable that are not considered to be related with the differenced error term. The SYS-GMM estimator uses the original equation to obtain a system of two equations: one in levels and one in differences. This makes it possible to use more instruments than in the DIFF-GMM estimator. In the SYS-GMM model, the variables in the level equations are instrumented with their own first differences. The increase in the number of instruments is believed to increase efficiency. Extra caution is required here though, because if the number of instruments is greater than the number of countries (groups), this causes a poor Sargan test outcome. The latter indicates that the results from the estimation are weakened by too many instruments. We rely on the SYS-GMM estimator when carrying out the empirical analysis for the two sub-periods because it gives greater efficiency in estimation.⁴ The inclusion of a lagged dependent variable makes it better to use the SYS-GMM estimator, which yields more reasonable parameter estimates due to a more efficient instrument set.

⁴ It is worth noting that many empirical studies on this topic have used the SYS-GMM method to carry out the estimations (e.g., Agosin and Machado, 2005; Al-Sadig, 2013; and Morrissey and Udomkerdmongkol, 2012).

Table 5.4 SYS-GMM Estimation Results (SSA RECs 1980-1994)

Effects of FDI on Domestic Investment
Dependent Variable: INV (Domestic Investment)
Group Variable: Country
Time Variable: Year

Variables	COMESA	EAC	ECCAS	SADC	ECOWAS
INV _{t-1}	0.634*** (0.088)	0.470*** (0.126)	0.778*** (0.267)	0.957*** (0.055)	0.654*** (0.066)
FDI	0.277** (0.117)	5.872 (5.699)	0.551 (0.591)	0.202 (0.189)	0.031 (0.046)
G _{t-1}	-0.038 (0.058)	-0.667* (0.376)	0.026 (0.087)	0.034 (0.138)	0.069* (0.038)
CRED	0.064* (0.036)	0.707** (0.293)	0.107 (0.153)	0.021 (0.017)	0.002 (0.020)
INT	-0.038 (0.030)	0.072 (0.125)	-0.185 (0.168)	-0.098 (0.124)	0.034* (0.018)
CONSTANT	5.503*** (1.741)	-4.133 (4.076)	4.430* (2.386)	0.873 (0.024)	4.652*** (0.972)
Observations	114	126	78	114	129
AR(2) (<i>p</i> -value)	0.852	0.753	0.917	0.358	0.965
Sargan Test (<i>p</i> -value)	0.457	0.784	0.163	0.946	0.775

Notes: ***, ** and * represents 1%, 5% and 10% significance level respectively. Absolute values of robust standard errors are reported in parentheses.

Table 5.5 SYS-GMM Estimation Results (SSA RECs 1995-2014)

Effects of FDI on Domestic Investment
Dependent Variable: INV (Domestic Investment)
Group Variable: Country
Time Variable: Year

Variables	COMESA	EAC	ECCAS	SADC	ECOWAS
INV _{t-1}	0.799*** (0.059)	0.860*** (0.059)	0.677*** (0.057)	0.706*** (0.075)	0.627*** (0.086)
FDI	0.085 (0.058)	0.295 (0.288)	0.616*** (0.214)	0.289** (0.124)	1.513*** (0.278)
G _{t-1}	0.189 (0.148)	-0.278 (0.174)	- 0.602*** (0.117)	0.118 (0.123)	-0.057 (0.102)
CRED	0.001 (0.012)	-0.023 (0.024)	-0.076 (0.102)	-0.006 (0.006)	-0.009 (0.116)
INT	-0.010* (0.005)	-0.118*** (0.020)	0.331 (0.235)	-0.028* (0.015)	-0.097 (0.062)
CONSTANT	2.968*** (0.491)	5.527*** (1.120)	8.999** (4.168)	5.736*** (1.918)	0.847 (2.699)
Observations	177	85	82	205	54
AR(2) (<i>p-value</i>)	0.452	0.631	0.435	0.343	0.852
Sargan Test (<i>p-value</i>)	0.432	0.860	0.799	0.368	0.275

Notes: ***, ** and * represents 1%, 5% and 10% significance level respectively. Absolute values of robust standard errors are reported in parentheses.

From **Table 5.4** and **5.5**, the Sargan and AR(2) tests show that our estimations for the sub-regions are not biased by too many instruments and do not suffer from second order autocorrelation, respectively. Our economic sub-regional analysis shows that over the two sample periods, intensified integration efforts and policies geared at increasing foreign

investments to RECs have not always led to significantly positive effects of FDI on domestic investment for many RECs across the time periods. **Table 5.4** shows that only COMESA has a statistically significant crowding-in effect in the first sub-period. However, **Table 5.5** indicates that the positive effect of FDI on domestic investment for COMESA does not remain statistically significant in the second sub-period. **Table 5.5** also shows significant crowding-in effects in ECCAS, SADC and ECOWAS. The magnitude of this crowding-in effect differs from region to region, with a one point increase in FDI inflows as a percentage of GDP leading to 0.61, 0.29, and 1.59 increases in domestic investment as a ratio of GDP for ECCAS, SADC and ECOWAS, respectively. The estimated coefficients for COMESA and EAC are positive but they are not statistically significant. The findings of crowding-in effects of FDI on domestic investment through RECs confirm our results for SSA as a whole, and they are consistent with the results in earlier works such as Bosworth and Collins (1999), Ndikumana and Verick (2008), and Apergis et al. (2008). These studies find a positive effect of FDI on domestic investment for developing and transitioning regions. Our results differ from Eregba (2011), however, which does not find a positive effect of FDI on domestic investment for ECOWAS. Over the two sub-periods, the results show that the crowding-in effect of FDI on domestic investment is strongly evident in central and western SSA regions. However, the effect appears to be more dispersed in eastern and southern SSA regions.

Our earlier discussion of SSA's sub-regions indicates that all the regional economic blocs used in our study have set up investment agencies, and have generally improved the investment climate in their regions. Evidence used through our discussions also shows that there are measures put in place to ensure the attraction of the appropriate kind of foreign

investment enterprise, and the maximum benefit of FDI inflows to these regional economies. The ECOWAS region, which shows the highest positive effect in the second period from our estimation, is observed to have a high level of economic integration that has evolved over the years. The region has Nigeria as a member state, which is the country with the highest FDI inflows in SSA. ECOWAS has also harmonized its investment approach, and this may explain the highest significant positive impact of FDI on domestic capital formation for this region in the second time period. Our earlier discussion of SSA's regional economic blocs indicates that the ECCAS region has made tremendous effort to increase peace and political stability, as well as undergoing continuous economic reconstruction after years of political unrest in some member states. There are significant opportunities for growth in this region, and this may be the reason why the ECCAS region has the second highest positive effect of FDI on domestic investment. The results for the SADC region are also positive and statistically significant in the second period. There is evidence that FDI inflow into this region has increased since the major economic liberalization that took place in the late 1990s. The region initiated its Trade Protocol in the 1990s, and this has further liberalized intra-regional trade, and improved investment in the region. South Africa is a major economic player in this region, and has initiated a lot of investment throughout the entire SADC region. The COMESA region is the largest trade and investment area in SSA, and was mainly formed to overcome the economic problems faced by individual states through economic integration. Although there is a positive effect of foreign investment on domestic investment in this region, this is not reflective of the economic size-related capacity that this region has to benefit from FDI spillovers. This may be due to the fact that this region has had problems with its economic integration efforts. FDI in this region has been also concentrated in mostly mineral and oil rich countries.

However, the COMESA region may still be on the right course, and the establishment of institutions, such as the Competition Commission, has produced guidelines for mergers and acquisitions, and has regulated market competition and consumer protection. Such policies could streamline incoming FDI, and enhance its positive effect on domestic investment in the COMESA region. Lastly, the estimated parameter of FDI is positive but not statistically significant in the case of the EAC region. From our earlier discussion on the SSA's sub-regions, we indicated that the EAC bloc is the fastest growing economic region in Africa, where growth is less sharply skewed towards resource rich countries. The crowding-in effect is however not statistically significant, and this result may be due to conflicts among member states on the extent of foreign investment liberalization. Also, FDI inflows to this region largely go to the manufacturing, construction and tourism sectors, and may require more diversification.

5.2 Selected Development Variables

For our analysis of the selected development variables, we use the SYS-GMM estimation to tackle endogeneity in the model. Summary statistics for the development variables can be found in **Appendix B**. The variable for financial sector development is represented by broad money as a percentage of GDP, and it is denoted by FINDEV. The human capital variable is a measure of secondary school enrolment as a ratio of the secondary school aged population, and it is denoted by HUMCAP. Export sector development is also measured by exports as a percentage of GDP, and it is denoted by EXPORT. **Table 5.6** shows the results for the first time period, and **Table 5.7** shows the results for the second time period.

Table 5.6 SYS-GMM Estimation Results (SSA 1980-1994)
Effects of FDI on Domestic Investment (with selected development variables)

Independent Variables	Financial Sector	Human Capital	Export
INV _{t-1}	0.838*** (0.181)	0.916*** (0.051)	0.857*** (0.127)
FDI	2.017** (0.819)	1.749*** (0.575)	-1.779** (0.889)
G _{t-1}	0.102 (0.190)	-0.158 (0.532)	0.167 (0.212)
CRED	-0.030 (0.062)	0.015 (0.023)	0.013 (0.096)
INT	-0.379** (0.181)	-0.058 (0.087)	-0.337** (0.151)
VARIABLE	0.107 (0.168)	0.090** (0.040)	-0.026 (0.196)
FDI×FINDEV	-0.066* (0.037)		
FDI×HUMCAP		-0.030** (0.013)	
FDI×EXPORT			0.048*** (0.015)
CONSTANT	3.286 (5.032)	1.041 (1.743)	4.657 (8.536)
Observations	361	51	
AR(2) (<i>p-value</i>)	0.197	0.752	
Sargan Test (<i>p-value</i>)	0.486	0.171	

Notes: ***, ** and * represents 1%, 5% and 10% significance level respectively. Absolute values of robust standard errors are reported in parentheses.

From column one in both tables, FDI has a significantly positive effect on domestic investment, but the negative interaction coefficient suggests that higher financial development decreases the effect of FDI on domestic investment. In period one for example, this effect is $(2.017 - 0.066 \times \text{Financial Development})$ and the critical level of financial development is 30.56%, below which the effect of FDI on domestic investment is

positive and above which it is negative. So for financial development levels of 20% and 40%, the effect of FDI on domestic investment is 0.697 and -0.623 respectively.

Table 5.7 SYS-GMM Estimation Results (SSA 1995-2014)
Effects of FDI on Domestic Investment (with selected development variables)

Independent Variables	Financial Sector	Human Capital	Export
INV _{t-1}	0.575*** (0.093)	0.726*** (0.032)	0.602*** (0.097)
FDI	1.197*** (0.434)	0.802*** (0.166)	-0.020 (0.242)
G _{t-1}	-0.007 (0.063)	-0.313 (0.225)	0.132** (0.059)
CRED	-0.055*** (0.017)	-0.043 (0.030)	-0.006 (0.012)
INT	-0.050*** (0.017)	0.024 (0.053)	-0.003 (0.018)
VARIABLE	0.176*** (0.054)	0.100 (0.063)	-0.052** (0.029)
FDI×FINDEV	-0.025** (0.010)		
FDI×HUMCAP		-0.017*** (0.005)	
FDI×EXPORT			0.008** (0.003)
CONSTANT	4.408*** (1.208)	3.837* (2.188)	8.448*** (2.047)
Observations	425	151	
AR(2) (<i>p-value</i>)	0.119	0.114	
Sargan Test (<i>p-value</i>)	0.764	0.941	

Notes: ***, ** and * represents 1%, 5% and 10% significance level respectively. Absolute values of robust standard errors are reported in parentheses.

In period two, the effect is (1.197 – 0.025×Financial Development). It indicates that, at the critical level of 47.88% of financial development, the effect of FDI on domestic investment changes from positive to negative. In this period, financial development level

of 20% will lead to 0.697 percentage points increase in the impact of FDI on domestic investment, while a financial development level of 70% will lead to 0.553 percentage points decrease in the impact of FDI on domestic investment. This result can be attributed to the fact that as financial development occurs, it may have a positive effect on domestic investment as shown by the positive coefficient of financial development in both periods: 0.107 in period one (which is not statistically significant) and 0.176 in period two (which is statistically significant at the 1% level). However, increasing financial development could attract more FDI at the expense of domestic investment, eventually resulting in crowding-out of domestic investment by foreign investment. The results for the role of financial development in FDI's impact on domestic investment in SSA could be the case when foreign investors engage in heavy borrowing from local banks, instead of fully transferring capital from abroad. In this case greater financial development benefits foreign investors, at the detriment of domestic investors. This result differs from the findings in Alfaro et al. (2004, 2009) which indicate that financial development complements the effect of FDI on economic growth in cross country studies.

From the results in the second column of **Table 5.6** and **Table 5.7**, it can be seen that the estimation for human capital in both periods is restricted in terms of number of observations by limited data for human capital in SSA. For the first period, the estimated coefficient of FDI is positive and statistically significant at the 1% level. The interaction variable is negative and it is also statistically significant at the 5% level. The effect of FDI on domestic investment in the presence of the interaction term is $(1.749 - 0.030 \times \text{Human Capital})$. The critical level of human capital beyond which FDI crowds out domestic investment is 58.3%. For human capital levels of 30% and 70%, the impact of FDI on

domestic investment is positive at an estimated coefficient of 0.849 and negative at an estimated coefficient of -0.351, respectively. In the second period, the effect of FDI is calculated by $(0.802 - 0.017 \times \text{Human Capital})$. The critical level of human capital is 47.2%, and at human capital levels of 30% and 70% respectively, the estimated effect of FDI on domestic investment is 0.292 and -0.388, respectively. This result suggests that although human capital is a critical absorptive capacity variable through which FDI affects domestic investment and generates spillovers for the economy, its effect on domestic investment through FDI decreases as human capital increases. Thus, this finding suggests that, in SSA, increased human capital is more beneficial to foreign enterprises at the expense of domestic enterprises. This may signify an “indigenous” brain drain, where higher educated members of the labour force are disproportionately employed in foreign-owned firms (foreign affiliates) than in domestic firms. Our findings differ from the results in Borensztein et al. (1998) which suggest that human capital is an important precondition for FDI to have a positive effect on growth.

Finally, the results in the third columns of **Table 5.6** and **Table 5.7** show that increasing level of exports induces FDI to crowd-in domestic investment in SSA. The effect of FDI on domestic investment with the inclusion of the interaction term is $(-1.779 + 0.048 \times \text{Export})$ for period one and the critical level of export is 37.06%. Hence, in period one, at export levels of 20% and 60%, the effect of FDI on domestic investment is -0.819 and 1.101 respectively. For period two the effect of FDI on domestic investment is measured by $(0.008 \times \text{Export})$ given that the estimated coefficient of FDI is not statistically significant. Hence, FDI has a positive effect on domestic investment when there exists a positive export level. As discussed earlier, it is believed that higher export levels indicate

access to larger markets, which creates room for both foreign and domestic firms to grow. This is evidenced through the emphasizing implications of exports for FDI's effect on domestic investment in both periods. These results are consistent with those reported in Eregba (2011) that reveal that export openness positively affects the accumulation of domestic investment. Also, the results are consistent with the findings in Balasubramanyam et al. (1996) which conclude that the policies consistent with export promotion strategy leads to free markets, and increases domestic investment through specialization and investment in research and development. This result signifies that export orientation policies are needed in SSA economies to ensure optimal benefits from inward FDI.

CHAPTER SIX

SUMMARY AND CONCLUSION

6.1 Summary

FDI is often considered as a main contributing factor to economic development in most developing regions due to its positive spillover effects, and its ability to fill investment, managerial and foreign exchange gaps. These FDI characteristics have promoted several policies in developing countries aimed at improving the business climate to attract more FDI. In the early 1980s, several economies in SSA and other developing regions embarked on export promotion and open-economy strategies, particularly through the Structural Adjustment Programs (SAPs) introduced by the IMF. These strategies served in creating incentives to attract FDI. In the 1990s, SSA countries embarked on privatization schemes, as well as improvement of political and economic climate in order to draw more foreign investment into their economies. RECs in SSA have also intensified their efforts to attract FDI, and have instituted several policies aimed at improving investment and ensuring the productivity of foreign investments. However, the true impact of FDI on domestic investment remains inconclusive. Many empirical studies have investigated this effect for various regions and using different econometric techniques. This thesis contributes to this empirical literature by examining the impact of FDI on domestic investment in SSA as a whole, and in five selected regional economic blocs in SSA.

This study implements the econometric analysis by using a dynamic fixed effects model to account for the linkages between FDI and domestic investment in SSA as a whole, and in selected SSA sub-regions. The estimation is executed for the total sample period, and for two sub-periods to determine if the efforts to attract FDI in SSA have yielded the desired results in terms of domestic investment. We use the A-H, DIFF-GMM and SYS-

GMM approach to estimate the relationship between FDI and domestic investment with a panel dataset covering thirty-six SSA countries for the time period from 1980 to 1994, and then for the time period from 1995 to 2014. Existing studies that apply SYS-GMM in estimating dynamic panel models conclude that this econometric approach provides more efficient estimates than the OLS or fixed effects methods which are prone to estimation bias. The SYS-GMM is also more efficient than the alternative DIFF-GMM.

This study further considers the effect of FDI on five of SSA's RECs, namely the EAC, ECCAS, SADC, ECOWAS and COMESA. This breakdown of the sample by RECs provides a robustness check, and it gives us the opportunity to relate the economic conditions and policies in these sub-regions to the impact of FDI on domestic investment. Estimation over two distinct time allows us to investigate whether economic integration and investment awareness in Africa's RECs have affected FDI's impact on domestic investment in these economic regions. Again, most of the existing literature concludes that there is a need for absorptive capacity to maximize the spillover effects of FDI on the domestic economy. Therefore, this thesis explores the complementarity between FDI and three indicators: financial development, human capital and export when examining the impact of FDI on domestic investment in SSA. It also investigates whether this relationship has changed over the two selected time periods.

The GMM estimation of our dynamic fixed effects model reveals that FDI crowds-in domestic investment for the whole SSA sample in both time periods. However the results are only statistically significant in the second period. Further examination of the results reveals that the existing domestic capital has a positive effect on domestic investment, as shown by a statistically significant positive coefficient of the lagged dependent variable.

The level of economic growth positively affects domestic investment in the second period. The positive effect of FDI on domestic investment especially in the second time period (1995-2014) could be attributed to the effectiveness of the policies and initiatives adopted by the AU, and by the various RECs and individual countries to attract inward FDI. The results are generally consistent with earlier empirical studies pertaining to the SSA region, and with the ideas that FDI is beneficial to recipient countries, especially in the case of developing regions.

Results from the sub-regional analysis show crowding-in effect in varying degrees, and affirm positive results of FDI on domestic investment for the entire SSA. Statistically significant crowding-in effects are observed for the ECCAS, SADC and ECOWAS regions. The crowding-in effect of FDI on domestic investment appears to be more concentrated in the central and western Africa, but is more dispersed in the south and much more in the east. Nevertheless, follow-up investigations of the impact of FDI on domestic investment for individual countries within each region could reveal a more specific relationship between FDI and domestic investment. The positive impact of FDI on domestic investment in SSA's RECs can be attributed to the implementation of various investment initiatives in these sub-regions. The increasing levels of economic integration in these RECs make it easier to harmonize investment policies across several countries. These policies would ensure a steady flow of FDI into these economies, and would help developing the ability to realize the positive spillover effects from FDI activities to augment domestic capital formation. For instance, policies, such as SADC's Trade Protocol, focus on increasing investment and improving productivity throughout the region. Agencies, such as the EAC's Investment Promotion and Private Sector Development Agenda, span the region's

industrialization, trade agreements and privatization reforms. Also, the COMESA's Competition Commission acts as a regulatory body for foreign investors. These policies and agencies are deemed to be key factors in increasing FDI inflows, and in ensuring positive effects on regional development.

Our estimation of the role played by selected development variables in the effect of FDI on domestic investment shows statistically significant impacts of financial development and export in both time periods, and of human capital in the second period. Higher levels of financial development and human capital appear to cause FDI to crowd out domestic investment. However, higher export levels lead to crowding-in effect of FDI on domestic investment. This reveals that greater financial development and increasing human capital in SSA benefits foreign investors at the expense of domestic investors. When foreign firms choose to engage in heavy borrowing from domestic banks, this could lead to the crowding-out of domestic investors. This is because foreign firms are often more competitive. Also, as human capital levels increase in the developing economies of SSA, it is more likely that higher educated members of the labour force would be employed in MNCs and other foreign ventures, causing the crowding-out of domestic firms. On the other hand, increasing export levels could be crowding-in domestic investment, by establishing a larger international market for the output of both foreign and domestic firms.

6.2 Policy Implications and Recommendations

Our empirical results suggest that FDI has led to crowding-in of domestic investment in SSA, especially in recent time periods. This is also reaffirmed by the positive effects of FDI on domestic investment in many SSA's RECs. Therefore, the results of this thesis indicate that SSA (and perhaps other developing regions) should not exclusively target the

amount of inward FDI to the region, but there should be policies intended to restructure the existing economic conditions in order to maximize FDI spillover effects on domestic investment. The African continent has taken important steps to improve the investment climate. The NEPAD institution and the increased economic integration among the RECs have helped in attracting inward FDI. This thesis recommends a greater focus on the structure and levels of key development variables that will ensure optimal positive effect of FDI on domestic investment.

From our results, an improvement in the financial development in Africa negatively impacts the effect of FDI on domestic investment. Policies that could turn this into a positive impact would include improving the functions of entities that provide various financial services such as credit, insurance, accountancy, consumer finance, as well as stock and investment brokerage. These services are fundamental to the attraction of domestic capital formation, and also form a vital framework within which FDI operates to improve domestic investment and, ultimately, economic development. SSA countries that do not have these institutions need to build them up. Meanwhile, SSA countries that do have these institutions need to strengthen them up and protect them, in order to allow them to carry out more efficiently their various roles in the domestic economy. More importantly, there should be financial policies tailored and intended to build domestic industries.

The empirical results also show that high levels of human capital reduce the impact of FDI on domestic investment. Existing empirical studies suggest that managerial and technical spillovers from FDI require that the existing labour force possesses the skills needed to apply the new information and technology in domestic enterprises. Therefore, the key policy implications for Africa include providing universal access to education. The

Millennium Development Goals advocate free basic education, and it is important that SSA accelerates its efforts in improving access and quality of education, to ensure that the labour force enjoys not only basic literacy but also technical know-how skills to fully exploit positive spillovers from FDI. However, the caveat here is that entrepreneurship must be highly encouraged alongside education, to ensure that increased human capital fully benefits the domestic economy. For example, graduates from tertiary institutions would utilize entrepreneurial skills to employ themselves, leading to expansion of the domestic economy.

Policies intended to expand the export sector in Africa would provide greater access to international markets, and would expand the capacity of domestic industries. This can be achieved when SSA countries follow an export promotion strategy, as outlined in Balasubramanyam et al. (1996). One suitable policy is to capitalize on the inflow of FDI to expand highly profitable sectors in which the domestic country enjoys comparative advantage. Production in these sectors should be geared towards export, since domestic demand alone will not generate enough revenue. Over time, the export sector would turn out to be a major contributor to economic development. This leads to a positive trade balance and a larger economy compared to an alternative economy based on an import substitution policy. SSA governments could introduce policies aiming at consolidating production and export activities in key sectors such as, agriculture and minerals. An export-oriented policy would also promote market competition in international markets, leading to the expansion of competitive domestic industries through FDI spillover effects, research and development, and specialization. Hence, such policy would promote the economic development and the competitiveness of the SSA region.

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APPENDIX

Appendix A: List of Countries in Dataset

RECs	Countries
ECCAS	Angola, Burundi, Cameroon, Chad, Democratic Republic of the Congo, Equatorial Guinea, Gabon.
EAC	Burundi, Kenya, Rwanda, Tanzania, Uganda.
COMESA	Burundi, Comoros, Democratic Republic of the Congo, Kenya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zimbabwe.
SADC	Angola, Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zimbabwe.
ECOWAS	Benin, Burkina Faso, Côte d'Ivoire, The Gambia, Ghana, Guinea, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo.

Notes: Some SSA countries are not included in dataset due to data limitations. These countries are: ECCAS – Central African Republic, Congo, Rwanda, Sao Tome and Principe; EAC – South Sudan; COMESA – Central African Republic, Djibouti, Egypt, Eritrea, Ethiopia, Libya; SADC – Zambia; ECOWAS – Cabo Verde, Guinea-Bissau, Liberia.

Appendix B: Summary Statistics

Table B1 Summary Statistics for SSA Sample 1980-1994

Variables	N	Mean	Standard Deviation	Min	.25	Median	.75	Max
INV	511	21.20	15.88	0.00	12.93	17.82	24.57	153.45
INV _{t-1}	510	21.19	15.89	0.00	12.93	17.82	24.57	153.45
FDI	555	1.49	5.76	-33.43	0.03	0.41	1.47	83.43
G _{t-1}	525	2.23	7.37	-51.03	-0.40	2.66	5.69	34.75
INT	416	5.57	13.73	-53.44	0.86	6.06	13.16	57.43
CRED	485	29.11	25.64	-45.49	16.45	24.57	38.20	319.54

Table B2 Summary Statistics for SSA Sample 1995-2014

Variables	N	Mean	Standard Deviation	Min	.25	Median	.75	Max
INV	723	23.30	18.07	-2.42	15.80	20.77	26.44	219.07
INV _{t-1}	722	23.31	18.07	-2.42	15.85	20.78	26.44	219.07
FDI	740	5.27	12.00	-82.89	0.87	2.37	4.82	161.82
G _{t-1}	727	5.24	8.97	-30.15	2.50	4.48	6.62	149.97
INT	471	10.72	21.49	-94.22	4.19	9.30	16.11	252.12
CRED	713	27.29	39.93	-79.09	9.66	16.15	28.37	247.47

Table B3 Correlation Matrix for SSA Sample 1980-1994

Variables	INV	INV _{t-1}	FDI	G _{t-1}	INT	CRED
INV	1.0000					
INV _{t-1}	0.8540	1.0000				
FDI	0.4198	0.3774	1.0000			
G _{t-1}	0.1658	0.2003	0.1682	1.0000		
INT	0.0722	0.0563	0.0634	0.0414	1.0000	
CRED	0.0353	0.0424	-0.0429	-0.1653	0.0320	1.0000

Table B4 Correlation Matrix for SSA Sample 1995-2014

Variables	INV	INV_{t-1}	FDI	G_{t-1}	INT	CRED
INV	1.0000					
INV_{t-1}	0.8277	1.0000				
FDI	0.6619	0.4552	1.0000			
G_{t-1}	0.5547	0.5503	0.2826	1.0000		
INT	0.0207	-0.0231	0.0017	-0.0074	1.0000	
CRED	-0.0973	-0.1014	0.0193	-0.1290	0.0316	1.0000

Table B5 Summary Statistics for Selected Development Variables 1980-1994

Variables	N	Mean	Standard Deviation	Min	.25	Median	.75	Max
FINDEV	491	24.96	12.42	2.28	16.87	22.01	29.39	101.88
HUMCAP60		16.46	17.00	2.18	5.66	12.44	17.41	82.23
EXPORT	526	29.07	18.19	2.52	13.82	22.86	41.73	85.36

Table B6 Summary Statistics for Selected Development Variables 1995-2014

Variables	N	Mean	Standard Deviation	Min	.25	Median	.75	Max
FINDEV	713	29.37	19.27	3.39	17.73	23.26	35.73	151.55
HUMCAP234		31.93	19.76	2.68	16.65	28.84	41.15	89.64
EXPORT	727	35.13	23.09	2.19	18.90	27.93	46.00	124.39