THE INTERRELATIONSHIPS BETWEEN FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH IN AFRICA

by

LINDELWA MANDISA BOLANI

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DECLARATION

This page declares that the work produced is my own and was conducted whilst completing the degree of Masters of Commerce in Economics whilst at Rhodes University. This thesis has not been submitted to other Universities, Technikons or Colleges for degree purposes.

Lindelwa Mandisa Bolani

Signed:……..

Date:……..

ABSTRACT

There has been a long search for the keys to development and economic growth in Africa. This study investigates the relationship between FDI and economic growth over the period 2000-2012 using data from 48 African countries. On the aggregate regional level FDI and economic growth were found to be positively correlated during this period. Using panel data econometric techniques and the Panel Granger Causality test, results revealed that a bi-directional causality relationship existed between FDI and GDP. Thus, the results suggest that GDP is a requirement for increased investment, and at the same time is the result of increased foreign investment. Thus, the conclusion is that African policy makers are justified in increasing their attempts to create an attractive business environment for foreign investors, as it is beneficial for economic growth.

JEL Classification: F20, F21, F23

Keywords: Foreign direct investment, economic growth, Africa

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1. CHAPTER ONE: INTRODUCTION

1.1 Context of the Research

There has long been an arduous search for the keys to development and economic growth in Africa, with many strategies emerging as an option to facilitate growth in Africa (Moudatsou and Kyrkilis, 2009:1-2). A widely accepted theory is the investment-led strategy for growth, with foreign direct investment (FDI) argued to be a strong contributor to economic growth. The World Bank (1996:330) defines FDI as "an investment in a host country other than the investor's home country, where a lasting management interest is acquired in a business enterprise."

Africa has historically received a significantly small portion of global FDI. In 2012, the African region only accounted for 3.7% of total world FDI inflows, compared to Asia's 30%, and 10.69% for South America (UNCTAD, 2012:1). The highest FDI inflow percentage the African region ever saw was when it peaked at 4.36% in 2008 just before the shock of the financial crisis in late 2008 was felt, which eventually caused inflows to dip to the latest figure of 2012's 3.70% of total world FDI inflows (UNCTAD, 2012:1). A closer inspection amongst these different regions suggests a reasonable explanation: Africa's GDP only accounts for 2.5% of world GDP (UNCTAD, 2012:1). This would thus suggest that a comparatively smaller share of the world FDI inflows would flow to the African region.

African countries face low economic growth in comparison to industrialized countries, and as such need a multifaceted approach to help increase economic growth (Wan, 2010:52). Some of the benefits associated with FDI include technological spill-overs, an increase in employment and a boost in know-how as well as the quality of labour, increases in the savings and investment levels of the host country, increased consumer value as costs may tend to fall with an increase in competition, and reduction in production cost due to improved technology (Carkovic and Levine, 2002:196). However, potential negative effects of FDI are: the crowding out of domestic investment, and an increased dependence on external capital or vulnerability to global shocks such as the financial crises (Hansen and Rand, 2006:21). Moreover, if an economy already has low levels of absorptive capacity, then the full benefits

of FDI spillovers cannot be enjoyed (de Mello, 1999:134). It is thus important to analyse the effect of FDI in Africa to determine if FDI makes a positive contribution to economic growth and development in African countries (Hansen and Rand, 2006:21).

There has long been a debate on FDI-growth nexus. The debate has ranged from questioning whether FDI can cause long-run growth or if it is increased growth and a faster growing economy that improve FDI inflows to economies (Hansen and Rand, 2006:1). Several literature studies have researched the bi-directional causality between FDI and economic growth due to the positive association between GDP and FDI. Choe's (2003) study revealed bi-directional causality between growth and FDI from a data set of 80 countries, although the causal impact of growth on FDI was found to be weak. Similarly, Hansen and Rand (2006) found that a bi-directional causality relationship exists between FDI as a percentage of GDP and the level of GDP in 31 developing countries. However, FDI had a stronger causal link and greater impact on GDP through new technology and increased know-how (Hansen and Rand, 2006:17). It is from this existing empirical evidence and from similar studies (Zhang (2001), Nair-Reichert and Weinhold (2001)) that have confronted the issue of causality that this research will focus on one direction of causality, namely that of FDI to economic growth.

Neoclassical growth theory suggests that factor accumulation and total factor productivity growth are the two main sources of economic growth (Ozturk, 2007:79). Africa consists of nations with low national income levels, and due to the marginal propensity to save, low domestic saving levels as well. In countries such as South Africa and Namibia, where national income is low, the demand for investment tends to exceed the domestic savings rate (Mottaleb and Kaliranjan, 2010:370). FDI is thus considered important for accelerating economic growth and development as it closes the gap that exists when investment demand exceeds the domestic savings rate through the external capital received from foreign investors (Asiedu, 2002:107).

Endogenous growth theory differs slightly from neoclassical growth theory by suggesting that in addition to capital formation and technology transfers, FDI also contributes to growth through skill acquisition and labour training, by eventually increasing the level of knowledge (Ozturk, 2007:79). This aspect may also include improved alternative management practices and better arrangements of organizations. The low levels of development, education and infrastructure amongst African countries may restrict economic growth before FDI is able to

spill over any of it potential benefits (Moudatsou and Kyrkilis, 2009:3). Neoclassical growth theory suggests that countries that are technologically limited may attract FDI, but that potential benefits such as technological spillovers and increased savings and investment levels will have a limited impact on growth (Moudatsou and Kyrkilis, 2009:3).

Although FDI is widely considered important for Africa due to the low levels of national income, and hence low savings rate, which dampens investment and growth in this region, it is also equally imperative to determine if FDI can contribute to sustainable long-run economic growth in Africa. Many African countries face the problem of failing to attract enough FDI needed for sustainable growth (Jacques, 2010:173). By determining whether a positive correlation exists between FDI and economic growth, the results of this research will contribute to the discussion of increasing economic growth for host nations of FDI and if policies that aim to increase foreign investment should be pursued in Africa.

1.2 Goal of the Research

The goal of this research is:

- To investigate the bi-directional relationship between FDI and economic growth in African countries.

1.3 Methods, Procedures and Techniques

This research will be conducted within a positivist research paradigm and will use a quantitative overarching methodology. The study will use annual panel data over the period 1990-2012 for selected African countries. The data will be collected from *Thompson's DataStream* and the World Bank's *World Development Indicators*. Countries will be selected based on the availability of data for the GDP growth rate, FDI, and other important determinants of FDI as to be determined from the relevant literature.

This research will use appropriate panel econometric techniques, as it has an advantage of necessary information that deals with the intertemporal individuality and dynamics of the countries being investigated. It also takes heterogeneity across cross-sectional units into account.

1.4 Organisation of the Study

Chapter Two will present an overview of FDI and investing in Africa. In which challenges and the operational environment are discussed as well as historical trends between economic Growth and FDI in Africa. In Chapter Three, the various economic theories explaining economic growth and foreign direct investment are examined. This theoretical framework chapter will also explore the different forms of FDI available. Chapter Four provides the Literature Review and also the Empirical findings from similar studies on the determinants of economic growth and FDI. In Chapter Five, the data used in the study will be discussed and descriptions will be given for each variable used. The methodology and econometric techniques used will also be discussed in this chapter. Chapter Six will present the results obtained and an interpretation of results will be done. Chapter Seven gives the conclusion and policy recommendations needed to improve foreign direct investment inflows and hence stimulate sustainable economic growth in Africa.

2. CHAPTER TWO: OVERVIEW OF FDI AND INVESTING IN AFRICA

2.1 Introduction

This chapter provides an overview of the FDI inflows Africa has historically received and the impact this has had on economic growth. FDI can be defined as setting up a production plant and as purchasing a high share of equity in a foreign company (OECD, 1997:7). There is an investment in real assets and control is acquired by the multinational enterprise (MNE) over foreign production or operations in the host country (OECD, 1997:7).

There has been a long search for the keys to development and economic growth in Africa, with many strategies emerging as an option to facilitate growth in Africa (Moudatsou and Kyrkilis, 2009). This chapter explores the operational environment in Africa and some of the key challenges and dynamics facing foreign investors

The chapter is structured as follows: Section 2.2 presents an overview of the historical trends of FDI and growth in Africa. Section 2.3 discusses the operational environment in Africa with emphasis on issues such as infrastructure and resources that make the African region a unique investment destination. Section 2.4 will provide a brief summary of the findings and will also conclude the chapter.

2.2 Historical trends of FDI and Growth in Africa

Since the wave of financial globalization began, it has been widely recognized that rapid growth in international trade and investment is beneficial for increasing the economic growth of countries. This growth in investment also includes the increasing growth in FDI experienced globally, especially amongst developing economies (UNCTAD, 2012). According to the United Nations Conference on Trade and Development (UNCTAD), inward FDI stocks amongst developing countries, excluding Africa, have risen from $348 billion in 1990 to $703 billion in 2012, which is a large exponential increase (UNCTAD, 2012:1).

In Africa as whole, however, the total inward FDI has only increased from $285 billion in 1990 to $500 billion in 2012, which is a smaller increase compared to the global exponential increase experienced in other developing countries (UNCTAD, 2012:1). Despite this comparatively smaller increase in FDI compared to global figures, which suggests that Africa has not been as successful in attracting large amounts of FDI, many African countries are pursuing economic policies that encourage FDI and development despite the disappointing success in attracting FDI.

The New Partner for Africa's Development (NEPAD) is one of the institutions formed by African states in an attempt to reduce the high levels of poverty that persist in many African countries. NEPAD states that in order for Africa to fill the existing resource gap "the bulk of needed resources will have to be obtained from outside the continent" (NEPAD, 2001:1). This is a clear intent to increase foreign investment in Africa and improve its reputation as an investment-worthy location.

It is also imperative to take a step back and analyse the impact FDI has had on economic growth within Africa before actively pursuing FDI for all African countries. Studies such as Hsiao and Hsiao (2006) and Mottaleb and Kaliranjan (2010) logically suggest that if FDI has not had a successful impact on economic growth, then countries and policy makers should deter from vehemently pursuing economic policies and initiatives that aim to attract FDI. If, on the other hand, FDI has had a positive impact on economic growth in African countries, it would follow that economic policy makers are justified to pursue policies that seek to increase foreign investment amongst African countries.

Africa has historically received a significantly smaller portion of global FDI. Earlier in 2000, the Africa region accounted for only 0.68% of total world FDI inflows (UNCTAD, 2012:1). In 2012, the African region accounted for 3.7% of total world FDI inflows, compared to Asia's 30%, and 10.69% for South America (UNCTAD, 2012:1). The highest FDI inflow percentage for the African region was when it peaked at 4.36% in 2008, just before the shock of the financial crisis in late 2008 was felt, which eventually caused inflows to dip to the latest 2012 figure of 3.7% of total world FDI inflows (UNCTAD, 2012:1). Although there has been an increase in FDI inflows to the African region, this continent still receives a comparatively smaller share of the world's FDI inflows. Africa's GDP only accounts for

2.5% of world GDP, implying that a comparatively smaller share of the world FDI inflows would flow to the African region.

The increase in African FDI inflows can be explained by the growing trend to open up borders and restrict capital controls. Furthermore, the increases in stable political environments and economic growth have also led to increased FDI inflows in the region. Many African countries were reluctant to depend on foreign resources before the 1990s as many were gaining independence and attempting to renounce any colonialism ties that left many nations wounded (Juma, 2012:4). The Dependence Theory, which suggests that resources flow to enrich, developed and wealthier states from the underdeveloped could support the notion of African nations attempting to prevent dependence on foreign countries. Through these attempts, many African countries pursued economic policies that had nationalisation and indigenisation at the centre, as well as strict capital controls as this period was marked with financial crises and instability (African Economic Outlook, 2011:1).

Nigeria and South Africa can be used as examples of two countries that have gone from strict closed borders to currently being integrated with the global world. These countries have the largest economies and FDI inflows respectively. The Investment Policy Review of Nigeria supports Juma's (2012) argument of African countries being reluctant to depend on foreign resources. In Nigeria, the government aimed to increase the ownership of Nigerian business owners by reducing the participation of foreigners in strategic sectors of the economy with the Nigerian Enterprises Promotion Decree that was promulgated in 1972 (UNCTAD, 2008).

The IMF (2006) also reveals how South Africa experienced relatively low levels of FDI due to political conditions that made the country investment unfriendly (Bhorat, Hirsch and Ncube, 2013:3). During Apartheid, capital controls were tightened and sanctions imposed by the international community on the financial and trade sectors, this led to low FDI levels (IMF, 2006). These policies are examples of how many African countries experienced declining levels of foreign investment levels in the 1970s and 1980s.

In the 1990s and 2000s, African countries started to remove capital controls and foreign investment restrictions, and more borders were opened in the spirit of free trade (IMF, 2006). To continue with the previous example of these countries that once had tight borders and have now changed their approach, the Nigerian government created the Nigerian Investment

Promotion Commission in an attempt to improve the investment climate in Nigeria for both foreign investors and Nigerian investors (Juma, 2012:1). This commission effectively abolished the Decree of 1972 that sought to exclude foreign investors from the Nigerian economy.

Similarly, South Africa pursues creating an investment friendly environment through economic policies and an independent Reserve Bank that seeks to maintain price stability and essentially a favourable investment environment for investors (SARB, 2014:1). The establishment of the New Partnership for Africa's Development (NEPAD) is also committed to the increase of FDI inflows within Africa. NEPAD has identified FDI as being crucial to African development. NEPAD aims to improve the economic conditions within African economies by improving the infrastructural and legal environments (NEPAD, 2012:1). These environments are beneficial for both foreign and national investors.

The formation of NEPAD could have contributed to the significant increase in the FDI inflows to Africa as it signals a huge commitment to improving the economic activity of the continent, as well as accommodating foreign investment in an attempt to improve Africa's growth prospects (Bhorat, Hirsch and Ncube, 2013:3). These actions taken recently by many countries in the African region all indicate a growing and favourable attitude towards increasing foreign investment in Africa.

Africa experienced a rapid increase in FDI during the early 2000s, due to favourable and accommodating policies and organisations that improved the economic environment for foreign investors (Bhorat *et al*., 2013:3). The increase in commodity prices is also a reason for the increased FDI inflows. Oil prices reached levels of $60 per barrel in 2005 and top oil exporters such as Angola and Nigeria experienced a rapid increase in their FDI inflows that exceeded $10 billion (Juma, 2012:1). The Nigerian and Angolan economies saw their GDP growth averages rise significantly several years after this commodity boom (UNCTAD, 2008:1). This was accompanied by significant increases in FDI which suggest that the nations' higher growth rates were not only boosted by the remarkable increase in commodity prices, but also by the large increase in FDI inflows within the region.

Data from UNCTAD (2012) also suggest a general trend between GDP growth and FDI. GDP growth experienced in the period after 1995 is usually high and corresponds with an

increase in FDI. This data suggest a positive correlation between FDI inflows and GDP growth in Africa. This can be supported by the fact that when FDI surged in the 1990s and 2000s, many African countries experienced higher economic growth in the following years (UNCTAD, 2012).

Analysing FDI in Africa, there are a selected number of countries that have a large stock of FDI flowing into them. The largest recipients of FDI in Africa over the past 20 years are South Africa, Nigeria and Ghana (UNCTAD, 2012:1). Collectively, these countries have accounted for over half of FDI inflows within Africa in 2011 and 2012. Many African countries such as Nigeria and South Africa are resource rich. The availability of natural resources is a determinant of FDI and this may be a significant contributor to the relatively higher level of FDI inflows amongst these resource-rich countries (Asiedu, 2002:115).

In summary, Africa is becoming an attractive destination for foreign investment due to the large untapped markets and opportunities. FDI in Africa has increased largely since 1990 and the 2012 FDI inflow figure of $500 billion for the continent is expected to increase in the near future (UNCTAD, 2012:1). The real GDP across the continent has risen significantly since 1990 and the 2012 figure for the continent is $985 billion (DataStream, 2014:1).

2.3 Operational Environment in Africa

It is widely known that Africa has very tough operating conditions, making it harder to do business in the region (African Economic Outlook, 2011:1). It is imperative for foreign investors to analyse the aspects of Africa's operating environment that will mostly affect their business. Using the ranking system developed by Rand Merchant Bank (RMB) (2011) to assess the general operating environment of Africa, major operating challenges that face the continent are discussed in this section.

The major issues for most businesses, both local and foreign, in Africa are difficulties in: accessing finance, corruption, poor infrastructure, inefficient bureaucracy, tax regime, and labour/workforce issues (RMB, 2011). Some of the challenges facing the operating environment in Africa are also considered important determinants to FDI inflows for a region.

2.3.1 Access to finance

The biggest issue facing the African region is the extreme difficulty of accessing finance for both local and foreign businesses (Rau, 2004). Being able to raise corporate finance is seen as vital to increasing the flexibility and effectiveness of local capital markets (IMF, 2013). Developed financial markets in countries such as South Africa, Botswana, Kenya and Nigeria still face the major problem of being able to provide credit for local and international companies to do business (RMB, 2011).

Many reforms have taken place in several banking sectors that have led to more affordable financial services and products in countries such as South Africa, Namibia, Kenya and Zambia (RMB, 2011). However, despite this progress and development in the financial markets across Africa, there are still constraints in providing credit to local and international businesses. Clarke, Eifert, Habyarimana, Ingram, Kapery, Kaplan, Schwartz and Ramachandran (2005:13) further argue that access to finance presents constraints that affect both operations and growth. Some of these constraints include high transaction costs, insufficient collateral for borrowers, poor credit discipline, lack of Internet connectivity, and capped bank-lending rates (IMF, 2013).

Table 1 below presents the ease at which finance can be accessed in African countries, specifically the ease with which entities can obtain loans from banks with only a good business plan and no collateral at all. This index ranks economies from 1 to 181, with first place being the best. This index measures the public credit registry coverage, private credit bureau coverage and the degree to which collateral and bankruptcy laws facilitate lending (World Bank, 2014). The countries that have had the best access to private sector credit include South Africa, Kenya, Zambia, Ghana, Nigeria and Rwanda (World Bank, 2014). In contrast, the countries that present the most difficulty in obtaining credit in Africa are Sudan, Madagascar, Djibouti, and the Democratic Republic of Congo (World Bank, 2014). The poor credit extension in these areas is due to various reasons such as high transaction costs, poor credit discipline, lack of collateral from borrowers, and bank lending rates that have ceilings (RMB, 2011). Previous literature shows that poor access to finance can have a negative impact on FDI inflows as international businesses aim to do business where access to credit is easily attained (Asiedu, 2002:115).

TABLE 1: RANKS THE EASE OF GETTING CREDIT IN AFRICA

Country	**Rank**
South Africa	1
Kenya	12
Zambia	12
Ghana	23
Nigeria	23
Rwanda	23
Namibia	40
Uganda	40
Botswana	53
Mauritius	53
Swaziland	53
Egypt, Arab Rep.	83
Sierra Leone	83
Cameroon	104
Cape Verde	104
Chad	104
Congo, Rep.	104
Equatorial Guinea	104
Ethiopia	104
Gabon	104
Liberia	104
Morocco	104
Tunisia	104
Algeria	129
Angola	129
Benin	129
Burkina Faso	129
Cote d'Ivoire	129
Guinea-Bissau	129
Malawi	129
Mali	129
Mozambique	129

Niger	129
Senegal	129
Tanzania	129
Togo	129
Zimbabwe	129
Guinea	154
Lesotho	154
Gambia, The	159
Burundi	167
Mauritania	167
Seychelles	167
Sudan	167
Congo, Dem. Rep.	176
Djibouti	180
Madagascar	180
Libya	..

Source: World Bank (2014).

2.3.2 Resources

The African continent has a large share of the world's finest natural resources. Companies seeking resources will be offered a lot of potential growth by investing in Africa as the continent has extractive industries such as mining, oil and gas that are expected to experience high growth (UNCTAD, 2012:1).

The global resources demand faced by African countries is driven mainly by developed nations and other emerging markets with higher rates of growth, and urbanisation such as in China (RMB, 2011). Coal is a good example of a common resource that may be a key driver of growth. Statistics from the International Energy Agency depict that coal demand will grow at an average of 2.3% annually until 2018, mostly due to China's recent policies that will contribute to economic growth (International Energy Agency, 2013). This is a more moderate growth compared to the actual growth rate of 3.4% realised per year over the period 2007-

2012. India is set to increase its consumption of coal and is also going to rival China as the top importer of coal over the next five years (I, 2013).

African countries with a large availability of natural resources are expected to benefit from the increasing demand that can be expected from the developed and emerging markets (UNCTAD, 2013:1). This is an indication of the increased investment in Africa that may arise as a result of the attraction of the resources sector. RMB (2011) suggests that the key countries supporting the surge in global production for important minerals are:

- Uranium: Namibia, Niger, South Africa, Tanzania and Malawi.
- Platinum: South Africa.
- Copper: The Democratic Republic of Congo, Zambia and Eritrea.
- Gold: The Congo, Zimbabwe and Cote d'Ivoire.
- Nickel: Zambia and Madagascar.
- Diamonds: Angola.
- Tin: Rwanda.

Resources in Africa play an important role in the operational environment, as such the regulation and economic policies surrounding resources are an important factor to consider (Juma, 2012:20). However, regulations and policy attractiveness in Africa have not significantly improved, which has been the cause for many companies hesitating to invest in Africa (UNCTAD, 2008:2-3).

2.3.3 Consumption

Consumption is a large component of domestic demand and should be considered in order to determine the market potential for foreign investors. The following World Economic Forum (2014) statistics show possible reasons for why the African region may be attractive to investors relative to the consumer market:

- 840 million people exist in this market, which translates to a largely untapped market.
- Population is expected to grow at 2.25 per year % over the next few years.
- This large population is dominated by a young demographic profile.

- Income growth and urbanisation rates are forecasted to display higher rates in the future.

When considering the operational environment with regards to consumption, the population size, population growth rates, forecast of the per capita GDP growth rates and urbanisation growth rates are useful in identifying the potential for future market growth. RMB (2011) summarises and ranks the top 10 counties in Table 2 according to these factors. Uganda and Ethiopia are considered to have the most favourable macroeconomic backgrounds for consumption spending growth, whilst Liberia and Niger fare poorest in this aspect.

TABLE 2: COUNTRIES WITH FAVOURABLE MACROECONOMIC CONDITIONS IN AFRICA

Rank	**Country**
1	Uganda
2	Ethiopia
3	Kenya
4	Angola
5	Tanzania
6	Ghana
7	Nigeria
8	Malawi
9	Niger
10	Liberia

Source: RMB (2011)

2.3.4 Infrastructure

When operating in a business environment, infrastructure is an important factor to consider as facilitation and conducting business is directly impacted by the availability of infrastructure development (Glass, 2010:1-2). It is well known that the African region lags behind infrastructure development compared to other developed and emerging markets. The availability of telephone lines, electricity coverage and sanitation is low but development is

still possible in an attempt to improve the facilitation of a good business environment (RMB, 2011).

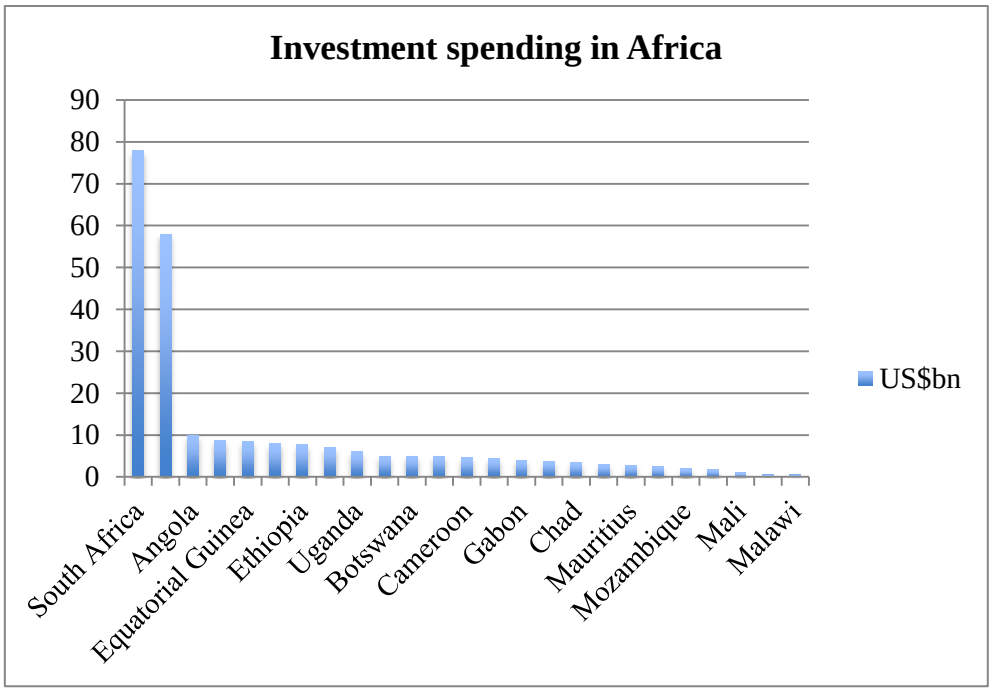
According to the World Economic Forum (2014), the countries that have the strongest infrastructure development are Uganda, Ethiopia and Senegal, whilst some of the weakest countries include Libya, Guinea and Angola. These weaker countries should employ increased efforts in implementing infrastructure projects, as there is evidently an opportunity for improvement (Glass, 2010:2-3). However, considering the low investment spending rate amongst African countries (approximately 22%) this is not likely to happen with significant speed as this rate is low in comparison to Asia's 42% investment-to-GDP ratio (RMB, 2011).

The top 25 African countries that showed the highest levels of investment spending are illustrated in Figure 1. South Africa currently has the highest level of investment spending. South Africa is also forecasted to increase its investment spending the most over the next few years. South Africa's investment spending is largely concentrated on increasing and improving the rails, roads and the development of electricity generation capacity (Clarke *et al*., 2005:15).

Close behind South Africa is Nigeria with a similarly large investment spending level. Nigeria's investment spending is largely concentrated on improving the capacity and development of electricity generation, roads and telecommunications (UNCTAD, 2008). Figure 1 clearly depicts that South Africa and Nigeria spend a significantly larger amount on investment compared to other African countries. Countries such as Malawi, Burkina Faso and Madagascar spend a comparatively lower amount on investment compared to the rest of Africa.

However, forecasts of future investment spending suggest that over the next five years, Angola, Madagascar, Mozambique, Zambia and Ethiopia are going to generate a 60% increase in their investment spending (RMB, 2011). South Africa and Nigeria are only going to experience a 23% and 28% increase in their investment spending respectively (UNCTAD, 2012). The actual and forecasted investment spending depict the opportunities in the infrastructure sector in these African countries.

FIGURE 1: THE INVESTMENT SPENDING IN AFRICA



Source: IMF, RMB FICC Research (2011)

2.3.5 Assessing the operation environment

TABLE 3: RANKS THE OPERATIONAL ENVIRONMENT OF THE TOP 10 AFRICAN COUNTRIES

Rank	**Population**	**Population Growth**	**Per capita GDP growth**	**Urbanisation growth**
1	Nigeria	Uganda	Sao Tome	Burundi
2	Ethiopia	Gambia	Ethiopia	Eritrea
3	DRC	Liberia	Mozambique	Uganda
4	South Africa	Niger	Zimbabwe	Malawi
5	Tanzania	DRC	Zambia	Equatorial Guinea
6	Sudan	Angola	Tanzania	Chad
7	Kenya	Cote d'Ivoire	Ghana	Mali
8	Uganda	Mali	Rwanda	Rwanda
9	Ghana	Eritrea	Niger	Ethiopia
10	Cote d'Ivoire	Congo	Seychelles	Kenya

Source: RMB (2011)

Although Nigeria has the largest population, this does not translate favourably to high future of market concentration. South Africa has a relatively large population but there is no indication that the population and thus market size is going to grow significantly in the future (Bhorat *et al.*, 2013:6-7). The purchasing power of South Africa's population is also not seemingly high as the GDP per capita growth rates are forecasted as being low; similarly there is low future market concentration as indicated by the low urbanisation growth rate (RMB, 2011).

Combining these four different measures (urbanisation rate, per capita GDP growth rate, population size and population growth rate), a weighted ranking index was created by RMB to provide a single measure index allowing a better understanding of the macroeconomic backdrop for consumption (RMB, 2011). Table 3 depicts the countries that are ranked the highest when all four variables are considered.

2.4 Conclusion

In conclusion, this chapter provided an overview of the FDI inflows Africa has historically received and the impact this has had on economic growth. Africa's FDI inflows are continuously rising and the African region is also starting to increase its GDP size through trade and policy reforms. The increase in African FDI inflows from 2000 to 2012 can be explained by the growing trend to open up borders and restrict capital controls. African countries have embarked on trade policy reforms in an attempt to stimulate foreign investment. When opening up African borders, this exposes foreign investors to the operating environment in Africa that is unique.

Although there has been an increase in FDI inflows to the African region, this continent still receives a comparatively smaller share of the world's FDI inflows. Africa's GDP only accounted for 2.5% of world GDP in 2012, implying that a comparatively smaller share of the world FDI inflows would flow to the African region (UNCTAD, 2012:1).

This chapter also explored the operational environment in Africa and some of the key challenges and dynamics facing foreign investors. It was noted that the African region is

unique and has distinct challenges and issues such as lack of access to finance and quality infrastructure that make operating in Africa sometimes a complex venture. Countries such as South Africa, Kenya and Zambia rank highly in having access to finance.

Furthermore, African countries that have large natural resource deposits are expected to benefit from the increasing demand that can be expected from the developed and emerging markets (UNCTAD, 2013:1). This is an indication of the increased investment in Africa that may arise as a result of the attraction of the resources sector.

Lastly, it was found that the African population has been steadily growing and consumption demand is on the rise. Investors are increasingly finding the African region to be attractive relative to other markets as it is largely untapped and has a large young demographic profile, which can help boost demand. The key concept coming from this assessment of the operational environment in Africa is that each country is different and may do better at one key issue, such as consumption or large availability of resources, but may lack in another important issue such as quality infrastructure or access to finance. When choosing where to invest, potential investors should invest in African countries that have the best macroeconomic indicators and favourable business operating environment that suits their business needs better. For example, a country focused on financial services would be better off investing and operating in a country with a sophisticated financial market such as South Africa.

The following chapter will explore the theoretical frameworks underpinning the investment-led strategy for growth, whereby FDI is argued to be a strong contributor to economic growth. There will also be a large discussion on the forms of FDI and FDI theories that exist and the different motives for investors wanting to invest abroad.

3. CHAPTER THREE: THEORETICAL FRAMEWORK

3.1 Economic Growth Theory

3.1.1 Introduction

This research will critically analyse the directions of causality that exist between FDI and economic growth. When considering the first direction of causality, namely FDI impacting economic growth, it is imperative to understand the growth theories in order to apply it in determining how FDI contributes to economic growth (Aghion and Howitt, 1997:11). The Neoclassical growth models and the models of Endogenous growth theory will be discussed in sections 3.1.2 and 3.1.3 respectively.

3.1.2 Neoclassical Model of Exogenous Growth

Robert Solow and Trevor Swan developed the Solow-Swan neoclassical model in 1956 in contest to the Post-Keynesian Harrod-Domar model. The main building block of this model is an aggregate production function that has reproducible capital and constant returns in labour being exhibited (Ferrara and Guerrini, 2009:1). The amount of output, Y, produced is expressed as a function of given aggregate capital stock, K, for a given knowledge state. Thus: $Y = f(K)$ (Aghion and Howitt, 1997:11).

Models favouring the neoclassical model treat the aggregate supply side factors as being the determinants of long-run potential growth for the economy. This would thus suggest that the aggregate demand factors are only useful in explaining any fluctuations that may occur during the long-run period but have no influence on the "long run" (King, Plosser and Rebelo, 1988:199-200).

Crucial to this model is the presence of diminishing returns to the accumulation of capital: a point is eventually reached where extra capital goods become redundant if new uses for the capital are not invented (Aghion and Howitt, 1997:11). This model also does not assume population growth and technological change, thus the accumulation of capital is the only force that can drive economic growth (King *et al.*, 1988:201).

The dominant process in the neoclassical growth theory is capital accumulation. Solow and Swan suggest that capital stock will increase in a given situation if the amount that people save from their gross income, *s*, and the capital depreciation that occurs, α, work in opposite directions to cause a change in capital stock (Dowrick and Rogers, 2002:381). Thus, *s*Y is the rate at which new capital accumulates, and αY is the rate at which capital depreciates (Aghion and Howitt, 1997:12). Therefore, the net rate of increase in the capital stock is:

$$\dot{K}=sf(K)-\alpha K \qquad (3.1)$$

In the neoclassical model, capital accumulation only has a transitory effect on per capita growth. It is only possible to achieve permanent positive per capita growth rates through exogenous and unexplained technological progress (Neuhaus, 2006:44). In accordance with Brem's 1970 model, the effect of FDI on per capita growth is not permanent. It was not possible to explain long-term per capita growth until the emergence of the endogenous growth models (Neuhaus, 2006:44).

This major growth theory is not only distinguished by the process of economic growth, but also through the details that limit economic growth. Growth in the neoclassical growth theory is limited strictly by technological change (Dowrick and Rogers, 2002:369). This type of growth theory would suggest a huge importance on the ability of FDI to change growth rates in many countries through the process of technological spill-overs (Aghion and Howitt, 1997:11). Therefore, the neoclassical growth theory explains the dynamic process in capital accumulation and shows how economic growth can be experienced through exponential growth King *et al.*, 1988:201).

3.1.3 The AK Approach to Endogenous Growth

The endogenous growth models tend to focus on a response to growth; innovation arises as a result of incentives. Endogenous growth models may explain how one country may overtake another through economic growth. This is due to productivity growth said to be an outcome of incentive structures, which tend to differ across countries (Pack, 1994:54-55).

In the neoclassical model, growth is limited by the diminishing returns to the accumulation of capital. This is in contrast to the endogenous growth theory. The key difference in what limits the growth process between the two is that the endogenous growth theory stresses human development, institutions, and incentives as being necessary for innovation and eventually growth (McCallum, 1996:53).

AK models generally produce a production function in the form of Y = AK, where A is constant and represents the technology level (Aghion and Howitt, 1997:24). This form allows output to grow in proportion to capital, K. The Harrod-Domar Model and the Frankel-Romer model will be further discussed as variants of the AK model.

The Harrod-Domar model assumes that labour input grows proportionally to capital. This model is pioneer to modern neoclassical growth theory, developed by Roy Harrod in 1939 and Evsey Domar in 1946; it attempts to explain an economy's growth rate using savings and capital productivity as factors (Janks, 2013:2).

The Harrod-Domar model emphases the importance of capital accumulation for growth, assuming that real Gross Domestic Product (GDP) growth is proportional to the share of GDP (Y) dedicated to spending of investment (I) (Aghion and Howitt, 1997:24). This thus implies that additional capital stock (K) is required for an economy to experience growth (Snowdon and Vane, 2002:316). In this model there is faster growth of capital as well as faster growth of labour input, which prevents diminishing returns from setting in (Aghion and Howitt, 1997:25). This situation is made possible through a constant surplus of unemployed labour in the economy (Aghion and Howitt, 1997:25).

The Harrod-Domar equation is expressed as:

$$G=s/v \qquad (3.2)$$

Where the savings ratio is expressed by *s*, and *v* is the incremental capital output ratio, which is the ratio of investment to growth (Snowdon and Vane, 2002:316). When the incremental capital output ratio is high, this tends to be associated with lower capital productivity (Janks, 2013:2). Thus, the inefficiency of capital use is also measured by *v*, the incremental capital output ratio (Janks, 2013:2). It suggests that an economy will experience growth if an

increase in the marginal productivity of capital or savings occurs. Growth will also occur if the depreciation rate decreases (Snowdon and Vane, 2002:316).

If one is divided by the marginal product of capital (MPC), this will yield the incremental capital output ratio, which suggests that growth in the Harrod-Domar growth equation can be achieved by either increasing the savings rate or increasing the marginal product of capital (Muljadi, 2011:40). The implication of this finding is that economic growth is generated when increased investment leads to the accumulation of capital.

Romer managed to circumvent the diminishing returns problem by introducing knowledge spillovers that would create increasing returns and the modelling of long-run per capita growth rates (Neuhaus, 2006:44). Romer's emphasis on the importance of 'idea gaps' that exist between developed and developing countries allowed FDI to become an important instrument for transferring knowledge to developing countries from the more developed through spill-overs to the entire economy (Neuhaus, 2006:44).

The Frankel-Romer Model assumes that technological knowledge grows automatically with capital (Aghion and Howitt, 1997:25). It assumes that technological knowledge can be stored over time, used with other factors of production to produce output, and be accumulated through research and development activities for future benefits (Frankel and Romer, 1999:380).

Extensions have been made to the Harrod-Domar model in the form of the neoclassical growth model. It examines productivity, capital accumulation, technological progress and population growth in an attempt to explain economic growth in the long-run (Snowdon and Vane, 2002:316). This model differs from the Harrod-Domar model in several ways. Firstly, labour is included as a factor of production. This is due to the fact that this model assumes labour and capital have separate diminishing returns, but constant returns to scale when both factors are combined (Janks, 2013:2-3). Technology is also included as an exogenous variable distinct from capital and labour (Muljadi, 2011:43).

Similarly to the Harrod-Domar model, this model retains the positive relationship between savings rates and economic growth in the short-run – higher savings rates will result in capital deepening and eventually an economy experiencing faster economic growth (Janks,

2013:3). When capital per worker increases and eventually output per worker as a result of a greater savings rate than the population growth rate, capital deepening will occur (Muljadi, 2011:43). However, economic growth in the long-run is determined in a significantly different way. This is due to capital being subjected to diminishing returns in the long-run (Frankel and Romer, 1999:379).

The diminishing returns will result in a smaller impact on output per each incremental unit of capital that is accumulated, holding the stock of labour fixed (Snowdon and Vane, 2002:316). The economy's growth will thus converge to a "steady state" if there is economic growth per capita due to new capital production only being sufficient enough to cover the existing capital lost due to depreciation (Muljadi, 2011:42). Economic growth is thus determined exogenously in the long-run for the neoclassical growth model. Labour-augmenting technological progress is the only factor that determines the long-run per capita growth rate in this model (Oosterbaan and van der Windt, 2000:238).

Borensztein, De Gregorio and Less (1998) developed an endogenous growth model of capital deepening that allows domestic firms to access new technologies and for the invention of new types of capital goods for themselves, through the mere existence of foreign firms in a domestic market (Neuhaus, 2006:45). The FDI spillover model developed by Borensztein *et al*. (1998) is able to model positive long-run effects on economic growth arising from FDI.

An advantage of the endogenous growth theories for this research is that much of the third world, such as African countries, are diverged and thus the convergence suggested by the neoclassical growth theories is not universal. Certain countries in Africa have forged ahead of others and this can only be explained by the endogenous growth theory through technological and economical explanations (Aghion and Howitt, 1997:25).

3.2 Foreign Direct Investment Theory

3.2.1 Introduction

This section will explore the theoretical frameworks that underpin foreign direct investment. Section 3.2.2 will discuss the product-life cycle theory, which explains why FDI has replaced exporting amongst manufacturers. Monopolistic advantage theory in section 3.2.4 explains how multinational corporations are able to operate subsidiaries abroad more profitably than local competing firms can.

The Internalization theory in section 3.2.5 discusses how firms use investments in multiple countries to produce an internal market and create the market it needs to achieve its objectives. Section 3.2.6 discusses the Eclectic paradigm developed by Dunning (2003) and how it is essential in determining the pattern and extent of FDI.

FDI transmission channels are discussed in section 3.2.7, these are the different channels that FDI can be realised by different countries. Lastly, the different forms of FDI will be discussed as different FDI forms have different determinants.

Due to the extensive literature on FDI, there have been many interpretations and definitions of FDI. This research considers a broader class of cross-border activities when defining FDI. The OECD (1997:7) has provided an extensive benchmark of what FDI may be defined as:

> "FDI reflects the objective of obtaining a lasting interest by resident entity in one economy (direct investor) in an entity resident in an economy other than that of the investor (direct investment enterprise). The lasting interest implies the existence of a long-term relationship between the direct investor and the enterprise and a significant degree of influence on the management of the enterprise. Direct investment involves both the initial transaction between the two entities and all subsequent capital transactions between them and among affiliated enterprises, both incorporated and unincorporated."

According to this definition, FDI may be classified as setting up a production plant and as purchasing a high share of equity in a foreign company. This is also in accordance with Shenkar's (2007:60-61) definition of investment in real assets and where control is acquired

by the multinational enterprise (MNE) over foreign production or operations in the host country.

FDI is not to be confused with foreign portfolio investment, which involves individuals, firms or public institutions such as government in foreign financial instruments such as foreign stocks, corporate and government bonds (OECD, 1997:9).

3.2.2 Product Life-Cycle Theory

The product life-cycle theory, developed by Vernon (1966), explains why FDI has replaced exporting amongst manufacturers. The "new product stage" involves the development of new products. The production of new products tends to occur in the inventing country before standardization occurs and allows for production in foreign countries (Vernon, 1966). Even though costs of production may be cheaper elsewhere, production will be concentrated in the host country until it becomes standardized (Morgan and Katsikeas, 1997:68).

Once the product reaches the "growth stage" where its production becomes standardized, the host country manufacturer develops an incentive to move production to a cheaper location in foreign countries abroad (Yoo, 2010:645). This move will allow the manufacturer to exploit cheaper manufacturing costs, as well as mitigating the risk of losing the export market to local producers (Vernon, 1966).

The next stage is the "mature product stage", where the competition intensifies amongst the producers and imitating foreign firms (Yoo, 2010:645-666). The host country manufacturer may also shift their production to a lower-cost country in an attempt to sustain their old subsidiary with new products (Morgan and Katsikeas, 1997:68-69). This theory is very relevant to foreign markets that are initially entered by manufacturers.

3.2.3 Monopolistic Advantage Theory

Monopolistic advantage is when a monopolistic power is maintained in a market allowing for a benefit to be accrued to that firm. The advantage is firm-specific rather than accruing to the location of its production (Lall, 1980:103). The monopolistic theory thus suggests that

multinational corporations are able to operate subsidiaries abroad more profitably than local competing firms can due to the fact that they possess monopolistic advantages (Zhu, 2008:13).

Firm-specific and ownership-specific advantages are competitive advantages that occur when powerful multinational corporations choose to operate in markets and industries where they possess a greater competitive advantage not available to other firms operating in the same location (Shenkar, 2007:68).

Zhu (2008:13) suggests that monopolistic advantages come from two sources: superior knowledge and economies of scale. Production technologies, managerial skills, industrial organization and product knowledge are included in the term "knowledge" (Shenkar, 2007:69). Many types of knowledge cannot be sold or borrowed due to the fact that it is impossible to package technological knowledge in a license and managerial expertise.

The opportunity to achieve economies of scale is another determinant of FDI. Horizontal FDI and vertical FDI can both achieve economies of scale, and occurs when a reduction in unit cost is permitted when there is an increase in production (Zhu, 2008:13). Horizontal investment may allow firms to even out the effects of business cycles by rearranging the destinations of sales across nations (Protsenko, 2004:14). Vertical investment may create a benefit for the multinational corporation by letting each affiliate produce parts of the final product (Protsenko, 2004:14). Maximum economies of scale may be achieved in the production of single components whilst allowing the multinational corporation to benefit from local advantages in production costs (Shenkar, 2007:69).

3.2.4 Internalization Theory

The internalization theory holds that an efficient environment is not provided in which a firm can profit by using its technology or production resources due to the failure of the external market (Buckley and Casson, 2009). The firm thus tends to use investment in multiple countries to produce an internal market and create the market it needs to achieve its objectives (Buckley and Casson, 2009).

Multinational corporations achieve their objectives by internalizing their operations and management in addition to exploiting their proprietary knowledge. Internalization occurs when a multinational corporation internalizes its foreign operations that are globally dispersed by unifying their governance structure and common ownership (Zhu, 2008:16). Internalization takes place when there is either no market for intermediate products needed by multinational corporations or when the external market for products is inefficient (Rugman and Verbeke, 2007:2-3).

Corporations will also internalize in an attempt to avoid disadvantages in external mechanisms of resource allocation, or to use the internal integration and intra-organizational network as an advantage (Zhu, 2008:15). Transaction gains are also likely to arise through the common governance of activities in different locations (Rugman and Verbeke, 2007:4-5). Some of the advantages that may arise from internalization include: market outlets control, control of supplies and conditions of sale of inputs, improved transfer pricing, predatory pricing and cross-subsidization, and capturing economies of interdependent activities (Shenkar, 2007:70). Lastly, it is possible to avoid search and negotiating costs, moral hazard, costs of violated contracts and ensuing litigation as well as government intervention that create advantages for the corporation (Shenkar, 2007:70).

A global competitive advantage is also developed through internalization as economies of scale and scope are formed, and organizational learning is triggered across national markets (Zhu, 2008:15). Essentially, by directing resource flows, multinational corporations are able to become more flexible in response to tax structure changes, labour rates, exchange rates and other uncertainties such as governmental policy (Shenkar, 2007:70).

In order to achieve location-specific or competitive advantages in global business, resource flows are a necessary condition to have, which will require internalization within a multinational corporation network as resource flows involve interdependence among subsidiaries (Rugman and Verbeke, 2007:7-8). There will also have to be centralized decision-making responsibility and authority with internalization.

3.2.5 The Eclectic Paradigm

The eclectic paradigm developed by Dunning identifies three variables that explain international production: Ownership-specific (O), location-specific (L), and internalization (I), also known as the OLI framework (Dunning, 2003). Macroeconomic theory of international trade and microeconomic theory of the firm are intersected with this OLI framework.

The OLI framework asserts that all three factors are essential in determining the pattern and extent of FDI. Ownership-specific variables include tangible and intangible assets such as natural endowments, capital, managerial and entrepreneurial skills, technology and information (Rugman, 2010:2).

Location-specific variables include factor endowments as well as market structure, government legislation and the political, legal and cultural environments in which FDI is undertaken (Dunning, 2003). The eclectic paradigm distinguishes between structural and transactional market failure. An external condition where monopoly advantages arise as a result of entry barriers erected or increased by governments of firms is described as structural market failure (Pederson, 2002:7). A firm's ability to gain and sustain control over property rights is thus discriminated against through structural market failure (Dunning, 2003).

Transactional market failure occurs when the transactions of goods and services at a lower costs than that incurred via internalization is not possible due to the failure of product markets (Rugman, 2010:4).

It can be concluded that the eclectic paradigm is more comprehensive than the product life-cycle theory, the monopolistic advantage theory, or the internalization theory when trying to explain FDI (Pederson, 2002:5). Its benefits include being able to articulate the logic and benefits of international production through the combination and integration of country-specific, location-specific, and internalization factors (Dunning, 2003).

The OLI advantages are still relevant in explaining why FDI occurs and where multinational corporations get their superior returns. However, it does possess certain limitations. Firstly, the ownership-specific advantages of a multinational corporation are not adequately addressed (Dunning, 2003). It is vital for the multinational corporation to efficiently deploy

and allocate these resources in foreign production and operations if they want to achieve high returns (Dunning, 2003).

Secondly, the on-going, evolving process of international production is not delineated by the paradigm. A dynamic process exists with FDI as resource commitment; production scale and investment approaches are constantly changing over time (Rugman, 2002:5-6).

3.2.6 FDI transmission channels

It is important to consider the different channels that FDI can be realised by different countries in order to determine which channels work best for African countries. Neuhaus (2006:42) identifies two basic transmission channels of FDI, direct and indirect transmissions, on economic growth by treating FDI as a factor of production input.

Greenfield investments arise when multinational corporations set up a production plant by using their advanced technologies and global research and development activities in host countries (Calderon, Loayza, Serven, 2004:5). This creates the "Direct Transmission" as per capita economic growth is promoted even in the long-run by increasing the quantity of capital goods, as well as improving the quality and variety of capital goods (Raff, Ryan and Stahler, 2008:2-3).

The Indirect Transmission channel arises when there is ownership participation, which creates economic growth and spurs technological progress by indirectly shifting management expertise and know-how for production (Neuhaus, 2006:43). Greenfield investments tend to produce higher economic growth due to the indirect transmission being wholly dependent on the amount of knowledge transferred before economic growth can be realised (Calderon *et al*., 2004:5-6). Additionally, second-round effects in developing countries may arise. This occurs when it may become easier for a domestic firm to increase total production and adopt new technologies when there is a presence of foreign firms (Hofmann, 2013:124).

Shenkar (2007:61) identifies two types of FDI, namely horizontal FDI and vertical FDI. Horizontal FDI entails the production of the same product produced in a foreign country by a multinational corporation. It is thus a geographical diversification of the domestic product

line operated by the multinational corporation (Protsenko, 2004:14). This approach allows corporations to share resources, experiences, and know-how with the host country, thereby reducing risk (Ramondo, Rappoport and Ruhl, 2014:8). The main aim of this type of FDI is to capitalise on the existing personal networks and established businesses of the host country, whilst being able to seize the emerging-market opportunities that may arise (Protsenko, 2004:15).

Vertical FDI occurs when the production of intermediate goods occurs in a foreign country through a multinational corporation intending to produce inputs for its own home country or production processes (Aizenman and Marion, 2001:5-6). There also exists backward and forward vertical FDI. The offshore extractive investment in natural resources and petroleum are examples of backward vertical FDI, whereas establishing an assembly plant or sales outlet overseas is classified as a forward vertical investment (Shenkar, 2007:61).

3.2.7 Forms of FDI

When considering the determinants of FDI, it is important to distinguish between the different forms of FDI that exist, as generally different FDI forms have different determinants. There are four forms of FDI: resource-seeking FDI, market-seeking FDI, efficiency-seeking FDI, and strategic-asset seeking FDI (Dunning, 2003:238).

3.2.7.1 Resource-seeking FDI

Resource-seeking FDI involves a foreign country entering the host country in an attempt to lower their real cost of resources than could be obtained at their own home country (Shenkar, 2007:62). The main focus here is to minimise the cost of production. Lim (2001:11) suggests that "slicing the vertical chain of production" is involved in this type of FDI due to the relocation of the production chain to a foreign production site. An example of the reduction in vertical production chain is the assembly of electronic goods in Asia but sold in America. America manufactures the components and hosts the final sale of the goods, while the parts are all assembled in Asia (Lim, 2001:11).

Resource-seeking FDI thus attempts to find affordable inputs that are less expensive, which can include physical resources, cheap and/or skilled labour, intermediate goods, and technological or managerial skills (Shenkar, 2007:62). Dunning (2003:283) suggests that resource-seeking FDI will be determined by the costs of land and buildings, raw materials and the availability of skilled labour as well as low-cost and affordable unskilled labour.

3.2.7.2 Market-seeking FDI

Market-seeking FDI involves a multinational corporation targeting a foreign market in order to secure market share and sales growth. In this scenario, foreign firms will build subsidiary plants in their target foreign markets in an attempt to serve and secure the domestic market (Janks, 2012:6). The objective is to reduce the cost of supplying foreign markets through exports. These costs will be reduced as it is circumvented by the horizontal FDI, which reduces the costs that may arise from trade restrictions such as quotas, tariffs or higher transport costs that transfer to the total input cost (Janks, 2012:6).

Foreign firms will engage in horizontal FDI if accessing a foreign market through exports proves to be very costly and usually more expensive than setting up a subsidiary plant in the target domestic market (Lim, 2001:11). Shenkar (2007:62) identifies certain reasons for market-seeking FDI: if a foreign firm's main suppliers set up foreign producing facilities abroad, the firm will eventually also follow them abroad in an attempt to reduce their costs (Shenkar, 2007:62). If the firm produces products that need to be adapted to local standards, needs or tastes, the firm will set up production abroad in an attempt to capture indigenous resources and capabilities (Lim, 2001:12).

If the firm finds it necessary to maintain a global and physical presence in the domestic markets also served by its competitors, it will also set up production abroad as part of its global production and marketing strategy (Shenkar, 2007:62). It can thus be concluded that market-seeking FDI is in general determined by market size, per capita income, growth of the market and access to the structure of markets and global markets (Dunning, 2003:283).

3.2.7.3 Efficiency-seeking FDI

Resource-seeking FDI and efficiency-seeking FDI are very similar to each other. This is due to firms being able to engage in the efficiency type of FDI when attempting to improve efficiency by seeking lower production costs (Janks, 2012:7). However, efficiency-seeking FDI goes further than resource-seeking FDI by incorporating firms that aim to link to the global market more strongly in addition to reducing their production costs (Mattaleb and Kaliranjan, 2010:370).

Efficiency-seeking FDI attempts to make the firm gain from common governance of geographically dispersed activities by rationalizing the structure of established resource-based or market-seeking investment (Shenkar, 2007:62). Multinational corporations that have this objective tend to take advantage of different factor endowments, economic systems, cultures and policies (Shenkar, 2007:62). Dunning (2003:283) argues that the determinants of efficiency-seeking FDI will include factors such as regional integration membership, transport and communication costs in addition to those applicable to resource-seeking FDI.

3.2.7.4 Strategic asset-seeking FDI

Finally, strategic asset-seeking FDI differs from the aforementioned types due to it not involving the exploitation of the Ownership-specific (O) advantages that already exist and are possessed by the firm (Dunning, 2003:282). Shenkar (2007:62) identifies these firms as those that aim to promote their long-term strategic objectives, and most importantly their international competitiveness, by acquiring the assets of foreign firms that may not be available in their home country.

Strategic asset-seeking FDI is often used to improve and build on existing O advantages. The strategic assets may either be intangible or tangible, or also include created assets such as technological, managerial, educational and entrepreneurial assets (Dunning, 2004:382). Multinational corporations that have the intention of seeking assets often try to improve their strategic objectives and international competitiveness by acquiring local firms or establishing global strategic alliances (Mattaleb and Kaliranjan, 2010:371). Proctor and Gamble, for example, operates in over 70 countries and has sales in over 140 countries. Better resources,

larger markets and higher efficiency are all behind their strategic aim of product and geographical diversification (Shenkar, 2007:62).

3.2.8 Conclusion

The theoretical frameworks that underpin growth strategies were discussed in great detail. When considering the first direction of causality, namely FDI impacting economic growth, it is imperative to understand the growth theories in order to apply it in determining how FDI contributes to economic growth (Aghion and Howitt, 1997:11). The growth theories that were discussed aid our understanding of how increasing investment may stimulate a country's economic growth.

David Ricardo's theory stressed that economic growth is realised when there is capital formation (Kurz and Salvadori, 2011:8). In addition, Ricardo advocated that capital formation is dependent on the productive powers of labour. In the Neoclassical growth model, capital accumulation only has a transitory effect on per capita growth. It is only possible to achieve permanent positive per capita growth rates through exogenous and unexplained technological progress (Neuhaus, 2006:44).

Finally, the models of endogenous growth theory were also discussed. The Harrod-Domar model emphasized the importance of capital accumulation for growth, assuming that real Gross Domestic Product (GDP) growth is proportional to the share of GDP (Y) dedicated to spending of investment (I) (Aghion and Howitt, 1997:24). The following section will discuss foreign direct investment theory

The theories that underpin FDI were also discussed in great detail in this chapter. Theories such as the Eclectic Paradigm and the Product Life-Cycle help aid our understanding as to why and when investors may consider investing abroad. This has helped gain an understanding as to which determinants of FDI may affect certain types of investment. For example, under the product life-cycle cycle theory, a firm may invest aboard if there is cheaper labour available during the "mature product stage" in a lower-cost country.

The different forms of FDI were also discussed in this chapter, namely: resource-seeking, market-seeking, strategic asset-seeking and efficiency-seeking FDI. This section described the different motives investors have when investing abroad. It may be for closer proximity to resources, to enter a new untapped market to gain market share, for lower production costs or to promote their long-term strategic visions.

By considering the transmissions channels of FDI and forms of FDI, a background of the motives of foreign investors was revealed and this will allow countries to implement policies that attract the forms of FDI that will stimulate their economic growth the most.

The following chapter will discuss the determinants of economic growth and foreign direct investment. The determinants of economic growth are related to the growth strategies discussed above. These are the variables that will increase the quality or quantity of factors of production in the models discussed in this chapter, and will eventually contribute to economic growth. The determinants of FDI are also being discussed in great detail as these are the variables that can improve the FDI inflows of a country.

4. CHAPTER FOUR: LITERATURE REVIEW AND EMPIRICAL FINDINGS

4.1 Introduction

The following chapter will discuss the relevant literature with a specific focus on Africa that will shed more light to the topic under investigation in Section 4.2. Furthermore, the determinants of economic growth and foreign direct investment will also be explored. After discussing the various economic growth strategies in Section 3.1, determinants that can help stimulate economic growth are explored in section 4.3. This section will also include empirical findings from each determinant will give implications that each variable may have on economic growth.

The determinants of FDI will also be discussed in great detail in Section 4.3 as these are the variables that can improve the FDI inflows of a country. Using recent literature and empirical findings will help determine which variables are important in attracting foreign investment inflows. It is important to note that FDI determinants are multidimensional.

There are different motives at work for each different type of FDI. These different motives include market-seeking FDI, which involves the multinational corporation seeking a large domestic market (Mottaleb and Kalirajan, 2010:370). Resource-seeking FDI aims to find the supply of natural resources and lastly, efficiency-seeking FDI aims to reduce production cost by relocating their plants (Lim, 2001:11). This thus creates multiple determinants for FDI amidst the already large existing literature.

4.2 FDI in African Literature

The analysis of FDI flows into Africa was well explored in Morisset's (2000) study. This paper used econometric analyses across 29 Sub-Saharan African countries over the period 1990-1997 to identify the impact of improving the business climate would have on attracting FDI inflows (Morisset, 2000:9). The paper finds that the business climate may be improved by using trade openness and GDP growth rate (Morisset, 2000:19). Similarly, this study will

look at trade openness and the GDP growth rate as factors that may help increase the FDI inflows in Africa.

A paper that explores various factors that may improve FDI is that by Asiedu (2006). This paper studies 22 countries in Sub-Saharan Africa over the period 1984-2000 using panel data (2006:67-68). The author finds that factors such as natural resources and large markets will attract more FDI inflows. Furthermore, FDI may also be promoted if African countries improve infrastructure, educate their labour force, and try to enforce macroeconomic stability, less corruption and more political stability (Asiedu, 2006:74-75).

Asiedu (2002) also explored whether there is a difference between the factors that may affect developing countries and developed countries. The paper uses cross-sectional analysis from 71 developing countries (32 Sub-Saharan African countries, and 39 non-Sub-Saharan African countries) over the period 1989-1997 (Asiedu, 2002:109-110). The results from this analysis suggest that trade openness and better infrastructure had a positive effect in promoting FDI in Sub-Saharan Africa and non-Sub-Saharan African countries respectively (Asiedu, 2002:112-113).

Similarly to her 2002 study, Asiedu further analysed the success that Sub-Saharan African countries had in attracting FDI in comparison to other developing regions in her 2004 study. This paper focused on policy reform regarded factors such as institutions, infrastructure and trade openness. This was done by studying the average performance over the period 1980-1999 using statistical analyses (Asiedu, 2004:43). Results suggest that the share of FDI that the Sub-Saharan African region is receiving has declined relatively despite experiencing absolute progress (Asiedu, 2004:47). This may be explained by the reduced attractiveness of Sub-Sahara Africa compared to other developing regions as the change in infrastructure, FDI regulatory framework and reformed institutions has been meager compared to other developing regions (Asiedu, 2004:47).

Bende-Nabende's (2002) study investigates the long-run determinants of FDI in Sub-Saharan Africa across 19 African countries over the period 1970-2000. The empirical evidence suggests that market growth, FDI liberalisation, trade openness and export-orientation policy are important predictors of FDI (Bende-Nabende, 2002:5).

Lemi and Asefa (2003) examined how FDI flows to Africa are influenced by economic and political uncertainty. The study analyses 32 African countries over the period 1989-1998 using a GARCH model (Lemi and Asefa, 2003:7). Political uncertainty and economic instability were found to be major impediments especially when coupled together for FDI inflows (Lemi and Asekfa, 2003:15). Furthermore, other factors that affected FDI flows were labour, trade connection, export sector size, external debt and market size (Lemi and Asefa, 2003:15-16).

Anyawu (2012) analyses 53 countries for the period 1996-2008 to determine the factors that may influence FDI inflows in Africa. Firstly, the results showed that the East and Southern African sub-regions receive higher levels of inward FDI in comparison to other sub-regions, with Egypt, South Africa and Nigeria being the top recipients over this period (Anyawu, 2012:429). The paper also identifies FDI inflows are positively influenced by trade openness, rule of law, natural resources, past FDI inflows and market size (Anyawu, 2012:450-451).

Dupasquier and Osakwe (2006) examined how FDI in Africa may be promoted and performance enhanced. The paper found that poor governance, ill-conceived investment promotion strategies, weak growth, poor infrastructure and instability politically and in the macroeconomic environment are detrimental to FDI (Dupasquier and Osakwe, 2006:250). The paper also calls for more concerted efforts to be made in policy considerations on the national, regional and international level (Dupasquier and Osakwe, 2006:255).

4.3 Determinants of Economic Growth

This section will consider the primary determinants of economic growth, as determined in the literature. The insights offered regarding explanatory variables for economic growth could be divided into state variables or choice and environment variables (Barro, 1996). The determinants of economic growth discussed below are the variables that will increase the quality or quantity of factors of production in the models discussed in this chapter, and will eventually contribute to economic growth.

4.3.1 Investment

Investment is considered important for accelerating economic performance by both the neoclassical and endogenous growth models (Petrakos, Arvanitidas and Pavleas, 2007). The key difference is that investment is considered to have an impact during the transitory period of growth for in the neoclassical model, whilst it is considered to have permanent effects on growth in the endogenous model (Petrakos *et al.*, 2007). Thus, an increase in the investment ratio of an economy may have a positive influence on economic growth (Barro, 2007). Private investment is also said to be more productive than public investment, however public investments are complementary to private investments (Dritsakis, Varelas and Adamopoulos, 2004:3).

4.3.2 Human Capital

Human capital is also considered to be a key determinant to economic performance, especially amongst endogenous growth models (Borensztein *et al*., 1998). The acquisition of skills and know-how of workers through rigorous training and education is known as human capital (Petrakos, 2007). The more educated and trained a population is, the greater the economic growth a country may experience as this increases the absorptive capability in the economy (Dritsakis *et al*., 1998:3). Barro (1996) suggests that countries that experience a larger introduction of new goods and services tend to have a greater stock of human capital. These countries also tend to grow faster relative to other nations with low stocks of human capital.

4.3.3 Government Consumption

Government consumption is used to measure the outlays that do not lead to an increase in the productivity of an economy. Barro (2007) finds that the National Bureau of Economic Research suggests that when the government consumption ratio increases, it will directly and indirectly cause a need for government revenues to also increase. Thus, the effect of government consumption on the growth of an economy is negative and can have a larger impact than taxes do.

The investment a country receives is also negatively impacted by the government's consumption ratio as it will put pressure on higher wages, which will cut into profits and eventually investment (Barro, 2007). The investment ratio is significantly depressed by the non-productive spending a government may have (Barro, 2007). For example, Alesina, Ardagana, Perotti and Schiantarelli (1999) sampled OECD countries and found that reducing government consumption by one percentage point in OECD countries led to an increase in the investment/GDP ratio by 0.16 percentage points. The change in this relationship is particularly greater when cuts in public spending are achieved through lower government wages (Alesina *et al*., 1999).

4.3.4 Fertility rate

The growth an economy may experience is also significantly impacted by the fertility rate of an economy. A growing population may have a depressing impact on an economy as resources are diverted from the activity of raising output towards the activity of providing new capital for workers and child-rearing (Barro, 2007). It is for this reason that the relationship between the growth of an economy and the fertility rate is negative.

Weintarub (1962:812) also finds evidence that an excessive population growth will cancel out economic growth. Ashraf, Weil, and Wilde's (2012) study focuses on fertility reduction in Nigeria and found that a 0.5 reduction in the fertility ratio raised output per capita by 5.6% over a 20 year period (Ashraf *et al*., 2012:52).

4.3.5 The Rule of Law

The effectiveness of law enforcement, security of property rights, and risk of government expropriation of land may be central for the growth of an economy and determine the type of investment climate provided for foreign investors (Barro, 2007).

A strong rule of law is said to have a positive impact on the growth of an economy (Haggard and Tiede, 2011:681). When an important factor such as security of property rights rises, this will also increase the level of investment a country attracts, eventually raising the economic performance of a country.

Wang, Xu and Zhu's (2011) study of China and its rule of law revealed, however, that it is not necessary for a country to have a good rule of law in order to attract FDI. The study suggested that in order to attract FDI, having good economic fundamentals are more effective than having a sound rule of law (Wang *et al*., 2011:21). Similarly, Haggard and Tiede's (2011) study revealed that advanced industrial states had a higher correlation between growth and the rule of law compared to developing countries (Haggard and Tiede, 2011:681). Therefore, the effectiveness of law enforcement and property rights in attracting FDI may vary for each country.

4.3.6 Democracy

The degree of democracy in a nation determines the rights and civil liberties one would have if living and operating in that host country. The effect of democracy is said to be ambiguous as there are both downsides and positives to having democracy in a nation.

Firstly, if a country is democratic, it is more likely that it will engage in policies and programs that will focus on income redistribution in an attempt to ensure equality amongst its citizens (Robinson, 2006:504). This may entail land reforms and other social-welfare programs, which tend to have a negative influence on property rights and may effectively reduce the incentives to invest in that nation (Barro, 2007).

An example is social grants, which become a substitute for income. If a citizen receives a steady social grant, this may reduce their incentive to work as it is only for people living below a certain income level (Van der Berg, Siebrits and Lekezwa, 2010:12). Citizens may thus be encouraged to disengage in the search for work opportunities in an attempt to receive government social grants (Van der Berg *et al.*, 2010:12). Barro (2007) also suggests that an additional problem to these reduced incentives to work and invest is that social transfers and reforms need to be financed, and this is usually done through increased taxes and levies which may negatively impact the business environment of an economy (Barro, 2007).

However, democracy may also have some positive influences that may offset some of the negative elements. Firstly, a democratic country engaging in income redistribution is also

able to reduce any social unrest that may arise from citizens living in highly unequal societies (Acemoglu, Naidu, Restrepo, and Robinson, 2014:4). Following the example of social grants that may be given to individuals as substitutes for income, this may also have the positive effect of reducing unfavourable behaviour such as criminal activity, riots and revolutions, which may all eventually lead to reduced incentive to work and invest (Van der Berg *et al*., 2010:12-13).

In a recent study by Acemoglu *et al.* (2014), evidence was presented over a period of 1960 to 2010 from a panel of countries that suggests that democracy has a sizable effect on economic growth (Acemoglu *et al.*, 2014:24). Changing from non-democracy to democracy achieved a 20% higher GDP per capita estimate in the long-run through the channels of increased public investment in schooling, health, greater economic reform and lower social unrest (Acemoglu *et al*., 2014:24).

4.3.7 Trade Openness

The openness of an economy has long been considered important to encouraging growth. It is believed that there exists a strong positive relationship between openness to trade and economic growth and this is achieved through several channels (Mendoza, 1994:2). Comparative advantage, technology transfers, increased economies of scale and competition, and diffusion of knowledge are all channels that allow the economy to experience increased growth when an economy is more open to trade (Dowrick and Golley, 2004:39-41).

The trade openness of an economy is measured by dividing exports plus imports by GDP. The positive impact of increased terms of trade ratio is reflected by an improvement in the productivity and factor of employments of an economy (Dowrick and Golley, 2004:39).

4.3.8 Inflation and Macroeconomic Policies

The macroeconomic policies a country adopts can determine the type of business and investment environment they plan to foster. Thus, sound economic policies can contribute to increased growth through increased investment, savings and productivity (Anderson and Gruen, 1995:2). The economic background of a country can influence political institutions,

legal framework, human capital and infrastructure. Furthermore, sound macroeconomic policies create certainty and reduce many risks (Petrakos *et al*., 2007).

The inflation rate of an economy is negatively correlated to economic growth experienced. The inflation rate also has a depressing effect on the investment levels attracted, which will eventually translate to negative effects on economic growth rates (Spiegel, 2007:9-10). Anderson and Gruen's (1995) research presents evidence from 10 OECD countries over the period 1950-1990 that shows that long-run economic growth can be explained by the nature of a country's macroeconomic policies (Anderson and Gruen, 1995:39).

It is generally accepted that the inflation rate is a good proxy for the general health status of a given country (Spiegel, 2007:10). Overall, if the inflation rate is moderate and well controlled, this tends indicates a good and healthy state of an economy and can lead to improved growth (Mottaleb and Kalirajan, 2010:378). Other indicators of a good economy include budget deficits, tax burdens and fiscal policy that are healthy (Petrakos *et al*., 2007).

4.3.9 Innovation and R&D activities

The OECD (2001:105) suggests that economies that invest heavily in research and development will experience increased growth and productivity. The use of innovative technology can increase the number of produced goods and services and hence enhances economic productivity (Petrakos *et al.*, 2007).

Ulke's (2004) study focused on analysing panel data for 20 OECD and 10 non-OECD countries over the period 1981 to 1997. The results revealed that per capita GDP and innovation had a positive relationship in both OECD and non-OECD countries (Ulke, 2004: 27). Similarly, Guellec and de la Potterie's (2011) study of 16 OECD countries reveal that research and development has been important for economic growth and productivity as it has high positive spillover effects (Guellec and de la Potterie, 2011:117).

4.3.10 Foreign Direct Investment

As previously discussed in the endogenous growth model, the FDI a country receives may also increase economic growth through its primary transfers of technology and skills that can enhance the productivity of an economy (Mottaleb, 2007:2).

Benefits of FDI that can increase economic growth also include increased competition and employment for the host country, which can further increase the productivity of an economy (Petrakos *et al*., 2007:5-6). Furthermore, benefits such as transfers of management know-how and technology may be realised. This may also entail the discovery of new processes and improved employee training in sectors such as manufacturing and agriculture (Alfaro, 2003:2).

Adewumi's (2006) study further emphasises the importance of FDI for economic growth by stating that some investments are better maximised when being managed under foreign control (Adewumi, 2006:4). FDI is considered to be vital for long-term economic development as it has the potential to create jobs, raise productivity and enhance exports in the host countries.

However, it is also important to consider the negative impacts that FDI may have on economic growth in host countries. Firstly, large foreign businesses may displace local domestic producers that may fail at adjusting in an increased competitive environment (Alfaro, 2003:2). This may lead to reduced employment amongst the local domestic producers, and hence lowered economic activity. Furthermore, lack of regulation in the host country may be a source for capital flight from developing countries to developed countries, especially where there are high political and economic risks (Mottaleb, 2007:3). Capital flight may have adverse effects on the economic activity especially in the financial markets of developing countries.

De Mello (1999) presents times series and panel data evidence from OECD and non-OECD countries that suggest that FDI can boost growth in the long run through knowledge transfers and the accumulation of capital. Alfaro (2003) analyses panel data over the period 1981-1999 and finds that FDI has an ambiguous effect on growth. The effect on growth differed for each

sector; manufacturing would positively affect growth whilst investment in the primary sector would negatively affect growth (Alfaro, 2003:13).

In Nair-Reichart and Weinhold's (2000) study, panel data from 24 developing countries suggest that there exists a strong positive relationship between FDI and economic growth (Nair-Reichart and Weinhold, 2000:15). In Hansen and Rand's (2006) study, an analysis was done between FDI and GDP using Granger causality tests. A sample of 31 developing countries over 31 years was analysed and it was found that FDI has a lasting positive impact on GDP. There was a bi-directional causality existing between the FDI-to-GDP ratio and the level of GDP (Hansen and Rand, 2006:21). This would suggest that the benefits expected from FDI such as technological spillovers and transfer of improved processes do have a positive impact on GDP.

Similarly, Seetanah and Khadaroo (2007) investigate the impact of FDI on economic growth for a panel of 39 Sub-Saharan African countries over the period 1980-2000. Using an extended Cobb Douglas production function, the study uses both static and dynamic panel data estimates. Results from the analysis show that FDI is important in explaining economic growth in Sub-Saharan African countries (Seetanah and Khadaroo, 2007:7). The study further confirms the importance of the FDI-growth relationship as FDI is seen to lead to growth (Seetanah and Khadaroo, 2007:7-8).

4.3.11 Education

The education level that a government invests in can significantly impact the levels of economic growth realised by a country. The greater the investment in education, the greater the beneficial impact it can have on economic growth (Hanushek and Wößmann, 2007:1). The most important level of schooling tends to be secondary and tertiary education as this can significantly increase the absorption of new technologies and skills (Barro, 2007). However, primary schooling is still considered important to gain access into secondary schooling.

The International Institute for Applied Systems (IIAS)' (2008) brief also argues that the quality, and not just the quantity, of education is important in encouraging economic growth. Thus, a county that has higher test scores for key subjects such as mathematics and science

are considered to be fostering quality education (IIAS, 2008:1-2). This contributes to increased economic performance as it improves the absorptive capability of human capital.

Aghion, Boustan and Vandenbussche (2009) present evidence that some education investment has a positive causal effect on growth on developing and developed nations. The study investigates whether countries should invest more heavily in education to promote economic growth. The authors measure the education investments (in actual dollars) in the United States and the effect varying educational investment amounts would promote growth in 48 different states. Panel data was used based on 26 birth cohorts and 48 states over the period 1950-1975. The results produced show evidence that increasing education expenditure by a thousand dollars increases economic growth by 0.04 percentage points (Aghion, Boustan and Vandenbussche, 2009:34). This supports the notion that increasing the education levels and quality will promote the economic growth of a country.

4.3.12 Institutional framework

The institutional framework of an economy may lead to increased economic performance. Petrakos *et al*. (2007) highlight five key institutions that can influence economic growth, namely: property rights, regulatory institutions, institutions that help stabilize the macro economy, institutions of conflict management, and social insurance.

These aforementioned institutions are critical in influencing economic growth but may also influence other important determinants of growth such as human capital, infrastructure, investment and technical changes (Sun, 2002:2). Valerani and Peluso (2011) investigate the impact that the quality of institutions had on economic growth. Using panel data over the 1950-2009 periods for 181 developed and developing countries, their results support the hypothesis of a positive relationship existing between economic growth and quality institutions (Valerani and Peluso, 2011:23).

4.3.13 Demographics

The composition of an economy's population may also influence the economic growth realized. Economic growth is influenced by the population growth rate, age of the population, population density, and population migration (Petrakos *et al.*, 2007).

The population growth rate may negatively influence economic growth by increasing the dependency ratio of citizens, human capital quality may be reduced, and also the behaviour of saving and investment of individuals may be affected (Bloom, Canning and Sevilla, 2001:8-9). Economic growth may be slightly depressed by a population that is largely composed of an elderly population that may no longer be able to contribute to productivity (Petrakos *et al*., 2007).

A population that has a large working age population may experience increased economic growth as productivity levels tend to be higher with more individuals contributing to the output of goods and services in an economy (Bloom *et al.,* 2001:11-12). There may also be a greater diffusion of knowledge when there is a larger population.

Adewole's (2012) study investigates the relationship between demographics and economic growth in Nigeria over the period 1981 and 2007. The results revealed evidence of a statistically significant positive relationship between the population growth rate and economic growth (Adewole, 2012:11).

4.4 Determinants of FDI

The economic benefit to the recipient country of FDI is commonly believed to provide capital, foreign exchange and an environment that has more competition and a wider access to the foreign market (Mottaleb and Kalirajan, 2010:370). Developing countries tend to have a domestic savings rate that is lower than their investment demand; this leaves a gap for foreign capital to be provided in order to achieve faster economic growth and more investment in the priority sectors (Moudatsou and Kyrkilis, 2009:1-2).

African countries have tried to compete with each other by liberalising their trade regimes, offering tax rebates and various incentive packages in an attempt to attract FDI by creating more FDI and investor-friendly environments (Mottaleb and Kalirajan, 2010:370). However, only a small percentage of African countries were successful in attracting FDI; the preferred destination of FDI was still developed countries (Wan, 2010:52). This is not a new discovery as the share of FDI inflows in developing countries has been falling since 1997, despite an increase in absolute terms of total flows. Therefore, it may be of use to question what the inflows of FDI depend on for most developing countries (Mottaleb and Kalirajan, 2010:370).

The determinants of FDI will be discussed in the following sub-sections. It is important to note that FDI determinants are multidimensional. There are different motives at work for each different type of FDI. These different motives include market-seeking FDI, which involves the multinational corporation seeking a large domestic market (Mottaleb and Kalirajan, 2010:370). Resource-seeking FDI aims to find the supply of natural resources and lastly, efficiency-seeking FDI aims to reduce production cost by relocating their plants (Lim, 2001:11). This thus creates multiple determinants for FDI amidst the already large existing literature.

4.4.1 Interest Rate

Evans (2002:1) suggests clearly distinguishing between FDI and Foreign Portfolio Investment when considering the relationship between FDI and the interest rate. As discussed in section 3.2, FDI involves a resident entity obtaining a lasting interest in one economy through an enterprise in another economy (IMF, 2006:86). The construction or buying of factories for production is usually involved when entering a foreign location.

Foreign Portfolio Investment, however, involves foreign financial assets being held, which may include stocks, bonds and other financial instruments (Evans, 2002:1). Investors that are actively involved in Foreign Portfolio Investment tend to invest in returns – interest rates – that are high so that they will be able to maximise their profits (Hymer, 1976:7). Therefore, in an event where interest rates differ between two economies, capital will move from the countries with a lower interest rate to countries that have high interest rates (Hymer, 1976:7).

Investors seeking to engage in FDI will set up subsidiaries abroad and through this activity, will require borrowed capital in the host countries. Thus, the interest rate also influences FDI investors' decisions as it may increase their cost of borrowing (Hymer, 1976:7).

The cost-of-capital explanation for FDI can explain the effect that interest rates may have on FDI. The money transmission mechanism proposed by Keynes is an important basic theory to consider before dealing with the theory of the cost-of-capital. This traditional Keynesian model proposes that if money supply decreases, this will lead to an increase in interest rates (Mishkin, 1995:4). The increase in the interest rate will be a result of the money supply curve shifting to left; this will then cause a shortage of money supply and disequilibrium (Mishkin, 1995:4).

The interest rate will continue rising until money supply and money demand are in equilibrium. The increase in the interest rates will in turn raise the cost of capital and will eventually result in a decline in investment spending, and subsequently, aggregate demand and output will decline (Mishkin, 1995:4). Thus, investment decisions are influenced by the cost of capital and the interest rate becomes the key variable in this process (Mishkin, 1995:4).

The theory proposed by Mishkin suggests that factors affecting a firm's investment decisions are the rates of return that investors will receive on potential investment projects and the interest rate (Armitage, 2005:14). A discount rate is applied to the returns, and this discount rate is represented by the interest rate, which may also be referred to as the marginal efficiency of capital (Chingarande, 2012:7). Chingarande (2012:6) proposes a theory whereby firms that face various investment opportunities will rank their investment projects depending on the rate of return (also known as the marginal efficiency of investment) each project will provide.

Firms will choose investment projects with a rate of return exceeding the rate of interest, given a certain interest rate (Chingarande, 2012:6). For example, if the market rate of an economy were 7%, it would only be beneficial for a firm to concentrate on an investment project for which the return would exceed 7%. It thus follows that the "optimum condition for the firm's investment decision is that the marginal efficiency of investment is equated with the rate of interest" (Chingarande, 2012:6).

Asiedu (2002:115) presents a different argument suggesting that FDI inflows to Sub-Saharan African countries are not improved by an increase in the return on capital. If the environment is perceived as very risky, then increasing the return on capital will not have a significant impact on raising FDI inflows (Asiedu, 2002:115). Foreign investors are risk-averse and they might perceive this risk-adjustment as too low to induce them to invest. Africa is perceived as inherently risky and this is due to the uncertainty of government policy and possible reversal of policy, which in turn negatively affects private investment (Asiedu, 2002:115).

Therefore, a higher rate of return may not be sufficient to compensate for excessive policy risk and the possibility of having to reverse costly mistakes, as FDI is partially irreversible. Hence foreign investment may be less responsive to an increase in the return on capital as a result of investment risk (Asiedu, 2002:115).

The interest rate thus represents the firm's cost of capital; an increase in the interest rate will result in a fall in investment (Armitage, 2005:14). Graham and Krugaman (1995) analysed the interest rate differentials between countries and conclude that the cost-of-capital theory suggests that foreign firms will only willingly invest in domestic firms if there is a lower discount rate applied to expected returns. Thus, the interest differential between countries is believed to influence FDI since the cost of capital is also the interest rate (Graham and Krugman, 1995). Therefore a negative relationship exists between the interest rate of an economy and the inflows of FDI (Chingarande, 2012:6).

The empirical findings that currently exist on the relationship between interest rates and FDI tend to be mixed. Hymer's (1976) study of FDI and FPI flows to the US analyses the effect that interest rates in the US have on the distribution of a number of balance sheet items, especially when the interest rates in the US were relatively higher compared to the rest of the world (Hymer, 1976:11). Hymer found that during the time of higher interest rates in the US, American companies tended to have investments in securities and cash that were mostly in the US, whereas the same American firms were also borrowing and investing abroad (Hymer, 1976:11). These findings confirm how the relationship between FPI and FDI and the interest rate differ. It also confirms how inward FDI inflows may be attracted by low interest rates in host countries of FDI (Hymer, 1976:11).

Chingarande's (2012) study on Zimbabwe's FDI determinants paints a slightly different picture. Using the classical linear regression model, Chingarande found that the interest rate was not statistically significant in determining FDI in Zimbabwe over the period of 2009 to 2011 (Chingarande, 2012:1). Risk factors were instead discovered to be the major determinants of FDI in Zimbabwe. Yih Yun Yang, Groeneworld and Tcha's (2000) study of the determinants of FDI concluded that there is a positive relationship between the interest rate and inward FDI inflows in Australia. The fact that high interest rates attract foreign capital flows to financial markets emphasises the importance of distinguishing between FDI and FPI (Hymer, 1976:7).

Therefore, the interest rate of a country may affect the FDI inflows received as they are negatively related. As mentioned in the paragraphs above, an increase in the interest rate will result in a fall in investment due to the increase in the cost of capital. This study expects this negative relationship to exist in Africa. A high interest rate will, in turn, make the business environment less investor-friendly for investors, hence reducing the FDI inflows received in the area.

4.4.2 Exchange Rate

The exchange rate could have an impact on the FDI inflows a country receives. The costs of production could be reduced for multinational corporations, hence improving the competitiveness of produced goods for the company and the profit yields made in the fiscal year (Lim, 2001). Goldberg (2008:1) suggests that the country experiencing real currency depreciation will gain a locational advantage. This will be attractive for receiving productive capacity investments (Lim, 2001).

Goldberg (2008:1) argues that if a currency depreciates, companies operating abroad will be able to purchase their technology and assets at a reduced price and this could thus increase FDI. In contrast, if a currency appreciates, foreign currency earnings would increase for foreign investors and they would be able to increase their FDI inflows (Lim, 2001).

Alba, Park and Wang (2009) investigate the relationship between the exchange rate and FDI. Using panel data from US wholesale trade sectors, evidence reveals that the stronger

exchange rate had a positive significant impact on FDI inflows, given a favourable FDI environment (Alba *et al*., 2009:1). Thus, in this study, a stronger US dollar was necessary for increased FDI inflows. Similarly, Omankhanlen (2011) used a linear regression and 30 years of data in Nigeria and found that a positive relationship existed between the foreign exchange rate and FDI inflows over the period of 1980 – 2009 (Omankhanlen, 2011:13).

Hence, it can be concluded that the stronger the currency, the more FDI inflows the country received. Due to this positive relationship, it is expected that FDI inflows will be higher for stronger currencies. African countries have currencies that are very volatile and it can thus be expected that a locational advantage may be gained for multinational companies operating in Africa.

4.4.3 Openness of the Host Economy

It is possible to measure the degree to which liberalization of the trade environment exists in an economy. This means that if tariffs are reduced and eventually decrease overall, the economy will be associated with a greater degree of openness (Lim, 2001:13).

A greater degree of openness of a host country will affect the flow of FDI negatively if the FDI in question is market-seeking due the fact that liberalised trade environments make exporting more attractive relative to FDI (Fedderke and Romm, 2006:748). Thus, horizontal FDI has a negative relationship with trade openness of an economy. In contrast, vertical FDI has a positive relationship with trade openness of an economy, as it tends to benefit from a liberal trade environment (Fedderke and Romm, 2006:748).

This positive relationship is due to the nature of vertical FDI: it involves a firm moving part of their production process to a location abroad and then exporting the final product back to their home country and other countries for immediate sale (Lim, 2001:13). Lim (2001:13) suggests that resource-seeking FDI requires "substantial flows of intermediate inputs in and out of the host country" and further strengthens the positive relationship existing between vertical FDI and a beneficial liberal trade environment.

In Africa, it has been found that trade liberalization is less effective in promoting FDI inflows compared to other regions. One explanation is the fact that Africa's trade liberalization policies are not viewed as credible by foreign investors (Asiedu, 2002:115). Foreign investors perceive trade reform to be fluid and unreliable, as it tends to change depending on the government in power at the time (Asiedu, 2002:115). Thus, trade reform is perceived as reversible and transitory, which creates a risk that is mostly inherent to African countries for two specific reasons (Asiedu, 2002:115).

Firstly, African governments have managed their balance of payments by using their trade policy as a macroeconomic instrument. This would result in trade restrictions being tightened when the terms of trade of a country deteriorated, whereas trade restrictions would be relaxed when the terms of trade of a nation improved (Yaoxing, 2010:100). This thus creates the belief that African governments do not have a reliable and credible trade policy, as it is transitory depending on the government in power at the time.

Secondly, African countries that receive foreign aid from foreign donors tend to have to abide by rules given by certain institutions such as the World Bank. In these cases, African governments are forced to embark on trade reform as part of the aid conditionality (Akonor, 2008:1072). The aid is usually temporary, and once the aid has stopped flowing into the host country, the countries tend to abandon the trade reform, as there is now little incentive to do so (Ayodele, Cudjoe, Nolutshungu, and Sunwabe, 2005:2).

Hesitant investment despite trade reform has been an issue for Sub-Saharan African countries, which have received less FDI inflows, compared to other regions despite their openness (Asiedu, 2002:115). Thus, it can be concluded that Africa's trade reform has been ad hoc in the past and that investors perceive it as unsustainable, which results in their hesitance in increasing FDI inflows when trade liberalisation occurs as theory would suggest (Asiedu, 2002:115). This is not always the simple case, as trade reform needs to be consistent with macroeconomic equilibrium for it to be sustainable and effective in promoting FDI inflows into African countries (Ayodele *et al.*, 2005:2-3).

4.4.4 Economic Growth

Market-seeking FDI will serve a local market by building a subsidiary plant in a foreign location. The likelihood that a firm will choose to serve that market through FDI rather than exports will increase as the market size of the host economy also increases (Lim, 2001:11).

This postulation makes theoretical sense for a number of reasons. Firstly, when FDI is market-seeking, the products of the firm will be sold mostly in the host economy of the FDI. The level of FDI will increase as the size and growth rate of the host economy also increases. Thus, the larger the size of the host economy, the greater the potential for output (Sawkut *et al*., 2009:6).

Secondly, opportunities to achieve economies of scale are also greatly offered when economies become large and fast growing. Furthermore, they offer lower marketing costs and transportation expenses (Mottaleb and Kalirajan, 2010:375). Another explanation as to how faster growing and large economies may attract more FDI is that there are more domestic firms and therefore more competition in larger markets. Increased competition in an economy leads to a particular product having a lower price, and firms will eventually prefer local production to exports "if the marginal cost of supply through exports is relatively high" (Lim, 2001:11).

These three reasons for larger and fast-growing economies attract market-seeking FDI. Growing economies are often measured by the growth rate and level of GDP. Theory thus suggests that there exists a positive relationship between both market size and market growth and FDI that is classified as market-seeking (Mottaleb and Kalirajan, 2010:375).

Mottaleb (2007:3-4) further argues that economic growth is a determinant of FDI as increased economic performance creates a suitable business environment for an organisation wishing to open up, there is increased chances of higher profits and demand where the national income of a host economy is higher.

Carkovic and Levine (2002), Cevis (2007) and Mun (2008) have found a positive relationship between the GDP growth rate and FDI inflows. High growth economies tend to attract foreign investors as they implement stable and credible macroeconomic policies, and also

have large domestic markets (Onyeiwu and Shrestha, 2004:95). Therefore, a higher GDP growth rate may be effective in aiding FDI inflows as there will be increased income, better macroeconomic policies, and a greater market size for multinational companies.

4.4.5 Economic Stability

Economic stability is an important determinant to consider as the economic situation and environment in a country can affect the inward and outward flows of FDI of that country significantly. A stable economy tends to attract more FDI because there is more certainty regarding future profitability. Conversely, an unstable economy will attract relatively less FDI due to uncertainty and investor perceptions of future profitability being negative (Chingarange, 2012:11). The uncertainty that arises from unstable economies can significantly dampen FDI inflows even if the uncertainty is just perceived and not necessarily real.

A sustainable growth rate, low inflation rate and exchange rate risk, fiscal discipline, low unemployment and sufficient amounts of reserve coverage are all considered to be good indicators of macroeconomic stability (Goodfriend, 2007:6). These indicators are important as the level and volatility of the growth rate gives an indication of how viable future investment projects may be. Furthermore, exchange rate risk may lead to a decrease in FDI as depreciation in the currency of the host country would lead to lower levels of FDI inflows (Neuhaus, 2006:147). This is due to the reduced profitability that foreign direct investors would experience as a result of the depreciation.

A low inflation rate, and especially if inflation targeting is regularly practised by the central bank of the host country, would lead to increased FDI inflows as low inflation establishes credibility of the government and its long-term economic policies (Goodfriend, 2007:6). The host country may enter a virtuous cycle of growth and prosperity if its macroeconomic environment is stable. It will experience solid growth, which will eventually pave the way for increased market potential and a stabilised economy (Neuhaus, 2006:147).

It is generally accepted that the inflation rate of a country is a good proxy for a country's general health status. Overall, if the inflation rate is moderate and well controlled, this tends

to indicate a good and healthy state of an economy (Mottaleb and Kalirajan, 2010:378). Omankhanlen (2011) found no significant impact of inflation on FDI in Nigeria. However, Gul, Sajid, Afzal, Khan and Mughal (2012) found a positive relationship to exist between inflation and FDI in Pakistan over the period 1990-2008. As a result it was concluded that economic stability is positively related to the flow of FDI a country receives (Gul *et al*., 2012:21). This effect is the same for all four types of FDI that a country may receive. Chingarande (2012) reported that the relationship between the inflation rate and FDI is negative due to economic instability deterring investment in a host country (Chingarande, 2012:11).

Inflation is particularly important as it can affect the cost of capital that foreign investors will have to pay, which can negatively affect a foreign investor's profitability (Onyeiwu and Shrestha, 2004:95). High inflation rates tend to arise from governments and central banks practising irresponsible fiscal policies and monetary policies such as budget deficits, excessive money supply and an exchange rate regime that is poorly managed (Onyeiwu and Shrestha, 2004:95). Therefore, inflation is a good indicator of the general health of a nation, and can discourage FDI inflows to a country if it reflects poor economic conditions (Onyeiwu and Shrestha, 2004:95).

Bevan and Estrin (2000) found that a significant determinant of FDI inflows to transition economies focused on the implication of the announcements made detailing the progress of certain countries in Central and Eastern Europe. Using a sample from these transition economies and a detailed dataset, Bevan and Estrin (2000) concluded that labour costs, market size and gravity factors all influenced FDI inflows.

Most important to this discussion is the effect the macroeconomic environment would have on FDI inflows. A dynamic transmission mechanism was also uncovered whereby announcements made by the central bank regarding economic indicators and policy directly impacted FDI (Bevan and Estrin, 2000:147). This change in FDI following the announcements would eventually lead to an improvement in the host country's credit ratings; the improved credit rating would cause a feedback relationship, as it would lead to an improvement in FDI in the following period (Bevan and Estrin, 2000:147).

Therefore, the effect that inflation has on FDI inflows is that it would lead to increased FDI inflows as the government is deemed more credible, and there is less uncertainty regarding the business environment of that nation which investors will find more favourable.

4.4.6 Cost and Quality of Labour

Input costs, operation costs and other hidden costs may become a motive for foreign investors to invest in countries abroad. If production costs are lower abroad, foreign investors may have motive to become a multinational firm as they seek to maximise their profits (Mottaleb and Kalijaran, 2010:378).

The cost of labour is seen to be a "major component of total production cost and the productivity of firms" (Sawkut *et al*., 2009:7). It thus follows that the cost of labour, represented by wages, is also an important determinant of FDI due to the significance of labour to total production costs. Cheap labour is considered an important determinant for resource-seeking and efficiency-seeking FDI as their main objective is to minimize their costs of production (Lim, 2001:11). An empirical study by Lin (2001) suggests that a negative relationship exists between labour quality and the flow of FDI into a host country. Lin (2001) uses large cross-section firm-level data to study the relationship between labour quality and FDI in China. Evidence showed that the quality of labour, with respect to education levels, was significant in attracting FDI (Lin, 2001:28). Similarly, Kucera (2002) analyses data from 127 countries and finds that countries with higher labour costs tend to attract less FDI inflows (Kucera, 2002: 63).

Low skilled workers may mitigate the cost advantages of low wages of a particular country, suggesting that foreign investors may not only be concerned about the low cost of labour (Janks, 2012:13). They will also be concerned with the quality of labour as low skilled labour affects the quality of labour (Sawkut *et al*., 2009:7). For foreign investors, it is beneficial and more preferable to have an educated and skilled labour force as they are able to learn and better adopt new technologies and skills required to produce products much faster than low-skilled workers can (Sawkut *et al*., 2009:7).

The level of human capital in an economy is able to indicate the availability and quality of skilled workers in a labour force (Sawkut *et al*., 2009:7). Both efficiency-seeking and strategic asset-seeking FDI are attracted to a higher quality of human capital. Quality labour is able to improve efficiency, production and increase opportunities (Dunning, 2003:382). Technological-, educational-, managerial-, entrepreneurial- and managerial assets may become strategic advantages for the firm in the long-run (Dunning, 2003:382).

Foreign investors may also face additional costs imposed by the labour market conditions of a country. FDI may be deterred by strict labour law for two main reasons. Firstly, lower expected returns of FDI may be realised due to stricter job protection laws (Fedderke and Romm, 2006:748). Secondly, firms may become more vulnerable to demand and supply shocks if there are strict labour laws as their ability to respond to shocks may be limited due to the less variability these strict labour laws will give them (Fedderke and Romm, 2006:748).

The supply of abundantly cheap labour was found to be a significant determinant of FDI in most studies (Kucera, 2002; Lin, 2001; Fedderke and Romm, 2006; Chingarande, 2012), and more especially for resource-seeking FDI. There are various studies that have established this relationship, for example, Chingarande's (2012) study that focuses on the determinants of FDI in Zimbabwe, which found that a significant determinant of FDI was the cost of labour (Chingarande, 2012:12). His study found that FDI decreased when there was an increase in the cost of labour (Chingarande, 2012:13).

For South Africa, Fedderke and Romm (2005) found a statistically significant negative relationship with FDI and the national wage rate. Similarly, Nonnemburg and Cardoso de Mendonca (2004) reported that an important determinant of FDI was the level of schooling.

This above finding supports the proposition that foreign direct investors are also concerned with the quality of labour and not only just the cost of labour. Therefore, the cost and quality of labour of a nation are effective in influencing investor decisions, if the production costs are lower abroad, foreign investors may have motive to move their operations in an effort to maximise their profits, and minimize their costs. If a multinational is involved in resource-seeking FDI, the cost of labour will be a vital factor in their decision to invest in a particular country; therefore, a lower labour cost will attract more FDI inflows.

4.4.7 Infrastructure Quality

Foreign investors want to achieve higher profits and in order to do so, they will invest in countries that have business costs that are relatively lower as this will ensure that their profits are maximised. The costs of doing business can be affected by the quality and availability of Internet, roads, port facilities, energy supply and telephones (Mottaleb and Kalirajan, 2010:376). Thus according to theory, the reliability and availability of infrastructure in a given country are considered important determinants of FDI (Asiedu, 2002:111). Foreign investors prefer economies that have these well-developed networks for their businesses.

Asiedu (2002:111) postulates "good infrastructure increases the productivity of investments." Thus, it is expected that FDI be stimulated by improved infrastructure, especially efficiency- and strategic asset-seeking FDI (Nonnemburg and Cardoso de Mendoca, 2004:9). It can therefore be concluded that countries are expected to attract more FDI if they have good infrastructures as the production costs tend to be typically lower in these well-developed infrastructure countries compared to those with poor infrastructure (Onyeiwu and Shrestha, 2004:95).

Empirical studies by Castro, Regis and Saslavsky (2007) confirm the existence of this positive relationship. Data from Argentina over the period 1990-2001 was used to test the relationship between infrastructure and FDI inflows. The authors found that a 10% increase in paved roads per capita increased FDI between 17% and 33% in the average host regional economy. Extending the network of paved roads in regions nearby increased FDI between 12% and 14% (Castro *et al*., 2007:23). Similarly, Rehman, Ilyas and Alam (2010) reveal a significant positive relationship between FDI and infrastructure. Using data from Pakistan over the period 1975-2008, the authors found that the host country's infrastructure level had a strong impact in attracting FDI inflows in the short and long term (Rehman *et al.*, 2010:268).

Therefore, based on the studies discussed above, it can be concluded that infrastructure is effective in attracting foreign investors. Improved infrastructure may stimulate FDI inflows for multinationals as the cost of doing business is minimised in countries with good infrastructure and well-established network facilities.

4.4.8 Corporate Taxes

As previously noted, firms will engage in FDI in an attempt to maximise their profits. Corporate income taxes affect the profits its foreign subsidiaries have earned; therefore we can conclude that FDI will be impacted negatively by increased corporate tax rates (Fedderke and Romm, 2006:748).

Low wages, good infrastructure and good quality and skilled workers can create cost advantages that can all be mitigated by high corporate tax rates of a country. Hence FDI will be deterred by higher corporate tax rates and the relationship existing between the level of FDI and taxes is negative (Fedderke and Romm, 2006:748).

A country will thus be able to attract and retain foreign investors if its tax laws are considered friendly (Onyeiwu and Shrestha, 2004:96). High taxation has been considered a major barrier to FDI and when coupled with inconsistent and poorly implemented tax laws, this creates a very unfriendly business environment for foreign investors (Onyeiwu and Shrestha, 2004:96). An unfriendly business environment of this character will have the effect of leading to reduced FDI inflows.

Empirical studies by the OECD show that the relationship between taxes and levels of FDI inflows are indeed negative. Evidence from a panel of bilateral FDI flows across 11 OECD countries over the 1984-2000 period show that high relative corporate taxation does discourage FDI inflows (OECD, 2004:19). Similarly, Agostini and Tulayasathien (2003) examine the relationship between corporate taxes and FDI inflows in seven countries. Overall, results showed FDI to be quite sensitive to the countries' corporate tax rates. The estimated tax elasticity was put around −1 (Agostini and Tulayasathien, 2003:4).

Therefore, corporate taxes should be investor-friendly, as high corporate taxes have been shown to negatively affect FDI inflows for a nation. African countries should aim to achieve a friendlier business environment in an attempt to stimulate FDI inflows, and since investors are sensitive to taxes as these cuts into their profits, a corporate tax rate that is reasonable should be achieved.

4.4.9 Political Stability

The perceived business climate of a host country is considered to be major determinant of inward FDI (Sawkut *et al.*, 2009:8). There are mixed beliefs on the relationship between political instability and FDI. Political instability and disorder may create an unfavourable business climate for foreign investors (Baek and Qian, 2012:3). This is due to political instability creating uncertainty and hence risk, which will deter risk-averse foreign investors who aim to increase their returns for the lowest level of risk possible (Sawkut *et al*., 2009:8).

Asiedu (2002:111) challenges the notion of higher risk being associated with higher returns as he states that in risky environments created by political instability, higher returns may still not induce investment. This is due to FDI being deterred by a too low risk-adjusted return (Asiedu, 2002:111). Uncertainty of government policy, corruption, politically motivated strikes, regular or frequent changes in government, violent riots and political assassinations are all common measures of political instability of a country (Baek and Qian, 2012:3-4).

FDI is expected to be impacted profoundly by political stability; the uncertainty of government policy in particular can deter private investments (Busse and Hefeker, 2005:2-3). This negative relationship exists between the two because engaging in FDI involves sunk-costs, which suggest that they will not be "retrievable if disinvestment occurs" (Asiedu, 2002:115). This would be highly likely in politically unstable environments and since firms aim to maximise their profits for the lowest costs possible, they will avoid these environments at all costs in an attempt to reduce any costly risks (Asiedu, 2002:115).

Chingarande (2012) found political risk factors in Zimbabwe to be the most significant determinant of FDI. The study found that the current political risk determines FDI and that high-risk rates that may have occurred in previous periods may also negatively impact FDI (Chingarande, 2012:12). These findings are in agreement with the widespread belief that Africa is risky and the reputation of the continent being a risky investment environment is due to previous incidents of political disorders that have occurred in Africa (Asiedu, 2002:113).

Fedderke and Romm (2005) found that political stability was not very significant nor as important for FDI in South Africa as it is for portfolio investment. However, their study

concluded that South Africa would still benefit from political stability as it would increase the country's attractiveness thereby making it a destination of choice for FDI in the future. Similarly, Baek and Qian's (2012) study of developing countries over the period 1984-2008 found political risk to be a significant determinant of FDI in developing nations. The authors find that since the 9/11 attacks, political risks have become more important and significant determinants of FDI flows, especially in industrialized nations (Baek and Qian, 2012:23-24).

Therefore based on the studies discussed above, it can be concluded that political stability is very effective in attracting FDI inflows. Many investors are risk-averse thus it is imperative that risk is mitigated in an effort for investors to realise their returns. African countries should focus on achieving political stability in order to attract more FDI inflows as democratic and credible governments reduce the risk and uncertainty that many investors may face.

4.4.10 External Debt

External debt is the total amount owed by a nation to foreign creditors, and is usually incurred when governments attempt to finance expenditures by borrowing from foreign creditors (UCTAD, 2002:24). Foreign investment may be discouraged by debt as it is usually the result of inappropriate macroeconomic policies (de Silva Leme, 1993:4).

A country's ability to provide basic infrastructures and services such as roads, telephones, electricity, water and social spending is circumscribed by the debt service burdens that a highly indebted nation will face (Onyeiwu and Shrestha, 2004:96). These debt service burdens become costly to a nation's development as money is spent servicing the debt rather than spending it on services and activities that will result in development and growth (UNCTAD, 2002:28).

Onyeiwu and Shrestha (2004) studied Sub-Saharan African countries and found that the highly indebted poor countries received the least amount of FDI. This would be due to the perceptions that arise from a highly indebted country. The likelihood of defaulting on the debt increases and this has negative implications for assets, investments and the country's credibility (Onyeiwu and Shrestha, 2004:96).

Similarly, de Silva Leme's (1993) study that investigates panel data from Brazil over the period 1971-1990 finds that there was a significant reduction in FDI inflows experienced after the Brazilian debt crisis (de Silva Leme, 1993:126). Thus, it can be concluded that a higher debt/GDP ratio will reduce the flows of FDI that a country will experience. Meanwhile, if the debt/GDP ratio decreases, this would have an opposite effect and the host country would experience an improved inflow of FDI (Onyeiwu and Shrestha, 2004:96).

4.4.11 International Reserves

The flow of FDI to a country may be influenced by the international reserves relative to GDP. Large international reserves may reflect a vital local economy to foreign investors and this tends to create confidence in the economy (Onyeiwu and Shrestha, 2004:96). These nations with large international reserves tend to attract more FDI inflows and foreign investors (Onyeiwu and Shrestha, 2004:96). Qian and Steiner (2013) investigate this relationship over the period of 1980-2010 with a sample of 76 developing countries. Results show that a larger share of foreign equity investment is associated with higher levels of reserves (Qian and Steiner, 2013:25).

4.4.12 Government Size

There is no concrete consensus regarding the relationship between FDI inflows and the size of a government of the host country as studies have presented differing evidence. Asiedu (2002) argues that smaller governments are able to attract more FDI due to their lower spending, whereas a large government will deter FDI through high government spending.

It is important to consider that if a government spends largely on key factors such as developing infrastructure, this could positively impact FDI and make the economy healthier. Thus, a positive relationship could also possibly exist between government size and FDI. Yaun, Chen and Wang (2010:177) found this positive relationship to exist in their study. Panel data from 81 countries between 2002 and 2006 was used to investigate the impact on government size and FDI inflows. Evidence was presented that a positive relationship exists between government size and FDI, with developing countries having a stronger effect (Yuan *et al*., 2010:183).

4.4.13 Natural Resource Availability

Onyeiwu and Shrestha (2004) found that countries that received the most FDI in Africa in the 1990s and 2000s were those that were natural resource abundant such as Morocco, Nigeria, Tunisia and Egypt. These countries accounted for more than 75% of FDI inflows into Africa during these periods (Onyeiwu and Shrestha, 2004:96). Resource-seeking foreign investors move their businesses abroad to subsidiaries that can secure cheaper and more stable supply of inputs, raw materials, energy sources and other factors of production (Aseidu, 2013:2-3). Thus, if most of the FDI in Africa is concentrated in countries that have abundant natural resources such as oil, it can be concluded that a positive relationship may exist with FDI inflows a country may experience and their natural resource availability (Onyeiwu and Shrestha, 2004:96).

De Gregorio's (2003) study reveals that there are no strong motives to argue that developing natural resources rather than manufacturing may be detrimental for growth (De Gregorio, 2003:12). Instead, he calls for a stronger emphasis to be placed on acquiring stronger institutions in an effort to attract FDI inflows (De Gregorio, 2003:12-13). Strong property rights and institutions are seen as effective FDI incentives.

Therefore, it can be concluded that the amount of natural resources that a country possesses will be effective in attracting foreign investors that are aiming to secure cheaper and stable suppliers of raw materials and inputs, and other factors of production. Through this finding, it is expected that resource-rich countries in Africa will receive more FDI inflows than those countries that are not resource-rich.

4.4.14 Agglomeration Effects

Lim (2001) argues that the amount of FDI stock already existing in a host country will influence foreign investors when deciding whether to make a foreign investment. If a host country has more FDI stock, more FDI will flow into that country. Clustering of investment becomes more effective through agglomeration effects as they attract more FDI over time (Lim, 2001). Thus, potential foreign investors assess the existing FDI stock before investing in a host country.

An empirical study by Kim, Pickton and Gerking (2003) analyses data from 1987-1994 to explore this relationship between state efforts and FDI attractions. Results from the study show that agglomeration economies and promotion expenditures are important in attracting foreign investors (Kim *et al.*, 2003:68). Similarly, Guimaraes, Figueiredo and Woodward (2000) examined detailed regional urban data in Portugal to determine if foreign investment is induced by agglomeration. Results show that the decisive location factors are agglomeration economies (Guimaraes *et al.*, 2000:115).

4.4.15 Financial Development

A host country with a developed financial sector has more potential to attract more FDI. Sghaier and Abida (2013) report the causal linkage between financial development and FDI inflows through a panel study of 4 North African countries over the period of 1980-2011. Evidence shows that a positive relationship exists between FDI and financial development. A well-developed financial sector is a pre-requisite for FDI to have a positive effect on economic growth (Sghaier and Abida, 2013:7-8).

Similarly, Adeniyi and Omisakin's (2012) study of four African countries over the period 1970-2005 also reveals evidence of the positive relationship between financial development and FDI. Evidence showed that three out of the four African countries needed financial sophistication for FDI benefits to be realized in their economies (Adeniyi and Omisakin, 2012:16-17).

Therefore, countries that have well developed financial sectors and well-regulated financial institutions such as South Africa, Namibia and Nigeria, are more effective in attracting FDI inflows and the benefits of these FDI inflows have greater potential to be utilized by that economy.

4.4.16 Business Environment

A favourable business environment will have an impact on the amount of FDI a host country receives. Incentives such as lowered costs of doing business, reduced judicial hurdles, efficient property rights and labour regulations all contribute to having a business environment that is favourable for foreign investors to operation in and hence will encourage foreign investment inflows (Lim, 2001).

Kwon and Chun (2012) analyse South Korean data over the period 1997-2006 to examine FDI-friendly environments. The results show that a host country that has a more flexible labour market and lower start-up costs to establish an affiliate in the host country, will experience Korean multinationals willing to invest more in the host country (Kwon and Chun, 2012:285). Similarly, Kaya's (2009) study on unfavourable business environments and FDI in Turkey produce similar findings. The results in this study show that an unfavourable business environment (unstable exchange rate, high tax rate and inflation rates) has a negative impact on FDI flows (Kaya, 2009:113-114).

4.5 Conclusion

This chapter has discussed African literature looking at FDI inflows and how economic growth can be achieved through FDI inflows. Furthermore, the determinants of economic growth in great detail have also been discussed. Economic growth occurs when the production function of a country expands outwards and the various variables that can improve the quantity or quality of production have been discussed in this chapter. These determinants chosen as drivers of economic growth will be exports, democracy, inflation, and the population growth rate. Exports are considered important for economic growth as they create employment opportunities and become a source of foreign income, which eases the balance of payments pressures (Abou-Strait, 2005:1).

Democracy is also considered important as a recent study by Acemoglu *et al.* (2014), presented evidence over a period of 1960 to 2010 from a panel of countries that suggests that democracy has a sizable effect on economic growth (Acemoglu *et al.*, 2014:24). The more democratic a country is and recognizes civil rights and liberties, the more policies will focus

on redistribution and equality. Thus using the African Development Indicators, human rights will be used a proxy when considering how democratic and protective of human rights a country is. Inflation is also considered important as a determinant of growth as it is a measure of economic stability of an economy. The inflation rate of an economy has a negative relation to the economic growth experienced. The inflation rate also has a depressing effect on the investment levels attracted, which will eventually translate to negative effects on economic growth rates (Spiegel, 2007:9-10). Thus a country should aim to have a controlled rate of inflation.

The demographics of a country are also important in determining the economic growth rate of a country. Population growth rate will be used as a proxy when considering demographics. Furuoka's (2009) study on population growth and economic development in Thailand supports the hypothesis of population-driven economic growth. Furuoka's study analyses the relationship between economic development and population growth from Thailand over the period 1961-2003 (Furuoka, 2009:6).

Similarly, the determinants of FDI were also discussed in detail and four determinants will be further analysed in the following chapter. These determinants are interest rates, infrastructure, political stability and trade openness. The cost-of-capital explanation for FDI can explain the effect that interest rates may have on FDI. The increase in the interest rates will in turn raise the cost of capital and will eventually result in a decline in investment spending, and subsequently, aggregate demand and output will decline (Mishkin, 1995:4).

Political stability may influence FDI inflows significantly of a country as the perceived business climate of a host country is considered to be major determinant of inward FDI (Sawkut *et al.*, 2009:8). Political instability and disorder may create an unfavourable business climate for foreign investors (Baek and Qian, 2012:3). This is due to political instability creating uncertainty and hence risk, which will deter risk-averse foreign investors who aim to increase their returns for the lowest level of risk possible (Sawkut *et al*., 2009:8).

Infrastructure is considered to be important in determining FDI as foreign investors prefer countries with quality infrastructure. Foreign investors want to achieve higher profits and in order to do so, they will invest in countries that have business costs that are relatively lower as this will ensure that their profits are maximised. The costs of doing business can be

affected by the quality and availability of Internet, roads, port facilities, energy supply and telephones (Mottaleb and Kalirajan, 2010:376).

Trade openness is also an important determinant of FDI as it allows for greater exports and imports to occur if tariffs are reduced. This will promote investment, especially vertical FDI as it has a positive relationship with trade openness of an economy, as it tends to benefit from a liberal trade environment (Fedderke and Romm, 2006:748).

5. CHAPTER FIVE: METHODOLOGY

5.1 Introduction

In order to estimate the relationship between FDI and economic growth, panel data analysis for 48 African countries has been used over the period 2000-2012. This period has been chosen due to the steady growth experienced in Africa, of more than 5% during the period 2000-2012, which makes it a very interesting period to investigate.

The main reasons for using panel data in this research is that firstly, panel data allows us to control for individual heterogeneity as it assumes the countries are heterogeneous (Baltagi, 2008:6). Secondly, panel data also gives more informative data and less collinearity amongst the variables and hence more degrees of freedom and more efficiency. Lastly, by using panel data we are able to measure effects that would not be detectable in pure time-series data (Baltagi, 2008:8).

The dataset was obtained from the African Development Indicators, the World Bank and DataStream and all data was treated in their raw form, no logarithms have been taken. A list of the African countries sampled is included in the appendix. Although data availability limits the number of countries used, the sample has a large enough number of observations. The variables used are GDP growth rate, FDI, and other important determinants of growth as determined from the relevant literature. These growth determinants are human capital, exports, foreign direct investment and population growth. The FDI determinants used are interest rates, political stability, GDP growth rate, infrastructure and trade openness.

The quality of the data might be cause for some concern due to the reliability of the various African governments from which the data was collected from. Danso-Manu's (2009) study suggests that due to weak national statistical systems and poor statistical advocacy, there is a lack of significantly more reliable sources available (Danso-Manu, 2009:2). The sample period of 2000-2012 was used as many African countries lacked accurate and relevant information before this period.

This chapter is structured as follows: Section 5.2 will describe the data sources and give brief descriptions on the variables and the justifications for doing so. Section 5.2.1 will be an

analysis of the Real GDP growth rate, Section 5.2.2. will consist of an analysis of FDI, Section 5.2.3 will analyse Exports as a percentage of GDP, Section 5.2.4 will analyse the Real Interest Rates in Africa, section 5.2.5 will analyse the Political Stability Index, Section 5.2.6 will analyse the Population Growth Rate, Section 5.2.7 will analyse the Infrastructure variable, Human Rights will be analysed in Section 5.2.8, Trade Openness will be analysed in Section 5.2.9, and finally Inflation will also be explored in Section 5.2.10.

Section 5.3 will discuss the methodology and model used in this study to investigate the relationship between FDI and economic growth, while section 5.4 will discuss the econometric techniques used to estimate the model. Lastly, Section 5.5 will give a brief conclusion and findings of this chapter.

5.2 Data Sources and Descriptions

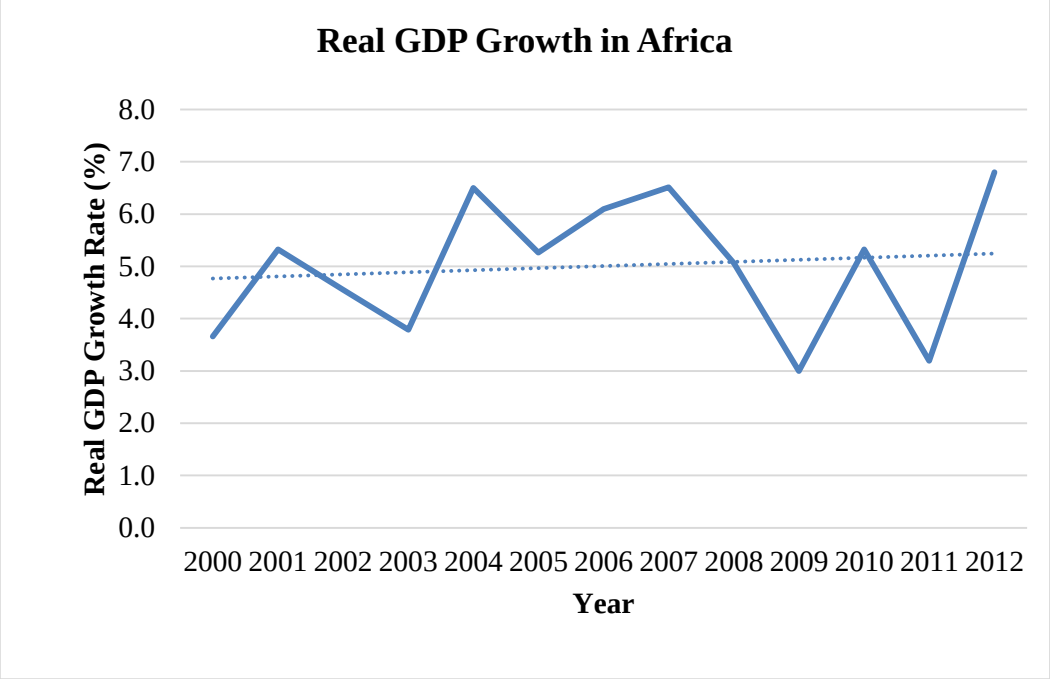
The data in this study has been collected from three main sources. Gross Domestic Product (GDP) growth rate and Foreign Direct Investment (FDI) have been collected from the *World Bank.* The determinants of economic growth; Exports (EXP), Inflation (INFL), and Population Growth Rate (POP) were all collected from the *African Development Indicators* and the Human Rights index which is a proxy for Democracy was collected from the *Mo Ibrahim Foundation.* The additional determinants of FDI, namely Interest Rates (INT) and Political Stability (POL) were collected from the *African Development Indicators,* and Infrastructure (INFRA) was collected from *International Telecommunication Union, World Telecommunication Development Report database,* and *World Bank.* The Trade Openness proxy, Merchandise Trade as a percentage of GDP (TRADE) was collected from the *World Trade Organisation* and *The World Bank.* A summary of these variables and their predicted relationship and can be found in Table A.2.

5.2.1 Real GDP growth rate

The data used for economic growth, Real GDP growth rate, is indicative of the economic activity occurring in the respective African countries. The annual percentage growth rate of GDP at market prices was based on constant local currency. For consistency, aggregates are

based on constant 2005 U.S. dollars. A graphical analysis of Real GDP growth rate of African countries is shown in Figure 2.

FIGURE 2: REAL GDP GROWTH RATES IN AFRICA



Source: African Development Indicators, World Bank (2014)

This graph shows that on average the Real GDP growth rate in Africa has risen from 3.7% in 2000, to 6.8% in 2012. This 6.8% figure of Real GDP growth for 2012 is higher compared to other developing economies for the same year such as Asia (6.5%) and Latin America (3.5%) (UNCTAD, 2012:1). The Real GDP growth rate for most African countries has followed a relatively increased trend over the decade besides facing a steep decline in 2009 of 3.0% from 5.0% in 2008. This sharp decline in growth can be attributed to the global financial crisis.

Table 8 depicts the descriptive statistics for each variable, for Real GDP growth rate the mean was 4.99%. The maximum and minimum value for this variable was experienced in Libya, 104.40% and -62.08% respectively. These drastic changes in growth were due to the Arab uprising in 2012.

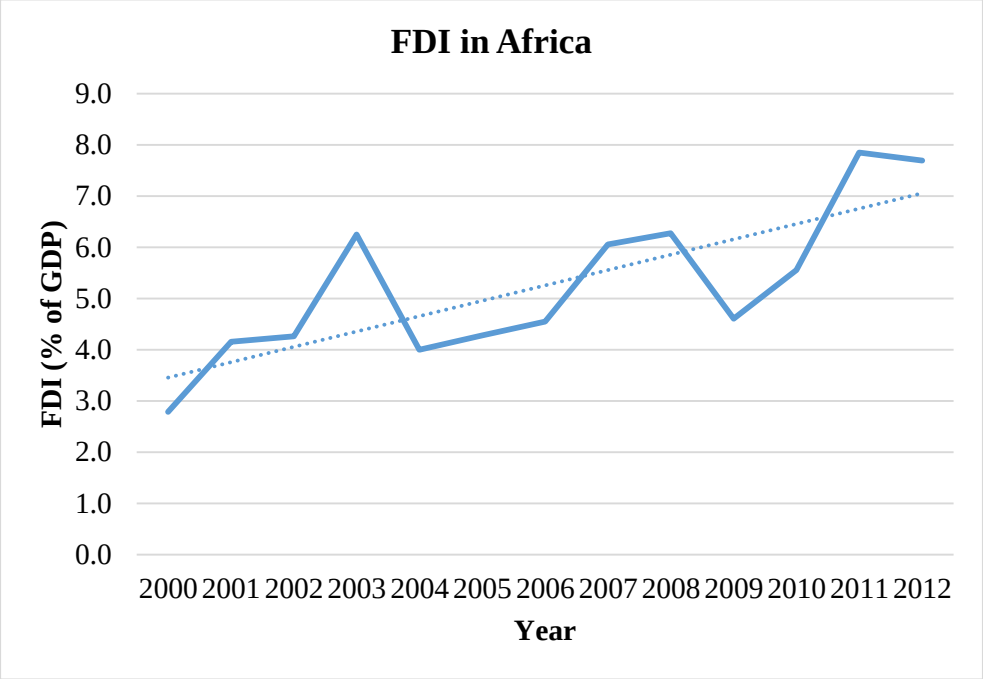
The Global Financial crisis affected African countries through decline in demand for goods, a fall in equity markets and commodity prices, capital flow reversals and increased pressure on

the exchange rates (IMF, 2009:1-2). *The World Bank* (2014) forecasts that the average growth rate of Africa will increase to 4.8% in 2014 and 5.7% in 2015 as a result of increased growth in the Sub-Saharan Africa region. This can be attributed to increased investment in natural resources and infrastructure, as well as strong household spending (World Bank, 2014:1).

5.2.2 Foreign Direct Investment (% of GDP)

The data used for FDI is collected from *The World Bank*. The *World Bank* defines FDI as the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor (World Bank, 2014:1). The sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments will equate to an FDI figure. This series shows net inflows (new investment inflows less disinvestment) in each African economy from foreign investors, and is divided by GDP (World Bank, 2014:1).

FIGURE 3: FDI INFLOWS IN AFRICA

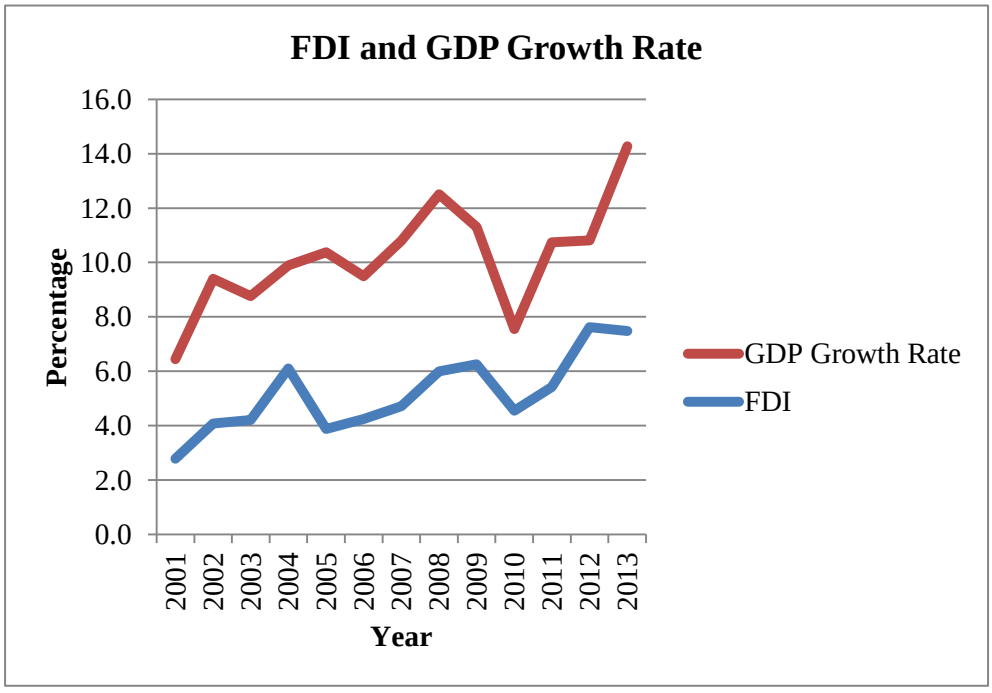


Source: African Development Indicators, World Bank (2014)

Figure 3 depicts the trend in FDI received in African countries over the past decade. In 2000, the average for FDI as a percentage of GDP received in Africa was 2.7% and was estimated at 7.5% in 2012. This 7.5% figure of FDI for 2012 is still lower compared to other developing economies for the same year such as Asia (13%) and Latin America (12%) (UNCTAD, 2012:1). It has followed an upward trend over the decade and faced a slowdown in 2008, reaching 4.46% in that respective year. This decline in growth can be attributed to the Global Financial Crisis, which resulted in a decline in investment globally.

Another notable point is the large FDI received in the region in 2003. This can be attributed to the end of civil war and peaceful talks in Liberia, making their significant mineral resources such as iron ore more attractive to investors. Figure A.24 shows this event clearer as a sharp increase of FDI (91% in 2003) was experienced in Liberia (African Development Group Bank, 2014). Table 8 depicts the descriptive statistics for each variable. The mean value for FDI was found to be 5.11% on average. The maximum value for FDI was 91% too. The minimum value was -6.04% was experienced in Angola in 2012. However, despite the economic crisis, FDI growth has remained relatively strong in Africa since Africa remains relatively attractive to investors due to large deposits of natural resources with forecasts of FDI expected to increase.

FIGURE 4: FDI AND GDP GROWTH RATE IN AFRICA



Source: African Development Indicators, World Bank (2014)

Since the main focus is FDI and economic growth, graphs for each individual country have been plotted in Appendix A. By plotting FDI and economic growth over the period 2000 to 2012 for each country, it is possible to see the effect of FDI on economic growth. Each African country is unique and thus no two graphs were exactly the same. However, from analysing all graphs of the 48 countries, it is possible to see a distinct pattern occurring.

Figure 4 above gives a broad overview of the relationship between FDI and economic growth across all African countries. There tends to be a strong positive correlation between FDI and growth. Another noticeable pattern is that changes in FDI tend to be volatile. Furthermore, the changes in FDI tend to be sharp rather than following a gradually modest change. This could be a result of foreign investors responding to changes in macroeconomic conditions with excessive fear or optimism. The Real GDP growth rate of each country also seems to follow the trend of FDI at a relatively less steep rate. These changes also seem to occur a year or two after the distinct increase or decrease in FDI. From this we could perhaps expect the economic growth of the African countries under analysis to be influenced by changes in FDI.

5.2.3 Exports

In 2000, the average for Exports as a percentage of GDP in Africa was 33.72% and was estimated at 35.15% in 2012. It has followed an upward trend over the decade and faced a slowdown in 2008, reaching 31.92% in 2009 from 38.42% in 2008 in those respective years. This decline in growth can be attributed to the Global Financial Crisis which resulted in a decline in demand for merchandise and services and globally. Table 8 depicts the descriptive statistic for each variable; this table shows that the mean value for exports over this period was 35.72% on average. The maximum and minimum values were 101.35% and 4.95% respectively.

The terms of trade of an economy are measured by dividing exports by GDP. As previously mentioned in section 4.2.7, the openness of an economy has long been considered important to encouraging growth. It is believed that there exists a strong positive relationship between terms of trade and economic growth (Dowrick and Golley, 2004:39).

5.2.4 Real Interest Rates

Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator (The World Bank, 2014:1). As previously discussed in section 4.3.1, the interest rate thus represents the firm's cost of capital; an increase in the interest rate will result in a fall in investment (Armitage, 2005:14).

In 2000, the average for real interest rates in Africa was 7.36% and was estimated at 8.46% in 2012. It has followed an upward trend over the decade and faced a large decline in 2008, reaching historical lows of 4.86% in 2008 from 24.98% in 2007 in those respective years. This decline in real interest rate can also be attributed to the Global Financial Crisis, which resulted in low economic growth. The low real interest rates were a result of an attempt of expansionary monetary policy worldwide in an attempt to encourage spending and stimulate economic growth (IMF, 2014:2). Table 8 depicts the descriptive statistics for each variable and shows the average mean over the period 2000-2012 to be 12.73%.

The IMF (2014:1) forecasts that real interest rates are expected to increase in the future with the global economic conditions starting to normalize, after the global financial crisis. However, it is unlikely that there will be a similar return to high real interest rates as interest hikes continue to be modest globally, as economic growth remains meek worldwide (IMF, 2014:1).

5.2.5 Political Stability

Political stability and absence of violence measures the perceptions of the likelihood that the government will be threatened or overthrown by unconstitutional or violent means (Sawkut *et al*., 2009:8). This measurement also includes methods of domestic violence or terrorism. The composite measures of governance generated by *The World Bank* are in units of a standard normal distribution, with mean zero, standard deviation of one, and running from approximately -2.5 to 2.5. The higher values correspond with better governance, whilst lower negative values signal an increased likelihood that the government may be overthrown by unconstitutional or violent means (The World Bank, 2014:1).

Table 8 depicts that over the past decade; the average perception of political instability in Africa was at -0.59. It has since improved to -0.48 in 2012, which indicates that African countries are trying to improve the business environment through better governance. However in comparison to other developing countries, some African countries still face larger threats to government stability than others. These top 5 countries that display the highest index of political instability perceptions have been tabled below, as well as the top 5 African countries that display the best indicators of good governance across the region.

TABLE 1: TOP 5 AFRICAN COUNTRIES WITH POLITICAL INSTABILITY

Country	Political Stability (2010)	Political Stability (2011)	Political Stability Δ	FDI (2011)	FDI (2012)
Sudan	-2.69	-2.61	-3%	4.08%	4.23%
Congo, Dem. Rep	-2.18	-2.21	+1%	10.17%	16.81%
Nigeria	-2.08	-1.94	-7%	2.14%	1.54%
Burundi	-1.59	-1.81	+14%	0.14%	0.02%
Ethiopia	-1.73	-1.63	-6%	2.09%	0.67%

TABLE 2: TOP 5 AFRICAN COUNTRIES WITH POLITICAL STABILITY

Country	Political Stability (2010)	Political Stability (2011)	Political Stability Δ	FDI (2011)	FDI (2012)
Botswana	0.95	1.04	+4%	2.70%	2.02%
Seychelles	0.89	0.97	+8.9%	12.91%	1.03%
Namibia	0.74	0.89	+20%	7.78%	6.43%
Mauritius	0.54	0.88	+63%	2.43%	3.44%
Cape Verde	0.85	0.71	-16%	5.48%	4.05%

As previously mentioned in section 4.3.9, the countries with the higher values are less likely to receive large FDI inflows due to the perceived riskiness that political instability would pose, whereas the countries with good governance are likely to receive larger FDI inflows (Baek and Qian, 2012:3). For the sake of comparison, the FDI and political stability values for 2011 have been tabled in Tables 4 and 5, as the 2012 political stability indices are unavailable.

As can be seen above, the countries that experienced an increase in the perceived likelihood of the government being overthrown through violence or terrorism experienced a decline in their FDI inflows. Notably, the Seychelles experienced an 8.9% increase in perceived likelihood and this resulted in a decline of FDI from 12.91% in 2011 to 1.03% in 2012. Burundi experienced a 14% increase in perceived likelihood and this resulted in a decline of FDI from 2.09% in 2011 to 0.67% in 2012. This brief summary of the most stable and unstable countries in Africa supports the argument made by Sawkut *et al*. (2009:8) that the perceived business climate of a host country is considered to be major determinant of inward FDI.

5.2.6 Population Growth

This data is collected from *The World Bank* and denotes the annual population growth rate for year t, where t is the exponential rate of growth of midyear population from year t-1 to t. It has been expressed as a percentage. The population has been based on the actual definition of population, which takes into account all residents living in a country regardless of their citizenship or legal status - except for refugees not permanently settled in the country for asylum.

Table 8 depicts the mean for population growth over this period was -0.40%. It also shows that the maximum and minimum values were 1.18% and -2.69% respectively over the period 2000-2012. In 2000, the average annual population growth rate was 2.44% and was estimated at a lower 2.30% in 2012. This shows that the annual population growth rate is declining. Despite this decline in the population growth rate, Africa is still one of the fastest growing regions in the world compared to the 1.2% population growth of Latin America and Asia. Africa has a fast growing youth population and, according to *The World Bank* (2014), this population growth is expected to remain above 2% in the near future as birth rates tend to be high and the health standards are improving in Africa (World Bank, 2014:1).

As mentioned in section 4.2.13, a positive relationship between the population growth rate and economic growth is expected as investigated in Adewole's (2012) study of Nigeria (Adewole, 2012:11). With a very large and increasingly youthful population, we can expect

the relatively larger population growth rate of Africa to produce more individuals that will contribute to the output of goods and services in an economy (Bloom *et al.*, 2001:11-12).

5.2.7 Infrastructure

According to Asiedu (2002), Ancharaz (2003) and Demirhan and Masca (2008), the standard measurement in literature of infrastructure development is the number telephones per 1000 inhabitants. This measurement falls short in one aspect, as it does not give an indication of the reliability of the telephones, only the availability (Asiedu, 2002:15). Telephone mainlines are fixed telephone lines connecting a subscriber to the service provider and telephone exchange equipment.

Table 8 depicts the descriptive statistics for each variable and shows that the average of number of telephone lines in Africa over the period 2000-2012 was 39.47 per 1000 inhabitants. In 2000, the average for the number of telephone mainlines per 1000 inhabitants in Africa was 33. In 2011 it has grown to an estimated 45 [data for the year 2012 was unavailable]. This shows that infrastructure development in Africa is being realised with development being rapid in a few notable countries. Countries such as the Seychelles, Mauritius, Libya and Cape Verde lead in infrastructure development in the African region. According to the literature, "good infrastructure increases the productivity of investments" (Asiedu, 2002:111). Thus, it is expected that FDI is stimulated by improved infrastructure.

This stimulation to FDI is due to foreign investors wanting to achieve higher profits, and in order to maximise their profits they will invest in countries that have good availability and quality of internet, roads, port facilities, energy supplies and telephones (Mottaleb and Kalirajan, 2010:376).

5.2.8 Human Rights

The Participation and Human Rights index measures the participation, rights and gender of the population in a country (World Bank, 2014:1). The political participation shows the extent to which citizens of a country have the freedom and accurate information to participate in the political process (Busse and Hefeker, 2005:2-3). Furthermore, free and fair elections

and electoral self-determination deal with the extent to which the election process is fair and allows citizens to freely choose their preferred leadership and political system (World Bank, 2014:1).

The rights sub-category measures human rights, political rights, worker's rights, freedom of expression, freedom of association and assembly, press freedom and civil liberties (World Bank, 2014:1). Measurement of human rights looks at the probability of a state being accused of serious human rights violations. Political rights measure the accountability and legitimacy of the electoral process and policy-making (Baek and Qian, 2012:3-4). Workers' rights measure the laws that are internationally-recognized and give workers rights in their workplace regarding safety, pay and hours of work (World Bank, 2014:1).

Freedom of expression, association and assembly measures the extent to which citizens and organisations can freely express their opinions and be freely associated with different political parties and trade unions among others with respect (Van der Berg *et al.*, 2010:12). Press freedom gives an average of the extent to which government censorship and ownership have a dominance print, broadcast and Internet freedom.

Civil Liberties give an indication of the extent to which civil liberties are protected and guaranteed, and also the redress citizens can seek if these liberties are violated (Haggard and Tiede, 2011:681).

Gender is another sub-category within this measurement. It includes gender equality, primary school completion for females, women's participation in the labour force and women's rights (World Bank, 2014:1). Gender equality gives an indication of the extent to which a country has enforced laws and policies that promote equal access to education, resources, and legal status to men and women (Barro, 2007). Women's rights indicate the existence and enforcement of laws that give women internationally recognized economic and political rights (World Bank, 2014:1).

Tables 6 and 7 show the top 5 African countries that have the best and worst indicators of participation and human rights. Similarly, Table 8 depicts the descriptive statistics for each variable. It shows that the mean for human rights measurement over the period 2000-2012 was 47.39. The maximum and minimum values for the period were 81.71 and 10.02

experienced in Cape Verde and Somalia respectively. This indicates that Cape Verde has strong human rights whilst Somalia infringes human rights largely.

TABLE 3: TOP 5 AFRICAN COUNTRIES WITH BEST PARTICIPATION AND HUMAN RIGHTS

Country	Participation and Human Rights (2011)
Cape Verde	81.72
Mauritius	78.25
South Africa	73.31
Botswana	71.14
Namibia	69.98

As per recent literature, Acemoglu *et al.* (2014) presented evidence over a period of 1960 to 2010 from a panel of countries that suggests that democracy has a sizable effect on economic growth (Acemoglu *et al.*, 2014:24). If a country is democratic and has good internationally-recognized human rights, it is more likely that it will engage in policies and programs that will focus on income redistribution in an attempt to ensure equality amongst its citizens and enforce laws and rights that will ensure equality (Robinson, 2006:504). These countries are also more likely to receive larger FDI inflows as reduced judicial hurdles, efficient property rights, strong human rights and labour regulations all contribute to having a business environment that is favourable for foreign investors to operation in and hence will encourage foreign investment inflows (Lim, 2001).

Cape Verde, Mauritius, South Africa, Botswana and Namibia are the top countries that ensure good participation and the enforcement of internationally recognized human rights (Table 6). This contributes to a positive business environment that foreign investors would find attractive. However, countries such as Libya, Equatorial Guinea, Chad, Swaziland and Egypt rank poorly in this category. Factors such as wars, monarchy, human rights violations, military intimidation and limited freedom of expression and association contribute to these countries ranking as least free and fair in the African region (World Bank, 2014:1).

TABLE 4: TOP 5 AFRICAN COUNTRIES WITH WORST PARTICIPATION AND HUMAN RIGHTS

Country	Participation and Human Rights (2011)
Somalia	10.02
Libya	22.63
Equatorial Guinea	24.74
Chad	29.06
Swaziland	29.73

5.2.9 Trade Openness

The data collected for merchandise trade from the World Bank was all valued in current U.S. dollars and then divided by the GDP figure of that country. Merchandise trade is the sum of all merchandise exports and imports. When the merchandise trade value is calculated as a share of GDP this can be known as trade openness of a nation.

According to Demirhan and Masca (2008), trade openness of an economy is measured mostly by the value of imports plus exports divided by the GDP value of a country (Demirhan and Masca, 2008:359). As mentioned in section 4.3.3, the effect that trade openness has on FDI inflows depends on the type of investment projects, thus there is mixed evidence regarding the impact trade openness may have on FDI inflows. This is due to horizontal FDI being negatively related with trade openness of an economy. In contrast, vertical FDI has a positive relationship with trade openness of an economy, as it tends to benefit from a liberal trade environment (Fedderke and Romm, 2006:748). Demirhan and Masca (2008:359) also suggest that trade restrictions (less trade openness) has a positive impact on FDI when the investments are market-seeking.

Table 8 depicts the descriptive statistics over the period 2000-2012; it shows that the mean for trade openness during this period was 79.82%. The maximum and minimum values were 209.87 and 22.35% respectively. On average the trade openness in Africa has risen from 61.67% in 2000 to 70.44% in 2012. Trade openness for most African countries has followed an increasing trend over the decade besides facing a steep decline in 2009 of 62.91% down from 70.82% in 2008.

This decline in the value can be attributed to the global financial crisis. The global financial crisis affected African countries through decline in demand for goods, a fall in equity markets and commodity prices, capital flow reversals and increased pressure on the exchange rates (IMF, 2009:1-2). This would have translated to the value of merchandise trade declining as exports and imports fell, thus reducing the overall trade openness value.

5.2.10 Inflation

Inflation reflects the annual percentage change in the average cost to the average consumer acquiring a basket of goods and services that may be changed at specific intervals or remain fixed (World Bank, 2014).

As mentioned in section 4.3.5, a low inflation rate could lead to increased FDI inflows as low inflation establishes credibility of the government and its long-term economic policies (Goodfriend, 2007: 6). The host country may enter a virtuous cycle of growth and prosperity if its macroeconomic environment is stable. It is thus generally accepted in literature that the inflation rate of a country is a good proxy for a country's general health status.

Table 8 depicts the descriptive statistics for inflation over the period 2000-2012; it shows that the mean for inflation over this period was 52.82%. The maximum was 24411.03% due to the hyperinflation experienced in Zimbabwe during the early 2000s. The minimum inflation value was -9.79%.

TABLE 5: TOP 5 AFRICAN COUNTRIES WITH LOWEST INFLATION

Country	Inflation (2012)
Niger	0.46%
Morocco	1.28%
Cote d'Ivoire	1.31%
Senegal	1.42%
Mozambique	2.09%

TABLE 6: TOP 5 AFRICAN COUNTRIES WITH HIGHEST INFLATION

Country	Inflation (2012)
Zimbabwe	60.26%
Sudan	37.39%
Ethiopia	22.77%
Malawi	21.27%
Burundi	18.01%

On average, inflation in Africa has fallen from 24.17% in 2000 to 9.31% in 2012. Inflation for most African countries has followed a decreasing trend over the decade besides facing a notably steep decline in 2009 of 7.80% down from 13.27% in 2008. This decline in the inflation can be attributed to the global financial crisis. The global financial crisis led to equity markets crashing and consumer demand for goods produced in African countries declined (IMF, 2009:1-2). This would have translated to a lower inflation rate as the economy cooled down in the face of a sluggish economy and monetary policy committees attempted to stimulate growth with expansionary monetary policies globally.

TABLE 7: VARIABLES USED ACROSS THE AFRICAN REGION OVER THE PERIOD 2000-2012

Country	FDI (%)	GDP Growth (%)	Real Interest Rates (%)	Exports (%)	Inflation (%)	Infrastructure	Trade Openness (%)	Population Growth (%)	Political Stability	Human Rights
Algeria	1,4	3,7	0,0	39,9	3,8	75,5	63,0	1,5	-1,3	37,0
Angola	5,0	9,9	1,1	72,4	64,7	8,2	127,3	3,1	-0,8	32,2
Benin	1,2	4,1	…	19,7	3,5	11,6	48,0	3,0	0,5	62,6
Botswana	4,2	4,0	6,7	43,8	8,5	73,6	81,4	1,3	0,9	71,0
Burkina Faso	0,6	5,8	…	12,8	2,8	6,8	36,8	2,9	-0,1	54,4
Burundi	0,1	3,1	2,8	6,6	11,1	3,7	35,8	2,6	-1,8	43,4
Cameroon	6,7	6,6	12,3	27,1	2,2	12,6	55,1	2,3	-0,5	34,6
Cape Verde	1,9	3,6	9,7	36,6	2,5	147,6	106,0	1,2	0,9	76,6
Chad	9,7	9,1	11,1	38,6	3,8	2,5	87,5	3,1	-1,6	27,4
Congo, Dem. Rep.	7,8	4,4	25,0	41,3	78,9	0,3	89,3	2,8	-2,2	27,7
Congo, Rep.	14,8	4,7	9,4	80,4	3,1	4,2	133,6	2,5	-0,8	37,9
Cote d'Ivoire	1,9	0,9	…	46,6	2,9	15,3	83,6	1,8	-1,8	31,2
Djibouti	7,6	3,8	8,6	40,7	3,6	15,7	87,0	2,0	-0,2	34,7

Egypt, Arab Rep.	7,6	4,5	4,2	24,0	8,0	122,9	53,5	1,8	-0,7	32,5
Equatorial Guinea	14,8	14,1	7,3	86,6	6,0	15,6	141,8	3,0	0,0	20,4
Ethiopia	2,5	8,7	0,0	13,3	13,4	8,1	43,4	2,4	-1,5	37,0
Gabon	2,7	2,4	11,0	61,1	1,9	25,0	94,5	2,0	0,3	41,9
Gambia, The	5,5	3,5	21,5	28,1	6,2	28,7	68,4	2,9	0,2	47,8
Ghana	4,8	6,5	…	36,3	16,4	12,8	87,6	2,4	0,0	68,4
Guinea	5,2	2,8	12,3	29,6	16,0	2,6	63,6	1,9	-1,7	34,3
Guinea-Bissau	1,2	2,1	…	20,2	3,2	6,0	49,9	2,0	-0,6	46,7
Kenya	0,6	3,9	9,1	26,1	10,5	10,4	62,2	2,6	-1,2	55,1
Lesotho	6,4	4,1	6,9	51,3	7,1	18,0	176,9	1,1	0,1	62,8
Liberia	31,3	10,1	9,9	32,6	9,8	1,4	110,1	3,4	-1,4	38,3
Libya	2,1	7,0	-5,6	56,9	1,7	148,3	83,8	1,8	0,2	18,3
Madagascar	5,7	2,9	25,0	27,2	10,0	5,7	68,7	3,0	-0,2	59,0
Malawi	2,6	2,9	16,0	27,0	13,8	8,1	68,1	2,9	0,0	56,3
Mali	2,6	6,9	…	27,9	5,0	5,5	66,6	3,1	0,1	58,0

Mauritania	11,0	5,0	14,0	41,9	2,7	14,8	97,1	2,7	-0,3	46,6
Mauritius	2,4	4,8	11,1	57,3	6,1	280,0	120,5	0,7	0,8	77,1
Morocco	2,3	4,1	11,7	32,1	5,6	67,5	70,7	1,1	-0,4	37,0
Mozambique	9,8	4,7	10,5	28,8	1,7	3,8	72,9	2,5	0,2	61,6
Namibia	4,9	7,2	3,2	44,5	10,1	64,2	93,5	1,9	0,6	72,2
Niger	5,2	4,6	…	18,2	6,9	3,1	61,5	3,5	-0,5	48,8
Nigeria	3,0	4,5	3,9	40,7	2,5	7,5	73,2	2,5	-1,8	40,0
Rwanda	1,1	8,3	8,2	10,5	12,2	2,7	36,9	3,0	-0,8	40,1
Senegal	2,0	8,1	…	26,2	7,4	23,7	68,7	2,7	-0,3	65,7
Seychelles	6,1	3,8	2,5	38,3	2,1	265,7	115,4	0,6	0,8	66,5
Sierra Leone	6,2	2,8	8,5	14,8	7,8	5,1	46,7	3,2	-0,5	51,3
South Africa	1,8	7,3	4,6	29,5	9,5	97,8	58,7	1,3	-0,1	74,6
Sudan	7,8	3,5	…	16,9	5,9	18,1	37,2	2,3	-2,2	…
Swaziland	2,5	4,3	4,1	76,4	12,3	44,0	160,4	0,6	-0,1	27,8
Tanzania	4,6	1,8	7,7	22,4	7,6	4,1	53,4	2,8	-0,4	61,1

Togo	3,4	6,8	…	38,0	7,9	18,9	92,2	2,4	-0,4	33,4
Tunisia	3,5	2,4	…	45,9	2,9	118,3	94,5	1,0	0,1	39,3
Uganda	4,7	6,7	12,4	17,1	7,8	5,0	44,7	3,2	-1,2	51,7
Zambia	6,7	5,7	10,1	36,3	15,0	7,9	73,5	2,6	0,2	54,3
Zimbabwe	1,4	-2,6	221,6	36,9	2082,8	25,8	88,3	0,4	-1,2	30,8

Table 10 above depicts the averages for each variable used in this research across the period 2000-2012. It is possible to discuss each variable at length for each country but only some key differences will be noted for the two main variables that this study focuses on, FDI and economic growth. These variables varied similarly across most African countries, and graphical representations for each country are presented in Figures A.1 to Figure A.48.

Looking at the biggest recipient of FDI inflows over this period, Liberia received an average of 31.3% of FDI as a percentage of Real GDP. It can be noted that the average Real GDP growth rate experienced in Liberia over this period was a prosperous 10%. As previously mentioned, this strong growth was a result of civil war ending and the demand for Liberia's natural resources increasing (World Bank, 2014:1).

In contrast, Burundi only experienced an average of 0.1% of FDI as a percentage of Real GDP. It is still a nation that is recovering from a civil war and poor resources (World Bank, 2014:1). This may explain its poor performance in attracting large FDI inflows. The Real GDP growth rate experienced in Burundi over this period was an average of 3.1%, which is comparatively lower than that of Liberia's.

TABLE 8: DESCRIPTIVE STATISTICS FOR EACH VARIABLE ACROSS THE AFRICAN REGION OVER THE PERIOD 2000-2012

	GDP Growth Rate	FDI	Exports	Real Interest Rates	Political Stability	Population Growth Rate	Infrastructure	Human Rights	Trade Openness	Inflation
Mean	4.994805	5.116254	35.71989	12.73356	12.73356	-0.472333	39.47807	47.39488	79.82587	52.82801
Median	4.579960	2.927766	31.00000	7.893586	7.893586	-0.312437	11.81741	46.29685	72.80771	5.933035
Maximum	104.4000	91.00733	101.3543	572.9363	572.9363	1.188429	324.5581	81.71760	209.8743	24411.03
Minimum	-62.0800	-6.043043	4.958245	-60.79752	-60.79752	-2.690759	0.057592	15.93485	22.35385	-9.797647
Standard Deviation	7.546941	8.375803	19.33160	41.63502	41.63502	0.888501	63.11257	16.09750	35.35934	978.3903
Skewness	3.474811	5.411228	1.023850	10.52290	10.52290	-0.404337	2.467667	0.173210	1.042054	24.79127
Kurtosis	67.80925	45.61164	3.880914	129.8035	129.8035	2.364615	8.957143	2.008154	4.020194	617.6500
Jarque-Bera	110461.9	50254.81	125.8835	291201.3	291201.3	23.26869	1418.827	25.93846	128.3259	9886580
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000009	0.000000	0.000002	0.000000	0.000000

5.3 Methodology

5.3.1 Models

This section sets up a basic model that will be empirically used to investigate the relationship between FDI and GDP growth on a national level amongst African countries. The model is based on a conceptual framework developed by Gui-Diby (2014) in a similar study. The estimated equations below are formed on a variation of a similar model from a previous study from Nair-Reichert and Weinhold (2001), Azman-Saini (2010) and Gui-Diby (2014).

GROWTH EQUATION 5.1

$$Y_{i,t} = \gamma + \alpha Y_{i,t-1} + \beta_1 FDI_{i,t-1} + \beta_2 EXP_{it} + \beta_3 INFLA_{i,t} + \beta_4 RIGHTS_{i,t} + \beta_5 POP_{i,t} + \varepsilon_{i,t}$$

Where $Y_{i,t}$ denotes current Real GDP growth rates, $Y_{i,t-1}$ denotes the lagged value of the Real GDP growth rate, $FDI_{i,t-1}$ is the lagged value of FDI as the effects of FDI are not expected to be felt on economic growth in the same year it came in, the inflation rate is denoted by $INFLA_{i,t}$, democracy is proxied by the Human Rights index denoted by $RIGHTS_{i,t}$, demographics is proxied by the population growth rate denoted by $POP_{i,t}$ and the error term $\varepsilon_{i,t}$ represents the incomplete relationship between the independent and dependent variables.

FDI EQUATION 5.2

$$FDI_{i,t} = \gamma + \alpha FDI_{i,t-1} + \beta_1 GDP_{i,t-1} + \beta_2 INT_{it} + \beta_3 POL_{i,t} + \beta_4 OPEN_{i,t} + \beta_5 INFRA_{i,t} + \varepsilon_{i,t}$$

Where $FDI_{i,t}$ denotes current FDI, $FDI_{i,t-1}$ denotes the lagged value of FDI, $GDP_{i,t-1}$ is the lagged value of Real GDP growth rates as the effect it may have on FDI is not expected to be felt in the same year it changes, the real interest rate is denoted

by $INT_{i,t}$, political stability is denoted by $POL_{i,t}$, trade openness is denoted by $OPEN_{i,t}$ infrastructure quality is denoted by $INFRA_{i,t}$ and the error term $\varepsilon_{i,t}$ represents the incomplete relationship between the independent and dependent variables.

5.4 Econometric Techniques

The analysis will be performed using GMM system dynamic panel data estimation. Using the Blundell and Bond (1998) system generalized method of moments (GMM) two-step estimation technique; this paper aims to assess the interrelationships between GDP and FDI. It also aims to test whether other explanatory variables such as interest rates, exports and inflation enhances or reduces the GDP growth rates, and whether other explanatory variables such as political stability, trade openness and infrastructure either enhance or reduce the FDI inflows received by African countries.

5.4.1 Dynamic panel data estimation

Similarly to Ezeoha and Botha (2012:62), the two-step version of the system-GMM that was developed by Blundell and Bond (1998) was applied in this case. The choice of the system-GMM is motivated by Gui-Diby's (2014) article which in a similar case seeks to understand the relationship between FDI and GDP, as well as endogeneity bias being addressed by structural specification of the dynamic panel GMM model (Ezeoha and Botha, 2012:63).

The main focus of these two equations is the coefficients of each explanatory variable as these will explain the effect each variable has on either GDP growth rates or FDI inflows in Africa. For the purpose of this study the variables are treated as exogenous (Ezeoha and Botha, 2012:63).

The sample is made up of a total of 463 observations. This panel estimator has been extended and developed by Arellano and Bond (1991). This method was chosen to

control for simultaneity bias that may be caused by using explanatory variables that may be endogenous.

The GMM panel data estimation method addresses the issue of simultaneity bias of the explanatory variables, as well as the possibility of correlation between the lagged regressor and error terms by using the regressors as instruments (Gui-Diby, 2014:1082). The system GMM differences create an equation of the level-variables by differencing both the lagged dependent variables and the lagged exogenous variables' first differences as instruments (Ezeoha and Botha, 2012:62).

The two-step version of the system-GMM technique is applied and is a development formed by Blundell and Bond as it has the capability of controlling for the simultaneity concern mentioned by Gui-Diby, the correlation of errors over a period of time, as well as heteroskedascity across countries. Blundell and Bond (1998) establish the system-GMM estimator is useful with differenced-GMM estimators as it minimizes the finite sample biases associated with this.

5.4.2 Sargan Test

Secondly, Sargan's Test for autocorrelation was performed for the system-GMM. The test is χ^2 distributed with and is used for testing overidentifying restrictions in statistical models (Ezeoha and Botha, 2012:64). The null hypothesis under the Sargan test is as follows:

H_0: Overdentifying restrictions are valid
H_1: Overidentifying restrictions are invalid.

If the estimator is statistically insignificant at the relevant significance levels, we will fail to reject the null hypothesis and this will suggest that the overidentifying restrictions are valid, thus indicating that there is consistency of the validity of the two-step version of the system-GMM technique.

5.4.3 Arellano-Bond test for zero autocorrelation

The Arellano-Bond test for zero autocorrelation in first-differenced errors was also performed for both equations. This test seeks to determine whether there is first- and second-order autocorrelation in the first-differenced errors. The null hypothesis is as follows:

H_0: There is no autocorrelation
H_1: There is autocorrelation

Thus, if there is serial correlation in the first-differenced errors at an order higher than 1 this will imply that the moment conditions used by are not valid.

5.4.4 Panel Data Causality Analysis

The causal relationship between FDI and economic growth and their determinants will be investigated through the panel Granger Causality test at the individual level using the pair-wise Granger Causality analysis. The lags specified for the test is one as the sample size is over a small time period and previous literature shows that the effect of changes in FDI on economic growth (and vice versa) cannot be felt in the current year it is received (Juma, 2012:24).

The Granger Causality test is useful in determining whether the one series is useful in the forecasting the future values of another series (Agrawal, 2014:423). It is able to test whether there exists a correlation between the current value of one variable, and the past values of another variable exist. The null hypothesis for this test is that variable X does not Granger cause variable Y. If the F-statistic is statistically significant we will reject the null hypothesis and conclude that variable X does Granger cause variable Y, which is the basis for predictive causality. The results to this test are discussed in section 7.6.

Performing a Granger causality test is important for this study as it will partly allow us to answer the research goal: to determine whether an association between FDI and

economic growth in Africa exists. This will allow us to determine whether there is bi-directional causality between these two variables. If bi-directional causality does not exist, it may be possible to determine that there is unidirectional causality and if so which direction it flows from.

5.5 Conclusion

This chapter has briefly analysed each variable for this research. The two main variables, FDI and economic growth, show an increasingly upward trend over the period 2000-2012. The Real GDP growth rate was estimated at 6.8% for 2012, this was found to be higher compared to other developing economies for the same year such as Asia (6.5%) and Latin America (3.5%) (UNCTAD, 2012:1). Similarly, the average for FDI as a percentage of GDP received in Africa was 2.7% in 2000 and was estimated at 7.5% in 2012. This 7.5% figure of FDI for 2012 is still lower compared to other developing economies for the same year such as Asia (13%) and Latin America (12%) (UNCTAD, 2012:1).

The chapter also explored the methods used to conduct this research and all econometric analysis methods were fully explained. A basic model that empirically investigates the relationship between FDI and GDP growth on a national level amongst African countries was developed. Furthermore, the methods used to analyse these relationships were the two-step version of the system-GMM, Sargan test, Arellano-Bond test for zero autocorrelation and Panel Data Causality analysis. The following chapter will analyse and interpret the results generated from the tests employed and describe in this chapter.

6. CHAPTER SIX: EMPIRICAL RESULTS

6.1 Introduction

This chapter will present and discuss the empirical results obtained from the various methods explained in the previous chapter. The chapter is structured as follows: Section 6.2 presents the results from the Blundell and Bond system GMM estimation for each FDI and GDP growth equation. Section 6.3 will discuss the results from the Sargan test, Section 6.4 will discuss the results from the Arellano-Bond test for zero autocorrelation, and finally, Section 6.5 will discuss the results from the Panel Granger Causality followed by a conclusion in Section 6.6.

6.2 System GMM Results

TABLE 9: SYSTEM GMM RESULTS

	GDP Equation	FDI Equation
GDP (-1)	0.165 (0.000)***	0.027 (0.000)***
FDI (-1)	-0.151 (0.000)***	0.511 (0.000)***
Exports	-0.024 (0.002)***	
Inflation	0.000 (0.000)***	
Human Rights	0.095 (0.000)***	
Population Growth	1.267 (0.000)***	
Interest Rates		0.009 (0.000)***
Trade Openness		0.195 (0.000)***
Infrastructure		-0.009

		(0.189)
Political Stability		3.289 (0.000)***

*, ** and *** indicate that the coefficients are statistically significant at the 10 percent, 5 percent and 1 percent levels respectively. Table contains the results of the system-GMM estimations based on both GDP and FDI equations (4 & 5). The equations used in this case included the lagged differences of the regressors.

All of the core variables of the GDP growth rate equations are statistically significant at the 1% significant level, and most coefficient estimates produced results that were expected based on prior research and theory besides the effect of the exports and lagged FDI coefficients which were negatively related to the GDP growth rate.

More specifically, it can be noted that the system results for the GDP equation reveals that a 1 percentage point increase in the lagged growth rate will increase the current GDP growth rate by 0.165 percentage points on average. This coefficient meets a priori expectations. Economic theory suggests that a growing GDP growth rate can stimulate economic growth in the following years through increased output and income. These high growth economies tend to attract more foreign investors (Onyeiwu and Shrestha, 2004:95). As previously mentioned in Section 4.2.1, this investment is important for accelerating economic performance through both the neoclassical and endogenous growth models (Petrakos *et al*., 2007).

The results also suggest that a 1 percentage point increase in lagged FDI will decrease the GDP growth rate by -0.151 percentage points on average. These results are contrary to previous literature, such as Nair-Reichart and Weinhold's (2000) panel data study on 24 developing countries which found that there exists a strong positive relationship between FDI and economic growth (Nair-Reichart and Weinhold, 2000:15). The reasons for the effect of this decline could be explained by contracting FDI inflows which could have a negative impact on GDP growth through decreased competition, employment, spending and productivity (Petrakos *et al*., 2007:5-6).

The exports coefficient suggests that if exports increase by 1 percentage point, the GDP growth rate will decrease by 0.024 percentage points on average. This variable is also statistically significant at the 1% significance level but does not meet a priori

expectations. Previous literature suggests that the positive impact of increased exports leads to an improvement in the productivity and factor of employments of an economy (Dowrick and Golley, 2004:39). Exports towards the end of 2012 experienced a slight decline due to sluggish world economic conditions that impacted South African exports negatively, and the trade deficit experienced at the end of 2012 was –R2.7 billion (Stanlib, 2013:1).

The inflation coefficient suggests that if the inflation rate increases by 1 percentage point, the GDP growth rate will not change on average. This result suggests that the inflation rate had no influence on the GDP growth rate in African countries over this period. This result is different to previous literature, which suggests that long-run economic growth can be explained by the nature of a country's macroeconomic policies (Anderson and Gruen, 1995:39).

The human rights coefficient suggests that if the human rights perception index value increases by 1 (indicating the presence of strong and well-protected human rights), the GDP growth rate will increase by 0.095 percentage points on average. Previous literature such as the recent study by Acemoglu *et al*. (2014), also present evidence over a period of 1960 to 2010 from a panel of countries that suggests that democracy and protecting human rights have a sizable effect on economic growth (Acemoglu *et al*., 2014:24). Economic theory suggests that if human rights are protected, this can stimulate economic growth as a more democratic country is more likely to engage in policies and programs that will focus on income redistribution in an attempt to ensure equality amongst its citizens (Robinson, 2006:504).

The population growth rate coefficient suggests that if the population increases by 1 percentage point, the GDP growth rate will increase by 1.267 percentage points on average. This variable is statistically significant at the 1% significance level and meets a priori expectations. Economic theory suggests that a population that has a large working age population may experience increased economic growth through increased productivity levels (Bloom *et al*., 2001:11-12).

The FDI equation results relatively conform to prior expectations. The lagged FDI coefficient in the equation suggests that if the FDI of the previous year increases by 1

percentage point, FDI in the current year will increase by 0.511 percentage points, on average. The results are in accordance with agglomeration effects that have been found in previous literature. Results from Kim *et al.*'s (2003) study show that agglomeration economies and promotion expenditures are important in attracting foreign investors (Kim *et al*., 2003:68). FDI can thus be seen to lead growth and from increasing growth, this can increase future investments in the African region.

The lagged GDP coefficient suggests that if the GDP growth rate of the previous year increases by 1 percentage point, FDI in the current year will increase by 0.027 percentage points, on average. The expectation is that an increased economic performance would create a suitable business environment that should encourage more FDI (Mottaleb, 2007:3-4). These results suggest that the effect of GDP on FDI is stronger than the effect of FDI on GDP growth.

The interest rate coefficient suggests that if the interest rate increases by 1 percentage point, FDI will increase by 0.009 percentage points, on average. The interest rate variable is statistically significant at the 1% level but does not meet a priori expectations based on the cost-of-capital theory, which suggests that foreign firms will only willingly invest in domestic firms if there is a lower discount rate applied to expected returns. The conclusion is similar to that in Yih Yun Yang, Groeneworld and Tcha's (2000) study of the determinants of FDI which concluded that interest rates are important in determining the inflows of FDI and that there is a positive relationship between the interest rate and inward FDI inflows in Australia.

The political stability coefficient suggests that if the political stability index value increases by 1 (indicating a more politically stable environment), FDI will increase by 3.289 percentage points, on average. Economic theory suggests that the uncertainty created by political instability, and hence risk, will deter risk-averse investors aiming to maximise their returns (Sawkut *et al*., 2009:8).

The trade openness coefficient suggests that if trade openness increases by a percentage point, FDI will increase by 0.195 percentage points, on average. Economic theory suggests that a more liberal trade policy is conducive to increased trade and investment amongst foreign countries. These results are also in accordance with

similar literature such as Feenstra, Mandel, Reinsdorf and Slaughter's (2009) study which presented evidence of increased growth in productivity and investment due to the gains in terms of trade and tariff reductions (Feenstra *et al*., 2009:34). The results from Table 9 and this study strengthen the argument of the positive correlation existing between openness to trade and economic growth.

The infrastructure coefficient suggests that if the number of telephone lines per 1000 inhabitants increase by 1 (indicating improved infrastructure developments), FDI will decrease by 0.009 percentage points, on average. Previous literature by Castro, Regis and Saslavsky (2007) and Rehman, Ilyas and Alam (2010) also confirm the existence of this inverse relationship between FDI and infrastructure. However, this variable is statistically insignificant at the 10% significance level. Economic theory suggests that foreign investors prefer economies that have these well-developed networks for their businesses (Asiedu, 2002:111).

6.3 Sargan Test

As seen in the Table 10, the results for both equations under the Sargan test are statistically insignificant at the 10 percent level. Thus we fail to reject the null hypothesis for both equations. We can thus deduce that the over identifying restrictions are valid for both cases. The results of the Sargan test provide consistency of the validity of the two-step version of the system-GMM technique, due to the overidentifying restrictions remaining valid even in the case of a differenced-GMM (Ezeoha and Botha, 2012:65).

TABLE 10: SARGAN TEST RESULTS

	GDP Equation	FDI Equation
χ^2	41.3804	32.7538
Prob > χ^2	(0.9840)	(0.9994)

*, ** and *** indicate that the coefficients are statistically significant at the 10 percent, 5 percent and 1 percent levels respectively.

6.4 Arellano-Bond test for zero autocorrelation results

Table 11 reports the Arellano-Bond autocorrelation results. The null hypothesis of no autocorrelation at the second lag cannot be rejected for either equation, thereby confirming the validity of the model's moment conditions.

TABLE 11: ARELLANO-BOND TEST FOR ZERO AUTOCORRELATION

	GDP Equation	FDI Equation
Lag 1	-3.1727 (0.0015)***	-1.995 (0.0460)**
Lag 2	-1.5 (0.1336)	0.4543 (0.6496)

*** And ** indicate significance at the 1% and 5% levels, respectively.

6.5 Panel Granger Causality

The pair-wise Granger causality test was performed for both GDP and FDI equations, the results of which are presented in Table 19. The lag length specified is one.

TABLE 19: PAIR-WISE GRANGER CAUSALITY RESULTS

NULL HYPOTHESIS	**OBS**	**F-STATISTIC**	**PROBABILITY**
GDP does not Granger Cause FDI FDI does not Granger Cause GDP	576	13.3240*** 12.6673***	0.0003 0.0004
EXPORTS does not Granger Cause FDI FDI does not Granger Cause EXPORTS	560	0.00667 7.24239***	0.9349 0.0073
POPULATION GROWTH does not Granger Cause FDI FDI does not Granger Cause POPULATION GROWTH	576	5.09687** 1.96073	0.0243 0.1620
HUMAN RIGHTS does not Granger Cause FDI FDI does not Granger Cause HUMAN RIGHTS	517	0.36689 0.00192	0.5450 0.9650
INFLATION does not Granger Cause FDI FDI does not Granger Cause INFLATION	576	0.06504 0.29373	0.7988 0.5880
EXPORTS does not Granger Cause GDP GDP does not Granger Cause EXPORTS	560	0.53927 33.3533***	0.4630 1.E-08

POPULATION GROWTH does not Granger Cause GDP GDP does not Granger Cause POPULATION GROWTH	576	30.5795*** 0.00594	5.E-08 0.9386
HUMAN RIGHTS does not Granger Cause GDP GDP does not Granger Cause HUMAN RIGHTS	517	0.00752 1.33376	0.9309 0.2487
INFLATION does not Granger Cause GDP GDP does not Granger Cause INFLATION	576	9.73488*** 1.88586	0.0019 0.1702
INFRASTRUCTURE does not Granger Cause FDI FDI does not Granger Cause INFRASTRUCTURE	520	0.40525 1.54149	0.5247 0.2150
INTEREST RATES does not Granger Cause FDI FDI does not Granger Cause INTEREST RATES	386	0.79792 0.06303	0.3723 0.8019
POLITICAL STABILITY does not Granger Cause FDI FDI does not Granger Cause POLITICAL STABILITY	432	0.47201 7.27037***	0.4924 0.0073
TRADE OPENNESS does not Granger Cause FDI FDI does not Granger Cause TRADE OPENNESS	524	3.51421* 13.0090***	0.0614 0.0003
INFRASTRUCTURE does not Granger Cause GDP GDP does not Granger Cause INFRASTRUCTURE	520	6.97180*** 0.06494	0.0085 0.7990
INTEREST RATES does not Granger Cause GDP GDP does not Granger Cause INTEREST RATES	386	6.37444** 11.3967***	0.0120 0.0008
POLITICAL STABILITY does not Granger Cause GDP GDP does not Granger Cause POLITICAL STABILITY	432	0.02061 0.50569	0.8859 0.4774
TRADE OPENNESS does not Granger Cause GDP GDP does not Granger Cause TRADE OPENNESS	524	2.35258 1.65967	0.1257 0.1982

Note: *, ** and * represent that the 10%, 5% and 1% significance levels respectively.**

The results strongly indicate that GDP Granger causes FDI (p = 0.0003) and FDI also Granger causes GDP (p = 0.0004). Therefore, there is evidence of bi-directional causality between economic growth and FDI. Thus, the results suggest that GDP is a requirement for increased investment, and at the same time is the result of increased foreign investment. However, the System estimation did not produce the same bi-directional results as GDP was found to be an insignificant predicator of FDI. This may suggest that the effect of FDI on growth is stronger than the effect of growth on FDI.

Several studies have found bi-directional causality between FDI and economic growth. Choe's (2003) study revealed bi-directional causality between growth and FDI from a data set of 80 countries, although the causal impact of growth on FDI was found to be weak. Similarly, Hansen and Rand (2006) found that a bi-directional causality relationship exists between FDI as a percentage of GDP and the level of GDP in 31 developing countries. Thus, this result supports the existing empirical evidence from similar studies that improving FDI into the African region will have a positive impact on the economic growth rate (Zhang, 2001; Nair-Reichert and Weinhold, 2001). Similarly, an increased economic growth rate will positively impact the FDI inflows received in the African region, although the regression results suggest that the effect of growth on FDI may not be as pronounced.

Another interesting relationship is that between trade openness and FDI which reveals that bi-directional causality exists as both null hypothesis, Trade Openness does not Granger cause FDI, and FDI does not Granger cause Trade Openness, may be rejected at the 10% and 1% significance levels respectively. The direction of Trade Openness affecting FDI is only significant at the 10% significant level may be explained by the ad hoc nature of trade reform in Africa that tends to lack credibility amongst foreign investors (Asiedu, 2002:115). The direction of Trade Openness affecting FDI may be explained by the fact that when African countries receive foreign investment or foreign aid, they tend to have to abide by rules given by certain institutions such as the World Bank. In these cases, African governments are forced to embark on trade reform as part of the aid conditionality (Akonor, 2008:1072).

With regards to the relationship between interest rates and GDP, both null hypotheses of Interest Rates does not Granger cause GDP, and GDP does not Granger cause Interest Rates, may be rejected at the 5% and 1% levels of significance respectively. Once again, bi-directional causality is present in this case. This result is evidence that changes in the interest rates may significantly impact the GDP growth rate, but at the same time, changes in the GDP growth rate may significantly impact interest rates. These results support economic theory as the interest rate may impact GDP growth rate by encouraging investment and spending when it is low, and dampening spending and investment when high. Similarly, when the GDP growth rate is low, interest rates may be changed by the central banks to help stimulate economic growth. For example,

during and after the Global Financial Crisis, the declining GDP growth rates impacted interest rates as they reached historically low levels in an attempt to encourage consumer spending.

6.6 Conclusion

In conclusion, the empirical findings of this research suggest that there is a bi-directional relationship between FDI and economic growth. Furthermore, results suggested that certain factors such as trade openness, interest rates, infrastructure, population growth and exports are effective in changing FDI inflows and the GDP growth rate.

Thus, the results suggest that GDP is a requirement for increased investment, and at the same time is the result of increased foreign investment. With this result found to exist in the interrelationship of economic growth and FDI, it can thus follow that in order for African countries to grow and develop, this can be achieved by stimulating the FDI inflows, and at the same time, a growing economy will stimulate FDI inflows for Africa.

Based on the evidence presented in this chapter, it is important for African countries to focus on policy reforms and embark on strategies that will lead to more credible economies, friendlier business environments, and less uncertainty. The following chapter will summarize the findings of this research and will also discuss recommendations for future policies and research that African countries may adopt in an attempt to increase FDI inflows, and improve economic growth.

7. CHAPTER SEVEN: CONCLUSION

7.1 Introduction

The purpose of this research was to analyse the relationship between FDI and economic growth in Africa, using single-equation and simultaneous equation panel data techniques. This chapter is set out as follows: Section 7.2 will discuss the main findings from this research, and Section 7.3 provides policy recommendations and suggestions for future research.

7.2 Summary of Findings

In Chapter One, a brief introduction was made and context behind the research was provided on the basis that historically African countries have battled in comparison to attract FDI (Jacques, 2010:173). From this emerged the main goal of this research to attempt to determine the relationship between FDI and economic growth.

Chapter Two focused providing an overview of the FDI inflows Africa has historically received and the impact this has had on economic growth. This chapter also explored the operational environment in Africa and some of the key challenges and dynamics facing foreign investors. The main findings from this chapter were that the African population has been steadily growing and consumption demand is on the rise. Furthermore, investors are increasingly finding the African region to be attractive relative to other markets as it is largely untapped and has a large young demographic profile, which can help boost demand. The key concept coming from this assessment of the operational environment in Africa is that each country is unique and may need a different approach due to unique challenges and resources (UNCTAD, 2013:1).

Chapter Three provided the theoretical framework from which the research was conducted. This included a discussion on various economic growth models, and FDI theories that shaped the understanding of the motives behind FDI and how FDI may impact a country. The main findings were through the different forms of FDI, namely: resource-seeking, market-seeking, strategic asset-seeking and efficiency-seeking FDI.

By considering the transmissions channels of FDI and forms of FDI, a background of the motives of foreign investors was revealed and this allows countries to implement policies that attract the forms of FDI that will stimulate their economic growth the most.

Chapter Four provided a discussion on the determinants of economic growth and FDI. This section provided more insight into the some of the important determinants and from this chapter a basis was formed for which variables to be used when modelling the relationship between FDI and economic growth.

Chapter Five gave a detailed account of the data used to conduct this research. Econometric techniques used to estimate the results of a model also developed in this chapter were explained in this chapter. Chapter Five revealed that the two main variables, FDI and economic growth, show an increasingly upward trend over the period 2000-2012. It also further revealed a positive correlation amongst the two variables during this period through graphical analysis across each country.

In Chapter Six, the empirical results from the three tests used were presented. Under the system GMM method, the results showed that FDI under the GDP equation, the results suggested that a 1 percentage point increase in lagged FDI will decrease the GDP growth rate by -0.151 percentage points on average. These results are contrary to previous literature. This implies that previous FDI inflows negatively impacted the economic growth experienced during this period. The system results for the GDP equation also revealed that a 1 percentage point increase in the lagged growth rate will increase the current GDP growth rate by 0.165 percentage points on average. This result meets a priori expectations as positive growth in previous years will mean that growth in the current year is also positive.

The FDI equation results relatively conform to prior expectations. Results from the lagged FDI coefficient in the equation suggest that if the FDI of the previous year increases by 1 percentage point, FDI in the current year will increase by 0.511 percentage points. This shows how the previous year's FDI inflows positively affect the current years FDI inflows.

The lagged GDP coefficient suggests that if the GDP growth rate of the previous year increases by 1 percentage point, FDI in the current year will increase by 0.027 percentage points, on average. The expectation is that an increased economic performance would create a suitable business environment that should encourage more FDI.

The results of the Sargan test provided consistency of the validity of the two-step version of the system-GMM technique, due to the overidentifying restrictions remaining valid even in the case of a differenced-GMM (Ezeoha and Botha, 2012:65).

The panel Granger Causality test revealed that bi-directional causality exists between FDI and GDP growth. The Panel Granger Causality results revealed that a bi-directional causality existed between FDI and GDP. Thus, the results suggest that GDP is a requirement for increased investment, and at the same time is the result of increased foreign investment.

Using the Granger causality results, the core variables that had a significant impact on economic growth were: FDI, population growth, and inflation. The core variables that had a significant impact on FDI were: GDP growth rate and trade openness. The implication of these results suggest that as per previous literature such as Hansen and Rands (2006) study, a bi-directional relationship between FDI and economic growth suggest the benefits expected from FDI such as technological spillovers and transfer of improved processes do have a positive impact on GDP (Hansen and Rand, 2006:21). It is thus important to attract both FDI and stimulate economic growth in Africa simultaneous in order to maintain sustainable development.

Furthermore, since economic growth is directly impacted by the population growth and inflation rates the implications of these results suggest that countries should not allow their inflation rates to spiral out of control and should perhaps attempt inflation targeting. Economic instability would dampen FDI inflows. As per previous literature, unstable economies attract relatively less FDI due to uncertainty and investor perceptions of future profitability being negative (Chingarange, 2012:11).

7.3 Policy Recommendations and Future Research

Based on the results presented in Section 6.5, FDI was found have a positive impact on economic growth under the through the Panel Granger Causality test. Results revealed that a bi-directional causality existed between FDI and GDP. Thus, the results suggest that GDP is a requirement for increased investment, and at the same time is the result of increased foreign investment. It would be beneficial for policy amongst African countries to focus on stimulating FDI as this in turn would benefit economic growth.

With respect to FDI-led policies, ensuring real returns to capital are continuously attractive to foreign investors is very necessary to encourage Africa's investment levels. The results in Section 6.5 revealed the importance of inflation in determining economic growth. Thus keeping the inflation rates low is one of the ways this can be achieved. Central banks around Africa should practice inflation targeting as this will provide more credibility and ensure that inflation is not allowed to spiral out of control. Chingarange's (2012) study revealed that an unstable economy will attract relatively less FDI due to uncertainty and investor perceptions of future profitability being negative (Chingarange, 2012:11). This research confirms this as inflation was firstly found to be statistically significant and had a negative relationship with the GDP growth rate in all the econometric techniques employed except under the GMM system model where it was found to have no affect on GDP growth rate.

The GDP growth rate is positively impacted by FDI, the Granger causality results generating bi-directional causality suggests that promoting foreign investment policies will impact economic growth. Thus, it is possible for African governments to improve certain policies and practices. For example, a favourable business environment should be created for foreign investors. This could include preferential tax treatments and reliefs in an attempt to encourage foreign investment.

A concerted effort should be made to develop the financial sector across Africa as this kick starts the investment cycle and will allow for savings to be raised during the investment cycle, as well as stimulating further foreign investment. There could also

be an increased effort across African governments to improve access to finance as this was found to be a major constraint for foreign investors (RMB, 2011).

African countries should aim to make their trade reform policies more reliable. The empirical results of this study found that a positive relationship existed between trade openness and FDI inflows in section 6.3. The statistically significant relationship found at the 1% significance level suggests that if African countries can improve their trade openness, they will experience increased FDI inflows. In addition, foreign investors may be discouraged to invest if there are large measures imposed to restrict drastic outflows. African countries should attempt to ensure that they do not tighten their trade restrictions even when the terms of trade of a country deteriorate. Yaoxing (2010:100) suggests that this will thus create the belief that African governments do have a reliable and credible trade policy, which may encourage FDI inflows, and hence economic growth into the region.

The potential areas of for future research in this topic could entail looking at each African country and determining the relationship existing between the FDI and economic growth through a comparison between in mineral-rich and mineral-poor countries. This could be a different way of breaking down the results in the future as many African countries rely on primary commodities for stimulating growth. Furthermore, this research could be extended by including more variables as determinants for both FDI and economic growth in the model to improve the analysis and discussion of the results obtained in future studies. It would also be beneficial for future research to include further panel data econometric tests such as a cointegration test. Obtaining results and researching the implications of a long-run relationship between FDI and economic growth could improve future policy, leading to more effective measures of attracting FDI.

8. APPENDIX

TABLE A.1: LIST OF COUNTRIES

Algeria	Chad	Gabon	Libya	Namibia	Sudan
Angola	Congo, Dem. Rep.	Gambia, The	Madagascar	Niger	Swaziland
Benin	Congo, Rep.	Ghana	Malawi	Nigeria	Tanzania
Botswana	Cote d'Ivoire	Guinea	Mali	Rwanda	Togo
Burkina Faso	Djibouti	Guinea-Bissau	Mauritania	Senegal	Tunisia
Burundi	Egypt, Arab Rep.	Kenya	Mauritius	Seychelles	Uganda
Cameroon	Equatorial Guinea	Lesotho	Morocco	Sierra Leone	Zambia
Cape Verde	Ethiopia	Liberia	Mozambique	South Africa	Zimbabwe

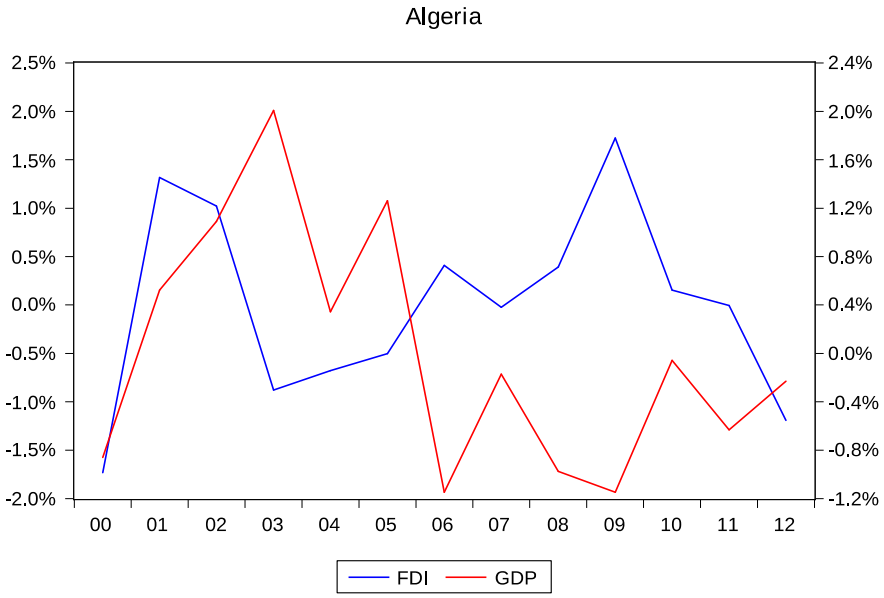
TABLE A.2: LIST OF EXPLANATORY VARIABLES AND PREDICTED RELATIONSHIPS AND DATA SOURCES

Variable	**Expected Coefficient Sign**	**Source**
Gross Domestic Product (GDP) growth rate	+	*World Bank*
Foreign Direct Investment (FDI)	+	*World Bank*
Exports	+	*African Development Indicators*
Inflation	-	*African Development Indicators*
Population Growth rate	+	*African Development Indicators*
Human Rights	+	*Mo Ibrahim Foundation.*
Political Stability	+	*African Development Indicators*
Interest Rates	-	*African Development*

		Indicators
Trade Openness	+	*World Trade Organisation* and *The World Bank.*
Infrastructure	+	*International Telecommunication Union, World Telecommunication Development Report database, and World Bank*

FIGURES DEPICTING THE RELATIONSHIP BETWEEN FDI AND GDP GROWTH RATE IN AFRICA

Figure A.1:



Source: World Bank, African Development Indicators

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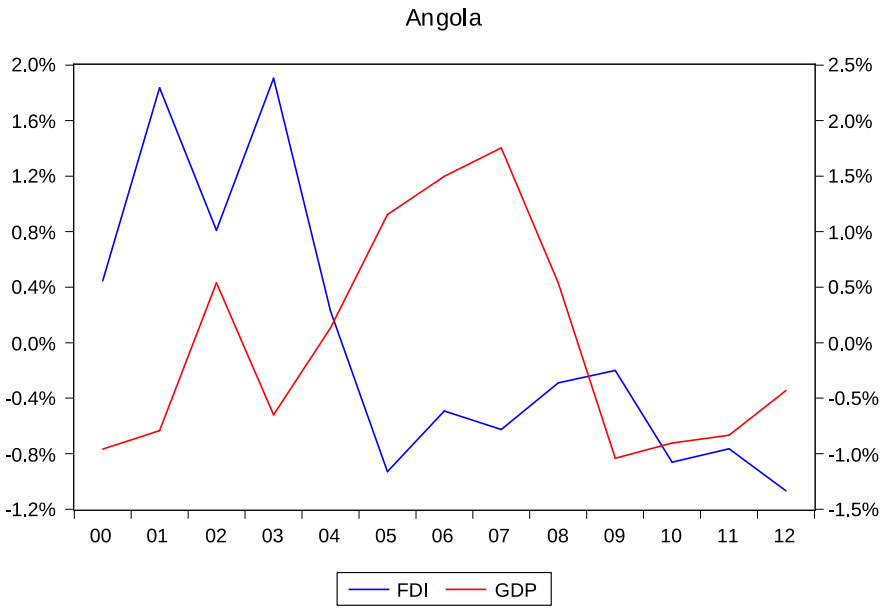

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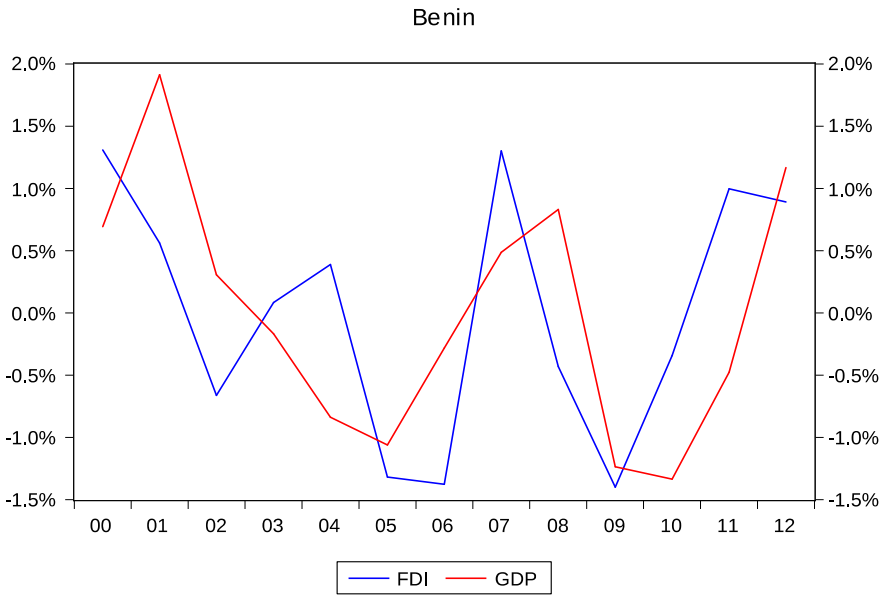

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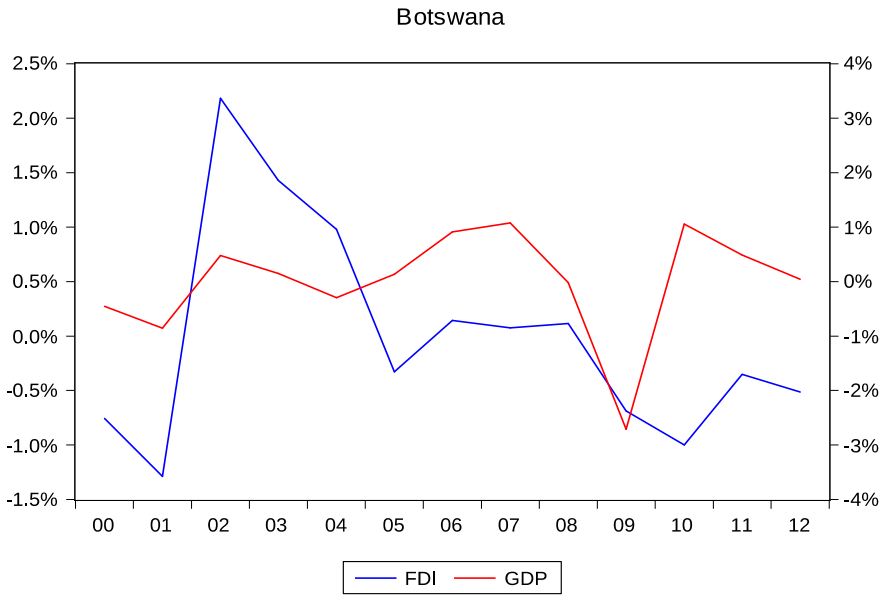

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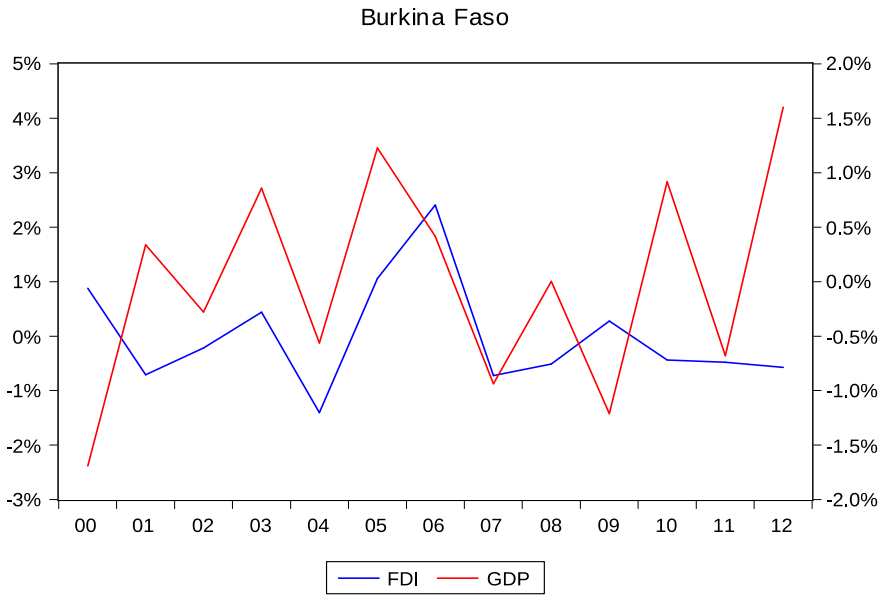

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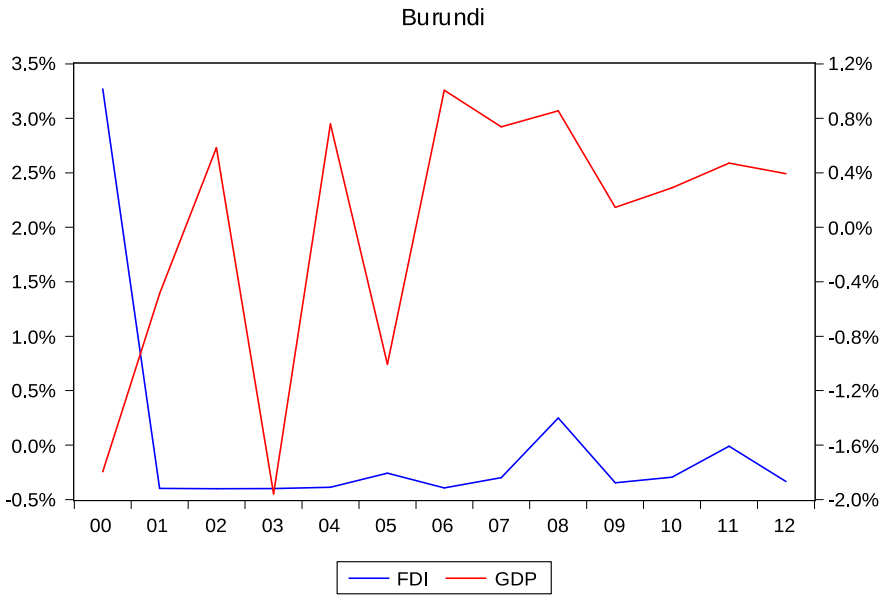

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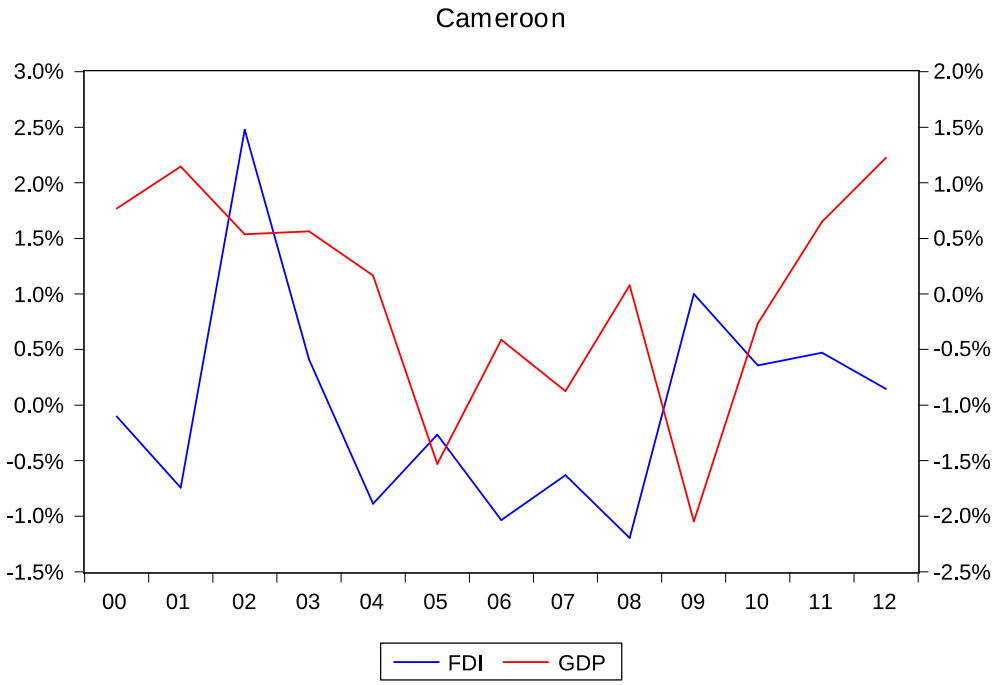

Source: World Bank, African Development Indicators

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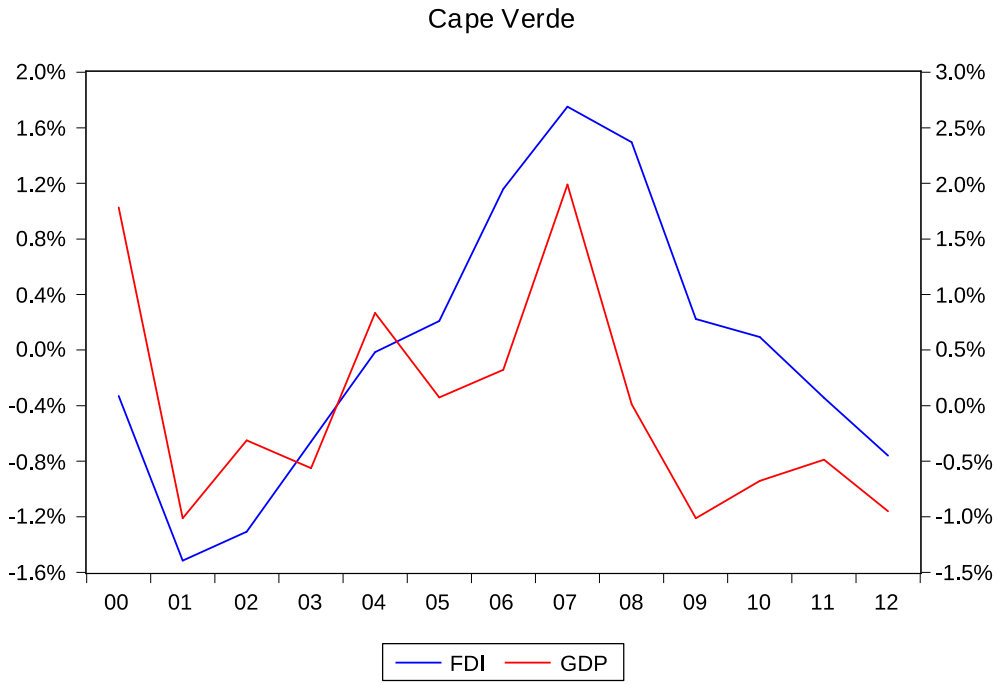

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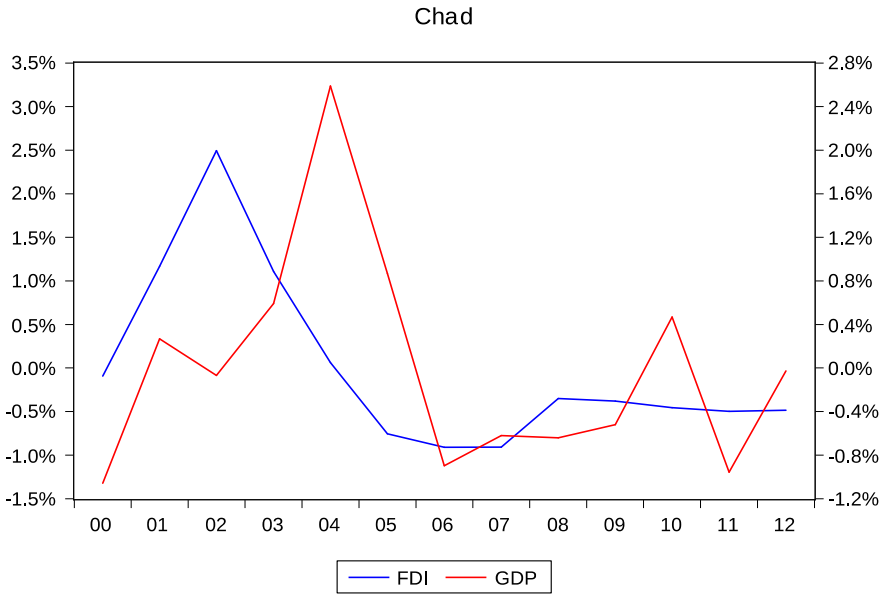

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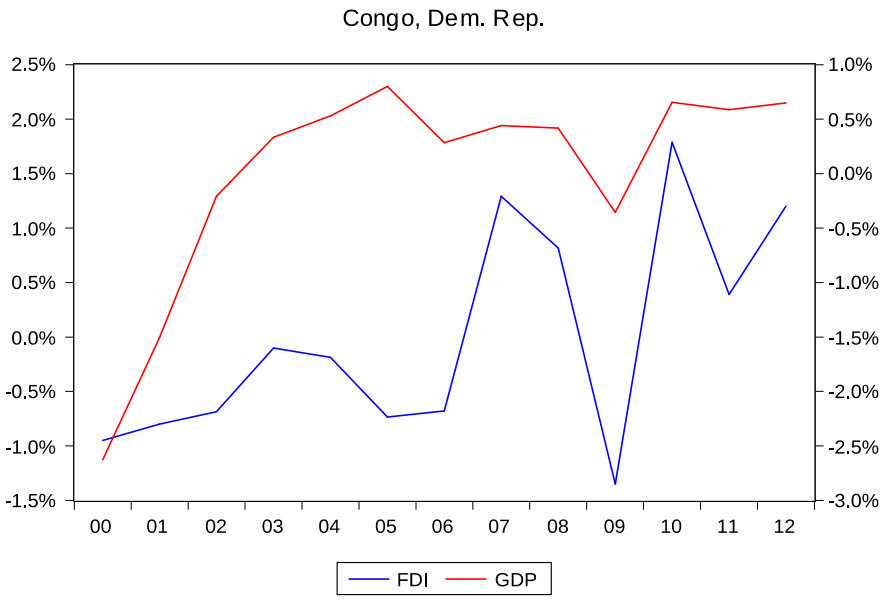

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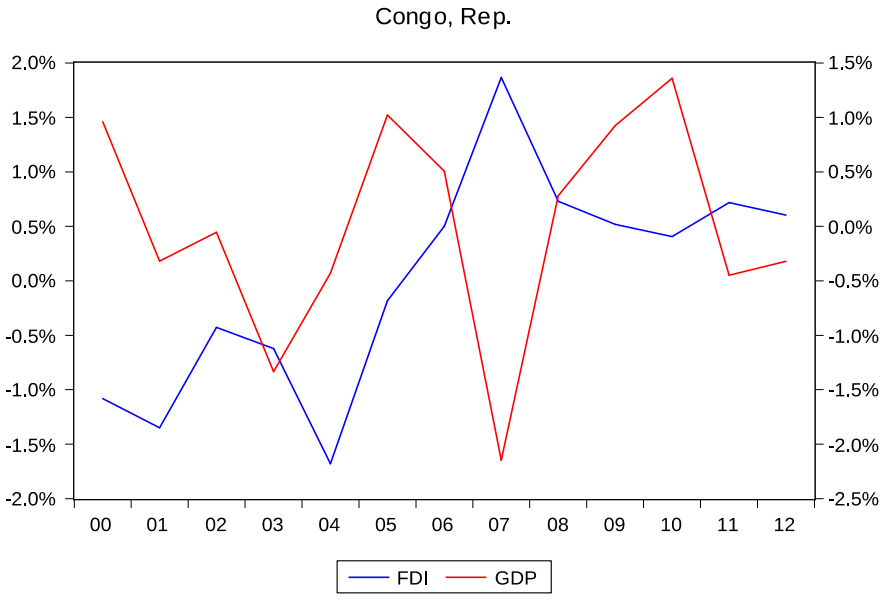

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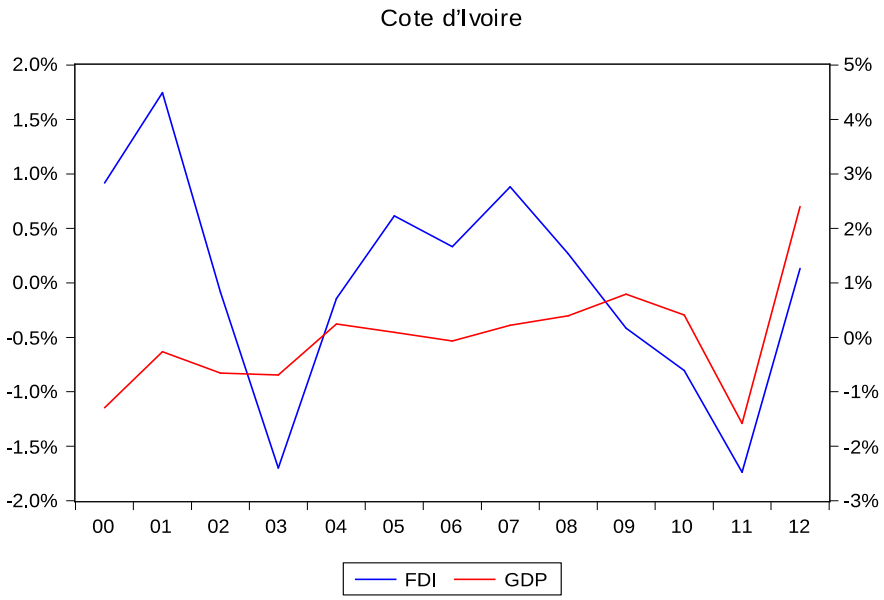

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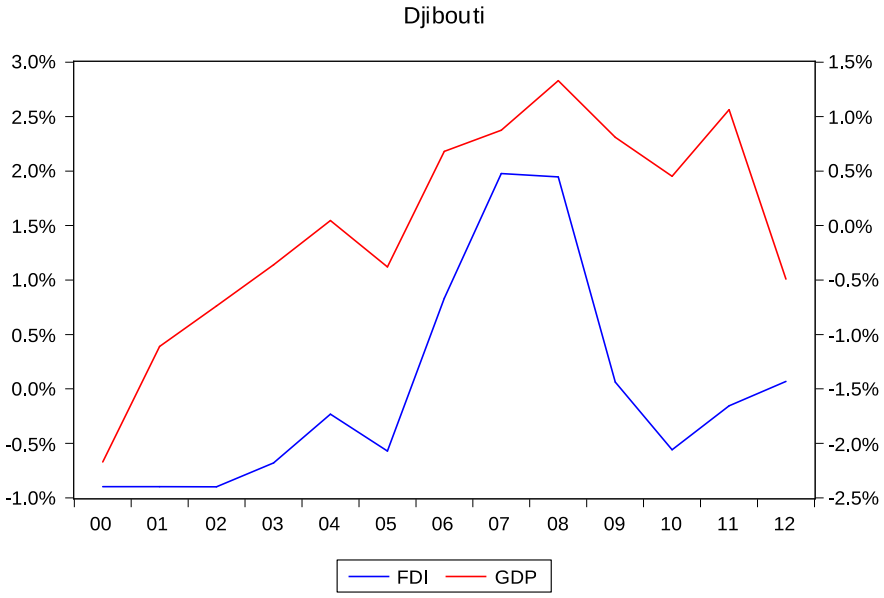

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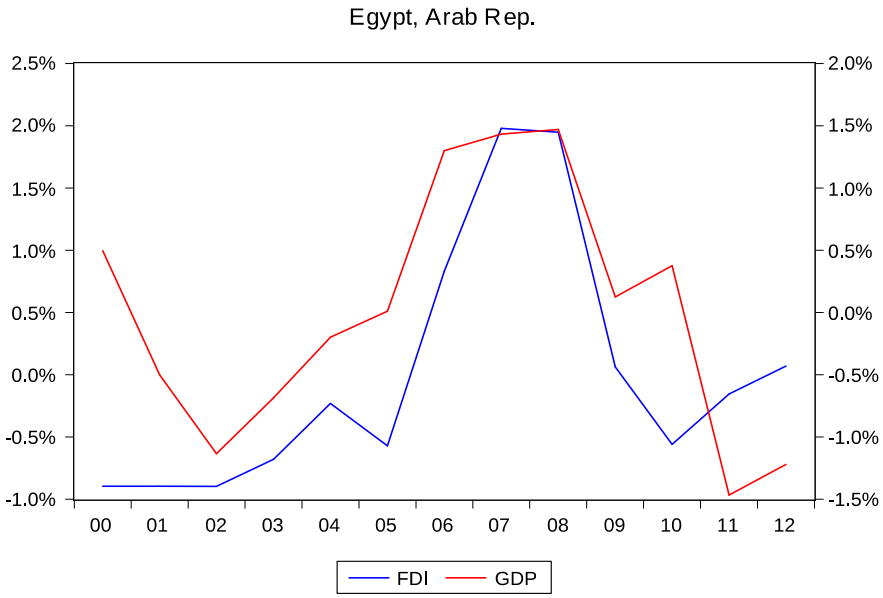

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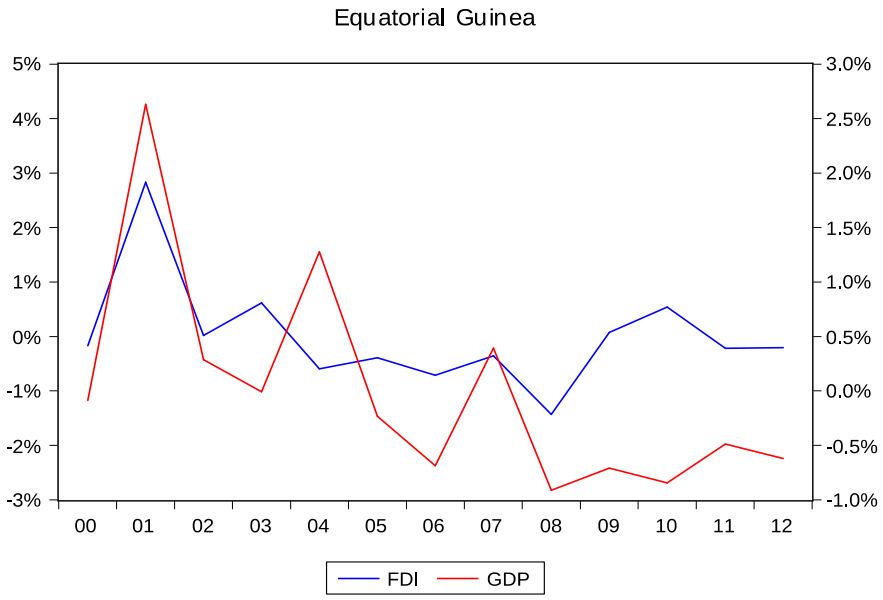

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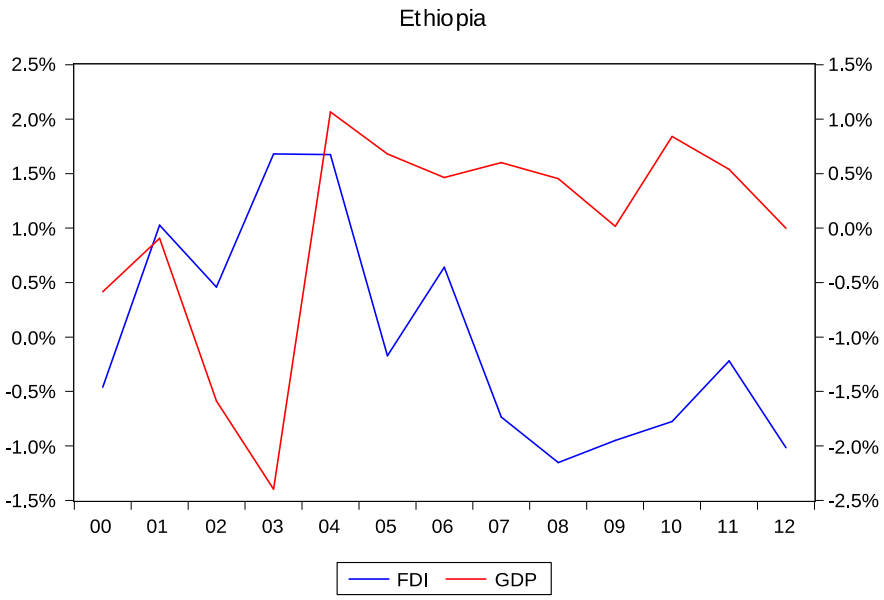

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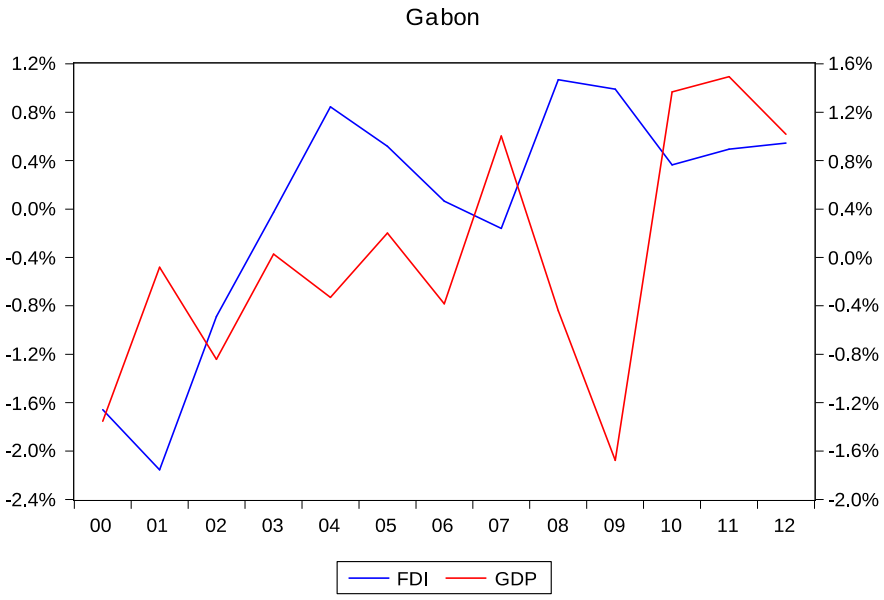

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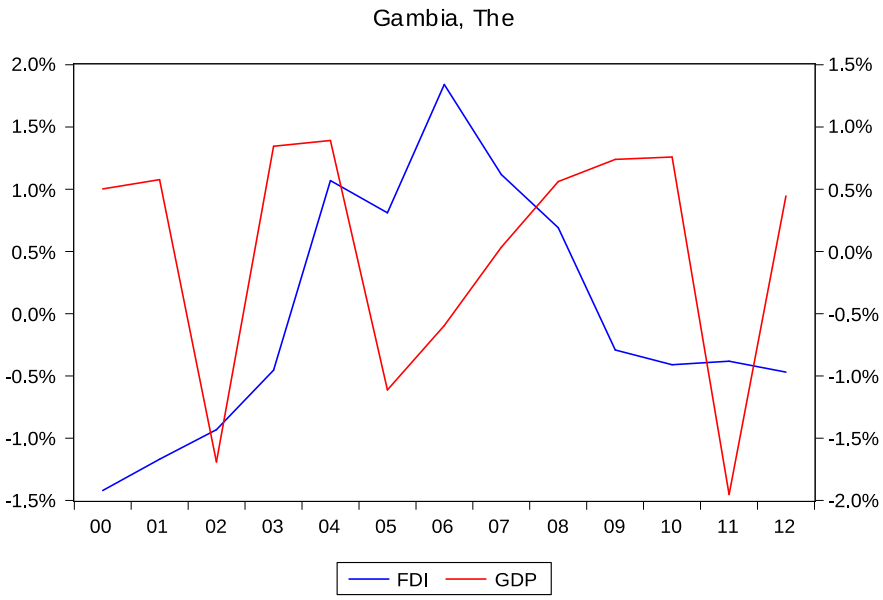

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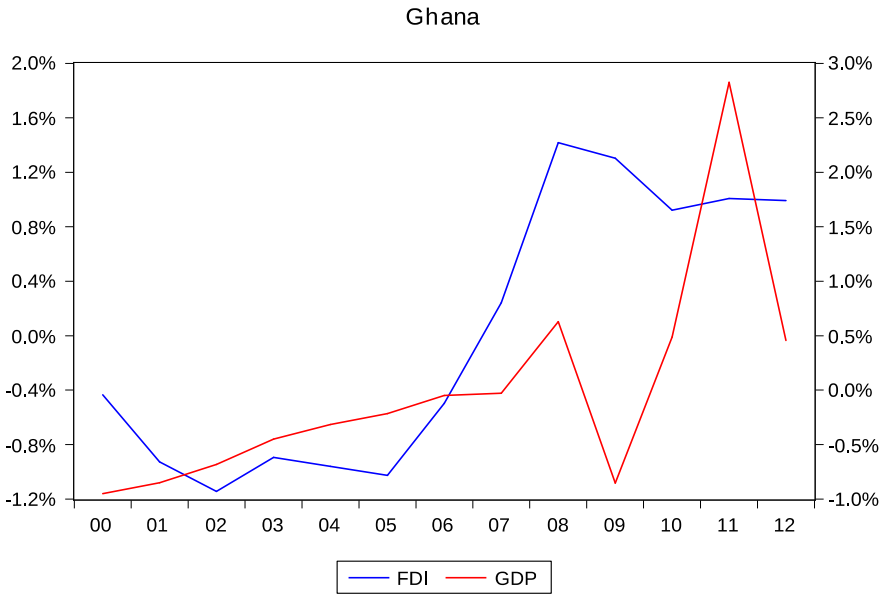

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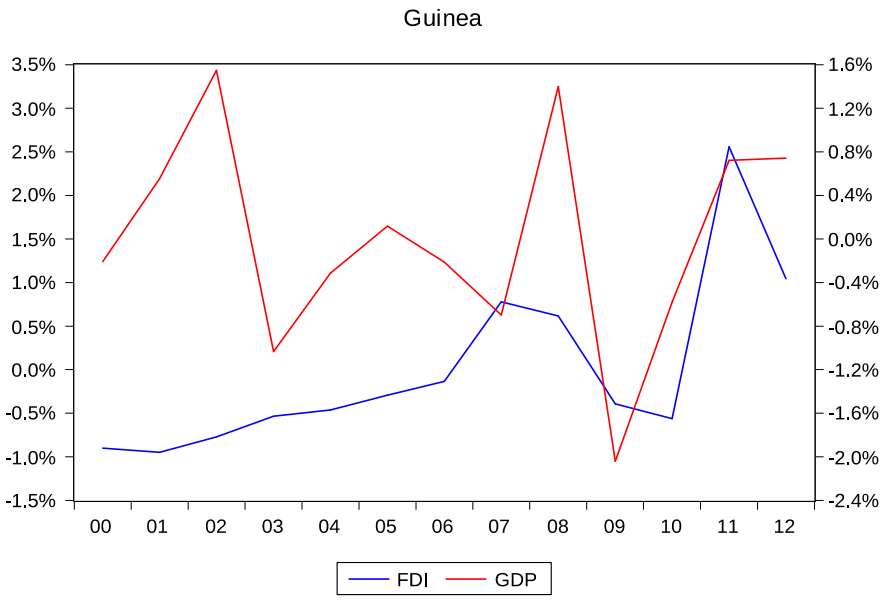

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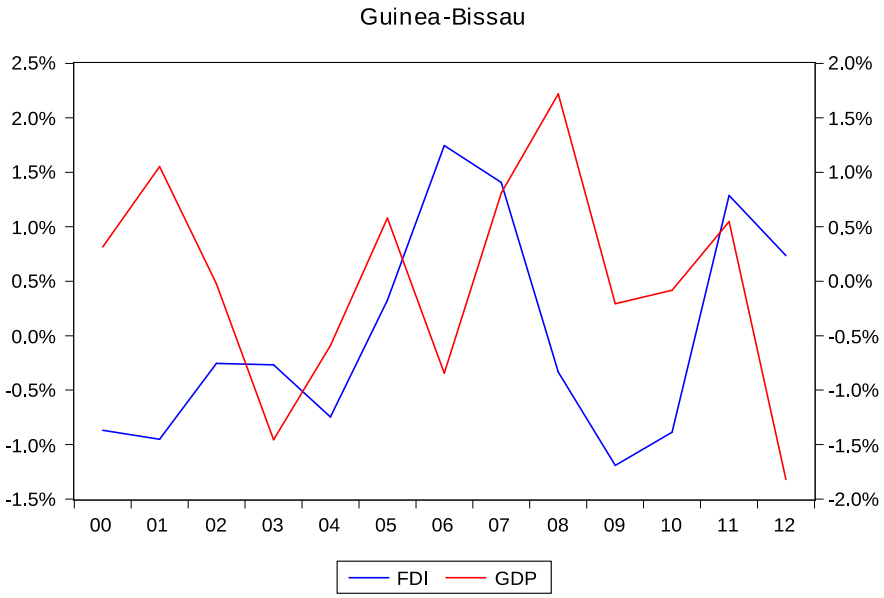

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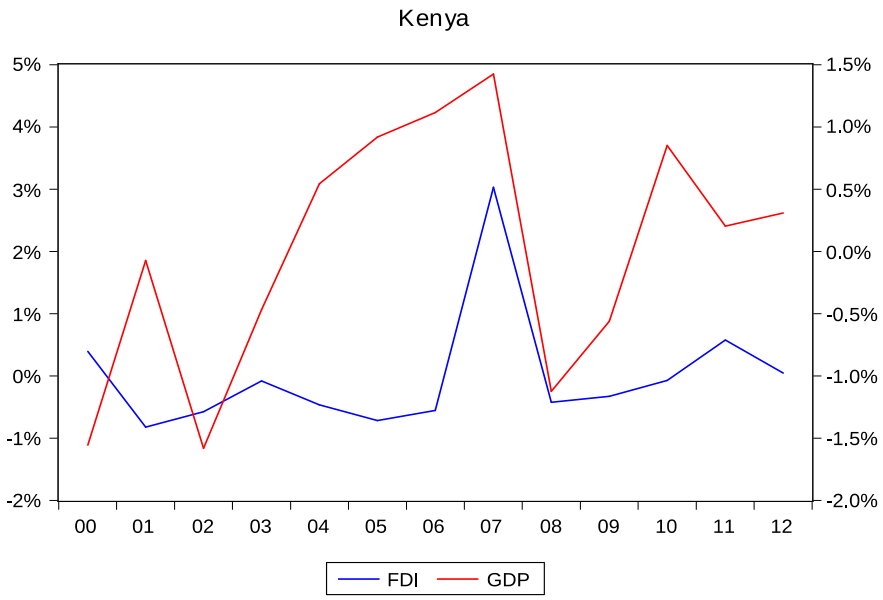

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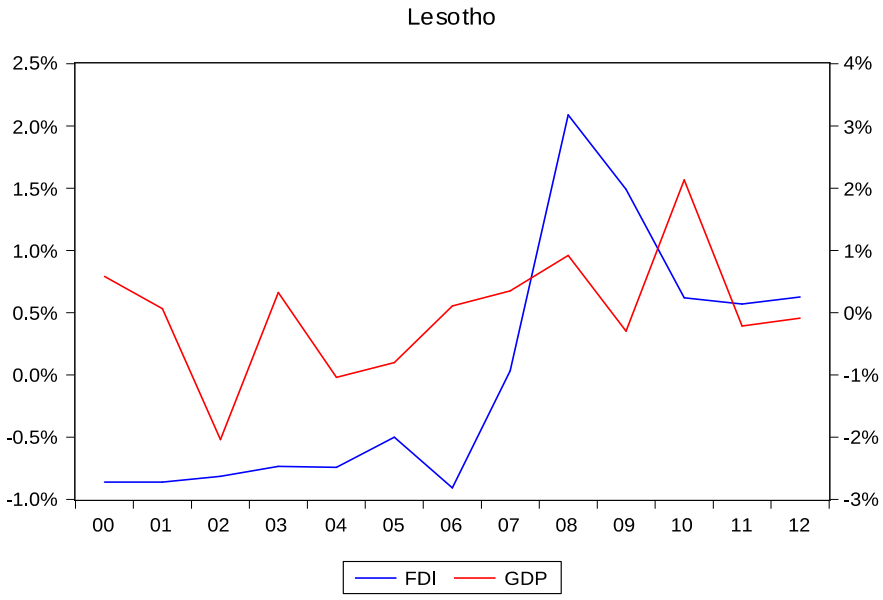

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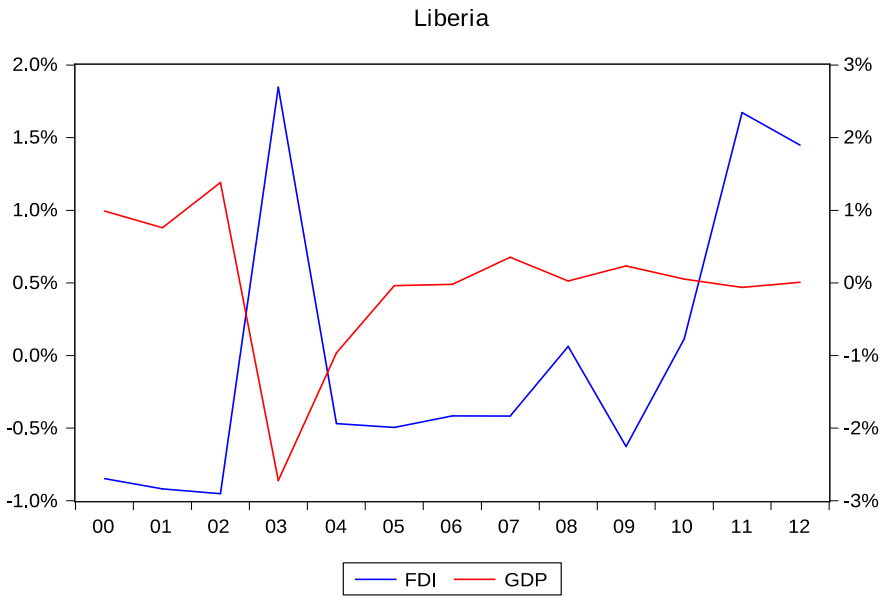

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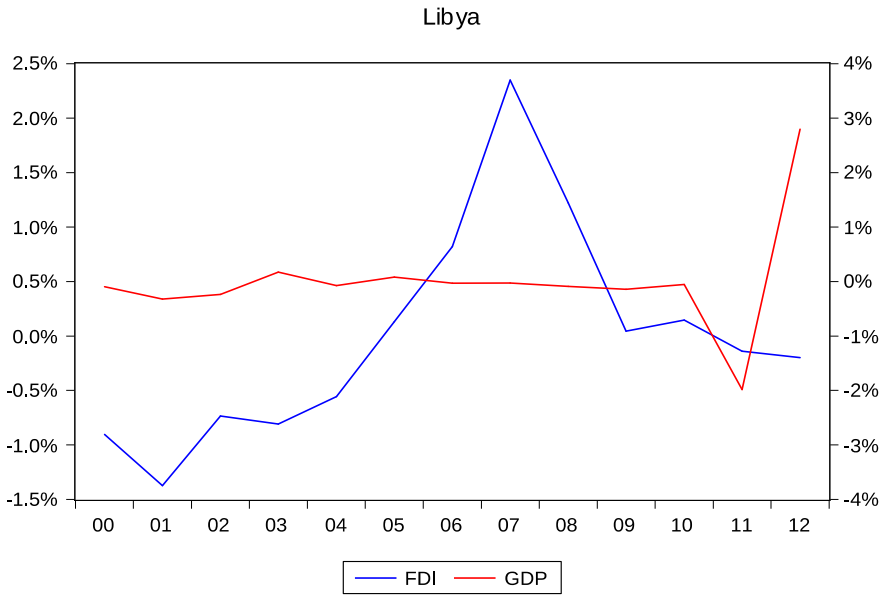

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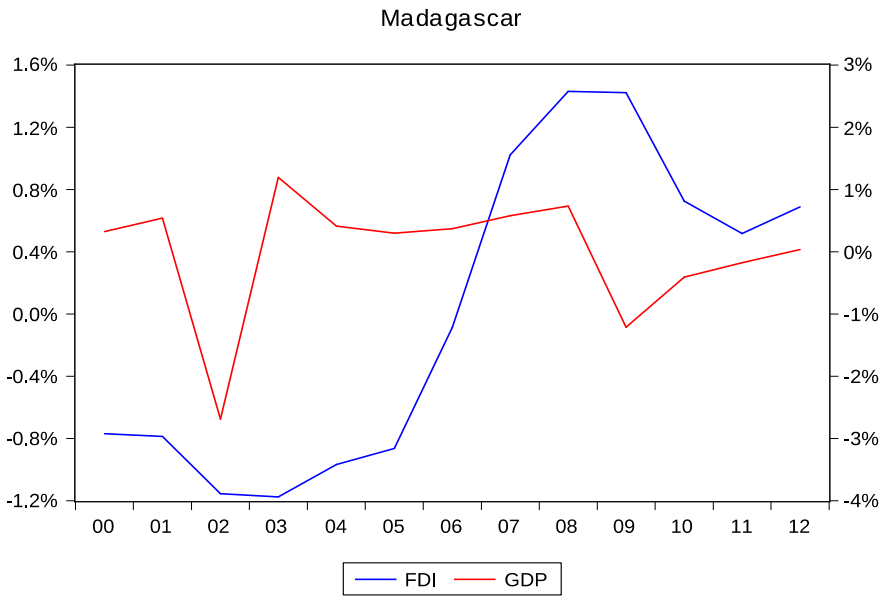

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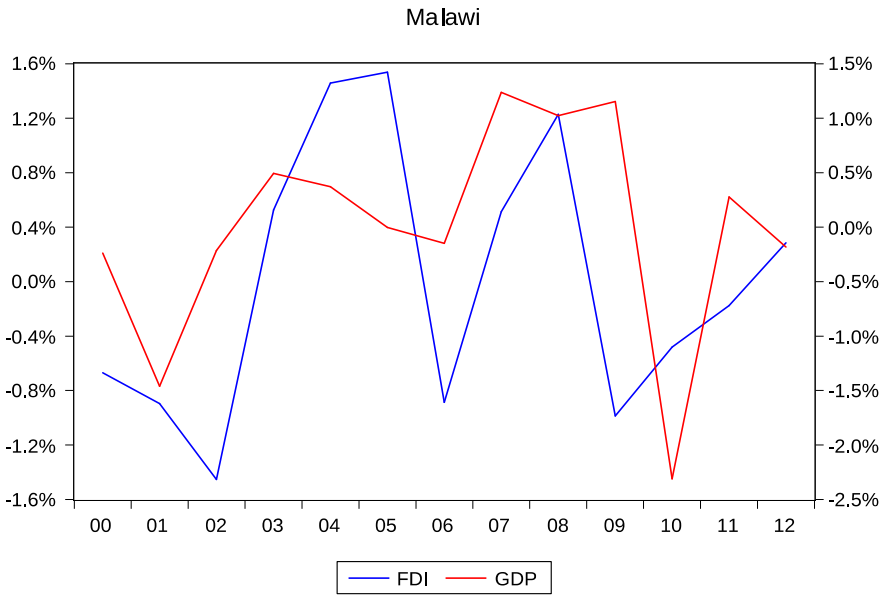

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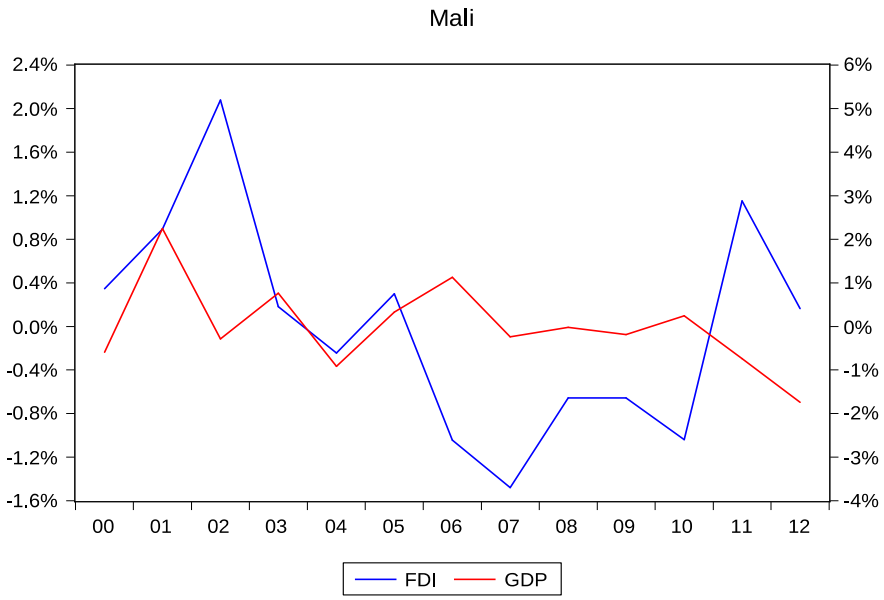

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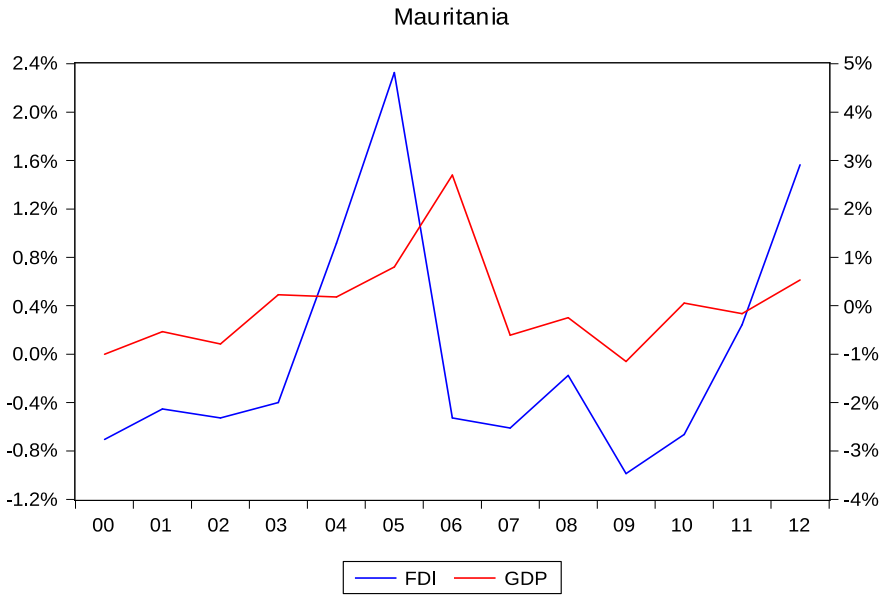

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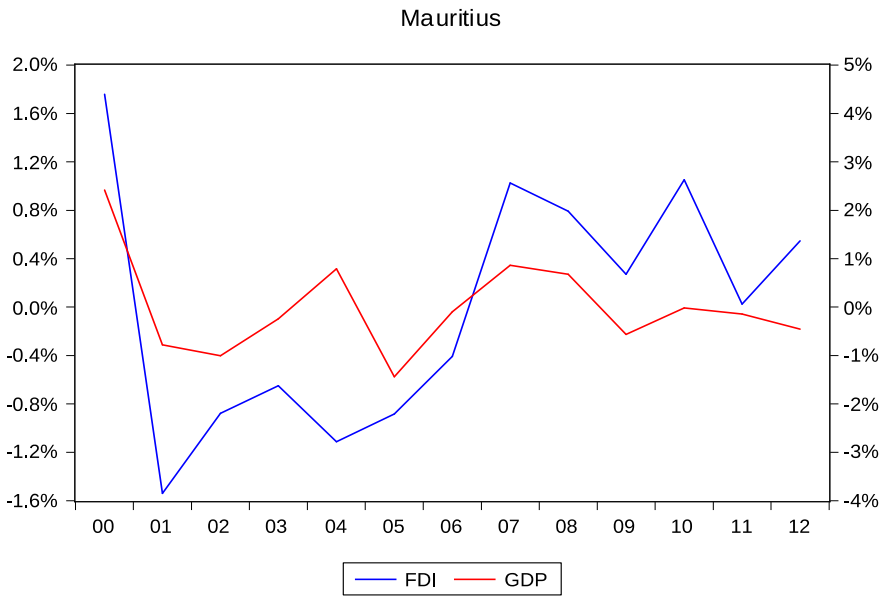

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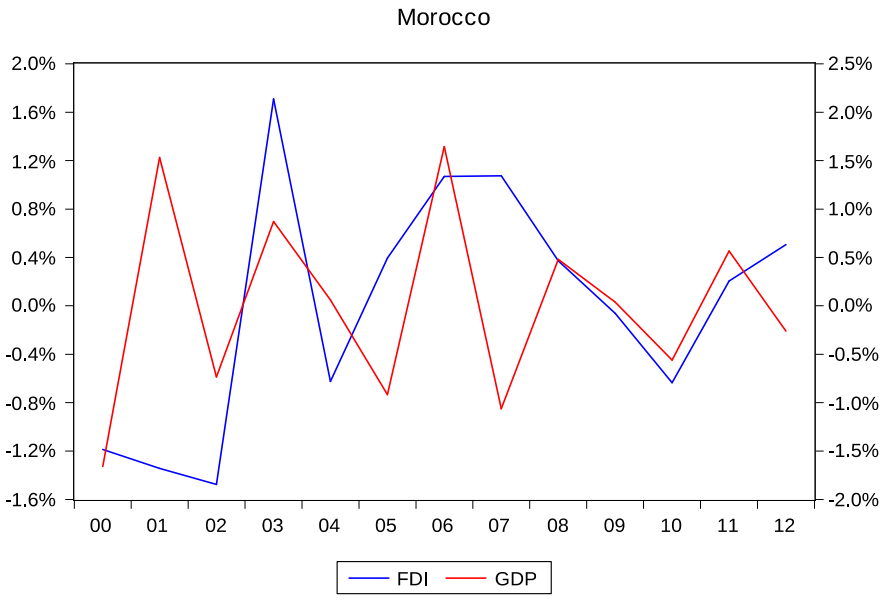

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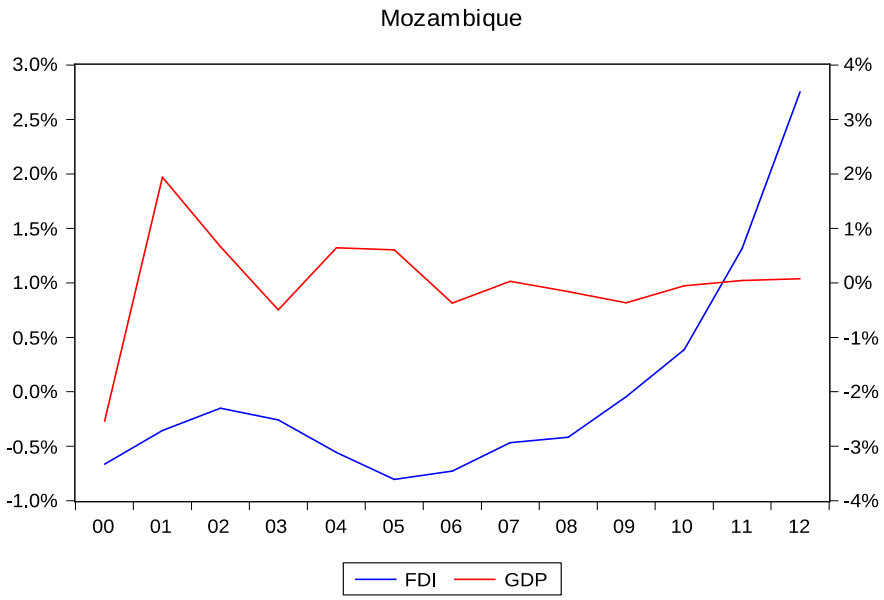

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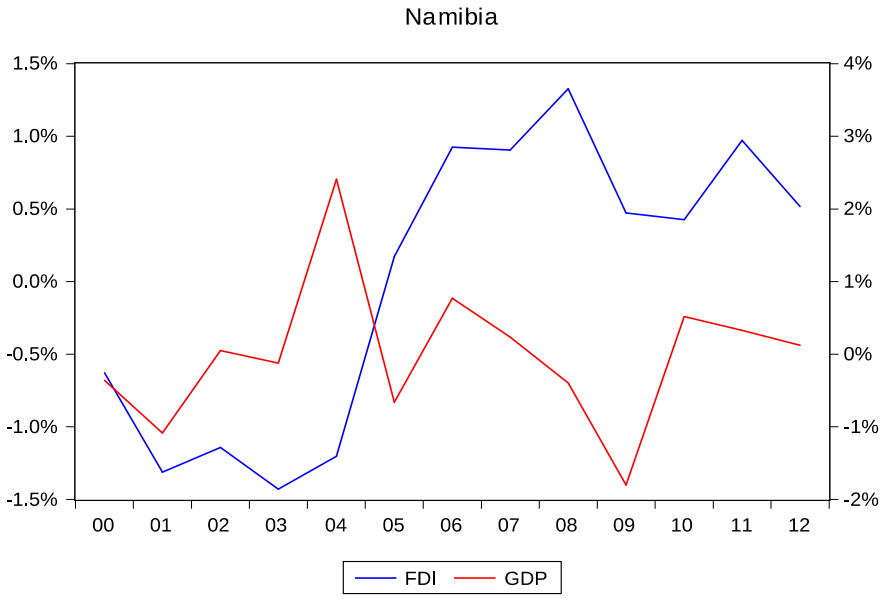

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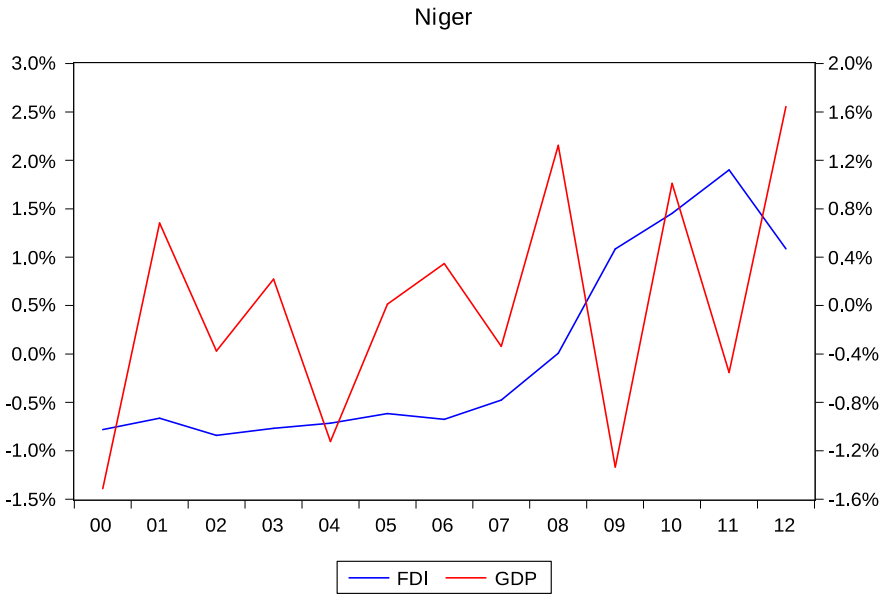

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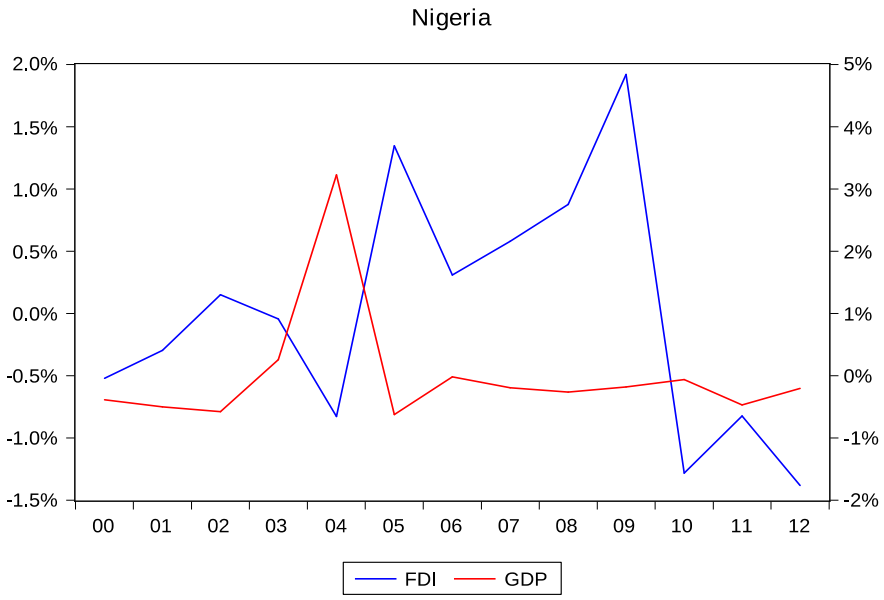

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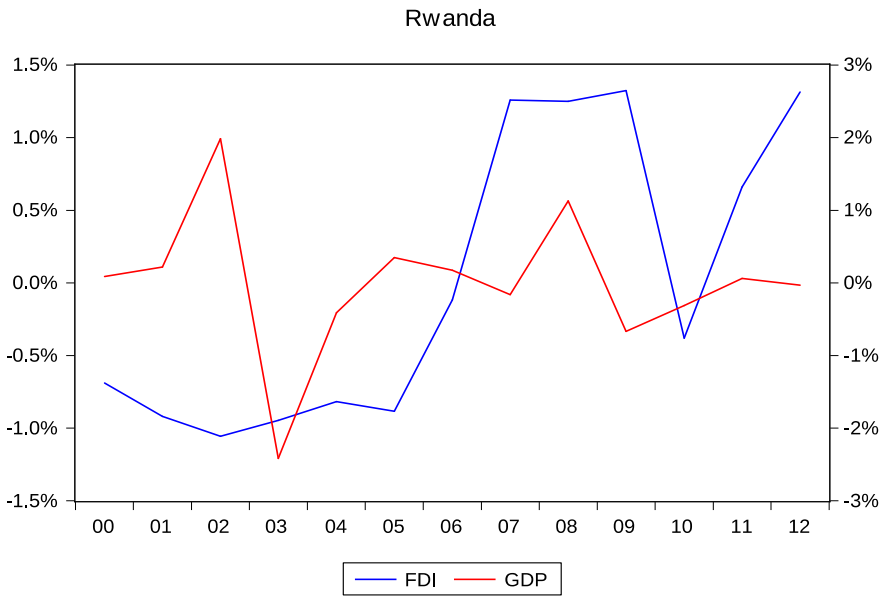

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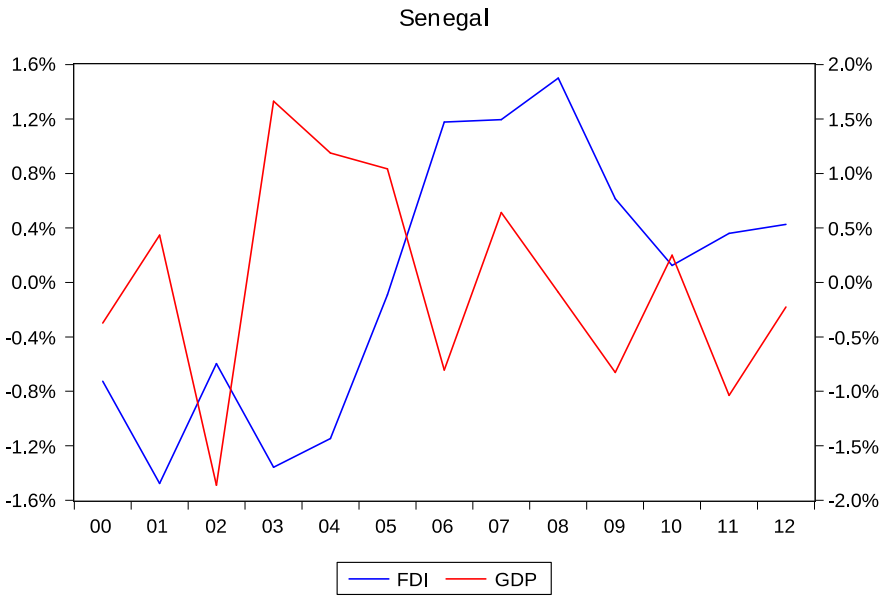

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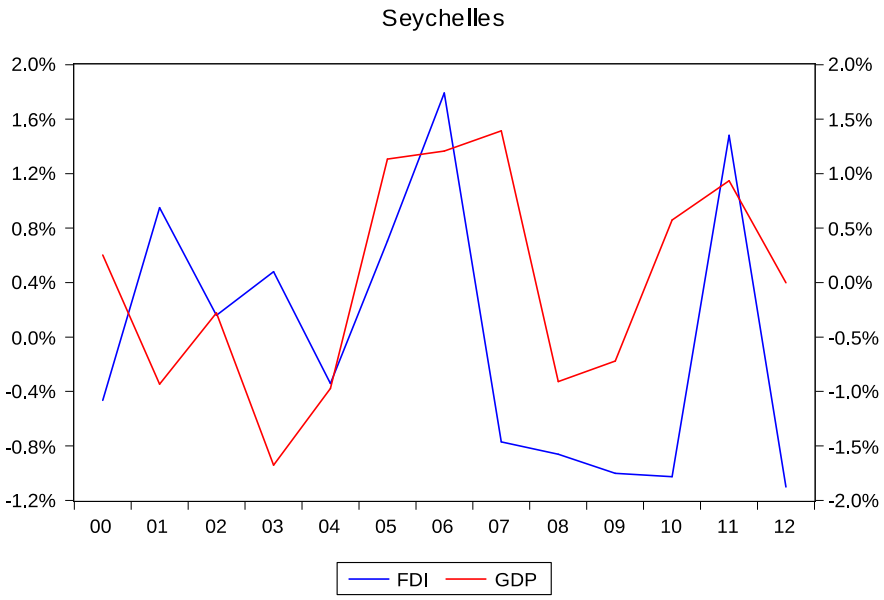

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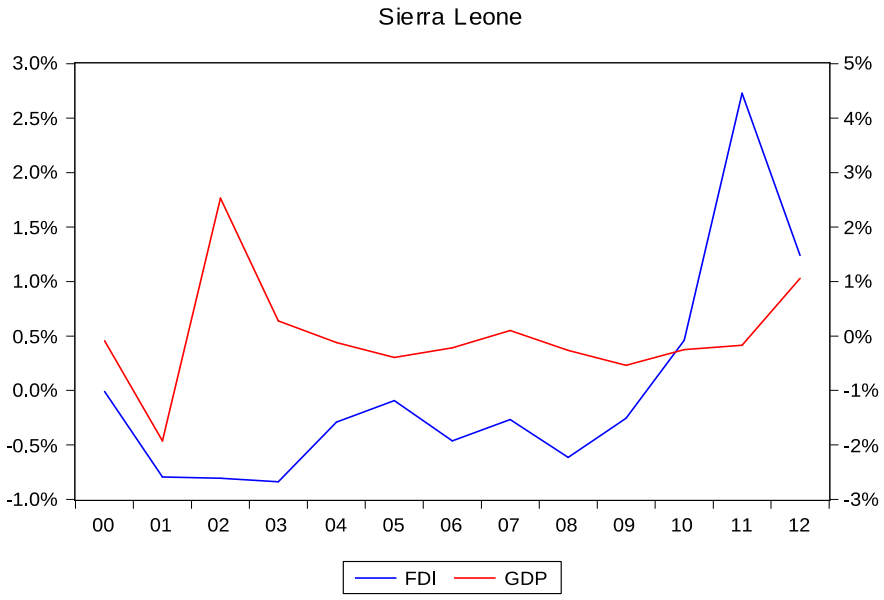

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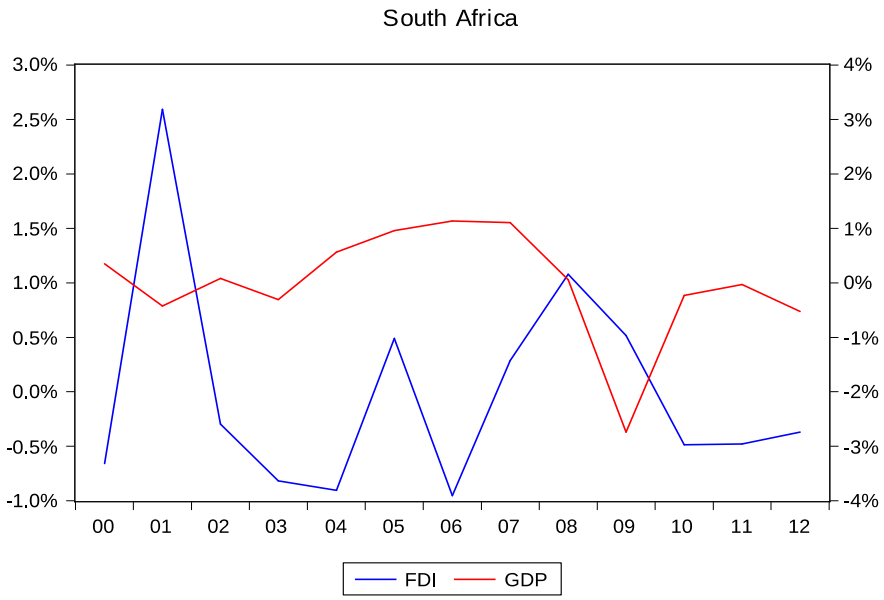

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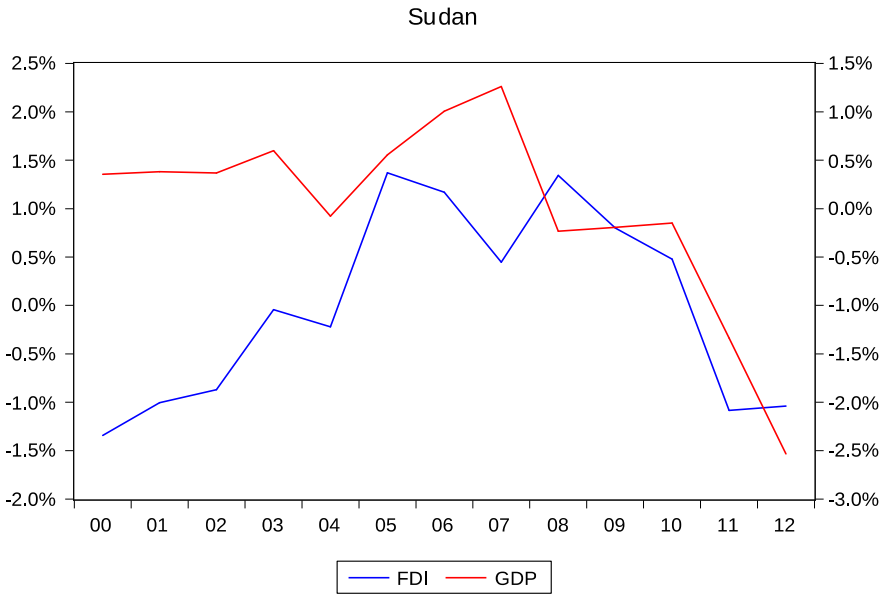

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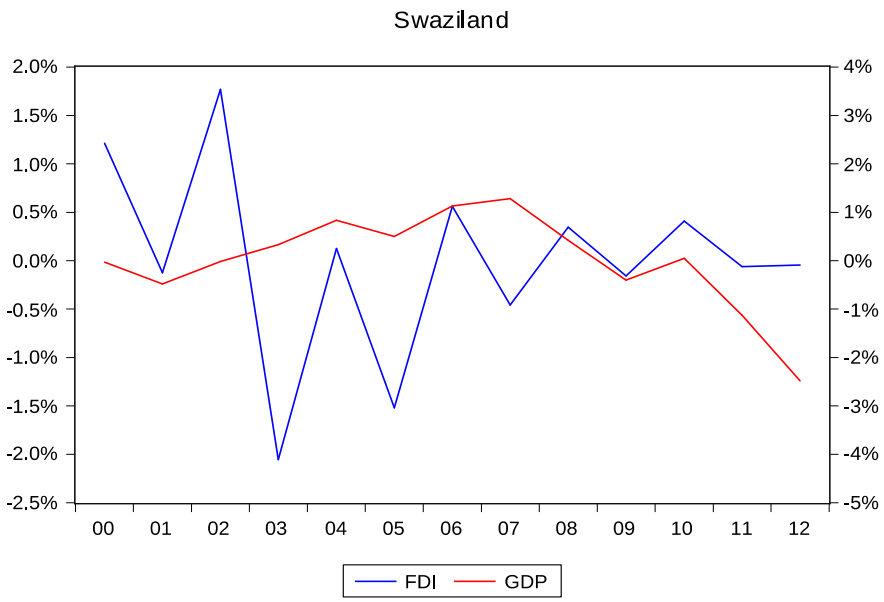

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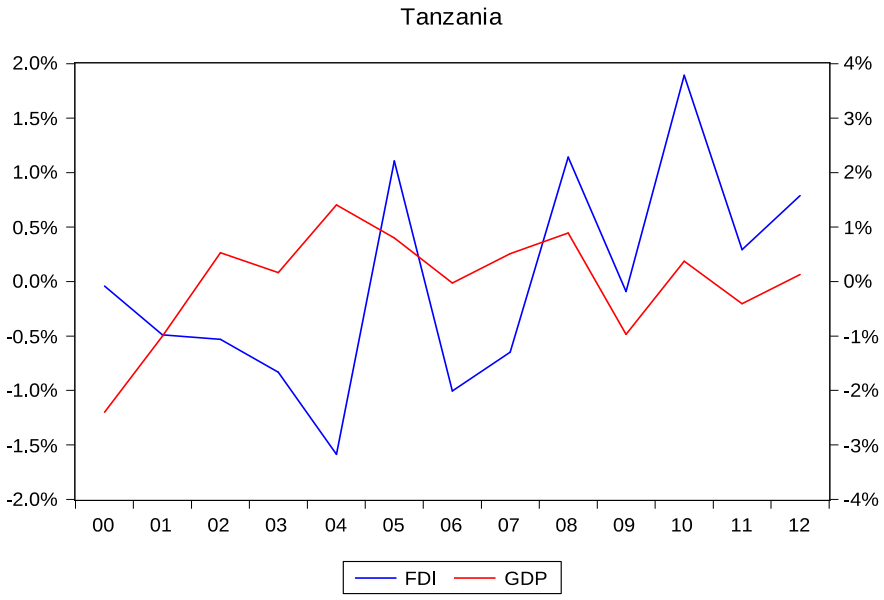

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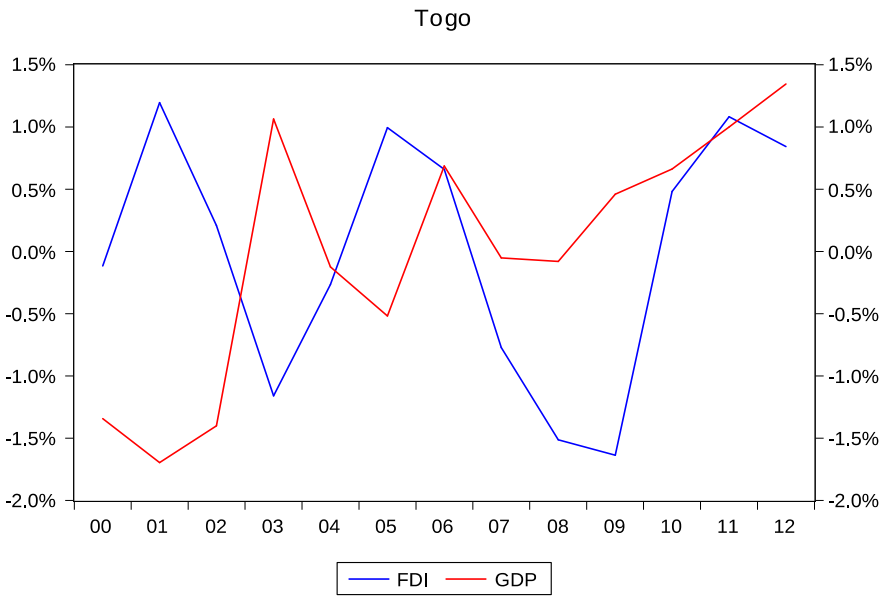

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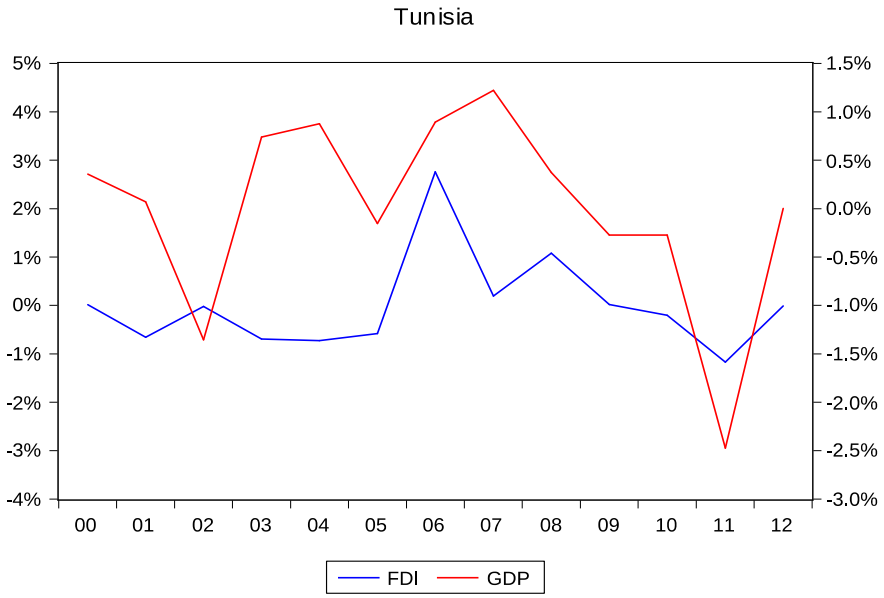

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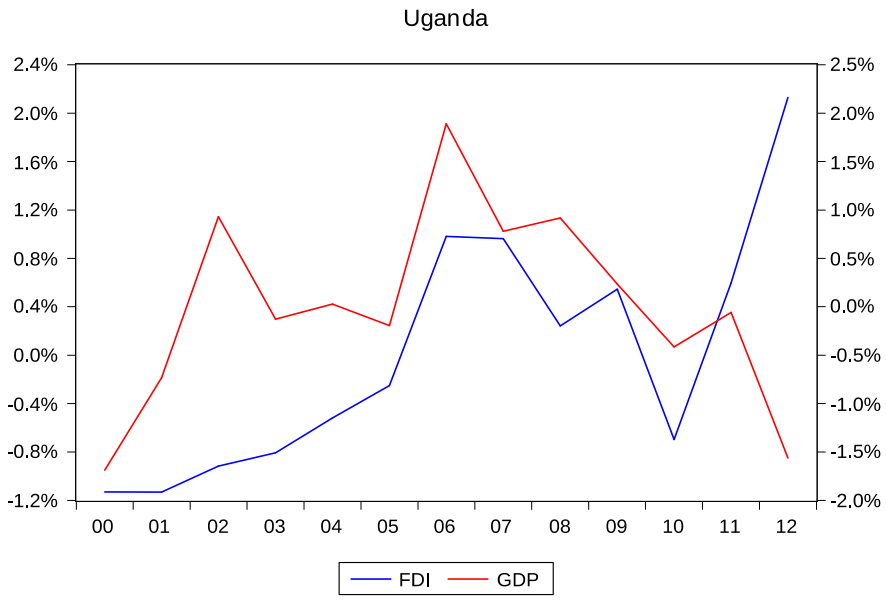

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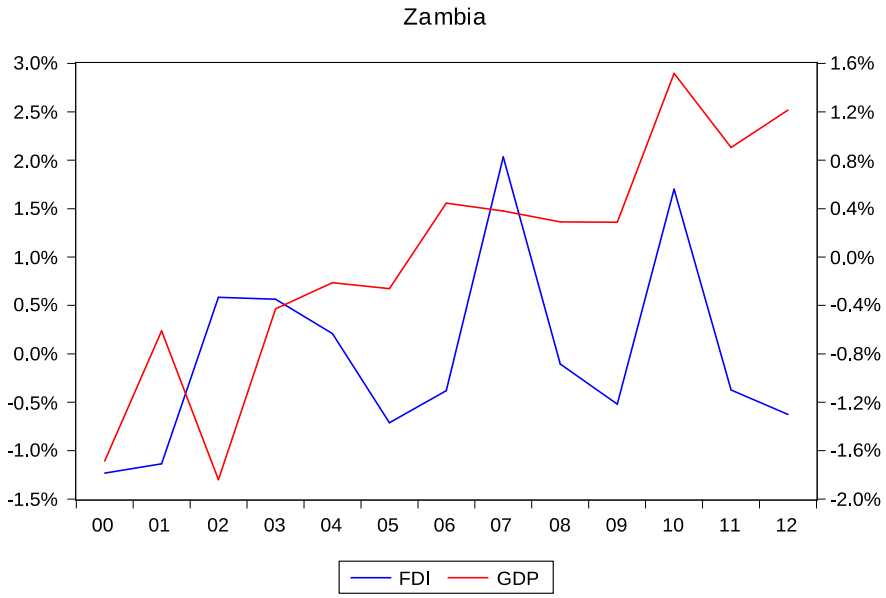
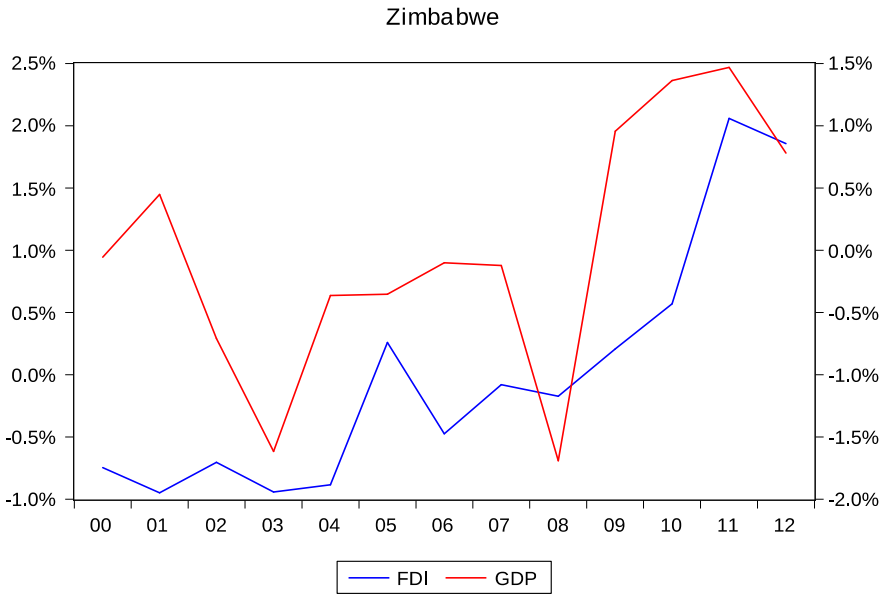


Source: World Bank, African Development Indicators

Figure A.48:



Source: World Bank, African Development Indicators

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