

**FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH IN
UGANDA**

MASTER OF ARTS (ECONOMICS) THESIS

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**UNIVERSITY OF MALAWI
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**FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH IN
UGANDA**

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DECLARATION

I, the undersigned, hereby declare that this thesis is my original work and has not been submitted to any other institution for similar purposes. Where other studies have been used, acknowledgments have been made.

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CERTIFICATE OF APPROVAL

The undersigned certify that this thesis represents the student's own work and effort and has been submitted with our approval.

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DEDICATION

To Mum, Mrs. E. Elel and to the loving memory of my (late) Dad Mr. Tom Elel.

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ABSTRACT

The study used multivariate vector autoregressive model (VAR) to investigate the impact of foreign direct investment (FDI) on economic growth, and assess the determinants of FDI inflows in Uganda for the periods between 1970 and 2010. Interpretations of results are based on Granger-Causality and innovation accounting (variance decomposition and impulse response functions). The study finds that international capital flows are of great importance in stimulating economic growth in Uganda. Results further revealed that the determinants of FDI inflows are domestic investments, growth in Gross Domestic product (GDP), growth in exports and imports; however import and export growth are not very impactful as compared to the rest of the variables in generating FDI inflows.

The study detected three different channels through which FDI inflows impacts on economic growth in Uganda. The first one is direct transmissions from FDI to GDP growth. The second channel is indirectly through domestic investments and by multiplier process, higher level of economic growth is generated. The third channel is through exports thereby yielding export-led growth.

The findings suggest different policy implications among which includes improvement in business climate to attract more FDIs; promotions of import substitution and export promotion strategies of industrialization; need for government involvement in sectoral distributions of FDIs; and facilitating technological transfers by building absorptive capacity for local firms through manpower development, collaborative research and development.

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LIST OF ABBREVIATIONS AND ACRONYMS

BOU	Bank of Uganda
CMC	Common Man Charter
COMESA	Common Market for East and Central Africa
DI	Domestic Investment
DSIP	Development Strategy and Investment Plans
EAC	East African Community
FDI	Foreign Direct Investment
GMM	Generalized Method of Moments
GDP	Gross Domestic Product
MDGs	Millennium Development Goals
M	Imports
MNCs	Multinational Corporations
MNEs	Multinational Enterprises
NP	Nakivubo Pronouncement
NRM	National Resistance Movement
NYTIL	Nyanza Textile Industry Limited
OECD	Organization of Economic Cooperation and Development
OLS	Ordinary Least Squares
R&D	Research and Developement
SADC	Southern African Development Community
TICAF	Tororo Industrial Chemical and Fertilizer
TNCs	Transnational Corporations
UBOS	Uganda Bureau of Statistics

UCB	Uganda Commercial Bank
UCI	Uganda Cement Industries
UDC	Uganda Development Corporation
UIA	Uganda Investment Authority
UNCTAD	United Nations Conference on Trade and Development
USD	United States Dollars
VAR	Vector Autoregressive
VECM	Vector Error Correction Model
WAIPA	World Association of Investment Promotion Agencies
WTO	World Trade Organization
X	Exports

CHAPTER ONE

BACKGROUND AND INTRODUCTION

1.0 Background

Foreign direct investment (FDI) has been recognized as an important resource for economic growth in developing countries. Many scholars have argued that the flows of FDI fills the gap between desired investments and domestically mobilized savings, increases tax revenue, create jobs, improve management and labour skills in host countries (Todaro and Smith, 2003; Hayami, 2001). In addition, FDI breaks the vicious cycle of underdevelopment and improve the current account of the balance of payment (BOP) through increased exports resulting from increased capacity and competitiveness of domestic production (UNCTAD, 2000; Hayami, 2001).

There are several channels through which FDI influences economic growth in developing countries. The most important channel being technological diffusion from developed to developing countries (Borensztein et al, 1997). These diffusions have been found to take place through importation of high-technology products, adoption of foreign technology, acquisition of human capital through various means, and research and development (R&D) by multinational corporations (MNCs) (Borensztein et al, 1997). Thus, growth rate in developing countries is a 'catch-up' process that involves copying and implementing these technologies (Mwilima, 2003).

Developing countries have experienced a sharp rise in the inflow of FDI in the last two decades since 1980s, most of which are Asian firms establishing footholds in other Asian countries and Africa (Lall, 1983; Kumar, 1995; Page 1998; Aykut and Ratha, 2003, and UNCTAD, 2004). Total investment by developing countries rose from about 1 percent of total foreign investment flows in the late 1970s to 4 percent in the mid 1980s and 6 percent by 1990, and thereafter peaked in the 1990s before the Asian crisis, and has since remained around 6-7 percent of the total FDI in the world. The rise has been due to reduction in protectionism by developed countries and economic liberalization by developing countries. South-South flows rose from 5 percent of total FDI flows in 1994 to 30 percent in 2000 (Aykut and Ratha, 2003). Global FDI have risen moderately to USD 1.24 trillion, 15 percent below pre-crisis

average but estimated to increase to USD 1.4-1.6 trillion in 2011 and approach its pre-crisis peak by 2013, whereas global output has risen back to its pre-crisis level (UNCTAD, 2011).

Most African governments have been putting a lot of measures (sometimes called “sweeteners”) to ensure that their economies remain attractive to FDI. This has been through liberalisation of the economy, offering fiscal incentives, easing restrictions on foreign investment and permitting profit repatriation (Graham and Spaulding, 2004). In addition, African countries have restored and maintained macroeconomic stability through devaluation of overvalued currencies, and reduction of inflation and budget deficits (UNCTAD, 1998). To boost investor’s confidence, they have established Investment Promotion Agencies (IPAs) and affiliated to multilateral agencies such as World Association of Investment Promotion Agencies (WAIPA) among others, some of which are widely respected as successful agencies that adopt state-of –the-art practices in all areas of promotion (Tillett, 1996).

Though several efforts have been made to attract foreign investors, the flow of FDI to some African states have been found to be decreasing (Asiedu, 2002 and UNCTAD, 2011). At USD 55 billion, the share to Africa in the total global FDI inflows decreased to 4.4 percent in 2010, from 5.1 percent in 2009, which is about 9 percent decrease. However, it should be noted that, whereas, anti-trade oriented FDI inflows to Africa is decreasing, natural resource- oriented (greenfield) and trade-oriented FDI has continued to dominate the continent, especially in the oil industry (UNCTAD, 2011).

Whereas other African countries have been experiencing huge declines in FDI inflows, Uganda hit a record level of USD 202 million in 2002 and since then, the flow has been on the rise (UNCTAD, 2004). It is not crystal clear whether FDI being attracted into different sectors of Uganda’s economy have the greatest multiplier effects in promoting sustained economic growth and indirectly alleviating poverty. It is further not clear whether the benefits from spillover effects of FDI on domestic firms have been realized as put forth by Borensztein et al (1997). There is also need to examine some of the macroeconomic and institutional characteristics of Uganda’s economy which makes it peculiar from other African economies in attracting FDI. It is therefore of great importance to understand for policy purpose, the short and long-

term impact of FDI on Uganda's economic growth and the factors that influence its inflows to Uganda.

1.1 Statement of the problem

Uganda's economy is striving to achieve Millennium Development Goals (MDGs) by 2015 and 8 percent growth rate of GDP per annum. However, Uganda's gross domestic savings as proportion of GDP is quite low, and it is unlikely to achieve this growth rate by mobilizing the meager domestic savings (BOU, 2000 and 2007). In addition, government expenditure and private investment have risen over and above government revenue and domestic savings, thereby creating a domestic imbalance (resource gap) that would in effect spillover into an external imbalance of imports exceeding exports hence foreign exchange gap and balance of payment problems (UBOS, 2010).

In reaction to this lack of resources, issues of international financial intermediations and FDI in particular have assumed great importance as a stopgap measures among policy makers in their effort to ensure high and sustainable economic growth (Obwona, 2001 and UNCTAD, 2005). The current government has realized the inadequacy of the domestic capital and has opened several economic sectors to foreign investors. The government have issued several investment and policy incentives which includes reduction in import and export duties; reduction in corporate tax rates –including tax holidays; creating a one-stop shop to reduce time needed to approve and register investments; reducing minimum capital requirement; expansion of markets through economic integrations; ensuring economic and political stability. Furthermore, Uganda Investment Authority (UIA) has been established to service investors and streamline the investment procedures. Nevertheless, Uganda's performance in attracting foreign investors has been fairly good in relation to other African countries. For instance, FDI inflows peaked to USD 260 million in 2005 and the trend has since been rising (UNCTAD, 2007).

Theoretically, it is expected that FDI would produce economic benefits by providing capital, technologies, promote competitions, enhance domestic investments, and eventually economic growth as stressed forth by Brooks and Sumulong (2003). However, Uganda's economic growth remains slow and sluggish, while fluctuating between 3.5 and 5.4 percent per annum as reflected in joint survey report by Bank of

Uganda (BOU), Uganda Investment Authority (UIA), and Uganda Bureau of Statistics (UBOS) (2001-2008). The benefits of FDI remain unclear for Uganda's case especially in generating economic growth. It is therefore worth investigating the impact of FDI on economic growth in Uganda. It is also of great importance that the central focus and interest of foreign investors in an economy be known clearly. Therefore, identifying the determinants of FDI in Uganda is a key step to knowing the factors responsible increasing performance of Uganda's economy in attracting FDI.

Unfortunately, studies focusing Uganda in particular are generally limited. This study focused on Uganda as a case, assessing critically and offering insight into extensively-disputed FDI-Growth nexus. The study is uniquely different from other studies in that, the researcher used time series data capturing the dynamic impact of FDI on growth over a long period of time; whereas previous studies by Obwona (2001) and Mutenyo (2008) used cross sectional and panel data which suffered data inadequacy, comparability and heterogeneity problems. Secondly, earlier studies do not test for causality between the variables. Failure to consider possibilities of two-way causation between variables may lead to the simultaneity problems. Thirdly, the VAR model used in this study incorporates long-run dynamics through critical analysis of Impulse response functions and variance decompositions. Neglecting these dynamics in the VAR may produce various estimation biases, giving rise to misleading analytical results. Finally, the variables used in this study to assess the determinants of FDI inflows are recent enough, capturing both domestic and external sectors of the economy and have rarely been used by researchers in Uganda in their studies of FDI and growth.

1.2 Objectives of the study

The main objective of this study was to investigate the key determinants of FDI and assess its impacts on economic growth in Uganda. The specific objectives were as follows:

- To analyze the impact of FDI on economic growth in Uganda.
- To examine the determinants of FDI in Uganda

1.3 Hypothesis of the study

- FDI inflows do not impact economic growth in Uganda.
- GDP, Domestic Investment, Exports and Imports do not determine FDI inflows to Uganda.

1.4 Significance of the study

The government of Uganda emphasizes the role of private sector as a way forward to achievement MDGs and economic growth. Consequently, policies have been formulated and lots of resources have been sacrificed in an attempt to create a suitable environment to both domestic and foreign investors. Currently, there is heavy international capital inflow in Uganda mostly in form of FDI, unfortunately its impact on economic growth have not been assessed for policy purpose. Therefore the findings from this study will give a clear picture of the relationship between FDI and Uganda's economic growth with the view of providing in-depth information relevant enough for policy design and implementation so as to maximize the positive benefits that come along with international capital inflows.

This study is also incited by the conflicting literature from different schools of thoughts as regards the spillover effects of FDI with others indicating positive while others showing negative spillovers. The study will shed more light by providing new empirical evidence on the effects of FDI on Uganda's economic growth.

CHAPTER TWO

OVERVIEW OF THE MACRO- ECONOMIC PERFORMANCE AND THE TREND OF FDI IN UGANDA

2.0 Introduction

This chapter describes in brief the macroeconomic performance of Uganda's economy. The section also gives a thorough description of the evolution of FDI since independence; the current trend, and sectoral distribution of FDI in Uganda.

2.1 Overview of Uganda's recent economic performance

According to UBOS (2011), Uganda's economy recorded weaker growth of 5.1 percent in 2010 because of receding aggregate demand, mainly in private consumption, and weak external demand for traditional exports, in particular coffee. In spite of the declines, regional demand for Uganda's exports remained high. Export earnings fell from USD 2.9 billion in the financial year 2008/09 to USD 2.8 billion in 2009/10. Although lower than 2008/09 levels (USD 883 million), remittance receipts in 2009/10 (USD 820 million) surpassed traditional foreign exchange earners coffee and tourism. Earnings from coffee and tourism in 2009/10 were USD 262 million and USD 400 million respectively. Sustained public investment in infrastructure and the global recovery are expected to spur growth in the short to medium term. The near-term prospects for the oil and gas sector remain uncertain because of disputes between the government and oil exploration firms. The real gross domestic product (GDP) growth rate is projected to increase from 5.3 percent in 2011 to 6.9 percent in 2012 because of increasing regional demand and the improved global outlook.

Growth in 2010 was primarily driven by the telecommunications, financial services and construction sectors, while the service and agriculture, forestry, fishing and hunting sectors, which account for 54.4 percent and 24.8 percent of GDP respectively, showed weaker growth. Growth in telecommunications was bolstered by expansion in mobile telephone usage while financial sector growth was boosted by the licensing of additional commercial banks, microfinance institutions, and expansion in

the size and outreach of the existing financial institutions. The rebound in food production was offset by falling prices for the cash crops of coffee and cotton, leading to stagnation in the agriculture sector. In the recent past, the declining GDP share of the agriculture sector has been the result of low productivity, limited value addition and lack of commercialization. On the demand side, growth was driven downward by private consumption and investment growth, albeit at rates lower than in 2009. Private consumption and private investment projections are for weaker growth in 2011 but recovery in 2012.

BOU (2010) show that inflation declined markedly from 13.4 percent in 2009 to 7.3 percent in 2010 as a consequence of falling food prices resulting from favourable weather conditions and subsequent improved food production. Projections are for further reductions in 2011 and 2012. The monetary policy stance over the medium term remains focused on seeking to restrict inflation at the target of 5 percent. The fiscal policy stance will remain expansionary in view of the government's sustained public investment in infrastructure, including roads and energy. Tax receipts are expected to recover in tandem with the improving economic prospects and tax administration efficiency gains, although these gains will not be sufficient to cover the shortfall in grants. Thus the overall fiscal deficit (including grants) as a percentage of GDP is expected to increase in 2011.

The external position weakened as a result of a decline in export earnings from the traditional export crops, in particular coffee. International reserves, currently covering slightly less than five months of imports, are expected to remain healthy, in part because of the weekly purchase of foreign exchange by the central bank.

The social sector also saw marked improvements with a reduction in the poverty rate from 31 percent in 2005/06 to 23 percent in 2009/10 although income inequality worsened. Progress was also recorded in education with the introduction of universal primary and secondary education programmes. However, stagnation and reversals were reported for the health-related indicators, BOU (2010).

Weak infrastructure, inadequate financial services to the private sector, and weaknesses in public sector management and administration are the major constraints to growth. The recently launched National Development Plan (NDP) is expected to prioritize reforms aimed at addressing these constraints.

Fiscal deficit, (including grants) is about 3 percent of GDP. In addition, because of the poor economic performance of the export sector, and the delays in the realization of savings from the enhanced IMF/World Bank initiative, the debt ratio has not improved since 2005. The ratio of debt service to domestic revenue increased from 18 percent in 2005 to 19.6 percent in 2008 although it has since stabilized around the same level. The stock of Uganda's external debt is estimated at USD 3.7 billion as of June 2009. The general performance of the country is poor though there is high prospect for higher growth performance in the nearby future.

2.2 The evolution and trend of FDI inflows to Uganda

FDI inflows in Uganda can be discussed under four regimes, namely, the post-independence up to 1970, then 1980 to 1985, and 1986 to 1996. The initial period saw increasing FDI trend, the second and the third, a declining and near death of FDI and the fourth, a resurrection of the FDI.

2.2.1 The post independence period up to 1970

Before independence, financing of development projects in Uganda came mainly from the British government which was the colonial authority. When the country became independent in 1962, the government had to look for alternative sources of funding including FDI and aid for her development programmes. Government attitude towards FDI was clearly demonstrated in the Uganda Industrial Act 1963 which put emphasis on the promotion of both foreign and local investors.

Government strategy sought to promote industrialization at the expense of agriculture, viewing the former as having both backward and forward linkages, a potential to create market for the other sectors and creation of more employment. Government role in industrialization process of the country was enhanced by the Uganda Development Corporation (UDC) formed by the British in 1952. The state and a few Asian private investors like the Madhvani and Metha groups boosted the industrial growth of the country in the post independence era.

The legal protection for FDI against compulsory acquisition by the state and rights to repatriate capital, interest and dividends was provided under the Foreign Investment (Protection) Act 1964. However, this did not stop the government from slowly moving towards the nationalization of foreign investment in subsequent years.

Towards this end, the UDC which was meant to start investments with big capital outlays and then sell them to private investors was given a legal right to control 51 percent in some of the businesses it had started and this included such projects like Tororo Industrial Chemicals and Fertilizers (TICAF), Uganda Cement Industries (UCI) and Nyanza Textiles Industries Limited (NYTIL).

The biggest step towards nationalization, however, came under the 1968 Common Man's Charter (CMC) which was viewed as a socialist stand. The economy was predominantly controlled by a few British- Asians who owned the commercial and industrial sectors of the country, a situation which government saw as unsustainable and therefore requiring change. The CMC was followed by the 1970 Nakivubo Pronouncement (NP) which spelt out strategies to implement the CMC. The NP increased government controlling interest from 51 percent to 60 percent in major private companies and manufacturing firms and excluded private enterprises from external trade. Foreign investors were not happy with this development. The business situation became tense and all indicators pointed towards political change. And indeed, in January 1971, the civilian government was overthrown by the army led by Idi Amin.

2.2.2 The Amin era: 1971 to 1979

This period was marked by the 'Economic War' of 1972, which resulted in the expulsion of the British-Asians, expropriation of the assets and businesses of foreign investors mostly Asians and eventual collapse of the industrial and commercial sectors.

The investment climate for foreigners in Uganda during this period was quite hostile. For instance the problems of political instability and insecurity, nationalization, the collapse of East African Community, were compounded by the requirement that a foreign investor be naturalized as a Ugandan to do business in the country. Failure to meet the set rules was considered sabotage and was liable for severe punishment which ranged from executions to deportation. So in effect, FDI was outlawed. The Ugandans who took over lacked capital, expertise and connections to continue as had the foreign investors and the commercial and industrial sectors virtually collapsed.

There were shortages of almost everything which led to price hikes. The country lacked foreign exchange and creditworthiness. Subsequently even the military government began to realize the importance of FDI and tried to revive it through the 1977 Foreign Investment Decree which exempted a foreign investor from import duty, sales taxes on plant and machinery in investment in an approved enterprise. The exemptions were not retrospective and only applied if the investment exceeded USD 571,000. Investors were reluctant to risk their money at that time because Amin was always unpredictable and FDI continued to elude the country. The legacy of the military junta during this period continued to haunt the country for a long time, driving away potential foreign investors.

2.2.3 The period from 1980 to 1985

The military government was overthrown in 1979. Although an elected government came into power in 1980, FDI continued to elude the country, mostly on account of past expropriations of foreign investments. The ratio of FDI to gross fixed capital, which measures the importance of inward FDI to an economy, was negative 0.2 between 1981 and 1985 compared to LDCs (Africa) of 2.3 during the same period. In order to correct this bad image, a bill was presented to and passed by the parliament to return the properties of the foreign investors. However, it was not implemented till 1990 by a new government under the National Resistance Movement (NRM).

2.2.4 The period from 1986 to 1996

To reverse the downward trend in FDI inflows, the NRM government undertook steps to provide Uganda as an investment location. These efforts have included, at the macroeconomic level, wide ranging economic policy reforms such as foreign exchange rates reforms. Other measures have included the liberalization of existing framework, the simplification of administrative procedures applicable to foreign investors, the conclusion of bilateral investment protection and promotion treaties and accession to various multilateral treaties facilitating FDI flows. The Investment Code 1991 is the law governing investment in Uganda, which replaced earlier statutes relating to foreign investments, namely the Foreign Investment Decree 1977 and the Foreign Investment (Protection) Act 1964. However, privileges and property rights enjoyed under previous legislation by holders of licenses were to

continue and were to be reviewed under the Code. The Investment Code 1991 provided for the creation of the Uganda Investment Authority (a one-stop-centre for investors) to facilitate the procedures for those interested in investing in the economy.

In order to encourage foreign investors, a number of investment promotions was organized abroad - the USA, Europe, India, Thailand, South Africa, etc. to explain the trade and investment opportunities available in Uganda, especially in agro-farming, fishing and forestry, minerals, power generation and tourism. Attractive incentives were provided to prospective investors as well.

A survey of actual and potential foreign investors shows that reform of regulatory and incentive environment has made Uganda more attractive to investors than many African countries. The Heritage Foundation (a research centre) of Washington DC in its December 1996 Report, 'Index of Economic Freedom', published in the Wall Street Journal, ranked Uganda as number 64 out of 150 countries. The ranking is based on the comparative analysis of economic freedom of a country in ten key areas, including: trade and taxation policy, wage and price controls, government consumption, monetary policy, capital flows and foreign investments, banking policy, property rights, regulations and the black markets.

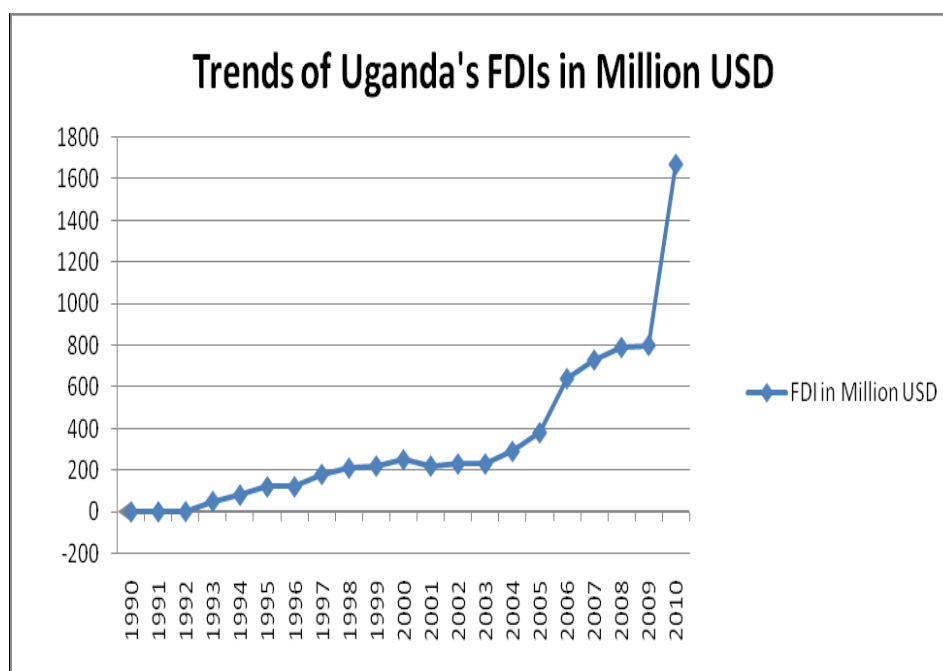
Thus, although Africa's share of FDI flows to developing countries dropped from 11 percent in 1986-1990 to 6 percent in 1991-1993 and down to 4 percent in 1994, the upward trend of investment flow into Uganda is a promising indication of the newfound confidence in a greatly improved political economy.

2.3 The recent trend of FDI in Uganda

Uganda is a front-runner in Africa for inward FDI. Flows to Africa during 1993-1997 increased by about 54 percent over the preceding five-year period, 1988-1992, of which Uganda has been one of the major beneficiaries (UNCTAD, 2001). Uganda is also the leading location for new FDI in the emerging regional market of the East African Community.

The recent trend dates back in the year 1990 when the country began recording remarkable improvements in capital inflows. The year 2009 had marked an exponential rise of FDI inflows to USD 799 million, and the trend have continued to grow steadily reaching USD1.67 billion in the year 2010. This has been as a result of

bilateral ties between Uganda government and Asian investors (UIA, 2010). Figure 1; show the trend of FDI inflows to Uganda from 1990 to 2010. The vertical axis is the amount of FDI inflows in million USD while the horizontal axis is years.



Source: Uganda Investment Authority (2010)

Figure 1: The trend of Uganda's FDI since 1990 to 2010

The accumulated FDI stock in Uganda reached USD 200 million in 1998, increasing from USD 4 million in 1990 (see figure 1). During 1992-1996, the ratio of FDI inflows to gross fixed capital formation reached 10.3 per cent, surpassing not only the average for Africa but also the average performance of all developing countries (UNCTAD, 1998). Much of Uganda's successes in the late 90s have been due to policies that promoted macroeconomic stability and good governance. Reforms carried out in the financial sector, marketing, taxation, restructuring of government ministries, privatization and divestiture, rehabilitation of infrastructures, return of Asian's properties, and the re-establishment of security of persons and properties. Currently, creation of Uganda Investment Authority (a one-stop-shop for investors) in 2001 with revised investment code, joining of regional blocks such as EAC, COMESA, SADC, discovery of new resources such as oil, cobalt, gold etc; and inclusion of several tax incentives in 2008/2009 budget for export-oriented manufacturing investments contributed heavily to the current upward trend.

2.3.1 Composition of FDI

Data from Private Capital Survey conducted by UBOS in 2005 indicates that by 2000, the total FDI inflows to Uganda were composed of 51 percent inform of equity capital, 12 percent inform of reinvested earnings, and 37 percent inform of net intercompany loans. However, preliminary estimates from 2007 survey suggest a change in this trend in 2003 with capital equity and reinvested earnings rising to about 80 percent and 26 percent respectively while net intercompany loans dropping to about -6 percent, indicating a net outflows inform of payments of intercompany loans taken in the previous periods.

On gross basis, FDI inform of intercompany loans contributes the largest share of FDI amounting to about 56 percent of the total inflows compared to 38 percent from equity capital. Indeed, this is the case for most developing countries where the intercompany loans exceeds equity capital due to higher return associated with it partly explaining the rapidly growing private sector debt.

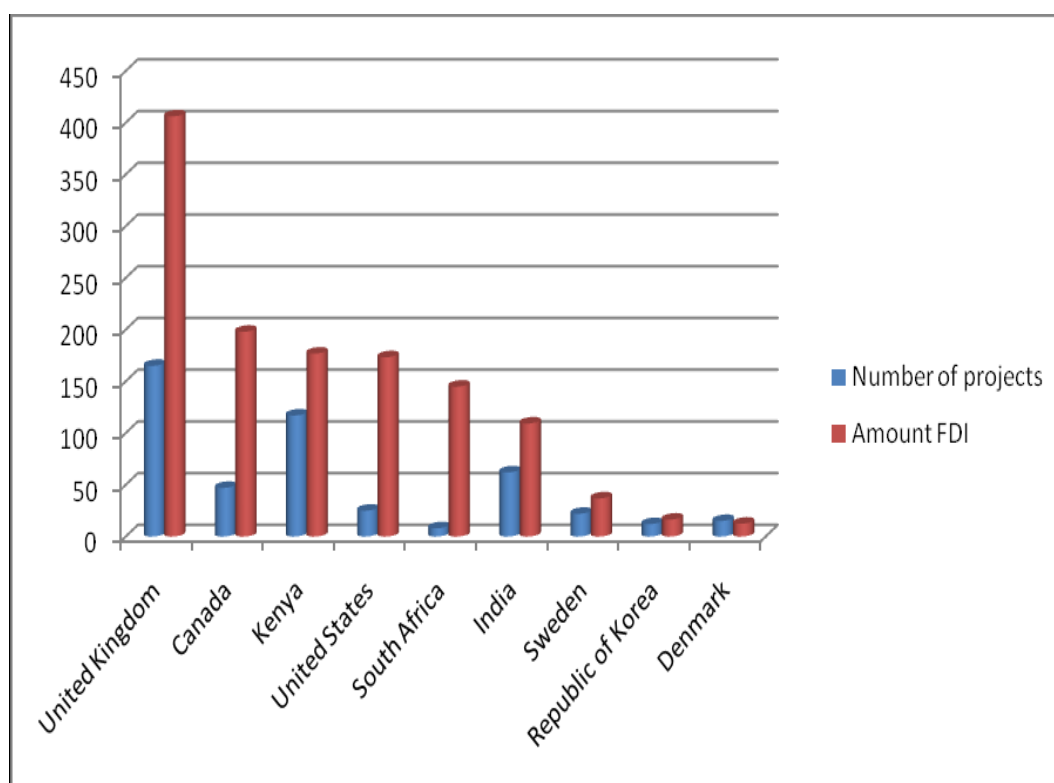
The rise in retained earnings in 2003 has been attributed to by financial, insurance and business service sector due to the high profitability of the financial sector more especially the banking industry. The rise in equity capital has been due to increased investment in wholesale, retail and catering which contributed to 20 percent to the total equity capital inflows; financing, business and service sector which in turn contributed 13 percent and the manufacturing sector which contributed about 7 percent of total equity capital.

2.3.2 Sources of FDI inflows

The source of FDI inflows shows that most FDI in Uganda is predominantly from the United Kingdom. The large portion of FDI inflows from UK and the contribution from Canada is largely due to the political decision of the President of Uganda to allow the expelled Asians during Amin's regime to return to Uganda and repossess their properties, most of which were manufacturing industries and real estates properties.

Their return accompanied by the rehabilitation and injection of capital in their repossessed properties has contributed significantly to FDI inflows to Uganda. Figure 2 gives a clear picture of different sources of FDI inflows to Uganda's economy. The

vertical axis is the amount of FDI inflows in million USD while horizontal axis is the countries of origin.



Source: Uganda Investment Authority, 2010

Figure 2: Sources of FDI inflows to Uganda

There has also been an increase in the stock of FDI from other developing countries on the continent with Kenya and South Africa in the lead. The stock of FDI held by developing countries has been growing from about 26 percent in 2001 to about 30 percent in 2007. This is a reflection of both the increase in wealth and lifting of capital control in many developing countries. In addition governments effort to join regional blocks such as COMESA and EAC have facilitated the inflow of FDI from countries within the region.

2.3.3 Destination of FDI

There is compelling evidence that FDI in Africa has been attracted by largely one or more of the following factors significantly determining the sectoral contribution: specific location advantage, host country policies, recent economic and structural reforms, and natural resources. The sectoral distributions of FDI in Uganda are as shown in table 1.

Table 1: Sectoral distribution of FDI-2006 to 2010

Value of foreign Projects Licensed by Uganda Investment Authority (Listed in million USD)					
Sector	2006	2007	2008	2009	2010
Agriculture, Hunting, Forestry and Fisheries	72.21	28.99	60.89	203.27	664.55
Community, Social and Personal Services	---	41.06	34.10	66.35	32.57
Construction	32.46	223.83	58.10	175.88	125.70
Electricity, Gas and Water	---	742.50	173.34	69.93	12.57
Financing, Insurance, Real Estate, Tourism, and Business Services	351.56	109.9	380.89	309.84	294.97
Manufacturing	291.2	325.36	641.23	577.36	327.20
Mining and Quarrying	10.48	88.25	30.36	53.8	103.31
Transport, Communication and Storage	468.6	444.81	946.12	84.65	49.33
Wholesale & Retail Trade, Catering & Accommodation Services	---	218.33	55.90	31.04	62.85
Total	1226.55	2223.03	2380.93	1571.82	1673.03

Source: Bank of Uganda and Uganda Investment Authority, 2010

2.3.3.1 The Manufacturing sector

The manufacturing sector leads in FDI inflows to Uganda. Foreign investors in this sector have largely concentrated on beverages/ soft drinks and breweries for local market, sugar, cement, footwear, packaging, plastics and polythene, and food processing. In addition, joint ventures have been established between local enterprises and international manufacturers in some of the industries such as South African Breweries, Coca-cola, and Pepsi in the breweries and beverages/ soft drink industries, respectively. Linkages with other sectors such as those with exporters for the case of manufacturers of materials industries (mostly owned by non-residents) have also spurred the growth of FDI in the sector. A survey by UNCTAD in 2008 showed a decline in the use of imported inputs partly due to availability of these inputs locally with significant portion produced within the same company.

2.3.3.2 The Service sector

The services sector of Uganda is also flourishing in terms of FDI. In 1999, the stock of FDI in the service sector was about 38 percent of total FDI but by the end of 2006, it has risen to about 63 percent. The technological progress that has been associated with the dominance of the manufacturing sector in the past has also contributed to increased demand for services connected to production of goods. Typical example of these services includes accounting, computer services (data and software), warehousing, transportation, communication, and business services.

According to BOU report (2010), the service sector have seen a rise in FDI inflows on account of growth in financial services partly due to the opportunities arising in the banking sector as a result of privatization of the largest commercial bank in the country (UCB) and the strategic investment objective of some global banks that are interested in acquiring retail banking in emerging markets with mainly long-term interests. These include Stanbic Bank, Barclays Bank, Standard Chartered Bank, Cairo International Bank, Kenya Commercial Bank, Bank of Baroda, Bank of Africa among others. Other form of financial service sector has mainly been through increased retained earnings in most of the large banks that are foreign owned mainly to improve their services through the creation of new products. A large share of FDI inflows to the service sector has been as a result of Uganda's privatization program which has resulted in the sale of entities engaged in the provision of a variety of services including airport handling, hotels, telecommunications etc.

In addition, the liberalization of the economy coupled with increased local demand for service such as mobile telephones has attracted investments from big players on both the regional and international scene such as MTN, Airtel, Warid Telecom, Orange Telecom among others. Moreover, income growth and technological progress have boosted the provision of services through the various forms of cross-border relationships in several sectors such as management and franchise contracts in hotels, restaurant and car rentals; joint ventures in some business services, recreational, legal, civil engineering etc; services in which a local partner is required for marketing and distribution for firms that tend to provide services through subsidiaries such as financial institutions.

2.3.3.3 Agriculture, Mining and Forestry

Agriculture, mining and forestry have attracted minimal FDI mainly because of inappropriate policies to encourage foreign investors these sectors. Nevertheless, Agriculture supports over 80 percent of Uganda's population through subsistence farming. Foreign firms investing in the agricultural sector are mainly involved in projects such as production of flowers for export markets, growing of oil seed and processing it to finished product, cotton growing, processing, spinning and knitting, producing and processing of livestock products such as milk and hides. They also engage in farming of horticultural crops such as fruits and vegetables while on the other hand they buy locally produced coffee and cereals for value addition (Uganda Bureau of Statistics, 2011).

The mining industry which dates back in 1950s was mainly engaged in the exploitation of copper deposits in Kasere which contributed to about 30 percent of Uganda's exports. The sector that almost collapsed is reviving very fast following recent discovery of oil and gold deposits in the country. This has attracted many foreign investors especially due to the fact that Uganda does not have the capacity to explore and extract these resources. For instance Tullow Oil Ltd of Britain is currently drilling oil Hoima, Heritage oil and gas Ltd and Energy Africa Ltd are exploring for petroleum in the Semeliki Basin while Total of France, and the Chinese CNOOC Ltd have invested and are planning to invest millions of USD in refining crude oil and marketing oil products (Uganda Bureau of Statistics, 2011). Further, despite the large demand for timber particularly for construction and furniture products, there has not been any FDI inflow to the forestry sector in Uganda except Malaysian Furnishing and Hwan Sung System Furniture that are importing, assembling and marketing forestry products from their country of origin, Malaysia and China respectively.

CHAPTER THREE

LITERATURE REVIEW

3.0 Introduction

In this chapter, the researcher presents review of the existing theoretical and empirical studies that have been undertaken to ascertain the relationship between FDI and economic growth as well as the determinants of FDI inflow in an economy.

3.1 Relationships between Foreign Direct Investments and Economic Growth

3.1.1 Theoretical Evidence

Solow's (1957) pioneering contribution to growth theory has generated the theoretical basis for growth accounting. In this neoclassical view, growth emanates from a specific production function which relates growth in output to input growth. In this case, we can decompose the contribution to GDP growth into growth rates of inputs such as technology, capital, labour, FDI, or by incorporating vector of additional variables in the estimating equation, such as imports, exports, institutional dummies etc. The growth accounting approach can be derived from the following equation:

$$Y = A\Phi(K, L) \quad (1)$$

Where Y , K , L , and A are output, capital, labour, and the efficiency of production respectively. Assuming a Cobb-Douglas production function with a constant return to scale, and taking total derivatives of equation (1) yields:

$$g_Y = g_A + \alpha g_K + \beta g_L \quad (2)$$

Where g_Y is the rate of growth of output which is equal to the sum of growth rate of A, K, L , (the subscripts are defined in per capita terms), and α , β , and γ are, respectively, the elasticities of output with respect to physical capital, labour and the ancillary variables.

Solow found that impact of FDI on the growth rate of output was constrained by diminishing returns to physical capital and the assumption that savings is a constant fraction of income. It's this that ensure the existence of a steady state where per growth of output does not depend on investment. Therefore, FDI can only exert a *level effect* on the output per capita, but not a *rate effect*. In other words, FDI cannot

alter the growth rate of output in the long run. With this as the framework, FDI cannot be considered seriously as an engine of economic growth. This argument is correct only in the steady state. If we start off from a steady state situation, an increase in investment (say there are inflows of FDI) will increase growth of aggregate output. Output per capita will also grow until the economy adjusts to steady state equilibrium again. At this point, growth is now no longer determined by investment but the economy is better off since per capita income is now larger although its growth rate is now zero consistent with the steady state

Mankiw, Romer, and Weil (1992) also modified Solow's model by including human capital in form of knowledge and skills acquired over time. They argued that omitting human capital and assumption of constant return to scale embedded in Solow's model would cause biased and inconsistent estimation of the coefficients on saving or investment and population growth. They argued that cross-country variations in output-per-capita are a function of variations in the rate of saving or investment, the rate of population growth, and the level of labour productivity.

Findlay (1978) developed Solow's model by assuming that the growth rate of technological diffusion is an increasing function of FDI. By decomposing inputs into foreign capital (from developed country) and domestic capital (from developing country), he found that an increase in foreign capital increases domestic capital formation. However, the rate of technological transfers to developing country is a decreasing function of both the relative technology gap and the share of FDI in the total capital stock.

The endogenous growth model began with Romer's (1986) seminal work. It emerged to fill the gaps that existed in the neoclassical growth model which includes the mechanism to overcome the diminishing return to capital accumulation and how to explain the long-run growth. In this model, technological progress stems from the activity of individuals or firms. Endogenous growth economists believe that improvement in productivity can be linked to faster pace of innovation and extra investment in human capital, research and development (R&D). In this theory therefore, FDI can affect long-term economic growth if it can provoke an increase in productivity of local firms or investors as they imitate advanced technologies from foreign firms.

According to Harrod (1939) - Domar (1946) growth model, for any country to experience economic growth, it must save some minimum proportion of its national income and this saving must be directed towards investment. The model postulates that:

$$\frac{\Delta Y}{Y} = \frac{s}{k} \quad (3)$$

Where Y is total output; $\frac{\Delta Y}{Y}$ is economic growth, s is the saving ratio and k is the capital-output ratio. In view of the above, there is resource gap existing between planned and actual saving level and this gap can only be filled by fostering international capital inflows which includes loans from multilateral lending agencies and commercial banks, and/or private foreign investment. While the former sources of foreign capital are flat or declining, FDI is the considerable potential source capable of generating economic growth.

According to the modernization hypothesis, FDI promotes economic growth by providing external capital and through growth, spreads the benefits throughout the economy. It is the presence, rather than the origin of investment that is considered to be important. Moreover, FDI usually brings with it advanced technology, and better management and organization. FDI is, in fact, the other 'engine' of growth in developing countries. Contrary to this modernization hypothesis, the dependency hypothesis, while admitting a possible short-term positive impact of the flow of FDI on economic growth, insists that there is deleterious long-term impact of FDI on economic growth as reflected in the negative correlation between the stock of FDI and growth rate. In the short-run, any increase in FDI enables higher investment and consumption and thus creates direct and immediate impact on economic growth. However, as FDI accumulates and foreign projects take hold, there will be adverse effects on the rest of the economy that reduce economic growth. This is due to the intervening mechanisms of dependency, in particular, 'decapitalization' and 'disarticulation' (lack of linkages) (Bornschiefer, 1980; O'hearn, 1990).

Several literature have put it clear that a country's ability to take advantage of the positive effects of FDI might be limited by local conditions such as the development of the local financial markets, the educational level of the country among others. This

is called absorptive capacity of a country. Borensztein et al (1998) and Xu (2000) postulated that FDI brings technology, which could translate into higher growth only when the host country has a minimum threshold of stock of human capital. Durham (2004), and Hermes and Lensink (2003) provide evidence that only countries with well developed financial markets gain significantly from FDI in terms of their growth rates. Research by Alfaro et al (2006), also came out with similar conclusions as follows:

- An increase in FDI leads to higher growth rates in financially developed countries as opposed to the rates observed in financially poor countries.
- Local conditions such as the development of financial markets and the educational level of a country, affect the impact of FDI on growth.
- Policymakers should exercise caution when trying to attract FDI that is complementary to local production. The best connection is between final and intermediate industry sectors, not necessarily between domestic and foreign final goods producers.
- Human capital plays a critical role in achieving growth benefits from FDI.

On the other hand, Hermes and Lensink (2003); summarizes different channels through which positive externalities associated with FDI can occur in the host country, namely: (i) Competition channels where increased competition is likely to increase productivity, efficiency and investment in human and or physical capital. Consequently, the industrial structure may change towards a more export-oriented activity; (ii) Training channel through increased training of labour and management; (iii) Linkages channels whereby FDI is always accompanied by technological transfers. This transfer takes place through transactions with foreign firms or imitation by domestic firms.

As summarized in Balasubramanyam, Salisu and Sapsford (1996) and De Mello (1999), FDI is a composite bundle of capital stock, know –how, and technology and can augment the existing stock of knowledge in the recipient country through labour training, skill acquisitions, diffusion into local firms, and the introduction of alternative management practices and organizational arrangement thereby bringing about growth effects in the long-run.

In contrast to all these positive conclusions, Reis (2001) formulated a model that investigates the effects of FDI on economic growth when investment returns may be repatriated. She stated that if an economy is open to FDIs, domestic firms will be replaced by foreign firm in the R&D sector. This may decrease domestic welfare due to the transfer of capital returns to foreign firms. In her model, the effects of FDI on economic growth depend on the relative strength of the interest rate effects. If the world interest rate is higher than domestic interest rate, FDI has a negative effect on growth, while if the world interest rate is lower than domestic interest rate, FDI has a positive effect on growth.

Firebaugh (1992) listed several additional reasons why FDI inflows may be less profitable than domestic investment and may even be detrimental. The country may gain less from FDI inflows than domestic investment, because multinationals are less likely to contribute to government revenue in form of taxes; FDIs are less likely to encourage local entrepreneurship; multinationals are less likely to reinvest profits; foreign firms are less likely to develop linkages with domestic firms; and are more likely to use inappropriately capital-intensive techniques. FDI may also be detrimental if it “crowds out” domestic businesses and stimulates inappropriate consumption pattern.

Development economists who expounded the core-periphery model, including the work of Rosenstein-Rodan (1943), Myrdal (1957) and Hirschman (1958), argue that multinational corporation are harmful to the host countries more especially trade-oriented or natural resource-oriented FDI. They advanced that this kind of FDI is “resource seeking” in nature and it is based on exploitations with no growth effects. They advocated for inward-oriented FDI aiming at import-substituting activities, producing goods that are comparatively disadvantageously produced by the host country and as well using labour-oriented technologies. They concluded that, if import-substitution industries grow successfully towards export-orientation then FDIs of this nature are capable of causing economic growth.

3.1.2 Empirical Evidence

The macroeconomic empirical literature finds weak support for an exogenous positive effect of FDI on economic growth. The non-automatic transmission process

of FDI to growth is shown in several other studies. The jury is still out on whether FDI directly causes economic growth without preconditions.

De Mello (1997) found that FDI leads to growth when there are efficiency spillovers to domestic firms. In other word, when domestic firms production processes improve as a result of exposure to more technologically advanced methods of the transnational corporation. Krause (1998) used an error correction model and found that FDI leads to growth even when the effects of fiscal policy, domestic education expenditures and savings growth are taken into account. He has also been found out that the sectors matter a lot. Alfaro (2003) using cross-country data for the period 1981-1999 showed that total FDI exerts ambiguous effect on growth. FDI in the primary sector tend to have a negative effect on growth while investment in manufacturing has a positive effect. Evidence from the service sector is ambiguous.

In a widely cited work, Borensztein et al. (1998) examine the effect of FDI on economic growth in cross country regression framework, using data on FDI outflows from OECD countries to sixty-nine developing countries over the period 1970-1989. They found that FDI is an important vehicle for adoption of new technologies, contributing relatively more to growth than domestic investment. In addition, through interactive relationship between FDI and the level of human capital in the host country, economic growth can result. However, they qualify their results in as much as the higher productivity of FDI only holds if the host country has a minimum threshold stock of human capital.

Li and Liu (2005) applied both single equation and simultaneous equation system techniques to investigate endogenous relationship between FDI and economic growth. Based on a panel of data for 84 countries over the period 1970-1999, they found positive effect of FDI on economic growth through its interaction with human capital in developing countries, but a negative effect of FDI on economic growth via its interaction with the technology gap.

Bengoa et al. (2003) estimated the relationship between FDI and economic growth using panel data for eighteen Latin American countries over the period 1970-1999. They showed that FDI has positive and significant impact on economic growth in the host countries. However, in their other studies, Bengoa et al. (2003) found that the benefit to the host country requires adequate human capital, political and

economic stability and liberalized market environment. Moreover, the volatility of FDI and the financial adjustment necessary because of this volatility has been observed by several economists (De Gregrio and Guidotti, 1995; Alfaro et al., 2004; and Durham 2004). They generally argue that countries with well-developed financial markets can not only attract higher volumes of FDI inflows but also allow host countries to gain more extensively from them because of their ability to adjust to the volatility of capital inflows.

However, as in most other papers, Bengoa et al. (2003) found that the benefit to the host country requires adequate human capital, political and economic stability and liberalized market environment. Moreover, the volatility of FDI and the financial adjustment necessary for this volatility has been observed by several economists (De Gregrio and Guidotti, 1995; Alfaro et al., 2004; and Durham 2004). They generally argued that countries with well-developed financial markets can not only attract higher volumes of FDI inflows but also allow host countries to gain more extensively from them because of their ability to adjust to the volatility of capital inflows.

In contrast with all the above findings, Carkovic and Levine (2005) utilize Generalized Method of Moment (GMM) to observe the relationship between FDI and economic growth. They used data for 1960-1995 for a large cross-country data set, and found that FDI inflows neither exerts influence on economic growth directly nor through their effect on human capital. Choe (2003) adapts a panel VAR model to explore the interaction between FDI and economic growth in eighty countries in the period 1971-1995. He found evidence of Granger causality relationship between FDI and economic growth but with stronger effects visible from economic growth to FDI rather than the opposite.

In the recent study, Vu et al. (2006) study sector-specific FDI inflows for both China over the period 1985-2002 and Vietnam over the period 1990-2002. Using an augmented production function specification and regression methodology, they concluded that FDI has positive and direct impact on economic growth as well as an indirect effect through its impact on labour productivity. In a similar sectoral investigation, they found that the manufacturing sector appears to gain more than other sectors from sector-specific FDI.

Lensink and Morrissey (2006); used a cross-sectional panel data and instrumental variable techniques and found that FDI has a positive impact on growth but their findings were condition on the level of human capital development in the host country. However, Adeolu (2007) reveals that human capital are not FDI inducing.

In analyzing whether FDI stimulates economic growth in Sub-Saharan Africa, Mutenyo (2008), finds that FDI has a positive impact on Economic growth but its significance reduces when economy imposes control on private investment.

3.2 The determinants of foreign direct investments

Theories of FDI can be split into two groups: *micro-level* determinants of FDI and *macro-level* determinants of FDI. The micro-level theories of determinants of FDI try to provide answers to the question why multinational companies prefer opening subsidiaries in foreign countries rather than exporting or licensing their products, how MNCs choose their investment locations and why they invest where they do. The macro-level determinants deal with the host countries situations that determine the inflow of FDI.

3.2.1 Micro-level Theories of FDI

3.2.1.1 The Early Neoclassical and Portfolio Investment Approaches

According to the early neoclassical approach, interest rate differentials are the main reason for the firms to become a multinational company. In this line of arguments, capital moves from a country where return on capital is low to a place where return on capital is high. This approach is based on perfect competition and capital movement free of risk assumptions (Harrison et al, 2000). “The portfolio approach to FDI reacted to this early theory of FDI by emphasizing not only return differentials but also risk” (Almayehu, 1999). However, the movement of capital is not unidirectional. Capital moves from countries where return on capital is high to countries where return on capital is low and vice versa.

3.2.1.2 The Product Life Cycle Theory of FDI

This theory was first developed by Vernon in 1966. A new product is first produced and sold in home market. At the early stage, the product is not standardized;

that is, per unit costs and final specification of the product are not uniform. As the demand for the product increases, the product will be standardized. When the home market is saturated, the product will be exported to other countries. The firm starts to open subsidiaries in locations where cost of production is lower, when the competition from the rival firms intense and the product reaches its maturity. Therefore, FDI is the stage in the product lifecycle that follows the maturity stage (Dunning, 1993). Vernon's product life cycle theory is a dynamic theory because it deals with changes overtime. However, it seems that the theory is not confirmed by empirical evidence, as some multinational companies start their operations at home and abroad simultaneously (Chen, 1983).

3.2.1.3 The Eclectic Theory of FDI

John Dunning developed an eclectic theory of FDI, which is called *OLI paradigm*. O, L and I refer to Ownership advantage, Location advantage and Internalization conditions, respectively.

Operating in a foreign country market has many costs and these “costs of foreignness” include a failure of knowledge about local market conditions, cultural, legal and many other costs. Therefore, foreign firms should have some advantages that can offset these costs. Ownership advantage is a firm specific advantage that gives power to firms over their competitors. This includes advantage in technology, in management techniques, easy access to finance, economies of scale and capacity to coordinate activities. Unlike ownership advantages, location advantages are country specific advantages. Transnational Companies (TNCs) in order to fully reap the benefit of firm specific advantages, they should consider the location advantage of the host country. This includes accessibility and low cost of natural resource, adequate infrastructure, political and macroeconomic stability. As a consequence, the location advantage of the host country is one essential factor that determines the investment decision of TNCs. Internalization is multinational companies' ability to internalize some activities to protect their exclusive right on tangible and intangible assets, and defend their competitive advantage from rival firms. Accordingly, all the three conditions must be met before transnational companies open a subsidiary in a foreign country.

3.2.2 Macro-level Determinants of FDI

The macro-level determinants of FDI include any host country's situations that affects the inflow of FDI, like market size, the economic growth rate, GDP, infrastructure, natural resource, the political situation etc.

3.2.2.1 The size of Domestic Market

The size of the domestic market is a fundamental determinant of FDI. The wealth and development of a country can be used as proxy to measure the size of the domestic market. Most commonly, per capita income (PCI), which is an indicator of effective demand, is used to measure the size of local market. In addition to PCI, the GDP of a country and the population size are also used as an indicator to measure the size of local market. However, if a firm is export-oriented and not market seeking, the size of domestic market will not be an important determinant of FDI (Root and Ahmed, 1979). A large market can help firms producing tangible products to achieve scale and scope economies. The domestic market growth rate which is measured in terms of population and GDP growth rate also determines the inflow of FDI into a country (UNCTAD, 1998).

3.2.2.2 Natural Resources

Natural resources, historically, are the most important determinants of FDI. From the 19th century up to the eve of the Second World War about 60 percent of the world stock of FDI was in natural resources. The need to secure economic and reliable sources of mineral and primary products for the (then) industrializing nations of Europe and North America, natural resources were the major reason for the expansion of FDI (Dunning, 1993). Birhanu (1999) noted that countries that have sufficient deposit of some minerals can attract foreign investors particularly those involved in exploitation of natural resources.

3.2.2.3 Level of Infrastructure

In today's globally competitive business environment, absence and lack of efficient infrastructure means not only high transaction costs for those that are already in business but also a barrier to entry for new firms. Infrastructure development has high importance for the expansion of FDI because efficient and adequate infrastructure implies better access to natural resources and potential market.

According to Birhanu (1999) availability and reliability of telecommunication services, developed and adequate road and air transport services, reliable water and electricity supply facilities have paramount importance for the profitability of foreign companies and in attracting FDI.

3.2.2.4 Privatization

Privatization provides a concrete vehicle for TNCS to invest in a country. It has generated substantial amounts of FDI in many developing economies. Sound privatization programs have three main characteristics: political commitment, business orientation, and transparency. Large scale privatization programs send a signal to foreign investors that a government is taking steps to create a climate conducive to FDI. Thus, FDI in privatization of infrastructure enterprises (e.g. telecommunications) and industrial enterprises would have great impact on other FDI flows (IFC&FIAS, 1997).

3.2.3 Empirical Literatures on determinants of FDI

Schneider and Frey (1985) research on 80 developing countries concludes that a country's level of development is the major determinant of FDI. Moreover, they explain that political instability in a country leads to a sharp decline in the inflow of FDI. Noorbakhsh et. al. (2001) found that human capital is the chief determinant in export -oriented and labour-intensive industries. Root and Ahmed (1979) study the determinants of non-extractive FDI in 70 developing countries and find that urbanization, better infrastructure and higher GDP per capita increase FDI inflows.

Asiedu (2002) conducted a study on 32 sub-Saharan African countries and 39 non-sub-Saharan African countries over a period of 10 years (1988-1987). She argues that FDI inflows into Sub-Saharan African countries are market seeking. Aseidu (2004) argues that natural resources and market size are the chief determinants of FDI in Africa. She also said that FDI inflow to Africa can be promoted by political and macroeconomic stability, by educated labour force, less corruption and an efficient legal system. UNCTAD (1999) indicates that the bad image of Africa has deterred the FDI inflow in to the continent.

Morisset (2000) argues that Sub-Saharan African countries can become internationally competitive and attract FDI like any other developing country by improving their business environments. Jenkins and Thomas (2002) conducted a

research on determinants and characteristics of FDI in Southern Africa. They argue that the size of the local market, particularly for non-primary sector enterprise, is an important motivation for FDI in the region. In addition to natural resources and privatization, the historical bond with Africa propels investment in the sub-Saharan region. Linda and Said (2007) conducted a study on the determinants of FDI in North African countries and the Middle East region and conclude that country openness, return on investment, being oil exporting country and being a member of world trade organization (WTO) are the chief deriving factors of FDI inflow.

3.3 Summary and deductions from the literature

While there have been explorations on the role of FDI in the development process of host countries, in researcher's view, the empirical evidences available are still insufficient for reaching definitive conclusions, especially as regard poorer countries, which are the countries where the potential impact of FDI are greatest. This study will contribute to the existing literature by applying a multivariate VAR model to explore the possible links between FDI and economic growth as well as determinants of FDI inflows in Uganda. Specifically, the study used impulse response function, variance decomposition and Granger causality which are techniques that have not been widely explored by most authors in their studies of FDI and growth.

Finally it should be noted that globally, many empirical studies have been conducted to identify the factors that influence the inflow of FDI. Nevertheless, the variables which were identified as determinants of FDI vary from study to study and from country to country. Therefore, in conducting this study, it was slightly difficult to derive list of determinants of FDI, especially as some have gained or lost importance over time. However, the researcher focused on key variables, recent enough in determining FDI inflows to Uganda, capturing both domestic and external sector of the economy such as import and export sectors.

CHAPTER FOUR

METHODOLOGY

4.0 Introduction

This chapter presents the methodology used in the study. The chapter discusses in detail the specification of the model; description of the variables used in the study, the diagnostic tests conducted, interpretation techniques, and the source of data.

4.1 Model Specification

This study employs Johansen multivariate cointegration approach (Johansen, 1988; Johansen and Juselius, 1990), specified as a reduced-form VAR model of order p . A similar model was used by Marial and Ngie (2009) to assess the domestic determinants of foreign direct investment in Malaysia. In this study, the model is used to capture the impact of FDI on economic growth and to assess the determinants of FDI inflows in Uganda. The model is specified as:

$$y_t = A_1 y_{t-1} + \dots + A_i y_{t-i} + \dots + A_p y_{t-p} + Bx_t + e_t \quad (4)$$

Where:

y_t is the vector of endogenous variables;

x_t is the vector of deterministic variables such as constants, trends and seasonal terms;

A_i and B are matrices of coefficients to be estimated;

e_t is a vector of innovations;

i is the lag length, p is the maximum lag length and t is the time index.

Equation (4) states that the process by which the endogenous variables in y_t fluctuate about their time-invariant means is completely determined by the parameters in A_i and B ; and the (infinite) past history of y_t itself, the exogenous variables x_t and the history of independently and identically distributed (i.i.d.) shocks or innovations, $e_{t-1}, e_{t-2}, \dots$

Therefore, the joint distribution of y_t is determined by the distributions of x_t and e_t and the parameters B , and A_i .

Estimating parameters in a VAR model requires that the variables in y_t and x_t be covariance stationary, meaning that their first two moments exist and are time invariant. If the y_t are not covariance stationary, but their first differences are, a vector error-correction model (VECM) may be used. However, according to the granger-representation theorem (Engle-Granger, 1987), if Cointegration is established among a vector of variables in the model, then a valid error correction model may be estimated. Therefore, in this study, the choice of whether to use VAR or VECM for estimations follows Granger representation theorem; that is, it is based on Cointegration results. Interpretation of results in VAR models is based on Impulse Response functions, Granger-Causality, and Variance Decompositions which are discussed in detail in the later sections of this chapter.

The endogenous variables that are in y_t are: LNFDI, LNGDP, LNDI, LNX and LNM which represents: foreign direct investments, nominal gross domestic product, domestic investment, exports, and imports respectively; all expressed in logarithms.

4.2 Description of Variables

Foreign Direct Investment

LNFDI is the natural logarithm of net nominal inflows of foreign direct investment to Uganda expressed in USD. FDI is 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, 2010). Just like in international trade, foreign direct investment (FDI) involves continuous interaction among international agents leading to knowledge flows across economies. It is contended that FDI in developing countries contributes to capital formation and increased productivity in the host country because transnational corporations (TNCs) have specific advantages (e.g. production, marketing, management) that are generally superior to those of domestic firms. The arrival of TNCs is expected to lead to technological upgrading of domestic firms through technological spillover effects via imitation, competition, labour mobility and exports (which spells out the degree of exposure to the technology frontier). According to a

report by the Word Bank (2006), several studies have concluded that FDI can promote the host country's economic growth by increasing on the productivity growth and exports hence increasing the degree of openness. This variable is therefore included in this study so that its impact on economic growth can be assessed. The relationship between FDI and growth is expected to be positive in this study.

Gross Domestic Product

LNGDP is the natural log of nominal gross domestic product expressed at current US dollars. This variable is used to capture the economic growth because the first difference of a natural log yields the growth rate. GDP is the sum of gross value added by all resident producers in the economy plus any taxes on the product minus any subsidies not included in the value of the products (World Bank, 2010). An increase in the country's level of GDP is an indication of economic growth. It also implies that capital and other factors of production have gained productivity. Increment in the inflow of foreign capital is supposed to supplement the host country's capital thereby boosting production hence generating output growth. On the other hand, the level of GDP is also used as a measure of market size which is one of the factors that determine FDI inflows to a country. According to Aseidu (2006), the size of the host market, which also represents the host country's economic conditions and the potential demand for their output as well, is an important element in FDI decision-makings. More so, Scaperlanda and Mauer (1996) argued that FDI responds positively to the market size once it reaches a threshold level that is large enough to allow economies of scale and efficient utilization of resources.

Domestic Investments

LNDI is the natural log of gross domestic investment measured at current US dollars. It is gross capital formation which includes investments in fixed assets (infrastructures) such as roads, schools, private dwelling places, hospitals, machinery, commercial and industrial buildings, telecommunication, water and electricity supply, both by private and public sectors; plus changes in the level of inventories (Word Bank, 2010). A country's level of investment in fixed assets reflects the cost of doing business in that country. According to Birhanu (1999), a country's level of investment in fixed assets is of paramount importance to MNEs because it forms the baseline for assessment of risks and profitability of investing in such a country. On the other hand,

Shelvanathan (2008) found that, the channel through which FDI inflows impacts economic growth is not clear unless viewed through domestic. This variable is included to capture how domestic investment influence FDI inflows and its relationship to economic growth.

Exports

LN_X is the natural log of exports in US dollars. Comprise of the value of all goods and other market services provided to the rest of the world (World Bank, 2010). Empirical evidences from (Jun and Singh, 1996) exist to back up the hypothesis that higher levels of exports lead to higher FDI inflows because the investors are assured of large market for their products. On the other hand, empirical studies by Sun (1998) and Shan (2002b) exist to support that FDI exist to increase demand for exports in the host country by facilitating investment in export industries. This variable is included to capture the relationship between FDI inflows and exports. It also captured how FDI generates export –led growth.

Imports

LN_M is the natural log of imports in US dollars. Import consists of the value of all goods and other market services received from the rest of the world. It include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services (World Bank, 2010). It captures the relationship between imports and FDI inflows and how it is linked to economic growth.

4.3 Lag Length Determinations

Charemza and Deadman (1997) advised that the lag length in a VAR model should be chosen such as to yield residuals without significant autocorrelation. This is because serial correlation can lead to inconsistent least squares estimates. In order to select the appropriate order of the VARs, the study largely relied on the application of likelihood ratio (LR) tests as described by Enders (2004), while paying due attention to serial correlation. The likelihood ratio test is specified as below:

$$LR = T(\ln|\sum_{RR}| - \ln|\sum_{UR}|) \quad (5a)$$

$$LR = (T - c)(\ln|\Sigma_{RR}| - \ln|\Sigma_{UR}|) \quad (5b)$$

Where T is the number of usable observations, c is the number of parameters estimated in each equation of the unrestricted VAR, while $\ln|\Sigma_{RR}|$ and $\ln|\Sigma_{UR}|$ are natural logarithms of the determinants of the variance/covariance matrices of the residuals in the restricted and unrestricted VARs, respectively. Equation (5a) is the standard LR statistics and (5b) is the augmented LR statistics by Sims (1980). The statistic follows a χ^2 distribution with degrees of freedom equals to the number of restrictions in the system. The null hypothesis is that the restriction is binding. If the calculated value of the statistic is less than the critical value at a pre-specified significant level, we fail to reject the null hypothesis. The restricted (RR) equation is turned into unrestricted (UR) equation and the test continues until the appropriate lag is established (Enders, 1995). For Akaike Information Criterion (AIC) and Schwarz Information Criterion (SIC) statistics, selection criterion is based on the criterion that yield the smallest lag order that account for serial correlation of any order without much loss in the degrees of freedom.

4.4 The Time series properties of the data

4.4.1 Unit Root test for Stationarity

A series is said to be stationary if its mean and variance are constant over time and the value of covariance between the two time periods depend only on the gap between the two time periods and not the actual time at which the covariance is computed (Gujarati, 2005). If they are not stationary, then the means, variances and covariances of the time series will not be well defined.

Maddala (1977) pointed out that meaningful results can only be obtained from Ordinary Least Square (OLS) techniques only when the data are stationary. Consequently, a non-stationary time series is made stationary before analysis to avoid spurious results. Since VAR model is simply OLS of lagged values and employs OLS techniques, the test for stationarity remains very important. Augmented Dickey-Fuller and Phillips-Peron tests are conducted to test for the presence of unit roots:

Augmented Dickey-Fuller Tests

Before running a VAR model, the researcher used Augmented Dickey-Fuller (ADF) test to test for the presence of unit root. Dickey-Fuller (DF) test is a test against the null hypothesis that there is a unit root series integrated of order one. The test equation is of the form:

$$\Delta X_t = \alpha_o + \beta X_{t-1} + \alpha_1(t) + \varepsilon_t \quad (6)$$

The DF test is the test of coefficient β in the equation (8). X_t is any of the variables to be used in the model. The ADF test is the same as the DF except that augmentation in terms of lags of ΔX_t are incorporated. The equation is of the form:

$$\Delta X_t = \alpha_o + \beta X_{t-1} + \alpha_1(t) + \sum_{i=1}^k \beta \Delta X_{t-i} + \varepsilon_t \quad (7)$$

Where the optimal lag length i is set so as to ensure that any autocorrelation in ΔX_t is absorbed and the error term ε_t is distributed as white noise. It is for this reason that it is considered to be a better test than the former. EvIEWS gives an option whether to include a constant, α_o , in the equation, or to include both α_o and the linear trend t or none.

Phillip-Perron Test

In addition to ADF, the study made use of Phillips-Peron (PP) unit root test to test for stationarity. Phillips and Perron (1988) suggested a non-parametric method of controlling for higher order autocorrelation in a series. It is similar to DF test except that it relaxes the assumptions of autocorrelation and heteroskedasticity. This test is based on the following first-order autoregressive [AR (1)] process:

$$\Delta X_t = \alpha + \beta X_{t-1} + \varepsilon_t \quad (8)$$

Where ΔX_t is the variable of interest, α is a constant, and β is the slope parameter.

The non-parametric correction is made to the t-ratio of the β coefficient in equation (8) to account for the autocorrelation in error term, ε_t . The correction is based on an estimate of the spectrum of ε_t at zero frequency that is robust to autocorrelation of unknown form. In this study, this estimation was based on Bartlett Kernel. The

optimal bandwidth in PP equation was selected using Newey-West (1994) method. The critical values tabulated by McKinnon (1999) are used in making inferences regarding the time series properties of the variables.

4.4.2 Tests for Cointegration

When variables in a given vector are non-stationary in levels and integrated of the same order; one or more than one a test of cointegration can be implemented to determine the number of long-run equilibrium relation(s) among the variables. This study employs Johansen (1988) approach to test for cointegrating relations among variables. Juselius (1990) and Johansen (1991) reparameterized the VAR model in equation (4) to yield the following tests equation:-

$$\Delta y_t = \Pi y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-i} + Bx_t + e_t ; \quad \Pi = \sum_{i=1}^p A_i - I ; \quad \Gamma_i = - \sum_{j=i+1}^p A_j \quad (9)$$

Where Π and Γ are $n \times n$ matrices of coefficients, y_t is a vector of non-stationary variables, x_t is a set of deterministic variables such as constant, trend, and dummy variables, e_t represents a vector of normally and independently distributed random variables.

The rank of a matrix Π determines the number of cointegrating relations. $\Pi = \alpha\beta'$, where the rows of β' are interpreted as the distinct number of cointegrating relations and the rows of α are the loading factors which indicator the speed of adjustment of the dependent variables to their long-run equilibrium.

To test for cointegration in a VAR framework, Johansen (1990; 1995) constructed two associated likelihood ratio (LR) test statistics. The first statistics is the trace statistics which test the null hypothesis of r cointegrating relations against the alternative of k cointegrating relations, where k is the number of endogenous variables, for $r = 0, 1, \dots, k-1$. The trace statistics for r cointegrating relations is computed as:

$$LR_r(r/k) = -T \sum_{i=r+1}^k \log(1 - \lambda_i) \quad (10a)$$

Where λ_i is the i -th largest eigenvalue of matrix Π in equation (9).

The second statistic is the maximum eigenvalue, which test the null hypothesis of r cointegrating relations against the alternative of $r+1$ cointegrating relations. The statistic is:

$$LR_{\max}(r/r+1) = LR_r(r/k) - LR_r(r+1/k); \text{ for } r=0,1,2,\dots,k-1 \quad (10b)$$

In this study, tests for cointegration among variables are based on trace statistics and maximum eigenvalue statistics. The tests result shows zero cointegrating relationships among variables in the model. A VAR model instead of VECM is then adopted for estimations. The critical values are those of MacKinnon (1999)

4.4.3 The LM Serial Correlation Test

When a variable is regressed on one or more regressor, if the residuals are correlated then the regression is said to be suffering from serial correlation. In the presence of serial correlation, the estimated coefficients of the regression may be linear, unbiased, consistent and asymptotically normally distributed but they are not efficient. That is, they do not have minimum variance. When serial correlation is detected, the lag order could be adjusted so that the final lag accounts for all the serial correlation in the residuals.

Several tests have been proposed to test for the presence of serial correlation. These are: the Runs test, the Durbin-Watson tests and the Breusch (1978) and Godfrey (1978) test. The Runs test is basically a non-parametric test. The Durbin-Watson has a number of restrictive assumptions; the regression must include an intercept, the disturbances e_t must be generated by the first order autoregressive process and must be normally distributed, the regression model must not include lagged values of the dependent variable as explanatory variable(s) and there must be no missing values in the data. The Breusch (1978) and Godfrey (1978) Lagrange Multiplier (LM) tests for serial correction overcomes the constraints of the Durbin-Watson test. The BG test allows for lagged values of the regressand to be used as explanatory variables and for serial correlation of an autoregressive scheme higher than one as well as simple or higher moving averages of the error terms.

The BG test proceeds as follows; suppose the regression model (in vector form);

$$y_t = \overline{X}_t \beta + \varepsilon_t \quad (11)$$

The BG test for serial correlation is run from the auxiliary equation given as;

$$\hat{e}_t = \overline{X}_t \theta + \left(\sum_{i=1}^p \alpha_i \hat{e}_{t-i} \right) \quad (12)$$

Where $\hat{e}_t$ are residuals from equation (11).

The BG LM test is conducted by regressing the residuals on the vector of the initial vector of explanatory variables $\overline{X}_t$ as well as the lagged residuals. The BG LM test statistic is given as the product of the number of observations and the R^2 from the auxiliary equation. The LM is asymptotically distributed as a chi-square statistic $\chi^2(p)$, p is the maximum number of lags of the residuals in (12).

In this study, serial correlation in the equation is tested for orders 1, 2 and 3. Lag order 3 is found to account for account for all the serial correlations in the residual.

4.4.4 The Jarque-Bera Normality test

The test for normality is important because if the residuals are not normally distributed, statistical inference based on the t and F -statistics are invalid. It is also an indication that the model incorrectly specified. The Jarque-Bera (1987) test of normality is an asymptotic test. It tests the joint hypothesis that there is no skewness in the series and that the series have a kurtosis of three, which implies that, the kurtosis is mesokurtic. The test statistic is given as:-

$$JB = n \left[\frac{S^2}{6} + \frac{(K-3)^2}{24} \right] \quad (13)$$

Where n is the sample size; s is skewness and K is kurtosis. If the series is normally distributed the JB statistic is expected to be zero. The test specifies a null- hypothesis of a normally distributed series. Therefore, rejection of the null-hypothesis implies that the series are not normally distributed. In this study, normality test is conducted on the residual and it is found to be normally distributed.

4.5 Techniques of interpretation

In VAR framework, the individual coefficients are often difficult to interpret; hence the interpretation of the model used in this study is based on Granger-causality

test and Innovation Accounting (specifically, the Impulse Response Functions and Variance Decompositions).

4.5.1 Granger-causality test

The interrelationships among variables in a VAR framework can be accessed using Granger-causality. Granger-causality tests seek to ascertain the joint statistical significance of the lagged values of a single variable in an equation where another variable is the regressand. The test is based on the premise that the information relevant for prediction of variables in the system is contained within the system. To understand the concept of Granger-Causality; given two variables x and y , y is said to Granger-cause x if y helps in the prediction of x or if the coefficients on the lagged values of y are statistically significant in the equation of x . A common method for testing Granger causality is to regress y on its own lagged values and on lagged values of x and tests the null hypothesis that the estimated coefficients on the lagged values of x are jointly zero. Failure to reject the null hypothesis is equivalent to failing to reject the hypothesis that y does not Granger-cause x .

4.5.2 Innovation Accounting

The innovation accounting (variance decomposition and impulse response functions) technique can be utilized to examine the relationships among economic variables, trace out the response of dependent variable to shocks in the error terms and to investigate the impact of such shocks for several periods in the future (Shan 2002, Bessler and Leatham 2006).

The impulse response function traces out the effects of a unitary shock to an endogenous variable on the variables in the VAR system in the current as well as in the future. To understand impulse response functions, note that the contemporaneous shock (or innovation) on the error term e_t in equation (4) will impact on contemporaneous and future values of y_t , as well as future values of all other variables in the system. Tracing such impacts generates a clear understanding of interactions among variables in the model. For instance, in a given period, say p ($p=0, 1, 2, \dots$) of or after the shock, the impact of a t -period shock to variable say j on another variable say y may be denoted by e_{jt}^k the moving average term, and could be measured by the coefficient of, say S_j^k . A plot of S_j^k against, p therefore, provides a

visual depiction of the reactions of the variables in the system to various shocks over time.

The forecast error Variance Decomposition allows us to make inference over the proportion of movements in a time series due to its own shocks versus shocks to other variables in the system (Enders, 1995). It measures the proportion of total variability due to shocks in the variable itself relative to shocks in all other variables in the VAR model, at various forecasting horizons. In other words variance decomposition decomposes variation in an endogenous variable into the component shocks to the endogenous variables in the VAR. If shocks to all other variables in the system explain none of the forecast error variance in y_t in equation (4), at all forecasting horizons, then the y_t sequence is said to be exogenous. Conversely, if the forecast error variance in y_t can entirely be explained in terms of other variables in the system but its own shocks, then y_t is perfectly endogenous.

To generate impulse response functions and variance decompositions, the VAR model needs to be orthogonalized, that is, the error components in the system should be contemporaneously uncorrelated. In Eviews 5, the Cholesky decomposition technically orthogonalizes the errors.

4.6 Data source

This study made use of secondary annual data ranging from 1970 to 2010, extracted from World Bank's World Development Indicators (WDI) accessed at <http://data.worldbank.org/Uganda> on 15th January, 2012. All the variables are at their current United States dollars.

CHAPTER FIVE

ECONOMETRIC ESTIMATION AND INTERPRETATION

5.0 Introduction

This chapter presents the econometric results that are used to examine the hypothesized determinants of FDI inflows and to assess the impact of FDI on economic growth. Economic and statistical interpretations and implications of the results are given.

5.1 Stationarity Tests

The Augmented Dickey-Fuller (ADF) (1979) and Phillips-Perron (PP) (1988) tests are employed to test for stationarity of the variables. The tests specify null-hypothesis of a unit root. The Augmented Dickey-Fuller Unit root test incorporates an augmentation structure in order to remove serial correlation from the residuals. The Phillips-Perron test corrects for serial correlation in the residuals using a non-parametric method by modifying the test statistics of the non-augmented Dickey-Fuller test equation. Table 2 below presents the results.

Table 2: Unit root tests

Var	Augmented Dickey-Fuller				Phillips-Perron			
	Exo	t-Stat.	P-Value	OI	Exo	t-Stat	P-Value	OI
LNFDI	<i>c & t</i>	-5.5462	0.0003*	1	<i>c & t</i>	-6.06549	0.0001*	1
LNGDP	<i>c & t</i>	-4.6641	0.0031*	1	<i>c & t</i>	-4.66411	0.0031*	1
LNDI	<i>c & t</i>	-6.3597	0.0000*	1	<i>c & t</i>	-6.35975	0.0000*	1
LNX	<i>c & t</i>	-5.2394	0.0004*	1	<i>c & t</i>	-5.44118	0.0004*	1
LNМ	<i>c & t</i>	-6.9559	0.0001*	1	<i>c & t</i>	-6.95591	0.0000*	1

*, stand for one percent levels of significance. *Exo.* are exogenous terms with *c* as intercept and *t* as a time trend. *Stat* is statistics; *OI* is order of integration and *Var* is variable.

The ADF and the Phillips-Perron tests produce consistent results. The two tests show that all the variables are integrated of order one.

5.2 Lag Length selection

Before the model is estimated, it is important that the correct lag length be selected. The lag should be that which accounts for serial correlation in the residuals and minimizes lost in degrees of freedom. Table 3 below shows the results obtained from the lag order selection criteria.

Table 3: VAR Lag order selection criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	68.56076	NA	2.01e-08	-3.531153	-3.311220	-3.454391
1	183.2972	191.2274	1.40e-10	-8.516512	-7.196913	-8.055936
2	210.8651	38.28871	1.32e-10	-8.659171	-6.239906	-7.814783
3	269.9056	65.60057*	2.51e-11*	-10.55031*	-7.031380*	-9.322110
4	319.0487	40.95257	1.09e-11	-11.89159	-7.272996	-10.27958
5	359.4002	22.41750	1.34e-11	-12.74445	-7.026191	-10.74863*

* indicates lag order selected by the criterion

Results in table 3 show that the sequential modified LR test statistic (LR), Final prediction error (FPE), Akaike information criterion (AIC), and Schwarz information criteria (SC) selected lag length 3 while Hannan-Quinn information criterion (HQ) selected lag length 5. This study estimates VAR of order 3 as suggested by most criterions. Lag order 5 was not opted for because of the small sample size. Further, any lag order less than 3 could not account for the serial correlations in the residuals.

5.3 Cointegration Test

The Johansen (1991) procedure is used to determine the number of cointegrating relations in a vector of variables that are integrated of the same order. Given the result of the unit root tests above; the number of cointegrating vectors are tested on the variables; LNGDP, LNFDI, LNDI, LNX and LNM using Maximum Eigen value and Trace Statistics. The results of the cointegration tests are given in Tables 4 and 5.

Table 4: Johansen Cointegration Test using Trace test statistics

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.524728	64.45635	69.81889	0.1243
At most 1	0.435544	35.44546	47.85613	0.4247
At most 2	0.198273	13.14163	29.79707	0.8850
At most 3	0.109217	4.523121	15.49471	0.8572
At most 4	0.000323	0.012614	3.841466	0.9104

Trace test indicates no cointegration at the 0.05 level. Prob.** is the MacKinnon-Haugh-Michelis (1999) p-values.

Table 5: Johansen Cointegration Test using Maximum Eigenvalue statistics

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.524728	29.01089	33.87687	0.1707
At most 1	0.435544	22.30383	27.58434	0.2052
At most 2	0.198273	8.618507	21.13162	0.8619
At most 3	0.109217	4.510507	14.26460	0.8019
At most 4	0.000323	0.012614	3.841466	0.9104

Max-eigenvalue test indicates no cointegration at the 0.05 level. Prob.** is the MacKinnon-Haugh-Michelis (1999) P-value.

Both the trace and the maximum eigen value tests in table 4 and 5 respectively indicate that there are no cointegrating relationships among variables. It is therefore convenient to run unrestricted vector autoregressive model (VAR) other than restricted VAR (vector error correction model).

5.4 Serial Correlation and Normality Tests

Having established zero cointegrating relationships among variables in the series, this section uses results from the VAR model to carry out the analysis of the short-run dynamics in the residuals. The VAR model reflects how variables behave in the short-run and the adjustments mechanism when they deviate from the long-run equilibrium. The Jarque-Bera (1987) test is used to test for the normality of the residuals. The test specifies the null hypothesis that the residual are multivariate normal. Therefore, rejection of the null-hypothesis implies that the residuals are not

normally distributed. In this study, Jarque- Bera test is conducted and the result is presented in Table 6.

On the other hand Breusch-Godfrey (1978) LM test is used to detect the presence of serial correlation in the residuals. The test is based on the null-hypothesis that there is no serial correlation up to a certain lag order h . The test is conducted up to lag order three. The result is presented in Table 7 below.

Table 6: Jarque-Bera Test for Normality

Component	Jarque-Bera	Df	Prob.
1	0.305103	2	0.8585
2	1.622952	2	0.4442
3	1.257102	2	0.5334
4	5.107426	2	0.0778
5	5.451111	2	0.0655
Joint	13.74369	10	0.1850

Basing on P-value in table 6 above, we fail to reject the null hypothesis that the residuals are multivariate normal at 5 percent level of significance. This implies that the VAR model estimated is correctly specified.

Table 7: Breusch-Godfrey LM test for Serial Correlation

Lags	LM-Stat	Prob
1	49.91962	0.0278
2	61.80768	0.0493
3	48.00147	0.3700

Prob are from chi-square with 25 degrees of freedom.

Basing on the probability value in table 7 above, we reject the null hypothesis of no serial correlation at lag 0, 1, and 2 at 5 percent levels of significance. However we fail to reject the null hypothesis of no serial correlation at lag 3 at 5 percent levels of significance. The Breusch-Godfrey (1978) LM test for serial correlation therefore shows that there is no serial correlation in the residuals at lag orders 3. This means that, at lag order 3, all the estimated coefficients in the VAR model are efficient.

5.5 Regression Results and Interpretations

This section presents the regression results from the estimated model and how the results can be interpreted. The study is set to analyze the impact of FDI on economic growth and as well assess the determinants of FDI inflows in Uganda. The results are interpreted while paying much attention to the objectives of the study, other factors kept constant.

5.5.1 Granger Causality Tests

Variables (in their logarithmic form) in the VAR model are tested for Granger-causality to find out whether there exist any relationships among them. The results are presented in Table 8 and Appendix 5.

Table 8: Granger-causality Tests

	D(LNFDI)	D(LNGDP)	D(LNDI)	D(LNX)	D(LNM)
D(LNFDI)	-	0.01217**	0.0447**	0.1388	0.1441
D(LNGDP)	0.1079	-	0.8591	0.103	0.0079*
D(LNDI)	0.0388**	0.014**	-	0.1388	0.524
D(LNX)	0.0998***	0.180	0.3770	-	0.1176
D(LNM)	0.0550***	0.0079*	0.0342**	0.524	-

The figures in the table are the p-values of F-distribution. (), **, and *** indicates significance at 1percent, 5 percent and 10 percent. Granger-causality runs from row variables to column variables.*

The results presented in the Table 8 above show that there is a very strong unidirectional causality running from FDI to GDP as the null hypothesis of no causality is rejected at 5 percent level of significance. However, GDP growth does not Granger-cause FDI inflows since we fail to reject the null hypothesis even at 10 percent level of significance. Therefore, the unilateral causation running from FDI inflows to GDP growth implies that increase in FDI inflows leads to GDP growth.

There is a very strong bi-lateral causation between FDI inflow and Domestic Investments as the null hypothesis of no causation is rejected at 5 percent. This means that FDI plays a very important role in complementing domestic investments and as well, domestic investments influences positively the inflows of FDI to Uganda.

There is a very weak unilateral causation running from exports to FDI as the null hypothesis is rejected at 10 percent level of significance. This is similar to case to

imports where the null hypothesis is rejected at 10 percent level of significance. On the hand FDI does not Granger-cause imports or exports.

Domestic Investments Granger- causes GDP growth at less than 5 percent level of significance. However GDP growth does not Granger cause domestic investments. Therefore, the fact that there is a bi-causality between FDI and DI; and a unilateral causality running from FDI to GDP growth generate a conclusion that FDI has complementary effects on domestic investments and the long-run economic growth is positively associated with FDI inflows.

Granger –causality is basically a short-term analysis and may not capture clearly the long-run dynamics among variables. Innovation Accounting (Impulse Response Functions and Variance Decomposition) gives comprehensive and visual relationships among variables both in the short-run and in the long-run. In this study therefore, to capture the effects of shocks in one variable on another variable or a group of variables, impulse response functions and variance decomposition for all the variables in the system are generated for over a forecasting period of 10 years. The results are presented in Figure 3 and 4 respectively. Other results in tabular form are found in the appendix 1 and 2 respectively. To analyze the relationships between or among variables, and produce genuine interpretations in line with the objectives, the researcher found it easier to first of all pair up the variables.

5.5.2 Foreign Direct Investment growth versus growth in Gross Domestic Product.

From Figure 4 below, FDI growth accounts for about 10 and 40 percent of the total variability in GDP growth in period 2 and 10 respectively. While in Figure 3 (second row, first column) depicts the time paths followed by GDP in response to one standard deviation shock in FDI. The graph shows that one standard deviation shock on FDI results into increasing GDP and this relationship is observed at all periods. The response elasticity is about 0.07 in the first period (see Appendix 2), and the response parameters are statistically insignificant only in periods $p = 0,1$ but significant at all other periods.

Figure 3: Impulse Response Functions of LNFDI, LNGDP, LNDI, LNX, and LNM

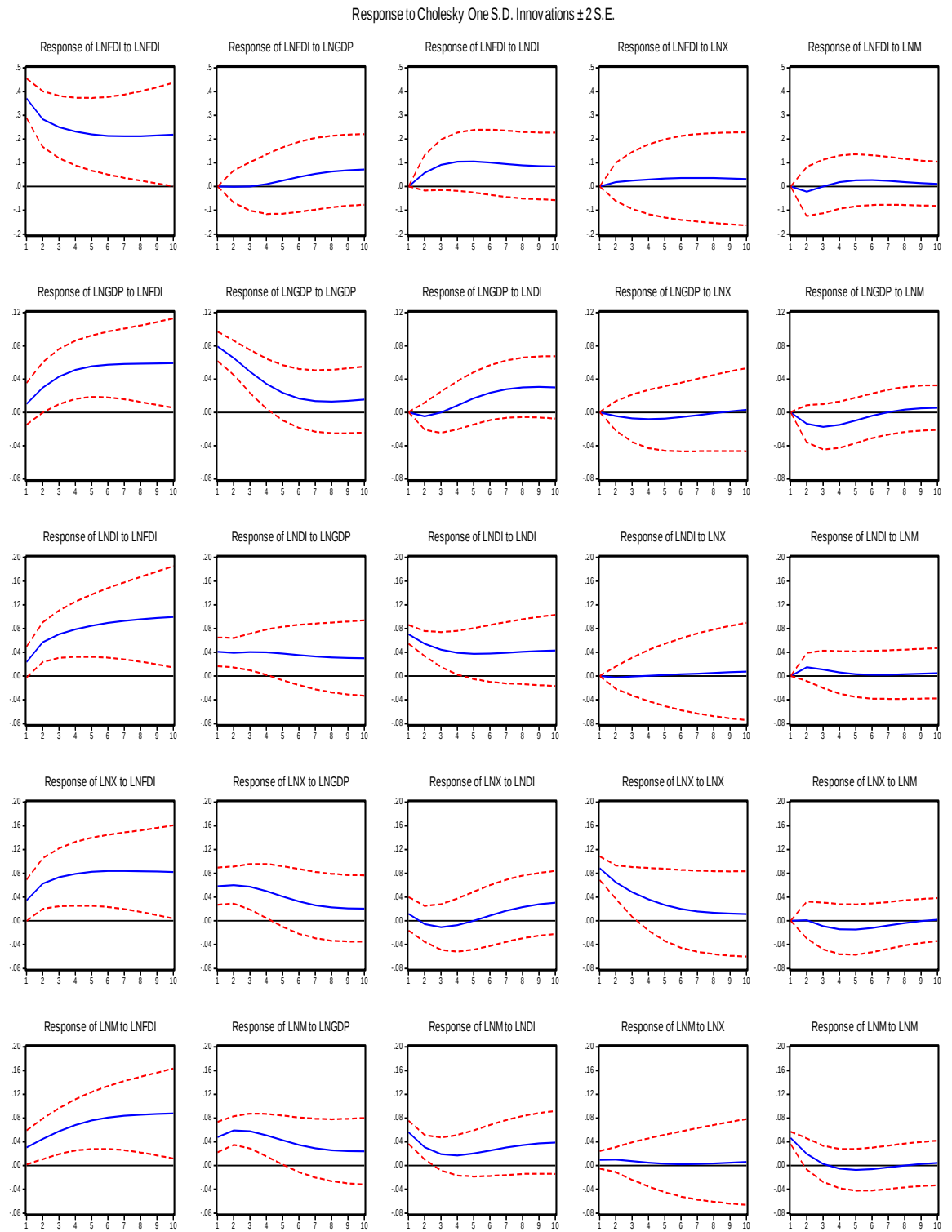
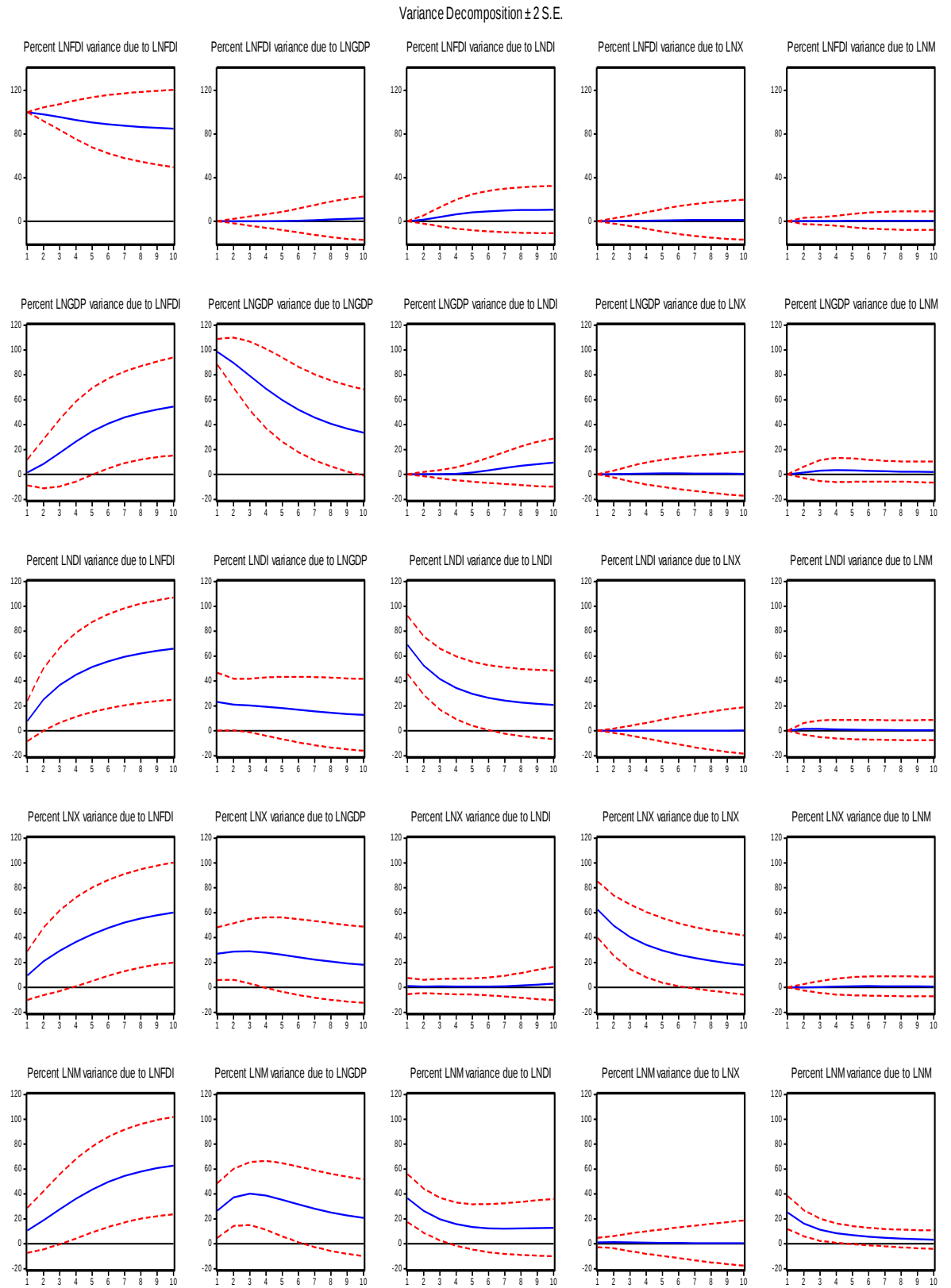


Figure 4: Variance Decomposition of LNFDI, LNGDP, LNDI, LNX, and LNM.



On the other hand, one standard deviation shock on GDP increases FDI inflows in periods $p = 4, 5, 6, \dots$ onwards, although it has an ambiguous impact in the initial periods $p = 1, 2, 3, 4$. The impact of the shocks is statistically insignificant at all periods as depicted in Figure 3 (first row, second column). The results from innovation accounting are in line with Granger-causality results in this case. Therefore, the study concludes that FDI inflows have a significant impact in stimulating economic growth in Uganda. This finding, though not in line with the neoclassical model developed by Solow (1956) which postulate that FDI inflows only exerts a *level effects* but not *growth effect*, is in line with several studies which includes among others; the Harrod-Domar model which postulates that FDI inflow fills the saving-investment gap thereby generating economic growth. Bengoa et al. (2003), estimated the relationship between FDI and economic growth using panel data for eighteen Latin American countries over the period 1970-1999. They found that FDI inflows have positive and significant impact on economic growth of the host countries.

On the other hand, from the fact that one standard deviation shock on GDP increases FDI inflows in the long run implies that growth in GDP is a very crucial factor in attracting FDI inflows. In other words, higher growth in Uganda's GDP is the driving force behind the surge in FDI inflows. Growth in GDP is therefore an important determinant of FDI inflows to a country since it signifies availability of market, higher potential to consume as well as higher level of economic development. Therefore, FDI inflows to Uganda in the long-run are stimulated by the country's market size. This result concurs with Asiedu (2002) who conducted a study on 32 sub-Saharan African countries and 39 non-sub-Saharan African countries over a period of 10 years and finds that FDI inflows into Sub-Saharan African countries are market seeking in nature.

5.5.3 Domestic Investment versus Foreign Direct Investment

The first graph in the third row, first column of Figure 4 shows the percentage variation in Domestic Investment due to shocks in FDI. One standard deviation random shocks on FDI accounts for about 3 percent and 50 percent of the variations in the forecast error variance in domestic investments in period 2 and 10 respectively (also refer to Appendix 1). While Figure 3 shows that one standard deviation shocks on FDI leads to increase in DI, and the response parameters are statistically significant

throughout the entire periods within which the analysis is done. The variation in domestic investments attributed to by FDI is much greater than variations attributed to by any other variable in the model. The elasticity of response of domestic investment to one standard deviation shocks in FDI is about 0.07 and 0.05 in period 1 and 10 respectively, and it's much higher than the elasticity of response of domestic investment to shocks in any other variable in the model. FDI is also found to Granger-cause DI at 5 percent level of significance. Looking at all these evidences, we can conclude that FDI exerts a positive impact on DI. Another interesting finding is that, there is a very strong unidirectional Granger- causality running from DI to GDP as the null hypothesis of no causality is rejected at 5 percent level of significance. In addition, one standard deviation shocks on DI increases GDP from periods $p = 3, 4, 5, \dots$ onwards although the response is statistically insignificant as shown in the graph (second row, third column) of Figure 3. Deducing from these evidences, we can conclude that there is a transmission channel running from FDI to DI then eventually to GDP. This implies that FDI boosts domestic investment, eventually leading to GDP growth.

The findings are in line with endogenous growth model more especially the work of Romer (1986) who advanced that, FDI can affect long-term economic growth if it can provokes increase in productivity of local firms or investors as they imitate advanced technologies from foreign firms. The finding is further in line with Balasubramanyam, Salisu and Sapsford (1996). According to them, FDI is a composite bundle of capital stock, know –how, and technology that can augment the existing stock of knowledge in the recipient country through labour training, skill acquisitions, diffusion into local firms through linkages, and the introduction of alternative management practices and organizational arrangement thereby reinforcing domestic investment and eventually economic growth in the long-run.

On the other hand, domestic investment Granger -causes FDI at 5 percent level of significance. On the same note, one standard deviation shocks on DI leads to increase in FDI, although statistically insignificant throughout the entire period of analysis as depicted in the graph (first row, third column) of Figure 3. This implies that domestic investment is another important determinant of FDI inflows. Therefore, the Government of Uganda's initiative to invest in fixed assets (gross capital

formation/ infrastructural development) and the general improvements in the macroeconomic environments have reduced the cost of doing business thereby attracting massive inflows of international capital. The results agree with Birhanu (1999) who found that availability and reliability of telecommunication services, developed and adequate road and air transport services, reliable water and electricity supply facilities have paramount importance for the profitability of foreign companies and in attracting FDI.

5.5.4 Exports growth versus FDI inflows

One standard deviation random shock on FDI accounts for about 10, 20, 40, and 60 percent of variations in the forecast error variance of exports in periods 1, 2, 5, and 6 respectively. Figure 3 also shows that, one standard deviation shocks on FDI increases exports and the relationship is statistically significant throughout the entire period of analysis. This signifies that FDI is boosting Uganda's capacity to export goods and services. This finding is in line with Jing and Marshal (1983) hypothesis that in a growing economy, FDI bring about technological change and learning which may not be related to any government export promotion measures. This may take place through cumulative productive process, transfer of technology via direct investment or physical capital accumulation thereby boosting the production of goods and services in the host country (growth). Due to this increased growth, the domestic market may not sustain the increased production of goods and services, and exporters have to look outward to sell their products. The implied hypothesis here is that growth in FDI increases production leading to growth in exports.

On the other hand, exports Granger-causes FDI at 10 percent level of significance. Further, one standard deviation shock on exports explains about 3, 5 and 5 percent of the error variance in FDI in period 2, 3 and 10 respectively (see Appendix 1). Figure 3 also shows that, one standard deviation shocks on exports increases FDI, though the relationship is statistically insignificant. All these empirics imply that Uganda's openness to export trade is the pulling factor behind FDI inflows in the country. This evidence is in line with Bhagawati's (1999) hypothesis that FDI inflows is sensitive to exports overtime when opportunities in the local markets are fully exhausted. Therefore, opportunity to benefit from regional integrations such as EAC, COMESA, and SADC may be the centre of interest of most foreign investors, but exploration of market opportunities within the host country comes first.

5.5.5 Imports versus FDI growth

From Figure 4 above, one standard deviation shock on FDI explains about 10, 20, 40 and 60 percent of the forecast error variance in imports in period 1, 2, 5 and period 10 respectively. Also Figure 3 shows that one standard deviation shock on FDI increases imports, although the response parameters are statistically insignificant from period 1 to 4, it is jointly significant the rest of periods of analysis. In the initial years, the response elasticity is about 0.3 and 0.6 toward the end of period 10 (referred to appendix 2). This indicates that FDI inflows increases trade openness by stimulating countries demand for imported goods and services. Therefore, Government of Uganda's liberal policies on imports which includes among others; reduction of taxes on imports by both domestic and foreign investors have facilitated growth in imports. On the other hand, growth in imports explains about 2 and 1 percent of the forecast error variance in FDI inflows in period 4 and 10 respectively as depicted by the variance decomposition. This implies that imports explains a very insignificant proportion in the inflow of FDI in Uganda, moreover variation trending downwards. Import is therefore a weak determinant of FDI inflows to Uganda.

CHAPTER SIX

CONCLUSION AND POLICY IMPLICATIONS

6.0 Introduction

This chapter presents the conclusion and policy implications of this study. Limitations of the study and areas for further research are also given:

6.1 Summary of Results

This study used Vector Autoregressive Model to investigate the impact of foreign direct investments on economic growth and to assess the factors that determine the inflows of foreign direct investments in Uganda. The study used annual data for a time period of 40 years from 1970 to 2010. Apart from FDI and GDP, the study incorporated three more variables that are theoretically known to influence the inflow of foreign direct investments in most economies. These are: Gross domestic fixed investments, Exports and Imports.

The time series properties of the variables were established before estimations to avoid spurious and inconsistent results. All variables were found to be non-stationary in their levels but stationary in their first difference. After testing for cointegration using Johansen approach, the trace statistics and the maximum eigen value statistics indicate no cointegrating relationships among variables. A vector autoregressive rather than a vector error correction model is adopted for estimations. Interpretation of results is based on Granger Causality test, Impulse response functions and variance decomposition.

Results from Granger-causality test, impulse response functions and variance decomposition all agree that FDI has a positive impact on GDP growth and the impact does not die out even after a period of 10 years as depicted by the impulse response. From this empirical evidence, the study concludes that the increase in the inflows of foreign direct investment to Uganda's economy has a growth generating effects. The null hypothesis that FDI inflows does not impact or generate economic growth is rejected. The attraction of massive foreign capital inflows is therefore a step toward

achievement of higher level of economic growth in Uganda. The study further detects three different channels through which FDI growth impacts on economic growth. The first one is a direct transmission from FDI to GDP growth. The second channel is indirectly through domestic investment. As seen earlier, FDI boost domestic investments; and a random shock on DI increases GDP. We therefore conclude that FDI generates economic growth by boosting DI. The third channel is through exports. FDI boost the Uganda's capacity to produce for exports thereby generating export-led growth.

The study also finds GDP growth and DI as the major factors responsible for the massive inflows of FDI in Uganda. Although exports and imports also influence positively the inflows of FDI, their impact are not very significant as compared to other variables under study. The study therefore rejects the null hypothesis that GDP, DI, Exports and Imports do not determines the inflow of FDI in Uganda.

6.2 Policy Recommendation

Results show that FDI inflows generate economic growth in Uganda. It is therefore recommendable that the government of Uganda continues to attract more international capital inflow if it is to achieve its growth target of 8 percent growth rate per annum. However as seen earlier in Chapter two; most of the inward FDIs to Uganda are concentrated mainly in the manufacturing and service sector and yet agricultural sector remains the backbone of Uganda's economy. There is no doubt that this growth is emerging mainly from the manufacturing and service sector of the economy, with the rest of the sectors contributing very little or negatively to economic growth; eventually the overall growth effects in the economy remains insignificant and sluggish. The Government of Uganda through UIA should therefore embark on sectoral allocation of FDIs with more FDIs directed to sectors such as agriculture with greater multiplier effects in generating economic growth.

Findings also reveal that FDI inflows have a complementary effect on domestic investments. In other words, FDI stimulates domestic investments; and one channel through which FDI impacts economic growth in Uganda is through domestic investments. This is clear evidence that there is already technological diffusion from foreign firms to local firms. For this diffusion is beneficial and sustainable, the government of Uganda should build enough absorptive capacity to sustain these

foreign technology. This can be done through investment in human capital, collaborative research and development. With strong absorptive capacities in place, the diffusion of foreign technology becomes easy and in the long run, Uganda's economy can be self propelling in terms of growth without much reliance on foreign capital.

The study also reveals that the major factors attracting foreign investments in Uganda includes DI (which includes investments in fixed capital assets such as roads, electricity, water, telecommunication services among others), GDP growth (which reflect the market potential and the purchasing power of the nationals), and exports opportunities (which reflects the opportunities to markets within the regional trading blocks). The government of Uganda should invest allocate more resources to fixed capital investment in order to create a risk free business environment for potential investors. Such development will reduce the cost of doing business in Uganda thereby attracting massive inflows of foreign capital for growth. In addition, the government should participate more in regional and economic integrations such as EAC, COMESA, EEC, SADC among others. This will expand markets for potential investors hence encouraging massive production for exports, exposure to foreign competitions leading to efficiency as well as generation of export-led growth.

Policies undertaken by government of Uganda through Uganda Investment Authority such as reduction in import and export duties, permitting profit repatriation, privatization and economic liberalization among others have been successful in wooing investors to invest in Uganda; nevertheless; FDI have stimulated economic growth which is advantageous for the economy. According to this study, FDI is stimulating imports over and above exports. This is a clear sign that there is massive capital outflow inform of import expenditures. Expenditures abroad are rising over and above receipts from abroad and this might worsened the country's Balance of Payments and budget positions hence growth-reducing. The study therefore recommends that, Uganda should attract mainly foreign firms that are willing to utilize locally available inputs for production. This will create markets for domestically produced inputs and as well saves the economy from excessive expenditures on imported inputs. In addition, favorable investment climate such as tax holiday should be granted to foreign investors willing to open import substitution

industries and those undertaking export promotion strategies of industrialization because these strategies are growth generating in nature.

6.3 Limitation of the study

Data unavailability has been a major problem especially prior to 1970. The study was intended to base the analysis on the period from 1962 up to 2010. The idea was to incorporate the dynamics the economy have experienced since independence so as to get a more comprehensive picture of the relationship between the variables that have been of concern in the study. Secondly, the study of foreign direct investment is much more detailed when FDI is splited into different categories (types) so that the influence of each type of FDI on other variables can be captured. In this study, FDI was suppose to be splited into different types such as market-seeking, resource- seeking, efficiency- seeking, export- oriented and government initiated FDIs so that the impact of individual category could be assessed but data on these categories are not available for the case of Uganda.

6.4 Direction for further study

This study captures mainly the positive contributions of foreign direct investment in Uganda. There could be a lot of negative externalities generated by these foreign investors which may be very detrimental to the country's development. Later studies may be more insightful if it is directed toward investigations of the negative externalities generated by international capital inflows in Uganda.

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APPENDICES

Appendix 1: Variance Decomposition of LNFDI, LNGDP, LNDI, LNX, and LNM

Variance Decomposition of LNFDI

Period	S.E.	LNFDI	LNGDP	LNDI	LNX	LNM
1	0.357532	100.0000	0.000000	0.000000	0.000000	0.000000
2	0.527847	91.19960	1.216467	1.359904	3.868801	2.355229
3	0.601497	87.76348	1.495039	2.965601	5.633411	2.142470
4	0.635721	87.02494	1.352431	4.539138	5.164072	1.919415
5	0.665163	85.74200	1.725719	5.965714	4.797020	1.769552
6	0.693777	84.05230	2.616430	7.115720	4.575144	1.640405
7	0.720720	82.06209	3.948185	8.011952	4.446415	1.531354
8	0.746252	79.83545	5.579824	8.746608	4.405072	1.433046
9	0.770661	77.56626	7.268046	9.402507	4.418931	1.344258
10	0.793973	75.42470	8.815119	10.03015	4.463533	1.266500

Variance Decomposition of LNGDP

Period	S.E.	LNFDI	LNGDP	LNDI	LNX	LNM
1	0.080191	1.230111	98.76989	0.000000	0.000000	0.000000
2	0.119503	10.04882	89.05980	0.106826	0.474721	0.309831
3	0.141050	15.20708	80.30111	0.521609	1.612131	2.358069
4	0.153287	18.62878	72.71714	2.554418	2.435668	3.663994
5	0.162238	22.09145	66.07438	5.787331	2.364124	3.682712
6	0.171475	25.96280	59.51035	9.089078	2.128417	3.309355
7	0.181359	29.81667	53.56069	11.54730	2.069508	3.005827
8	0.191132	32.97761	49.01976	12.99894	2.171950	2.831749
9	0.200461	35.07903	46.16262	13.71882	2.355846	2.683675
10	0.209352	39.17597	44.72943	14.03990	2.546755	2.507944

Variance decomposition of LNDI

Period	S.E.	LNFDI	LNGDP	LNDI	LNX	LNM
1	0.082618	2.285265	37.64321	60.07152	0.000000	0.000000
2	0.121351	27.47723	31.89997	39.32314	0.972187	0.327474
3	0.158558	42.61336	26.81705	28.44584	1.001748	1.121998
4	0.187080	48.20982	25.84748	24.23655	0.861940	0.844202
5	0.210479	50.14059	26.15234	22.30288	0.730375	0.673811
6	0.230581	50.58696	26.86237	21.37742	0.611704	0.561545
7	0.248766	50.57175	27.33167	21.02683	0.586500	0.483247
8	0.265569	50.43864	27.47941	21.00585	0.651301	0.424792
9	0.281350	50.24177	27.44852	21.13438	0.796844	0.378484
10	0.296373	49.96946	27.38544	21.29155	1.011311	0.342236

Variance Decomposition of LNX

Period	S.E.	LNFDI	LNGDP	LNDI	LNX	LNLM
1	0.115093	13.86568	22.55048	3.023283	60.56055	0.000000
2	0.174784	23.04172	24.58284	1.578905	49.62973	1.166801
3	0.210980	28.03737	26.08138	1.088951	43.98459	0.807711
4	0.236087	30.95670	24.65187	1.156747	42.04586	1.188827
5	0.253556	33.61136	22.66999	1.896493	40.50543	1.316722
6	0.266987	36.50064	20.90997	3.133930	38.20120	1.254261
7	0.279273	39.45877	19.36389	4.545317	35.48479	1.147234
8	0.290994	42.13354	18.15266	5.808393	32.83210	1.073303
9	0.302050	44.23481	17.44466	6.798217	30.48697	1.035348
10	0.312493	45.64234	17.32671	7.542946	28.48695	1.001058

Variance Decomposition of LNM

Period	S.E.	LNFDI	LNGDP	LNDI	LNX	LNLM
1	0.094562	7.973059	37.92847	28.27056	1.408037	24.41988
2	0.133144	21.03854	47.25542	16.83143	1.840989	13.03361
3	0.168542	29.97537	46.27541	11.85831	3.208206	8.682711
4	0.193450	33.27051	46.12750	10.31665	3.639343	6.646006
5	0.212402	35.38136	44.89070	10.38397	3.720724	5.623242
6	0.227832	37.37233	42.91612	11.30640	3.434465	4.970683
7	0.241902	39.43913	40.45502	12.61186	3.063530	4.430463
8	0.255498	41.36836	38.01269	13.88830	2.759157	3.971491
9	0.268817	42.93606	35.97824	14.90895	2.579193	3.597550
10	0.281808	44.01769	34.54250	15.62518	2.521506	3.293120

Cholesky Ordering: LNFDI, LNGDP, LNDI, LNX, LNM

Appendix 2: Impulse Response Function of LNFDI, LNGDP, LNDI, LNX, and LNM

Response of LNFDI

Period	LNFDI	LNGDP	LNDI	LNX	LNLM
1	0.357532	0.000000	0.000000	0.000000	0.000000
2	0.355349	-0.058218	0.061555	0.103824	-0.081007
3	0.251842	-0.044941	0.083310	0.097991	-0.034485
4	0.184870	0.007530	0.087264	0.022103	0.002392
5	0.166297	0.046579	0.089723	-0.018812	0.008491
6	0.158771	0.070415	0.088629	-0.028238	0.008154
7	0.147293	0.088965	0.085833	-0.032787	0.007663
8	0.135409	0.102787	0.084214	-0.037883	0.005108
9	0.126820	0.109967	0.084464	-0.041393	0.001811

10	0.121621	0.111372	0.085943	-0.043508	-0.000369
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Response of LNGDP

Period	LNFDI	LNGDP	LNDI	LNK	LNK
1	0.008894	0.079696	0.000000	0.000000	0.000000
2	0.036823	0.079794	-0.003906	0.008234	-0.006652
3	0.039880	0.057074	0.009408	0.015904	-0.020613
4	0.036766	0.033323	0.022281	0.015861	-0.019794
5	0.037915	0.017469	0.030382	0.007068	-0.010412
6	0.042653	0.010326	0.033900	-0.001888	-0.001933
7	0.046615	0.010884	0.033549	-0.007406	0.003947
8	0.047330	0.017057	0.030833	-0.010619	0.006770
9	0.045269	0.025353	0.027644	-0.012379	0.006630
10	0.041939	0.052462	0.025309	-0.013019	0.004556

Response of LNDI

Period	LNFDI	LNGDP	LNDI	LNK	LNK
1	0.012489	0.050689	0.064033	0.000000	0.000000
2	0.062372	0.046132	0.041115	0.011965	0.006944
3	0.081651	0.045215	0.036888	0.010425	0.015292
4	0.078484	0.048004	0.036484	0.007059	0.003659
5	0.073076	0.050394	0.037389	0.004679	0.001745
6	0.068432	0.051925	0.038541	-0.001289	0.000228
7	0.066332	0.051302	0.040576	-0.006142	-0.000702
8	0.065397	0.049662	0.042455	-0.009818	-0.000733
9	0.064788	0.048449	0.043758	-0.013093	8.58E-05
10	0.064198	0.048238	0.044411	-0.016048	0.001005

Impulse Response of LNK

Period	LNFDI	LNGDP	LNDI	LNK	LNK
1	0.042857	0.054655	0.020012	0.089566	0.000000
2	0.072128	0.067252	-0.009048	0.084496	0.018880
3	0.073764	0.064028	-0.001541	0.066461	-0.001756
4	0.069096	0.046160	0.012650	0.062100	-0.017409
5	0.065989	0.028887	0.023969	0.051050	-0.013561
6	0.066404	0.018177	0.031854	0.034489	-0.006895
7	0.068969	0.014052	0.036209	0.021098	-0.000838
8	0.070016	0.016389	0.037059	0.011202	0.003752
9	0.068409	0.023330	0.035832	0.003633	0.005979
10	0.064911	0.031693	0.034111	-0.001897	0.005741

Impulse Response of LNM

Period	LNFDI	LNGDP	LNDI	LNK	LNM
1	0.026701	0.058237	0.050279	0.011221	0.046729
2	0.054924	0.070608	0.021349	0.014158	0.011264
3	0.069177	0.069052	0.019616	0.024186	0.012488
4	0.062736	0.064164	0.022187	0.021228	-0.004548
5	0.059256	0.054681	0.028703	0.017794	-0.007055
6	0.058624	0.044992	0.034411	0.010205	-0.006576
7	0.060659	0.037367	0.038874	0.003152	-0.003523
8	0.062663	0.033787	0.041063	-0.002914	-0.000108
9	0.063416	0.034413	0.041320	-0.007914	0.002666
10	0.062692	0.037860	0.040438	-0.011776	0.003946

Cholesky Ordering: LNFDI, LNGDP, LNDI, LNK, LNM

Appendix 3: Descriptive Statistics for GDP, FDI, DI, Exports and Imports

	FDI	GDP	DI	EXPORTS	IMPORTS
Mean	1.49E+08	5.26E+09	9.10E+08	7.70E+08	1.27E+09
Median	5200000.	3.99E+09	5.47E+08	4.59E+08	7.62E+08
Maximum	8.17E+08	1.70E+10	4.00E+09	4.09E+09	5.83E+09
Minimum	11900000	1.24E+09	1.21E+08	1.83E+08	2.24E+08
Std. Dev.	2.47E+08	3.92E+09	9.96E+08	9.37E+08	1.38E+09
Skewness	1.818359	1.461439	1.750333	2.560634	2.072795
Kurtosis	4.982824	4.711469	5.408844	8.633348	6.727998

Appendix 4: Descriptive Statistics for LNFDI, GDP, LNDI, LNK, and LNM

	LNFDI	LNGDP	LNDI	LNK	LNM
Mean	7.314759	9.614600	8.731789	8.710479	8.911086
Median	6.716003	9.601020	8.737856	8.661731	8.882026
Maximum	8.912317	10.23072	9.601989	9.611371	9.765901
Minimum	5.845098	9.095033	8.082785	8.261263	8.349971
Std. Dev.	1.031369	0.309013	0.453184	0.351940	0.402901
Skewness	0.193738	0.094182	0.239682	1.057023	0.373252
Kurtosis	1.454206	2.217892	1.903578	3.523759	2.269956

Appendix 5: Granger –Causality Result

Pairwise Granger Causality Tests

Date: 04/20/12 Time: 12:50

Sample: 1970 2010

Lags: 3

Null Hypothesis:	Obs	F-Statistic	Probability
LNGDP does not Granger Cause LNFDI	38	2.04495	0.10796
LNFDI does not Granger Cause LNGDP		4.28434	0.01217
LNDI does not Granger Cause LNFDI	38	2.31930	0.03881
LNFDI does not Granger Cause LNDI		4.44559	0.04778
LNK does not Granger Cause LNFDI	38	1.27587	0.09986
LNFDI does not Granger Cause LNK		1.97094	0.13884
LNK does not Granger Cause LNFDI	38	2.83905	0.05501
LNFDI does not Granger Cause LNK		1.93721	0.14411
LNDI does not Granger Cause LNGDP	38	4.08718	0.01482
LNGDP does not Granger Cause LNDI		0.25223	0.04473
LNK does not Granger Cause LNGDP	38	1.73329	0.18060
LNGDP does not Granger Cause LNK		2.23882	0.10342
LNK does not Granger Cause LNGDP	38	4.72581	0.00790
LNGDP does not Granger Cause LNK		2.36513	0.09009
LNK does not Granger Cause LNDI	38	1.06753	0.37708
LNDI does not Granger Cause LNK		1.92613	0.14589
LNK does not Granger Cause LNDI	38	0.57737	0.03424
LNDI does not Granger Cause LNK		0.76166	0.52420
LNK does not Granger Cause LNM	38	0.75594	0.52737
LNM does not Granger Cause LNK		2.12169	0.11760