ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
FACULTY OF BUSINESS AND ECONOMICS

FOREIGN DIRECT INVESTMENT INSUB-SAHARAN AFRICA AND ITS CONTRIBUTION TO THE ECONOMIC GROWTH

A THESIS

Presented to the School of Graduate Studies
ADDIS ABABA UNIVERSITY

**In partial fulfilment of the requirements for the
Degree of Master of Science in Economics (Economic Policy Analysis)**

BY

MEKONNEN BEKELE WAKEYO

JUNE 2001

Addis Ababa University
School of Graduate Studies

FOREIGN DIRECT INVESTMENT IN SUB-SAHARAN AFRICA AND ITS CONTRIBUTION TO ECONOMIC GROWTH

BY
Mekonnen Bekele

Approved by the Board of Examiners:

Girma Estiphanos	
Advisor	Signature
ABDULHAMID BEDRI	
Examiner	Signature
Examiner	Signature

ACKNOWLEDGEMENTS

Above all, I am faithful to God for everything He has done for me.

My special thanks extended to my advisor Dr. Girma Estiphanos, for his valuable comments and suggestions in undertaking this study, and African Economic Research Consortium (AERC) for financial Assistance.

I wish to thank my instructors Dr. Haile Kibret, Ato Getachew Yoseph, Dr. Tekie Alemu, Dr. Alemu Mekonnen, Dr. Mulat Demeke, Dr.Gebre Hiywet Ageba, Dr. Tenkir Bonga, Dr.Alemayehu Seyoum, Ato Getachew Aseffa, Ato Abebe Shimellis, Dr. Maurise Obuana, Dr. Sesi Aquana, Dr. N. Ndungu and Dr. Kulundu for sharing their valuable knowledge in my stay in the universities for the Masters Program, both at AAU and JFE in Nairobi.

I have Special words of thanks to Oromia Transport and Communication Bureau for sponsoring me for the Masters Program. I am also grateful to the officials and the workers of the bureau for their unforgettable cooperation.

I wish to acknowledge my friends Paulos Gutema, Deresse Degefa, Reta Gudissa, Tadesse Ababu and Fasil Tasew for their constructive comments on this study.

I extended my lovely thanks to my parents for their moral and material support towards all my achievements.

Finally, I wish to thank Ade Yeshi Bekele and Ade Ayantu Olana for their cooperation in typing.

Table of Contents

CHAPTER THREE

REVIEW OF THE LITERATURE

Acronyms

ADB..... African Development Bank

ASEAN.....Association of South East Asian Nations

CRA.....Central Republic of Africa

DRC.....Democratic Republic of Congo

FDI..... ..... Foreign Direct Investment

GFCF.....Gross Fixed Capital Formation

ILS.....Indirect Least Square

LDCs..... Less Developed Countries

NICs.....Newly Industrialized Countries

ODA..... .....Overseas Development Assistance

OECD.....Organization of Economic Cooperation and Development

OLI. ....Ownership, Location and Internalization

SADC.....Southern African Development Community

SSA.....Sub-Saharan Africa (n)

TNCs.....Transnational Corporations

UNCTAD.....United Nations Conference on Trade and Development

UNCTC.....United Nations Center on Transnational Corporations

UNECA.....United Nations Economic Commission for Africa

UNIDO.....United Nations Industrial Development Organization

WDR.....World Development Report

WEO..... .....World Economic Outlook

WID..... .....World Investment Directory

WIR ....World Investment Report

List of Tables

Table Page

List of Appendix Tables and Figures

Appendix

ABSTRACTS

The first objective of this paper is an ex-post approach that tests the pull-side determinants of FDI inflows into SSA countries during the last two decades. To attain this objective, cross-section multiple regression analysis is employed over three sub-periods (1980-84,1985-89 and 1995-1999), by treating five years average values of the both the dependent variable (per capita FDI inflows) and the theoretically postulated explanatory variables. For this purpose, thirty-four SSA countries are included in the sample of the study. From the estimated results, the most important determinant variables are natural resource potential, infrastructure, real GDP per capita (market size), exchange rate variability and the rate of inflation. The first three variables are playing positive role in attracting FDI, whereas the latter two are playing a negative role. Lending interest rate, cost of labour and the degree of openness are the factors that have negative relationship with FDI inflows in addition to the above variables during the first period, while weak governance has negative impact for the second period. In the third period, political instability, fiscal deficit, labour cost and corruption are factors that negatively affect FDI inflows. Due to the multicollinearity problem, the alternative use of human capital in place of income (during 1980-84 and 1995-99), and measure of the degree of openness in place of the natural resource potential (during 1995-99), both explained the FDI inflows positively. Interest rate was significantly determining FDI inflows into the SSA countries only during the period of high level of joint venture FDI. Unlike the early periods of 1980-84, in the recent period of globalisation, relatively more open countries attract higher FDI. Under the hitherto circumstances, debt burden (unlike other developing regions) has

played little role in hampering FDI, and tax incentives have little impact in attracting FDI for SSA countries.

The second objective is concerned with testing the impacts of FDI on the economic growth of SSA countries directly, and through its impact on gross domestic saving, indirectly. To this end, simultaneous equation model in panel data is estimated by treating growth of output and gross domestic saving as endogenous variable and lagged value of FDI and other variables as exogenous variables. Data from twelve SSA countries over the period of 1987-98 was used for this test. The estimated result shows that FDI has negative but insignificant direct and total effect on the growth of output of the sample SSA countries, but it has positive indirect effect on the growth of output through domestic saving. As the assumption of efficient market and perfect mobility of factors of production doesn't hold in for the SSA countries, the impact of FDI on economic growth is unsatisfactory.

CHAPTER ONE

INTRODUCTION

1.1 Statement of the Problem

Before 1980s, less developing countries of Latin America, Asia and Africa were dependent on the borrowing from European Commercial Banks and Official Development Assistance to finance their development. But, after the debt crisis that happened at the beginning of 1980s, Western European Banks were reluctant to renew the credit they were extending to LDCs. The reduced flow of credit form foreign commercial banks was further compounded by a long-term stagnancy in the flow of Official Development Assistance (ODA). In response to the reduced flow of these sources, LDCs started to implement economic reforms to attract foreign direct investment (FDI) as an alternative means to their economic growth.

The response of FDI to the reforms was very high in Latin American and some Asian countries. For instance, Mexico and Chile succeeded in attracting FDI after the first half of the 1980s.Their success was attributed to the macroeconomic adjustments that improved their economic performances. These adjustments involved stabilization, liberalization of trade, restricting and privatization of public enterprises. For the newly industrialized Asian countries, it was their success in avoiding high inflation and external debt that enabled them to attract high level of FDI inflows. In addition to this, they maintained skilled and cost efficient labor force or human capital along with the liberalization of the investment regime (Husain and Jun, 1992).

China is also a country that succeeded in attracting FDI beginning from the end of 1970s. Its FDI inflow was growing continuously as a result of a whole set of effective policies adopted

by the Chinese government through out the post reform period. These policies include the formulation of legal framework for FDI, the establishment of specifically designated open coastal areas for FDI and the adoption of various financial and foreign exchange policies. Moreover, infrastructural improvement and provision of obstacle removing incentives to FDI have created strong institutional and locational advantages necessary to attract massive FDI.

Due to the high level of inflows into these countries, the share of FDI received by the countries of Asia was increasing; while that of Latin American countries was falling continuously due to the relatively unstable political environment caused by the debt problem. As different from early 1980s, however, the amount of FDI inflows into the two developing regions increased the total inflows to the developing countries form US$14.7 billion in 1982 to US$ 51.5 billion in 1992, and further increased to US$ 172.5 billion in 1998. However, much of the FDI inflow went to Asia and Latin America, while the share of Africa was very low, accounting only an average of 6.2% of the total FDI inflows to LDCs between 1989-1998. In value terms this was only about US $ 5 billion in 1989 and US $ 7.9 billion in 1998; and the trend of the share of Africa in the total inflows into LDCs over the period 1982-1998 was decreasing (from 8.4% for the period 1989-1992 to 4.5% for 1993-1998)(UNCTAD, 1999c). Lack of competitiveness in factors markets, relatively unstable macroeconomic and political environment contributed to the declining share of the SSA countries.

FDI could be of help to African countries in several ways. First, it is a source of development finance by filling the resource gaps as advocated in the traditional neo-classical analysis of the determinants of economic growth. FDI is one form of the flow of foreign saving which is typically seen as a way of filling in gaps between the domestically available supplies of savings and the target level of investment that is required to achieve a certain target growth.

Second, it plays positive role in filling the foreign exchange gap for these countries, which are dependent on primary export items to earn foreign exchange currency. An inflow of FDI not only alleviate part of the deficit in the balance of payment current account but can also help to remove the balance of payment deficit over time, if the foreign owned enterprise can generate a net positive flow of export earnings. Third, by collecting taxes and other public revenues from these foreign firms, the governments can mobilize public financial resources required for financing development projects. Finally, it improves managerial knowledge and skills, efficiency and productive capacity and provides a wide array of goods and services to the economy.

If Africans can absorb those benefits from FDI, properly integrate them into their economy and strengthen them with good policy and institutional accommodations, prospects for economic growth of the continent would be improved, assuming that benefits exceeds costs.[1] In a world in which ODA flows are steadily diminishing, the availability of bank credit is subject to high and variable interest rates and where portfolio investment carries its own risks, developing countries are eager to attract FDI. To attain these objectives, the number of countries that took measures of regulatory changes that are more favourable to attract FDI from 1991-98 had increased from 82 to 145[2] at a global level. In spite of these policy changes, inflows of FDI to Africa, particularly to Sub- Saharan Africa is unsatisfactory. In this regard basic questions that needs to be addressed are:

(1) Why have FDI inflows remained so low in SSA despite governments reform programs?

(2) What measures have to be taken to change this situation?

(3) What is the contribution of FDI to domestic saving and growth of output of SSA countries directly or indirectly?

---

[1] In fact, there are basic arguments against FDI that are centered on these benefits (see Todaro, 1994).

[2] This is taken from the annual report of the secretariat of the United Nations Conference on Trade & Development/ UNCTAD of 1998(UNCTAD, 1998b P.XI).

These questions are obviously policy questions and empirical evidences are the best ways of responding to them.

1.2 Objective of the Study

The principal objective of the study are (1) to test the determinates of the FDI inflows into SSA during the last two decades, by employing cross-section data; and (2) to find out the impact of FDI on the economic growth of the SSA countries by using pooled cross-section-time series (panel) data.

The specific objectives are to detect:

(1) the effects of economic factors like domestic market availability, interest rate, natural resource endowment, domestic credit availability, infrastructure, human capital, unskilled labour and tax incentives on FDI inflows and macroeconomic factors that are sources of uncertainty & instability: fiscal deficit, inflation, exchange rate variability and foreign debt on FDI inflows;

(2) the effects of political instability, governance, degree of openness and hassle costs such as corruption on FDI inflows;

(3) the impact of FDI on the growth of output of the SSA countries directly, and through its impact on domestic saving indirectly.

1.3 Statement of Hypotheses

The study treats FDI as an endogenous variable being determined by various explanatory variables. The specific hypothesises to be tested in model that is used to detect the determinants of FDI inflows are:

(1) Income, the degree of openness, natural resource potential, availability of domestic credit, availability of infrastructure, tax incentive (tax holidays), availability of skilled manpower, availability of cheap unskilled labor force, good governance affect FDI inflow positively.

(2) Labour cost, interest rate, instability and uncertainty factors (both macroeconomic and political) and hassle costs such as corruption affect FDI inflows negatively.

(3) FDI has indirect positive contribution to the growth of output through its contribution to domestic saving (detail hypotheses are discussed in chapter four).

1.4 Methodology

In testing the determinants of FDI inflows into SSA countries, empirical model of cross-section multiple regression analysis for three periods will be employed. Pooled cross-section time-series (panel) data will be used to test the impact of FDI on economic growth directly and through its impact on domestic saving indirectly, by employing simultaneous equation model regression analysis. For both models, the econometric analysis will be supported by descriptive data analysis. In chapter four, the details of the methodology used in the study for both parts are discussed separately.

1.5 Significance of the Study

An econometric analysis of the major economic and political determinants of FDI inflows into SSA is rarely considered previously. Most of the studies were descriptive types.[3] Other studies are country specific[4]. In a few studies that were conducted across countries, most of the theoretically known determinants were not included and the tests were not complete. The error term of the regression results were very large and the R^2 very low i.e. the unexplained

[3] Laurence Cockroft and Roger C. Riddell, 1989.
[4] Ajayi I.S, 1992 on Nigeria; Mulenga, B. on Zambia, 1997.

part is larger. In this study, attempt is made to test major pull-side determinants and the variance in the level of FDI inflows is largely explained. As it is conventionally said, the FDI coming to SSA is dependent not on the availability of natural resource, cheap unskilled labour and market size only. From the part of this study dealing with the contribution of FDI to the economic growth of the SSA countries, the evidence show that the effect of FDI on the growth of output is difficult to generalize for all developing countries, as far as host countries economic environments are not the same.

1.6 Scope and Organization of the study

The study follows the approach of examining the pull factor determinants i.e., those factors which are persistent in the host country. The study covers the period 1980s and 1990s. In the second part of the study, empirical evidence is forwarded only to the contribution of FDI to saving and economic growth. The discussion of the theoretical and empirical literature on the contribution of FDI to the technological and international trade spillovers is only to show the other indirect influence of FDI to economic growth.

The study is organized as follows. The second chapter is concerned with a review of African economy in the period covered by the study and, trends, sectoral and geographical distribution of stock and inflows of FDI in SSA countries. The third chapter reviews both theoretical and empirical literatures on the determinants of FDI inflows and the contribution of FDI to growth separately. In chapter four, methodologies, hypothesises, data sources and models will be discussed. Chapter five is concerned with the analysis of both the descriptive data and regression results and finally, summary and policy recommendations are given in the sixth chapter.

part is larger. In this study, attempt is made to test major pull-side determinants and the variance in the level of FDI inflows is largely explained. As it is conventionally said, the FDI coming to SSA is dependent not on the availability of natural resource, cheap unskilled labour and market size only. From the part of this study dealing with the contribution of FDI to the economic growth of the SSA countries, the evidence show that the effect of FDI on the growth of output is difficult to generalize for all developing countries, as far as host countries economic environments are not the same.

1.6 Scope and Organization of the study

The study follows the approach of examining the pull factor determinants i.e., those factors which are persistent in the host country. The study covers the period 1980s and 1990s. In the second part of the study, empirical evidence is forwarded only to the contribution of FDI to saving and economic growth. The discussion of the theoretical and empirical literature on the contribution of FDI to the technological and international trade spillovers is only to show the other indirect influence of FDI to economic growth.

The study is organized as follows. The second chapter is concerned with a review of African economy in the period covered by the study and, trends, sectoral and geographical distribution of stock and inflows of FDI in SSA countries. The third chapter reviews both theoretical and empirical literatures on the determinants of FDI inflows and the contribution of FDI to growth separately. In chapter four, methodologies, hypothesises, data sources and models will be discussed. Chapter five is concerned with the analysis of both the descriptive data and regression results and finally, summary and policy recommendations are given in the sixth chapter.

CHAPTER TWO

REVIEW OF AFRICAN ECONOMY

2.1 Economic Performances in the 1980s and 1990s

The economies of African countries were continuously declining beginning from the second half of the 1970s.Compared with the 1970s average economic growth rate of 4.3 %, both the 1980s (with average annual growth rate of 2%) and the 1990s (1.7%) were periods of poor economic performances. Economic performances of the region over these periods depend on many factors that determine both demand and supply. The most important factors were disastrous natural weather condition, low and falling export prices of both primary and manufactured goods, high import prices of intermediate inputs and spare parts for the manufacturing sector, low level of investment and capital formation, political instability, etc. Failures to address development problems, policy and structural constraints and institutional weaknesses that prevent the effective functioning of the market, lack of proper sequencing of liberalization of product and factor markets, etc were the poor settings that hamper the success of the economy. There are external factors that strengthen the negative impacts of these constraints: international economic depression, heavy debt burden and the fragmentation of Africa in to small national markets are some of them.

Africa comes to economic recovery in the mid 1990s. Macro-economic reforms were under way at the beginning of the 1990s focusing on fiscal austerity and restrictive monetary policy and the liberalization of foreign exchange rates and interest rates-with the aim of stabilizing the economy and attracting foreign capital (UNECA, 1995; Pp.7-9). Apparently, the reforms had attained the targets. These recoveries had been attained through the progress made in achieving macro-economic stability, and by improvement in resource allocation through the

implementation of macro-economic policy and structural reforms in most countries (UNCTAD, 1999b).

2.2 The Structure of African Economy

2.2.1 The Agricultural Sector

Agriculture is the largest sector in more than two third of SSA countries economy, in terms of output, employment and foreign exchange earnings. In most of these countries, the share of agriculture didn't decline much between period of 1980 and the end of 1995. In the earlier periods of 1970-1982, the relative contribution of agriculture to GDP steadily declined from 32% in 1970 to 22% in 1982 on average (UNECA, 1983; p.3). But in the period 1983-1994 the figure didn't show much change.

In addition to the weather shocks in most of the years of the period 1980-1993, the low level of performance of the agricultural sector was the result of low productivity from backward technology[5], inadequate infrastructure and supporting services, degradation of natural fertility of the soil, market distortion and the lack of incentive to producers. The growth rate of the sector was only 1.7% on average during 1970-84 and 3.1% then after. The productivity was very low compared to the productivity of Latin America and South and South East Asian countries. Because the other sectors (such as the manufacturing sector) largely depend on the agricultural sector, the performance in the agricultural sector is highly important.

[5] The agricultural capital stock was only one sixth of and less than a quarter of the Latin American countries average respectively (UNCTAD, 1998b; p.14))

2.2.2 The Manufacturing Sector

The share of manufacturing output in total output of African countries is very low compared to that of other developing countries. Based on World Bank data for the year 1993, out of thirty SSA, sixteen of them had a share of 5% -10%, ten had a share of 11%-20%, and only four had a share of greater than 20%. However, when the share of the industrial sector as a whole is taken (manufacturing & mining together), about seventeen countries had a share of 10%-19%, ten had about 20%-29%, four had 30%-39% and four other countries had a share of greater than 40 %[6]. This shows that the African economy depends on agriculture and mining, unlike the manufacturing and service sectors dependent economy of the high-income countries.

The import substitution dominated manufacturing sector of African countries is constrained by its high dependence on intermediate inputs and spare parts imported, and raw materials from domestic agricultural sector. The ease to import intermediate inputs and spare parts depends on the availability of foreign exchange, which in tern depends on export performance of the countries; however, both the agricultural sector and the export sectors are in serious shocks each period. Worsening oil and non-oil export commodities prices, rising debt service ratio beginning from 1986(over 30% of total export revenue of countries on average), political conflicts and social upheavals in some countries were observed as major problems that hamper the full-fledged operation of the sector. The chronic problems of heavy reliance on imported inputs, high average cost of production associated with antiquated technology, inefficiency in the public sector, intense competition from import liberalization, etc impede industrialization.

---

[6] When we compare this figure with that of high-income developed countries, that of high-income countries except oil exporters such as Kuwait, and United Arab Emirates, etc ranges from 20%-40%, except for Ireland (which is only 10%)(World Development Report,1995).

[7] Angola, Somalia, Mozambique, Zambia, Burundi, Liberia, Chad.

2.2.3 The Mining Sub-Sector

According to World development Report 1995, for twenty-two African countries it contributed about 10% of their GDP, for about fourteen African countries from 11%-20%and for about eight of them more than 25% of their GDP.[8] However, some of the SSA countries have changed the structure of their industries from dominantly mining at the beginning of the 1970s to manufacturing in 1990s (Sierra Leone, Zambia, Mauritania, Zimbabwe, Gabon), while others changed from dominantly high share of manufacturing to mining[9]. Other countries increase the share of both mining and manufacturing from dominantly agricultural economy.[10] For South Africa, the share of manufacturing output in GDP declined by 1% while the share of mining output in GDP remains almost the same i.e. about 16% (World Development Report, 1995)[11].

Major mining economies of SSA[12] faced many constraints: fluctuating international demand, structural factor such as high cost of extraction, weak human and physical infrastructure, lack of capital and the general remoteness of potential mineral sites. The other problem is the problem of policy; the governments of Africa, for long period they restricted access of foreign capital to the sector. As a result of this, the resources of the region remained untapped. Poor management of the sector and political conflict around[13] mining sites reduced output of the sector and its growth rate. The mining sector also faces difficulties arising from rapid technological changes, which makes the sector foreign capital dependent. Foreign capital to the

---

[8] Six dominantly mining economies today are Nigeria, Lesotho, Gabon, Botswana, Angola, and DRC.

[9] Nigeria, Chad Ghana, Guinea Bissau, Equatorial Guinea, Senegal &Botswana.

[10] Burundi, Lesotho, Cameroon, Mauritius, Mali, Niger, and Gambia.

[11] World Development Report, 1995 is the source for the data in footnotes 6-13.

[12] Zambia, Zimbabwe, Botswana, Ghana, Sierra Leone, Guinea, Lesotho, Namibia, Angola and South Africa, and African oil exporters are Nigeria, Angola, Cameroon, Congo, Equatorial Guinea, Gabon and DRC.

[13] Angola in the 1980s and 1990s,Democratic Republic of Congo and Liberia in the 1990s, Zambia and Zimbabwe in 1992, etc) and frauds, corruption and political conflicts and social upheavals around oil fields (Angola, DRC, Liberia, etc), reduced output and the growth of the sector.

sector was taken as a means of changing the level of contribution of the sector in favour of the national economy.

2.2.4 The Service Sector

The most important of the service sector is the international trade. The export items of SSA countries are primary products, which accounts about 80-90% of the total export revenue on average. The export of the manufacturing and service products account only about 10-20%, and this persists over long period of time. There is also discouraging trend in diversifying primary commodity exports. Thirty-nine out of forty seven African countries were dependent on only two commodities for over half of their export earnings (UNCTAD, 1992a). But heavily primary commodity dependent countries showed poor economic performance[14]. This leads to huge loss of markets share in world export markets. The average annual growth rate of exports of SSA countries in value terms was only 3.2% compared to 14% of the average of the period 1970s. For all other developing countries, the figure was 21.4% and 8.8% for the periods 1970-1979 and 1980-88 respectively. Low price elasticity of the primary commodities and falling (agricultural) terms of trade, supplemented the problem of dependence on primary commodities for SSA countries (Stewart, Lall and Wangwe, 1992;p. 30).

The import structure of Africa, on the other hand, has shown changes. Earlier exporting primary products and importing manufactured goods was the traditional trend of African imports. During that time, there was heavy dependence on textile imports. But in the 1980s &1990s, food and petroleum and intermediate inputs dominated imports. In the periods, decline in the import regime was observed and this was due to lack of importing capacity that resulted from the low level of foreign exchange earnings and high debt service to export revenue ratio.

[14] In the 1980s,they show not only poorer growth performance than other but also their growth in investment is also lower, their inflation is higher foreign debt is greater; they also experience relatively large short fall in the export earnings (UNCTAD, 1992a).

The same trend is observed in capital formation performances within the period. Economic theory underlines saving and investment as the main contributors to the growth of output; and many empirical findings (Collier and Gunning, 1998) confirmed the lack of investment and capital formation retards the growth of African countries.

2.3 Saving and Investment Performances

Domestic saving is fundamental to successful capital formation for economic expansion. Without restraint on present consumption, there is little hope to increase consumption and welfare in the future. Domestic saving was declining in Africa steadily beginning from the first half of the 1980s[15]. The gross domestic saving to GDP ratio for Africa has dropped from an average of 25.9 % of the GDP in 1976-83 to 17.7% in 1984-91 to 15.8% in the period 1992-99.[16] This is very low and it was still declining compared with an average saving rate of 20%, 19.7%and 18% for the Latin American countries and 26%, 27.3% and 32.2% for South and South East Asian countries in the respective periods.

The main factors that contributed towards low saving rate of Africa were low incomes. The effects of recession and the draught condition, the low interest rate policy that is adopted by many African countries governments to keep cost of capital down, the lack of financial intermediaries and branches of banks in rural Africa and low degree of monetization of he economy restrained the saving ratio and dampen resource mobilization for investment (UNECA, 1983). Empirical findings suggest that for SSA market distortion plays a negative

[15] Estimates suggest (ADB, 199,p.23) that African countries with good policy environment need investment to GDP ratio in twenties to sustain just the current rate of growth.

[16] From 1960s to the early 1990s, gross domestic saving more than doubled in East Asia relative to GDP-from 14% of GDP in early 1960s to more than 35% in the 1990s.During the same period saving rate stagnated in Latin America and collapsed in SSA (WEO, 1999).

role. Measures to increase in saving ratio could go long way to mitigate the worsening current account deficit (Ghura and Grennis 1993).[17]

The share of investment in GDP, which averaged 26% in the 1970s, fell to below 20% in the 1980s and to 16% in the first half of the 1990s. Public investment was cut by more than half, while private investment fell from 12% of GDP in the 1970 to around 10% in the mid 1990s.During 1970s, gross capital formation for the whole of Africa was increasing at a rate of 8.9% per annum. The share of its aggregate in GDP increased from 16.3% in 1970s to 23.4% in 1977, and then reverted to 22.6 between 1978-1979. By 1982 it was 24% of the GDP for that year and until 1990 there was a continuous decline (UNCTAD, 1998b).

The period of recovery of the mid 1990s is also not supported by sufficient saving and investment. In 1995 gross saving for the whole region increased by about 5.6 %, down by 1% from the previous level of 6.5% growth achieved in 1994.The overall investment ratio in the region raised to 21.3 % of GDP in 1995, but in twenty five African countries it was actually less than 16%. For SSA countries the saving to GDP ratio fell from 19.6% in 1990 to 16.3% in 1995. The observed decline in the investment ratio is attributed to the lower rate of investment relative to that of consumption expenditure, the increasing unavailability of external finance from and the difficult measures, which have been adopted in the face of external debt problems in recent years. The macroeconomic variables affecting the level of investment of African countries in the period 1970s and 1980s (Oshikoya, 1994; p.593) such as inflation, debt burden, exchange rate variability, etc were further exacerbated; the structural adjustment program also hampered private investment in the short run. The figure for Africa shows (See Appendix c2.1)

[17] Ghura and Grennis (1993) concluded that Pooled time series cross-section data for thirty three African countries (SSA) confirmed a negative relationship between the real exchange rate misalignment and economic performance (economic growth, import, exports, saving, and investment).

that both the saving rate and the level of investment are so much low that foreign saving in the form of foreign aid, loan or foreign direct investment must augment the domestic saving.

The fall in investment was accompanied by very low efficiency and rate of return of investment -the incremental capital output ratio is estimated at more than 12% for the whole period 1980-1992. Expenditure on oversized infrastructure and badly designed plants, low commodity prices and sharp rise in production cost due to increase in the prices of such factors as capital goods, labor, oil, etc were the main reasons for the decline in the rate of return (UNECA, 1992, 1995 &1996). To attain better growth of output, increasing efficiency of investment is highly important for African countries. Survey findings (UNECA, 1983) are important to mention here:

> It is not so much important the absolute level of investment which is decisive as its efficient distribution and use. The rise of capital output ratio and the low level of capacity utilization are both clear proof that investment lacks efficiency. In fact there were numerous cases of inappropriate distribution of investment funds, of wrong location of capital projects, of gaps in infrastructure, of poor level of planning, organization and control, of inappropriate technology and other defects. As a result, the cost of investment in African countries was higher than it should be, even though capital goods have of necessity to be imported from abroad. [18]

In terms of its distribution, the share of public investment in Africa is very high compared with that of other regions, with its theoretical and practical characteristics of inefficiency and low returns compared to private investment. Its volume was also very low. Even though we admit that it is inefficient utilization of public investment in many SSA countries (UNCTAD, 1998b), still the level of public investment as a ratio of GDP is barely adequate to ensure the improvement in the physical and human infrastructure needed for sustained growth.

[18] United Nations Economic commission for Africa, Annual report, 1983; p. 123.

2.4 Foreign Direct Investment Inflows into Sub-Saharan Africa

2.4.1 Policies of FDI of African Countries

In spite of the very low level FDI inflows, African countries are competing to attract by improving their policy. The number of countries that introduced changes in their policy in favour of FDI at global level (See Table 2.1 below) increased from 35 in 1991 to 60 in 1998. The number of countries experiencing regulatory changes in favour of FDI inflows comes to be increasing continuously, from 82 in 1991 to 145 in 1998.There is also a big change in attitude towards FDI, as it is stated in the following statements.

> "...Perhaps no where the policy change more striking than in the changing attitude of governments to TNCs. Twenty years ago or so, many governments saw TNCs as part of the "development problem". Today, TNCs are seen as part of the "solution"... reflecting this change of attitude, FDI is not just permitted -it is avidly sought by governments and indeed many sub-national public sector entities at all levels, from provinces to individual communities. Apart from active promotion (which has led to the establishment of investment promotion agencies in a large number of countries having at their disposal all array of incentives), ...liberalization has been extended to such services as telecommunications, transportation, and power generation, and distribution, which were previously closed to foreigners."[19]

Table 2.1 National Regulatory Changes (1991-98)

Item	Year (19...)							
	91	92	93	94	95	96	97	98
Number of countries that introduced changes in their investment regime	35	43	57	49	64	65	76	60
Number of countries that introduced regulatory changes more favourable to FDI... *	82	79	102	110	112	114	151	145
Number of countries that introduced regulatory changes more favourable to FDI... **	2	-	1	2	6	16	16	9

Source: UNCTAD, World Investment Report, 1999

Notes: *Including liberalizing changes or changes aimed at strengthening market fluctuations as well as increased incentives. ** Including changes aimed at increasing control as well as reducing incentives.

[19] UNCTAD (1999c), Foreign Direct Investment and the Challenge of Development; p.12.

In Africa, policies conducive to attract FDI were not adopted until the mid 1980s.The policies of the 1960s and 1970s were rather limiting foreign investor participation in any enterprise to no more than a specified percentage of its equity. However, after the debt crisis of the 1982, between 1982 and 1987 alone, about one half of all African countries either introduced FDI codes or guidelines, or made adjustments to existing ones in order to attract more investment; and most of African countries move towards openness. The policies set by different African countries vary according to the different objectives. Most of the African investment codes addresses issues that are important to potential investors-from entry requirements, legal protection and guarantees to operational conditions and incentives.

Sweeping liberalization of ownership restrictions (Nigeria), promotion of joint ventures (Namibia), state disengagement from economic activity (Chad, Mozambique and Uganda), reduction of bureaucratic overload and dissemination of information regarding opportunities of investment (Gambia, Eritrea, Ethiopia, Ghana, Kenya, Liberia, Malawi, DRC), liberalizing sectoral laws by focusing on adopting new or revised legislation governing mining and petroleum exploration (Burundi, Ghana, Kenya, Nigeria, Sudan Uganda, Tanzania & Zambia) are mentionable with regards to entry requirements and ownership restrictions (UNCTAD, 1996b P.xi). The effectiveness of these policies alters the trends of the inflow of FDI depending on many other determinants of FDI inflow sorting out of which is one of the objectives of this study. But what the overall trend and the sectoral and geographical distribution of FDI to capital formation will be discussed in the following section.

2.4.2 Trends in FDI inflow into Africa [20]

For SSA, the immediate post colonial period of 1965-73 performance was driven by a strong FDI inflows with an average of growth in volume of 6.4% annually. Investment shares were rising steadily every year, from less than 14% of GDP in 1965 to over 18% for the region as a whole and exceeding 20% in many countries as implementation of protectionist policy increased average return on investment. The stock of FDI doubled between 1960s and 1970s and as a percentage of GDP, it was twice this amount that is directed to the East and South East Asia at the time.

The FDI inflow in Africa is dominated by oil exporting countries. For instance, during the first half of 1990s, five out of the seven largest host countries were oil exporting (Egypt, Nigeria, Angola, Tunisia, Morocco, Cameroon) were main receipts within in the period 1980-95. The combined amounts of inflows to the African Least developed countries[21] (thirty two out of fourty eight least developed countries in the world) have increased steadily during the 1980s and 1990s, but the flow was very small and their share in the total of Africa's diminished slightly. The flow of FDI to most of these least developed countries is special factor dependent.[22] The share of total FDI inflows of SSA in Africa's total (excluding South Africa) for the period 1988-93 and 1991-1995 was 60 and 68.4 percents, respectively.

In the years after 1995, similarly the low FDI inflow into Africa (including North Africa) continued in terms of the shares in total inflow to developing countries. But in absolute term,

---

[20] This part is largely based on UNCTAD, World Investment Directory, 1996 pp. xvii- xlii; and World Investment Report, various years.

[21] Includes Angola, Benin, Burkina Faso, Burundi, Cape Verdi, Central African Republic, Chad, Comoros, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, The Gambia, Guinea, Malawi, Mali, Mauritania, Mozambique, Niger, Rwanda, Sao Tome Principle, Sierra Leone, Somalia, Sudan, Togo, Uganda, Tanzania, DRC and Zambia.

[22] Angola-high petroleum and diamond deposit; Equatorial Guinea- petroleum; Liberia-taken as "flag of convenience" nation; Ethiopia, & Mozambique-substantial potential resource manufacturing and service opportunities and attractive policy towards FDI (UNCTAD, 1996b).

total inflow into Africa (excluding South Africa) increased from $5.9 in 1996 to 10.8 billion in 1999(UNCTAD, 2000). The 32 Least Developed African countries experienced an increase in FDI inflow for the six consecutive years beginning from 1992. Factors that are likely to have a positive impact on foreign firms' decision to invest in different African countries, (UNCTAD, 1999c and 2000) based on a survey[23] are the profitability of investment, the regulatory and legal frameworks, the political and economic outlook for FDI, access to regional markets (and to a lesser extent global markets), trade policy and tax regime as well as low cost skilled labour. These factors were mentioned by most agencies of TNCs as positive factors, and only about half of the agents of TNCs considered access to low cost unskilled labor, access to finance and relative low cost of doing business to have particular advantages for their country in attracting FDI.

The most important of the above factors is the rate of return on investment. African countries are identified to give good opportunities compared to other regions. Based on the data for United States firms, the rate of return in investing in Africa has substantial increments over the rate of return in other regions- the average rate of return on FDI for US firms in Africa for the period 1983-1997 was 22% which is greater than any of the regions of developing countries (21.3% for Asia and 12.3% for Latin America)(UNCTAD, 1998c).

As a summary, Africa's average share of total FDI inflows into developing countries is more than halved- from 11% during 1986-90 to 5% during 1991-98. Under this major trend FDI inflow into Africa has the following characterstics[24] (UNCTAD, 1997). (1) The decline in the regions share in developing inflow is not limited to Africa. Latin America and the Caribbean

[23] A survey conducted by UNCTAD from November 1999 to January 2000(See UNCTAD, 2000 p.148-49).

[24] This generalization is taken from World Investment Report, 1997.

also faced the same declining tendency[25]. (2) FDI inflows into Africa grew by five fold between the periods 1975-80 and 1990-1996, compared with 4.7 times of Latin America and seven fold for developing countries as a whole. (3) While FDI in the primary sector in Africa is relatively speaking far more important than in other continents, the secondary and tertiary sectors accounts as much as two thirds of all FDI in Africa. (4) Within Africa, the host sub-regional or country pattern has not changed significantly[26]. (5) Privatisation triggered the inflow of FDI inflow in to African countries. Approximately about 14 % of the total FDI inflows to Africa in 1990s were linked to privatisation (Pigato and Liberatori, 2000,p.1) in UNCTAD, 2000.

2.5 Sectoral Distribution of Foreign Direct Investment in Africa [27]

The sectoral breakdown of FDI inflows to selected African countries illustrates for several of the largest recipients of FDI in Africa (examples are Egypt, Morocco and South Africa), the service sector accounts for the largest share of inward FDI stock, followed by manufacturing. Within services, the industries that have attracted most FDI are finance and insurance. An examination of the sectoral composition of the FDI stock in Africa reported by the major investors in that region shows that the primary sector is the largest recipients from France, the Netherlands, the United Kingdom and the United States. But for the recent periods of 1993-1995 ten African countries[28], of the total inflow of FDI amounting US $ 2916.3 million, the primary sector has a share of 12.1% while the secondary and the tertiary sectors have a respective share of 44.5% and 43.4%. While FDI in the primary sector in Africa is, relatively

[25] If China is excluded from the developing countries' total, the flow to these regions in 1996 increases (From 3.8% to 5.75% for Africa and from 30 to 45% for the Latin American countries.

[26] The share of North Africa in Africa's total inflows has declined from an average of 44% during 1986-go to 38% during 91-96;The share of oil exporting African countries in Africa's total has increased marginally from 72% during 1986-90 to 73% during 1990-96;The corresponding share of SSA countries rose slightly, from 56% to 62% in between the two periods; Africa's share of accounted for by the least developedcountries in that region remained almost the same-an average of 18% during 1986-90 and 17% during 1991-96.

[27] This part is also taken from World Investment Directory or UNCTAD, 1996b p. xxvi.

[28] Angola, Cape Verde, Ethiopia, Kenya, Mauritius, Morocco, South Africa, Tunisia, Zambia, and Zimbabwe.

speaking, far more important than in other continents, the secondary and the tertiary sector together account for perhaps as much as two thirds of all FDI in Africa (UNCTAD, 1997).

2.6 Geographical Distribution of FDI in Sub Saharan Africa

The history of foreign direct investment flow has either geographical proximity between the host and home country or in some cases colonial attachment. The FDI stock and inflows from US to Latin American Countries, from Japan to South and South East Asia and From West Europe to East and Central Europe and North Africa confirms this statement. Due to the geographical proximity and post colonial ties, Western European investors have active participation on FDI in the region (particularly in the oil exporting countries of North and West Africa) compared with the US and Japanese investors (UNCTAD, 1996b;p.xxi). France, with the *communite' financie're africaine* (CFA) zone and United Kingdom (with the Anglophone African countries) together accounted 88% of average annual flow in to Africa in the period 1991-1993,compared to their 70% share of total out flow into Africa in the 1980s.United States, however, accounted for about 15% at the beginning of the 1990s, compared to its larger share (about one third of the total inflow into the region) in the second half of the 1970s. Japanese firms have displayed moderate interest in Africa, with a share of about 0.8% only (in Liberia).

The developing countries as a source of FDI to SSA are intra-regional FDI and FDI by South East Asian countries. South Africa, after the apartheid regime, is the main source of intra-regional FDI. The major recipient countries for its FDI outflow are neighbouring SADC members.[29]

[29] It includes Botswana, Lesotho, Swaziland, Tanzania, Zambia and Mozambique and South Africa.

CHAPTER THREE

REVIEW OF THE LITERATURE

3.1 Review of Theoretical and Empirical Literature on the Determinants of Foreign Direct Investment

3.1.1 Theoretical Literature

Definition

The mobility of international commercial capital can be either in the form of FDI or portfolio investment. One of the main distinction is that the former entails control of the invested capital by the investor while the latter is limited only to the acquisition of a return from the capital one has lent and control over the use of that return (Sodersten, 1970). FDI entails control of local enterprise by foreign residents (corporation), while portfolio (usually individuals) doesn't. The most crucial distinction is, however, portfolio investments are purely financial movements of capital whereas FDI involves international movements of technology, managerial and organizational skills together with capital (Sodersten, 1992). Both FDI and portfolio are in fact the movement of capital across borders due to the difference in the rate of return and other factors. FDI is defined in another approach as "an investment involving a long-term relationship and reflecting a lasting interest and control of a resident entity in one economy in an enterprise resident in an economy other than that of the foreign direct investor."[30]

[30] This general definition of FDI is based on OECD, Detailed Benchmark Definition of Foreign Direct Investment, Second edition (Paris, OECD, 1992) and International Monetary Fund, Balance of Payments Manual, fifth edition (Washington D.C; IMF, 1993), in World Investment Report, 1999,p.476.

3.1.1.1 Theoretical Framework

Until the 1960s, FDI was just considered as one form of international capital movement responding to differences in the rate of return on capital (international trade theory) while after 1960s, it is considered as the movement of capital, technology and skill (industrial organization or business cycle theory). The modern theory on FDI, developed since 1960s, is either "macro-oriented", based on international trade theory, or, "micro- oriented "based on industrial organization theory. The "micro- oriented " theory is based on the production function and is set out as follows.

Q=F (L, K, M),

Where, Q is quantity of output, L is quantity of labor input; K is quantity of capital input, M is technological input in the form of managerial or organizational technology.

In terms of factor endowments, foreign direct investor country has a large amount of M compared to other countries, so dQ/dM being low in the investor country than in the host country and this will lead to the export of technology (Sodersten, 1970) under the assumption that there is perfect competition in the host country.

The micro-oriented theory summarizes that the main cause of direct investment is the willingness to increase return by taking advantage of some technological opportunity or some organizational form. Observations possibly drawn from this model are (a) there are sectoral differences in technology between countries that they can invest in one another. (b) From the production function an increase in any one of the three inputs, say M, will increase the productivity of labor and capital, which implies a rise in wages for workers of the FDI recipient country and an increase in return to capital of the investor. But under free

3.1.1.1 Theoretical Framework

Until the 1960s, FDI was just considered as one form of international capital movement responding to differences in the rate of return on capital (international trade theory) while after 1960s, it is considered as the movement of capital, technology and skill (industrial organization or business cycle theory). The modern theory on FDI, developed since 1960s, is either "macro-oriented", based on international trade theory, or, "micro- oriented "based on industrial organization theory. The "micro- oriented " theory is based on the production function and is set out as follows.

Q=F (L, K, M),

Where, Q is quantity of output, L is quantity of labor input; K is quantity of capital input, M is technological input in the form of managerial or organizational technology.

In terms of factor endowments, foreign direct investor country has a large amount of M compared to other countries, so dQ/dM being low in the investor country than in the host country and this will lead to the export of technology (Sodersten, 1970) under the assumption that there is perfect competition in the host country.

The micro-oriented theory summarizes that the main cause of direct investment is the willingness to increase return by taking advantage of some technological opportunity or some organizational form. Observations possibly drawn from this model are (a) there are sectoral differences in technology between countries that they can invest in one another. (b) From the production function an increase in any one of the three inputs, say M, will increase the productivity of labor and capital, which implies a rise in wages for workers of the FDI recipient country and an increase in return to capital of the investor. But under free

competition (the assumption of the theory), the scope for technological improvement is limited. In the real world, the most important industries that engage in FDI are rather monopolistic or oligopolistic, and they play major role in transforming technology. But, the theory has contributed to the refinement of the FDI theories, and in its policy implication, openness is asserted to be important for FDI inflows than protectionism. This theory that emphasizes the technological superiority for FDI supply is the basis of micro-oriented theory of FDI (Sodersten, 1970).

It is agreed that FDI flows to countries with higher rate of return on investment. But, foreign firms expect long-run profitability and sustainable rate of return from investment aboard than investment at home. To this end, foreign firms consider risk and uncertainty in the recipient country. This implies that the true picture of profit for foreign firms is different from narrow and short run accounting definition of profit. The basis for FDI is that investors are influenced by profit prospects, but are guided more by long-term prospects than by immediate short-term profit (Reuber, 1973). With the development of investment theory, the consideration of risk and uncertainty brings other factors that are also equally important to the rate of return on investment. This leads to the theoretical consensus that the interplay of economic, political and social factors is important in determining the location of FDI firms and direction of its flows.

At present time, Dunning's eclectic approach has been widely accepted as better-refined theory of FDI. He integrated three stands of economic theory: namely, Industrial Organization Theory, Internalization Theory and the Trade/Location Theory, to form a general framework for explaining why, how and where the TNCs engage in international production.

3.1.1.2 The Eclectic Theory of FDI [31]

The eclectic theory rests on the hypothesis that a firm will engage in FDI if three sets of determining factors are satisfied. FDI takes place when- the presence of ownership specific competitive advantages in a TNC, location advantage in the host country, and of superior commercial benefits in an intra firm as against an arms-length relationship between investor and recipient-exist *simultaneously* (Dunning, 1993). He explained each of these advantages and their relationship to FDI in the following way.

(1) The firm possesses net *Ownership Specific Advantages* of the investing or potentially investing firm vis-à-vis foreign firms serving a particular market. The firm specific ownership advantages are exclusive to the firm that owns them and are likely to be transferable across national boundaries (mobility characteristics). Hymer (1960) puts FDI as a mechanism by which the TNCs maintain control over value added activities such as R&D and new technology outside national boundaries. Following Hymer, Dunning (1981,1983) summarizes these advantages into asset-based advantages and transactional cost minimizing advantages. The underlying argument is that these advantages should compensate additional costs of establishing production facilities in a foreign environment.

(2) The *Internalization Advantages*: This is firm specific advantage. Industrial organization theory suggests that for a firm to undertake FDI, it must possess some internally transferable ownership advantages. An important question that remains unanswered is why a firm possessing those advantages doesn't sell or lease them to foreign firms, but instead opts to use them by themselves in a host country? The extent to which it is to the interest of the firm to internalize the market for its ownership of tangible and intangible assets, rather than choose

[31] Also called the OLI paradigm in technical terms, where "O" implies ownership advantages, "L" implies location specific advantages and "I" implies Internalization of these advantages by engaging on FDI.

another organizational mode (e.g. licensing, franchising, management contract, etc) by which these assets or the rights to their use are transferred, or their value may be protected or augmented (Dunning, 1983) in UNCTC (1999; p.12), is explained by the internalization advantage. In other words, firms earn greater benefits in exploiting both ownership specific and location advantages by internalization, i.e. through FDI rather than any other way.

Internalization theory or the theory of transaction cost, in other words, applies the notion of market failure. This approach helps to explain the route by which the firm chooses to exploit its ownership advantages. Dunning (1993a) then distinguished market failures as structural and transactional ones. The former arises where there are commercial monopoly power or where the government imposes barriers to entry and economic rents are thus earned, while the latter mainly arises where the buyers and sellers do not enter the market with symmetrical information, where there exist externalities such as technological spillovers and\or where the production is attributable to economies of scale, scope or geographical diversification. In the presence of these market deficiencies, the market will fail to operate in an efficient or optimal way and firms will choose not to use the mechanism of the market, but instead allocate resources by their own control procedures (Buckley and Casson, 1985).

Dunning (1998), in his study of the determinants of United States FDI in the United Kingdom manufacturing, he found out factors inherited in internalization (factors that increase transaction costs of other forms of exploiting their ownership advantages). These are (1) Search and negotiation costs prior to the cross-boarder transfer of intangible assets or rights to assets;(2) the need to protect the quality of intermediate or final products arising from these assets ;(3) the costs of moral hazard and adverse selection; (4) the absence or inadequacies of future markets; and (5) some degree of buyer uncertainty, e.g. about the value of the

technology being sold. These firms exploit their ownership advantages by internalizing the markets mainly through vertical and/or horizontal diversification (UNCTC, 1999).

(3) *Location Specific Advantages*: These advantages originally developed by internalization theory explain "how " TNCs carry out FDI. It is location advantage of the recipient country relative to those of other countries -including the investing country -especially with respect to activities necessary to optimize the economic rent on the ownership specific advantages of the investing firms (Dunning 1998). This implies that countries will attract FDI only if they possess certain location advantages. Some of these advantages are market size and its prospect to growth, level of infrasructural development, production cost advantages, and the overall stability of the macroeconomic environment. Literature named these and other newly identified determinants[32] that are basically important in realizing the ownership, location specific and internalization advantages as business facilitation factors, market, resource and efficiency-seeking behaviours of foreign investors (Helleiner, 1973;Dunning, 1993b). The major host country determinants of FDI inflow drawn from the theory of FDI are policy determinants, economic (market seeking, resource /asset seeking) and business facilitation determinants. In this study these factors are grouped in to demand side, supply side, macroeconomic and other determinants.

The theoretical analysis of Dunning is taken in this study as the basis of the hypothesis because (1) the theory is basically the refinement and organization of many previous theories.

[32] Business facilitation factors such as investment promotion, the extent of prevalence of hassle costs (related to administrative inefficiency, corruption, etc), and after investment services; market-seeking behaviour such as access to regional and global markets, etc; resource seeking (skilled and unskilled labor), modern infrastructure that is standard to the global ones; efficiency seeking behaviour such as membership of regional integration conducive to the establishment of regional corporate networks; and on the policy framework side - rules regarding entry and operation, standards of treatment of foreign affiliates, international agreement on FDI, privatization policy, trade and tax policy are current determinants of host country FDI inflows(See,UNCTAD,1998c,p.90).

(2) Location advantages as determinants of FDI inflows are summarized in the theory in simple and understandable way and it is easily discernible that they can be used as a basis for analyzing the determinants of FDI inflows into SSA countries. In addition, Dunning (1998) compares the three advantages as determinants of FDI inflows beginning from the early 1950s to the early 1990s in his works of the respective years of the 1958 and 1998. This shows the nature of the determinants is observed in a dynamic way. (3) The theory has got importance in many literatures related to FDI. The theoretical explanation on each of the major determinants is discussed in the following subsequent sections based on the theories of FDI and the theory of investment.

3.1.1.3 Demand Side Determinants of FDI Inflows

The demand side determinants of FDI include the size of the domestic market, production and marketing cost advantages. Income per capita (market size) is known as one of major determinants of FDI inflow, if the foreign firm is seeking domestic market for its business activities. However, if the objective of the firm is export oriented, the market hypothesis may not work. In the long-run behaviour of foreign firms, the growth rate of the economy of host country is another demand side determinant of FDI inflows, i.e., the long run sustainable profit and growth objective of firms, make foreign investors to seek stable and fast growing economy or market (Root and Ahmed, 1979; Green and Villanueva, 1991).

Regional integration widens free flow of the market goods over a wide, large population area. TNCs always seek such regions with considerable purchasing power. Evidences attained from different parts of the world show the importance of regional integration. Some of them can be mentioned. The regional free trade between North American countries, comprising United States, Canada and Mexico as members is known as North American Free Trade Area

(NAFTA). It has encouraged substantial inflows of FDI to the member countries. The same is true for the European member countries (EU); and for Latin American South Common Market Countries, which includes Argentina, Brazil, Paraguay and Uruguay. This region receives about 70% of the total inflows of FDI into the region. Foreign firms that export their products, if they are attracted by the markets in the region, they prefer to plant their firms within the region to escape marketing costs such as tariff barrier and to reduce and production costs. For specific countries, not only is regional integration but also its level of openness is considered as a factor that attracts FDI more than countries that are relatively more closed (Bhagwati, 1978). For SSA countries, the regional integration was less important; however, recent progress shows the Southern African countries (comprises South Africa, Lesotho & Swaziland) has relatively better level of regional integration and better level of investment in the territories of each other; this is intern attracting relatively more foreign investors.

3.1.1.4 Supply side Determinants of FDI Inflows

Production and marketing cost advantages such as natural resource endowment, availability of investment funds, level of infrastructure facilities, regional integration opportunities, and labor productivity are major determinants of the supply side. The ease of availability of inputs at low cost creates preferable and reliable condition in the production process. Differences in resource endowment, which partly determines the industrial and structural differences between countries is yet another determinant likely to influence the inflow of FDI (Meier, 1994). Countries with relatively well-developed physical and institutional infrastructure facilities better attract FDI. To be competent in the global markets, foreign investors give high importance to the level of development of the infrastructure facilities. In the high competition period of these days, and in the world market over vast distances, transport and communication costs tends to make up to at least 40% of producing national product;

therefore, the competitive age of much business depends on how well they cope with these costs and how well the society in which they operate manages to reduce these costs (North, 1992).

The neoclassical theory suggests that low labor cost plays an important positive role to invest overseas. The unskilled workforces' output-labour ratio can make difference in attracting FDI for two counties with abundant work force. This depends on productivity and attitude of the people of the host country towards hard work. However, Lucas (1993) and Dunning (1994), in their studies considered the quality of labour more than unskilled work force determine foreign investors demand. They underlined that due to the advance in technology, the output of international production comes to demand skilled labor than low cost unskilled labour, particularly in certain industries. Hushang and Weeping (1994) emphasized both skilled labour and lower wages, unlike the wages of the developed countries attract FDI. Currently, emphasis on the low cost unskilled labour due to globalization seems to have got more weight. Demand for low cost labour began to emerge in the 1960s, but it began to flourish only under conditions of globalization (UNCTAD, 1998c).

From the supply side of FDI, the amount of funds available for foreign investment is related to economic activity in the country of the investing firms. The relationship between economic prosperity in the source countries and FDI depends on whether investment abroad substitutes or complements investment in the sourcing country (Krainer, 1967; Spitaller, 1971; Meier, 1994). The supply of funds for investment abroad also depends on the opportunity cost of investment funds, i.e., in this case, the level of international interest rates will affect the flow of the direct investment as the discounted returns on alternative investment opportunity changes with change in interest rate.

Regional integration also plays a key role in widening the scale of economies of production with foreign firms' demand for establishing their affiliates to produce the components of an output using comparative advantage from various kinds of low cost resources in many host countries. The economies of South and South East Asian countries are successful in this regard in attracting foreign firms due to the advantage of ease of operation and better infrastructure availability.

3.1.1.5 Macroeconomic Determinants of FDI Inflows

Macroeconomic policies such as monetary, fiscal and exchange rate policies highly influence investment. They determine the parameters of economic stability such as rate of inflation, the state of external and budgetary balances, taxation, subsidies and foreign debt service that influences any sort of investment. Macroeconomic instability implies instability in the above-mentioned variables. The modern literature on determinants of investment underlines both the cost of desired level of capital stock that depends on the demand of output and the cost of capital (the accelerator principle) and the risk, uncertainty and control of timing factors due to the irreversibility of capital (Serven, 1996). Higher uncertainty rises expected profitability *ceteris paribus* desired capital stock, which retards current investment.

Inflation reduces the real return on investment and may abolish the firm's competitiveness through its effect on the cost of inputs and the prices of firm's output. High and unpredictable inflation distorts the information content of price and increases the risk of long time investment. Hence, policies that reduce inflation are likely to induce more FDI. Exchange rate as a determinant of FDI is under consideration since the 1970s. Albier (1970) stated noted that

frequent changes in the exchange rate of the domestic currency affects investment through its effects on the real cost of capital and the real output. Ragazzi (1973) also stated that if exchange rate doesn't equalize production costs among different countries, there is a potential incentive for FDI to flow in to the undervalued host country. At present, the consensus is that exchange rate volatility leads to high exchange rate risk, uncertainty and macroeconomic instability and it influences FDI decision of investment by affecting the price of host country assets, the value of transferred profits and competitiveness of foreign affiliate's exports. Empirical evidences show ambiguous impacts of exchange rate variability on FDI inflows (See Section 3.1.2). But, the theory postulates that there is a negative relationship between exchange rate variability and the inflows of FDI into a country.

Foreign debt burden also creates uncertainty because foreign investors strongly suspect that the higher it is the more it puts a country into risks of international trade. FDI is difficult to undertake if accumulated debt persists over long period. This is because it increases uncertainty and risk, making investment condition unfavourable. Parallel to the debt burden, the effects of fiscal policy on investment can be analyzed by looking at how fiscal deficits are financed, what the composition of public investment is and how the level of government external debt is financed. In developing countries, high government fiscal deficit financed through fiscal borrowing affects the amount of credit available to the private sector by raising domestic interest rate. If the fiscal deficit continues over longer periods, foreign investors expect higher future taxes which can have negative impact on their expected returns, so that they may refrain themselves from investing. On the other hand, restrictive fiscal policy that leads public sector investment on infrastructure, etc, can positively affect the impact of fiscal deficit on FDI inflows (Blejer and Kahn, 1984; Aschauer, 1989;UNCTAD, 1998c). Therefore,

the overall impact of fiscal deficit as empirically tested, is ambiguous[33]. But the theory postulates there is a negative relationship between fiscal deficit and FDI inflows.

Incentives[34] given by governments can affect FDI inflows into developing countries. The modern macroeconomic theory suggested that incentives to investment increases the level of investment and income in general by shifting the IS curve upward, *ceteris paribus* (Dornbush, 1996). But various researchers have reached on conclusions that are not similar. For instance, according to Reuber (1973) and Wells (1986), the impact of incentives depends on whether the TNCs are export or domestic market oriented ones. Other studies have different and more general conclusions that tax incentives are unlikely to sway the majority of investors that are domestic market oriented (UNCTC, 1991). Fry (1993), on his study of the impact of incentive on FDI inflows to South East Asian countries, qualified previous conclusions in that the incentive should be non-distortionary if the host country is to benefit from FDI. Regarding the effectiveness of incentive the conclusion of UNCTAD is a good empirical summary- if the host country doesn't have some economic determinants (components by the investment climate) in place, no promotional efforts or incentives will help it to attract significant level of FDI (UNCTAD, 1998c). Therefore, from these mixed findings the impact of incentives as a determinant of FDI inflow is difficult to predetermine. But, the theory states incentives increases the level of investment.

---

[33] Regarding the impact of fiscal deficit on domestic private investment, some findings show there is complementary relation between private and public investment (Bleiger and Khan, 1984; Green and Villanueva, 1991;Serven and Solimano, 1992; Mackenize and others, 1997), while other findings show that there is substitution relationship (Ballassa ,Lawmas,and Easterly; Driguez and Schmidt-Hebbel, 1994).

[34] According to UNCTAD,"...Incentives are measurable economic advantages afforded to enterprises or categories of enterprises by a government in order to encourage them to behave in a certain manner. These include measures to increase the rate of return of a particular FDI undertaking or to reduce or to redistribute its costs or risks; and the economic rational behind it is to correct the failures of market, and the wider benefits arising from externalities in production.... But, what ever the rational behind the incentives is, they are successful only to the extent that they succeed in attracting investors to a country away from an other; if it were otherwise, and the investment were to take place any way, the incentive would be superfluous."(UNCTAD, 1998c).

3.1.1.6 Other Determinants of FDI inflows

In this subsection political instability, governance, FDI policy and hassle costs (administrative inefficiency and corruption) are included. Political stability of a country is highly important for smooth investment activities. Wars, strikes, and social upheavals have negative impact on macroeconomic environment, and create risk and uncertainty. Meier (1994 p.24) explained the characteristics of political instability and the nature of responses of firms in the following way:

> Political risks can be a change in public policy that might have the consequences of disinvestment, price controls, changes in taxation, foreign exchange remittance restrictions, labour law revisions or changes in tariffs and quotas. These policies do not relate to a general ' investment climates' but they are industry specific, firm specific or even project specific. They are far short of nationalization or confiscation, but they do affect cash flows and returns.

The remark shows that foreign investors give more emphasis on the micro-economic impacts of the political situation. Korbin (1982) stated the same argument; the impacts of most political events are of a micro character and normally affects operations rather than termination of a project. At macro level, the most significant risk is that the country will have a balance of payments problem that causes the government to introduce trade controls or to depreciate its currency or to undertake deflationary monetary and fiscal policies (Meier, 1994; p.25). To tackle these political problems, investors should analyze risks that may result from policy changes, and this is forecasted whenever there is political stability and when investors understand the government's political objectives, political resources and the influence of various interested groups on public policy making (Meier, 1991). From these conclusions, one understands that political instability affects FDI inflows negatively by increasing the risk factor that foreign investors associate with the capital they are investing.

The contribution of institutional reforms in stabilizing economic growth and creating reliable investment condition has been a subject of economic study. Researchers concluded that the economic benefits from freedom reforms are systematic and significant (McMillan et al, 1994). To foreign direct investors, institutional reforms favoring the participation of citizens on political agendas and good governance[35] contribute to stable political, economic and social environment. As empirical studies show, in line with this, the ideological differences and system of political rule in developing countries were strictly influencing FDI inflows from Western countries until the period of the cold war. The transformation of the political system from minority to majority rule in different countries may decrease potential political instability and violence. This increases the confidence of foreign investors in the political system of the host country and it encourages investment.

Whenever there is low hassle cost and low unnecessary bureaucratic procedures, businessmen and investors can efficiently undertake their domestic and international activity so that competitiveness will be met. Hassle costs such as corruption reduces investment and the rate of growth (Mauro, 1995). This is due to the higher costs and the uncertainty that corruption creates. The other reason is that it reduces expenditure on infrastructure and other social sectors and this indirectly affects the absorptive capacity of the host countries. Some SSA countries ranks top in terms of corruption (Cameroon, Nigeria, Tanzania, etc.) and this should have hampered the inflows of FDI. On the other hand, administrative decentralization in large countries like china has proved to be encouraging in attracting FDI (Zhang, 1994).

[35] John McMillan, Gordon C. Rausser, and Stanley R. Johnson (1994 pp.2-6) in their study of the impacts of political and civil liberties on economic growth in response to the challenge of the new institutional approach to economic growth and development policy. They utilized a set of indices on political and civil right to measure the impacts of reforms on national economic performance of 125 countries during the period 1972-88. In contrast to previous studies their empirical work allows an assessment of the causal relationship between political and civil freedoms and the dynamics of economic growth .The indices for rating political and civil rights are constructed by Freedom House through a simple averaging of rating for different features of a nation's political rights or civil rights (seven features for political rights and thirteen features for civil rights).

The importance of FDI policy as a determinant is based on the notion that foreign direct investment can't take place unless it is allowed to enter a country. Clear policy on FDI, along with good sources of information on investment potentials, and credibility on implementation of these policies motivate investors to undertake investment in the host countries. But this may not be sufficient to attract FDI.[36]

The above discussion focused on the pull factors determining the FDI inflows. The push factors that motivate developed countries' investors to leave the investment environment of their home country and transfer resources to host countries are also no less important. Some of the major push factors are the falling interest rate at home, an economic downturn, the change in financial liberalization, the change in the opportunity cost of capital, etc. This study is limited to the examination of the relevance of the pull factors only. The next sub-section is concerned with the discussions of empirical literature.

3.1.2 Empirical Literature on the Determinants of FDI Inflows

Both regional and country specific determinants of FDI inflows are reviewed in this sub-section. One of the country-specific empirical literatures is on the determinants of FDI inflows into Zambia. By using multiple regression analysis on time-series data covering the period 1970-95 for Zambia[37], Mulenga (1997) found that the natural resources, foreign debt

[36] Rules regarding entry and operations, standards of treatments of foreign affiliates, policies on functioning and structure of market (of competition, merger and acquisition Policies), international agreements on FDI, privatization policy, tax and trade policy (Tariff and non trade barriers) and coherence of FDI and trade policy are components of the policy framework of FDI (UNCTAD, 1998c;p.90).

[37] The explanatory variables such as market size, Zambia's manufacturing wage rate as a ratio of united states wage rate, United States long-term bond rate, economic growth rate in OECD countries, manufacturing labor productivity, Zambia's treasury bill rate, natural resource potential (proxied by total export to GDP ratio), credit

servicing capacity, economic growth rate, availability of credit & market size (per capita income) are variables with significant impacts on the inflows of FDI, in the order of their strength from the most to the least powerful. Ekpo (1996) analyzed the macroeconomic determinants of FDI in Nigeria based on time series data (1974-94). In his finding, real income per capita, the rate of inflation, world interest rate, credit rating and debt services were found to be important determinants of FDI inflows into Nigeria. These two studies approached the problem from both pull side and push sides and the most important of the push side determinants is the world interest rate.

The study conducted by Wang and Swain (1995) on China and Hungary to detect the determinants of FDI inflows to the two countries by using time series data for the period 1977-92 found that market size, the wage rate, opportunity cost of capital measured by the United States long-term bond rate, domestic interest rate were significant determinants of FDI inflows into both countries. Discounted cost of capital and the growth rate OECD countries were another relevant determinants for Hungary, while the opportunity cost of capital proxied by the United States bond rate and the labour cost were significant for China. This finding differs from the above SSA country specific study in that the labour cost is a significantly determining factor for Asian countries. Whether this is true for most SSA countries and whether it is the raw labour or the skilled labour force that determines FDI inflows is undetected, however.

Woodward and Rolf (1993) on the Caribbean basin countries and Moore (1993) in their study of the case of Ireland found a negative relationship between the cost of labour and FDI. Some studies, however, found a positive relationship between wage rate and FDI, which may reflect

---

allotted to the private sector, price of foreign exchange, financial intermediation risk, government deficit, exchange rate variability and fiscal repression.

skill intensity (Sweden Borg, 1979 p.295). Similar conclusion was reached by Earnest and Young (1994) in UNIDO (2000), from a survey by International Business and Financial Advisory Group. They cited "large market potential" as the most important factor for off-shore investment, and 94% of the 230 of the global client companies surveyed emphasized the quality rather than the cost of labour. Kumar (1994), Moore (1993) and Lucas (1993) found low wage rate as one of the motive factors for United States FDI. But in some cases, labor productivity is more meaningful to foreign firms because it can compensate the high level of wage through productivity. Jackson and Markowski (1995), using twenty-five country specific case study incorporated labour productivity into the estimation and concluded from it that costs and productivity should go together for the investors to decide their investment.

Lucas (1993) used derived demand model for foreign capital by a multi-product monopolist to explore the change in wage sensitivity of direct investment flows into seven major FDI recipient Asian countries.[38] He began from the fact that the existing policy of governments of these countries was to restrain wage escalation and to limit the role of organized labour, partially in order to attract foreign investments. His main empirical finding was that FDI flows have indeed been responsive to prices and cost. Under this basic finding, the elasticity of FDI with respect to most countries' wages proves negative; and, the output deterrent effect of higher wage is estimated to outweigh any substitution towards greater capital intensity, resulting in a combined negative effect of greater pay upon foreign direct capital inflows. FDI inflows generally prove somewhat less elastic with respect to *the capital cost measures*, though in the case of some sample countries (Philippines, Singapore and Taiwan) this finding was mixed, while in the majority of the countries positive association prevailed. The evidences also showed that FDI inflows are estimated to be less elastic with respect to the

[38] The countries used in the study were Philippines, Indonesia, Malaysia, Singapore, South Korea, Taiwan and Thailand. Annual time series data of different number of years for different countries over the period of 1960-87 was employed.

costs of capital (including taxes) than to wages. Regarding other macro-economic variables, the findings show weak positive association between FDI and higher foreign exchange reserve coverage and hence diminished prospect for currency depreciation. Finally, he concluded from the outcome of his regression that "concerns for political stability have overlain the economic determinants," Lucas (1993 p.391). This conclusion regarding political instability is possibly relevant also for developing countries of SSA.

An empirical literature on location specific advantages and manufacturing direct investment in the Guangdong province of China (Zhang, 1993) responds to the question "what can LDCs governments should do to create the necessary conditions to attract manufacturing direct foreign investment?" The literature identifies administrative decentralization and widespread local initiatives as the most important factors that attract FDI to LDCs. After the introduction of strategic policies to attract FDI by Chinese governments, deregulation of power from central government to provincial and local governments, and arrangement to allow the latter to restrain most of their foreign exchange earnings enable local governments to succeed in developing entrepreneurial government, infrastructure, industrial specialization and a more open economy, which strengthens the pre-existing advantages of the province. Under this condition, formulation and implementation of industrial strategy, competition between local governments and partnership with foreign investors have played important role, according to the study.

To investigate the determinants of FDI inflows to developing countries, Schneider and Frey (1985) estimated multiple regression models for the years 1976, 1979 and 1980 based on cross-sectional data from fifty-seven developing countries. They employed economic, political and combined political & economic variables and modelled for three different years,

by including them simultaneously. Political and economic determinants predict net FDI inflows best. The dependent variable of the model is net foreign direct investment per capita[39]. For all the three separate years, all the coefficients were significant (except for governments with communist ideology) implying that FDI in many developing countries is determined by both economic and political factors. The problems observed in the models are, however, first it is not clear how the three years are taken as a sample. In other years, if conducted, the result may not be consistent. Second, the value of intercepts in most of the regressions are large, implying that there are omitted variables such as natural resource potential, infrastructure, fiscal deficit, etc and these weaknesses reduced the quality of the study.

There are also important literatures on specific variables that determine FDI inflows. One of them regards incentive to attract FDI. They suggest that incentives are not as important as other location specific advantages such as market size and growth, production cost, infrastructure, etc. The conclusion from a survey conducted by thirty TNCs covering seventy-four investment projects was that incentives are not even considered by investing companies. This is in line with the conclusion given by a researcher i.e., "Investment decisions were made mainly on the basis of economic and long term strategic considerations, concerning inputs, production costs and markets," (Guisinger, 1983,89 and 92) cited in UNCTAD (1998c). The other important point is the non-incentive main determinant factors of FDI inflows to host country play important role for giving incentives (UNCTAD, 1994 p.74). For instance, the factors that attract United States firms to Malaysia and Costa Rica in attracting United States firms and computer industries of US in to Singapore (UNCTAD, 1998c p.104) are the

[39] Real GNP per capital as a proxy to market size, growth rate of real GNP, international investors credit rating for 1979 & 1980, balance of payments deficit, wage cost, skilled workforce (proxied by secondary school enrolment ratio), political instability (proxied by the number of political strikes and riots average over periods), right or left siding government ideology, bilateral and multilateral aid received either from eastern or western countries are the explanatory variables.

presence of attractive infrastructural facilities and human capital in these countries which in turn facilitates the attainment of the targets of the incentives allotted by the governments.

Among the risk and uncertainty factors, exchange rate is one of them. It creates uncertainty if it varies frequently. UNCTAD (1993b) has shown that world FDI varies negatively with the variability in exchange rate. Evidences supporting the negative impact of inflation are many. Inflation and investment are negatively related (Green and Villanueva, 1991; Serven, 1996; Serven and Solimano, 1992). The debt overhang problem (Sachs, 1988) makes investors anticipate foreign tax on current and future income. Other multi-county panel data studies of investment (Serven and solimano, 1991) found that measures of macro economic instability such as the variability of real exchange rate, inflation rate and foreign debt have adverse effect on investment. But, some other empirical studies shows that, changes in exchange rate are expected to have a greater impact on FDI than differences in exchange rate levels, which were found to be insignificant determinants of bilateral FDI among major OECD countries (Glodberg and Kilstad, 1994). Regression estimates for some developing countries (Malaysia and Thailand) showed that exchange rate levels are not generally important (UNCTAD, 1998c). Serven (1990), in contrast to these findings concludes, "Unanticipated changes in the real exchange rate affect investment through their impact on the desired capital stock, whose direction depends on a number of factors. In contrast, anticipated changes can have an important effect on the optimal timing of investment, in a direction that depends on the financial openness of capital goods imports."

Root and Ahmad (1979) and Jackson and Markowski (1995) found evidences on the level of openness as a determinant of FDI inflows. The more open a county is to international trade,

the more FDI beneficiary it is. For China, after it opens its door to the outside world, the inflow of FDI has been growing continuously (Zhang, 1994 p.51).

Subjective approach is used to detect the determinants in some cases. A joint survey conducted by UNCTAD and International Chamber of Commerce (ICC) to identify the causes of low policy changes. For instance from November 1999 to January 2000, about 296 TNCs agents were embraced in the survey to rank factors that have negative impact on their investment decision in African countries (UNCTAD, 2000, p.45-47). Based on these responses, in general the size and growth of domestic markets ranked next to the profitability in motivating FDI decision. Among the negative factors impeding FDI in host Africa countries, the incidence of extortion and bribery and the difficulty in getting access to global markets are the top determinants. The overall political and economic outlook, poor access to capital, high administrative cost of doing business and lack of physical infrastructure ranked next aging factors of FDI. The responses also show natural resource seeking or market seeking except tourism, which is difficult for classification as the greatest potentials observed by foreign firms, while efficiency-seeking sectors are low on the rank list.

As a summary to the previous findings, in most of the countries and regions, market size, infrastructure, cost of labour and its productivity, level of development of human capital, macroeconomic factors such as the rate of inflation, fiscal deficit, world interest rate, economic growth and political instability are the most important factors affecting the inflows of FDI.

Based on the study of trends of FDI inflows to East and South East Asian Countries Calvo, Leiderman, and Reinhart (1994) concluded that " in order to induce investors to bolt down

their capital for growth-starved country, policy makers must be able to master a high degree of credibility and be prepared to support clear, simple and market oriented prices." For SSA, governments are required to react further beyond policy by stabilizing their economies and developing their infrastructure. This suggestion is relevant for African governments that they need to focus beyond the policy framework to attract FDI.

3.2 Literature Review on the Contribution of FDI to the Economic Growth

3.2.1. Theoretical Literature

Economic growth is usually taken to be a sustained increase in the national output of goods and services and it is measured by using different indices. It is best described as the rise in nation's aggregate output over an extended period of time. It is a complex process, coming out of the interrelationship between a number of factors-many economic, others political and social.

Economic growth can occur or driven by one or more of the following ways. It may be stimulated by (1) investments that augment and improve the productivity of national physical resources; (2) innovation and technological changes, which not only improve the productivity of existing activities, but also create competitive advantages in new ones; (3) the development of labour skill or investment in human resources; (4) international trade, which enables countries to exploit their existing comparative advantage and develop new ones, leading to more efficient utilization of domestic resources through specialization(UNCTAD,1992b). The developed countries have exploited these factors of national growth; but the process is not smooth.

Sub-Saharan African countries' economic growth is lagging behind the rest of the world due to their deficient performance in terms of these basic factors of development. Constraints such as, low physical and human capital formation and inadequate infrastructure have constituted major impediments to private sector development. In addition, political instability and civil wars, inefficient administrative and institutional set ups and inappropriate economic policies contributed to the weak aggregate economic performance (Ghura and Hadjimichael, 1996). The inflow of foreign capital in the form of FDI is assumed to have positive impacts on economic growth, assuming its net marginal contribution to be positive.

Theoretical literatures state that FDI contributes to economic growth of host countries from its contribution to capital formation (either by filling foreign exchange and saving gap and\or by increasing the propensities to saving) and spillovers in technological & international trade areas. It is necessary to discuss theoretical and empirical literature on the contribution of FDI to these areas. However, as the contribution of FDI to the host country's economy is controversial, those with the counter argument on saving (Griffin and Enos, 1970; Weisskoff, 1972) argue that, first, FDI lowers domestic saving and investment rates by stifling competition through exclusive production agreements with host countries' governments, failing to reinvest much of their profits, generating domestic incomes for groups with lower propensities to save, inhibiting the expansion of firms that might supply them with intermediate products. Second, the management and entrepreneurial skills provided by foreign firms may have little impact on developing local sources of these scarce skills and resources and may in fact inhibit their development by stifling the growth of endogenous entrepreneurship. Third, the contributions to fiscal revenue is less than what it should be due to liberal tax concessions, transfer pricing, and tariff protection by host governments. Finally, although the initial impact of foreign firms investment is to improve the foreign exchange

position, in the long run, its impact may be to reduce it. Both capital and current accounts may worsen because of the overseas repatriation of profits, interest, management fees and other funds (Todaro, 1994 p.531-535). In this study, empirical evidence is forwarded to the contribution of FDI to economic growth through its impact on saving.

3.2.1.1. Contribution of FDI to Saving and Investment

There is consensus on the principle that countries should devote substantial efforts to increase the quantity and improve the quality of their physical and human capital stock. Growth theories have considered saving and investment as the basic factors that creates favourable conditions for the role that technology plays in output growth. According to these theories, the difference in the accumulation of physical and human capital, differences in coordinating investment and technology more effectively towards production is the basic factor that brings difference in the level of per capita income and its level of growth between countries.

The developing countries are however lagging behind in accumulating substantial level of capital stock. As a result, they are incapable of meeting their target level of growth. Saving constraint hampering the accumulation of the necessary physical and human capital and foreign exchange constraint hampering the import of capital goods and technology- as the main constraints to the growth of output- are developed by Bruno and Chenery (1962) as the two-gap models and further elaborated by Chenery and Strout (1966). After the debt crises of 1980s, recent model of fiscal gap forwarded. Fiscal gap is also part of the problem of resource accumulation emanating from the financial constraint. In the saving gap constraint, the difference between what should be invested to attain a target growth and what is saved or invested is known as *saving gap*.

The foreign exchange constraint that arise from dependence of the developing countries on the export of primary products, the terms of trade of which is falling continuously overtime hampers the capacity to import capital goods for investment. The difference between the level of foreign exchange reserve required for importing the necessary capital goods that enable a country to attain a target level investment and hence a target level of growth of output and what is available to import only some investment goods is *foreign exchange gap*. The problem of *fiscal gap* persists due to the limited domestic financial resource of the governments (such as limited tax revenue). When existing financial resource of the public sector is barely enough to undertake public investments and consequently shift to borrowing from the financial institutions, it depresses the financial source of the private sector that is available for investment. According to the three gap models, these gaps have to be filled from foreign resources transfers in the form of foreign aid, FDI and grants. The final impact of these foreign resources is to create productive capacity in the short and medium terms (Agenor and Montiel, 1996, p.423-26).

The three-gap model, even through it was criticized for its neglect of price (or incentive) inherent in the fixed coefficient formulation; it had a powerful argument for foreign assistance (Kruiger, 1986). But the foreign aid that had flowed to the developing countries over long period didn't solve their problem of growth and rather created a problem of debt burden, which depresses the foreign exchange reserves of countries through debt servicing against their overall savings. Therefore, although foreign exchange reserve problem is listed as another important problem, domestic resource shortage of the poor developing countries is still a major problem.

Beginning from the earlier times, the position of the gap models was challenged by some economists such as Griffin and Enos (1970) and Weisskof (1972) and Fry (1993) through the line of argument that foreign capital flows in the form of aid or FDI have a depressing effect on the saving propensities of the developing countries, thus leading to a reduction of domestic saving rates. This in turn leads to lower rates of capital formation and lower rates of growth, according to this argument. These are two extreme lines of arguments. Papanek (1972) attacked both of these arguments by stating that the data should answer the question. Stoneman (1975) however came with a new idea that FDI exercises two kinds of effects, namely the balance of payment effects (due to the flow of FDI) and the structural effects (due to the stock of FDI). Based on this line of thinking, Bhagwati (1978) and Grinols (1976) suggested that if dynamic impact (such as its impact on growth) is considered, the adverse effect of FDI could be reversed. More recent works on the area based on this line of argument suggested that the impact of FDI on economic growth can arise from its direct impact by increasing capital formation and through its spill-over effects in the area of technology, human capital and export (Dunning, 1985 & 1993;Kumar, 1998& 99).

FDI contributes to domestic saving and capital formation in that first foreign firms invest from their retained earnings. Second, when FDI inflows to host country employment increases and this is a new sources of income that will potentially increase savings, through their activities of pension planning, instituting direct deposit into savings accounts, altering the distribution of income in favour of savers, official payroll deduction and purchase of insurance. In addition, foreign firms are themselves investors, utilizing both their internally generated savings, which they obtain through borrowing from their country and issuing equity. Foreign firms can also contribute to government revenues through tax payments, contractual fees, etc. and indirectly through tax paid by their employees and suppliers. The

contribution depends on the host country's tax rate, policies and the level and characteristics of subsidies and outlays (UNCTAD, 1992b,p.113). Empirical evidences on the impact of FDI on saving are mixed. It is discussed in section of 3.2.2 of this study.

3.2.1.2 The Contribution of FDI to the Diffusion of Technology

The neoclassical growth model considers technological progress as an engine of economic growth. Solow (1956), from his growth model concluded that technology is the main driving force of sustained long-term growth of per capita income, while other factors such as investment have a limited role bringing the economy to the steady state of growth (Romer, 1996, p. 6). Unlike Solow, recent theories of endogenous growth, treats technology as endogenous and underline the return from innovations as a driving force to technological upsurge and the non-rivalarous nature of new ideas for their multiplication and diffusion. Countries with high R & D activities are leading innovators and economically advanced, as they possess superior technology that improves factor productivity. Modification of this endogenous growth model comes with an implication that countries with sufficient human and physical infrastructure & capability can adopt new technology and this improves the efficiency of resource utilization. These current growth theories (Romer, 1996, p. 121) forwarded the following ideas: First, economies that invest more in physical capital will be richer while economies that have rapidly growing population will be poorer. Second, economies that invest more in accumulating skill will be closer to technological frontier and will be richer. Third, countries with high level of R&D that effectively generates a new technology drive the technological frontier. Fourth, the skill level of individuals in different countries brought difference in possession of different level of technology; and, finally, technology is available to flow from where it is invented to other countries in a positive relationship with the capability (physical and human infrastructures) to absorb and utilize it.

The model developed by Romer is relevant to the developed countries. For developing countries, where capturing the technological frontier is difficult, the model is modified to hold relevant variables that go with their macro and micro economic nature. The modified version of endogenous growth model (See Johnes, 1998), which has an important implication for developing countries adoption (transfer and diffusion) of the technologies, is rather relevant. From this model, the capability to adopt new technologies by developing countries depends on their level of openness, the available skilled manpower and their capacity to import capital goods. But from observations, lack of skilled manpower, physical infrastructure, sufficient foreign exchange reserves are major constraints hampering technological adoption.

The relevance of this discussion to this study lies on the role of FDI in linking new technologies from the home- (developed country) to the host (developing country). Technological superiority is the main economic advantage that motivates TNCs to undertake FDI (Soderstein, 1970; Dunning; 1988.p.10). Foreign firms transfer technologies by externalized modes through licensing, minority joint ventures, sub-contracting, strategic alliance or capital sales, FDI is suggested as the cheapest long term means of transferring technology, according to the survey of UNCTAD (UNCTAD, 2000 p. 172-173). This is due to the following four major factors (ibid, p.173): first, it avoids the problem of lack of skill and knowledge in efficiently implementing the transfer of technology than through licensing; second, through FDI, even the latest and newest technology may be made available, which otherwise is difficult to get through externalized ways. Third, it provides other benefits such as access to export market and brand names not available under external means of transferring, and it provides updating technologies quickly for countries lacking innovative power. Finally, in the long run, firms of the host country will even create the possibility of

generating research and development. Therefore, FDI has both direct and indirect impacts on the level of technological standard of the developing countries[40].

As mentioned earlier, the level of qualitative human resource development brings difference among countries in generating and adopting new technologies for productive purposes. The endogenous growth theory underlines this fact as a source of difference in the level of per capita income between countries (Romer, 1990; Lucas, 1992). Foreign firms affect the quality of human resources through direct employment, which improves the material welfare of employees by allowing private investment on health, nutrition and education of their families. Through direct employment, the workforce creates linkage to modern machines and organizational technology as well as training exposures. They also influence local governments to change the educational curriculum (policies) to shape in such away that transfer and diffusion of technology is possible. All of these indirectly raise the productive capacity of workers but how far productive capacity growth is realized in developing countries depends on the national policies towards internalizing this human resource into the national economy.

Empirical evidence to test the impact of FDI transferred technology on host countries economy is limited due to the problem of direct measurement of the impact of technology. "...No comprehensive analysis on the impact of technological spillovers has been made so far due to the major problem of extreme data requirement." (UNCTAD, 1999c,p.11) Some researches were however conducted to see whether foreign presence has a significant positive impact on local productivity by identifying backward and forward linkages, training and

[40] The direct and indirect impacts are its contribution to higher factor productivity, change in product and export composition, R & D undertaken by foreign affiliates, the utilization of organizational and innovative and management practices & employment and training. Indirect impacts occur through collaboration with local R and D institutions, technology transfer down stream and up stream producers, through competition to the efficiency of local producers and the turnover of trained personnel (UNCTAD, 1992b;p.141).

demonstration effects, etc. Based on these findings, the conclusion is that high level of local competence and a competitive environment in the host countries determine the magnitude and scope of spillovers. From this, it is remarked that policies supporting more competitive environment are useful alternatives for countries aiming to maximize the benefit from FDI in terms of technological spillovers (Blomstrom and Kokko, 1996 P.24). For the SSA countries, this can be difficult because in the economy of these countries market is not well developed to allow competition so that the expected spillover effect can't be significant. But it is left untested in this and in previous studies.

3.2.1.3 The Contribution of FDI to International Trade

The indirect impact of FDI on growth emanates from its impact on international trade. Three areas of impacts of TNCs on linkage between trade and growth are identified at conceptual level-macroeconomic level, at the industry level and the company level (UNCTAD, 1992b. P.216). At the macroeconomic level, the trade promoted by foreign firms helps facilitate a higher growth rate by raising the demand for domestically produced goods through host-country exports, by easing supply constraints of both host and home economies through imports, and by facilitating a dynamic learning process. At the industry level, foreign firms facilitate trade by fostering a deeper international division of labor, which involves the location of production components and final products across different countries. This in turn, facilitates a more efficient utilization of each country's resource and skill endowments, thus lowering production costs and promoting growth. At the company level, the organization of international networks of foreign firms, including those of trading affiliates, can increase world trade and, in this manner, influence the growth and development of trading nations.

The macroeconomic impact of trade as an indirect means to growth is through providing opportunities to expand and improve production. Conventional view of the relationship between trade and growth suggests that specialization in resource allocation by increasing such inputs as natural resources, capital goods and technology at lower cost- through exchanging with the goods and services a country can produce at this cost for other goods that a country either can't produce or can do so at higher cost. By offering greater opportunities form economies of scale, expansion and enlargement of markets and by bringing greater capacity utilization to fulfil the high external demand, trade contributes to better macroeconomic performance (UNCTAD, 1992b p.218).

FDI and international trade are highly linked because the overall objective of the foreign firms is to earn sustainable return from international business either by allocating production where it is cost effective and selling in locations of high demand (whether it is in the host country or through export orientation). For local raw material processing industries, foreign firms may have better potential than developing country firms because of their business contracts abroad, marketing skills and superior technology. "...Particularly for the poorest developing countries where these assets are lacking, foreign firms may be one of the few available alternatives at least for the time being, if they want to increase exports." (Helleiner 1973) .The interests of foreign firms in trade liberalizations in their home countries are significant and some make political pressure for their trade, even though evidences are inconclusive (Heliner, 1978). Exports, imports and externalities are the major areas of the benefits from FDI for the developing countries.

The difficulty with the empirical evidences in detecting the impacts of FDI on the host country international trade are whether the growth of exports of the developing country is

exactly the result of the FDI spillover or any other sources. However, the findings of researchers show that the level of dominance of foreign firms and their level of export orientation has substantial impact on the firms of the developing countries such as Mexico, Singapore and Malaysia (Lall, 1979). FDI contributes to the structural changes of domestic firms (e.g. South East Asian firms, Indian Software firms, etc.), to the change of export composition from low technology products to machinery and transport equipment (UNCTAD, 1992b, P.203), and development of the marketing channels of these firms (UNCTAD, 1995). Growth through imports (the case of Brazil, Hong Kong, and Taiwan firms) also confirms the positive indirect impact of FDI on the growth of host countries through international trade (UNCTAD, 1992b, P.205). For developing countries trying to convert import-substituting industries to export levels, the role of foreign firms is high. Their impacts in creating regional market opportunities are many. In this direction, TNCs are firm supporters of common markets, free trade areas, custom unions, as these opportunities enable them to use large market and economies of scale of production (Dunning, 1993a).

Recent empirical evidence to detect the impact of FDI on export performance was conducted by cross-sectional analysis (using 1995 data) for 52 developed and developing countries with total manufacturing exports (total and grouped by technological categories) as dependent variable and FDI per capita, R & D as a percentage of GDP and per capita manufacturing value-added as explanatory variables. The regression results show that there is a positive relationship between FDI and manufactured goods export performances for the whole sample (though the level of significance is low for medium-technology exports). When the sample is split into developed and developing countries, FDI is significant for all kinds of technology exports. The overall conclusion is that FDI can be a real and positive factor in export performance (UNCTAD, 1999c; pp.246-7).

When we talk about the positive impacts, we shouldn't forget the negative impacts of FDI on the trade opportunities of the developing countries. The benefit depends on the strategies of the foreign firms. To the extent that FDI helps to build up export-oriented capacities in host countries and to the extent it contributes to the industrial restructuring, it can increase host countries' competitiveness. This is not true when the trade is limited between the foreign companies and their affiliates and when the level of concentration of the firm is limited to a few areas of locations is high. In addition, providing too few or wrong kinds of assets and technologies, worsening the balance of payments through limiting exports and promoting imports and out computing endogenous firms that export more and import less, limiting the upgrading of indigenous resources and capabilities by restricting local production to low value-added activities and importing the major proportion of higher value added intermediate inputs (Dunning, 1994) are some of those negative consequences. However, in discussing the contribution of FDI to the economic growth of developing countries like Africa, it is important to consider its role in international trade.

3.2.2 Empirical Literature

Earlier empirical evidences relate the impacts of foreign capital inflow (in its total or in terms of its components such as foreign aid, commercial loan, FDI, etc.) on domestic saving and growth. In the empirical modelling and estimations, some data supported the positive impact of total foreign capital inflows on economic growth of the host country (Rodensten-Rodan, 1961; Chenery and Strout, 1966); others supported its negative impact (Griffin & Enos, 1970) and others conclude the data should answer the question (Papanek, 1972 and 1973; Stoneman, 1975).

The cross-sectional single equation model estimated by Stoneman was the regression of saving, foreign aid, foreign private capital inflow and stock of FDI (to capture the structural effect of FDI) over growth rate for 118 observations for 1950s & 1960s. The result from the regression was that FDI had positive but insignificant coefficient. The coefficient of stock of FDI was negative and insignificant and this was interpreted, as the structural effect of FDI is that it retards output growth. But his estimation was criticized for low value of R-square, large constant term (indicating that there are omitted variables such as labor force or even in the absence of domestic saving and foreign capital inflows, there was high growth), which is implausible for these countries. However, the most important criticism is lack of consideration of the interdependence between saving and growth in this modelling. Papanek's results suggest that domestic savings and various capital inflows have positive and significant impact on growth, which is similar to the findings of Gupta (1975), except for small and insignificant coefficient of FDI than aid.

Gupta (1976) criticized some of the previous studies for taking only the direct impact of foreign capital inflows on growth through their estimation of single equation models. He considered both the direct and indirect impacts of the components of foreign capital inflows including FDI on domestic saving and economic growth by using simultaneous equation models.

Gupta and Islam (1983), after criticizing the statistical shortcoming of previous studies detected both the direct and indirect impacts of FDI on saving and growth by using simultaneous equation model. Before coming to the estimation of simultaneous equation model, they estimated single equation model. Based on this estimation and cross-sectional

data for forty-two developing countries, Gupta and Islam (1983, p. 30) estimated a model with nine explanatory variables[41] over growth rate. Six equations were estimated.[42] The results of these single equation models were that all the coefficients of FDI were positive but statistically insignificant, while that of domestic saving was significant. Those researchers also estimated single equation models by separating countries into three income groups[43] and three geographical regions (Africa, Latin America and Asia) by adding income per capita as a variable to capture the difference in the level of development of the countries. The impact of FDI was still similar with previous results. From these single equation models their conclusions were: first, for proper appreciation of the role of the components of foreign capital inflows allowing for the dependence of their effects on the state of development of countries is important, and second, foreign aid is the most important form of foreign capital inflows, if the aim of the countries is to accelerate growth in the developing countries (underlying cautious interpretation). But, the contribution of foreign aid to growth is criticized in recent studies.

The other version of models used in similar study by Papanek (1972), Bacha (1974), Gupta (1975) and Gupta and Islam (1983) was simultaneous equation approach. Gupta and Islam estimated eight groups[44] of simultaneous equation models, which treated various socio-economic variables as endogenous variables. In all these models, the coefficients of FDI in growth equation are positive and insignificant except for income group II (which is negative and insignificant). From estimation for different geographical area, the coefficients of FDI in the growth equations are decreasing in order from Asia, Latin America to Africa. The

[41] Saving to GDP ratio, FDI, foreign aid, other forms of capital inflows, growth rate of the labor force and the multiples of GNP per capita and the first four variables and growth rate of the labor force.

[42] One is only for saving and the three forms of foreign capital inflows, one is with the inclusion of each of the three forms of capital inflows one by one and the last was with the inclusion of all variables.

[43] (Y< $ US 300 is income group I; 300 < Y < 600 is income group II and Y>600 is income group III, where Y is per capita income).

[44] Estimates vary with the kind of estimates (OLS, 2SLS), income group (three different income group countries) and 3 geographical regions (Africa, Asia, & Latin America).

summary of their findings is that the domestic saving as well as foreign capital makes positive contribution to growth but the contribution of saving is relatively more important.

Lee, Rana and Iwaski (1986) estimated a simultaneous equation models for a sample of Asian developing countries. The result of their estimation shows that of many variables included in the growth equation, FDI had the greatest positive impact in raising total factor productivity, which in turn increases the growth rate of the economy. Fry (1993) estimated a model for real growth rate of GNP for sixteen [45] sample developing countries taking the ratio of FDI to domestic investment (which is substituted for domestic investment as a ratio of total GNP to avoid multicollinearity problem with investment). The result is that the coefficient of FDI to total investment has negative sign and it is insignificant indicating that FDI doesn't exert a significantly different effect from domestically financed investment on the rate of growth. Using eleven countries from the same sample as a control group resulted in no different outcome, but larger negative coefficient, which could result from lower investment productivity due to debt and balance of payment crisis.

For five Pacific Basin developing market economies, the same estimation indicated an outcome of positive but insignificant coefficient of FDI. The overall conclusion of Fry (1993,p.19) was that "... Outside, the Pacific Basin, FDI appears to have been used in large part as a substitute for other types of foreign flows; when these countries attracted more FDI inflows, national saving, domestic investment and rate of investment all declined; hence FDI appears to have been immiserizing."

[45] Argentina, Brazil, Chile, Egypt, India, Korea, Mexico, Nigeria, Philippines, Pakistan, Sri Lanka, Indonesia, Malaysia, Thailand, Taiwan &Venezuela.

In relation to incentive disincentive package by countries with or without the intention of attracting FDI, Fry (1993) showed in the same study that FDI raises the rate of economic growth in the absence of financial repression (measured by real deposit rate of interest) and trade distortions (measured by black market exchange rate premium) by using two different models for both financial repression and trade distortions for the sixteen sample countries.

Hussain and Jun (1992p.12-18) used regression model of cross-section time series (panel) data analysis for South Asian and ASEAN countries taking saving and growth as endogenous variables and other five exogenous variables. Three kinds of estimation are held-using aggregate data from both countries, by using separate data from South Asian and ASEAN countries. Their results suggested that economic growth in the region had been significantly related to exports and FDI. For the two sub-regions separately the impact of FDI on growth is different. It has positive and insignificant impact on saving but positive and significant impact on growth rate of the ASEAN countries. For South Asian countries, it has negative and insignificant impact on both saving and growth. For the ASEAN countries, FDI has contributed to growth by both augmenting resources available for capital formation and by improving the efficiency of investment, unlike other forms of capital inflows.

A question that comes to our mind from our observation of the variation in the responses of the economy of different countries to FDI is whether the impact of FDI differs across countries of different regions depending on the structure of their economy. From the empirical evidences, FDI seems to have substantial positive impact on saving and economic growth rates of countries with relatively developed manufacturing sector (for instance, South East Asian NICs). For these countries the impact of FDI on economic growth can be positive due to the possibility of substantial diffusion and transfer of technology, which may have

plausible impact on economic growth according to the theory. Its impact on mining and tertiary sector dependent FDI of SSA countries is undetected, which is the objective of the second part of this study.

CHAPTER FOUR

MODELS, METHODOLOGY AND DATA

The empirical framework of this study consists of two sets of models. The first set of model tests the determinants of foreign direct investment inflow into Sub-Saharan African countries over the 1980-84, 1985-89 and 1995-99 periods; and the second model tests the contribution of FDI to economic growth of these countries.

4.1 Determinants of Foreign Direct Investment inflows

4.1.1 Methodology

In this study, it is assumed that the push factors (factors that push investors from their home country) are constant for all host countries. Therefore, the study investigates what really pulls foreign investors to Sub- Saharan Africa. To attain the objectives of detecting the determinants of FDI inflows, cross-section multiple regression analysis will be used. The regression analysis is held for the three periods of 1980-84, 1985-89 and 1995-99. Over these periods, five years average value of dependent and independent variables is computed for all sample countries and is used for cross-section multiple regressions.

The basic assumption that there is heterogeneity in the overall economic and political conditions among the three periods is the reasons for modelling the inflows of the three periods separately. One may ask what are the economic and political features in these periods that make them to have different features? The following justification is given. At the beginning of the 1980s, most of the SSA countries were facing serious problem arising from debt crisis. The period 1980s in general and the 1980-84 in particular are characterized by

problems generated by debt crisis of 1970, 1972 and 1974. In addition, protectionist policy was prevailing in most of the countries. There were low inflows of foreign capital in this period.

The second period (1985-1989) was a period when FDI was considered to be more important compared to other forms of capital inflows (such as commercial borrowing which resulted in the debt crisis), and when policy changes to attract FDI began. In this period, Structural Adjustment Program began in some SSA countries. In spite of these measures, however, the economies of these countries were under serious depression, which lasted up to the mid 1990s. The following period of 1990-94 is skipped. This is because there is similarity with the preceding periods in many aspects. The depression of the 1980s continued in most of the countries, with a minor improvement in a few countries. Moreover, empirical tests of data confirm the similarity of regression results of the two periods (1985-89 & 1990-94). The last period (1995-1999) is a period when FDI inflows into developing countries in general and SSA countries in particular reached a record level (both as a share of world FDI inflows and in absolute terms). It was when globalization began and the advance in information technology has prevailed so that efficiency seeking FDI expanded. This period was also when SSA countries reformulated policies favouring FDI inflows, and it was when they began to show economic recovery, transformation into democracy and better governance. Therefore looking in to these differences, the inflows are modelled separately.

Regarding sampling, thirty-four SSA countries were considered as units of the study in testing the determinants of FDI inflows through out. The sampling in this study depends on: (1) availability of data. For macroeconomic studies of developing countries simple random sampling is difficult (Porter and Rodan, 1982) due to the unavailability of data and this is true

of SSA countries. (2) The large number of explanatory variables that influenced the number of countries included in the study.[46] In the regression analysis, failure to include theoretically identified determinant variables make the error term very large. This study tries to include at least major pull side determinants of FDI inflows unlike previous empirical studies.

4.1.2 Model Specification

The general form of the model, which is semi-logarithmic in its form, is stated below. There are four equations that are the replicates[47] of this model. These equations are specified to test the determinants of FDI inflows in each sub-period.

The General Form of the Model:

$$\mathbf{LFDIPC_i=\alpha_0+\alpha_1 LGDPPC_{i-1}+\alpha_2 LC_i+\alpha_3 LNRP_i+\alpha_4 LDCR_i+\alpha_5 R_i+}$$
$$\mathbf{\alpha_6 LIFRS_i+\alpha_7 LHC_i+\alpha_8 LOP_i+\alpha_9 LINFR_{i-1}+\alpha_{10} LDEBR_i+}$$
$$\mathbf{\alpha_{11} FD_i+\alpha_{12} LERV_i+\alpha_{13} T_i+\alpha_{14} GOV_i+\alpha_{15} LPOL_i+}$$
$$\mathbf{\alpha_{16} LCOR_i+\varepsilon}$$

Where, FDIPC is average foreign direct investment per capita,

$GDPPC_{i-1}$ is lagged average GDP per capita,

LC is cost of labour force as a share of total revenue,

NRP is proxy for natural resource potential of the countries

DCR is availability of domestic credit,

---

[46] This is assessed by regressing some restricting variables, which reduces the number of countries included in the study to about 15 and the result of the regression is found to be spurious (significant t-value, insignificant p-value and wrong confidence interval). Therefore, to make the results of the test plausible, large numbers of countries are included in to the sample and the possible maximum number of countries is used.

[47] The model is basically one but its specification may differ with the addition or omission of some variables.

R is the rate of interest,

IFRS is 1000 kms of road per one million people to measure infrastructure,

HC is secondary school enrolment ratio,

OP is proxy for the level of openness of countries for business,

$INFR_{i-1}$ is lagged rate of inflation,

DEBR is foreign debt to GDP ratio,

FD is primary fiscal deficit as a ratio of GDP,

ERV is exchange rate variability,

T is the number of years of tax holidays,

GOV governance index,

POL is Political Stability index,

COR is corruption perception index.

Note that when 'L' precedes the described variable, it represents the logarithmic form of the variable. 'ε' is the error term and it is assumed to be normally distributed with mean zero and variance σ_ε^2. "i" represents a SSA country in the sample,[48] α_0 is constant term and α_1, α_2 ,...., α_{16} are the coefficients of the explanatory variables. Based on theoretical and empirical literature, the following is hypothesized: α_1, α_3, α_4, α_6, α_7, α_8, α_{13}, α_{16}, are expected to be positive, while α_2, α_5, α_9, α_{10}, α_{12}, α_{14} and α_{15} are expected to be negative. The sign of α_0 and α_{11} can't be predetermined. The theoretical works of Dunning (1958), Giorgio (1973), Agrawal (1980) and Dunning (1998) are the basis in hypothesising the determinants.

[48] Botswana, Burundi, Burkina Faso, Cameroon, Central African Republic (CRA), Chad, Comoros, Cote d' Ivoire, Democratic Republic of Congo (DRC), Ethiopia, Gabon, Gambia, Ghana, Guinea, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Niger, Nigeria, Rwanda, Senegal, Seychelles, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia & Zimbabwe are the countries included in the sample.

The model is selected on the basis of Schneider and Frey's (1985) empirical formulation and from the review of theoretical and empirical literature. It has in semi-logarithmic functional form and it is linear. The specification of the model for the period 1995-99 differs from the models of the preceding two periods in that it includes other explanatory variables that are not included into the previous models. The second model of this period differs from the first in that the numbers of variables included are limited.

Note that the symbolic representation and the expected sign of the explanatory variables coefficients in these models are identical to that of the general form of the model.

(1) The Model for Testing the Determinants of FDI Inflows in *the Period 1980-84*:

$$\mathbf{LFDIPC_i}=\alpha_0+\alpha_1\mathbf{LGDPPC_{i-1}}+\alpha_2\mathbf{LC_i}+\alpha_3\mathbf{LNRP_i}+\alpha_4\mathbf{LDCR_i}+\alpha_5\mathbf{R_i}+\alpha_6\mathbf{LIFRS_i}+\alpha_7\mathbf{LHC_i}+\alpha_8\mathbf{LOP_i}+\alpha_9\mathbf{LINFR_{i-1}}+\alpha_{10}\mathbf{LDEBR_i}+\alpha_{11}\mathbf{FD_i}+\alpha_{12}\mathbf{LERV_i}+\alpha_{13}\mathbf{GOV_i}+\varepsilon$$

(2) The Model for Testing the Determinants of FDI Inflows in *the Period 1985-89*:

$$\mathbf{LFDIPC_i}=\alpha_0+\alpha_1\mathbf{LGDPPC_{i-1}}+\alpha_2\mathbf{LC_i}+\alpha_3\mathbf{LNRP_i}+\alpha_4\mathbf{LDCR_i}+\alpha_5\mathbf{R_i}+\alpha_6\mathbf{LIFRS_i}+\alpha_7\mathbf{LHC_i}+\alpha_8\mathbf{LOP_i}+\alpha_9\mathbf{LINFR_{i-1}}+\alpha_{10}\mathbf{LDEBR_i}+\alpha_{11}\mathbf{FD_i}+\alpha_{12}\mathbf{LERV_i}+\alpha_{13}\mathbf{GOV_i}+\varepsilon$$

(3) The Model for Testing the Determinants of FDI Inflows in the *Period 1995-99*:

$$\mathbf{LFDIPC_i}=\alpha_0+\alpha_1\mathbf{LGDPPC_{i-1}}+\alpha_2\mathbf{LC_i}+\alpha_3\mathbf{LNRP_i}+\alpha_4\mathbf{LDCR_i}+\alpha_5\mathbf{R_i}+\alpha_6\mathbf{LIFRS_i}+\alpha_7\mathbf{LHC_i}+\alpha_8\mathbf{LOP_i}+\alpha_9\mathbf{LINFR_{i-1}}+\alpha_{10}\mathbf{LDEBR_i}+\alpha_{11}\mathbf{FD_i}+\alpha_{12}\mathbf{LERV_i}+\alpha_{13}\mathbf{T_i}+\alpha_{14}\mathbf{GOV_i}+\alpha_{15}\mathbf{LPOL_i}+\varepsilon$$

(4) The model for testing the impact of corruption on FDI inflows into SSA countries *in the period 1995-99* is stated below. The number of sample countries [49] is different in this case. Some of variables in the general form of the model are omitted because of the problem of colinearity and their low level of importance in the production function.

$$\mathbf{LFDIPC_i=\alpha_0+\alpha_1 LGDPPC_{i-1}+\alpha_2 LC_i+\alpha_3 LNRP_i+\alpha_4 R_i+\alpha_5 LIFRS_i+\alpha_6 LINFR_{i-1}+}$$
$$\mathbf{\alpha_7 LDEBR_i+\alpha_8 FD_i+\alpha_9 LERV_i+\alpha_{10} T_i+\alpha_{11} LCOR_i+\varepsilon}$$

4.1.3 Beta Coefficient Test

Beta coefficient test is used to assess the relative strength (influence) of each explanatory variable on the dependent variable (Madalla, 1997, p.119); and it is stated as

$$\beta - coef = \frac{\beta x \times \sigma x}{\sigma Y} .$$

Where, β-coef is beta coefficient, β_x is the coefficient of the regressor(x), σ_y and σ_x are the standard deviations of the dependent variable (y) and the regressor (x) respectively. This technique is helpful as far as the relative strength of the determinants of FDI inflows into SSA is concerned. This is done by comparing the relative influence of a change in each explanatory variable after standardizing the units of measurement and holding the influence of other regressors in the equation constant (Maddala, 1977 p.119).

[49] Botswana, Cameroon, Cote d' Ivoire, Ghana, Kenya, Malawi, Mauritius, Mozambique, Nigeria, Senegal, South Africa, Tanzania, Uganda, Zambia & Zimbabwe are the ***fifteen*** countries included in the sample.

4.2 Contribution of FDI to the Economic Growth of Sub-Saharan African Countries

4.2.1 Methodology

Both descriptive analysis and parametric tests are used to meet the objectives set in this section. The interdependence between saving and growth makes the use of simultaneous equation regression model necessary in detecting the impact of FDI inflows on economic growth. This study will use simultaneous equation model based on pooled cross-section time series (panel data analysis). The data is collected for the period 1987-98 for each country. Twelve SSA countries are included in the sample for the study[50]. The major sampling criterion is the availability of data. Before specifying the model, it is advisable to discuss the nature of simultaneous equation models and panel data econometric analysis.

Simultaneous Equation Models

In econometric modelling of a single equation, misspecification bias may result. This bias arises the regressor (s) in the system are systematically related to the error term, thus violating one of the assumptions underlying Classical Linear Regression Model. Estimating simultaneous equation models usually solves this problem. The endogenous variables are those variables, which are theoretically suggested and proved by tests to explain each other. When simultaneous equation models are stated in such a way that the endogenous variables appear on the right-hand side, the equation is said to be in its structural form. But, when the system is solved by substitution and the endogenous variables appear only in the left hand

[50] Botswana, Cameroon, Cote D' Ivoire, Gabon, Ghana, Lesotho, Mauritius, Nigeria, South Africa, Senegal, Swaziland & Zambia are included in the sample.

side, it gives the reduced form equation. Before deciding the use of simultaneous equation model, simultaneity test should be conducted. Hausman test is employed for this purpose. If the null hypothesis that the variable is exogenous is rejected, the variable is considered as endogenous variable and therefore estimation of simultaneous equation is accepted (Mukherjee, White and Wuyts, 1998. p.423). In other words, this test is a test of exogeniety that checks up whether OLS is appropriate or not.

One problem with simultaneous equation model is, however, the problem of identification. The technique for estimating an equation in a simultaneous system depends on the identification status of the equation. The equation in a simultaneous system can be underidentified, unidentified or overidentified. The method of detecting whether a simultaneous system is under, over or unidentified is the rank and order condition (See Gujarati, 1997 p.667). For two endogenous variables simultaneous equation model, the order condition is sufficient to detect what kind of simultaneous equation it is; if the equations are greater than two, however, the rank condition is appropriate. After identifying the type of simultaneous equation, if an equation is underidentified, there is no way of estimating it, unless respecification is made. But in case of the other two there are appropriate methods of estimations.

Analysis of Panel Data

Panel data or pooled cross-section-time-series data analysis is an econometric method that individual units are repeatedly sampled at different points in time. Hsiao (1985) stated the advantages of panel data econometric analysis over pure cross sectional or pure time series data econometric analysis. First, the large size and variability of observations over time provides someone with an advantage of estimating more reliable parameter estimates and

enables to specify more sophisticated models, which incorporate behavioral assumptions. Second, it avoids the problem of multicollinearity between variables. Third, it measures the effects that are not easily detectable either in cross-section or time series regression analysis. Its advantage in formulating cross dynamic structure of many cross-sectional observations gives the model more quality.

The basic regression model of panel data takes the form:

$$Y_{it} = \alpha_i + \beta' \mathbf{X}_{it} + \varepsilon_{it}$$

There are K regressors in X_{it}, excluding the constant term. The individual effect is α_i, which is taken to be constant over time t, and specific to the individual cross-sectional unit i. In this form, the model assumes classical regression model. If we take the α_i's to be the same across all units, then OLS provides consistent and efficient estimates of α and β. The fixed effect model takes α_i to be a group specific constant term in the regression model. The random effect model specifies that α_i is a group specific disturbance, similar to ε_{it} except that for each group there is a single draw that enters the regression identically in each period (Green, 2000 p.557-562). The general form of the models in panel data analysis is stated below.

(a) **Ordinary Least Squares**: which ignores both time and individual effects take the following form. Let Y_{it} and X_{it} be the dependent and independent variables measured for each individual unit over certain period; then,

$$Yit = B_{1it}X_{1it} + B_{2it}X_{2it} + \ldots + B_{kit}X_{kit} + v_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots (4.1)$$

$$\mathbf{B_{kit}} = \mathbf{B_k} \text{ for all i and t} \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{Assumption 1}$$

$$v_{it} \sim \textbf{\textit{i.i.d}}(0, \sigma_v^2) \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{Assumption 2,}$$

Where, i=1,2...N and t=1,2... T; **N** is the number of cross-sectional units and **T** is the time horizon over which individuals in the sample are distributed. $\mathbf{B_1,..,\ B_k's}$ are coefficients, and $\mathbf{v_{it}}$ is a random disturbance term that is assumed to be identically and independently distributed with mean **zero** and variance, σ_v^2.

(b) Fixed Effects Model

A common formulation of this model assumes that differences across units can be captured in differences in the constant term. Thus, each α_i is unknown parameter to be estimated. Let Y_{it} and X_{it} be the T observations for the i^{th} unit and let ε_{it} be associated with T*1 vector of disturbances. Then, for each unit,

$$\mathbf{Y}_{it}= \alpha_i + \beta'\mathbf{X}_{it} + \varepsilon_{it},$$

is the fixed effect model. It stands on the basic assumption of consideration of difference across individuals only. We can also add the time effect (two-way effects model), and represent it as

$\mathbf{Y}_{it}= \alpha_i + \Upsilon_t + \beta'\mathbf{X}_{it} + \varepsilon_{it.}$ But usually, restrictions such as

$\Sigma\alpha_i = \Sigma\Upsilon_t = 0$ is imposed .

(c) Random Effects Model

In random effect model, one may have to view individual specific constant terms as randomly distributed across cross-sectional units. Consider the following formulation.

$Y_{it}= \alpha + \beta'\mathbf{X}_{it} + u_i + \varepsilon_{it,}$ where there are K regressors in addition to the constant term. The component $\mathbf{u_i}$ is the random disturbance characterizing the i^{th} observation and is constant through time. In this model, we assume further that

$E[\varepsilon_{it}] = E[u_{it}] = 0$ $\qquad$ $E[\varepsilon_{it}^2] = \delta_\varepsilon^2$,

$E[u_i^2] = \delta_u^2$ $\qquad$ $E[\varepsilon_{it}u_j] = 0$ for all i,t and j,

$E[\varepsilon_{it}\varepsilon_{js}] = 0$ if $t \neq s$ or $i \neq j$ $\qquad$ $E[u_i\ u_j] = 0$ if $i \neq j$.

In panel data analysis, the main problem is the lack of homogeneity of intercepts and slopes. Identifying whether the individual units in the regression model have homogeneous intercepts and slopes is the first step in accomplishing the estimation. If the result of homogeneity test ends up with the existence of homogeneous intercept and slopes over time among individuals, ordinary least squares regression can be estimated and inferences can be made easily. Lagrangean Multiplier Test is used to test the homogeneity of slopes and intercepts. This test is basically a test of random effect model against OLS. Berusch and Pagan (1980) devised a Lagrangean Multiplier[51] test for the random effects model based on the OLS residuals.Under the null hypothesis, LM is distributed as chi-squared with one degree of freedom. The null is OLS while the alternative is random effect model. The test conducted here detects whether OLS or random effects model is the true data generating process. However, there is another competing specification that might induce the same results, the fixed effect model. If we realize that OLS is rejected, the test used to detect whether the true data generating process is random effect or fixed effect is Hausman test.

Now, we can come to the application of panel data analysis in simultaneous equation models. To estimate the structural equation the precondition is that the equation should be either exactly identified or overidentified. When the structural equation is exactly identified type, the method of obtaining the estimates of structural coefficients from the OLS estimates of the reduced form coefficients is known as Indirect Least Square estimation (ILS). But, if the structural equation is overidentified one, we can't use the ILS because there will be two

---

[51] For H_0: $\delta_u^2=0$ (or corr $[w_{it}, w_{is}]=0$)

H_1: $\delta u^2 \neq 0$; the test statistics is $LM = \frac{nT}{2(T-1)}\left[\frac{\Sigma_{i=1}^{N}(T\bar{ei})^2}{\Sigma_{i=1}^{N}\Sigma_{i=1}^{T}e_{it}^2}-1\right]^2$.

estimates for a coefficient in the reduced form equations. If one applies OLS to the overidentified structural equation, the estimates obtained will be inconsistent in view of the likely correlation between the stochastic explanatory variable (in say the second equation) i.e. endogenous variable of the first structural equation and the stochastic disturbance term of the second equation. The best alternative suggested is to use a proxy for the stochastic explanatory variable such that although there is some resemblance with it (high correlation), but it is uncorrelated with the error term. Such a proxy is known as fitted value or instrumental variable. It is obtained by Two Stage Least Square method (2SLS).

The two stage least squares estimation method has two successive procedures. However, there is a difference between the 2SLS applied in the case of OLS regression (usually regression of time series data) and panel data analysis. In time series data the method involves two successive applications of OLS. In stage one, to get rid off the likely correlation between the stochastic explanatory variables regressed on all the predetermined (exogenous) variables in the system. The same procedure is repeated to get the fitted values of all other stochastic explanatory variables. In stage two, the stochastic explanatory variables in all structural equations are replaced by their respective fitted values computed in stage one, and then regression of the structural equations will be held. But in case of panel data, simultaneous equation is estimated basically using the same procedure but with the estimation of fitted values by using fixed effect model. In stage two replacing the stochastic explanatory variable with the fitted values is undertaken[52] and the estimation of fixed effect (one-way or two-way) structural equation follows depending on the information from the test.

[52] Note that the software technology used for this purpose is Limdep-version 7.

The next procedure is to specify the model of the study. The model to be used to detect the contribution of FDI to the economic growth of SSA countries is adopted from the model used by Lee, Rana, and Iwasaki (1986), which is also used by Husain and Jun (1992). The quality of the model is that not only the direct impact of FDI on growth but also its indirect impact on growth through saving is detected. Using simultaneous equation model eliminates specification bias emanating from the interdependence between growth and saving. But, some problems are observed here. First, some variables, which are relevant in the economy of the developing countries, are omitted. Dependency ratio is omitted from the saving equation and imported capital is omitted from the growth equation. Second, the variable FDI as a ratio of GDP enters the model in its current form (not lagged), which implies sufficient time isn't given to observe its impacts. The model used in this study tries to overcome these shortcomings and to support the findings with some evidences for SSA.

The growth model developed for the South and South East Asian countries is export oriented endogenous production function while the saving function is traditional Keynesian type with the inclusion of theoretically relevant but omitted variables in the studies of the above researchers. This part of the study will examine the possibility of drawing the positive impact of FDI on economic growth of other developing countries like SSA. Econometric theory suggests that the structural equation is more important for testing the economic theory whereas the reduced form is more relevant for the evaluation of policy measures (Koutsoyiannis, 1979).

4.2.2 Model Specification

4.2.2.1 The Model

The simultaneous equation model consists of two endogenous and seven exogenous variables.

$$(\Delta GDP/GDP)_{it}=\phi_0 + \phi_1 (S/GDP)_{it} +\phi_2 (OF/GDP)_{it} +\phi_3(FDI/GDP)_{it-1} + \phi_4 (X/GDP)_{it} + \phi_5 L_{it} + \phi_6 (K/GDP)_{it}+ \varepsilon_{it} \quad \text{.....(4.2)}$$

$$(S/GDP)_{it} = \Pi_0 + \phi_7(\Delta GDP/GDP)_{it} +\phi_8 (OF/GDP)_{it} + \phi_9(FDI/GDP)_{it-1} + \phi_{10}(\Delta X/GDP)_{it} + \phi_{11}(GDPPC_{it-1}) + +\phi_{12} (DEP)_{it} \quad \text{.....(4.3)}$$

For the sake of convenience, these models are written in the following way:

$$GDPR_{it}=\phi_0 +\phi_1 S_{it} + \phi_2 OF_{it} + \phi_3 FDI_{it-1} + \phi_4 X_{it} + \phi_5 L_{it} +\phi_6 K_{it}+ \varepsilon_{it} \quad \text{.....(4.4)}$$

$$S_{it} =\Pi_0 + \phi_7 GDPR_{it} +\phi_8 OF_{it} + \phi_9 FDI_{it-1} + \phi_{10} X_{it} + \phi_{11} GDPPC_{it-1} + \phi_{12} (DEP)_{it} +V_{it} \quad \text{.....(4.5)}$$

Where, GDPR: the Growth rate of Real GDP

OF: Official aid flows as a percentage of GDP (official development assistance).

FDI_{t-1}: Lagged value of foreign direct investment inflows as a percentage of GDP.

S: Annual saving rate (gross domestic saving)

X: Total export revenue as a share of GDP

L: Labour force participation rate

K: Value of imported capital goods as a share of GDP

DEP: dependency ratio

$GDPPC_{t-1}$: Lagged real GDP per capita; and,

ε_{it} and v_{it} are error terms. 'i' is representing individual countries in the sample such that i=1,…,N; while t is time such that t=1,…,T.

Both of the equations are overidentified equations (See Appendix 2.6 for the method used in detecting the type of simultaneous equation). The appropriate method of estimation is

therefore 2SLS. Based on the annual data from twelve SSA countries over the period 1987-1998, the 2SLS method will be applied in estimating this simultaneous equation.

4.2.3 Hypothesises (Expected Signs)

Capital Inflows [Official Development Assistance (OF) and lagged Foreign Direct Investment (FDI_{t-1})]: The impact of FDI and official development finance on the economic growth of developing countries is controversial. Some economists argue that the impact is positive while others argue it is negative. For the SSA, the contribution of FDI inflows to the capital formation or domestic saving is straightforward as the level of domestic saving is very low. This is to say that FDI can increase gross domestic saving. Therefore, positive relationship is expected between gross domestic saving and FDI. Third, the contribution of FDI to saving and capital formation in the region can be outweighed by its negative contribution to the balance of payments in the short run (inflow of foreign capital negatively affects balance of payment from conventional economic theory). The overall impact of FDI on economic growth is therefore difficult to predetermine. The same is true for OF.

Saving (S) and Growth (GDPR): The relationship between saving and growth is positive even though there is a problem of simultaneity. A virtuous cycle results as growth leads to more saving and this enhances economic growth. The existing line of thought to the problem of causality is if saving is a major determinant of growth in a particular economy, increasing saving is a major policy issue. But, if it is not the major driving force, focusing on other factors is relevant as Schmidt-Hebbel and Serven (1996) stated it. However, many studies are postulating that private saving largely follows economic growth. Carrol and Weil (1993), on their tests of causality between growth and saving and World Bank (1994) from its observation found that traditionally low private saving has little chance to change unless

economic growth by any means proceeds. This is what was practically observed and the theory is also showing that the significance of experiences of interaction between saving and growth is important. Therefore, for SSA countries per capita income and /or its growth are expected to affect saving positively, and the higher the saving rate the higher the economic growth.

Export Performance (X): For SSA countries better export performance has a positive impact on supply side by enabling them to import intermediate inputs and capital goods. This increases output; and the higher the output the higher the saving rate, *ceterus paribus*. In the growth equation the growth of export can be positive or negative, depending on the technological impact of export on output.

Imports of Capital Goods and Intermediate Inputs (K)

For typical developing countries the growth of output depends on the level of imports of these items (Porter and Ranny, 1982). This is expected to capture the contribution of capital to the growth of output by augmenting the labour force. In the model positive relationship is expected between the growth rate of this variable and economic growth of SSA countries.

Labour Force Participation Rate (L): Upward shift in the aggregate supply curve of developing countries depends most importantly on employed labour force. The higher the employment rates the higher the growth of output (positive relationship). But we shouldn't forget the labour force participation rate includes also the unemployed labour force. This may reduce the the positive contribution of labour to the growth of output. There are also some arguments that the contribution of the labour force can be negative for developing countries in that additional unskilled and inefficient labour decreases output rather than increasing it

(Feder, 1983;Todaro, 1994). This can be true in the case of SSA countries where most of the labour force is unskilled and the possibility of making it more productive is limited. Therefore, the expected sign can't be predetermined.

Dependency Ratio (DEP): In the life cycle saving model, the age composition of a population is postulated to have significant influence on household saving behaviour. The two extreme groups (the youth and the elderly) have low income and save little, while those in the middle have high productivity and save more. These two groups are the compositions of dependents, and the larger the number of dependents in a household the lower is the saving rate, under the assumption that there is stable or slightly missing consumption. Aggregate saving is affected by age distribution of the national population (Modigliani, 1970). Thus the life cycle model predicts a negative relationship between saving rate and dependency ratio. If the bequest motive dominates among the elderly, however, an increase in the dependency ratio may actually increase private saving rate rather than reduce it (Deaton, 1995). Empirical evidence is conflicting and the issue is left unresolved (Harrigan, 1995). For SSA countries, both the age group and the cultural behaviours matter. In some of these countries, the contribution of the dependents to output is not simple-both children and old age labours are have important contributions. Therefore, the sign of the coefficient of dependency ratio is not predetermined.

Lagged real GDP Per Capita ($GDPPC_{t-1}$): Positive relation is expected between incomes and saving.

4.3 Data and Its Sources

4.3.1 The Data

In this sub-section, explanations will be given on the nature of the data and on the variables used in both[53] models. To begin with the variable of concern i.e. FDI, in both models it is taken in terms of inflows measured by the current US $, and the value is usually positive. In some cases the value can be negative when the inflows in that particular year or period is outweighed by the outflow from the stock. Some of the explanatory variables (such as per capita GDP, measure of the degree of openness[54] and measure of natural resource potential) are used in terms of ratios after computation (as ratios of GDP or in per capita). For growth rate of GDP, GDP at constant price of 1987 for all countries in the sample over the period of the study is used. Change in annual consumer price index is used to measure inflation rate. Exchange rate variability is taken by computing the three consecutive years exchange rate standard deviation for each sample country over the period 1980-99.

For many countries, the data on some variables is available only for few years. For instance, 1000 kms road per a million people, secondary school enrolment ratio, dependency ratio and labour force participation rate can be mentioned. For the first two of these variables, the value is estimated by using their growth rate. For the latter two, extrapolation is made using the data given for the periods 1980, 85, 90, 95 and 2000. Averaging is impossible for some variables such as share of wage cost in total revenue and corruption index. To overcome such problems single year value is taken and included in the regression, assuming that there is relative stability in the values of these variables with in a sub-period.

---

[53] "The first model" implies model for testing the determinants of FDI inflows in to SSA countries while "the second model" implies model for testing contribution of FDI to the economic growth of SSA countries.

[54] In the computation of the level of openness of SSA countries, total export/import is taken as the total annual current value of export of goods and non-factors services.

In using the data for governance, equal weight is given for both political and civil rights indices. These indices are valued in such a way that the freest countries are given a value of 'one' while the least free civil and political rights are given a value of 'seven'.

Some of the measurements used in the study needs explanation. Proxies are taken for variables for which data on direct measurement is unavailable. Explanatory variables such as infrastructure, availability of domestic credit, tax holidays, national resource potential and level of human capital development are measured by using proxies. Infrastructure is proxied by 1000 km of road per one million people. As this proxy doesn't incorporate all components of infrastructure, the sufficiency of this measure can be not highly reliable. In order to avoid such problems, it is strived to use road density, but this has correlation problem with natural resource potential in the regression analysis. As far as there is no better means of measurement, the proxy is included into the study having the limitations in mind. Some studies (Collier, 1997) have used this measure.

The proxy for natural resource potential is annual revenue from exports of land and marine outputs (agricultural outputs, minerals including petroleum, forest products, etc) as a ratio of GDP is used. This is under the basic assumption that realized natural resource expresses potential natural resource. But this is not without limitation. The capacity to realize natural resource potential of different countries may differ and their export performances may underestimate or overestimate the natural resource potential of that country.[55]The level of technology of the countries may make difference in this regard and it creates measurement bias. Over time however, the average standard deviation of this measure for the SSA countries

55 In this regard the 1994 estimation of per capita potential natural capital by the World Bank would be a better measure if it were not for 25 SSA countries only.

over time shows relatively small change i.e., 0.02. Problem of proxy also exists with tax holidays to account for the impact of tax incentives on FDI inflows, because of the availability of a wide variety of incentives.

4.3.2 Sources of Data

The data for the FDI is collected from World Investment Directory, 1996, and World Investment Report, 2000; both of them are the publications of UNCTAD. All the data used in the model for testing the determinants of FDI inflows except exchange rate variability, governance index and political instability index, are collected from African Development Indicator of 1992, 1996 and 2000(World Bank publication). Exchange rate data is taken from IFS, which is also used by world Investment Directory 1996 for accounting and reporting FDI. Tax holydays on FDI for each SSA countries are taken from World Investment Directory, 1996; labour cost, the share of wage cost in total revenue on average is taken from industrial development report 1992,1994 and 1996. The corruption index data is collected from African political & economic perspectives magazine 2000 publication[56]. Data on political instability are collected from Journal of Peace Research, vol.36, Number 1, January 1999, while the data on governance is collected from the Internet. Most of the data for the second model are collected from the same source-African Development Indicators 1998/99 and 2000[57]. The data of labour force participation rate is collected from African Development Report (1999). Finally, the dependency ratio data is collected from the annual report of International Labour Organization, 2000.

[56] Transparency International, 1999, annually publishes the index.

[57] The reason for selecting African development indicators as the data source is the availability of the data for most of the variables over long period of time.

CHAPTER FIVE

ANALYSIS OF THE EMPIRCAL RESULTS

5.1. Determinants of Foreign Direct Investment Inflows

5.1.1. Descriptive Analysis

As a preliminary to the econometric analysis presented in the following section, summary data on the behaviour of the variables and categories of individual country units are discussed in this section. The descriptive analysis is based on the statistical summary of the data used for regression analysis (See Appendix 1.1-1.6). The aim is to see what kinds of behavioural patterns of individual countries with regard to the explanatory variables characterize the nature of FDI per capita inflows within each period.

5.1.1.1 General Features of the Data in the Three Periods

The standard deviation of each variable shows the variability of the value of the variables across countries. Based on their standard deviation, the variables in the models can be grouped into three. High variability is observed in variables such as income, exchange rate variability, foreign direct investment per capita, political instability, tax holidays and human capital (all have standard deviation of greater than 10). But there is low level of variability among SSA countries in foreign debt, inflation rate, the level of openness, economic growth rate, domestic credit availability and natural resource potential i.e. standard deviation is between 0 and 1. For the rest of the explanatory variables, the standard deviation between 1 and 10. The existence of variability signals that the variation in the dependent variable can be explained by variability of the explanatory variables (See Appendix 1.1). Over the specified

periods, the change in the variability among the countries in terms of the explanatory variables varies. Variability in per capita FDI inflows, labour cost, natural resource potential, domestic credit availability, lending interest rate, level of openness, level of indebtedness and exchange rate variability is increasing, while the variability in income, infrastructure, and inflation rate declined. The variability in fiscal deficit is stable over time (See Appendix 1.5).

Regarding mean values, the mean of FDI per capita increases over the three periods. The same is true for most of the explanatory variables except income, labour cost & infrastructure, which had falling mean over the three periods (See Appendix 1.6). As the mean can be upward or downward biased, it is difficult to conclude that the rise in the per capita FDI inflows is accompanied by the rise or fall in the mean of other variables. However, it may show the general direction of influence of the values of the dominant variables.

The graphical analysis shows most of the variables are skewed to the right. For the variables skewed to the right logarithmic transformations make the error term normal in the regression - so that the classical assumption of linear regression model is maintained. Second, the linear regression model of FDI per capita is dependent on the supply model (production function), which takes the logarithmic transformation of the standard production functions such as Coub-Douglas production function. Therefore, variables are transformed in a way that the economic meanings are not changed; while at the same time principles of the econometric theory are maintained.

In some of the three periods, the correlation coefficient shows that there is high correlation between real per capita GDP and human capital & per capita GDP and per capita FDI (high in all periods), measure of the degree of openness and measure of natural resource potential

(high in 1995-99 period). This signifies cautious interpretation whenever the variables are collinear. (See App.1.7-1.9). Now we can make descriptive analysis in relation to these general observations.

5.1.1.2 Descriptive Analysis: 1980-84

The average level of per capita FDI inflows was 9.9 US $. Only six countries had per capita FDI inflows of greater than the mean value[58]. The behaviour of the variables in the period is summarized as follows. (1) Contrasting income with FDI per capita shows that those countries with relatively high GDP per capita[59] are also the better recipients of FDI. (2) The descriptive analysis show there is no clear relationship between FDI inflows and the labour cost. For instance Cameroon, Botswana, Gabon and South Africa are among the highest labour cost countries, but they are among the highest recipients of FDI. On the other hand, Lesotho, Ethiopia and Uganda are those with the lowest labour cost but they are among the lowest FDI per capita recipients. But most of the fairly large recipients of FDI were countries with labour cost that is in between 10% and 13%. This shows that other factors are more important than labour costs attracting FDI into SSA. (3) Based on the measure, the countries highly endowed with natural resource are Gabon, Swaziland, Nigeria, Zambia, etc while the least endowed ones are Burkina Faso, Lesotho and Rwanda. There is a signal that shows the direct relationship between natural resource endowment and FDI inflows. (4) High-level recipients of FDI inflows owe high level of infrastructure[60], while the reverse is true for low-level[61] infrastructural development countries. Paradox to this is Zimbabwe; it had the highest measure of infrastructure but it was the least FDI per capita recipient country. (5) The human

[58] Seychelles, Gabon, Botswana Swaziland and Cameroon were countries with the highest FDI per capita during this period, whereas Ethiopia, Zimbabwe, Ghana, Uganda, Madagascar, DRC, Mali, Burkina Faso, Chad, Mozambique and Tanzania were the countries with FDI per capita of less than 1 US $.
[59] For instance Gabon, Seychelles, Swaziland & Cameroon had the highest income level during this period and they were also the highest recipients of FDI. The opposite is true for most of the low-income countries.
[60] Includes countries such as Botswana, Gabon and South Africa
[61] Burkina Faso, Burundi, Ethiopia, Tanzania, Kenya, Rwanda, Malawi and Ghana.

capital data of the period shows that the higher the level of school enrolment ratio the higher is the FDI inflows. The mean for this period was only 16.6%. This level, compared to the level of other developing countries such as South East Asia and Latin America, is by far the lowest which makes the SSA countries low level recipients of high efficiency seeking FDI.

The data also shows (6) Total foreign debt is greater than the GDP of some SSA countries such as Togo and Zambia; and it is as high as their GDP for Gambia, Cote d' Ivoire, Senegal and Mali. Those countries were low recipients of FDI in the period. Countries with high FDI per capita were those with the lower level of debt to GDP ratio; but, in contrast to this, countries with very low indebtedness were not good attractors of FDI[62]. From descriptive statistics, the direction of impact of indebtedness on FDI inflow is not clear. (7) The other macroeconomic variables such as inflation and exchange rate variability have clearer pattern than debt. Highly inflated countries were low-level recipients of FDI in the period. Regarding exchange rate variability, the same relationship is observed i.e., countries with low[63] level of exchange rate variability attract low level of FDI. (8) Highly open economies during 1980-84 were Swaziland, Lesotho, Botswana, Seychelles, Mauritania and Gambia, while most of the other countries were moderately open except Ghana, Uganda, Ethiopia, and Nigeria. It is difficult to conclude that highly open economies were the forerunners in international trade and investment activities. Indeed, the measure may have a problem of less clarity in reflecting the policies on the extent of liberalization of trade and investment.

5.1.1.3. Descriptive Analysis: 1985-89

This is a period of economic crisis for most of the SSA countries, like the period 1980-84. However, the FDI per capita inflows to many of the SSA countries relatively increased

[62] Ethiopia, Lesotho, Mozambique and Zimbabwe
[63] Mauritius, South Africa, Swaziland, Seychelles, Botswana and Nigeria were low exchange rate variability economies during 1980-84.

compared to the period 1980-84. The mean of the FDI inflows to the SSA countries was US $ 14.8 per capita as compared to US $ 9.9 per capita in the previous period. The rise of the mean value is attributed to further rise in the inflows of FDI to countries that had previously substantial inflows (such as Seychelles, Swaziland, Mauritius and Zambia). Compared to the period 1980-84, FDI per capita declined in eighteen of the thirty-four sample countries while it rose in twelve of them. Important observations are the following. (1) The debt burden rose in most of the sample countries; twenty three of the sample countries were victims of the rise in indebtedness. (2) Compared to the previous period twenty-one of the thirty-three SSA countries have shown real GDP growth rate. (3) High mean value of exchange rate variability is observed in most sample countries, even though there is a decline of the variability for the ten CAF member countries.

During this period, (4) the mean level of human capital rose form 16.5% in 1980-84 to 22.7% in 1985-89. In contrast, the mean level of infrastructure fell from 4.43 to 3.95 over the same period. (5) The level of openness for more than half of the countries has increased during this period. Most of the increment is experienced by most of the low-income countries. (6) For more than half of the sample countries domestic credit availability to the private sector rose significantly. (7) The average inflation rate rose substantially in more than half of the sample countries. Countries such as Ghana, Madagascar, Malawi, Mozambique, South Africa, Uganda, Gambia and Guinea had highly inflated economies in both periods and these countries were characterized by low FDI per capita inflows. (8) Compared to the previous period, the fiscal deficit of the sample countries had shown an improvement. Only nine countries were in fiscal deficit while the rest of the countries were in fiscal surplus, which shows some improvement compared to that of 1980-84 period.

5.1.1.4. Descriptive Analysis: 1995-99

The period 1995-99 is a period of economic recovery for SSA countries. There was higher real GDP growth rate than the previous two periods in large number of countries, with an average of 4.5%. However, the average rate of inflation was very high (about 19%). Based on the theory of investment, this should have depressed the level of FDI inflows. However, FDI per capita inflows largely rose in this period. The data[64] shows that in twenty three of the sample countries FDI per capita inflows has increased significantly compared to the inflows in the previous two periods. Policies that include privatization, liberalization (even the most attractive sectors like telecommunication) and relative improvement in some macroeconomic variables contributed to the rise in this period. In addition, the following are observable.

(1) The debt to GDP ratio of twenty-four sample countries further rose during this period. (2) The labour cost in total revenue of firms showed both declining and rising trends for different countries. For most of the relatively unstable economies, the share of labour cost in the total revenue of average SSA countries' firm declined. (3) Exchange rate variability fell in this period for the majority of the sample countries. But, in some countries, exceptionally high level of variability is observed. But the inflow of FDI per capita into these countries rose substantially. (4) The mean level of secondary school enrolment ratio rose to 25% from 16.5% during 1985-89. (5) Higher-income countries such as Botswana, Gabon and Mauritius experienced a rise in per capita income while South Africa and Cote d' Ivoire faced a fall in income. For lower-income countries, per capita FDI fell in the majority of them. (6) There was high level of inflation unlike the pervious periods. Even though the inflation rate was very high, the inflow of FDI was not highly discouraged. (7) The governance index shows

[64] See Appendix 1.2.

improvement of the treatment of civil and political rights in this period compared to the pervious two periods. (8) Countries with high degree of openness had high FDI inflows.

5.1.2 Estimation Results and Interpretation

5.1.2.1. Results of Estimation: 1980-84

The multiple regression results of the three periods are summarized in Table 5.1 below. The best equation that explains FDI per capita inflows of the period 1980-84 is shown in the second column. It explained about 90% of the variation in FDI inflows into the sample countries. From the estimated result, the natural resource potential, human capital and the level of infrastructural development are significant at 1% level. All of them carry the theoretically expected signs.

The coefficient of lagged rate of inflation ($LINFR_{i-1}$) -captured by the change in annual consumer price index, the exchange rate variability -captured by the three consecutive years standard deviation of the official exchange rate at the end of each year for the sample countries, carry the theoretically expected signs and they are significant at 1% level. This confirms the hypothesis that they have negative impacts on the FDI inflows.

The cost of labour (LC), captured by the average share of labour cost in the total revenue of average SSA countries' firms, has a negative coefficient and this is consistent with the theory. The theory suggests that firms invest wherever the cost of labour is lower. This result is consistent with the finding of Lucas (1993) in terms of elasticity i.e., the elasticity of FDI with respect to wage proves negative (See section 3.2).

Table 5.1: Regression Results Estimated to test the Determinants of FDI Inflows into the Sub- Saharan African Countries for 1980-84, 1985-89 & 1995-99 periods

DEPENDENT VARIABLE: **LFDIPC** (THE LOGARITHM OF FDI PERCAPITA)				
Explanatory Variables	**1980-84**	**1985-89**	**1995-99**	
			Equation I	**Equation II**
Constant Term	2.73 (1.55)	-1.47 *(-0.74)*	-1.63 *(-.78)*	1.27 *(1.48)*
LGDPPC $_{i-1}$		0.49 *(1.86)****	1.47 *(3.8)**	
LC	-0.17 (-2.76)**		-0.14 *(-2.47)***	
LNRP	0.98 (4.62)*	0.57 (2.8)*	0.92 *(3.06)**	0.63 *(2.27)***
LR	-1.29 (-1.95)**			
LIFRS	0.96 (3.05)*	0.98 *(3.47)**	0.63 (2.25)**	
LHC	0.8 *(5.07)**			
LOP	-1.0 (-3.42)*			
LINFR $_{i-1}$	-1.07 *(-7.05)**	-0.71 *(-3.64)**	0.81 *(2.84*)*	
FD			-0.23 *(-3.67)**	
LERV	-0.67 (-9.09)*	-0.45 *(-4.93*)*	-0.17 *(-2.2)***	
GOV		-0.15 (-1.77)***		
LPOL			-0.02 *(-3.11)**	
LCOR				1.87 *(4.63)**
F-stat	29.61	22.85	12.56	*15.98*
R^2	93%	88%	89%	73%
Adjusted R^2	90%	85%	82%	68%
Sample Size	34	34	34	15

Notes: (1) Figures in parenthesis are t-values. *, ** and *** indicate that the coefficients are significant at 1%, 5% and 10% respectively. (2) Only the coefficients of variables that are significant at 10% or below are reported.

The coefficient of lending interest rate is negative and significant at 10% level. The fact that the sign of the coefficient is negative is theoretically consistent with the theory in that investment is negatively related to the cost of borrowing. But, one can raise points that need careful explanation. When borrowing is available, foreign firms get access to capital and domestic private investors can also invest in joint venture with foreign firms. But as a typical developing region, SSA countries investments depend on the availability of funds for investment rather than interest rate, as the macroeconomic theory on the developing economy suggests (Porter and Ranny, 1982). The significance of domestic interest rate as a determinant of foreign capital inflows in the form of FDI has little consistency with this theory. But, the fact that joint venture investment was the major form of FDI during this period and interest rate was one of the determinants of this form of FDI is convincing. Joint venture was the major form of FDI during the early period of FDI until the mid of 1980s, with ownership right of 51% and 49% share between the citizen and the foreign investor (UNCTAD, 1996b).

The coefficient of the degree of openness to foreign business and investment is -1.0. It is significant at 1% level. This is contrary to the expectation. The reason can be that during this period most of the oil-producing firms of United States who were investing in oil producing SSA countries had disinvested during the period (UNCTAD, 1996b). There can also be another possible reason for this. The policy of infant industry protection followed by SSA countries in the 1960s and 1970s was persisting until the period of early 1980s(UNCTAD, 1996b). This was the policy of the SSA countries that emanated from the attitude of colonial legacy that FDI is a new form of colonialism, which has the objective of exploiting natural resources. Based on this, the sector of investment that was allowed for FDI was more or less the industrial sector. But, foreign industrial firms enter the host countries for investment on

condition that they are protected. The possibility that the more the protection against other competent foreign firms the more such kinds of FDI can flow in.

A rival model (not reported here) that differs from this model in its exclusion of human capital (due to significant collinearity with income) shows that lagged real GDP per capita was positively affecting FDI inflows per capita. Many researchers found that the income per capita had significant positive influence on FDI inflows.

Thus, the estimation result shows that the availability of natural resource potential, infrastructure, market size and human capital have positive impact on the FDI inflows to the SSA countries. The factors that negatively affect FDI inflows into SSA countries in this period were domestic lending rate, the cost of labour, the degree of openness and macroeconomic instability indicators such as inflation rate and exchange rate variability. The fact that human capital and infrastructure are significant shows that foreign investors who come to Africa seek some efficiency in their investment activities. This is consistent with the finding of the survey by Collier (1997), which included a few number of African countries into his study.

5.1.2.2. Result of Estimation: 1985-89

The OLS regression result of the semi-logarithmic model explaining FDI per capita gave the result shown in column three of Table 5.1. The model for this period has explained about 85% of the variability in FDI inflows into the SSA countries. The logarithmic forms of partial regression coefficients of the explanatory variables are difficult to interpret as elasticity coefficients, since the explanatory variables are in ratios.

From the estimated result for this period, the level of infrastructural development, natural resource potential and market size have significant positive influence on the inflows of FDI. Their coefficients carry the theoretically expected positive signs and are significant at 1%, 5% and 10% level of significance respectively. The coefficient of lagged rate of inflation and the exchange rate variability carry the theoretically expected negative signs. Both of them are significant at 1% level. The hypothesis that these factors hindered FDI inflows during that period is confirmed. The market size hypothesis, as captured by the log of lagged GDP per capita, carries the expected sign and is significant at 10% level.

The coefficient of governance index was also one of the variables that explain FDI inflows. It confirms the hypothesis in the study that the mistreatment of civil and political rights of host country citizens discourages investors of western countries from investing more, by decreasing their confidence in the political system of the host country. When we see the trend of FDI inflows into developing countries, those countries with good governance have rising bilateral and multilateral treaties signed between them and democratic governments or their companies. This result confirms the case in point for SSA countries.

5.1.2.3. Result of Estimation: 1995-99

The OLS estimation result of the semi-logarithmic equation that is used to test the determinants of FDI per capita inflows into SSA countries during the period 1995-99 is shown in the fourth column of Table 5.1. The results of regression for this period show that about 81% of the variation in FDI per capita inflow into the SSA countries is explained by the explanatory variables. The coefficients of lagged GDP per capita as a measure of market size, natural resource potential and infrastructure carry positive signs, and they are significant at 1%, 1%, and 5% level respectively. All of them had positive impact on FDI inflows, which is

consistent with the theory. The practical observation in this period was that many SSA countries began to privatize public enterprises (UNCTAD, 1997 & 1998c). Countries such as Cote D' Ivoire, Ghana, Madagascar, Nigeria, South Africa, etc received large inflows of FDI from privatization in this period. These public enterprises (telecommunication, food and beverage, textile, etc industries) that were being privatized are domestic market dependents.

The coefficients of political instability, exchange rate variability, fiscal deficit and labour cost had negative impact on the inflows of FDI. Their coefficients carry the theoretically expected negative signs. Political instability and fiscal deficit are significant at 1% level, while that of labour cost and exchange rate variability are significant at 5% level. The finding that political instability is negatively affecting FDI inflows is consistent with the findings of many researchers but inconsistent with the finding of Green (1972) and Dunning (1981) that it doesn't affect FDI inflows into recipient countries.

The variable human capital is not observed to be significant in the estimation. This is because of high correlation (0.858 correlation coefficient) with income per capita. Therefore, one can identify it as one of the variables that were determining the FDI inflow to SSA. Correlation problem is also observed between natural resource potential and the degree of openness (0.695 correlation coefficient) during this period and each variable is significant when they are included into the regression separately, but the model shows improvement when natural resource potential is included.

The rate of inflation has a positive sign, which is contrary to the theory. The theory of investment suggests that the higher the inflation rate the shorter is the planning horizon of firms. Inflation reduces the real return on investment and competitiveness of firms. From the descriptive analysis, among thirty-one sample SSA countries, only seven of them had a rate of

inflation less than 10%, which is conventionally normal. About twelve countries in this period had an average rate of inflation of 11%-20%, five had 21-30% and four had 41-50%. In an attempt to capture the highly inflated countries with group dummy, the result of regression ended up with negative but insignificant coefficient of the dummy variable.

Second, suspecting the problem of aggregation, it is attempted to disaggregate countries according to their income - dividing the sample countries into two income groups (high and low income countries) and multiple regression equation is estimated for each of them. The result shows that for higher income countries the coefficient of inflation is still positive but insignificant, while for relatively low-income countries it is negative and significant. Therefore, the estimation result is not convincing to reject the theory. First, if the kind of FDIs were market seeking, investors may perhaps be more influenced by income. There is another possibility. Privatization had been prevailing in this period; even though investors observe high inflation rate, they may not refrain from purchasing host country enterprises with the anticipation that the high inflation rate is short-run phenomena, so that they shouldn't miss purchasing the tangible assets. Approximately about 14 % of the total FDI inflows to Africa in 1990s were linked to privatization (Pigato and Liberatori, 2000). Since the total FDI inflows include this revenue from privatization, transformation to foreign investors in that period, a data showing direct relationship between FDI and inflation can emerge. The fact that inflation rate carries a positive sign for the group of relatively higher income countries confirms the previous logic that the involvement in privatization activity by foreign firms in SSA countries favour better income countries.

The model (equation) estimated for testing the impact of corruption on FDI inflows into SSA countries (Equation II of 1995-99) is shown in the last column of Table 5.1.The explanatory variables that are significant in this equation are natural resource potential and corruption

perception index. The coefficients of the explanatory variables carry the theoretically expected sign and both are significant at 1% level.[65]

5.1.2.4. Comparison of the Empirical Results with Previous Studies

Inferences based on the estimates of the three periods equations show that market size (captured by lagged real GDP per capita), infrastructure, natural resource potential and macroeconomic factors such as the rate of inflation and exchange rate variability are the major determinants of FDI inflows in all the three periods. The variables human capital and degree of openness are also determinants with substantial role. These variables, along with political instability, cost of labour, and fiscal deficit are determinants of FDI inflows in the SSA countries during the recent period of globalization.

High exchange rate variability discourages FDI inflow and the result of the study is consistent with the theory. Because of severe foreign exchange shortages, during the 1970s and early 1980s, many SSA countries imposed restrictions on capital outflows, including profit remittances. Over the years, however, African governments recognized that their foreign exchange control policies were strong disincentives to foreign investors. The solution adopted in many countries was to guarantee foreign investors the right to repatriate profits, thus exempting them to a certain extent from the otherwise restrictive foreign exchange system. In recent years, the introduction of the liberalized currency markets as part of the structural adjustment program comes to be more effective solution to the problem (UNCTAD, 1996b). Along with other factors this contributes to the inflow of FDI .The finding of the exchange rate variability as one of the determinant factors is consistent with the findings of Goldenberg

[65] The corruption perception index is an index with a range of values between 1 and 7. As the value increases from 1 to 7, it shows a fall in the level of corruption. In SSA, the most corrupted nation is Cameroon (1.6) while the least corrupted nation is Botswana (6.1) among the 15 countries included in the sample survey of 1999.

and Kolistad (1994) for the developed countries and Ram and Taffer, (1995) for Malaysia and Thailand, which in general agree on the frequent change of the level of exchange rate than its level as a determinant.

The finding regarding fiscal deficit supports the conventional economic theory that high fiscal deficit discourages investments, and hence possesses negative consequences. It is contrary to the empirical findings of Blejer and Kahn (1984) and Aschauer (1989) that fiscal deficit crowds in investments. This reflects that the way expenditure is allocated in SSA countries had adverse effect on investment.

Variables such as cost of labour and the degree of openness were among the major determinants in the two periods. The degree of corruption and political instability variables are found to be among the significant determinants in the last period. The fiscal deficit is also found to be a recent period determinant.

In SSA countries, the level of infrastructural facility and the human capital development is very low compared to that of other developing countries. This can discourage foreign investment at the time of globalization when factor efficiency is the main requirement of competitiveness. A subjective approach study conducted in 1999 to identify the determinants of African business, which measures the competitiveness index of twenty three African countries (including North Africa) showed that there is a strong association between the quality of infrastructure and the sentiment of foreign investors. The findings indicate that the majority of foreign investors have strong feeling about the importance of infrastructure in their business decisions, i.e., 32.3% of the firms responded that the impact of infrastructure on FDI is very strong, for 38.1% of them strong, for 23.4% of them it is not strong and 6% of

them responded it has no impact. This result shows about 70% of the investors give strong emphasis to the availability of infrastructure.

There is no sufficient evidences that debt burden, availability of credit to the private sector, and the tax incentives are important in determining FDI in all the periods. Their coefficients carry the theoretically expected signs but insignificant. The finding that debt burden is insignificant is contrary to the findings of researchers on country specific studies (e.g. Nigeria and Zambia). Regarding tax incentives, the finding matches the conclusion of UNCTAD (1998c) that whatever form and incentives are given, unless other basic determinants of FDI inflows such as infrastructural facilities and macroeconomic factors are fulfilled, countries can't succeed in attracting FDI.

The fact that domestic credit availability is unimportant determinant of FDI inflows into SSA shows that the level of joint venture investment may be less prevalent form of FDI. From macroeconomic theory of the developing countries, investment (credit to the private sector) is dependent on the availability of funds rather than interest rate. But the foreign investors may also invest in joint venture with the government. If it were so, the coefficient of domestic credit availability would be negative and significant. But the estimation doesn't show this. For all the three periods its coefficient is positive but insignificant. This shows that in general both forms of joint venture activities are at low pace in SSA. In fact, projects of FDI in SSA need huge finance. Extraction of oil, mining, etc requires latest technologies of very high cost (UNCTAD, 1996a). This can discourage joint venture investment in the private sector and necessitates the flow of foreign funds or FDI to utilize these resources. But, the fact that the interest rate is significant for the period 1980-84 show that the joint venture activity was

prevailing during 1980-84 period. This implies that for that period the interest rate was more important that the available loanable fund.

The finding that credit availability is less important as a determinant of FDI inflows into SSA is contrary to the finding of Scheinder and Frey (1985) for fifty-seven sample developing countries from different regions. These scholars found that the institutional credit rating as a measure of the availability of credit has significant impact on the FDI inflows on a sample from all regions of developing countries. The difference in the measurement used arises from the difference in objective. In this study, the objective is to detect the extent of the attachment of FDI to joint venture rather than merely identifying domestic credit availability as its determinant. But the finding in this study doesn't confirm the hypothesis.

Regarding the cost of labour, country specific researchers didn't find it as significant determinant in the same period. But it is consistent with the findings of other developing countries. For instance, Wang and Swain (1995) conducted a study on China and Hungary to detect the determinants of FDI inflows. Wage rate is one of the determinant factors according to their finding. But the measurement used to represent wage cost was the ratio of domestic wage cost to the wage cost of the United States. In a different line of argument, the finding in this study is, however, contrary to the findings of Earnest and Young (1994) that 94% of the globally client companies gave emphasis to quality rather than the cost of labour. The fact that the labour cost variable is significant determinant in the recent period also confirms the finding of UNCTAD (1998c) that demand for low cost labour began to flourish during the time of globalization similar to during the 1960s.

Many researchers found out that the impact of political stability variables are highly important in determining the FDI inflows. The same is true for SSA countries. However, using different measurements have different effect on the conclusion reached. For instance, some use business environment risk index to measure political instability (e.g. Dunning, 1981) and reached the conclusion that the international investment flows are influenced by economic but not by political factors. But other researchers used different kinds of measurement and found that political instability has significant influence on FDI.[66] There is no control measurement unit that makes comparison among the findings easy. This study also doesn't repeat the use of the measurement used by previous studies. A measure of political instability that is more relevant to SSA countries is used for 1995-99 period here. The weight of violence, ethnic conflict and institutional conflict is used as a measure of political instability variable over 1995-99. This variable is found to be statistically significant determinant of FDI.

The degree of openness carries a negative coefficient and it is significant for the period 1980-84. In the estimates of 1985-89, the coefficient of these variables is positive but insignificant, while for the period 1995-99 it carried positive and significant. But as this variable is highly correlated with natural resource potential, it is excluded from the model. The latest period estimation result that the degree of openness has significant positive impact on FDI inflows into SSA is consistent with the finding of Morisset (1999) in the study of the determinants of

[66] Root and Ahmed (1979) with the help of 16 economic, five social (degree of education, size of middle class, degree of modernization of outlook, strength of labour movement, extent of urbanization) and seven political (frequency of government change, number of internal armed attacks, degree of administrative efficiency, degree of nationalism, per capita foreign aid, colonial affiliation and role of government in economy) and they found for political instability, only the number of constitutional changes in government leadership over the period 1956-67is statistically significant. Levis (1979) used political competition index along other economic variables and found out that the economic variables and political competition index were found to be significant determinants.

FDI into the SSA countries by taking data from twenty nine sample countries over the period 1997-98.

Beta- coefficient test[67] based on the estimated equations presented in Table 5.2 shows that the most important determinants of FDI inflows into SSA over the period 1980-84 (in order of importance from the most powerful to the least) were the lending interest rate, infrastructural facility, the degree of openness, natural resource potential, rate of inflation, human capital, income per capita, exchange rate variability and labour cost. For the period 1985-89, infrastructure, rate of inflation, income per capita, natural resource potential, exchange rate variability were the major determinants in the same order of influence. In the period 1995-99, the degree of corruption, natural resource potential, rate of inflation, income per capita and infrastructure were the determinants in descending order of their strength.

Table 5.2: Beta Coefficient Test of the Models

Explanatory Variables	1980-84	1985-89	1995-99	
			EQUATION I	EQUATION II
$LGDPPC_{i-1}$		0.22	0.59	
LC	0.04		0.02	
LNRPS	0.74	0.19	0.77	0.55
LR	3.03			
LIFRS	1.07	0.47	0.49	
LHC	0.45			
LOP	1.05			
$LINFR_{i-1}$	0.55	0.24	0.63	
FD			0.04	
LERV	0.17	0.07	0.04	
GOV		0.02		
POL			0.004	
LCOR				2.01

[67] Ordering the beta coefficient test values of the estimated models for each period model.

If we accept lending interest rate and degree of corruption each of them as determinants of a single sub-period, the most important determinants of FDI inflows into the SSA countries were natural resource potential, rate of inflation, income and infrastructure. The test also shows that the importance of exchange rate variability decreases over time. Its beta-coefficient continuously decreases in absolute value over time, which indicates that the recent policy measures taken in favour of foreign firms such as repatriation of profits and liberalization of their economies might have solved the problems. In addition, the economies of most countries become stable especially after 1995.

5.1.2.5. Validity of the Estimates

As the first step in ensuring whether the results of the empirical estimation are consistent, the appropriateness of the overall model is assessed. The criteria adopted are based on the analysis of coefficient of determination (R^2 and adjusted R^2), the F-statistics, the standard error of the overall regression and various diagnostic tests. The adjusted R^2 measures the goodness of fit of the estimation. In all the equations estimated the adjusted R^2 is very high with an average of 85%, unlike the case of previous studies (e.g. Scheinder and Frey, 1985; Morisset, 1999). This indicates that the variables considered in our empirical model accounted for substantial variation of the flow of FDI into SSA countries. The F-statistics that measures the overall significance of the estimates permits the rejection of the null hypothesis that the estimated coefficients in all the equations are jointly insignificantly different from zero. After estimation, the models are subjected to diagnostic tests to ensure that the results are consistent with the estimation procedure. Table 5.3 summarizes the results of the test.

Table 5.3:Daignostic Tests and Overall Significance of the Models

	Model		Chi-square Version		F- version	R^2	F-Statistics
			Normality	Heteroscedasticity	Specification/Functional Form		
1	**1980-84**		*1.26(0.53)*	*1.01(0.31)*	*0.57(0.64)*	*90%*	*29.61*
2	**1985-89**		*0.17(0.92)*	*1.53(0.21)*	*0.29(0.82)*	*84%*	*22.85*
3		I	*0.29(0.87)*	*0.71(0.40)*	*0.19(0.90)*	*81%*	*12.56*
4	**1995-99**	II	*3.04(0.22)*	*2.86(0.091)*	*0.30(0.82)*	*68%*	*15.98*

Note: The figures in the parenthesis are the probabilities at which the hypothesises are failed to be rejected.

The null hypothesis of these models for diagnostic tests of normality is that the error term is normal. Chi-square test at two degrees of freedom confirms the non-rejection of the null. This evidence suggests that the error term from all the equations estimated are normally distributed with mean zero and constant variance and hence the results of parameter estimates are efficient and consistent. The chi-square version is also used to test the existence of heteroskedasticity problems. The null hypothesis of constant variance is not rejected in all the models. In the case of the equation estimated for testing the impact of corruption on FDI inflows, indeed the null hypothesis of constant variance failed to be rejected at 10%. Robust estimation (estimation by correcting hereroskedasticity) has improved the results. Ramsey's RESET test of functional form or misspecification test (by employing F-test) is used to detect if there are non-linearity in the models. The null hypothesis of linearity fails to be rejected. The results of the test for normality and the test for hetroskedasticity ensure that inferences made based on these estimation results are consistent with econometric theories. This shows that the models have well explained the natural data generating process.

5.2 The Contribution of FDI to the Economic Growth of SSA Countries

5.2.1 Descriptive Analysis

The total amount of FDI inflows to developing countries declined in the first half of the 1980s, and then increased substantially. The inflows into SSA countries increased

successively over the period 1980-98. However, the distribution of this inflow was largely limited to a few natural resource rich countries. But, in the 1990s the distribution of the inflows has shown some improvement. This is the outcome of the improvements in the macroeconomic environment in these countries, the policies measures taken in favour of FDI. The rise in stock of FDI contributed on average about 9.9% of the gross fixed capital formation for SSA countries. In an objective to see the impact of FDI on economic growth of SSA countries in the period 1987-98, the pattern of FDI and its importance in relation to saving and growth will be discussed by using descriptive data for some of the sample countries. This is based on Appendix 2.1-2.3.

A. **Botswana**

The total level of stock of FDI of Botswana was about 1.36 billion US $ in 1998. The annual average FDI inflow to this country was about 2.1% of its GDP over the period 1987-98. The annual inflow contributed about 5.2% of its gross fixed capital formation (GFCF) on average. Normally, Botswana was a country with a very high level of gross domestic saving (an average of 38.5% of its GDP for the period 1987-98). Over this period, its gross domestic saving rate was highly stable while the share of FDI inflows in its GDP was declining continuously from about 7% in 1988 to a level of greater outflow amounting 0.3% of its GDP in 1995. But after 1995, the inflow has shown improvement due to stable macroeconomic and political environment. Botswana had nearly similar growth and FDI inflows.

B. Cameroon

Compared to its level of GDP, the FDI inflow to Cameroon was as low as below1%. But its level of stock of FDI is one of the largest in SSA; it was about 1.23 US $in 1998. The average contribution of FDI to the GFCF of the country was about 1.9%, which is very low compared

to that of other countries. But the trend in the contribution rose over the period from 0.2% in 1987-92 to about 6.3 in 1996 and declined to 4.8% in 1997. When we see the trend in the inflows of FDI, both outflows and inflows are observed in each alternative year. This pattern has less clear relationship to the gross domestic saving rate of the country. The average gross domestic saving rate of Cameroon during this period 1987-98 was about 19.3%, and was stable, with a maximum of 20.7% in 1990 and a minimum of 16.5% in 1992. In relation to the growth rate of GDP, FDI inflows had similar patterns with continuous revival from decline after the year 1995. This trend is also true of FDI inflows.

C. Cote D' Ivoire

Cote d' Ivoire has a total stock of FDI amounting 2.97 billions of US $. The stock has a steady rise beginning from 1990. The steady flow was attributed to policies of liberalization and privatization with the objective of attracting FDI, stable macroeconomic environment, low labour cost, infrastructure and human capital as compared to other SSA countries. Such higher inflow in FDI has substantial contribution to its GFCF .The average share of FDI stock in the period 1988-98 was about 18.4%. The average gross domestic saving of Cote d' Ivoire in the period is 16.3% and it had similar trend with lagged FDI inflows. But regarding the growth rate of output, even though the overall trend seems similar with the overall level of FDI inflows, the figures of particular years show when one is increasing the other is decreasing. But, as far as there was positive relationship with saving, the indirect impact of FDI should have increased growth rate.

D. Gabon

Compared to other countries of SSA, the level of FDI inflows is higher. It fluctuates around 2.5% as percentage of its GDP in the period 1987-1998. The total stock of FDI however had

increased steadily beginning from 1980 with an average growth rate of 31% per annum. The high inflows of FDI is due to its enormous natural resource potential, high per capita income, better infrastructural development, better political stability and FDI inviting policies. The flowing FDI had fluctuating contribution to the cross fixed capital formation of the country. For the period 1987-92 it was 5.4%, while from 1993-95 there was more outflow of FDI than inflows so that the contribution was negative. After 1996, the contribution increases to an average of 19%. The average gross domestic saving of this country in the period 1987-98 was 38.9% with in a range of 26.4 in 1987 and 48.3 in 1997. But growth rate of output was in continuous decline during the last recent years of the period. This shows that the high domestic saving rate and FDI inflows contributed little to the output growth of the country.

E. Ghana

The FDI data of Ghana shows that the share of FDI in the annual GDP for the period 1987-93 was below 1% but rose to an annual average of 2.6% after 1994. The successive annual contribution of this stock to the GFCF of the country for the period 1987-98 was about 12.8% on average, within a range of 30.2% in 1994 and 1.9% in the period 1987-1992. Ghana is an economy with high level of foreign capital inflows for its investment including official development finance. The gross domestic saving was very low, with an average of 7.9% and there was an increasing trend after the period 1993. The rise in the trend of saving matches the trend of FDI inflows. Real output was steadily increasing beginning from 1987 except a sharp decline in 1991,1992 and 1994. FDI inflows and output growth rate have no clear relationship from these descriptive data.

F. Lesotho

Lesotho is a country with an exceptionally high level dependency on foreign capital for its investment. Both official development finance and FDI had unique levels. The average ODF (official development finance) leaked to Lesotho over the period 1987-98 was 19.6% of its GDP, within a range of 28.7% in 1987 and 9.8% in 1997. The inflowing FDI was also very large with an average growth rate of 15% for the period mentioned. The total stock of FDI amounts US $ 2.2 billion in 1998 and it successively contributes an average of 50% to GFCF, within a range of 33.6% in 1988-92 and 60.5% in 1998. Successive rise in the stock of FDI is observed after 1995. The regional integration prospect among South Africa, Swaziland and Lesotho also contributes to these inflows of FDI. Other basic factors include cheap labour cost, stable exchange rate system, macroeconomic stability, and stable[68] political system. The average gross domestic saving rate of Lesotho is -29.5%, indicating that there is huge resource gap in the economy. Foreign saving inflows and private transfers, as it is already discussed, fill this gap. The economic growth of Lesotho was very high throughout the period, with an average of 7.9%. There was positive linkage between the level of foreign capital inflows and economic growth.

G. Mauritius

The average economic growth of Mauritius was 5.9%, which is fairly large compared to that of many SSA countries. The country is relatively less foreign capital dependent for its investment with an average FDI of 0.9% of its GDP and 1.7% of ODA. The average gross domestic saving was, however very high (about 28.8%), and was stable over the period. The healthy and stable export performance with low debt service ratio enabled it to maintain such high level of saving rate. The contribution of FDI to its GFCF is low (below 5%). The

[68] The political stability index of Lesotho for the period 1989-96 was zero, which implies the most stable political environment in SSA. Its gross domestic investment was 75% in the period 1987-98.

continuous flow is due to stable macro economic and political environment, its involvement in export processing zone (untested in this study), better infrastructure, high level of per capita income and policy of liberalization etc. The inflow of FDI as a percentage of GDP was almost stable overtime and it is difficult to appreciate its relationship with growth rate and gross domestic saving.

H. Nigeria

Nigeria and South Africa are the first two highest recipients of FDI in SSA. The total stock of FDI of Nigeria was about 18.7 billion US $ in 1998. The average annual inflow that augments this level of stock over 1980-98 was 27.4% of its GDP. The stock of FDI was steadily growing due to huge natural resource potential (particularly lower extraction cost of oil and natural gas compared to the extraction cost in many parts of the world), large market size, cheap labour cost, low level of exchange rate variability and the policies favouring FDI. This made Nigeria the leading FDI recipient in SSA even though there are negative factors such as political instability and high level of corruption. The contribution of FDI to GFCF was one of the highest in SSA, with an average of 27.4% over the period 1987-98. For Nigeria, both the FDI inflows and the real GDP growth rate had increasing trends. Its rate of saving however was unstable with a rise in the period 1989-92 and a decline thereafter.

I. South Africa

South Africa is economically leading developing country in SSA. Its absolute level of GDP, infrastructure, level of human capital, technological development and the structure of its economy are incomparable with almost all SSA countries. Under these differences, the country has one of the highest absolute level of FDI stock, amounting to 15.7 billions of US $. But this stock level is below its level of 1980 due to the huge outflow between 1980 and

1995. The outflow was a consequence of international embargo, but after 1992 the inflow revived largely reaching a level of 17 billion US $ in 1999. This is attributed to privatization, liberalization policy, and other determinants such as infrastructure, natural resource availability, etc. The annual additional stock over the period contributed about 4.8% to the GFCF of the country. For South Africa, the period after 1993 was a period of output growth and at the same time sustained inflow of FDI.

J. Senegal

Senegal is one of the SSA countries with the least gross domestic saving. Its average saving rate for the period 1987-98 was only 8.9% of its GDP; but its level of saving showed an increasing trend over this period, from 5.1% in 1987 to 15.1% in 1998. Although liberalization of trade and investment, privatization and other FDI attracting policy measures were taken, no satisfactory level of FDI inflows were received until recently. Only 0.74% FDI to GDP ratio had flown to the country over the period 1987-98. The contribution of the continuous inflow of FDI to annual GFCF was only 8.8% on average. Average growth rate of the country was 3% and it was showing an increasing trend after 1995. Within this period, FDI as a share of GDP also increased compared to that of pre 1995 period.

K. Swaziland

The average FDI inflow to the country as a ratio of GDP in the period 1987-98 was 4.6%. In terms of stock, the country has about 0.476 billion US $ of FDI in 1998. The positive factors that contributed to the continuous rise in the FDI inflows were its stable macroeconomic growth, relatively developed infrastructure, its location as a member of SADC member country and the liberalization policy undertaken. In recent years, however, the inflows had declined due to mistreatment of political and civil rights even though the overall political environment is stable. The share of FDI in GDCF was about 16.6% (one of the highest), except that the trend shows a decline due to the above-mentioned factor. The country had

maintained a gross domestic saving rate of about 22% on average over the period of 1987-98, even though a decline is observed in recent years. Unlike most other countries in the sample, the economy of Swaziland was showing depression in recent years. Similar trend is observed in gross domestic saving and FDI inflows.

L. Zambia

Zambia is one of the SSA countries that highly depend on foreign capital for its capital formation. It is the recipient of the largest percentage of ODF in relation to its GDP (an average of 23.5%). The inflow of FDI as a ratio of GDP was also relatively higher (about 3.8%), and the total stock of Zambia was about 1.76 billion US $ in 1998. Positive factors that contributed to the huge inflows of FDI to Zambia were relatively better level of infrastructural facility, availability of natural resources, and better political stability. High level of inflation rate and exceptionally high level of exchange rate variability and fiscal deficit had negative impacts. However, the inflow was remarkable and the contribution of these inflows to GFCF over the period 1987-98 was 11.5%. In the period, the economic growth rate of Zambia had mixed pattern. There was a decline of output in the first two years and in 1992 & 1995. For the rest of the periods output was growing at an average rate of 5.3%. But, FDI inflows and the growth rate of GDP show opposite pattern in most of the years, while there was positive relation between FDI inflows and saving.

From the table that summarizes the average values of the variables supposed to explain growth and saving (Appendix 2:2), countries with very low level of gross domestic saving and no diversified export sector fill their resource gap through foreign capital inflows in the form of FDI and ODF. The role of FDI in filling the resource gap of countries like Lesotho and Zambia, and for other countries the FDI inflows further pushes up capital formation that is suggested to bring growth (Nigeria, Botswana, Swaziland, Gabon, etc). There is clear

pattern that FDI contributes to the filling of the saving gap, while its impact on growth is difficult to observe except for some countries like Cote' Ivoire, Lesotho, Ghana and Nigeria.

5.2.2. Estimation Results, Interpretation and Validity of the Estimates

5.2.2.1 Estimation Results and Interpretation

As it was pointed out in the introductory part, the main objective of this part of the study is to examine the impact of FDI on the economic growth of the SSA countries using simultaneous equations model in panel data. Accordingly, both the structural and reduced form equations are estimated, by employing Two Stage Least Squares estimation method in panel data. The structural form helps to analyze the qualitative impacts of the exogenous variables on the endogenous variables. The coefficients of the exogenous variables in the structural form growth equation indicate their direct effect on the growth of output, while those in the structural form saving equation indicate their direct effect on the gross domestic saving. It is shown in Table 5.4 below.

Table 5.4 Regression Results of the Structural Form

Endogenous Variables	S	GDPR	OF	FDI_{t-1}	L	X	DEP	K	$GDPPC_{t-1}$
Growth Rate									
GDPR	0.122	---	0.002	-0.135	-0.252	0.075	---	0.144	---
	*(1.74)****		*(1.12)*	*(-1.43)*	*(-0.74)*	*(0.97)*		*(2.58)**	
								F (17,126)= 2.64	
								NT=144 R^2=0.28	
Saving Rate	---	0.003	-0.353	0.61	---	0.386	0.106	---	0.004
S		*(1.36)*	*(-1.77)****	*(2.6)**		*(3.7)**	*(0.5)*		*(2.23)***
								F (18,125)=76.61	
Note:								NT=144 R^2=0.91	

• Figures in parentheses under each coefficient are t-values. • The marks *, ** and *** signify that the t-values are significant at 1%, 5% and 10% level, respectively.

The regression estimates of the structural equation of growth is significantly explained by gross domestic saving and imported capital goods. The coefficients of both of them carried the theoretically expected positive signs, being significant at 10% and 1% level, respectively. It implies that both of these variables have direct positive impacts on economic growth of the sample countries. The result of the impact of saving on the growth of output is supported by previous findings (Serven and Solimano, et al 1996). Beginning from the end of 1980s to the end of 1990s, Botswana, Mauritius & Nigeria were the fastest growing economies in real terms. During the 1987-98 period, these countries respectively registered an average GDP growth rate of 8%, 6% and 4.6%. Their respective gross domestic saving rate was 39%, 24.5% and 22%.

The result also shows the critical role played by imported capital goods in the economic growth of the sample countries. The imported capital goods carry along with them new technology and the new technology increases labour productivity (Todaro, 1994 p.100). For SSA countries, imported capital goods are ways of adapting new technologies that makes the labour & land more productive. It has substantial impact on the productivity of the abundant cultivable land and the labour force. From the structural equation, the hypothesis of two-way causality relationship between saving and economic growth is also confirmed. Labour force participation rate is insignificant possibly due to high level of unemployment rate in the labour force participation rate, and its negative sign arises from the falling efficiency of the rising number of the labour force (Feder, 1983).

In the estimation result of the structural equation of growth the direct impact of last year FDI on the current growth of output of the sample SSA countries is negative but insignificant. This

implies that the direct effect of FDI on the economic growth of the SSA countries was negative albeit insignificant.

From the estimated structural form equation of saving, the estimates show that the SSA countries variance of saving is explained by the direct impact of export, lagged FDI, official development finance and lagged income. The coefficient of export carries the expected positive sign with 1% level. It implies that the rise in the level of export of the SSA countries have a direct positive contribution to their gross domestic saving. This result strengthens the indications of the descriptive analysis that high export to GDP ratio economies such as Botswana, Gabon, Mauritius, Nigeria, Swaziland, which have average export to GDP ratios of greater than 40%, have greater average saving rate. In other empirical studies, external trade and terms of trade had significant impact on the saving rate of SSA countries (Mwenga et al, 1996). The result of the above estimation is consistent with it. Lagged real per capita GDP is the other variable that explained saving. The coefficient carries the theoretically expected positive sign and it is significant at 5% level of significance.

The coefficient of official development finance is negative and significant at 10% level of significance. Those who advocate foreign aid suggest that it facilitates and accelerates the process of development by generating additional domestic saving as a result of the higher growth rate that it is presumed to induce. Those who argue against it, however, suggest foreign aid depresses domestic saving and consequently reduces the resources available for capital formation. The finding of this study supports the second reasoning that for SSA countries official development finance has direct negative impact on gross domestic saving. Previous empirical evidences support both arguments. Fry (1980), Giovannini (1985) found

significant negative contribution of foreign assistance to domestic saving of the developing countries, while Weiskopf (1972), Gupta (1987) found it has positive contribution.

The variation in the gross domestic saving of SSA countries is also positively explained by one year lagged FDI inflows. It carries positive sign and is significant at 1% level of significance. It supports the theoretical argument that FDI increases domestic saving. The components of gross domestic saving that can rise through the impact of FDI are the retained earning of foreign firms, retained earnings of domestic firms and domestic personal saving (for components of gross domestic saving see Dornbusch, 1996). However, if it is the saving of foreign firms' component of gross domestic saving that is rising more than the other components, the possibility that domestic saving has positive impact on the host country's economic growth can diminish, because most of the foreign saving from FDI in SSA countries is repatriated. Therefore, the conclusions that FDI has direct positive contribution to the domestic saving and hence to the growth of output can be misleading. In short, the result from the estimated structural form equations revealed that FDI has negative but insignificant direct impact on the growth of the sample SSA countries while it has positive and significant direct impact on gross domestic saving.

The theoretical discussion in relation to the estimated structural form also holds for the variables in the estimated reduced form equations. The estimated reduced form equations provide quantitative measures of the total effect of the impacts of the exogenous variables on the endogenous variables. Coefficients in these estimations are used for forecasting and policy analysis, as they reflect the total effect of a change in the exogenous variables on the dependent variable(s). The quantitative comparison of the direct and indirect impacts on the

economic growth of SSA countries is made based on the estimate of the reduced[69] form equations (Table 5.5 below).

Table 5.5 Regression Estimates of the Reduced Form

	Exogenous Variables						
Endogenous Variables	**OF**	**FDI_{t-1}**	**L**	**X**	**DEP**	**K**	**$GDPPC_{t-1}$**
Growth Rate							
GDPR	-0.123	-0.067	-0.28	0.14	0.2	0.18	0.006
	(-1.466)	*(-0.775)*	*(-1.147)*	*(1.793)****	*(0.565)*	*(3.137)**	*(1.426)*
							F (18,125)=2.76
							NT=144 R^2=0.28
Saving Rate	-0.389	0.8	-1.288	0.423	-0.565	0.28	0.507
S	*(-2.18)***	*(3.052)**	*(-2.433)***	*(3.964)**	*(-1.817)****	*(1.57)*	*(2.847)**
							F (18,125)=87.11
							NT=144 R^2=0.93

Note: Figures in parenthesis under each coefficient are t-values. The marks *, ** and *** signify that the t-values are Significant at 1%, 5% and 10% level, respectively.

The coefficients of the variables in the estimated reduced form equations have similar signs with their coefficients in the estimated structural form equations, except that of official development finance. The variables that have significant positive impacts on the growth rate of the sample SSA countries are the level of export and the level of imported capital goods. They carry the theoretically expected signs and they are respectively significant at 10% and 1% levels. Therefore, the total effect of both export and imported capital goods on economic growth is positive and significant. For SSA countries, as it is discussed in chapter two, countries with better export performance have the capacity to import more (capital goods,

[69] In solving the coefficient of the reduced form equation by substitution, there is slight discrepancy between the value of the coefficient of the reduced form equation and the sum of the values of the direct and indirect effects. (See appendix 2.5). This might come from the computation procedure in that some data might have been dropped in estimating the fitted values.

intermediate inputs, etc), which plays substantial role in the growth of output (of the developing countries).

In the reduced form saving equation, official development assistance & labor force participation rate carry negative sign and they are significant at 5% level. This shows that the total effect of both of them on gross domestic saving is negative. Dependency ratio is also affecting saving negatively. Its negative impact is significant at 10% level. For the sample SSA countries, as the descriptive statistics shows, the dependency ratio is very high, ranging from 101.2% for Zambia to 57.4% for Mauritius. The variation in the dependency ratio reflects the variation of the saving rate among these countries. The reason that the labour force participation rate carries negative and significant coefficient is intuitive. This is true from two points of views. First, if the new labour force entering the age of 15-64 is unemployed, it is dependent on the income generated by the working force and therefore decreases the saving rate. Second, if there is sufficient employment, for a new average Sub-Saharan African young entering the age of 15-64, it is a time of establishing family and beginning to support dependents, implying that the number of dependants the new workforce supports increases so that the marginal propensity to save decreases. Both of these scenarios decrease saving.

On the other hand, other variables such as export performance, lagged FDI, and real GDP per capita have positive coefficients that are significant at 1% level, with the implication of positive and significant total effects on the gross domestic saving of the sample countries.

The estimated reduced equation shows that FDI has negative but insignificant total effect on the economic growth of the SSA countries. The total effect (i.e. its component in the reduced

form equation) of FDI on the growth of output in the reduced form equation has two components. The first component is the direct effect of FDI, i.e., the coefficient of lagged FDI in the structural equation is negative. The second component is the indirect impact of FDI on the growth of output through its impact on gross domestic saving; this is the component that one gets by computation or substitution (see Appendix 2.5). This computed component (0.061) is positive, but too small to outweigh the direct negative impact on the growth of output. Thus, the total effect of FDI on the economic growth of the sample SSA countries (its coefficient in the reduced growth equation) is found to be negative, albeit insignificant. The finding that the indirect contribution of FDI to the growth of output through saving is positive, however, confirms the third hypothesis in the introductory part of this study. For the developing countries of Asia, however, the impact of FDI on growth was positive and significant (Husain and Jun, 1992).

Before suggesting any possible reason for the negative total effect of FDI on the economic growth of the SSA countries, it is worthwhile to notice the assumption of the model. The model assumes that the market is efficient in resource allocation and there is free capital mobility. In this regard, the foreign direct investment inflows into different sectors is assumed to have equal marginal contribution (equal marginal product of invested capital) to the total output of the host country. The assumption implies that foreign investors are free to allocate their investment resources in any sector in such a way that they can maximize their benefit. But in SSA countries, the market is full of distortions and these assumptions seldom hold. Information is imperfect; factors are perfectly immobile, etc. Moreover, there is high government intervention in these economies. In most of these countries, foreign investors are restricted by policy from engaging in some sectors (usually the service sectors such as communication, transport, etc). In addition to these problems, in some countries, the

government fixes minimum investment capital, below which foreign investors are not allowed to invest[70]. This leads to the inefficient allocation of foreign capital. This is the problem with the assumption of the model. The reason for the large repatriation is caused by market distortion, excess policy intervention of the government and unfavorable investment conditions.

The literatures underline the importance of the market efficiency in maximizing the benefit from FDI. Dunning (1985) insists on the government policies to assure the market should operate efficiently in restructuring and growth, ranging all the way from converting under-investment in education and training to countering the adverse effects of monopoly power. Fry (1993) underlined avoiding trade and financial distortions generate maximum macroeconomic benefit from FDI. Therefore, policies of the governments with regard to the market operation of the SSA countries matters in generating optimal benefits from FDI.

Possible factors contributing to the negative contribution of FDI to the growth of output of the SSA countries are: (1) The repatriation of the largest part of the retained earning as a ratio of FDI inflows (which is part of gross domestic saving). For the SSA countries on average about 75% of the retained earning of the period 1991-97 (a maximum of 90.1% and minimum 61.1%) is repatriated. For other developing regions, the average of this figure is about 33%(See Appendix 2.6). The high level of repatriated retained earning of the foreign firms decreases the contribution of FDI to capital formation. (2) The contribution of FDI in filling the foreign exchange gap by its spillover effect on exports is suggested by the pro FDI argument. The impact of FDI on the export sector of the SSA countries can be hampered by the role of FDI in limiting the countries on a single export item such as oil and mineral

[70] What do we know? The highest marginal benefit a host country can attain can be at a low level of investment capital.

products by appreciating the exchange rate of the currency and this may restrict these countries to few commodities for their export earning, instead of contributing to the expansion of exports through diversification. In addition, in the short run the repatriation or capital flight makes the balance of payment of the country to deteriorate. (3) The impact of FDI in filling the financial gap is usually outweighed by the generous incentives given by host SSA countries to attract FDI. This can outweigh the positive contribution. (4) The technological and managerial skill spillover effects are also limited due to the low share of the manufacturing sector in SSA economies. The possibility of inappropriateness of technologies, which can reduce productivity, also exists. (5) Most SSA countries are the victims of debt burden. As far as they pay out large part of their export revenue for debt servicing than for capital formation, the impact of FDI may not be fruitful. (6) The negative impact can be attributed to the weak overall economic performances of the SSA. During the periods 1980s and at the beginning of 1990s, the SSA countries economy was in depression. Empirical evidences show that economic growth is lagging behind due to economic and non-economic factors (Collier and Gunning, 1997). Under this circumstance, FDI inflows can't play significant role in economic growth because FDI doesn't substitute domestic efforts.

When we look into the contribution of FDI to the output growth of developing Asian countries, it is basically founded on different conditions that are not similar to the SSA countries. One of these is the high level of reinvested earning of the foreign firms in these countries, i.e., only one third of the large volume of profit of FDI was repatriated in the period 1991-97, unlike three fourth in the case of SSA (See Appendix 2.4). These countries have also reached a stage where they can exploit the benefit of technology that arises due to FDI. Foreign firms investing in these countries are also competing to get the upper hand in exploiting their technology ownership advantages, which may decrease the cost of getting the

new technologies for the host countries. In those countries, the contribution of FDI is supported by the macroeconomic performances (for instance, there was high level of saving and investment).

In addition, the difference in terms of infrastructure, human capital, attitude of the people towards hard work, economic, political and institutional set ups increase their bargaining power on incentives to foreign investors and therefore they cannot be the victim of generous incentives. The finding that FDI has insignificant impact on the economic growth is inconsistent with the finding of the Gupta and Islam (1983) and Hussain and Jun (1992) for Asian countries (See section 3.2.2*)*. From the finding of the study, the effect of FDI on the economic growth cannot be generalized, as the host countries economic environment are not the same. From the empirical evidence of this study, FDI has negative and insignificant impact on the economic growth of the SSA while it has positive and significant effect on the gross domestic saving, which in both cases is not true for the South and South East Asian countries.

However, the last year FDI inflow has positive and significant contribution to this year domestic saving and the gross domestic saving has significant positive contribution to economic growth. As such, FDI needs to be encouraged by the SSA governments. But its contribution becomes more important on condition that there is reinvestment of the retained earning, which is largely repatriated in case of the SSA countries. The reinvestment has two advantages. First, it increases the capital formation. Second, when there is reinvestment the impact of capital flight that depresses the balance of payment of the host country will be suppressed.

5.2.2.2. Validity of the Estimates

We use twelve years data for each of the twelve SSA countries in the sample to estimate the structural and the reduced form equations of the simultaneous equation model. F-statistics, tests of the classical model of panel data and other diagnostic tests were used to test the consistency and appropriateness of the model. The estimated equations are one-way fixed effect models of simultaneous system in panel data. In both the structural and the reduced form equation models, the F-statistics that measures the overall significance of the model rejected the null hypothesis that the estimated coefficients are jointly not statistically different from zero.

The log-likelihood ratio test shows that one-way fixed effect model is the best model among different kinds of models. The diagnostic test of the reduced form equation estimates of both growth and saving equations rejected the null of two-way fixed effect model against the estimated one-way fixed effect model in both reduced equations (See Table 5.6). Thus, the robust estimation of the one-way fixed effect[71] model is chosen as the best model based on this and other other diagnostic tests.

Table 5.6 Test of the Two-way Fixed Effect Model against One-Way Fixed Effect Model

Model	Hypothesis	Chi ^{2}(12)	C.V. at (12)	Decision
Reduced Form				
Growth Equation	(5) Vs (4)	21.829	23.859	Reject the null of two-way (at 1%)
Saving Equation	(5) Vs (4)	11.743	23.859	Reject the null of two-way (at 5%)

Note: (5) is two-way (which includes time effect) fixed effect model, whereas (4) is one-way (only cross-country effect) fixed effect model.

The diagnostic tests in Table 5.7 show that the Likelihood Ratio Test rejects the null hypothesis of the two-way fixed effect model (time effect model) of the growth and saving

[71] The software is developed to estimate fixed effect models in panel data using two stage least square estimation, not random effect (See LIMDEP users manual, 1998).

reduced form equations at 1% and 5% level of significance. The one-way fixed effect model is selected based on this test and it is interpreted in this study.

Table 5.7: The Validity and Diagnostic Tests of the Models

Models	Model Test	Log-Likelihood ratio Test	Estimated Autocorrelation	White Heterosceda-sticity
1.**Structural Form**				
Growth Equation	*2.64 (0.001)*	*X and group effects: -448.7*	*-0.0099(corrected)*	*Corrected*
Saving Equation	*76.61(0000)*	*": -460.6*	*0.0406(corrected)*	*Corrected*
2.**Reduced Form**				
Growth Equation	*2.76 (0000)*	*X and group effects: -446.5*	*0.0305(corrected)*	*Corrected*
Saving Equation	*87.11(0000)*	*": -447.8*	*0.1070(corrected)*	*Corrected*

All the estimated equations are heteroscedasticity corrected by using the White heteroscedasticity corrected covariance matrix. The Limdep version technology corrects the problem of autocorrelation in a similar way it does for the problem of heteroscedasticity internally, rather than stating the probability value (See Green, 2000; p.606-607). The change that is observed from the correction of both heteroscedasticity & autocorrelation is the fall in the standard error of the estimates. The estimates in Table 5.7 are autocorrelation corrected in one iteration process.

CHAPTER SIX

SUMMARY AND POLICY IMPLICATIONS

6.1 Summary

Within the dimension of controversy on the net benefit from foreign direct investment, those who favour the benefits of FDI suggest that it fills the saving, foreign exchange, financial, managerial, entrepreneurship and skill gaps; and also affects growth positively indirectly by increasing saving. The fall in the inflows of other means of financing development (such as private commercial credit and official development finance) at the beginning of 1980s forced developing countries to take policy measures that facilitate conditions of attracting FDI. Most of South East Asian and some Latin American countries succeeded in attracting substantial level of FDI as a result of the policy reforms they took and their prevailing economic conditions. On the contrary, Africa, particularly Sub-Saharan Africa, except a few countries have no satisfactory level of inflows in spite of the policy reforms.

The first part of this study examined the factors that determine the FDI inflows into the SSA countries during the last two decades. To attain this objective, modelling FDI inflows based on the theory of foreign direct investment by employing cross-section data from thirty-four SSA countries over the three sub-periods of 1980-84, 1985-89, 1995-99 is considered[72]. The factors examined in the study are pull factors that characterize host countries, assuming that the push factors which are supposed to influence the foreign investors to leave their home country's investment environment are held constant. Modelling FDI inflows in this way assumes variability over time in prevailing economic, political and social conditions in those

[72] The importance of dividing the period in to sub periods is reflected in detecting the impact of the variables inflation rate, the degree of openness and interest rate in particular, which would be difficult to detect otherwise.

countries over the sub-periods. The data used for each of the three sub-periods of the study is five years average value of the variables. This may have its own limitation of dampening the effect of the variables, but the fact that the periods of the studies are relatively shorter (unlike most cross-section data models based on average values) and the fact that the averaging is done for almost all variables decrease the harm.

The evidence from the estimated model for testing the determinant factors of FDI inflows suggests that natural resource endowment, level of development in infrastructure, market size, macroeconomic factors such as rate of inflation and exchange rate variability of SSA countries significantly determine FDI inflows in all the three sub-periods. In the first period, cost of labour, degree of openness and the rate of interest are additional factors that significantly affect FDI inflows. Governance, in the second period, and cost of labour, fiscal deficit, political instability and corruption in the last period, are important determinants, in addition to those five determinants of all the three sub-periods. Human capital explained FDI inflows in the first period, but it is correlated with income in all the three sub-periods. Both the descriptive and the regression analysis showed that the degree of openness is negative determinant in the first sub-period (1980-84), while it is significant positive determinant in the last sub-period (1995-99) though collinear with the measure of natural resource potential in the latter period. There is no sufficient evidence that shows indebtedness, tax incentives and availability of domestic credit determine FDI inflows in any of the periods.

An attempt is also made to test the impact of FDI on the economic growth of SSA countries directly, and indirectly through its impact on gross domestic saving, by employing simultaneous equations models based on panel data. The simultaneous equation model treats growth and saving as endogenous variables, while the values of foreign direct investment

(lagged), official development finance, total export, imported capital goods (all as a ratio of GDP), labor force participation rate, dependency ratio and per capita GDP (lagged) are treated as exogenous variables in the system. The econometric analysis employed is panel data analysis based on data from twelve sample SSA countries over the period 1987-98. Diagnostic tests showed that one-way fixed effect model is the best model that fits into the natural data generating process.

The estimated reduced and structural equations of this model show that lagged FDI has negative but insignificant direct effect, positive and significant indirect effect through saving and negative but insignificant total effect on the economic growth of the SSA countries that were included in the sample. The empirical evidence also shows that FDI has positive and significant direct and total effect on gross domestic saving. This confirms the argument that FDI has positive contribution to the national economy by increasing saving. However, the fact that retained earning of foreign firms is part of gross domestic saving and large part of this saving is repatriated (as supporting data shows) decreases the contribution of FDI to economic growth through saving. This vanishes the possible contribution of FDI to the capital formation. In addition, the immediate consequence of the repatriation of the profit (capital flight) has negative effect on the balance of payment of these countries. This confirms the negative consequence of the activities of foreign investors in that most of the retained earning part of the gross domestic saving is repatriated.

Possible reasons to the overall negative total effect of FDI on the growth of output of SSA countries are repatriation of large share of the retained earning, limiting host country to a few number of export items by appreciation of the exchange rate, superfluous incentives, low

share of the manufacturing sector- so that possibly low technology and trade spillover effects, high debt burden, and weak macroeconomic performance over the period of study.

Basically, the model assumes that the market allocates resources efficiently and there is free mobility of factors. In this regard, the foreign direct investment inflows into different sectors is assumed to have equal marginal contribution (equal marginal product of invested capital) to the total output of the host country. The assumption implies that foreign investors are free to allocate their investment resources in any sector in such a way that they can maximize their benefit. But for the SSA, countries the assumption doesn't hold. There is low factor mobility and information is imperfect. Moreover, there is high government intervention in the economy. In most of these countries, foreign investors are restricted by policy from engaging in some sectors (usually the service sectors such as communication, transport and the finance, etc). In addition, governments fix minimum investment capital, below which foreign investors are not allowed to invest. These factors hamper the market from functioning efficiently. This leads to the inefficient allocation of foreign capital. Large repatriation rate is one possible outcome of the absence of free mobility of capital.

Costs of FDI can outweigh the benefits under the above conditions and its impact on the economic growth can be negative in spite of its positive and significant contribution to domestic saving. But, in its relationship to the growth of output, the empirical evidence on the contribution of FDI to the export performance and the adoption of technology of the SSA countries is not tested in this study. Therefore, concluding on the overall impact of FDI on the economic growth is difficult. However, what the empirical evidence assures us is that the impact of FDI on the growth of output indirectly through its impact on saving is positive.

6.2 Policy Implications

In this study, it is found that FDI inflows into SSA countries have a positive role of increasing gross domestic saving, based on the evidences (coefficient of FDI in saving equation) from the study. If SSA countries governments strengthen saving institutions, employees of foreign firms and domestic firms can get opportunities to save more from their income.

The model of contribution of FDI to economic growth assumes that saving is equal to investment. For both domestic and foreign investors, the investment environment should be attractive and helpful. In this regard, macroeconomic policies of SSA countries should aim at creating stable economic and political environment, preservation of consistent and credible policy.

The empirical evidence shows that Official Development Assistance has positive but insignificant contribution to the growth of output and it has negative and significant contribution to the gross domestic saving. From this one can draw the implication that SSA governments better focus on FDI rather than foreign aid because FDI has at least positive contribution to the growth of output indirectly by increasing saving.

The retained earning of the foreign firms is also the component of gross domestic saving. As supporting evidences show, large part of the retained earning of foreign firms is repatriated. This is the consequence of unfavourable investment environment in the host SSA countries. SSA countries, therefore, need to minimize the retained earning that is repatriated, by making their home countries attractive for investment. The determinants of FDI inflows into SSA countries revealed by the empirical results of this study determine both new investment inflows and reinvestment of their retained earnings. The variables that are found to be the

whole period determinants (such as natural resource, infrastructure facility, real per capita income, rate of inflation and exchange rate variability) and most recent sub-period (1995-99) determinants such as fiscal deficit, political instability, degree of corruption (hassle costs) and labour cost are identified as influential policy variables. The policy implications based on the determinants of FDI inflows are discussed as follows.

Sub-Saharan African countries are endowed with large variety and abundant volume of natural resources. Making detailed geological and physical information available is helpful to attract foreign investors; linking the sites of the resources with sufficient infrastructure, forwarding clear and transparent policies and legal frameworks, liberalizing the natural resource utilization are good measures to be taken to attract FDI.

The level of development of both physical and institutional infrastructure is one of the determinants of FDI inflows into SSA. The fact that SSA countries are unable to attract more FDI (particularly in the manufacturing sector) is directly related to the lack of efficient infrastructure. For African governments, it is advisable to solve these problems by allocating reasonable funds especially for physical infrastructure and encouraging the expansion of institutional infrastructure by the private investors.

Market size, measured by income of people is one of the basic determinants. What are important are not only income, but also market infrastructures. The size of markets can also expand through regional integration. Sub-Saharan African countries need to encourage and strengthen the regional integration frameworks that have been under way at sub regional level.

The empirical results also show human capital is one of the most important determinants of FDI inflows. It is better if Sub-Saharan African countries revise their policy towards vocational education not only to attract FDI but also to facilitate its growth through adaptation of techniques out flowing from FDI inflows. Policy makers therefore need to devote attention to the creation of relevant skills at all levels.

There is a consensus that all forms of investment prosper best in a macrocosmic environment that is stable, predictable and competitive. The implication is that governments should attach top priority to the correction of unsustainable macroeconomic imbalances so that investors can respond to different forms of incentives. For SSA, inflationary monetary and tax policies should be minimized to make the price stable. Regarding public deficit, foreign investors suspect change in policy of taxation in the future if fiscal deficit persists overtime. To avoid the problem of fiscal deficit, governments better collect taxes by formulating clear and cost effective tax system that does not discourage production; and public expenditure are better if they focus on physical and social infrastructure.

Exchange rate variability leads to high exchange rate risk, uncertainty and macroeconomic instability. It influences on FDI decision by affecting the price of host country assets, the value of transferred profits and competitiveness of the affiliates on exports markets. These countries need to correct overvalued exchange rate through the necessary devaluation. The experience of the developing countries with high level of FDI shows that leaving the exchange rate for market adjustment is advisable. For instance, China, the largest recipient of FDI to next the USA, took correcting measure to the overvalued exchange rate by replacing the dual system of exchange rate by a unitary managed floating rate. Free convertibility of national currency and the relaxation of foreign exchange controls have brought best results in

China. Therefore, correcting the overvalued exchange rate and sticking to market mechanism can avoid the instability that is detected to have negative impact on the FDI inflows of the SSA countries.

The traditional determinant of FDI inflows, the cost of unskilled labour, is empirically proved to be one of the determinants. SSA countries have abundant labour source of cheap cost. Literatures suggest that (Cockroft et al 1991) labour legislation is an obstacle with regard to employing workers in SSA. Where there are sever restriction on hiring and firing of workers, the problem is serious because they are operational restrictions and require companies to deal with unfamiliar legislation, because they reduce flexibility when demand changes; but this increases risks. It is better if further efforts are made to establish a well functioning labour market and give more freedom to foreign firms in hiring, firing, and setting wages.

Previous studies and the empirical evidences from this study found that corruption is one of the negative factors hampering FDI inflows into the SSA. Governments need to tackle this problem by struggling to the implementation of the law. Taking measures of check and balance in the public offices is another relevant measure. The policy recommendation given by Tanzi (1998) is worth to restate it here: Honest and visible commitment by the leadership against corruption, for which the leadership must show no tolerance; Policy changes that reduce corruption by scaling down regulations and other policies such as tax incentives, and by making these that are retained as transparent and as non-distortionary as possible and reducing the supply of corruption by making public sector wage incentive compatible. These measures are relevant to SSA countries.

Empirical evidence suggests that political instability is another variable that is found to determine FDI inflows. SSA countries need to create institutions that solve internal political conflicts and develop democratic culture. Governments should create conducive environment for political stability and good governance by preserving the rights of their citizens and putting efforts for democracy. Conflicts between the SSA countries are also sources of internal political instability. SSA countries governments should devote themselves to peaceful way of solving confilicts. To attain this objective, strengthening intra country institutions is important and advisable.

Policies of FDI of the host countries also matter (Morisset, 1999). The descriptive statistical data shows that in the period after the mid 1990s, the level of FDI flowing to most of the countries relatively rose compared to the periods in the 1980s. One of the reasons for this is the policy reform recently taken. Liberalization of ownership restrictions, privatization, state disengagement from economy and dissemination of information regarding opportunities of investment are some of the measures previously taken by some of the countries. These policies need to be strengthened and it is important if governments go ahead with the policy reforms to attract FDI. The recommended policy measures will be effective if they are augmented with clear, transparent FDI policy of openness along with credibility in its implementation. As an objective of maximizing the net benefits from FDI during this period of globalisation, however, each measure taken should consider the costs and benefits of the inflows.

Finally, in interpreting the results and tracing policy implications, one should not forget the limitation of this study. The poor data quality of SSA countries in particular is one of the problems. The software currently used for this study is under some limitations. Furthermore

there can be possible interdependence (causality) between economic growth and FDI though it is not considered in this study. Despite these problems, the results of estimations are consistent with the theories of FDI. Various tests conducted also show that the models are valid and consistent with econometric theory.

Further studies on the impacts of FDI on the components of gross domestic saving of SSA countries are recommended. Moreover, the contribution of FDI in the areas of its impact on international trade and on the adoption of technology is also required to understand the contribution of FDI to SSA countries economy fully. Consideration of the possible causality between FDI and economic growth and utilization of latest econometric software will help to overcome the above limitations of this study.

Selected References

African Development Bank/ADB (1999) African Development Report, 1999. Infrastructure Development In Africa, Oxford University Press.

Agarwal, J. (1980)" Determinants of Foreign Direct Investment: A survey," Weltwirschaftliches Archives, Vol.116, Pp.739-773.

Agenor, P. Richard and Montiel J. Peter (1996) Development Macroeconomics, (Prinston, New Jersey), Prinston University Press.

Ajayi, I. S (1992), " An economic Analysis of capital Flight from Nigeria," **World Bank Working Paper**, 993, (World Bank, Washington, D.C).

Aliber, Z. Robert (1970)"The Multinational Enterprise in Multiple Currency World," in "Theories of the Determinants of FDI," G. Ragazzi (1971), **IMF Staff Paper**, Vol.20.No. 7.

_____ (1978) Exchange, risk and Corporate International Finance, London, Macmillan.

Aschauer, David (1989)"Is Public Expenditure Productive?" Journal of Monetary Economics, Vol.23 No.2 Pp.177-200.

Bacha, E.L (1974) "Foreign Capital Inflow and the Output Growth Rate of the Recipient Country," The Journal of Development Studies Vol.10, No.3/4

Bhagwati, J.N. (1978) Anatomy and Consequences of Exchange Control Regimes, Studies in International Economic Relations, Vol.1, No.10. New York: NBER

Blejer, M. I. and Khan, M. S. (1984) "Government Policy and Private Investment in Developing Countries," **IMF Staff Papers**, Vol 31, Washington, D.C.

Blostrom, M. and Kokko, A. (1996) How Foreign Investment Affects Host Countries; Stockholm School of Economics.

Buckely, P.J. and M. Casson (1985) The Economic Theory of Multinational Enterprise. The

Macmillan Press Ltd, London Basingstoke.

Calvo, A. Guillermo, Leiderman, L. and Reinhart M. Carmen (1994). The Capital Inflows Problem Concepts and Issues, International center for Economic Growth Publication, (San Francisco, California).

Carroll, C. and D. Weil (1993) Saving and Growth: A Reinterpretation. **NBER Working Paper** No.4477

Caves R.E. (1989), "Exchange Rate Movements and FDI in the United States", in Andretsch, B. and M.P. Claudon (eds.), The Internationalisation of US Markets, New York, Pp.199-228.

Chenery, H. B. and Strout, A. (1966)"Foreign Assistance and Economic Development," American Economic Review, 1983.

Clark, P.K (1979) "Investment in the 1970s: Theory, Perfection and Prediction," Brookings Papers on Economic Activity (Washington D.C, USA).

Cockcroft, L. and Roger C. Riddle (1991) "Foreign Direct Investment in Sub-Saharan Africa," WPS 619: World Bank, (Washington D.C; International Economics Department).

Collier, Paul and Gunning Jan (1997)" Explaining African Economic Performance," WPS/97-2.2: World Bank, (Washington D.C; International Economics Department).

Collier, Paul (1997) " Globalization: What Should be the African Response? " Oxford: Center for the Study of African Economies) mimeo..

Cuddington, T. John (1997) "Uncertainty, Trade, and Capital Flows into Sub-Saharan Africa," Journal of African Economies, Vol.5, No.3.

Deaton, A. (1995) "Growth and Saving: What Do we Know, What Do We need to Know, and What Might We Learn?" Research Program in Development Studies. Princeton.

Dooley M.P (1988), "Buy Backs and Market Valuation of External debt", **IMF Staff Paper,** Vol...Washington DC: IMF.

Dornbusch, Rudiger and Fisher, Stanley (1994) Macroeconomics, International Edition, McGraw Hill Inc. Sixth Edition.

Dunning H. John (1980) "Towards an eclectic theory of international production", Journal of International Business Studies, 11,1,pp.9-30 in UNCTAD (1999).

_____(1986) "Japanese participation in British Industry", in UNCTAD (1999) Transitional Corporations, volume 8 No.2 (Switzerland: United Nations).

_____ (1988) Multinationals, Technology and competitiveness, Chapter 4 and 6. Unwin Hyman Ltd. London, Boston, Sydney, Wellinton.

_____ (1989), Transnational Corporations and the Growth of Services, New York, UNCTC

_____(1993a) The Globalisation of Business (London Rutledge) in UNCTAD, 1999.

_____ (1993b) Multinational Enterprises and the Global Economy. Addison-Wesley, Woking ham, London.

_____ (1994) "Re-evaluating the Benefit of Foreign Direct Investment, Transnational East and South East Asia," World Development, Vol.21, No 3; Pergmon, UK.

_____(1998)"The Changing Geography of Foreign Direct Investment: Explanations and Implications", in Kumar (1999) Stabilization, FDI and Technology Transfer: Impacts and Prospects for Developing Countries, (London and New York: Rutledge).

Ekpo. A (1996), "Foreign Direct Investment in Nigeria," Evidence from Time series Data.

Earnest, _ and Young, _(1994)" Investment in Emerging Markets, A Survey of the Strategic Investments of 100 Global Companies," in UNIDO (2000) African Industry 2000:The

Challenge of Going Global (United Nations: Vienna).

Feder, G (1983)"On Exports and Economic Growth," Journal of Development Economics, Vol. 12 Pp.59-74

Fery S. Bruno and Schneider, Fredric (1985)."Economic and Political Determinants of Foreign Direct Investment, " World Development, Vol.13, and No. 13 pp.161-175 Great Britain, Pexagamon Press Ltd.

Fry, M.J (1993),"FDI in a Macroeconomics Framework; Finance, Efficiency, Incentives and Distortions," **World Bank Working Paper**, **WPS No.1141** World Bank, Washington.

Ghura, D. and Hadjimichael M.T (1996) "Growth in Sub-Saharan Africa," **IMF Staff Paper,** Vol.43, No.3.

Ghura, D and Thomas J. Grennes," The Real Exchange Rate and macroeconomic Performance in Sub Saharan Africa," Journal of Development Economics, Vol. 42p.155-74.

Goldberg, Linda S. and Kolstad, Charles (1995), "FDI, Exchange Rate Variability and Demand Uncertainty ", International Economic Review, Vol. 36, No 4.

Gray, Hubfbaurer (1994) "Determinants of foreign Direct Investment and Its Connection to Trade," in UNCTAD Review(1995) Vol.1,No.2(United Nations: New York).

Green, H. William (1998) LIMDEP, Version 7, Users Manual Revised Edition, Econometric Software, Inc., Australia.

_____ (2000) Econometric Analysis: International Edition (Fourth Edition). Prentice Hall International, Inc. USA.

Green, Robert T. (1972) "Political Instability as a Determinant of United States Foreign Firms," University of Texas, Ausin.

Green, J.and D. Vilanuma (1991)"Private Investment in Developing Countries. An Empirical Analysis, " **IMF Staff Papers,** Vol.39.No.38, pp38-85.

Griffin, K.B. and Enos, J.L. (1970)" Foreign Assistance: Objectives and Consequences," Journal of Economic Development and Cultural Change, Vol.18. P.313-327.

Grinols, E (1976) "Foreign Capital, Saving and Dependence," Review of Economics and Statistics, Vol.58.Pp.416-24.

Gujarati, D. (1997) Basic Econometrics, International Student Edition.

Gupta, K.L. (1975) Foreign Capital Inflows, Dependency Burden and Saving Rates in Developing Countries: A Simultaneous Equation Model, in Gupta and Islam, 1983 Foreign Capital, Savings and Growth, International Studies in Economics and Econometrics: An International Cross-Section Study, Reidel Publishers, Netherlands.

Gupta, L. and Islam, M. A. (1983) Foreign Capital, Savings and Growth, International Studies in Economics and Econometrics: An International Cross-Section Study, Reidel Publishing Company, Netherlands.

Harrigan F. (1995) Saving Transitions in South East Asia. Mimeo. November.

Helleiner, G.K. (1973)"Manufactured Exports from Less-Developed countries and Multinational Firms," Economic Journal, Vol.83.

_____ (1978)" Direct Foreign Investment and Manufacturing for Export in Developing Countries: A Review of the Issues", in V. Cable and B. Persaud (eds) (1987) Developing with Foreign Investment, PP. 67-83. Croom Helm, London.

Hushang A. and Weiping, W. (1994) " Foreign Direct Investment in Developing Countries," Journal of Developing Areas, New Brunswick

Hsiao, Cheng (1986) Analysis of Panel Data, Cambridge University Press

Husain, I. and Jun, Kwang W. (1992) "Capital Flows to South East Asian Countries: Trends, Determinants, and Policy Implications," **World Bank Working Paper** WPS No.1141 World Bank, Washington D.C.

Hymer, S.H. (1960) The International Operations of National Firms: A Study of Direct

Foreign Investment. MIT Press, Cambridge, 1976.

International Financial Corporation/Foreign Investment Advisory Service (IFC/FIAS)(1997) "Foreign Direct Investment," (Washington D.C., The World Bank).

International Labour Organization (2000) World Labour Report; Income Security and Social Protection in a Changing World: International Labour Office, Geneva.

International Monetary Fund (1999a) International Financial Statistics, (Washington D.C.) IMF Publication Service.

_____(1999b) World Economic Outlook: World Economic and Financial Surveys 1999 (IMF, Washington D.C.)

_____(1999c) Annual Report, 1999;(Washington D.C.) IMF Publication Service.

_____(1999d) International Monetary and Financial Issues for 1990s:Foreign Direct Investment and Developing Balancing Costs and Benefits, (Washington D.C.) IMF Publication Service

Jackson, S. and S. Markowski (1995) " The Attractiveness of Countries to Foreign Direct Investment: Implications for the Asia-Pacific Region", Journal of World Trade, Vol. 29, No.5, pp.159-179.

Jansen, Karel (1973) "Direct Foreign Investment and Adjustment: The Case of Thailand," (Institute of Social Studies, **Working Papers** No.49), Netherlands.

Jianyu, Ouyang (1997) FDI in China and its Impact on Manufacturing Growth, Institute of Social Studies Working Papers No.237, Netherlands.

Johnes, Charles (1998) Introduction to Economic Growth.

Kojima, K. (1978) Direct Foreign Investment, a Japanese Model of Multinational Business Operations, Croon Helm, London.

Kokko,A., Tansi, R. and Zejan ,M. (1996),"Local Technological Capability and Spillovers from FDI in the Uraguayan Manufacture Sector," Journal of Development Studies,

Vol.34, pp.602-611

Koutsoyiannis, A. (1979), Theory of Econometrics, Second edition, Macmillan Presses LTD.

Krainer (1967)" Resource Endowment and FDI," Journal of Finance Vol.22, United Kingdom.

Kruiger, Anne (1986) "Aid in the Development Process," World Bank Research Observer.Vol.1 No.1; Washington D.C.

Kumar, N. (1994) "Determinants of Export Orientation of Foreign Production by U.S. Multinationals: An Inter-Country Analysis", Journal of International Business Studies, Vol. 25, No. 1, pp.141-156.

_____ (1999) "Globalization, FDI and Technology Transfer; Impacts on and Prospects for Developing Countries (London and NewYork: Routledge

Lall, Sanjaya (1995)" Employment and Foreign Investment: Policy Options for Developing Countries," International Labour Review, Vol.134, No.4-5, pp522-540 Oxford University.

Lee, Jungso. Pradumna B. Rana. and Yoshihiro Iwasaki (1986) "Effects of Foreign Capital Inflows on Developing Countries in Asia." **Asian Development Bank Economic Staff Paper** No.30, April 1986 (Manila: Asian Development Bank).

Levis, M. (1979) "Does Political Instability in Developing Countries Affect Foreign Investment Flow? An Empirical Investigation," Management International Review, Vol.19.pp59-78.

Lucas, B. Robert (1993)" On the Determinants of Foreign Direct Investment: Evidence From East and South East Asia," World Development, Vol.21, No 3;Pergmon, UK.

Maddala, G. S. (1977) Econometrics, New York, McGraw Hill Inc.

Mauro, Paulo (1995) "Corruption and Growth, "Quarterly Journal of Economics, Vol. 110. Pp.681-712.

McMillan, J. Rausser, C. Gordon and. Johnson, S. (1994) Economic Growth, Political and Civil Liberties, International Center for Economic Growth: **Occasional Papers No.53, San Francisco.**

Meier, M. Gerald (1994) Private Foreign Investment in Developing Countries, Policy Perspectives ;**Occasional Papers No 59**, (San Francisco; California) International Center for Economic Growth Publication.

Moore, M. (1993) "Determinants of German Manufacturing Direct Investment 1980-1988" Review of World Economy, Brand 129, Weltwirtschaftliches Archiv.

Morisset, Jacques (2000) "Foreign Direct Investment in Africa: Policies Also Matter," in UNCTAD (2000) Transnational Corporations Vol.9 No.2 P.107, Switzerland (Geneva Switzerland)

Mukherjee, C., White, H. and Wuyts, Marc (1998) Econometric and Data Analysis for Developing Countries (Rutledge, London and New York).

Mulenga, S. Bwalya (1997) The Determinants of Foreign Direct Investment in Zambia; Ababa University, Faculty of Business and Economies (Unpublished).

Mwega, F.M (1996) Saving in Sub-Saharan Africa: A Comparative Analysis; University of Nairobi, Department of Economics;(Unpublished)

North, D.C (1992) "Transaction Costs, Institutions, and Economic Performance," **Occasional Paper No.30,** San Francisco, International Center for Economic Growth.

Oshikoya,W. Temitope (1994)"Macroeconomic Determinants of Domestic Private Investment: An Empirical Analysis," Journal of Economic Development and Cultura Change, Vol.42. No.2 p.573-593, University of Chicago

Papanek, G.A. (1972)"The Effect of Aid and Other Resource Transfers on Saving and Growth in Less Developed Countries," Economic Journal, Sept (1972)

Porter, C. Richard and Susan I. Ranney (1982)" An Eclectic Model of Recent LDC

Macroeconomic Policy Analyses," World Development, Vol.10, No.9, pp.751-765 University of Michigan, Printed in U. K.

Ragazzi, Giorgio (1973) "Theories of the Determinants of Foreign Direct Investment." **IMF Working Papers**, Vol .xx. No. 2 (Washington D.C).

Reuber, L. Grant (1973) Private Foreign Investment in Development, (Oxford: Clarendon press).

Rosenstein- Rodan P.N. (1961) "International Aid For Underdeveloped Countries", Review of Economics and Statistics, Vol. 43 Pp. 107-38

Romer M. Paul (1994) "The Origins of Endogenous Growth," Journal of Economic Perspectives Vol.? P.3-22

_____ (1990) "Endogenous Technological Change", Journal of political Economy, Vol. 98, No.5, pp.71-102.

Root, F.R. and A. Ahmed (1979)"Empirical Determinants of Manufacturing Direct Foreign Investment in Developing Countries," Economic development and Cultural Change, Vol.17, No.4, pp. 751-767.

Rugman, M. Alan. (1998)" Forty Years of the Theory of Transactional Corporations", Transnational Corporation (UNCTC, 1999). Vol.8, No.2 (United Nations, Switzerland).

Schmidt-Hebbel and. Serven L. (1996) The World Bank Research Observer, Vol.11, No.1, Pp.87-117

Schmidt-Hebbel, K.,L. Serven and A. Solimano (1994) "Saving Investment and Growth in Developing Countries," World Bank Economic Review, Vol .6, September 1994

Serven L, & A. Solimano (1992), "Private Investment and Macroeconomic Adjustment, a Survey", World Bank Research Observer, 7, No 1, pp 95-114.

Serven, Luis (1996)" Irreversibility, Uncertainty and Private Investment: Analytical Issues and Some Lessons For Africa," The World Bank, Paper Prepared For AERC Workshop, Nairobi, and May 1996.

Soderstein, B.(1971) International Economics, 3rd Edition; Macmillan Publishing Ltd. USA.

Soderstein, B.(1992) International Economics,Third Edition;Macmillan Publishing Ltd. USA.

Spitaller, Erich (1971), "A Survey of Recent Quantitative Studies of Long-term Capital Movements", **IMF Staff Papers**, Vol. 18 No.1, Washington D.C.

Stewart, F., Lall, Sanjaya and Samuel, Wangwe (1992) Alternative Development Strategies in Sub-Saharan Africa, The Macmillan Press LTD, London.

Stoneman, C. (1975) "Foreign Capital and Economic Growth, " World Development, Vol.3.pp.11- 26

Swedenborg, Brgitta(1979) The Multinational Operations of Swedish Firms; An Analysis of the Determinants and Effects of Stockholm Industries, Utrednings Institute, Sweden.

Tanzi, Vito (1998) "Corruption Around the World," **IMF Staff paper**,Vol.45 No.4, pp.559-94.

Todaro p. Michael (1994) Economic Development. New York, Fifth Edition.

United Nations Centre on Transactional Corporations /UNCTC (1991) Government Policies and Foreign Direct Investment, (United Nations: New York) UN Publication.

United Nations Conference on Trade and Development/UNCTAD (1991) World Investment Report 1991: The Trend in Foreign Direct Investment, (New York: United Nations), UN Publication.

_____(1992a) Analytical Report by the UNCTAD Secretariat to the Conference, 1992 (Geneva, United Nations), UN Publication.

_____(1992b) World Investment Report: Transnational Corporations as Engines of Growth, (New York: United Nations), UN Publication.

_____(1993a) World Investment Report 1993: Transnational Corporations and Integrated International Production, (New York: United Nations), UN publication.

_____(1994a) Re-evaluating the Benefits of FDI: Transactional Corporations, Vol3, No. 1

_____(1994b) World Investment Report: " Transnational Corporations, Employment and Work Place", (New York: United Nations), UN publication.

_____(1995) World Investment Report 1995: Transnational Corporations and competitiveness(New York and Geneva: United Nations) UN publication

_____(1996a) World Investment Report 1996: Investment, Trade and Policy Arrangements (New York and Geneva: United Nations) UN publication

_____ (1996b) World Investment Directory: Africa, Foreign Direct Investment, Legal Framework and Corporate Data.1996, Vol.5, (New York and Geneva: UN).

_____ (1998a) Transnational Corporations in World Development, Trends and Prospects", (New York: United Nations), 88, United Nations Center on Transnational Corporations. UN publication.

_____(1998b) Trade and Development Report 1998; Report by the Secretariat of the UNCTAD (United Nations: New York and Geneva) UN Publication.

_____ (1998c) World Investment Report 1998: Trends and Determinants (New York and Geneva: United Nations), UN Publication.

_____(1998d)Transnational Corporations Vol.8. No.2 Switzerland (Geneva: Switzerland)

_____(1999a) Division on Investment, Technology and Enterprise Development, Transnational Corporations; Vol.8, No.2 (Switzerland: United Nations).

_____(1999b) Trade and Development Report; Fragile Recovery and Risks, Trade Finance and Growth (New York and Geneva: United Nations).

_____(1999c) World Investment Report: Foreign Direct Investment and the Challenge to Development, (New York: United Nations). United Nation Publication.

_____(1999d) Transnational Corporations Vol.4. No.2 Switzerland (Geneva Switzerland)

_____(2000) World Investment Report: Cross Boarder Merger and Acquisition and Development, (New York: United Nations). UN Publication.

_____(2000) Transnational Corporations Vol.9 No.2 P.107, Switzerland (Geneva: Switzerland).

United Nations Economic Commission for Africa (1983) Survey of Economic and Social Conditions in Africa, 1982-83.Addis Ababa.

_____(1995) Survey of Economic and Social Conditions in Africa, 1994-95.Addis Ababa.

_____(1996) Survey of Economic and Social Conditions in Africa, 1995-96.Addis Ababa.

United Nations Industrial Development Organization /UNIDO(1992) Industry and Development-Global Report, 1992 (UNIDO, Vienna).

_____ (1993) Industry and Development: Global Report, 1993 (UNIDO, Vienna)

_____ (1996) Industry and Development: Global Report, 1996 (UNIDO, Vienna)

_____(2000) African Industry 2000:The Challenge of Going Global (UN:Vienna).

Vanhananen, Tunu (1999) Domestic Ethnic Conflict and Ethnic Nepotism: A Comparative Analysis Department of Political Science, University of Helsinki, Journal of Peace Research Vol. 36, No.1, London

Wang, Z. Q. and Swain N (1995) "The Determinants of FDI in transforming Economies, Empirical results from Hungary and China", Review of World Economies. UK

Weisskoff, T.E. (1972)"The Impact of Foreign Capital Inflow on Domestic Savings in Underdeveloped Countries," Journal Of International Economics, Vol.2 P.25-38

Wells, L .T (1986) " Incentives: An Unnecessary Debate,"The CTC Reporter No. 22.

Woodward, D. & Rolfe R.J (1993), "The Location of Export Oriented FDI in the Caribbean Basin", Journal of International Business Studies, Vol. 24, No. 1.

Woodward, D. (1992), "Location Determinants of Japanese Manufacturing Start-ups in

the United States", Southern Economic Journal.

World Bank (1992) African Development Indicators 1992, (Washington D.C: World Bank).

_____(1996) African Development Indicators 1996, (Washington, D.C., World Bank).

_____(1998) African Development Indicators 1997/98, (Washington D.C, World Bank).

_____(2000) African Development Indicators 2000, (Washington D.C, World Bank).

_____ (1995) World Development Report, 1995: World Development Indicators: Workers in an Integrated World, Oxford University Press.

Zhang, L.Y. and J.T. Thoburn (1993) "The Evolution of Chinese Foreign Investment policy," Cited in Zhang, Le-Yin (1994)" Location Specific Advantages and Manufacturing Direct Foreign Investment in South China," World Development, Vol.22, No.1

Zhang, Le-Yin (1994)" Location Specific Advantages and Manufacturing Direct Foreign Investment in South China," World Development, Vol.22, No.1.Pp. 45-53.

Appendix c2.1: Saving and Investment to GDP Ratio in Various Regions of the World (1977-98)

Region	1977-84	1985-92	1993	1994	1995	1996	1997	1998
World								
Saving	23.2	22.6	22.2	23.1	23.6	23.5	23.9	23.3
Investment	24.1	23.7	23.7	23.8	24.1	23.9	23.9	23.2
Developing countries								
Saving	23.3	23.4	25.5	26.9	27.4	26.9	27.3	26.4
Investment	24.4	25.2	28.6	28.2	28.9	28.0	27.8	26.6
NICs of Asia								
Saving	-	35.1	33.7	33.4	33.5	32.7	32.4	32.6
Investment	-	28.9	31.2	31.7	32.5	32.0	30.7	23.5
Latin America & Caribbean								
Saving	19.2	19.6	17.5	18.6	19.1	19.5	18.7	17.1
Investment	22.2	20.8	21.3	21.5	20.8	21.4	21.9	21.6
Africa								
Saving	22.3	17.4	15.0	15.8	15.4	17.6	17.6	15.9
Investment	25.0	20.9	20.5	20.8	20.5	19.0	19.3	21.2

Source: World Economic Outlook, October 1999.

Appendix 1.1: Statistical Summary of the Average Value of the Variables in the model for the Period 1980-84

Variable	Observations	Mean	S.D.	Min	Max	Median
FDIPC	*33*	*9.93*	*21*	*-0*	*79.3*	3.2
GDDPC-1	*33*	*723*	*93*	*126*	*4057*	376
LC	*33*	*11.5*	*2.88*	*6*	*17*	11
NPR	*33*	*0.18*	*0.12*	*0*	*0.56*	0.16
DCR	*33*	*0.17*	*0.13*	*0*	*0.56*	0.16
IFRS	*33*	*4.43*	*3.03*	*0.9*	*12*	3.2
R	*33*	*13.8*	*3.22*	*6*	*20.5*	12.4
HC	*33*	*16.51*	*13.6*	*3*	*58*	14
GDPR	*33*	*0.018*	*0.03*	*0*	*1.5*	0.02
OP	*33*	*0.68*	*0.39*	*0.1*	*1.79*	0.55
INFR-1	*33*	*0.17*	*0.28*	*-0*	*1.5*	1.6
DEBR	*33*	*0.5*	*0.33*	*0*	*1.5*	0.39
FD	*33*	*1.15*	*5.91*	*-11*	*14.3*	1.6
ERV	*32*	*25.13*	*31.8*	*0*	*103*	3.09
GOV	*33*	*10.78*	*2.6*	*4.5*	*13.4*	11.4

Appendix 1.2 Per Capita FDI Inflows into the Sub Saharan African Countries(1980-98)

Countries	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Bostwana	128.28	98.22	22.69	24.74	62.00	51.92	66.36	102.70	35.09	33.87	29.69	30.61	29.78	28.78	-9.79	47.95	47.33	65.36	57.69
Burkina Faso	0.00	0.22	0.20	0.30	0.32	0.29	0.43	0.19	0.47	0.78	0.11	0.07	0.00	0.60	1.84	1.00	1.66	1.24	0.93
Brundi	1.14	2.70	0.21	0.69	0.27	0.11	0.32	0.29	0.24	0.11	0.24	0.16	0.10	0.08	0.17	0.32	-	0.00	0.30
Cameroon	15.40	15.56	12.41	23.09	1.85	32.10	-8.95	11.06	8.52	-7.71	-9.83	-1.23	2.41	0.41	-0.70	0.53	2.58	3.23	3.49
Chad	-	-	-	0.02	1.92	10.96	5.62	1.60	0.25	3.33	0.00	0.71	0.33	0.34	4.18	1.94	2.59	2.10	2.18
Comoros	-	-	0.59	-	-	-	-	18.54	9.27	7.86	0.93	5.68	4.57	3.62	-	-	4.00	3.85	3.77
CRA	2.04	2.50	3.87	1.84	2.03	1.16	3.09	4.38	-1.36	0.45	0.24	-1.66	-0.97	-0.76	1.24	0.91	1.49	1.75	1.44
DCR	4.30	2.65	-0.09	-6.94	-1.14	2.35	0.18	-1.76	-0.12	-0.17	-0.39	0.32	-0.02	-0.02	0.02	0.02	0.04	0.02	0.00
Cote Divoire	12.03	4.07	5.64	4.30	2.40	3.04	7.15	8.50	4.81	1.68	4.12	1.33	-18.67	3.14	8.99	19.81	21.74	31.67	21.67
Ethiopia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.28	1.48	0.85	0.22	1.14	2.91
Gabon	30.92	59.38	151.07	120.57	5.22	11.56	103.70	80.59	116.95	41.51	46.56	-70.20	99.31	87.14	-96.26	122.73	276.11	124.35	178.81
Gambia	0.66	3.65	0.61	0.59	0.57	0.00	0.00	1.95	1.50	16.82	0.00	10.63	6.20	10.67	9.26	7.21	10.43	11.02	11.48
Ghana	1.49	1.52	1.48	0.21	0.17	0.46	0.34	0.36	0.37	1.04	1.00	1.31	1.43	7.72	14.00	14.34	6.85	4.62	3.03
Guinea	7.73	0.00	0.00	0.00	0.00	0.00	1.68	2.50	2.98	2.20	3.11	6.54	3.23	0.43	0.03	5.30	3.55	2.74	2.54
Kenya	4.94	0.85	0.75	1.33	0.58	1.46	1.62	2.04	0.02	2.73	2.42	0.77	0.26	0.06	0.15	1.18	0.47	1.40	1.43
Lesotho	3.41	3.53	2.16	3.36	1.63	3.20	1.29	3.58	10.74	7.68	10.52	3.75	8.28	9.51	144.44	142.49	145.18	133.83	127.18
Madagscar	-0.09	-0.09	-0.01	0.40	0.91	-0.02	1.40	0.34	0.27	1.15	1.89	1.18	1.72	1.20	0.46	0.75	0.73	0.99	1.10
Malawi	1.61	0.18	0.95	0.40	4.06	0.07	-0.40	3.34	2.26	1.13	2.74	2.07	0.26	0.35	0.95	2.56	4.39	2.14	6.65
Mali	0.37	0.56	0.22	0.45	1.43	0.40	-1.14	-0.79	0.09	1.82	-0.78	0.40	-0.85	-2.18	1.80	12.67	4.70	7.19	3.40
Mauritania	17.83	8.00	9.43	0.86	5.15	4.12	2.60	0.96	1.04	1.78	3.30	1.11	3.50	7.32	0.88	3.00	2.09	1.22	0.00
Mauritius	0.32	0.72	1.73	1.60	4.75	8.12	7.35	16.80	22.88	33.81	38.68	17.76	13.52	13.36	18.02	15.57	32.74	47.83	10.34
Mozambique	0.37	0.03	0.15	0.20	-0.22	0.02	0.11	0.44	0.31	0.24	0.65	1.56	1.72	2.00	2.27	2.84	4.50	3.85	12.57
Niger	9.21	-1.11	4.94	0.20	0.23	-1.48	-0.34	9.09	-0.19	-0.01	-0.16	0.11	0.05	0.00	0.90	1.75	2.11	2.55	0.89
Nigeria	17.35	11.13	37.50	25.79	19.31	16.60	23.07	12.34	12.90	6.82	13.51	5.72	6.67	12.82	18.14	9.70	13.90	13.05	8.67
Rwanda	3.21	3.49	3.93	1.99	2.62	2.54	2.95	2.86	3.24	2.36	1.15	0.70	0.27	0.66	0.16	0.31	0.30	0.38	0.86
Senegal	2.79	6.14	4.91	-5.97	4.81	-2.58	-1.25	-0.61	2.06	1.40	-0.41	2.93	0.13	0.13	8.26	4.20	0.82	20.02	7.86
Seychelles	68.33	48.33	86.67	96.67	96.67	17.14	124.29	218.57	248.57	330.00	288.57	277.14	128.57	377.14	428.57	500.00	375.00	675.00	687.50
South Africa	-0.37	2.32	11.48	2.41	14.27	-14.78	-1.59	-5.86	4.89	-6.00	-3.29	5.91	-1.06	-0.53	9.93	31.72	20.50	94.01	13.58
Swaziland	48.18	66.25	-23.45	-9.50	8.06	18.28	38.79	88.26	71.27	96.00	50.65	100.25	84.39	57.88	28.74	36.67	-66.67	-50.00	51.52
Tanzania	0.26	1.04	0.93	0.08	-0.42	0.71	-0.35	-0.02	0.17	0.23	-0.13	0.11	0.44	0.72	1.74	5.06	4.89	5.04	5.35
Togo	17.01	3.95	6.05	0.51	-3.50	5.56	2.07	2.35	3.77	4.40	6.47	4.78	-3.49	-2.71	4.01	9.25	6.38	5.30	9.42
Uganda	0.33	0.00	0.15	0.00	0.00	-0.28	0.00	0.00	0.30	-0.11	-0.36	0.06	0.17	0.19	4.73	6.52	6.08	8.61	10.05
Zambia	11.33	-6.73	6.68	4.30	2.71	7.99	4.15	10.70	12.79	21.72	26.09	4.24	16.22	14.59	4.58	10.80	12.70	21.93	20.48
Zimbabwe	0.24	0.41	-0.18	-0.09	-0.31	0.38	0.86	-3.52	-2.03	-0.83	-1.25	0.29	1.45	2.66	3.80	10.72	7.21	11.77	-

Source: Computed From World Investment Directory,1996 & World Investment Report, 2000 (for FDI data) and African Development Indicators ,1992 and 2000 (for Population data).

ppendix 1.3:Statistical Summary of the Average Values in the Model for the Period 1985-89

iables	Obsns.	Mean	S.D.	Min	Max	Median
PC	32	14.77	36.6	-4.67	187.7	1.987
DPC-1	32	746	921	106	3689	391
	32	11.44	3.47	6	18	10.5
RS	32	0.18	0.13	0.039	0.52	0.145
R	32	0.63	0.25	0.114	0.996	0.642
S	32	3.95	2.49	0.6	9.8	3.4
	32	15.99	5.01	9.6	33.4	14.05
	32	22.7	16.9	5	68	17.5
PR	32	0.039	0.027	-0	0.118	0.04
	32	0.72	0.39	0.23	1.69	0.55
R-1	32	0.12	0.16	-0	0.65	0.053
BR	32	0.84	0.56	0	2.45	0.69
	32	5.5	8.94	-10	27.23	5.76
I	32	35.6	47.8	0.185	195	26.07
V	32	10.8	2.34	4.6	13.4	11.5

Appendix 1.4 :Statistical Summary of the Average Values in the Model for the Period 1995-99

Variable	Obsns.	Mean	S.D.	Min	Max	Median
FDIPC	31	18.56	39.16	-7.12	176	5.94
GDDPC-1	31	652	826	141	3717	352
LC	31	10.9	3.5	3	20	11
NPRS	31	0.208	0.141	0.034	0.64	0.175
DCR	31	0.608	0.243	0.046	1	0.658
IFRS	31	3.47	2.62	0.5	12.5	2.4
R	31	22.8	8.6	10	43.8	20.5
HC	31	25.2	20.66	6	94	16
GDPR	31	0.045	0.039	-0.07	0.18	0.044
OP	31	0.776	0.44	0.263	2.45	0.7
INFR-1	31	0.189	0.128	0.023	0.42	0.013
DEBR	31	0.936	0.524	0.177	2.21	0.822
FD	31	0.258	3.04	-5.6	7.4	-0.7
ERV	31	111	254	0.426	1251	37.33
T	31	7.77	12.97	0	50	4
GOV	31	8.77	2.765	3	13	9
pol	31	38	23.14	0	82	36
cor	15	3.3	1.37	1.5	1.6	3.4

ppendix 1.5: Comparision of the standard Deviation of the Variables from 1980-84 to 1995-99

	1980-84		*1985-89*		*1995-99*	
able	Obsns.	S.D.	Obsns	S.D.	Obsns.	S.D.
PC	33	**21.04**	32	**36.6**	31	**39.16**
DPC-1	33	**939**	32	**921**	31	**826**
	33	**2.88**	32	**3.47**	31	**3.5**
RS	33	**0.117**	32	**0.13**	31	**0.141**
R	33	**0.126**	32	**0.25**	31	**0.243**
S	33	**3.03**	32	**2.49**	31	**2.62**
	33	**3.22**	32	**5.01**	31	**8.6**
	33	**13.61**	32	**16.9**	31	**20.66**
PR	33	**0.034**	32	**0.027**	31	**0.039**
	33	**0.39**	32	**0.39**	31	**0.44**
R-1	33	**0.28**	32	**0.16**	31	**0.128**
BR	33	**0.33**	32	**0.56**	31	**0.524**
	33	**5.91**	32	**8.94**	31	**3.04**
I	32	**31.79**	32	**47.8**	31	**254**
V	33	**2.6**	32	**2.34**	31	**2.765**
-					31	**23.14**
					31	**12.97**
R					15	**1.37**

Appendix 1.6:The Mean of the Average Value of the the Variables from 1980-84- 1995-99

	1980-84		*1985-89*		*1995-99*	
Variable	Obsns.	Mean	Obsns.	Mean	Obsns.	Mean
FDIPC	33	9.93	32	14.77	31	18.56
GDDPC-1	33	723	32	746	31	652
LC	33	11.5	32	11.44	31	10.9
NPRS	33	0.18	32	0.18	31	0.208
DCR	33	0.17	32	0.63	31	0.608
IFRS	33	4.43	32	3.95	31	3.47
R	33	13.8	32	15.99	31	22.8
HC	33	16.51	32	22.7	31	25.2
GDPR	33	0.018	32	0.039	31	0.045
OP	33	0.68	32	0.72	31	0.776
INFR-1	33	0.17	32	0.12	31	0.189
DEBR	33	0.5	32	0.84	31	0.936
FD	33	1.15	32	5.5	31	0.258
ERV	32	25.13	32	35.6	31	111
GOV	33	10.78	32	10.8	31	8.77
POL					31	38
T					31	7.77
COR					15	3.3

Appendix 1.7: Correlation Coefficient of the Variables in the Model of 1980-84(above)

VARs.	FDIPC	DEBR	LC	ERV	HC	GOV	OP	NRP	GDPPCi-1	INFR1	DCR	FD	R	IFRS
FDIPC	1.0000													
DEBR	-0.1729	1.0000												
LC	0.2329	0.1087	1.0000											
ERV	-0.2856	0.1298	0.0615	1.0000										
HC	0.5253	-0.0741	0.2578	0.0876	1.0000									
GOV	-0.5912	0.0513	-0.017	0.3082	-0.318	1.0000								
OP	0.4374	0.2945	0.0714	-0.319	0.3417	-0.485	1.0000							
NRP	0.0812	0.4990	0.1788	-0.027	0.1236	-0.016	0.4795	1.0000						
GDPPCi-1	0.6379	-0.1678	0.359	-0.231	0.7109	-0.494	0.3315	0.0149	1.0000					
INFR1	-0.1339	0.0104	-0.210	-0.211	-0.120	0.0182	-0.199	0.0540	-0.1586	1.0000				
DCR	-0.0323	0.2055	0.2026	0.269	0.0439	0.1574	0.1229	0.4300	0.1843	-0.2297	1.0000			
FD	-0.1234	-0.1364	-0.096	0.2456	0.0180	-0.127	-0.076	0.0577	-0.0874	0.0522	0.1528	1.0000		
R	-0.1320	-0.1939	0.1676	-0.127	0.2078	-0.105	0.0199	-0.0347	0.0228	0.3569	-0.234	0.0889	1.000	
IFRS	0.3317	-0.1208	0.6557	-0.041	0.209	-0.160	0.2132	0.1543	0.2619	-0.1340	0.2362	-0.016	0.308	1.0000

Appendix 1.8 Correlation Coefficient of the Variables in the Model of 1985-89(below)

	FDIPC	DEBR	LC	ERV	HC	GOV	OP	NRP	GDPPC1	INFR1	DCR	FD	R	IFRS
FDIPC	1.000													
DEBR	-0.1493	1.0000												
LC	0.2071	-0.0630	1.0000											
ERV	-0.2201	0.2370	0.0079	1.0000										
HC	0.4954	-0.3541	0.3831	-0.381	1.0000									
GOV	-0.2749	0.1060	0.1156	0.3505	-0.543	1.0000								
OP	0.4492	0.0964	0.0210	-0.411	0.4077	-0.507	1.0000							
NRP	0.3877	-0.0236	0.0575	-0.166	0.1493	-0.007	0.1624	1.0000						
GDPPC1	0.7327	-0.3024	0.4883	-0.229	0.6680	-0.242	0.2593	0.2774	1.0000					
INFR1	-0.2256	0.1346	-0.233	0.517	-0.148	0.144	-0.313	-0.275	-0.2397	1.000				
DCR	-0.2826	-0.1602	0.2918	-0.039	-0.062	0.226	-0.046	0.1568	0.0495	-0.242	1.0000			
FD	0.4050	-0.2009	0.1122	-0.209	0.4233	-0.443	0.145	0.0542	0.4526	-0.062	-0.288	1.0000		
R	-0.1666	0.1784	-0.312	0.2832	-0.099	-0.085	-0.199	-0.192	-0.2079	0.665	-0.306	-0.077	1.000	
IFRS	0.3483	-0.1263	0.6405	-0.097	0.4169	-0.135	0.202	0.1190	0.4782	-0.116	0.011	0.2528	-0.25	1.000

Appendix 1.9 Correlation Coefficient of the Variables in the Model of 1995-99

VARs.	FDIPC	DEBR	LC	ERV	HC	GOV	OP	T	POL	NRP	GNPPC1	INFR1	DCR	FD	R	IFRS
FDIPC	1.0000															
DEBR	-0.1373	1.0000														
LC	0.0037	-0.2354	1.0000													
ERV	-0.1475	0.4324	-0.001	1.0000												
HC	0.4366	-0.4828	0.4378	-0.1529	1.0000											
GOV	-0.3080	0.2485	-0.313	-0.153	-0.50	1.0000										
OP	0.6417	-0.0891	-0.167	-0.158	0.3185	-0.051	1.0000									
T	-0.1451	0.0444	-0.282	-0.056	-0.227	-0.1131	-0.083	1.0000								
POL	-0.3505	-0.1071	0.0867	-0.2139	-0.196	0.3019	-0.584	-0.125	1.0000							
NRP	0.1318	-0.1036	-0.001	-0.198	0.4592	-0.0784	0.695	-0.260	-0.5171	1.0000						
GNPPC1	0.3214	-0.4794	0.4161	-0.2302	0.8582	-0.5656	0.1322	-0.005	-0.1019	0.2492	1.0000					
INFR1	-0.1497	0.2779	0.2592	0.3619	0.0693	-0.2351	-0.242	-0.059	0.1156	0.0211	-0.1514	1.0000				
DCR	-0.2121	-0.0942	0.1334	-0.1159	0.0298	0.0994	-0.161	-0.142	0.4237	- 0.204	0.1205	-0.085	1.0000			
FD	-0.2686	0.2125	-0.142	-0.017	0.1645	0.0274	-0.29	0.1751	-0.0497	0.1854	0.1522	0.2102	-0.002	1.0000		
R	-0.1336	0.4593	-0.194	0.5059	-0.031	-0.1240	0.012	0.0969	-0.3414	0.0356	-0.2312	0.5173	-0.223	0.3383	1.000	
IFRS	0.4147	-0.0215	0.160	0.0622	0.6309	-0.2033	0.30	-0.127	-0.3420	0.4835	0.4738	0.1529	-0.242	0.2058	0.24	1.000

Appendix:2.1 . Lagged FDI-to-GDP Ratio, Growth rate of Real GDP and Gross Domesiic Saving of twelve SSA countries(1986-1997)

1, Lagged FDI as a ratio of GDP(1986-97)%

Countries	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Bostwana	0.061	0.078	0.020	0.014	0.010	0.010	0.010	0.009	-0.003	0.014	0.013	0.019
cameroon	-0.008	0.009	0.007	-0.008	-0.010	-0.001	0.003	0.000	-0.001	0.001	0.004	0.005
Cote d' ivoire	0.008	0.008	0.005	0.002	0.004	0.002	-0.021	0.004	0.015	0.027	0.028	0.044
Gabon	0.030	0.024	0.038	0.009	0.008	-0.013	0.018	0.021	-0.025	0.027	0.054	0.028
Ghana	0.001	0.001	0.001	0.003	0.003	0.003	0.004	0.021	0.043	0.038	0.017	0.008
Lesotho	0.007	0.016	0.041	0.025	0.029	0.011	0.023	0.025	0.360	0.323	0.333	0.283
Mauritius	0.005	0.009	0.012	0.016	0.016	0.007	0.005	0.005	0.006	0.005	0.009	0.013
Nigeria	0.000	0.052	0.046	0.027	0.046	0.021	0.021	0.063	0.083	0.038	0.045	0.039
Senegal	0.049	-0.001	0.003	0.002	-0.001	0.004	0.000	0.000	0.018	0.008	0.001	0.039
South Africa	-0.001	-0.002	0.002	-0.002	-0.001	0.002	0.000	0.000	0.003	0.008	0.006	0.026
Swaziland	0.061	0.109	0.083	0.099	0.045	0.090	0.071	0.050	0.024	0.026	-0.050	-0.037
Zambia	0.017	0.036	0.026	0.041	0.062	0.010	0.042	0.038	0.012	0.028	0.036	0.063

Growth rate of real GDP(1987-98) %

Countries	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Bostwana	0.103	0.092	0.134	0.187	0.089	0.065	-0.002	0.040	0.051	0.069	0.070	0.060
Cameroon	-0.065	-0.077	-0.034	-0.012	-0.102	-0.022	-0.072	-0.038	0.033	0.050	0.051	0.050
Cote Divoire	-0.002	-0.018	-0.013	-0.061	0.036	0.000	-0.011	0.013	0.069	0.069	0.060	0.057
Gabon	-0.184	0.001	0.040	0.000	0.216	-0.036	0.041	-0.161	0.070	0.038	0.041	0.020
Ghana	0.046	0.062	0.061	0.041	-0.237	-0.036	0.041	-0.161	0.040	0.046	0.042	0.046
Lesotho	0.075	0.120	0.043	0.077	0.120	0.026	0.050	0.175	0.091	0.127	0.080	-0.037
Mauritius	0.105	0.065	0.035	0.064	0.016	0.110	0.056	0.046	0.047	0.054	0.050	0.054
Nigeria	-0.046	0.048	0.058	0.053	0.271	0.026	0.015	0.003	0.025	0.043	0.036	0.018
Senegal	0.041	0.052	-0.015	0.045	0.023	-0.001	-0.021	0.020	0.048	0.056	0.052	0.057
South Africa	0.021	0.037	0.021	-0.007	-0.010	-0.026	0.013	0.024	0.031	0.042	0.025	0.005
Swaziland	0.013	0.092	0.046	0.046	-0.029	0.022	0.029	0.024	0.027	0.039	0.036	0.021
Zambia	0.030	0.055	0.001	0.010	0.066	0.001	0.024	-0.038	-0.003	0.065	0.034	-0.020

2.Gross Domestic Saving(1987-98) %

Countries	1987	1988	1989	1999	1991	1992	1993	1994	1995	1996	1997	1998
Botswana	39.1	42.9	43.2	37.1	37.7	35.2	36.1	38.9	40.6	43.4	37.4	35.1
cameroon	20	17.4	20.1	20.7	22	16.5	17.6	17.9	19.6	19.1	20.6	20.2
Cote d' Ivorie	16.1	16.1	11.9	11.3	10.4	10.7	9.4	22.4	18.9	21.2	23	24.2
Gabon	26.4	32.3	30.9	36.9	40.5	34.7	36.7	45.3	44.2	46.8	48.3	43.2
Ghana	3.9	5.4	5.6	5.5	7.3	1.3	6.6	12.6	11.7	11.9	9.8	13.2
Lesotho	-73.5	-70	-46.4	-30.5	-49.4	-45.5	-33.2	-14.6	-16.9	-1.8	-9.8	-42.7
Mauritius	27.4	25.3	23.8	23.6	24.9	26.1	24.5	23.4	23.2	23.9	24.1	24.2
Nigeria	16.4	14.6	25.3	29.4	29.3	23.5	20.2	20.6	18.2	33.5	21.9	11.8
Senegal	5.1	6.4	6.4	8.9	5.9	7.4	5.5	9.6	11.3	11.9	13.3	15.1
South Africa	26.5	26.4	21.5	17.6	16.9	16.1	17.6	17.9	19.1	17.9	16.8	16.9
Swaziland	26.3	29	11.9	20.4	18.2	18.6	26.3	26	29	18.8	19.5	19.2
Zambia	16.5	15.2	3.8	16.6	8.4	0	9	9.3	8.1	8.7	9.3	5.3

Appendix 2.2 :Average Values of the Variables in the Simultaneous Equation Model(%)

Country	OF	FDI	S	GDPR	FDIt-1	K	GDPPCt-1	L	X
Bostwana	4.3	1.74	38.9	7.99	2.115	13.78	1744	44.00	55.55
Cameroon	5.0	0.12	19.3	-1.99	0.006	3.88	833	40.57	21.48
Cote d' Ivoire	7.7	1.23	16.3	1.65	1.054	5.38	836	38.47	36.86
Gabon	2.5	1.90	38.9	1.17	1.828	7.08	3845	47.43	50.58
Ghana	10.2	1.24	7.9	-3.92	1.183	3.70	302	47.17	20.24
Lesotho	19.6	14.99	-36.2	7.90	12.297	11.64	313	46.91	21.61
Mauritius	1.7	0.86	24.5	5.85	0.884	13.43	2253	41.63	62.47
Nigeria	0.8	4.21	22.1	4.59	4.003	8.62	327	39.90	38.29
Senegal	12.9	0.74	8.9	2.96	1.031	3.61	668	44.62	28.32
South Africa	0.5	0.37	19.3	1.46	0.329	2.09	2386	39.05	24.44
Swaziland	4.9	4.60	21.9	1.87	4.759	22.74	815	35.07	81.41
Zambia	23.5	3.77	9.2	2.90	3.416	13.59	280	42.12	34.71

Source:Computed from the Data for Each Variable

GDPR: the Growth rate of Real GDP

OF: Official aid flows as a percentage of GDP

S: Annual saving rate (gross domestic saving)

X: Total export revenue as a share of GDP

FDIt-1: Lagged value of foreign direct investment inflows as a Percentage of GDP

L: Labour force participation rate

K: Value of imported capital goods as a ratio of GDP

DEP: dependency ratio

$GDPPC_{t-1}$: lagged real GDP per capita

Appendix 2.3: Inward FDI Stock of Twelve Sub- Saharan African Countires(1980-99)

Millions of US $

Country	1980	1985	1990	1995	1998	1999
Bostwana	698	947	1309	1126	1298	1359
Cameroon	330	1125	1044	1062	1192	1232
Cote Divoire	525	707	973	1621	2687	2966
Gabon	512	833	1208	954	1620	1821
Ghana	229	272	315	822	1081	1196
Lesotho	4	1919	149	1337	2154	2290
Mauritius	20	37	163	251	355	404
Nigeria	2405	4417	8072	14065	18249	19649
Senegal	150	191	277	393	647	707
South Africa	16	9 024	9198	15016	15672	17048
Swaziland	243	104	336	539	480	476
Zambia	322	416	979	1247	1769	1932

Source:World Invstment Report, 2000.

Appendix 2.4: Comparison of Repatriated Earnings and FDI Inflows, 1991-1997

(Millions of dollars and percentage)

Region	1991	1992	1993	1994	1995	1996	1997	1991-1997 (Annual average)
Developed countries								
Repatirated erarnings	37 898	45 317	44 508	53.882	65 438	74 332	74 627	56 572
FDI inflows	84 931	88 002	119 685	110 463	181 284	171 902	211 271	138 220
Ratio of earnings to FDI inflows(%)	44.6	51.5	37.2	48.8	36.1	43.2	35.3	40.9
Developing countries								
Reapatriated earning	14 539	16 820	18 644	21 524	32 281	36 970	33 021	24 828
FDI inflows	29 444	39 036	56 844	77 838	81 698	101 984	129 913	73 823
Ratio of earnings to FDI inflows(%)	49.4	43.1	32.8	27.7	39.5	36.3	25.4	33.6
Africa								
Repatriated earnings	1 574	1 803	2 791	3 132	3 134	3 434	2 899	2 681
FDI inflows	2 358	2 868	3 149	4 759	3 468	3 767	4 742	3 587
Ratio of earnings to FDI inflows(%)	66.8	62.9	88.6	65.8	90.4	91.2	61.1	74.7
Asia and the pacific								
Reatrated earnings	8 398	9 548	9 259	10 213	20.342	22 675	15 842	13 754
FDI inflows	14 027	21 621	40 204	44 731	48 087	56 558	64 445	41 382
Ratio of earnings to FDI inflows(%)	59.9	44.2	23	22.8	42.3	40.1	24.6	33.2
Latin America and Caribbean								
Repatriated earnings	4 559	5 455	6 574	8 146	8 732	10 781	14 200	8 350
FDI inflows	12 983	14 397	13 321	28 068	29 784	41 148	60.277	28 568
Ratio of earnings to FDI inflows(%)	35.1	37.9	49.4	29	29.3	26.2	23.6	29.2
Central and Easten Europe								
Repatriated earnings	43	51	76	163	460	592	941	332
FDI inflows	1 462	1 561	3 290	4 484	11 505	8 786	10 347	5 919
Ratio of earnings to FDI inflows(%)	3	3.3	2.3	3.6	4	6.7	9.1	5.6

Source:World Investment Report,1999 p.168.

Appendix 2.5:Components of Total Effect of the Exogenous Variables on the Growth of Output (the reduced equation)

Variables	Direct Effect	Indirect Effect	Computed Total	Estimated* Total effect	Deviation
	a	b	c=(a+b)	d	e=(c-d)
OF	*0.002*	*-0.04*	*-0.039*	*-0.123*	*-0.084*
FDIt-1	*-0.135*	*0.061*	*-0.074*	*-0.067*	*0.007*
X	*0.075*	*0.122*	*0.2*	*0.14*	*0.06*
L	*-0.252*	-	*-0.252*	*-0.28*	*-0.003*
K	*0.144*	-	*0.144*	*0.18*	*-0.036*
DEP	-	*0.013*	*0.013*	*0.2*	*-0.07*
GDPPCt-1	-	*0.005*	*0.005*	*0.006*	*-0.001*

Note:Computed Based on the Structural and the Reduced Form Equations Estimated.

* Estimated by Limdeep version 7.

Appendix 2.6 Identification of the Simultaneous Equation System model

$$GDPR_{it}=\phi_0 +\phi_1 S_{it} + \phi_2 OF_{it} + \phi_3 FDI_{it-1} + \phi_4 X_{it} + \phi_5 L_{it} +\phi_6 K_{it}+ \varepsilon_{it} \quad \text{.....(4.4)}$$

$$S_{it} =\Pi_0 + \phi_7 GDPR_{it} +\phi_8 OF_{it} + \phi_9 FDI_{it-1} + \phi_{10} X_{it} + \phi_{11} GDPPC_{it-1} +$$

$$\phi_{12} (DEP)_{it} +V_{it} \quad \text{..... (4.5)}$$

To know what kind of Simultaneous System the model is and then to choose the appropriate method of estimation, we use the order rule of identification.

Let **M** be the number of endogenous variables

K be the number of exogenous (predetermined) variables,

m be the number of endogenous variables in the equation under consideration;

and, **k** be the number of exogenous variables in the equation under consideration.

Then, if K-k < m-1, the equation is under identified; If K-k = m-1, the equation is just identified (exactly identified) and if K-k > m-1, the equation is over identified(See Gujarati, 1997,p. 667).

Accordingly, from the specified equations,

(1) M=2.

(2) m=1.

(3) K=7,and

(4) k=5.

As the numbers of the equations in the system are two, we need not go to the rank condition rule of identification. Hence, for the first equation

K-k=7-5=2; and **M-m**= 2-1=1; then **K-k > M-m**

Therefore, equation (4.4) is overidentified equation.

For the second equation,

K-k=7-5=2;and **M-m**=2-1=1;then **K-k**> **M-m**;

in a similar way, equation(4.5) is also overidentified equation.

DECLARATION

I declare that this thesis is my original work and has not been presented for a degree in any university and all the sources of materials used for the thesis are duly acknowledged.

Name: Mekonnen Bekele

Signature: #

Date: 19th July, 2001

Place: Addis Ababa University, Addis Ababa