Norwegian School of Economics
Bergen, 19 December 2011

# Chinese Foreign Direct Investment in Africa

*-Exploitation or value creation?*

**Håvard Berge**

**Supervisor: Kjetil Bjorvatn**

Master thesis in Economic Analysis

Norwegian School of Economics

## Abstract

Since the turn of the century Chinese foreign direct investments to developing countries have been growing rapidly and several question regarding these investments have asked. This paper takes a closer look at the available information concerning such investments, to draw a picture of the effects from FDI on economic growth.

At the end of the paper, a new analysis based on sector data and modern statistical methods is performed to shed new light on the effects from FDI on economic growth. By combing sector data from UNCTAD and interaction this paper is able to tell a more nuanced picture of the sector dependence of FDI and economic growth.

Finally, a conclusion based on the analysis and information concerning the Chinese foreign direct investments is presented to give a better understanding of the Chinese investment in Africa.

## Preface

This master thesis marks the end of my education at the Norwegian School of Economics in the field of Economic Analysis.

My interest for Asia and China has been an important motivation for enrolling at the master program at NHH.

I wish to thank my supervisor Kjetil Bjorvatn for interesting discussions in the preface of this master thesis and limitation for this paper. I would also like to thank him for his help with finding a sponsor for the data used in this master thesis. I would also like to thank my sponsor, Chr. Michelsen Institute in Bergen, for providing the data from the United Nations Conference on Trade and Development on sector FDI. Without this help this master thesis would not been a reality.

Finally, I will thank my family and Marie for the support and good discussion on the topic providing me with many interesting leads and questions.

Oslo, December 2011

Håvard Berge

# Table of Contents

## Table of figures

## Table of Tables

## Equations

## Abbreviations

AAPSO- Afro-Asian People's Solidarity Organisation
FDI - Foreign Direct Investment
FOCAC - Forum of China-Africa Cooperation
GDP - Gross Domestic Product
GDPPC –Gross Domestic Product Per Capita
GMM – Generalized Method of Moments
ICRG – International Country Risk Guide
IV – Instrument Variables
MNC – Multi National Companies
OECD - Organisation for Economic Co-operation and Development
OLS – Ordinary Least Squares
PRC - People's Republic of China
SUR – Seemingly Unrelated Regressions
UNCTAD - United Nations Conference on Trade and Development

## Introduction

In 1978 China opened a part of its financial markets to the world and initiated its role as a player in the global economy. It started with a small and controlled part of the Chinese economy, but the effect of this decision has been important to the general global economy. Even though the size of the Chinese market was relative small, it marked a significant change in the Chinese policy towards international capitalism and financial trade. Since the opening China has become one of the largest economies in the world and is rapidly becoming one of the most important players in the global financial system. In the process of opening their markets they have also experienced an increased development, especially in the industrialised areas in Southeast China and in the largest cities along the eastern coastline.

With its increasing level of financial importance China has for a long time been accused for not taking its share of responsibility in stabilising and aiding the financial market. Especially China has been criticised for exploiting weak democratic countries and trade with dictators around the world.

One of these accusations involves the Chinese investment and trade with several African countries. Many believe that this interest in Africa is a new move from China due to their rapid economic growth. However, China has been taking on business with African countries since they opened their markets in 1978.

The scope of this paper is to take a closer look at the effect of foreign direct investment (FDI) on economical growth. Based on this assessment I will try to draw some conclusion on the effect from such investments made by China in Africa. This paper aim to shed light on the following question:

*How is Chinese foreign direct investment affecting the economical growth in Africa? –does it exploit natural resources or is it promoting development and prosperity in the region.*

I will build my answer on a theoretical assessment of the relevant information and studies. With this background I will perform an empirical analysis of FDI on economical growth. Based on the result from this analysis I will make an argument for why Chinese FDI might be a solution to closing the gap between African countries and the rest of the developed world rather then widening it.

The following part of this paper is organized as follows: first I will make a introduction to China's trade policy and FDI in section 1, followed by a short overview of previous papers in section 2, in section 3 I will present the data and the empirical model, Section 4 enclose the analysis with the results, in the subsequent section I look closer at the result from a China/Africa context and finally in section 6 I will present my own conclusion on the initial question. As a closing I will in section 7 suggest areas for further analyses.

When making my introduction to Chinas trade policy I will explain some of the policies and reasons behind Chinese FDI and draw a historical picture of the development of these investments.

The empirical analysis use new available FDI data from United Nations Conference on Trade and Development (UNCTAD) split on sector as well as better statistical analyses than many of the previous papers on the topic. In addition I will also combine the two different aspect researchers have had on FDI and growth. Namely a sector defined effect and interaction with other variables effect. This will give a broader and hopefully better understanding on FDI and economical growth.

## 1.1 Chinese foreign policy

Since the founding of the People's Republic of China (PRC) in October 1949, China has had a focus on not to intervene with other countries domestic affairs or sovereignty. This principle has been one of the most important boundaries in forming the foreign policy of todays China. With this principle Mao Zedong was able to re-establish contact with other nations which had terminated the contact with the previous government. Even though this principle has been important in forming China's foreign policy the concept and meaning has changed much over the last decades.

Following the establishment of the People's Republic of China the government found an ally with the Soviet Union against the powerful USA, which did not recognise the new government in China. But during the 1950's and 60's this relationship soured due to the heavily expansion of the Soviet Union. This expansion did not follow the founding principle of no intervention in other countries sovereignty. Soviet's growth and military expansion led China to start following an anti Soviet policy in the 1970's.

During the Cultural Revolution, from 1966, the Chinese foreign policy rapidly became a second priority for the Chinese government. Internal problems and continues fight for power became top priority for the Chinese government (Fairbank & Goldman, 2006).

The Cultural Revolution ended with the death of Mao in 1976 and in 1978 his successor Deng Xiaopeng announced a new direction for China's foreign affairs. China was to cooperate closer with the West and slowly started opening up its internal markets for western investment and economical reforms. This market the start of a new reformed called "socialism with Chinese characteristics". The new reform sought to combine a move towards market economy and withhold a communist state-party (Goldman, 2006).

In 1989 a new event would change the Chinese foreign policy. The Chinese government had harshly repressed a student riot that fought for a more democratic government. The extensive use of military force against unarmed students shocked the West and marked the beginning of a period of sanctions towards China. The

Chinese government saw this intervention from the West on human rights as a violation of its own sovereignty. In the spite of the conflict with the West, China again started to change their foreign policy, from an ideological present to a more market based economical present (Tjønneland, Brandtzæg, Kolås, & le Pere, 2006). China's rapid growth since the late 1970's had in the same time made China outgrow its own limits of self-supplied on many crucial natural resources. This pushed China to become more dependent on other countries. They had to rely more on import and the importance of trading partners became eminent for the Chinese government. Oil was one of the most important natural resources China lacked domestically. Other important resources as timber, metals and other forms of energy sources were an important factor for the Chinese government to change their foreign policy and opening some of their markets for international trade and intervention.

During the 1990's and the beginning of the 21st century China has taken a more and more active role in the international economical environment. China is now a member in the World Bank, the World Trade Organisation, several UN organisations and other important international economical forums.

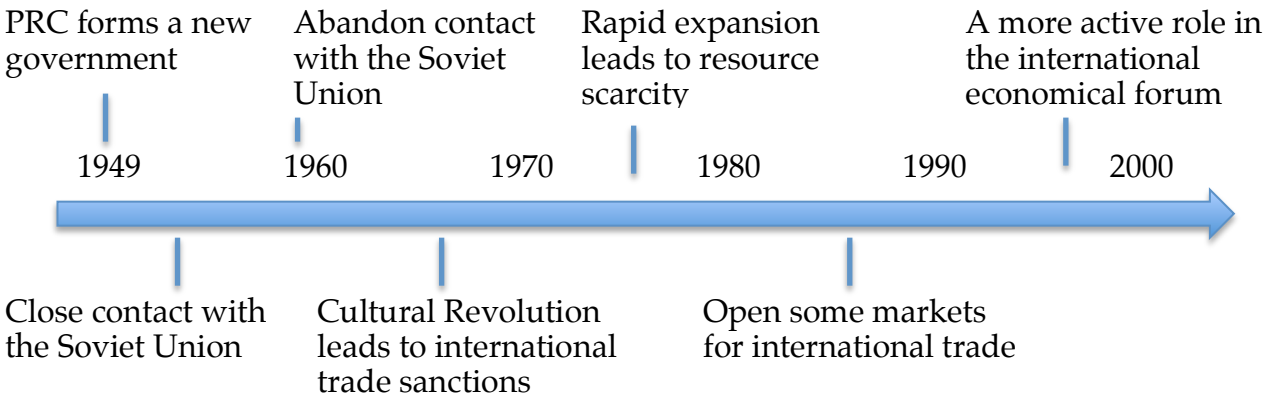


**Figure 1:**
**Timeline of China's foreign polices**

## 1.2 Chinese FDI

In the previous section we looked at how the Chinese foreign policy have changed over the last six decades. What started as an important ally in the battle between USA and Soviet later developed into a market driven orientation in need of resources. When the Chinese government started privatizing state owned companies their focus also manifested a change towards foreign investments as a channel to secure their supply for natural resources.

This shift combined with the fact that China was no longer self-supplied of many important natural resources made many raise a question concerning China's motives for opening some of their markets and investments abroad. Some argued that China only invested in countries that had a weaker form of institutional quality and large natural resources. In big contrast to Western countries, who where backing out of such shady markets. The argument behind this accusation was that China had lower standards and/or regulation then Western countries in dealing with corruption, violation of human rights, exploitation of weak markets etc.

| | 2003 | 2004 | 2005 | 2006 | Total 2003-2006 | Share 2003-2006 |
|---|---|---|---|---|---|---|
| Cayman Islands | 807 | 1,286 | 5,163 | 7,833 | 15,088 | 39.4% |
| Hong Kong, China | 1,149 | 2,628 | 3,420 | 6,931 | 14,128 | 36.9% |
| British Virgin Islands | 210 | 386 | 1,226 | 538 | 2,359 | 6.2% |
| Korea, Republic of | 154 | 40 | 589 | 27 | 810 | 2.1% |
| Russian Federation | 31 | 77 | 203 | 452 | 763 | 2.0% |
| United States | 65 | 120 | 232 | 198 | 615 | 1.6% |
| Australia | 30 | 125 | 193 | 88 | 436 | 1.1% |
| Sudan | - | 147 | 91 | 51 | 289 | 0.8% |
| Germany | 25 | 28 | 129 | 77 | 258 | 0.7% |
| Algeria | 2 | 11 | 85 | 99 | 197 | 0.5% |
| Singapore | -3 | 48 | 20 | 132 | 197 | 0.5% |
| Nigeria | 24 | 46 | 53 | 68 | 191 | 0.5% |
| Mongolia | 4 | 40 | 52 | 82 | 179 | 0.5% |
| Indonesia | 27 | 62 | 12 | 57 | 158 | 0.4% |
| Kazakhstan | 3 | 2 | 95 | 46 | 146 | 0.4% |
| Total (all countries) | 2,855 | 5,498 | 12,261 | 17,634 | 38,248 | 100.0% |

**Table 1:**
**Largest host countries of Chinese outward FDI flow, 2003-2006, current USDm and shares**

Looking at the outward FDI flows coming from China in table 1 we see that a lot of the FDI goes to developed countries in the West. In their paper regarding variables that attracts Chinese FDI, Kolstad and Wiig (2010) points out that a lot of these investments seems to go to tax-havens and other countries for "round-tripping" the investment. In doing this they can benefit from ideal host country conditions and re-invested in China at better terms then local investors. The investments going to Third World countries are often thought to be for securing/exploiting resources. So when dealing with Chinese FDI one normally control for difference in the wealth of host countries.

| | 2003 | 2004 | 2005 | 2006 | Share 2003-2006 |
|---|---|---|---|---|---|
| Africa | 3% | 6% | 3% | 3% | 3% |
| Asia | 53% | 55% | 37% | 44% | 44% |
| Europe | 5% | 3% | 3% | 3% | 3% |
| Latin America and the Caribbean | 36% | 32% | 53% | 48% | 46% |
| North America | 2% | 2% | 3% | 1% | 2% |
| Oceania | 1% | 2% | 2% | 1% | 1% |

**Table 2:**
**Region share[1] of Chinese outward FDI, 2003-2006**

A study conducted by Buckley et al. (2007) finds that Chinese FDI is significantly drawn towards weak institutions and countries with large natural resources. However, this only holds for the time period 1992-2001. Other studies suggest that oil resources, distance to China, low wages and low GDP per capita attract Chinese FDI (Cheung & Qian, 2008; Kolstad & Wiig, 2010).

The report by Kolstad and Wiig (2010) also points out that there seems to be a significant difference in what variables that determines Chinese FDI to rich and poor countries. In OECD-countries they find that GDP and market size are a significant variables. However, for the poor countries they find no significance values for these variables. For less-developed countries weak institutions and large natural resources are significant explanatory variables. This strengthens the assumption that the Chinese FDI is allocated with different motives based on recipient country. But as they elegantly point out, this might be a result of China being a relative latecomer with foreign direct investment in developing countries. Since the West has a longer track record and

[1] Region defined by UNCTAD

consciously do not invested in "less" attractive countries, then only countries with poor institutions and large natural resources are available for Chinese investments.

According to data from United Nations Conference on Trade and Development (UNCTAD) China is the 2nd larges provider of FDI in the world with just over to 144 billion USD in 2010. This is a tremendous growth going from 44 million USD in 1982. The growth since the end of the 20th century has been one of the highest in the world, with a compounded average growth rate over 20 per cent.

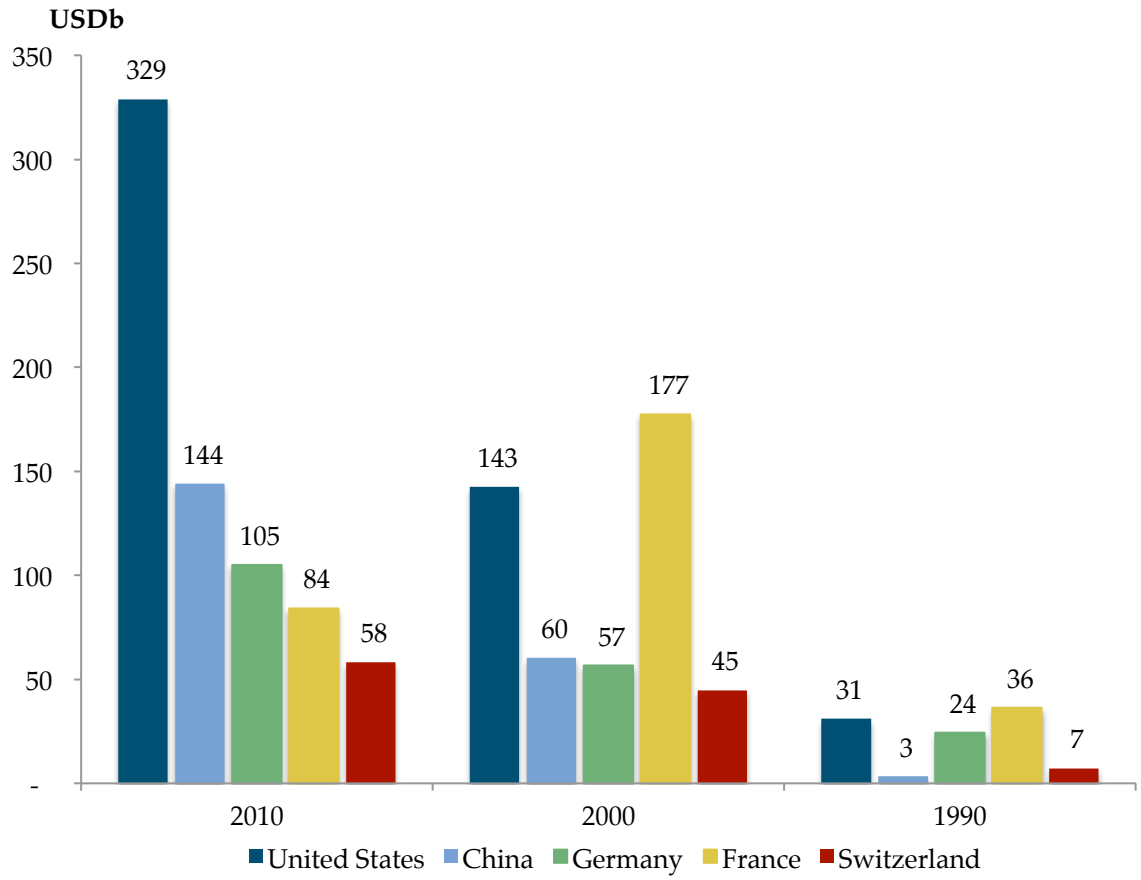


**Figure 2:**
**Overview over the 5 largest FDI contributors in 2010 with growth from 1990**

## 1.3 China in Africa

When the People's Republic of China came to power in 1949 they found themselves struggling to gain official recognition from the international community. While the two superpowers played out the aftermath of the Second World War, the new China had to find a new window to enter the international arena of politics. In an attempt to create a counterbalance between the two superpowers the Chinese government decide to try to create a third party in international politics. This third player would represent the Third World countries and China portrayed itself as the self-proclaimed leader of this coalition (Thompson, 2005). PRC started dialogues with several countries around the world and some of the most optimistic talks were with African countries. They found a mutual ground in a common frontier against imperialism and colonial power (Taylor, 1998). This resulted in the first official conference between PRC and African countries in Indonesia in 1955. This was the beginning of the Afro-Asian People's Solidarity Organisation (AAPSO) to work for better cooperation between developing countries. During the conference in Indonesia five principles was unanimous agreed on (I. Mutual respect for sovereignty and territorial integrity II. Nonaggression III. None of the countries should interfere in other countries internal affairs IV. Equality and mutual benefits V. Peaceful Coexistence)

In 1963 the Chinese Prime Minister Zhou Enlai visited ten African countries and this marked the beginning of a closer cooperation between China and African countries. During the visit Zhou Enlai promoted a slogan of cooperation among poor friends. After this visit in 1964 China promoted the eight principles for Chinese aid; 1) Equal and mutual benefit in providing aid; 2) In providing aid the Chinese government respect the sovereignty of the recipient countries; 3) Aid in form of interest free or low-interest loans with extended time limit; 4). Aid is not to make recipient dependent on China, but to help them embark on a step by step road to self-reliance and independent economy; 5) Try to help pick project that require less investment and yields quick results; 6) China provides best-quality equipment and materials at international prices; 7) In providing technical assistance make sure recipient country master the techniques; 8) Chinese expert assisting construction is not allowed to have a better standard of living than experts in the recipient country (Ministry of Foreign Affairs, the People's Republic of China, 2000). These principles are still strong in China's foreign policy today.

In China's quest for international recognition it supported many of the liberation conflicts in Africa in the 1950's and 1960's. China gave aid without any restriction on internal policy and proclaimed that the support was given to free the colonial countries from their suppressive rulers, but it also contributed to strengthen the Third World with China as a leader. The support of African countries was probably one of the main reasons why PRC managed to take the seat from Taiwan in the Security Council in UN in 1971 (Tjønneland, Brandtzæg, Kolås, & le Pere, 2006).

The Chinese contact with Africa and the rest of the world cooled down during the late 60's and 70's when China was struggling with internal problems during the Cultural Revolution. After the Cultural Revolution China again opened its financial markets and starting taking interest in international relations. This marked the beginning of a road towards a more market-oriented economy for China.

During the 1980's the Soviet Union was starting to lose the power race against the US. With the reduced power of Soviet the importance for China to support and cooperate with African countries to maintain the image of a strong leader among Third World countries diminished. China maintained a friendly tone with Africa, but the economical aid and business slowed down (Taylor, 1998).

Because of the harsh reaction on China's response on the student demonstration in 1989 China face many trade sanctions from the West in the beginning of the 1990's. Because of the decreased interaction with the Western world, China once again turned to Africa. Even though the contact had been low from the mid 80's they had always kept a friendly tone with their allies in Africa. When the Soviet Union collapsed in 1991, and the US reduced this presents in Africa, China grasped the unique opportunity to strengthen its contacts with several African countries.

China again proclaimed that the foundation in international politics should be based on the principle of non-intervention in other countries internal affairs and the respect for each country's sovereignty. This statement was followed by a questionable attitude towards human rights and democracy from a Western point of view (Payne & Veney , 1998). From the beginning of the 1990's an increased part of the foreign affairs from China went to Africa.

As China had, and still has, a rapid domestic growth, their demand for natural resources increased and they had to go abroad to find more resources to meet the domestic demand. China therefore went from being a net exporter to a net importer of several natural resources. In fact, China has become the largest user of numerous resources (International Energy Agency, 2009). To secure the supply of resources such as oil, many Chinese oil companies was encouraged to seek opportunities abroad in joint ventures with local producers. Other goods such as timber, gas, coal, copper and other high value minerals where resources China had to import from abroad.

In the year 2000 China summoned a conference between China and African countries. More than 40 African countries were represented when the meeting was held in Beijing. This marked the foundation of the Forum of China-Africa Cooperation (FOCAC). The goal for the organisation was *".. to further strengthen the friendly cooperation between China and Africa under the new circumstances, to jointly meet the challenge of economic globalization and to promote common development,"* (Ministry of Foreign Affairs, the People's Rebuplic of China, 2004). FOCAC holds meetings every three years and has been an important arena for exchanging thoughts on how to promote China-Africa business.

After the summit in 2006 the organisation released a document that summarised the importance of the five principles they first agreed upon in 2000. The five principles where based on the same principles as for the AAPSO. The document further described conditions for a well-function cooperation between China and African countries. In this document China also commits to *"..peaceful development and the commitment of Africa, a continent with the largest number of developing countries, to stability, development and renaissance are in themselves significant contribution to world peace and development."* ( Ministry of Foreign Affairs, the People's Republic of China, 2009). This statement points out the importance of cooperation between the leading developing country and developing countries in Africa, which has existed since the first talks between China and African countries at the AAPSO summit in 1955.

As mention earlier, the cooperation between China and Africa has developed from aid and government support to a more market oriented trade. But according to

Taylor (1998) Africa was still the main recipient of Chinese Aid in the early 1990's. According to the data Taylor used, over 56 per cent of the Chinese aid in 1993 went to African countries. The increase in aid in the 90's can be viewed as a reaction to the sanctions from the West and the importance for China uphold its relations with African countries following the student demonstration in 1989.

To underline the special relationship between China and Africa the Chinese government has published a report on their economic and trade cooperation with Africa. It is rare for the Chinese government to comment on their outlook of foreign affairs and it has to be seen as unique when they official publish a "white paper" on their cooperation. The "white paper" points out that China, as the world leading developing country, and Africa, with many developing countries, are face many of the same task concerning economic development and social progress. According to the paper China became Africa's largest trading partner in 2009 with a total trade volume of USD 91.07 billion (The Information Office of the State Council, 2010).

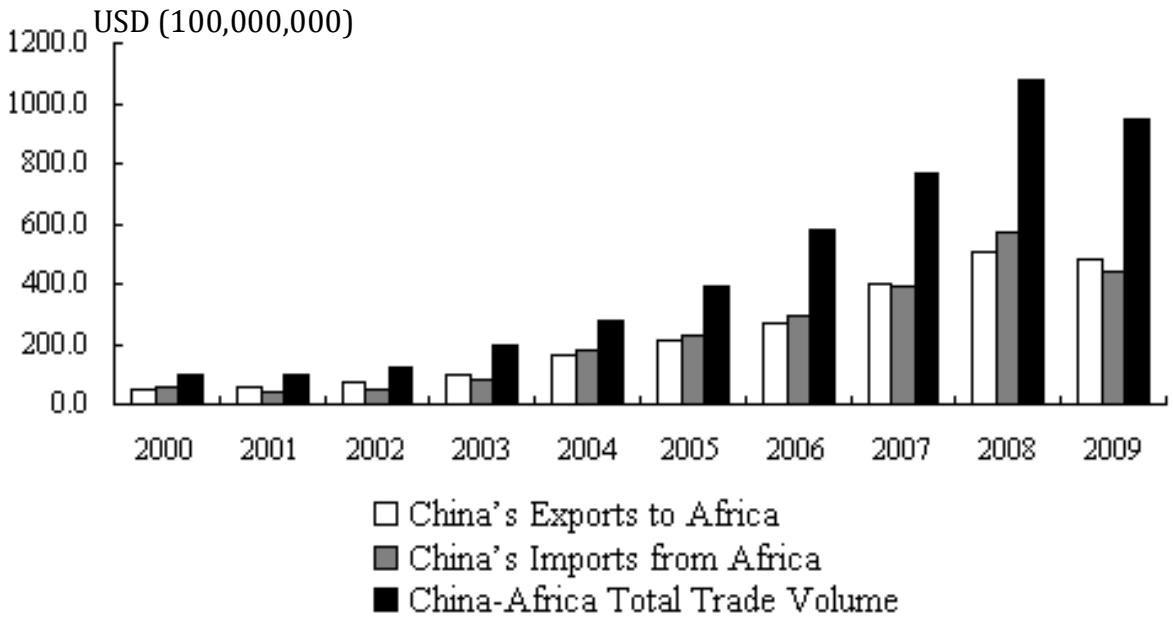


**Figure 3:**
**China-Africa trade volume 2000-2009**[2]

More reliable data might be found from the International Monetary Fund. They do not have numbers China-Africa trading, but they report numbers on which market Africa as a continent trade with. From figure 4 we see a clear trend of an increasing

[2] The graph is collected from the Chinese government's report and there is significant uncertainty related to the realism to the numbers, as they have not been audited.

trade with other developing markets, including China. Trade with the US has been on a stable level of 10 per cent over the whole period, but trade with EU countries has dropt significantly over the last decades. The percentage of the total trade volume has fallen from over 50 per under 40 per cent. Federal Reserve Bank of Dallas presented the figure in their annual report for 2010 (Koech, 2010).

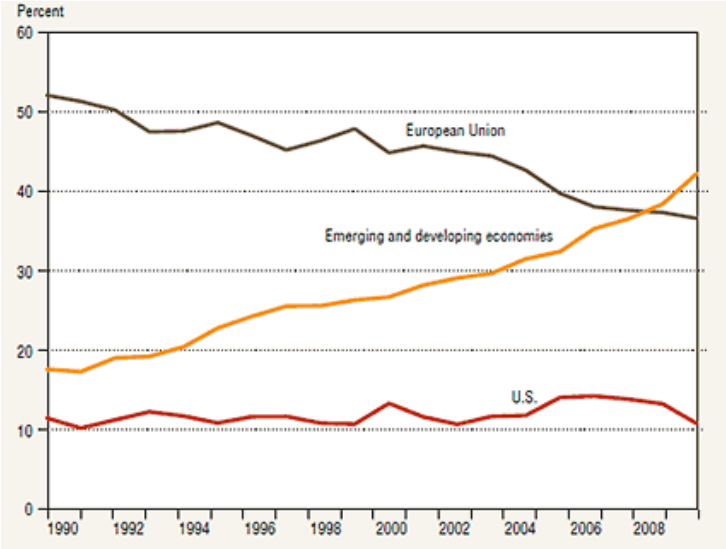


**Figure 4:**
**Africa increases trade with emerging and developing market economies[3][4]**

In the same report we also find a figure covering Chinese investment in Africa split by African region. From the figure we clearly see that China does most of its trade with South Africa, which is considered to be one of the most developed countries in Africa. This does not give much support to the claim that China only trades and invests in countries with poor institutional quality. However, it is important to notice that the data for the figure presented in figure 5 also comes from Statistical Bulletin of China's Foreign Direct Investment.

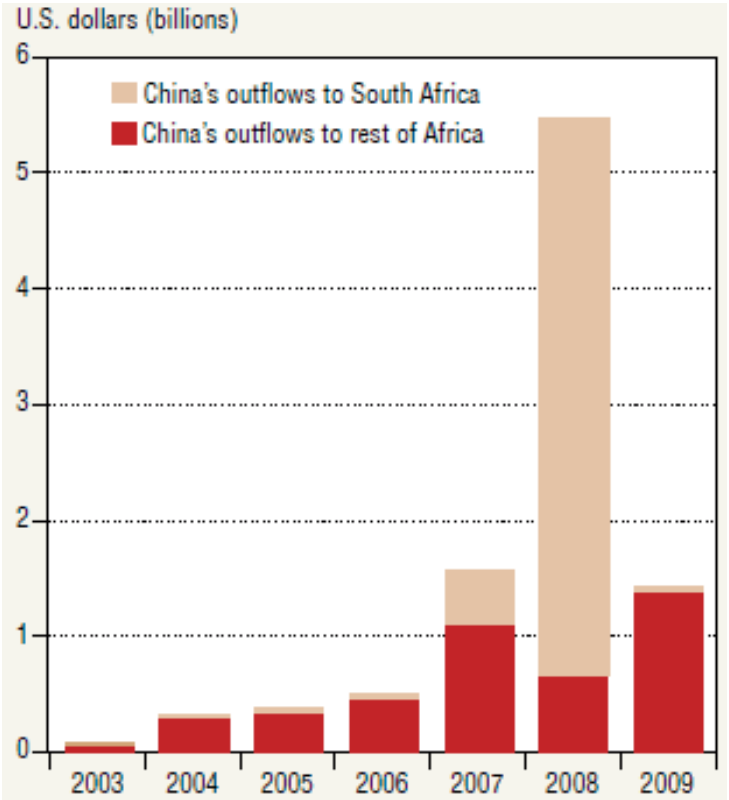


**Figure 5:**
**China's 2008 Investment Concentrated in South Africa[5]**

[3] Source: International Monetary Fund's Direction of Trade database; Haver Analytics
[4] Trade is the sum of imports and exports. Data are in nominal terms, and the shares are in total of each region's imports and exports in Africa's total trade
[5] Source: 2009 Statistical Bulletin of China's Foreign Direct Investment, Ministry of Commerce of People's Republic of China and National Bureau of Statistics

## 1.4 FDI in Africa

Over the last decades the foreign direct investment going to Africa has been fluctuating with the global financial markets and the belief in the region. In the World Investment Report (WIR) (2008) published by United Nation Conference on Trade and Development (UNCTAD) they had a special edition on investment in Africa.

According to the report Africa received as much as 9 per cent of the total FDI flow globally in 1970. During the 1970's the share of total FDI dropped significantly as the financial markets cooled down during the cold war and internal conflicts and civil wars in Africa painted a grey picture of investments opportunities. Africa as an investment opportunity, reached its absolute bottom in 1980, with only 400 million USD invested in Africa. During the 1980's the investment picked up again and the investments stabilised round 2-3 per cent of the total FDI flow globally, shown in table 3.

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
|---|---|---|---|---|---|---|---|---|---|---|
| Africa | 400 | 1,953 | 2,074 | 1,323 | 1,885 | 2,443 | 1,770 | 2,443 | 3,032 | 4,693 |
| *Africa %* | *0.7%* | *2.8%* | *3.6%* | *2.6%* | *3.3%* | *4.4%* | *2.0%* | *1.8%* | *1.8%* | *2.4%* |
| World ex. Africa | 53,678 | 67,617 | 55,985 | 48,945 | 54,954 | 53,423 | 84,608 | 134,198 | 160,992 | 192,583 |
| *World ex. Africa%* | *99.3%* | *97.2%* | *96.4%* | *97.4%* | *96.7%* | *95.6%* | *98.0%* | *98.2%* | *98.2%* | *97.6%* |

**Table 3:**
**Africa's share of total FDI flows 1980-1989**

During the 1980's the FDI flows to Africa rose from 400million USD to close to 4.7 billion USD in 1989. In spite of the rapid growth in nominal terms the share of the total FDI market remained around 2-3 per cent. In the 1990's the trend followed, but dropped again during the millennium close to the lowest level recorded at 0.8per cent. The fall of Africa's share of the total FDI is often addressed to the structural obstacles that many countries had on investment, especially in the manufacturing sector (United Nation Conference on Trade and Development, 2008).

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|---|---|---|---|
| Africa | 2,845 | 3,535 | 3,800 | 5,443 | 6,105 | 5,655 | 6,038 | 11,033 | 9,953 | 12,596 |
| *Africa %* | *1.4%* | *2.3%* | *2.3%* | *2.4%* | *2.4%* | *1.7%* | *1.6%* | *2.3%* | *1.4%* | *1.2%* |
| World ex. Africa | 204,610 | 150,538 | 162,080 | 217,873 | 249,895 | 336,736 | 382,516 | 475,356 | 697,630 | 1,077,001 |
| *World ex. Africa%* | *98.6%* | *97.7%* | *97.7%* | *97.6%* | *97.6%* | *98.3%* | *98.4%* | *97.7%* | *98.6%* | *98.8%* |

**Table 4:**
**Africa's share of total FDI flows 1990-1999**

Another important factor that has been controlling the share of FDI flowing to Africa is that relatively few countries in Africa receive significant amount of FDI. According to data from UNCTAD (2010) Angola, Egypt and Nigeria accounted for close to 40 per cent of the total FDI flow going to Africa in 2010. The average amount was close to 1 billion USD. One reason that might explain the large difference in amount received among the African countries can be found in the presents of natural resources and the ability to provide competitive regulations for foreign investment.

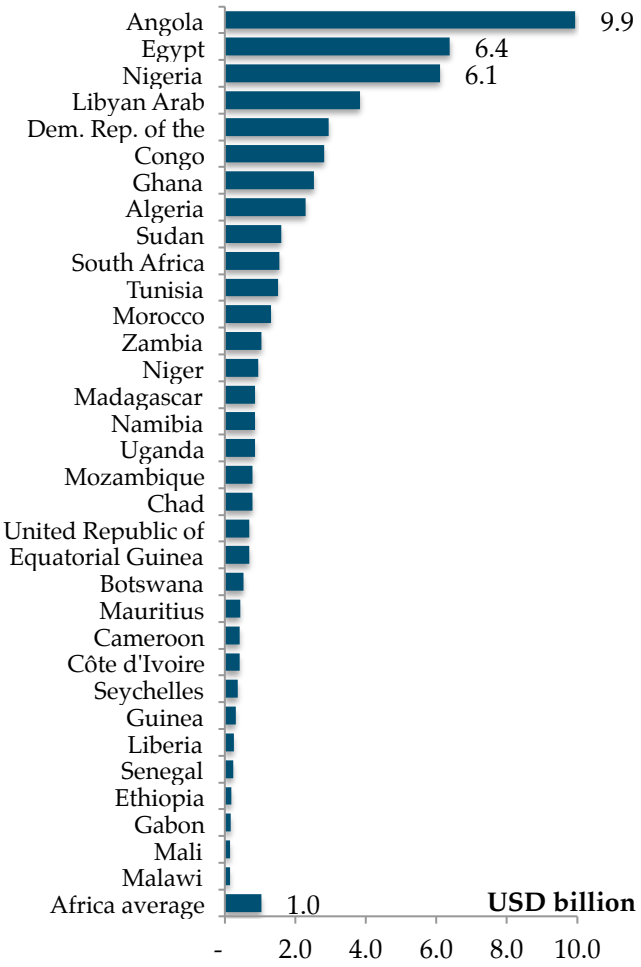


**Figure 6:**
**African FDI split on country 2010[6]**

Since 2000 the total amount of FDI going in to Africa has grown more than 6 times reaching over USD 73 billions in 2008. The tremendous growth was mainly driven by two factors; 1) increased commodity prices, making it more profitable to move production to the region and 2) the increased interest in Africa as an investment region, due to better policies on foreign investment.

Because of the widely diverse nature of the African countries, some countries have vast access of natural resources while other do not have any resources at all, the investment vary much from country to country. In some countries the biggest sector capturing FDI is in manufacturing while in others the primary sector takes most of the investment. A lot of the investment going to the secondary sector arises because of privatization in the sector.

[6] Source: UNCTAD statistic

Most of the FDI flowing to Africa comes from developed countries and often from those who had colonial powers; as the United Kingdom, France and Netherlands. Traditionally the US has also had a large contribution in investment in Africa. However, the shares from these countries are on the retreat and we can see a growing share of the FDI coming from other developing countries, especially from Asia. We also see an increasing investment among the African countries.

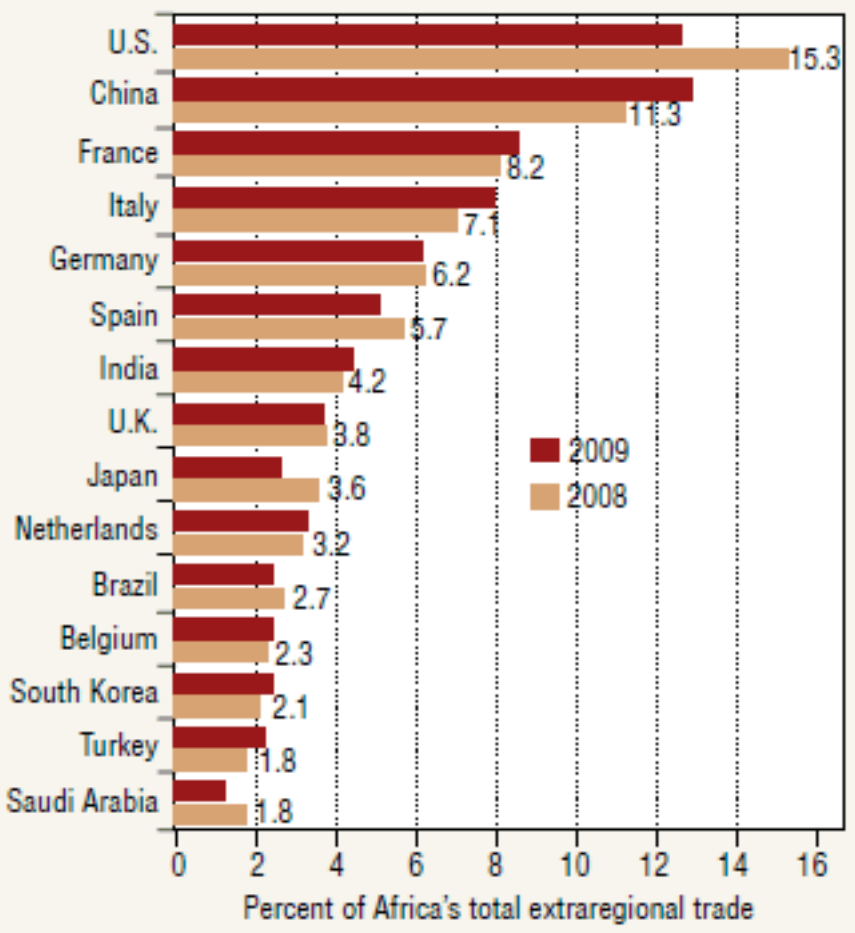


**Figure 7:**
**List of Africa's total extra regional trade 2008-2009**

When the financial and credit crises hit the market in 2008 the whole financial system slowed down, including FDI. The crises especially influenced international trade and led to reduced commodity prices around the world. Both developed and developing countries where effected by the recession. Hitting all time high levels in FDI in 2007 with over USD 1,970 billions globally, investments abroad quickly dropped back to 2005-2006 levels. Africa was no exception from this set back. The reduced trade combined with a lower access to credit stroke the economic development for many African countries.

| USDm | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| Africa | 38,160 | 46,259 | 63,132 | 73,413 | 60,167 | 55,040 |
| Europe | 534,846 | 690,348 | 986,843 | 635,961 | 459,443 | 381,297 |
| Asia | 223,428 | 292,253 | 370,600 | 410,965 | 323,904 | 361,747 |
| America | 208,590 | 396,150 | 500,695 | 570,130 | 315,207 | 411,043 |
| Oceania | -22,431 | 36,853 | 49,670 | 53,633 | 26,310 | 34,543 |
| Total | 982,593 | 1,461,863 | 1,970,940 | 1,744,101 | 1,185,030 | 1,243,671 |

**Figure 8:**
**Total inwards FDI flow to different regions 2005-2010**[7]

Even though many developed countries are still struggling with the after effects of the crises, the developing countries are picking up the lost investments faster than the developed countries, mainly driven by China and India. According to Economic Development in Africa Report (2010, ss. 42-45) the commodity prices started to pick up again in late 2009[8]. The financial crises have made the developing countries become a more important factor for the global economy and trade. Some of the most prominent developing countries are the BRIC[9] countries. New estimates predict that China, India, Brazil and Russia will by 2030 account for the 2nd, 4th, 7th and 8th largest economies in the world. The growth in these economies is today closely tied with Africa. Africa is one of the largest trading partner and provider of resources to the BRIC countries and the growth of these economies will most likely also benefit Africa in become a more developed region (Freemantle & Stevens, 2009).

[7] Source: UNCTAD statistics
[8] But they are likely to have been set back again in 2011 as the financial markets in Europe and in the US have encountered new financial problems
[9] BRIC consists of Brazil, Russia, India and China

## 2.1 Theoretical Effect of FDI on growth

After the Second World War an increasing number of companies started to expand their business abroad. These multinational corporations (MNC) rapidly became an important reason for the transfer of resources and technology around the world. The traditional framework for trade did not fully capture the logic behind this expansion and it was not until the 1970's academia managed to model this new trend into an economical framework.

To better understand the reason behind FDI one has to look at the two main different forms FDI can take. First we have vertical FDI, the main assumption behind this type of investment is to get better control over the supply chain. The control factor here reflects either managerial control or cost control. Production companies often want to secure the supply of raw materials needed in the production. If the raw material is available abroad at a lower cost then at home and the transportation and handling cost do not outweigh the cost difference it might be profitable for the firm to invest in a foreign company than export the raw materials back home (Markusen, 2002). This type of investment usually takes place between a developed and a developing country.

The second type of investment is horizontal FDI. In contrast to vertical FDI one do not primarily want a better control over the supply chain, but to expand ones current product market abroad. There are basically two ways of achieving this; 1) produce all products at home and export/trade them abroad or 2) set up a production plant abroad and produce part or the whole product abroad. Normally one finds latter type of horizontal FDI between two developed countries where the host market is big enough to defend a new production site compared to trade cost (Markusen, 2002). Most of the FDI in the world flows between developed countries indicating high trade barriers and/or export restrictions.

John Dunning (1977) proposed a framework for a better understanding of the reasons why some companies become multinational and their motivation behind this move. The framework is not a proper economic model, but it is used to explain and categoriser the reason for the flows of FDI. The framework is based on three factors; 1) Ownership, 2) Location and 3) Internalizing.

To get a better understanding of the impact of foreign direct investment on the host economy we have to start by setting up some parameters for how FDI influence the host economy. Navaretti and Venables (2004) specify at least three channels FDI affects the host economy in their book Multinational firms in the World Economy. First is in the product market, in which FDI can have two effects; 1) increased competition, lower prices, better quality and more products or 2) consolidation with local producers resulting in reduced consumer power. The second way is in the factor market where increased production leads to increased demand for labour driving wages up. The last channel is through spillovers including transfer of technology and business knowledge. In their book they argue for the latter effect is the most important factor of FDI's effect on economical growth.

Findlay (1978) postulated some of the first academic reports on the effects of spillovers, mainly from technological changes based on studies from Nelson and Phelps (1966). At the time when he posted the article, researchers and econometricians had not spent much time trying to explain the data through an analytic model for technological transfer related to FDI. He argued that MNC do not just provide capital to the host economy, but a "package" combining capital, technology and managerial practise. The exposure to this "package" of higher efficiency would enable the relative backward countries to improve themselves not only by copy/past, but also to try harder.

Wang (1990) adopted Findlay's model into a neoclassic growth model by assuming that knowledge that affect production is a function of FDI. The model specifies that the knowledge in question refers to the human capital in a country and that it cannot be measured as years of schooling or experience[10]. He further argues that knowledge gives a good proxy for stock of technical knowledge and is thereby a good measure for the technical level in the country. More FDI leads to a higher level of knowledge, implying an increased economic growth in the country. By opening up developing countries to FDI the developing country can close the income gap to a constant level in steady state faster then with restricted access to FDI.

[10] The paper is a bit unclear what actually is defined as knowledge and Mr Wang does not provide any clear examples what he think is considered to be knowledge or how to measure it.

## 2.2 Empirical research on FDI

This section will provide a short overview over the previous analyses and the result from these papers. This overview is not exhaustive, but meant to give the reader a brief introduction into previous findings and the development in the field of FDI. This will provide a useful insight to previous problems and give an overall understanding of how the research community have worked with FDI.

In 1958 Albert Hirschman published a book called "The strategy of economical development". In this book he concludes that not all sectors have the same ability to absorb the effect from investments, meaning that some investment will be superior to others when looking at economic development of a country.

With the increased focus on FDI in the 1980's more and more researchers started to look at what the main drivers behind the allocation of FDI. Wheeler and Mody presented in 1991 a paper on the self-reinforcement of FDI. In their report they conclude that FDI is self-reinforced if there is a minimum level of development in the country. They also notice that U.S based firms seek better infrastructure, then tax incentives and risk diversification when they allocate investments globally (Wheeler & Mody, 1991).

In 1992 Blomström, Lipsey and Zejan wrote an article that tried to explain what determine a country's growth. They found that FDI is an important variable especially in high-income developing countries. They also found that years of schooling, GDP difference from US, internal investments, increase labour participation are variables that affect the economic growth rate. Their analysis was based on a standard OLS[11] model with data from the International Comparison Program (ICP). Even though they got good significant results they also commented on some of the weaknesses in their data set, mainly that 1/3 of the developing countries had not reported any data to IPC.

Romer (1993) wrote an article about the concept of ideas and objects. He defined ideas as knowledge and objects as external factors as factories and natural resources. He concluded that it is not important to distinguish between the two concepts when

[11] Ordinary least squares

discussing FDI policy on a governmental level. He further concluded that ideas/knowledge arises with FDI and technology transfer. These factors expand the boundaries in the host country, allowing the economy to expand.

In 1995 Barro and Xavier wrote a book on Economical growth. In chapter 12 they conducted an empirical analysis based on a cross section of countries. They use both a seemingly unrelated regressions (SUR) and an instrument variable (IV) model. Both models extend and expand the simpler OLS model. From these analyses they found that there are a convergence from developing countries to developed countries and they also find support for faster convergence when the human capital is increased.

In an article "FDI and Growth in EP and IS countries"[12] (Balasubramanyam, Salisu, & Sapsford, 1996) the authors examine the effect of trade openness through export and import. They find that export works as promotion for a country. By pursuing openness through trade they find a greater growth in those countries.

In 1998 Borensztein et al. wrote a thorough article on how FDI affect economical growth. They started by looking at the question "*do FDI crowed out local investments?".* They found no hold for such a claim. Their data set rather suggested that FDI leads to a crowding in effect, however this finding was not significant. In addition they also looked closer at the classic Cobb-Douglas production function and test for a number of different independent variables in a SUR model. The finding from this test was ambiguous with no clear-cut results. They noticed that their model and results might suffer from an endogeneity problem and tried to fix the problem by using instrument variables. One of their significant findings were that if a country exhibits a low education rate the effect of FDI can have a negative effect on growth, i.e. investments into low-educated countries can deteriorate growth rather then promote growth.

Beck et al. wrote an article in 2000 examining the effect FDI and the financial system in the host countries. They run both a simple OLS model and a more advanced system and difference GMM model, trying to deal with possible endogeneity problems. They found a strong link between financial development and economic

[12] EP- Export promoting, IS-Import substituting

growth when controlling for financial depth, effectiveness of banks, access to private credit and the legal system.

After two decades of rapid FDI growth, analyses and theories on FDI Hansen (2000) wrote an overview of the available literature. After discussing several angels he concluded that FDI is only favourable if there is a market failure and he saw few evidence of spillovers and/or increased welfare in the host countries. He also implied that FDI often crowds out domestic firms, in contrast to Borensztein et al. report from 1998.

In 2003 Görg and Greenaway published an article that looked closer at the microeconomic result from FDI. In contrast to many of the macro analyses they found no result of a positive effect from FDI. In fact, their microeconomic analysis suggested that FDI worsen the competition and is value destructing.

Data concerning FDI had until the turn of the century mainly been collected on a general basis with focus on the total level or at micro economical level, as in Görg and Greenaway. FDI divided on sector level where rarely reported and/or classification varied greatly, making it hard to perform any analysis on differences between sectors. In "Foreign Direct Investment and Growth: Does the Sector matter?" Alfaro (2003) looked closer on the effect of investments in different sectors. She started by noticing that FDI varied greatly from sector to sector, see table 5 on the next page. From previous analyses the result of FDI's effect on growth were at best ambiguous. Based on data split on sector level she found, from a simple OLS model, that FDI in the primary sector had a negative effect on economic growth. She found support for this finding in the World Investment Report (WIR) 2001 from UNCTAD, They predicted that the linkage between foreign and local companies are limited in this sector. She further found that the investments to the manufacturing sector had a positive effect, supported by the theory of simpler and more obvious spillover effects in this sector. For the service sector she found ambiguous answers consistent with WIR2000 that also saw few linkages in this sector.

| Sector | Average 1980-1989 | Average 1990-1999 | Average 2000-2010 |
|---|---|---|---|
| Primary | 8.7% | 7.1% | 9.2% |
| Secondary | 38.8% | 35.9% | 26.3% |
| Tertiary | 52.6% | 57.1% | 64.5% |

**Table 5:**
**FDI split on sector, avg.1980-1989 avg.1990-1999 avg. 2000-2010**

In chapter 2 in Blomstöm, Graham and Moran's book "Does Foreign Direct Investment promote development?" Lipsey and Sjöholm (2005) looked closer on what they believe drive economic growth in developing countries. They started with a general observation of previous analyses stating that analyses based on cross-selections often show a positive effect from FDI and time-series to have a negative effect. Though out the chapter they argue why there are wage spillovers (foreign companies pay higher and acquire the better workers, press the wage levels up in the host country) and productivity spillovers (technology transfer and gaps closed quicker with foreign knowledge and technology, but they also saw differences between sectors).

Carkovic and Levine (2005) used a new data set and a more advanced statistical package to closer examine the effect from FDI on economic growth. They utilized a simple OLS model to give a quick overview off trends and elaborated the results with a more advanced statistical technique. The latter analysis reduced endogeneity and provided more efficient and robust results then the OLS model. The statistical model they used is known as a system and difference GMM model. They also included a number of interaction terms to better examine the effect of FDI on growth. Even though their results showed some effect, they concluded that FDI has no single robust effect on growth.

## 3.1 Theoretical Framework

### 1. Data

This paper uses statistical data from several different international databases. The fundamental statistic concerning FDI per sector is collected from a relative new database from United Nations Conference on Trade and Development (2011). This database reports FDI on sector levels from 1980 until 2010 in 103 countries[13] measured in current USD. The data set is not complete, as many countries have not reported sector data the entire period and some have only reported for some sectors. Data on Chinese FDI to host countries are also collected from this database, but only total levels are available not divided into sectors. Data covering gross domestic production (GDP) growth and gross domestic production per capita (GDPPC) are gathered from a databank at the World Bank (2011). From the same databank I have also gathered data on inflation, trade openness, private credit and government domestic investment. Data on human capital is gathered from Barro and Lee (2010) data set on school attainment measuring average years of secondary schooling in the working population. Indicator on freedom of press is gathered from Freedom House (2011). Finally, data on institutional quality is gathered from the PRS Group database on International Country Risk Guide (ICRG (2011).

The per capita growth rate is measured as change in per capita GDP in current USD[14]. The GDPPC level is given in current USD. All FDI numbers are listed in million of current USD at current exchange rates. In the model FDI is measure as per cent of GDP[15]. Inflation is measured as per cent change in GDP deflator and can be seen as an approximation of macroeconomic stability. Trade openness show the sum of total export plus total import as per cent of total GDP[16]. This variable represents the amount of trade with other countries constitute as part of the total GDP. Private credit is measured as domestic credit to the private sector as part of total GDP. Private credit is a proxy of the financial situation in the economy. Government domestic investment measures the government spending on outlays in additions to the fixed assets of the economy and the net change in the levels of inventories divided by GDP. The purpose of this variable is to give an estimation of the government size of the economy. As an estimation of the human capital level in the

[13] Countries listed in Appendix 1
[14] GDPPC growth rate=$(GDPPC_t/GDPPC_{t-1})-1$
[15] $FDI=FDI_t/GDP_t$
[16] $Trade=((Import_t+Export_t))/GDP_t$

economy Barro and Lee (2010) have shown that a valid proxied is the average year of secondary schooling. They argue that human capital increases with better educational system and is therefore a valid approximation of this parameter. Estimate of press freedom is meant to portray an estimate of the democratic level. This variable takes the values from 1-3, with 3 representing a low level of democratic values. The institutional quality for a country is measured from an index published by ICRG that consist of several different risk analyses, including Rule of Law, Ethnic tensions and government stability. The index range from 0 to 100, where 100 symbolise very good institutional quality.

The data was collected during the spring months of 2011 from numerous databases from well-known organisations. Chr. Michelsen Institute (CMI) in Bergen has been so kind to sponsor the data concerning FDI on sector level from UNCTAD.

## 2. Method

The empirical study in this paper is based on a statistical and quantitative analysis. The foundation for this analysis is based on the collected data listed in the previous section. The analysis combined two different studies on FDI and economic growth to give a broader and better understanding of FDI's effect on growth. In 2002 Maria Carkovic and Ross Levine wrote a paper on FDI using fairly new statistical methods, namely General Method of Moments (GMM), which provide more robust and efficient estimates. The following year Laura Alfaro wrote a paper on FDI and the different effect it has on economic growth depending on sector. In this paper I will combine the statistical techniques used by Carkovic and Levine and combine it with the insights from Alfaro's study on sector differences on economic growth.

Due to the scope of this paper this analysis will not consider which factors that attracts FDI or what regulations that need to be in place to encourage foreign investments. This analysis assumes the investments has been made and try to find the economical consequences on economic growth from different types of investment and essential variables.

## 3. Econometric framework

The empirical foundation of this paper is based on two econometric models. In this section I will describe the models in detail highlighting their strengths and weaknesses and the economical intuition behind the models. First I will utilize a simple ordinary least square (OLS) regression with one observation per country, creating an observation based on the average of observation from 1980 to 2009. This is a simple model, but it will contribute with intuitive and general overview of the data set. The second model is based on Arellano-Bond (1991) and Arellano-Bover (1995)/Blundell-Bond (1998) dynamic panel estimators which will produce more efficient and robust results.

### 3.1 Ordinary least square model

The OLS model is a pure cross-sectional analysis that creates one observation per country by taking the average of the period 1980-2009. I correct for possible heteroscedasticity in the standard errors by utilizing the robust standard errors model presented by MacKinnon and White (1985).

I start with a benchmark model on total FDI and growth following the equation:

$$\text{Growth}_i = \beta_0 + \beta_1 \cdot \text{Initial\_GDP}_i + \beta_2 \cdot [\text{Conditioning set}]_i + \beta_3 \cdot \text{FDI}_i + \varepsilon_i$$

**Equation 1:**
**OLS model total FDI**

In this model *Growth* capture the change in GDP per capita, *Initial GDP* is a proxy for the state of the economy (the income level in 1980 or the earliest observation of income), the *conditional set* include different variables described in appendix 2 and *FDI* is the gross private capital inflows to a country as share of the GDP.

To further investigate the effect of FDI on growth I include interaction terms between FDI and income, human capital, trade and finance. These are all variables that other reports have found to have a significant impact on the effect of FDI to economic growth. The extended benchmark model, shown in equation 2, includes these interaction terms.

$$Growth_i = \beta_0 + \beta_1 \cdot \text{Initial}\_GDP_i + \beta_2[Conditioning\ set]_i + \beta_3 \cdot FDI_i + \beta_4 \cdot \left(FDI_i \cdot \varphi^k\right) + \varepsilon_i$$

Where the interaction term is $\left(FDI_i \cdot \varphi^k\right)$, $k$ = education, income level, private credite or trade

**Equation 2:**
**OLS model total FDI including interaction terms**

This benchmark model is the same as Carkovic and Levine (2005) used in their model looking at FDI ability to effect economic growth. The next step is to include the sector dependent FDI flows instead of total FDI. This paper is primarily interested in the effect from the three main sectors (primary, secondary and tertiary). The benchmark model including sector FDI therefor replace total FDI in the models in equation 1 and 2. Doing this we get the following equation for sector FDI.

$$Growth_i = \beta_0 + \beta_1 \cdot \text{Initial}\_GDP_i + \beta_2 \cdot [Conditioning\ set]_i + \beta_3 \cdot FDI_i^J + \varepsilon_i$$

where $J$ = Primary, Secondary or Tertiary

**Equation 3:**
**OLS model sector FDI**

And with the interaction terms equation 3 is rewritten as shown in equation 4.

$$Growth_i = \beta_0 + \beta_1 \cdot \text{Initial}\_GDP_i + \beta_2 \cdot [Conditioning\ set]_i + \beta_3 \cdot FDI_i^J + \beta_4 \cdot \left(FDI_i^J \cdot \varphi^k\right) + \varepsilon_i$$

where $J$ = Primary, Secondary or Tertiary

$k$ = Income level, trade, education, private credit

**Equation 4:**
**OLS model sector FDI including interaction terms**

To further control that inclusion of FDI to each sector is not capturing the effect of other FDI investments we include all sectors in one model. This model should confirm and support the previous findings when looked at the sectors individually.

$$Growth_i = \beta_0 + \beta_1 \cdot \text{Initial}\_GDP_i + \beta_2 \cdot [Conditioning\ set]_i + \beta_3 \cdot FDI_i^P + \beta_4 \cdot FDI_i^S + \beta_5 \cdot FDI_i^T + \varepsilon_i$$

**Equation 5:**
**OLS model all sectors**

After including all the sectors we would have enough information to make a statement concerning the different sector effect on economic growth. The model shown in equation 5 is similar to the one used by Alfaro (2003) as a final check of the model. As this paper tries to broaden the picture of FDI and the effect on economic growth we must also include the interaction terms to get the full picture.

$$Growth_i = \beta_0 + \beta_1 \cdot \text{Initial}\_GDP_i + \beta_2 \cdot [Conditioning\ set]_i + \beta_3 \cdot FDI_i^P + \beta_4 \cdot FDI_i^S + \beta_5 \cdot FDI_i^T + \beta_6 \left(FDI_i^P \cdot \varphi^k\right) + \beta_7 \left(FDI_i^S \cdot \varphi^k\right) + \beta_8 \left(FDI_i^T \cdot \varphi^k\right) + \varepsilon_i$$

**Equation 6:**
**OLS all sectors including interaction terms**

As equation 6 show we only include one type of interaction term per equation, but for all the different sectors.

## 3.2 Dynamic Panel Model

### *3.2.1 Motivation for the Dynamic Panel Model*

The dynamic panel data model provides advantages to the OLS model as it examines the effect of FDI on growth using panel procedures. Utilizing the specification in a dynamic panel model allow us to get a better understanding of the relationship between FDI and economical growth and offers a new perspective of the importance of sector investment.

Setting up a dynamic panel model let us utilize the possibilities of getting a better understanding of the time-series nature of the relationship between FDI and economical growth. With this model we can control for time trends and the fact that countries often invest according to previous investment, i.e. we might have a serial correlation problem. Using a dynamic model we use pooled cross-section data combined with time-series data.

A dynamic panel model, in contrast to IV-models, allow for an individual country specific effect. In regular instrumental variable regressions this country specific effect (individual effect) becomes a part of the error term and may result in biased coefficient estimates. This model control for potential endogeneity problems in all explanatory variables. Controlling for all these weaknesses in OLS will lead to more

robust standard errors improving the probability for making more correct conclusions.

The dynamic model is based on Arellano-Bover (1995)/Blundell-Bond (1998) estimator that is ideal for situations when 1) there are few time periods and many countries; 2) the function is linear; 3) a dynamic variable dependent on its own past realisations; 4) there can be endogenous independent variables; 5) there are a fixed individual effect; 6) there can be heteroscedasticity and autocorrelations within individuals, but not across them; 7) the first difference of instruments are uncorrelated with the individual effect.

This is actually an augmented estimator from the original Arellano-Bond (1991) estimator that allows for more instruments and improved efficiency.

The estimator builds on a system of two equations and is know as a System of Generalized Method of Moments (a system GMM). The two equations consist of the original dynamic equation in addition to the first difference of this equation. Based on these two equations we can find more efficient coefficients and standard errors. A System GMM is complex and sometimes difficult to specify correctly. Because of this one should use it with care and be aware that it can easily generate invalid estimates. Roodman (2009) wrote a good article called "How to do xtabond2: An introduction to "Difference" and "System" GMM in STATA" covering how to specify this type of dynamic model using the data software STATA.

One of the difficulties with System GMM and GMM in general is that one needs to make assumption about a weighting matrix to get efficient estimates. The requirements for this weight matrix is well explained in the article referred to above. Another difficulty with GMM is when the equation is overidentified with a large number of instruments. This can cause the two-step estimates to have a large downward bias resulting in wrong estimators. Because of this one often see that researchers report both one-step and two-step estimates, even though the two-step estimates are thought to be more efficient. Unfortunately there is little guidance in the statistical literature on how many instruments are too many. A good rule of thumb is therefor to report instrument count and test of robustness when the number of instruments outnumber the number of individual units in the panel.

A solution to the overidentified problem can be to apply the Windmeijer (2005) small-sample correction for two-step that control for the reweighting of the moments to prevent an overweight of observation that fit the model and an underweight of the observations contradicting the model.

### 3.2.2 *The model*

As for the OLS model I will now in detail describe the equation for dynamic model and its function.

We start with a basic dynamic model on the form

$$y_{it} = \alpha \cdot y_{i,t-1} + x'_{it} \cdot \beta + \varepsilon_{it}$$
$$\text{Where } \varepsilon_{it} = \mu_i + v_{it}$$
$$E[\mu_i] = E[v_{it}]E[\mu_i v_{it}] = 0$$

**Equation 7:**
**Basic dynamic model**

In this equation we see that growth[17] depend on both past realisation of growth and a set of explanatory variables[18]. The error term compose of the individual fixed effect, $\mu_i$, and the idiosyncratic shocks, $v_{it}$. We can rewrite the model as shown in equation 8. The model can be either in levels or in increase of $y$.

$$\Delta y_{it} = (\alpha - 1) \cdot y_{i,t-1} + x'_{it} \cdot \beta + \varepsilon_{it}$$

**Equation 8:**
**Basic dynamic model rewritten**

If we compute this equation with a regular OLS regression, we would get a positive correlation between the lagged dependent variable and the fixed effect, since the fixed effect also is a part of the lagged dependent variable. This will violate one of the assumptions for a BLUE[19] OLS. There are two possible solutions to this problem. The first is to transform the equation to remove the fixed effect and the second is to use instruments for $y_{i,t-1}$ and any other variables thought to be endogenous.

[17] Growth is denoted by $y$
[18] Explanatory variables are denoted by $x$ and also include the inflow of FDI
[19] Best linear unbiased estimate

A transformation of the equation involves changing the equation in a way that removes the fixed effect without loss of any other information. The most normal transformation is a first-difference transformation. We do this by subtracting the previous period from the equation, changing the model to differences in the place of levels.

$$\Delta y_{it} = \alpha \cdot \Delta y_{i,t-1} + \Delta x'_{it} \cdot \beta + \Delta v_{it}$$

**Equation 9:**
**First-difference of the dynamic equation**

In equation 9 the fixed effect is removed, but we might still have endogeneity problems since the $y_{i,t-1}$ term in $\Delta y_{i,t-1} = y_{i,t-1} - y_{i,t-2}$ is correlated with the $v_{i,t-1}$ term in $\Delta v_{i,t} = v_{i,t} - v_{i,t-1}$. This endogeneity problem can be fixed with the use of instrument variables. When taking the first-difference, there is one important weakness to be aware off. With unbalanced panels missing observations can lead to elimination of large part of the observations since lagged variables might not be available.

Finding instrument variable that are suitable for eliminating the endogeneity problems can be hard. There are many considerations to be made and it can be difficult to find appropriate instruments. According to Anderson-Hsiao (1982) appropriate instruments for the lagged dependent variable and the explanatory variables can be found from the existing data set. Lagged levels or the lagged differences are appropriate. For panel data with few time periods' level instruments are preferred, as these instruments do not take up as many observations as difference instruments do. To improve efficiency, longer lag s can be included (Windmeijer, 2005).

The GMM model is based on a set of moments that needs to be fulfilled. The moment conditions from equation 9 can be written as

$$E\left[ y_{i,t-s} \cdot \left( v_{i,t} - v_{i,t-1} \right) \right] = 0 \quad \text{for } s \geq 2; t = 3,...,T$$
$$E\left[ X_{i,t-s} \cdot \left( v_{i,t} - v_{i,t-1} \right) \right] = 0 \quad \text{for } s \geq 2; t = 3,...,T$$

**Equation 10:**
**Moment Conditions 1 and 2**

These moment conditions are valid under the assumption that the error term is not serially correlated and the conditional variables are at least weak exogenous. Moment condition 1 and 2 specifies that lagged dependent variables and lagged conditional variables are valid instrument for the dependent variable and the explanatory variables as they uncorrelated with the first difference of error term.

A report by Blundell and Bond (1998) showed that when the dependent variable is close to a random walk, the difference GMM's results are modest since realized observations has little explanation power for future values. As a result of this, they created an additional equation. Previously we have use levels as instruments for the differences. Now we would like to use differences as instruments for the levels. Doing this we do not want to remove the fixed effect, but instead find instruments that are exogenous to the fixed effect.

Following this specification we get the following additional moment conditions

$$E\left[ \left( y_{i,t-s} - y_{i,t-s-1} \right) \cdot \left( \varepsilon_{i,t} \right) \right] = 0 \quad \text{for } s = 1$$
$$E\left[ \left( X_{i,t-s} - X_{i,t-s-1} \right) \cdot \left( \varepsilon_{i,t} \right) \right] = 0 \quad \text{for } s = 1$$

**Equation 11:**
**Moment Conditions 3 and 4**

These conditions are valid under the same assumption as the previous ones, but in addition there cannot be correlation between the differences in either the depended variable or the explanatory variables and the country specific effect. On the other hand there might be correlation between the levels of explanatory variable and the country specific effect.

To utilize the moment conditions from the transformed equation and the equation in levels we use a system estimator. The benefit from such a system is that we can closer examine time-invariant variables, e.g. the country specific effect.

The reporting quality from a GMM estimator depends on the validity of the instrument used. A Sargan/Hansen test will shed some light on the validity by testing for over-identify restriction by testing the sample analogue of the moment conditions used in the estimation. Arellano and Bond (1991) developed another test for controlling the GMM estimator. This test examines the hypothesis that there is no serial correlation in the error term, $v_{i,t}$ . We test that the error term does not inhabit second-order correlation as it by construction probably inhabits first-order serial correlation. This test also serve as a remainder that one should include time dummies, as these prevent cross-individual correlation, and that N has to be large to perform a good test.

### 3.3 Application to the data set

Until now we have looked at the specification for our dynamic model. It is now time to apply this model to the data set. As mention in the previous chapter the Arellano-Bover/Blundell-Bond estimator have many good qualities that will provide an efficient and robust estimation of the impact of FDI on economical growth.

A System GMM estimator is a good fit for our data because 1) the data are considered to be dynamic. If a country experience high growth in one period, they are likely to experience high growth in the coming period as well ($y$ depends on past realization of $y$); 2) we expect there to be a strong individual effect. Different countries have different political risk, resources, size, social problems and development. All these factors and more constitute a sizeable individual difference; 3) some of the explanatory variables can be endogenous (we cannot be sure that education is not influence by the initial financial situation in the country); 4) there can be individual specific pattern of heteroscedasticity in the error term; 5) the error term does not seem to have a correlation between different countries; 6) we have a fairly large number of countries supporting the need for a large N, 103 countries, and by constructing 5-year average values we meet also the requirement of a small number of time periods (we take the average from 1980-1984, 1985-1989 etc.). This gives us a maximum of six observations per country; 7) one can think of other external instruments, but the most obvious instruments to use are the lags of internal variables as these are already available in the data set.

### 3.5 Alternative specifications

The dynamic model could have been specified differently and we could have used different solutions in specifying the model. One of these possible changes could have been to subtract the average of the observations instead of the lagged variable (first difference). The benefit from this possibility transformation is that few observations would be dropped with unbalanced panels. Since we use five-year averages on each observation the difference would not be too big for our analysis.

# 4. Results

The scope of this master thesis is to investigate the effect of sector specified FDI on economical growth. This paper also seeks to combine previous studies on FDI's effect related to sector dependence and internal conditions, as education, trade openness, economical development and the financial development in the host country.

This paper does not give an explanation to factors that attract FDI to a country. It simply assumes that the FDI investments are already in place and exhibit the effect of these investments on economic growth.

## 4.1 Findings in the OLS model

In this section the described model in the previous section will be applied to the collected data, first by looking at the total FDI inflow to a host country, then by examining FDI on a sector level.

### 1.1 Total FDI values

Table 7 show that the FDI do not enter the model with significant values for any of the included control variables. The FDI coefficient is in most cases positive, but when we control for trade openness it becomes negative. However, we cannot conclude that FDI has a positive effect since we have no significant values. From the same table in column 9, we see that controlling for African host country is clearly a negative factor. We also notice that with increased initial income the economic growth is reduced. This is in line with economical theory stating that we expect growth to be highest in developing countries with a diminishing effect as they become more developed. The rest of the coefficients have the expected sign. Higher school attainment, open international trade, access to private credit, public investment and better institutions all lead to increased growth at a 10%-significant level.

To further investigate the impact of FDI in growth we follow the footstep of Borensztein et al. (1998). In their study they found that FDI and the impact of growth depend on the human capital in the host country. They argued for including an

interaction term of FDI and a proxy for human capital, school attainment. They meant that this would provide a more nuanced picture. The logic is that the host countries need to have a minimum stock of human capital to benefit from the FDI inflows. Including an interaction term between $FDI \cdot Schooling$ representing the dependence of FDI on the average year of higher education in the working population. In Table 8 we examine the importance of human capital in interaction with FDI. In this table we still do not find any significant values for FDI, but now the FDI coefficient has become negative. The interaction term has a positive coefficient indicating that FDI can become a positive influence on growth if there is enough human capital in the host country. This follows the findings from Borensztein et al. They postulated that there must be a certain level of human capital to exploit FDI inflows. To test this hypothesis I created an alternative proxy for a certain level of education. A dummy variable was created to be positive if school attainment is above the average of all the countries[20] and zero otherwise. This alternative regression did not lead to more significant values for the FDI's effect on economical growth[21]. From these regressions one can conclude that the effect of the total FDI inflow on growth does not depend on the stock of human capital in the host country.

Blomström, Lipsey and Zejan (1992) took another view on FDI and growth claiming that the host country needed to have a certain level of income to make use of the possible technological transfer from FDI. Very poor countries would not manage to utilize the possible benefits from FDI. To investigate this view I have included an interaction term of FDI and the income level per capita. The result presented in Table 9 show that we have a few significant FDI values, but what is more interesting is that these are significant in combination with the interaction term. When controlling for trade openness and domestic investment we have quite significant values. Again, we see a negative main effect from FDI and a positive effect from the interaction term. To have a positive effect the threshold the threshold is 18130[22] for the column 4 and 1300 for the domestic control variable. With a sample average of 8,000 we will in average have a positive effect from FDI on growth when controlling for domestic investment, but not when controlling for trade openness. This means that the host country needs to have a minimum level of income to benefit from FDI.

[20] The average value of school attainment of the sample is 2.3 years of secondary school
[21] These dummy regressions where not included as they did not show any more information
[22] 5.44/0.0003=18,133

An alternative specification by Beck, Levine and Loayza (2000) looked at the financial development in countries rather then the income level. They claimed that this is a better proxy for the possibilities for exploit FDI, improve capital allocation and growth. Following this possibility I again create an interaction term between FDI and access to private credit as a proxy for level of financial development. Table 10 show the result with this specification. This specification has many significant values and the sign of the coefficients is in line with the hypothesis from Beck et al. The threshold value of a positive effect from FDI is close to 0.5. Meaning that there must be around 50% of the GDP available in private credit before FDI investments has a positive effect on growth. Around half of the countries in the sample have a value above this threshold.

Finally we introduce the last interaction term, the openness of trade. Balasubramanyam et al. (1996) wrote an article on the importance of good trade politics and the need for an open trade market to ensure a high economic growth from FDI. In the OLS regressions in Table 11 we cannot find any significant values that support this claim. Again, the interaction term enters significantly in some regressions. The overall picture does not change from these few significant values. We cannot state that a high degree of openness measured by trade, combined with FDI, has a significant effect on economic growth in the recipient country.

These results cohere with many of the OLS results from Carkovic and Levine (2005). They concluded that FDI do not have an overall positive effect on growth. Taking this paper a bit further it would be interesting to look at the same regressions, but instead of using the total value of FDI, examine the data on sector level. Using a new data from UNCTAD on sector levels, I reran the OLS models with sector level data and the different interaction terms specified above.

### 1.2 – Primary Sector FDI values

According to an article by Alfaro (2003) the effects from FDI depends on sector. In her studies she argues that one can expect FDI investment to have altering effect between primary, secondary and tertiary sector. FDI in the primary sector is often viewed as a way of transporting raw materials and natural resources out of a country. There are also arguments that the possible spillover effect from FDI in primary sector is limited. With this backdrop one could expect FDI in the primary sector to have a negative impact on economical growth.

In Table 12 we find support for this argument for many of the variables in the conditional set. We have significant negative coefficients in column 1, 2, 4, 6, 7 and 9. In all of these columns we see a negative coefficient of a magnitude of 6-7. The correct interpretation of these coefficients is that if we increase the FDI with one unite[23] the growth rate will be reduced with 600-700 per cent. The intuition behind this amount is a bit hard to grasp. With the sample average of 5 per cent, as FDI's share of GDP, a more intuitive understanding is if we increase the FDI in primary sector with 1% of the GDP, the growth rate will fall with 6-7%. Many of the conditional variables are also significant with the expected signs. However, the overall explanations of the regressions are relative low with an explanation rate going from 5 to 20 per cent.

Following the set up from the total FDI section above, I will try to advance the model by including different interaction terms. Controlling for education in Table 15, I find fewer significant coefficients for FDI in primary sector. The coefficient changes sign and magnitude making the effect of education ambiguous. In addition the interaction term is always negative suggesting that less human capital reduce the deterioration of the growth rate. This provides no logical or reasonable interpretation.

Including an interaction term for the income level as a proxy for general poverty level, as shown in Table 18 this result in many significant FDI coefficients with a negative impact, but the interaction term is insignificant for all the regressions. In this table the sign and magnitudes are within the expected range. FDI in primary

[23] Since the FDI is measured in share of GDP 1 unit of FDI equal the the host country's annual GDP.

sector would have a positive effect if the income level had been around 7,000USD. If the coefficient had been significant we could have interpret the coefficients as countries with high would benefit from FDI in primary sector and poorer countries would be exploited.

In the Table 21 we take a closer look at the interaction with financial development. Again we find negative FDI terms and positive interaction, but again the interaction terms are all insignificant providing little insight to the real effect from a well-developed financial system

Next we include the interaction term for the openness of the economy towards trade. Looking at the last column in Table 24 we see that the FDI and the interaction term both are significant when we include the entire conditional set. An interesting observation is that the signs have now switched. FDI in primary sector is isolated a positive effect on growth, but it is being hold back by the interaction term. Holding everything else equal increasing trade openness reduce growth. An economical interpretation of this effect could be that countries with a high trade volume are often more troubled with exploitation of resources in the primary sector. Reduced trade openness will make it more difficult to exploit a country's natural resources.

### 1.3 – Secondary sector FDI values

Looking at Table 13 we see that the FDI in secondary sector mainly has a positive sign with a few exceptions. Unfortunately none of the coefficients are significant. According to Alfaro (2003) FDI in the manufacturing sector normally has a positive effect on economical growth. The main reason behind this assumption is that in this sector there are better conditions for spillover effect. The regressions in the table provide evidence of such effect.

In Table 16, Table 19 and Table 25 there are few significant values giving little room to evaluate the effect of including interaction terms for human capital, income level or trade openness. According to theory the effect of the investment in secondary sector should be higher then the primary. We would therefore expect a lower negative coefficient for the FDI or a higher positive coefficient for the interaction term, but we find no trace of this either.

Looking at the interaction of a well-developed financial system, in Table 22, we find significant for almost the entire conditional set. Investment in the secondary sector has negative effect, but when controlling for access to private credit we could have a positive effect if the credit is high enough. The interpretation of this can be related to the need for sufficient funds for the local business to be able to capitalize on the spillover effect from FDI in the secondary sector.

### 1.4 – Tertiary sector FDI values

Similar to the two previous sectors we will now look closer at the third sector, the service providers. Alfaro (2003) states that one normally find ambiguous answers concerning investment into this sector. In Table 14 we see that the coefficient for the FDI in the tertiary sector has a positive effect on the growth rate. The effect is not as big as in the primary sector, but the effect is clearly a positive contribution on economic growth.

Including interaction term with education, income level, financial development and trade do not produce any significant value, shown in Table 17, Table 20, Table 23 and Table 26. The overall trend is that the FDI coefficient is negative and the interaction term is positive, indication that FDI in the tertiary sector can inhabit a positive effect on growth if the level of human capital is high enough, there is good access to private credit, the country is wealthy enough to support the investment or the country has good trading possibilities.

### 1.5 – All sectors

So far we have investigated the different relationships between growth and investment into each sector. To get a better control that the included sector is not capturing effects from other investments to the other sectors I rerun the model with all three FDI sectors in one model. This will control for possible cross-explanations in the previous sections.

We start by looking at FDI in primary, secondary and tertiary sector with no interaction term. Table 27 depict this set up. The coefficients for the primary and the tertiary sector are mainly significant, but none of the coefficients for the secondary sector are. The primary sector clearly has a negative effect, in line with previous

reports. From the table we cannot say much about the secondary sector as the signs change and we have no significant values. In contrast to the report by Alfaro (2003) there is a clear positive trend for investments to the tertiary sector. In addition the table show that the effect from investing in the primary sector is much higher then investing in the tertiary.

Table 28 includes the human capital interaction term for all the sectors. The results are unfortunately not too uplifting. Very few of the variables have significant coefficients and give little explanation to the effect of FDI on economical growth.

An interaction with proxy for a country's wealth is included in Table 29. This model shows some significant values for both FDI in primary and the interaction term related to this sector. When a country has a sufficient level of wealth, proxied by the income level, investments into the primary sector can be seen as a developing investment. The explanation can be found when looking at the future of wealthy nations. Wealthy nations often have better government system to ensure that investment in the primary sector do not lead to exploration of resources, but promote growth and development.

Table 30 show the findings when including access to private credit as an interaction term. With this interaction I get significant values for the secondary sector and the interaction term with this sector. FDI in the secondary sector will reduce the growth rate, as the coefficient is negative. This effect will be reduced by the increase of access to private credit. This is the same effect as we saw when controlling only for FDI in the secondary sector in the previous section. The interpretation is the same, for the local manufactures to benefit from spillover effects there need to be a minimum level of private credit available.

For the last interaction term at the importance of an open economy is taken into account, here proxy by trade as part of the GDP. Table 31 present the results from this model. Unfortunately there are none significant variables giving little clarification to the effect of having an open economy and FDI in different sectors.

## 4.2 Findings in the dynamic model

The findings in the OLS model gave some good intuitions about the effect that FDI in different sectors can have on economical growth. Further I will examine these results by using a more advanced statistical method. I will make use of the time-series future of the data set by constructing panels of data. By using a dynamic model it is possible to add other futures to the model. It is important to acknowledge that a dynamic model is more complex and therefore the input values and specifications become equally more important.

### 2.1 – The main sectors

As before we start by looking at the total FDI. In Table 32 we immediate see that we have much more statistical significant values. Total FDI clearly has a positive effect on growth. The effects of FDI on growth should be interpret as one per cent increase in the FDI variable will increase growth the growth rate with 0.0012[24]. The conditional set has the expected signs for inflation, large governments and freedom of press. Increased values lead to reduced growth rate. Higher education, trade openness, access to private credit, high investment rate and good institutions all contribute to a higher growth. As expected the previous realization of the growth rate also contributes to the growth in this time period.

Looking at the investments to primary sector we also find more significant values and a positive effect on growth. This supports some of the findings from the simpler OLS model and contradicts previous results of a negative effect from FDI in the primary sector. The effect on growth is also higher then for the total FDI, around 0.0025 for 1 per cent increase in FDI. The results can be found in Table 33.

In Table 34and Table 35 we see the same results for FDI in the secondary and tertiary sector. Both tables show a positive effect on growth with many significant values. The largest effect from FDI is seen in investments made in the manufacturing sector. Investments in the service sector also show a clear positive effect, but with a smaller magnitude than from investments in the primary and secondary sector. The initial findings from the GMM model, predicts a positive effect from all types of FDI, but there are internal differences on the effect on growth. As previous reports have

[24] Growth is in levels and FDI is in logarithm

discovered investment made in the manufacturing sector have the largest positive effect in economic growth.

So far I have just controlled for FDI and growth in each sector, we should control that none of the included investments cancel out or is affected by the other sectors. We do this by including all three sectors in one regression. The results are not as significant as they where separately, but the trend is still visible. All three have a positive effect, with investments in manufacturing being the most important followed by primary. The result is presented in Table 36.

### 2.2 – Education and growth

In the OLS model there were no clear link between FDI's effect on growth and the educational level in the host country. When using the GMM model it is not possible to find more significant values of a link between education and FDI's effect on growth. Looking through Table 37 to Table 41 there are few significant values. When looking at the primary sector we find significant values for the FDI and the interaction term when controlling for private credit and institutional quality. Under these control variables investment in the primary sector can increase growth if there is sufficient education in the recipient country. There is no such connection for any of the other sectors or in the combined case in Table 41.

### 2.3 – Income level

Economical theory postulate that rich countries then to have a smaller growth rate. The OLS model predicted that it is important to have at least a minimum level of income before a country can make advantage of FDI. In the dynamic model we again see the same tendencies as we saw in the OLS model. All types of FDI investments are a positive contribution to economical growth. One might be mislead by the fact that the interaction term often is negative and get an impression that high-income countries will have reduced benefit from FDI investments. However, when we examines the results in Table 42 to Table 46 the interaction term is mainly significant for the total FDI and for the tertiary FDI and for all the regression the magnitude for the coefficient is for all practical reasons equal to zero. This underlines the initial findings from the GMM model that all types of FDI have a positive effect on growth. Another interesting observation is that with this

interaction term we also see a clear difference in magnitude of the effect on growth following previous findings.

### 2.4 – Financial development

Next we take a closer look at the need for a well functioning financial system. Again, this is proxied by the access to private credit from domestic institutions. Access to credit is a crucial factor for private businesses to maintain production and services. Looking at Table 47 to Table 51 we cannot see a clear indication that FDI has a positive effect on growth, even after controlling for different sectors. We see some significant variables, but because these are rare and inconsistence to much emphasis cannot be put on these results.

### 2.5 – Trade openness

The last control variable we look at is the importance of an open and well functioning trade system. Looking at Table 52 we have some significant values, but not enough to make a clear statement concerning the effect of total FDI and trade on economic growth. We find the same results for the rest of the regressions in Table 53 to Table 56. This might be a result from a bad proxy variable for openness or it can be an indication that there are few direct linkages between FDI, trade and growth.

## 5. Robustness

Following the statistical analyses it is important to control the robustness of the findings in these analyses. There are several tests and ways of controlling the fairness of the presented results. In the following section I will present several checks for the robustness for the results.

We started by conducting a simple OLS regression based on one observation for each of the countries in the sample. The results count as a preliminary observation for the direction and importance of the different interaction terms and the difference across sectors. For a more robust and statistical stronger result we implemented the method of generalized method of moments (GMM). Utilizing the cross-country variation in FDI to look closer on the cross-country variation in economical growth. When we implemented the GMM we used linear moment condition to ensure that the instrument variables (the lagged observations) where uncorrelated with the error term. At the same time the instrument variable had to have a clear and direct effect on the growth variable. The economical effect of this technical exercise is that the instrument can only affect the growth variable through the FDI channel and the other control variable in the condition set. Because of the importance of independence on one side and the dependence on the other side it is important to test if these criteria's are in place. As mention in the theoretical explanation of the model this can be control for through a Sargan/Hansen test of overidentifying restrictions. The test checks if the moment conditions are jointly valid. Based on this test we do not reject any of the results presented in the previous sections. It is important to remember that one should not rely too much on this test as one first set the model to drive the moment conditions toward zero and the test with the Sargan/Hansen test if they really are equal to zero. The test therefor become weaker as we continue to add moments as is becomes harder for the model to make all conditions equal to zero.

Secondly we tested if the standard errors inhabit any form of autocorrelation. One of the important assumptions for the model is that the standard errors are independent and identically distributed. If this assumption is not satisfied the result can still be valid, but no longer efficient. Testing for this we find no sign of autocorrelation in the regressions.

As a third test, I have rerun the model with altering specification. I have used dummy variables to limit the sample to specific regions and economical development to test if some of the observations in the end of the scale have influenced the results in any direction. This technic was used to see if FDI in African countries specific had a different effect on growth then in other countries. The dummy variable showed no such effect. There were also created time dummy variable to further subtract the time-effect, but very few of these dummies proved to be statistical significant. The results of these alternative specifications were therefore not attached. The use of natural logarithms on the control values has also not change the results.

Alternative samples have been considered. The possibility that the findings are influenced by the way the data is collected or reported is always a possibility. I have therefor used different samples for several of the independent variables. These alternative samples have not altered the findings in any significant way. Ideally I would also liked to have had a control sample for the FDI observations as well. Unfortunately, I have not been able to gather alternative observation on FDI on sector levels from any other source. A possibility would have been to use portfolio inflows that are also reported by UNCTAD, but the cost of acquiring these data made them unavailable for this analysis.

## 6. Impact of Chinese FDI in Africa

So fare the statistical analysis have focus on the general effect of FDI and the impact on economical growth. Since the scoop of this thesis is to investigate the effect of Chinese FDI in Africa it might seem odd to preform a general analysis on FDI with no direct contact to China or Africa. The answer to this question is basically that neither of the two parties in question are particularly good in reporting accurate and credible data or information. At the same time UNCTAD do not provide sectorial data from specific countries. This means that my question on whether the investment in agriculture differs from service investments would not be answered. I have therefore chosen to do a general analysis based on as many countries as possible and try to interpret the results from this analysis in a Chinese/African context. I have also tried to include a few control variables to see if there are any differences if the host country is an African country or if the host country receives large FDI from China. Very few of these control variables have been significant and few of them have therefore been commented on in previous sections.

To positioning the results from the models into a Chines/African context we would have to take a closer look at the form and direction of the Chinese foreign direct investments. As mention in the introduction section the Chinese investments have over the last couple of decades change both in size and in direction. Still the per cent of Chinese investments going to African countries remains small compared to Chinese FDI to the Asian region.

According to a report published by United Nations (2007, ss. 56-62), based on data from UNCTAD and MOFCOM, Chinese investments in Africa have mainly gone into the manufacturing and resource extraction in terms of value. Number of investments into the service sector show that the Chinese also have large interests for this sector also, but in value terms they do not invest as large values as in the two other sectors.

| Sector/industry | Number of projects | Investment value (Millions of dollars) |
|---|---|---|
| Agriculture | 22 | 48 |
| Resource extraction | 44 | 188 |
| Manufacturing | 230 | 315 |
| Machinery | 20 | 16 |
| Home appliances | 36 | 25 |
| Light industry | 82 | 87 |
| Textiles | 58 | 102 |
| Other manufacturing | 34 | 86 |
| Services | 200 | 125 |
| Others | 3 | 6 |
| Total | 499 | 681 |

*Souce*: UNCTAD, based on information provided by the MOFCOM.

[a] Data are on an approval basis.

**Table 6:**
**Chinese investment in Africa**

Some of the explanation for this investment profile we find in the Chinese government. They have published a set of identified industries and types of project that Chinese enterprises should target. This means that there is a clear and defined reason for the Chinese investments in Africa. The investments are not a result of random decisions by individual companies, but part of an investment plan by the Chinese government. This allow us to interpret the direction and magnitude of the investments in a much more structure way. The defined target industries and sectors are:

1. Industrial processing
2. Agriculture
3. Natural resources
4. Infrastructure and real estate development

One of the comparative advantages Chine is known for possessing is advanced technology in electronics and machinery building, textiles and garment, and building materials. Targeting industrial processing industry they can make an advantage of their comparative advantages.

Looking at the changes that have taken place in China over the last decades we see that there has been a focus on increasing productivity and quality of their agricultural products. The need for this focus aroused from the rapidly increasing

population and the fast expansion of industrialised cities. Looking at many of the African countries we see some of the same challenges. The Chinese might target this sector because they can transfer some of their knowledge becoming a developing country. If we also include the fact that most of the agricultural export from Africa mostly consist of unprocessed goods improving this sector will benefit both Africa that can export higher value product and China who demand such product on the open market to maintain a sustainable growth in China. These types of investments can also be a solution to the critical famine problems in Africa.

It is no secret that to maintain the rapid growth in China they need a lot of critical natural resources such as petroleum and minerals. Africa being a natural resource rich continent with a lot of these resources would be an ideal place for China to support their needs for their materials. These types of investments are often the most suspect investment by the Chinese in the eyes of the Western World. Is the investment pure exploitation or is it way for African countries to extract and benefit from their vast resources?

Another sector we see a lot of Chinese activity is in the infrastructure and real estate development. Even though the results from investing in these projects are often unclear, these sectors provide a lot of backward going orders to China and therefore an important part of the Chinese investment program. These projects were some of the first China did in Africa and they have long and well-working relationship that supports these investments.

Now that we have taken a closer look on the type of investments that the Chinese does in Africa how do they affect the opportunity for economical growth. I will now try to connect the Chinese investment profile in Africa to the findings in the previous analysis of FDI's effect and interactions on economical growth.

We start by looking at the primary sector and the extraction of natural resources. As stated by the Chinese government these are areas that they want Chinese companies to target in Africa. The effect of investments done to these industries have for a long time been seen as a pure exploitation of resources, i.e. having a negative effect on the host countries. From the analysis in this thesis, based on the most updated data on the sector levels provided by UNCTAD, the simple model does not reject this belief.

By taking advantage of a more advanced model we see that investment to these industries also can have a positive effect on growth. If we take a step further we see that that the dynamic model support a positive effect of investments to this sector if there are some basic level of education, trade and financial development. The result from these models are that investment going to the primary sector can have a positive effect on growth in the host country and that the effect will be more sustainable if one also could increase the overall development in the host country. Even though the analysis shows that the investment by it self is at least not negative one should look at the possibility to improve other sectors as well. The analysis shows that a well-developed private credit market and controlled trade openness can prevent natural resources from being exploited.

Another focus area for the Chinese in Africa is the industrial sector. China has for a long time been a high growth country with close to 10% growth annually (UNITED NATIONS, 2005). Chinese investments into the industry sector are therefore not a surprise. In addition, when we look at Africa, the industry has not been as far as productive as the Chinese one. Investment going into this sector from a Chinese point of view is a clear possibility to gain a good return on their investment. The effect of such investments is not looked upon as exploitation of the host country in contrast to investments in the natural resources. Previous analyses and papers, including this one, have shown that investment into the secondary sector has a much clearer positive impact on growth. Some of the reason behind this is that investments into the manufacturing sector will provide a growing industry, which drives the country's economy forward. The investments provide work, request resources, manufacture goods to be sold in land or abroad and companies that are required it pay taxes. More efficient Chinese investments provide more of these factors, as they are better to make use of more efficient industrial processes. It is also important to keep in mind the Chinese benefit from these investments in both ends. The Chinese-African joint ventures are often specified to in some way or another to benefit China. This can be everything from Chinese management to use of Chinese produces machines and/or materials. In the other end we find that China request a lot of processed goods to keep their own growth rate high and the internal development they seek. They are therefore also one of the biggest importers of African goods (Broadman, 2007). In Africa they find both cheap labour and access to raw material.

China also invests a lot in infrastructure projects in Africa. These investments include everything from roads and railways to hospitals and grand stations. One of the most prestigious investments is the Tanzanian and Zambian cross-border railway. It is hard to classify these kinds of investments to one sector as they often vary great from building of plants in the secondary sector to oil pipes and oil drilling in the primary sector. They also invest in building hotels and stadiums that are connected to the service sector. The direct effect of such investment on economical growth will therefore vary greatly from project to project. Other studies have showed that the most important feature for investments in infrastructure to have a positive effect on growth is to have strong regulator capabilities (Kirkpatrick, Parker, & Zhang, 2006).

It is important to acknowledge the limitations in the analyses in this paper. The regional dummies for Africa where often not significant and we do not have reliable data on exact Chinese investment profile. The conclusions above do therefor not consider possible corruptions and exploitation of poor developed governments. Another field of FDI studies look closer at what factors draw FDI to specific countries. This is not the scope of this analysis. I will therefore make no assumption about this topic and the effect of such consideration from a general point of view.

## 7. Concluding Remarks

Over the last decades the level of foreign direct investments has risen dramatically. Some of the reason behind this we find in special tax incentives or other incentives to drawn foreign capital into the economy. The effect of such incentives is important to examine closely as we see the rising interest for these investments. There are several ways to examine these effects, both from a microeconomic and a macroeconomic perspective. Microeconomic studies have shown a general pessimistic picture of FDI. Macroeconomic studies have not conformed into a general effect of FDI. In macroeconomic studies the focus have been either on the sector of which the capital has flown or in which additional featured that has to been in place to have an effect on growth.

Through out this thesis I have tried to hold a focus on the initial question concerning the Chinese investment in Africa and the effect of these investments on the economical growth in the continent. Because of the limitations in the available data from both China and African countries the conclusion draws on general results and personal reflections concerning Chinese FDI. The initial interest concerning the massive growth of Chinese present in Africa has not been reduced despite lack of a clear effect from the analysis.

In contrast to previous analyses this paper indicate that interaction of FDI and several other variables can show have a positive effect on growth in all three sectors. Other papers like Alfaro (2003) find that investment in the primary sector often if found to have a negative effect on growth as she argue the spillover effect from this sector is low. The simple model in this paper also finds the same result, but when controlling for other interaction variables the model show that one can have positive effect of investments into sector also. The secondary sector is often seen to have a more possible positive spill over effects and the theoretical framework of FDI also focus on the positive effect of investment in this sector. This analysis also find this positive effect and show that the effect of investment in this sector is likely to be the most significant in terms of magnitude of influence. The effect from investment in the tertiary sector is a bit more positive then other analysis, but it is the weakest result in this paper. This also partiality confirms the previous papers result about an ambiguous effect of investment to this sector.

This paper does not provide a solution or a clear-cut result of the effect of foreign direct investments. It does not prove that FDI is important or unimportant; rather this cross-country analysis show that FDI in different sectors behave differently and other interaction variables are important. For governments considering targeting FDI or governments that encourage foreign direct investments it is important to acknowledge the different effect FDI can have on economical growth and how different interaction variables can improve or alter the investments effect on the host country.

## 8. Additional research

In the process of working with the paper several other links and directions concerning the question has emerged. Due to the limited scope of this paper I have not been able to pursue all these interesting topics, but note that these can and will be interesting question to look closer into.

First there would have been great to be able to confirm the all over positive effect from FDI with a differed set of data. Due to the limited resources and availability of similar updated, and sector specific data, it would have been nice to control for the possibility of a certain influence in the data set by UNCTAD with alternative data.

Data set with specified contribution country and sector they invest in would also add an interesting point of view to see if there are any difference in the contribution countries targeting of specific sectors. This would be especially interesting in the China/Africa framework, as one could have done further analyses on whether China target sectors believed to be connected to exploitation of poor systems and institutions.

As several countries are evaluation their aid program to see if there are other ways to help developing countries to a faster growth it would have been interesting to look closer on the difference in effect from aid and investment. An initial thought would be that investments would contribute in a broader channel and on more levels then regular aid.

## Bibliography

United Nation. (2007). *Asian Foreign Direct investment in Africa.* United Nations Development Program. New York, Geneva: United Nations.

United Nation Conference on Trade and Development. (2008). *World Investment Report Volume X Africa.* Division on Investment, Technology and Enterprise Development. New York and Geneva: United Nations Publication.

United Nation Conference on Trade and Development. (2010). *Economic Development in Africa Report 2010 South-South Cooperation: Africa and the New Forms of Development Partnership.* United Nation. New York and Geneva: United Nations Publication.

UNITED NATIONS. (2005). *CHINA IN A GLOBALIZING WORLD.* UNITED NATIONS, UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT. Geneva: UNITED NATIONS.

United Nations Conference on Trade and Development. (2011). *United Nations Conference on Trade and Development*. Retrieved May 13, 2011 from UNCTAD Statistics Overview: http://unctadstat.org

Ministry of Foreign Affairs, the People's Republic of China. (2009, 09 25). *Declaration of the Beijing Summit Of the Forum on China-Africa Cooperation(full text)*, 2. Retrieved 05 07, 2011 from Forum on China-Africa Cooperation: http://www.fmprc.gov.cn/zflt/eng/ltda/dscbzjhy/DOC32009/t606841.htm

Wang, J.-Y. (1990). Growth, Technology Transfer, and the Long-Run Theory of International Capital Movments. *Journal of International Economics , 29*, 255-271.

Windmeijer, F. (2005). A finite sample correction for variance of linear efficient two-step GMM estimators. *Journal of Econometrics , 126* (1), 25-51.

Wheeler, D., & Mody, A. (1991). International investment location decisions. *Journal of International Economics , 33*.

Alfaro, L. (2003). *Foreign Direct Investment and Growth: Does the Sector matter?* Harvard Business School, Boston.

Anderson, T. W., & Hsiao, C. (1982). Formulation and estimation of dynamic models using panel data. *Journal of Econometrics , 18* (1), 47-82.

Arellano, M., & Bover, O. (1995). Another look at the instrumental variables estimation of error-components model. *Journal of Econometrics , 68*, 29-51.

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies , 58*, 277-297.

Buckley, P. J., Clegg, L., Cross, A. R., Liu, X., Voss, H., & Zheng, P. (2007). The determinants of Chinese outward foreign direct investment. *Journal of International Business Studies , 38*, 499-518.

Bundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics , 87*, 11-143.

Balasubramanyam, V. N., Salisu, M., & Sapsford, D. (1996). Foreign Direct Investment and Growth in EP and IS countries. *The Economic Journal , 106* (434), 92-105.

Barro, R. J., & Sala-i-Martin, X. (1999). Empirical Analysis of a Cross Selection of Countries. In R. J. Barro, & X. Sala-i-Martin, *Economic growth.* London, England: The MIT Press.

Barrro, R., & Lee, J.-W. (2010). A new data set of educational attainment in the world, 1950-2010. *NBER Working paper No.15902* .

Bezuidenhout, H. (2009). *A Regional Perspective on AID and FDI in Southern Africa.* North-West University. Potchefstroom, South Africa: Springer.

Beck, T., Levine, R., & Loayza, N. (2000). Financial intermediation and growth: Causality and causes. *Journal of monetary economics* (46), 31-77.

Blomström , M., Lipsey, R. E., & Zejan, M. (1992). What explain developing country growth? *NBER Working paper series* (4132).

Borensztein, E., De Gregorio, J., & Lee, J.-W. (1998). How Does Foreign Direct Investment Affect Economic Growth? *Journal of International Economics , 45*, 115-135.

Broadman, H. (2007). Connecting Africa and Asia. *Finance and development , 44* (2).

Carkovic, M., & Levine, R. (2005). Does Foreign Direct Investment Accelerate Economic Growth? In T. H. Moran, E. M. Graham, & M. Blomström, *Does Foreign Direct Investment Promote Development* (pp. 195-220). Washington, Washington, USA: Institute for international economics Center for Global Development.

Cheung, Y.-W., & Qian, X. (2008). *The Empirics of China's Outward Direct Investment.* CESifo.

Dunning, J. H. (1977). Trade, Location of Economic Activity and the MNE: A Search for an Eclectic Approach. In B. Ohlin, P.-O. Hesselborn, & P. Wijkman, *The International Allocation of Economic Activity* (pp. 395-418). London: The Macmillan Press.

Fairbank, J. K., & Goldman, M. (2006). The Cultural Revolution. In J. K. Fairbank, & M. Goldman, *China - A new history* (Vol. 2, pp. 383-405). Massachusetts, England: The Belknap Press of Harvard University Press.

Findlay, R. (1978). Relative Backwardness, Direct Foreign Investment, and the Transfer of Technologu: A simple Dynamic Model. *The Quarterly Journal of Economics , 92* (1), 1-16.

Freedom House. (2011). *Freedom House*. Retrieved April 2011 from Freedom of press: http://www.freedomhouse.org

Freemantle, S., & Stevens, J. (2009). *BRIC and Africa: Tectonic Shifts Tie BRIC and Africa's Economis Destinies.* South Africa: Standard Bank.

Goldman, M. (2006). The Post-Mao Reform Era. In J. K. Fairbank, & M. Goldman, *China - A new history* (Vol. 2, pp. 406-456). Massachusetts, England: The Belknap press of Harvard University Press.

Görg, H., & Greenaway, D. (2003). *Much Ado About Nothing? Do Domestic firms really benefit from foreign direct investment?* IZA.

International Energy Agency. (2009). *World Energy Outlook 2009.* International Energy Agency.

Hanson, G. H. (2000). *Should Countries Promote Foreign Direct Investment?* Department of Economics and School of Business Administration University of Michigan And National Bureau of Economic Research.

Hirschman, A. O. (1958). *The Strategy of Economic Development.* New Haven: Yale University Press.

Kirkpatrick, C., Parker, D., & Zhang, Y.-F. (2006). Foreign direct investment in infrastructure in developing countries: does regulation make a difference? *TRANSNATIONAL CORPORATIONS , 15* (1), 143-171.

Koech, J. (2010). *Globalization and Monetary Policy Institute 2010 Annual Report.* Retrieved December 2, 2011 from Federal Reserve Bank of Dallas: http://dallasfed.org/institute/annual/2010/annual10d.cfm

Kolstad, I., & Wiig, A. (2010). What determines Chinese outward FDI? *Journal of World Business* .

Lipsey, R. E., & Sjöholm, F. (2005). The impact of inward FDI on Host Countries: Why such different answers? In T. H. Moran, E. M. Graham, & M. Blomström, *Does Foreign Direct Investment promote development?*

Navaretti, G. B., & Venables, A. J. (2004). *Multinational Firms in the World Economy.* New Jersey: Princeton University Press.

Nelson, R. R., & Phelps, E. S. (1966). Investment in Humans, Technological, and Economic Growth. *The American Economic Review , 56* (1/2), 69-75.

MacKinnon, J., & White, H. (1985). Some heteroskedasticity-consistent covariance matrix estimators with improved finite sample properties. *Journal of Econometrics , 29*, 305-325.

Markusen, J. R. (2002). *Multinational Firms and the Theory of International Trade.* MIT Press.

Ministry of Foreign Affairs, the People's Rebuplic of China. (2004). *The creation of FOCAC*. Retrieved 05 06, 2011 from Forum on China-Africa Cooperation: http://www.focac.org/eng/ltda/ltjj/t157569.htm

Ministry of Foreign Affairs, the People's Republic of China. (2000, 11 17). *Premier Zhou Enlai's Three Tours of Asian and African countries*. Retrieved 05 03, 2011 from Ministry of Foreign Affairs of the People's Republic of China: http://www.fmprc.gov.cn/eng/ziliao/3602/3604/t18001.htm

Payne, R. J., & Veney , C. R. (1998). Chinas post- cold war African policy. *Asian Survey , 38* (9), 867-879.

Romer, P. (1993). Idea gaps and object gaps in economic development. *Journal of Monetary Economics , 32*.

Roodman, D. (2009). How to Do xtabond2: An Introduction to "Difference" and "system" GMM in Stata. (H. J. Cox, Ed.) *Stata Journal , 9* (1), 86-136.

Taylor, I. (1998). China's foreign policy towards Africa in the 1990s. *The Journal of Modern African Studies , 36*, 443-460.

The World Bank. (2011). *The World Bank*. Retrieved May 2011 from Data: http://data.worldbank.org

The Information Office of the State Council. (2010). *Full text: China-Africa Economic and Trade Cooperation.* Retrieved May 8, 2011 from Chinese Government's Official Web Portal: http://www.gov.cn/english/official/2010-12/23/content_1771603.htm

The PRS Group. (2011). *The PRS Group*. Retrieved April 2011 from International Country Risk Guide (ICRG): http://www.prsgroup.com/ICRG.aspx

Thompson, D. (2005, July). China's Emerging Interests in Africa: Opportunities and Challanges for Africa and the United States. *African Renaissance Journal* .

Tjønneland, E. N., Brandtzæg, B., Kolås, Å., & le Pere, G. (2006). *China in Africa - Implications for Norwegian Foreign and Development Policies.* Chr. Michelsen Institute. Bergen: CMI Reports.

# Appendix

## 1. List of countries in the sample

| | | | |
|---|---|---|---|
| Albania | Ecuador | Kyrgyz Republic | Philippines |
| Argentina | Egypt, Arab Rep. | Lao PDR | Poland |
| Armenia | El Salvador | Latvia | Portugal |
| Australia | Estonia | Lithuania | Romania |
| Austria | Ethiopia | Macao SAR, China | Russian Federation |
| Azerbaijan | Fiji | Macedonia, FYR | Saudi Arabia |
| Bangladesh | Finland | Madagascar | Serbia |
| Belgium | France | Malawi | Singapore |
| Belize | Germany | Malaysia | Slovak Republic |
| Bolivia | Greece | Malta | Spain |
| Bosnia and Herzegovina | Guatemala | Mauritania | Sweden |
| Brazil | Guyana | Mauritius | Switzerland |
| Brunei Darussalam | Honduras | Mexico | Syrian Arab Republic |
| Bulgaria | Hong Kong SAR, China | Moldova | Thailand |
| Cambodia | Hungary | Montenegro | Trinidad and Tobago |
| Canada | Iceland | Morocco | Tunisia |
| Cape Verde | India | Mozambique | Turkey |
| Chile | Indonesia | Netherlands | Ukraine |
| China | Ireland | Nicaragua | United Kingdom |
| Colombia | Isle of Man | Nigeria | Tanzania |
| Costa Rica | Italy | Norway | United States |
| Croatia | Jamaica | Oman | Uruguay |
| Cyprus | Japan | Pakistan | Vanuatu |
| Czech Republic | Jordan | Panama | Venezuela, RB |
| Denmark | Kazakhstan | Paraguay | Zambia |
| Dominican Republic | Korea, Rep. | Peru | |

## 2. The conditioning set

The conditional set consist of the following variables:

- Average year of secondary schooling
- Inflation
- Government size
- Trade openness
- Access to private credit
- Domestic investment
- Chinese investment
- Freedom of press
- Institutional Quality
- Africa dummy
- Time dummies
- Education dummy
- Level of GDPPC

# Table appendix

## OLS Eq. 1

OLS Growth and FDI Total

| Variable | OLSTOT1 | OLSTOT2 | OLSTOT3 | OLSTOT4 | OLSTOT5 | OLSTOT6 | OLSTOT7 | OLSTOT8 | OLSTOT9 | OLSTOT10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.6815467 | -3.1298416 | -3.6384312 | -3.0621895 | -1.5694773 | -1.4564978 | -3.4173726 | -3.5759852 | -3.3136643 | -1.5311184 |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0096 | 0.0296 | 0.0000 | 0.0000 | 0.0000 | 0.2991 |
| Ln(Initial level of GD~) | -.19330173 | -.10419572 | -.08418764 | -.09977886 | -.26910127 | -.08049926 | -.0846834 | -.28024524 | -.09104594 | -.14463048 |
| | 0.0177 | 0.0260 | 0.2169 | 0.0367 | 0.0001 | 0.0737 | 0.2344 | 0.0637 | 0.0848 | 0.4101 |
| Ln(Avg.year of seconda~) | .23332858 | | | | | | | | | -.14244989 |
| | 0.1027 | | | | | | | | | 0.5340 |
| Ln(1+Inflation) | | -.51772931 | | | | | | | | -.29347583 |
| | | 0.0000 | | | | | | | | 0.0217 |
| Ln(Government size) | | | -.19756162 | | | | | | | -.35916863 |
| | | | 0.4275 | | | | | | | 0.1169 |
| Ln(Trade Openness) | | | | .24505795 | | | | | | -.08464269 |
| | | | | 0.0863 | | | | | | 0.6078 |
| Ln(Access to private c~) | | | | | .44890047 | | | | | .29309699 |
| | | | | | 0.0000 | | | | | 0.0246 |
| Ln(Domestic investment) | | | | | | 1.2729683 | | | | 1.0317752 |
| | | | | | | 0.0010 | | | | 0.0762 |
| Press freedom | | | | | | | .02363236 | | | -.15627197 |
| | | | | | | | 0.8812 | | | 0.4151 |
| Instiutional quality | | | | | | | | .02503094 | | .00310327 |
| | | | | | | | | 0.0807 | | 0.8411 |
| African dummy | | | | | | | | | -.03209062 | .34265345 |
| | | | | | | | | | 0.8850 | 0.2530 |
| Total FDI | 1.7554406 | 1.481467 | 2.2753144 | -.40665689 | 1.3953556 | .5062839 | 1.6496016 | 1.4785051 | 1.7807631 | 2.1842568 |
| | 0.3014 | 0.3725 | 0.1595 | 0.8277 | 0.3363 | 0.7429 | 0.3170 | 0.4131 | 0.2899 | 0.2665 |
| N | 69 | 75 | 67 | 74 | 74 | 73 | 73 | 65 | 75 | 56 |
| r2_a | .0609026 | .08738689 | .06269937 | .05299974 | .20262436 | .15981439 | .01612046 | .06184122 | .01196981 | .30293749 |

**Table 7:**
**OLS model total FDI**

## OLS Eq. 2

OLS Growth and FDI Total and Education

| Variable | OLSTOT1 | OLSTOT2 | OLSTOT3 | OLSTOT4 | OLSTOT5 | OLSTOT6 | OLSTOT7 | OLSTOT8 | OLSTOT9 | OLSTOT10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.5382854 | -2.6782852 | -3.8174091 | -2.5666305 | -1.19823 | -.94525059 | -2.7525204 | -3.159762 | -2.8616722 | -1.532753 |
| | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0811 | 0.2223 | 0.0043 | 0.0000 | 0.0000 | 0.3118 |
| Ln(Initial level of GD~) | -.20592859 | -.16053124 | -.0906383 | -.16248996 | -.31692062 | -.14474994 | -.15714421 | -.35108013 | -.14801667 | -.13886714 |
| | 0.0142 | 0.0136 | 0.2570 | 0.0131 | 0.0001 | 0.0106 | 0.0750 | 0.0485 | 0.0275 | 0.4306 |
| Ln(Avg.year of seconda~) | .18669463 | | | | | | | | | -.21462314 |
| | 0.2157 | | | | | | | | | 0.4566 |
| Ln(1+Inflation) | | -.49513052 | | | | | | | | -.28126341 |
| | | 0.0000 | | | | | | | | 0.0333 |
| Ln(Government size) | | | -.36407898 | | | | | | | -.33362076 |
| | | | 0.1228 | | | | | | | 0.1488 |
| Ln(Trade Openness) | | | | .22535248 | | | | | | -.07793274 |
| | | | | 0.1228 | | | | | | 0.6377 |
| Ln(Access to private c~) | | | | | .44951971 | | | | | .28192966 |
| | | | | | 0.0000 | | | | | 0.0330 |
| Ln(Domestic investment) | | | | | | 1.2761414 | | | | 1.0642194 |
| | | | | | | 0.0023 | | | | 0.0709 |
| Press freedom | | | | | | | -.02257276 | | | -.12853132 |
| | | | | | | | 0.9007 | | | 0.5550 |
| Instiutional quality | | | | | | | | .02718299 | | .00395582 |
| | | | | | | | | 0.1016 | | 0.8008 |
| African dummy | | | | | | | | | .04245497 | .31516664 |
| | | | | | | | | | 0.8617 | 0.3147 |
| Total FDI | -1.9445865 | -3.4951135 | -.44985723 | -6.8278726 | -2.4919855 | -6.1445838 | -3.874607 | -3.8529929 | -4.2296652 | -.63370131 |
| | 0.7262 | 0.5267 | 0.9232 | 0.2074 | 0.6075 | 0.1888 | 0.4668 | 0.5174 | 0.4303 | 0.9309 |
| Total FDI x Avg.Year o~g | 1.4124702 | 1.9026497 | 1.1279181 | 2.5151954 | 1.5077711 | 2.5867546 | 2.1668199 | 2.0261494 | 2.2907367 | .98145988 |
| | 0.4127 | 0.2716 | 0.4413 | 0.1205 | 0.2974 | 0.0712 | 0.2007 | 0.2742 | 0.1797 | 0.6467 |
| N | 69 | 69 | 61 | 68 | 68 | 68 | 68 | 62 | 69 | 56 |
| r2_a | .05528884 | .1110125 | .11089736 | .06960131 | .23324776 | .18381911 | .03342899 | .06640058 | .03431604 | .29055632 |

**Table 8:**
**OLS model total FDI with human capital interaction term**

OLS Growth and FDI Total and Income level

| Variable | OLSTOT1 | OLSTOT2 | OLSTOT3 | OLSTOT4 | OLSTOT5 | OLSTOT6 | OLSTOT7 | OLSTOT8 | OLSTOT9 | OLSTOT10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.0042789 | -2.6166639 | -2.8442811 | -2.3751115 | -1.0970756 | -.5025209 | -2.9114819 | -3.1461427 | -2.7201312 | -1.0457226 |
| | 0.0044 | 0.0000 | 0.0036 | 0.0000 | 0.1050 | 0.4379 | 0.0006 | 0.0000 | 0.0000 | 0.5011 |
| Ln(Initial level of GD~) | -.27613932 | -.16626088 | -.16465505 | -.17878014 | -.32658645 | -.16540422 | -.14815991 | -.32085943 | -.16196133 | -.18164505 |
| | 0.0034 | 0.0064 | 0.0554 | 0.0030 | 0.0000 | 0.0016 | 0.0605 | 0.0348 | 0.0128 | 0.3114 |
| Ln(Avg.year of seconda~) | .25130659 | | | | | | | | | -.13103656 |
| | 0.0794 | | | | | | | | | 0.5759 |
| Ln(1+Inflation) | | -.47919551 | | | | | | | | -.26615949 |
| | | 0.0000 | | | | | | | | 0.0525 |
| Ln(Government size) | | | -.10997849 | | | | | | | -.26521151 |
| | | | 0.6398 | | | | | | | 0.2597 |
| Ln(Trade Openness) | | | | .2807636 | | | | | | -.0746438 |
| | | | | 0.0390 | | | | | | 0.6475 |
| Ln(Access to private c~) | | | | | .43532753 | | | | | .27424059 |
| | | | | | 0.0001 | | | | | 0.0357 |
| Ln(Domestic investment) | | | | | | 1.4337433 | | | | 1.1009448 |
| | | | | | | 0.0001 | | | | 0.0657 |
| Press freedom | | | | | | | .04088894 | | | -.12016358 |
| | | | | | | | 0.7864 | | | 0.5285 |
| Instiutional quality | | | | | | | | .02379381 | | .00298224 |
| | | | | | | | | 0.0914 | | 0.8430 |
| African dummy | | | | | | | | | -.04022656 | .29154352 |
| | | | | | | | | | 0.8568 | 0.3190 |
| Total FDI | -2.9092815 | -2.3559423 | -1.7532694 | -5.4488315 | -2.4244131 | -4.9449479 | -2.6154963 | -1.7267756 | -2.5021837 | -.34482885 |
| | 0.3090 | 0.4012 | 0.5400 | 0.0653 | 0.3424 | 0.0512 | 0.3152 | 0.5763 | 0.3452 | 0.9292 |
| Total FDI x Income level | .0003299 | .00028023 | .00027876 | .00034269 | .00027831 | .00038384 | .00030855 | .00022642 | .00031073 | .00015021 |
| | 0.0574 | 0.0908 | 0.1066 | 0.0191 | 0.0431 | 0.0074 | 0.0546 | 0.1509 | 0.0630 | 0.3346 |
| N | 69 | 75 | 67 | 74 | 74 | 73 | 73 | 65 | 75 | 56 |
| r2_a | .11789079 | .12348084 | .09597255 | .11255218 | .2398062 | .23961015 | .06401534 | .0834232 | .05876281 | .30231043 |

**Table 9:**
**OLS model total FDI with income level interaction term**

OLS Growth and FDI Total and Private credit

| Variable | OLSTOT1 | OLSTOT2 | OLSTOT3 | OLSTOT4 | OLSTOT5 | OLSTOT6 | OLSTOT7 | OLSTOT8 | OLSTOT9 | OLSTOT10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.2722373 | -2.6825938 | -2.9176894 | -2.6831641 | -1.7136544 | -1.330589 | -2.9457645 | -3.1508508 | -2.7981906 | -1.7326791 |
| | 0.0002 | 0.0000 | 0.0003 | 0.0000 | 0.0073 | 0.0371 | 0.0003 | 0.0000 | 0.0000 | 0.2878 |
| Ln(Initial level of GD~) | -.23955942 | -.16122692 | -.15906454 | -.1554574 | -.26001363 | -.13352468 | -.14514035 | -.3004239 | -.15510736 | -.15754421 |
| | 0.0033 | 0.0018 | 0.0242 | 0.0029 | 0.0003 | 0.0044 | 0.0474 | 0.0323 | 0.0066 | 0.3539 |
| Ln(Avg.year of seconda~) | .1859553 | | | | | | | | | -.15965543 |
| | 0.1766 | | | | | | | | | 0.5024 |
| Ln(1+Inflation) | | -.42408341 | | | | | | | | -.3364603 |
| | | 0.0000 | | | | | | | | 0.0133 |
| Ln(Government size) | | | -.11684021 | | | | | | | -.29299071 |
| | | | 0.5726 | | | | | | | 0.1849 |
| Ln(Trade Openness) | | | | .148214 | | | | | | -.15701168 |
| | | | | 0.3062 | | | | | | 0.3980 |
| Ln(Access to private c~) | | | | | .34459634 | | | | | .15557754 |
| | | | | | 0.0080 | | | | | 0.3901 |
| Ln(Domestic investment) | | | | | | 1.0736174 | | | | 1.068747 |
| | | | | | | 0.0055 | | | | 0.0725 |
| Press freedom | | | | | | | .03699046 | | | -.13138637 |
| | | | | | | | 0.8031 | | | 0.5110 |
| Instiutional quality | | | | | | | | .0213722 | | .00725939 |
| | | | | | | | | 0.1046 | | 0.6631 |
| African dummy | | | | | | | | | -.01008767 | .32672117 |
| | | | | | | | | | 0.9620 | 0.2762 |
| Total FDI | -5.3679052 | -4.9555211 | -4.4634502 | -6.113154 | -2.1054221 | -4.9802724 | -5.5450074 | -5.1431562 | -5.3288819 | -.8414709 |
| | 0.0287 | 0.0390 | 0.0606 | 0.0120 | 0.4038 | 0.0330 | 0.0184 | 0.0361 | 0.0267 | 0.7946 |
| Total FDI x Private cr~t | 10.368472 | 9.5843538 | 9.7147456 | 9.6965397 | 5.2989088 | 8.3821367 | 10.573061 | 9.5636918 | 10.513692 | 4.8864806 |
| | 0.0010 | 0.0009 | 0.0014 | 0.0028 | 0.0438 | 0.0012 | 0.0004 | 0.0001 | 0.0007 | 0.2304 |
| N | 68 | 74 | 67 | 74 | 74 | 73 | 73 | 65 | 74 | 56 |
| r2_a | .1891331 | .18604866 | .17211523 | .15003681 | .21564437 | .23251681 | .14670159 | .18341032 | .13568928 | .30767553 |

**Table 10:**
**OLS model total FDI with private credit interaction term**

OLS Growth and FDI Total and Trade

| Variable | OLSTOT1 | OLSTOT2 | OLSTOT3 | OLSTOT4 | OLSTOT5 | OLSTOT6 | OLSTOT7 | OLSTOT8 | OLSTOT9 | OLSTOT10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.5848476 | -3.0273519 | -3.0410841 | -3.0571906 | -1.6120705 | -1.5398895 | -3.0793709 | -3.481177 | -3.1916366 | -1.2955403 |
| | 0.0000 | 0.0000 | 0.0005 | 0.0000 | 0.0103 | 0.0315 | 0.0002 | 0.0000 | 0.0000 | 0.3990 |
| Ln(Initial level of GD~) | -.19686602 | -.11052461 | -.12319323 | -.10204513 | -.26144047 | -.08607657 | -.10920529 | -.277427 | -.09841345 | -.16501092 |
| | 0.0172 | 0.0205 | 0.0714 | 0.0329 | 0.0003 | 0.0555 | 0.1276 | 0.0664 | 0.0660 | 0.3572 |
| Ln(Avg.year of seconda~) | .22622725 | | | | | | | | | -.13017799 |
| | 0.1200 | | | | | | | | | 0.5734 |
| Ln(1+Inflation) | | -.47678373 | | | | | | | | -.31082288 |
| | | 0.0000 | | | | | | | | 0.0225 |
| Ln(Government size) | | | -.05026878 | | | | | | | -.28990459 |
| | | | 0.8371 | | | | | | | 0.2818 |
| Ln(Trade Openness) | | | | .16048783 | | | | | | -.14297026 |
| | | | | 0.2984 | | | | | | 0.4580 |
| Ln(Access to private c~) | | | | | .4181746 | | | | | .27623535 |
| | | | | | 0.0003 | | | | | 0.0425 |
| Ln(Domestic investment) | | | | | | 1.1621 | | | | 1.050035 |
| | | | | | | 0.0055 | | | | 0.0761 |
| Press freedom | | | | | | | -.02489281 | | | -.17139562 |
| | | | | | | | 0.8743 | | | 0.3748 |
| Instiutional quality | | | | | | | | .02424121 | | .00366814 |
| | | | | | | | | 0.0900 | | 0.8132 |
| African dummy | | | | | | | | | -.01462802 | .34224027 |
| | | | | | | | | | 0.9479 | 0.2514 |
| Total FDI | -2.826681 | -2.8039362 | -3.0874348 | -3.3614995 | -1.5157085 | -2.3357812 | -2.9649536 | -2.9002712 | -3.0894548 | .70833098 |
| | 0.2393 | 0.2493 | 0.2738 | 0.1500 | 0.5121 | 0.3445 | 0.2228 | 0.2941 | 0.1935 | 0.8143 |
| Total FDI x Trade open~s | 2.6654819 | 2.5373634 | 3.0160039 | 2.1836666 | 1.7252642 | 1.73485 | 2.7463666 | 2.5386349 | 2.8743289 | 1.0598398 |
| | 0.0012 | 0.0028 | 0.0086 | 0.0180 | 0.0297 | 0.0859 | 0.0037 | 0.0158 | 0.0009 | 0.4548 |
| N | 68 | 74 | 67 | 74 | 74 | 73 | 73 | 65 | 74 | 56 |
| r2_a | .0937262 | .11335732 | .09979768 | .06386274 | .20860458 | .16533443 | .04827716 | .09537185 | .04907808 | .29272554 |

**Table 11:**
**OLS model total FDI with trade openness interaction term**

## OLS Eq. 3

OLS Growth and FDI Primary sector

| Variable | OLSPRI1 | OLSPRI2 | OLSPRI3 | OLSPRI4 | OLSPRI5 | OLSPRI6 | OLSPRI7 | OLSPRI8 | OLSPRI9 | OLSPRI10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.7075775 | -2.9050472 | -3.5278041 | -2.7830034 | -1.4966311 | -1.2671934 | -3.4676889 | -3.5231392 | -3.1788885 | -1.357639 |
| | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0140 | 0.0391 | 0.0000 | 0.0000 | 0.0000 | 0.3563 |
| Ln(Initial level of GD~) | -.16613716 | -.11748798 | -.07866176 | -.12733659 | -.26781177 | -.09438235 | -.07478239 | -.26532997 | -.09306279 | -.14598604 |
| | 0.0403 | 0.0157 | 0.2570 | 0.0091 | 0.0001 | 0.0309 | 0.3025 | 0.0837 | 0.0824 | 0.4393 |
| Ln(Avg.year of seconda~) | .13538234 | | | | | | | | | -.14199703 |
| | 0.3879 | | | | | | | | | 0.5468 |
| Ln(1+Inflation) | | -.54272326 | | | | | | | | -.24315623 |
| | | 0.0000 | | | | | | | | 0.0576 |
| Ln(Government size) | | | -.17382552 | | | | | | | -.30626029 |
| | | | 0.4825 | | | | | | | 0.2055 |
| Ln(Trade Openness) | | | | .28191585 | | | | | | .02574488 |
| | | | | 0.0052 | | | | | | 0.8317 |
| Ln(Access to private c~) | | | | | .4292563 | | | | | .28187745 |
| | | | | | 0.0001 | | | | | 0.0349 |
| Ln(Domestic investment) | | | | | | 1.2806895 | | | | 1.0461557 |
| | | | | | | 0.0004 | | | | 0.0753 |
| Press freedom | | | | | | | .08204562 | | | -.13812208 |
| | | | | | | | 0.6101 | | | 0.4862 |
| Instiutional quality | | | | | | | | .02376515 | | .00350992 |
| | | | | | | | | 0.1173 | | 0.8298 |
| African dummy | | | | | | | | | .06680559 | .29422519 |
| | | | | | | | | | 0.7441 | 0.3482 |
| Primary FDI | -6.1895499 | -7.2523833 | -4.392327 | -8.7903133 | -5.0462515 | -6.4086721 | -7.1352903 | -3.3061038 | -7.3617885 | -.08313924 |
| | 0.0100 | 0.0003 | 0.5711 | 0.0003 | 0.0485 | 0.0096 | 0.0006 | 0.4364 | 0.0004 | 0.9912 |
| N | 69 | 75 | 67 | 74 | 74 | 73 | 73 | 65 | 75 | 56 |
| r2_a | .0810692 | .13277939 | .04091968 | .13185604 | .21960809 | .20306451 | .05725123 | .05535427 | .05043975 | .28359543 |

**Table 12:**
**OLS model primary sector**

OLS Growth and FDI Secondary sector

| Variable | OLSSEC1 | OLSSEC2 | OLSSEC3 | OLSSEC4 | OLSSEC5 | OLSSEC6 | OLSSEC7 | OLSSEC8 | OLSSEC9 | OLSSEC10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.6911238 | -3.1446083 | -3.511747 | -3.0765302 | -1.562953 | -1.3678173 | -3.4004115 | -3.5930755 | -3.3271064 | -1.4743012 |
| | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0089 | 0.0439 | 0.0001 | 0.0000 | 0.0000 | 0.3296 |
| Ln(Initial level of GD~) | -.19224812 | -.0972015 | -.08111663 | -.10051788 | -.26447664 | -.07895809 | -.07941238 | -.27952718 | -.08228664 | -.1452172 |
| | 0.0173 | 0.0375 | 0.2456 | 0.0334 | 0.0001 | 0.0751 | 0.2772 | 0.0574 | 0.1131 | 0.3934 |
| Ln(Avg.year of seconda~) | .26192554 | | | | | | | | | -.17720938 |
| | 0.0641 | | | | | | | | | 0.4160 |
| Ln(1+Inflation) | | -.5358678 | | | | | | | | -.22726879 |
| | | 0.0000 | | | | | | | | 0.0821 |
| Ln(Government size) | | | -.15387547 | | | | | | | -.30742102 |
| | | | 0.5345 | | | | | | | 0.2038 |
| Ln(Trade Openness) | | | | .22967275 | | | | | | .03926235 |
| | | | | 0.0605 | | | | | | 0.7546 |
| Ln(Access to private c~) | | | | | .45624679 | | | | | .27202096 |
| | | | | | 0.0000 | | | | | 0.0381 |
| Ln(Domestic investment) | | | | | | 1.3157574 | | | | 1.0940059 |
| | | | | | | 0.0007 | | | | 0.0538 |
| Press freedom | | | | | | | .01356027 | | | -.09748655 |
| | | | | | | | 0.9313 | | | 0.6967 |
| Instiutional quality | | | | | | | | .02603518 | | .00607955 |
| | | | | | | | | 0.0630 | | 0.7020 |
| African dummy | | | | | | | | | -.03159228 | .24698246 |
| | | | | | | | | | 0.8846 | 0.4550 |
| Secondary FDI | 6.6376812 | 3.2085864 | 1.3796442 | -.41960326 | 2.8950938 | -2.012211 | 3.6512085 | .24093217 | 2.5794797 | -5.1295474 |
| | 0.4509 | 0.6907 | 0.8848 | 0.9636 | 0.6578 | 0.7863 | 0.6686 | 0.9740 | 0.7561 | 0.6410 |
| N | 69 | 75 | 67 | 74 | 74 | 73 | 73 | 65 | 75 | 56 |
| r2_a | .05624639 | .07937794 | .03735288 | .05253211 | .1952653 | .15964025 | .00551686 | .04904856 | -.00189208 | .28844552 |

**Table 13:**
**OLS model secondary sector**

OLS Growth and FDI Tertiary sector

| Variable | OLSTER1 | OLSTER2 | OLSTER3 | OLSTER4 | OLSTER5 | OLSTER6 | OLSTER7 | OLSTER8 | OLSTER9 | OLSTER10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.6981644 | -3.0840696 | -3.6100875 | -3.133876 | -1.6109699 | -1.4910677 | -3.5383605 | -3.5677138 | -3.3064017 | -2.0283303 |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0102 | 0.0313 | 0.0000 | 0.0000 | 0.0000 | 0.2248 |
| Ln(Initial level of GD~) | -.18973225 | -.11374792 | -.09011907 | -.10657344 | -.26784479 | -.09207744 | -.077545 | -.28253477 | -.09530854 | -.10876671 |
| | 0.0216 | 0.0165 | 0.1783 | 0.0244 | 0.0002 | 0.0381 | 0.2941 | 0.0626 | 0.0763 | 0.5307 |
| Ln(Avg.year of seconda~) | .22005085 | | | | | | | | | -.19285996 |
| | 0.1226 | | | | | | | | | 0.4205 |
| Ln(1+Inflation) | | -.51841123 | | | | | | | | -.31922095 |
| | | 0.0000 | | | | | | | | 0.0087 |
| Ln(Government size) | | | -.20561168 | | | | | | | -.39338581 |
| | | | 0.3659 | | | | | | | 0.0829 |
| Ln(Trade Openness) | | | | .15199753 | | | | | | -.09779077 |
| | | | | 0.2577 | | | | | | 0.5295 |
| Ln(Access to private c~) | | | | | .4280253 | | | | | .25505212 |
| | | | | | 0.0001 | | | | | 0.0523 |
| Ln(Domestic investment) | | | | | | 1.2269268 | | | | 1.0695472 |
| | | | | | | 0.0017 | | | | 0.0755 |
| Press freedom | | | | | | | .05928654 | | | -.10467451 |
| | | | | | | | 0.7203 | | | 0.5899 |
| Instiutional quality | | | | | | | | .02506136 | | .00531487 |
| | | | | | | | | 0.0853 | | 0.7288 |
| African dummy | | | | | | | | | .01663055 | .33811784 |
| | | | | | | | | | 0.9408 | 0.2957 |
| Tertiary FDI | 2.0906641 | 2.6289909 | 2.8538262 | 2.0070304 | 2.1284985 | 2.1955824 | 2.274796 | 2.0340094 | 2.7405393 | 2.4580352 |
| | 0.0152 | 0.0016 | 0.0004 | 0.0773 | 0.0096 | 0.0062 | 0.0100 | 0.0331 | 0.0014 | 0.0716 |
| N | 69 | 75 | 67 | 74 | 74 | 73 | 73 | 65 | 75 | 56 |
| r2_a | .07973627 | .13453541 | .10854599 | .07977878 | .23018801 | .19892312 | .04128835 | .08543692 | .05827544 | .33146287 |

**Table 14:**
**OLS model tertiary sector**

## OLS Eq. 4

OLS Growth and FDI Primary sector and Education

| Variable | OLSPRI1 | OLSPRI2 | OLSPRI3 | OLSPRI4 | OLSPRI5 | OLSPRI6 | OLSPRI7 | OLSPRI8 | OLSPRI9 | OLSPRI10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.6107133 | -2.7469546 | -4.0687117 | -2.7060229 | -1.2982581 | -1.1898353 | -2.9585611 | -3.4121791 | -3.0694067 | -1.4091688 |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0396 | 0.0715 | 0.0013 | 0.0000 | 0.0000 | 0.3402 |
| Ln(Initial level of GD~) | -.18313428 | -.13706263 | -.04100825 | -.1373752 | -.29255563 | -.10254201 | -.11847594 | -.27578911 | -.1079588 | -.17660164 |
| | 0.0333 | 0.0103 | 0.5976 | 0.0097 | 0.0001 | 0.0331 | 0.1401 | 0.1234 | 0.0490 | 0.3668 |
| Ln(Avg.year of seconda~) | .20242056 | | | | | | | | | -.06906299 |
| | 0.2547 | | | | | | | | | 0.7880 |
| Ln(1+Inflation) | | -.54549443 | | | | | | | | -.2518675 |
| | | 0.0000 | | | | | | | | 0.0530 |
| Ln(Government size) | | | -.35969915 | | | | | | | -.32238198 |
| | | | 0.1629 | | | | | | | 0.1941 |
| Ln(Trade Openness) | | | | .26235317 | | | | | | .00587171 |
| | | | | 0.0119 | | | | | | 0.9620 |
| Ln(Access to private c~) | | | | | .44356252 | | | | | .27084116 |
| | | | | | 0.0000 | | | | | 0.0441 |
| Ln(Domestic investment) | | | | | | 1.2879167 | | | | 1.0490543 |
| | | | | | | 0.0011 | | | | 0.0738 |
| Press freedom | | | | | | | -.01054013 | | | -.13722962 |
| | | | | | | | 0.9538 | | | 0.4912 |
| Instiutional quality | | | | | | | | .02344148 | | .00647306 |
| | | | | | | | | 0.1852 | | 0.6990 |
| African dummy | | | | | | | | | .15878332 | .27828527 |
| | | | | | | | | | 0.5373 | 0.3793 |
| Primary FDI | -2.0918549 | -7.0019457 | 13.650733 | -7.6810999 | -5.4073973 | -4.6055889 | -6.3909319 | -3.5732909 | -8.2345255 | 16.44708 |
| | 0.6069 | 0.0008 | 0.4692 | 0.0009 | 0.0543 | 0.0806 | 0.0078 | 0.5004 | 0.0064 | 0.4796 |
| Primary FDI x Avg.Year~g | -3.7567564 | -.9068516 | -10.603513 | -1.6593072 | -.65742741 | -2.9235254 | -1.1925426 | -.96977582 | -.13369384 | -8.2561586 |
| | 0.2353 | 0.6420 | 0.2848 | 0.4913 | 0.7990 | 0.2645 | 0.5788 | 0.7598 | 0.9567 | 0.4824 |
| N | 69 | 69 | 61 | 68 | 68 | 68 | 68 | 62 | 69 | 56 |
| r2_a | .07602812 | .15150509 | .08731163 | .13248791 | .25138014 | .21479608 | .05627038 | .04440768 | .06232618 | .27375239 |

**Table 15:**
**OLS model primary sector with human capital interaction term**

OLS Growth and FDI Secondary sector and Education

| Variable | OLSSEC1 | OLSSEC2 | OLSSEC3 | OLSSEC4 | OLSSEC5 | OLSSEC6 | OLSSEC7 | OLSSEC8 | OLSSEC9 | OLSSEC10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.7256006 | -2.9650001 | -3.9499468 | -2.969086 | -1.4471919 | -1.3148064 | -2.8218987 | -3.3514735 | -3.1701092 | -1.4320656 |
| | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0244 | 0.0914 | 0.0025 | 0.0000 | 0.0000 | 0.3424 |
| Ln(Initial level of GD~) | -.19211936 | -.12240787 | -.05445359 | -.11867302 | -.28157561 | -.099842 | -.13560398 | -.32576212 | -.10637272 | -.14570065 |
| | 0.0159 | 0.0313 | 0.5292 | 0.0462 | 0.0002 | 0.0699 | 0.1134 | 0.0597 | 0.0640 | 0.3945 |
| Ln(Avg.year of seconda~) | .3150398 | | | | | | | | | -.19813275 |
| | 0.0688 | | | | | | | | | 0.4596 |
| Ln(1+Inflation) | | -.52735225 | | | | | | | | -.22434654 |
| | | 0.0000 | | | | | | | | 0.0982 |
| Ln(Government size) | | | -.32160726 | | | | | | | -.30337533 |
| | | | 0.2115 | | | | | | | 0.2176 |
| Ln(Trade Openness) | | | | .19437836 | | | | | | .03847223 |
| | | | | 0.1260 | | | | | | 0.7629 |
| Ln(Access to private c~) | | | | | .46906869 | | | | | .26928581 |
| | | | | | 0.0000 | | | | | 0.0523 |
| Ln(Domestic investment) | | | | | | 1.2653631 | | | | 1.1170864 |
| | | | | | | 0.0026 | | | | 0.0703 |
| Press freedom | | | | | | | -.07864199 | | | -.09737636 |
| | | | | | | | 0.6512 | | | 0.6999 |
| Instiutional quality | | | | | | | | .02778924 | | .00628896 |
| | | | | | | | | 0.0942 | | 0.7030 |
| African dummy | | | | | | | | | .01802876 | .2432251 |
| | | | | | | | | | 0.9452 | 0.4645 |
| Secondary FDI | 14.23094 | -.03828614 | 5.1270216 | -3.4549879 | 4.2867398 | -5.1290116 | -1.076271 | -7.3044331 | -2.2214885 | -8.2357926 |
| | 0.3630 | 0.9974 | 0.7958 | 0.7814 | 0.7027 | 0.6677 | 0.9283 | 0.4711 | 0.8598 | 0.7755 |
| Secondary FDI x A..Yea~g | -3.7307385 | 2.1770157 | -2.0227795 | 2.4364941 | -.0830492 | 2.7296575 | 3.4198303 | 3.3713252 | 3.209708 | 1.4492555 |
| | 0.5007 | 0.5527 | 0.8132 | 0.5920 | 0.9852 | 0.6066 | 0.4577 | 0.4149 | 0.4380 | 0.8979 |
| N | 69 | 69 | 61 | 68 | 68 | 68 | 68 | 62 | 69 | 56 |
| r2_a | .04584526 | .08689988 | .06934868 | .03909364 | .21469896 | .14909177 | .00129358 | .03389831 | -.00134507 | .27226582 |

**Table 16:**
**OLS model secondary sector with human capital interaction term**

OLS Growth and FDI Tertiary sector and Education

| Variable | OLSTER1 | OLSTER2 | OLSTER3 | OLSTER4 | OLSTER5 | OLSTER6 | OLSTER7 | OLSTER8 | OLSTER9 | OLSTER10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.6028277 | -2.8258557 | -3.8672309 | -2.8796878 | -1.4179821 | -1.3416878 | -2.9144629 | -3.1753726 | -3.0079835 | -2.0286029 |
| | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0272 | 0.0756 | 0.0031 | 0.0000 | 0.0000 | 0.2236 |
| Ln(Initial level of GD~) | -.19726482 | -.1424914 | -.08330701 | -.13532693 | -.29004496 | -.11609493 | -.13716205 | -.3550492 | -.12863473 | -.10790552 |
| | 0.0167 | 0.0113 | 0.2945 | 0.0168 | 0.0001 | 0.0263 | 0.1141 | 0.0411 | 0.0297 | 0.5413 |
| Ln(Avg.year of seconda~) | .19133411 | | | | | | | | | -.16357612 |
| | 0.1947 | | | | | | | | | 0.5565 |
| Ln(1+Inflation) | | -.49684809 | | | | | | | | -.31932202 |
| | | 0.0000 | | | | | | | | 0.0089 |
| Ln(Government size) | | | -.37308918 | | | | | | | -.41318191 |
| | | | 0.1179 | | | | | | | 0.1077 |
| Ln(Trade Openness) | | | | .13920165 | | | | | | -.09160116 |
| | | | | 0.3172 | | | | | | 0.5764 |
| Ln(Access to private c~) | | | | | .4408603 | | | | | .26372377 |
| | | | | | 0.0002 | | | | | 0.0599 |
| Ln(Domestic investment) | | | | | | 1.1878765 | | | | 1.0647823 |
| | | | | | | 0.0049 | | | | 0.0803 |
| Press freedom | | | | | | | -.01731269 | | | -.11554289 |
| | | | | | | | 0.9269 | | | 0.5889 |
| Instiutional quality | | | | | | | | .0280149 | | .00468717 |
| | | | | | | | | 0.0934 | | 0.7677 |
| African dummy | | | | | | | | | .01554333 | .35574553 |
| | | | | | | | | | 0.9506 | 0.3048 |
| Tertiary FDI | -1.4441963 | -1.8566063 | -.68350389 | -3.0997795 | .11744026 | -2.1654914 | -2.8122546 | -4.7896284 | -2.8769794 | 3.8563302 |
| | 0.7299 | 0.6907 | 0.8727 | 0.4793 | 0.9741 | 0.5520 | 0.5213 | 0.4403 | 0.5079 | 0.4603 |
| Tertiary FDI x Avg.Yea~g | 1.2092076 | 1.3434804 | 1.1235333 | 1.5904702 | .52796349 | 1.3599941 | 1.7171106 | 2.2739608 | 1.7359979 | -.47131809 |
| | 0.3256 | 0.3280 | 0.3756 | 0.2110 | 0.6302 | 0.2014 | 0.1805 | 0.2165 | 0.1734 | 0.7885 |
| N | 69 | 69 | 61 | 68 | 68 | 68 | 68 | 62 | 69 | 56 |
| r2_a | .0738092 | .1268357 | .13663708 | .0683796 | .23381285 | .18479147 | .04994666 | .09797902 | .04921886 | .31691912 |

**Table 17:**
**OLS model tertiary sector with human capital interaction term**

OLS Growth and FDI Primary sector and Income level

| Variable | OLSPRI1 | OLSPRI2 | OLSPRI3 | OLSPRI4 | OLSPRI5 | OLSPRI6 | OLSPRI7 | OLSPRI8 | OLSPRI9 | OLSPRI10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.6933574 | -2.8296601 | -3.4257027 | -2.6369971 | -1.3420287 | -1.0830745 | -3.3629608 | -3.4071776 | -3.106884 | -1.4134735 |
| | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0261 | 0.0764 | 0.0001 | 0.0000 | 0.0000 | 0.3482 |
| Ln(Initial level of GD~) | -.16804549 | -.1287553 | -.09204828 | -.14765892 | -.28911021 | -.11203955 | -.08960805 | -.28460101 | -.10436468 | -.14575868 |
| | 0.0404 | 0.0115 | 0.2187 | 0.0041 | 0.0000 | 0.0134 | 0.2183 | 0.0691 | 0.0579 | 0.4476 |
| Ln(Avg.year of seconda~) | .13142269 | | | | | | | | | -.14213476 |
| | 0.4109 | | | | | | | | | 0.5535 |
| Ln(1+Inflation) | | -.53949139 | | | | | | | | -.245598 |
| | | 0.0000 | | | | | | | | 0.0597 |
| Ln(Government size) | | | -.17534821 | | | | | | | -.31358162 |
| | | | 0.4691 | | | | | | | 0.2078 |
| Ln(Trade Openness) | | | | .29895754 | | | | | | .01933598 |
| | | | | 0.0039 | | | | | | 0.8774 |
| Ln(Access to private c~) | | | | | .43908453 | | | | | .28759512 |
| | | | | | 0.0000 | | | | | 0.0315 |
| Ln(Domestic investment) | | | | | | 1.3254177 | | | | 1.035672 |
| | | | | | | 0.0002 | | | | 0.0797 |
| Press freedom | | | | | | | .07943045 | | | -.13951924 |
| | | | | | | | 0.6138 | | | 0.4901 |
| Instiutional quality | | | | | | | | .02411881 | | .00396728 |
| | | | | | | | | 0.1130 | | 0.8124 |
| African dummy | | | | | | | | | .09064414 | .29226131 |
| | | | | | | | | | 0.6609 | 0.3596 |
| Primary FDI | -6.6143227 | -8.5828946 | -9.9544383 | -11.035034 | -7.0035908 | -8.4775284 | -8.7084128 | -6.1532295 | -9.0242673 | 2.1233688 |
| | 0.0098 | 0.0000 | 0.4166 | 0.0001 | 0.0033 | 0.0009 | 0.0001 | 0.1184 | 0.0000 | 0.8705 |
| Primary FDI x Income l~l | .00026704 | .00082965 | .00099494 | .00133765 | .00125259 | .00129205 | .00099444 | .00106215 | .00096859 | -.00034833 |
| | 0.7599 | 0.3251 | 0.5026 | 0.1128 | 0.2560 | 0.1492 | 0.2144 | 0.3189 | 0.2652 | 0.8310 |
| N | 69 | 75 | 67 | 74 | 74 | 73 | 73 | 65 | 75 | 56 |
| r2_a | .06734313 | .12687659 | .0310766 | .1357869 | .22295678 | .20711328 | .05304128 | .05107212 | .04553987 | .26770329 |

**Table 18:**
**OLS model primary FDI with income level interaction term**

OLS Growth and FDI Secondary sector and Income level

| Variable | OLSSEC1 | OLSSEC2 | OLSSEC3 | OLSSEC4 | OLSSEC5 | OLSSEC6 | OLSSEC7 | OLSSEC8 | OLSSEC9 | OLSSEC10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.407396 | -2.919497 | -3.0949072 | -2.8392918 | -1.4495878 | -.9204582 | -3.0322027 | -3.3625614 | -3.007592 | -1.3144472 |
| | 0.0001 | 0.0000 | 0.0017 | 0.0000 | 0.0222 | 0.1893 | 0.0003 | 0.0000 | 0.0000 | 0.4394 |
| Ln(Initial level of GD~) | -.22871204 | -.12808263 | -.12808044 | -.13344277 | -.28121919 | -.13000328 | -.12716705 | -.30682359 | -.12514072 | -.15679496 |
| | 0.0065 | 0.0199 | 0.1281 | 0.0143 | 0.0002 | 0.0089 | 0.1042 | 0.0416 | 0.0313 | 0.3805 |
| Ln(Avg.year of seconda~) | .24516891 | | | | | | | | | -.17319853 |
| | 0.1110 | | | | | | | | | 0.4355 |
| Ln(1+Inflation) | | -.51243845 | | | | | | | | -.22588433 |
| | | 0.0000 | | | | | | | | 0.0915 |
| Ln(Government size) | | | -.10619002 | | | | | | | -.2887587 |
| | | | 0.6770 | | | | | | | 0.2581 |
| Ln(Trade Openness) | | | | .21840643 | | | | | | .03278279 |
| | | | | 0.0710 | | | | | | 0.8071 |
| Ln(Access to private c~) | | | | | .44515991 | | | | | .26298879 |
| | | | | | 0.0001 | | | | | 0.0622 |
| Ln(Domestic investment) | | | | | | 1.3624574 | | | | 1.1286625 |
| | | | | | | 0.0006 | | | | 0.0666 |
| Press freedom | | | | | | | .0038618 | | | -.10123404 |
| | | | | | | | 0.9798 | | | 0.6899 |
| Instiutional quality | | | | | | | | .02565017 | | .00605851 |
| | | | | | | | | 0.0718 | | 0.7054 |
| African dummy | | | | | | | | | -.04391795 | .24326451 |
| | | | | | | | | | 0.8395 | 0.4599 |
| Secondary FDI | .51211098 | -1.3431573 | -4.2749171 | -5.059362 | -.10661778 | -9.3673593 | -2.3653984 | -3.7574508 | -3.4307647 | -6.4773168 |
| | 0.9641 | 0.8956 | 0.7251 | 0.6530 | 0.9896 | 0.3127 | 0.8207 | 0.6808 | 0.7383 | 0.6160 |
| Secondary FDI x Income~l | .00084148 | .00066761 | .00090192 | .00073053 | .00045697 | .0011009 | .00095218 | .00058696 | .00087842 | .00020217 |
| | 0.1975 | 0.2769 | 0.2732 | 0.1963 | 0.4484 | 0.0373 | 0.1194 | 0.3083 | 0.1491 | 0.8180 |
| N | 69 | 75 | 67 | 74 | 74 | 73 | 73 | 65 | 75 | 56 |
| r2_a | .06086306 | .07746071 | .03777692 | .05201856 | .18870864 | .17800542 | .01437766 | .04343847 | .00346827 | .27282236 |

**Table 19:**
**OLS model secondary FDI with income level interaction term**

OLS Growth and FDI Tertiary sector and Income level

| Variable | OLSTER1 | OLSTER2 | OLSTER3 | OLSTER4 | OLSTER5 | OLSTER6 | OLSTER7 | OLSTER8 | OLSTER9 | OLSTER10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.3571676 | -2.8415533 | -3.0960358 | -2.8354953 | -1.4941469 | -1.1183238 | -3.2963284 | -3.2737332 | -2.9515285 | -2.0142189 |
| | 0.0004 | 0.0000 | 0.0006 | 0.0000 | 0.0190 | 0.1061 | 0.0002 | 0.0000 | 0.0000 | 0.2353 |
| Ln(Initial level of GD~) | -.23210571 | -.14423543 | -.14210417 | -.14392223 | -.28396382 | -.13469641 | -.11028047 | -.3237694 | -.13841903 | -.11104447 |
| | 0.0081 | 0.0069 | 0.0647 | 0.0073 | 0.0001 | 0.0064 | 0.1517 | 0.0380 | 0.0211 | 0.5333 |
| Ln(Avg.year of seconda~) | .22362211 | | | | | | | | | -.19332191 |
| | 0.1180 | | | | | | | | | 0.4251 |
| Ln(1+Inflation) | | -.48600818 | | | | | | | | -.31919719 |
| | | 0.0000 | | | | | | | | 0.0095 |
| Ln(Government size) | | | -.1377056 | | | | | | | -.38776187 |
| | | | 0.5488 | | | | | | | 0.1319 |
| Ln(Trade Openness) | | | | .14523151 | | | | | | -.09896636 |
| | | | | 0.2836 | | | | | | 0.5350 |
| Ln(Access to private c~) | | | | | .40881859 | | | | | .25218077 |
| | | | | | 0.0003 | | | | | 0.0612 |
| Ln(Domestic investment) | | | | | | 1.2451713 | | | | 1.0717387 |
| | | | | | | 0.0011 | | | | 0.0779 |
| Press freedom | | | | | | | .07267645 | | | -.1012476 |
| | | | | | | | 0.6624 | | | 0.6329 |
| Instiutional quality | | | | | | | | .02563713 | | .00542825 |
| | | | | | | | | 0.0765 | | 0.7276 |
| African dummy | | | | | | | | | -.02925415 | .33350193 |
| | | | | | | | | | 0.8973 | 0.3188 |
| Tertiary FDI | -.98688689 | .01275831 | -.22048254 | -1.0770673 | .19605833 | -1.3423849 | -.73600092 | -.69498213 | -.53733029 | 2.2962921 |
| | 0.6717 | 0.9950 | 0.9150 | 0.6120 | 0.9080 | 0.5168 | 0.7231 | 0.7502 | 0.7920 | 0.3455 |
| Tertiary FDI x Income ~l | .00024113 | .00020317 | .00023417 | .00024177 | .00015206 | .00027331 | .00023954 | .00020813 | .00025104 | .00001233 |
| | 0.0651 | 0.0960 | 0.0690 | 0.0499 | 0.1702 | 0.0385 | 0.0409 | 0.0921 | 0.0428 | 0.9345 |
| N | 69 | 75 | 67 | 74 | 74 | 73 | 73 | 65 | 75 | 56 |
| r2_a | .09678629 | .14265878 | .12209273 | .09585086 | .2303315 | .22542578 | .05690071 | .09448905 | .07586423 | .31599543 |

**Table 20:**
**OLS model tertiary FDI with income level interaction term**

OLS Growth and FDI Primary sector and Private credit

| Variable | OLSPRI1 | OLSPRI2 | OLSPRI3 | OLSPRI4 | OLSPRI5 | OLSPRI6 | OLSPRI7 | OLSPRI8 | OLSPRI9 | OLSPRI10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.7194344 | -2.8332895 | -3.44074 | -2.7178823 | -1.4727131 | -1.2628554 | -3.4003087 | -3.4203986 | -3.0885967 | -1.4471929 |
| | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0168 | 0.0407 | 0.0001 | 0.0000 | 0.0000 | 0.3407 |
| Ln(Initial level of GD~) | -.16099445 | -.12775099 | -.09240805 | -.13686247 | -.26874107 | -.09780098 | -.08671536 | -.26819128 | -.10618077 | -.14678141 |
| | 0.0557 | 0.0121 | 0.1931 | 0.0071 | 0.0002 | 0.0277 | 0.2425 | 0.0792 | 0.0572 | 0.4477 |
| Ln(Avg.year of seconda~) | .0869323 | | | | | | | | | -.14433149 |
| | 0.6356 | | | | | | | | | 0.5476 |
| Ln(1+Inflation) | | -.52814016 | | | | | | | | -.24434666 |
| | | 0.0000 | | | | | | | | 0.0568 |
| Ln(Government size) | | | -.18488926 | | | | | | | -.31762359 |
| | | | 0.4363 | | | | | | | 0.1952 |
| Ln(Trade Openness) | | | | .27402085 | | | | | | .02386033 |
| | | | | 0.0079 | | | | | | 0.8434 |
| Ln(Access to private c~) | | | | | .44733756 | | | | | .30631142 |
| | | | | | 0.0001 | | | | | 0.0501 |
| Ln(Domestic investment) | | | | | | 1.2669763 | | | | 1.0105656 |
| | | | | | | 0.0006 | | | | 0.0994 |
| Press freedom | | | | | | | .09231372 | | | -.12905281 |
| | | | | | | | 0.5623 | | | 0.5279 |
| Instiutional quality | | | | | | | | .02256374 | | .00393225 |
| | | | | | | | | 0.1373 | | 0.8147 |
| African dummy | | | | | | | | | .09515603 | .31148685 |
| | | | | | | | | | 0.6328 | 0.3353 |
| Primary FDI | -13.184521 | -13.375994 | -18.43098 | -14.701031 | -1.3954274 | -8.3900372 | -16.071825 | -12.263496 | -16.068501 | 5.7777856 |
| | 0.1076 | 0.0444 | 0.2732 | 0.0300 | 0.8223 | 0.2274 | 0.0159 | 0.1857 | 0.0178 | 0.7776 |
| Primary FDI x Private ~t | 20.538033 | 19.564726 | 36.572645 | 19.010775 | -11.377567 | 6.2792728 | 28.379431 | 25.444532 | 27.420389 | -12.544876 |
| | 0.3724 | 0.3246 | 0.2578 | 0.3501 | 0.5414 | 0.7745 | 0.1491 | 0.2409 | 0.1679 | 0.7541 |
| N | 68 | 74 | 67 | 74 | 74 | 73 | 73 | 65 | 74 | 56 |
| r2_a | .07277503 | .12652698 | .04193234 | .12572601 | .21032507 | .19203316 | .05842366 | .0531094 | .04968242 | .2685368 |

**Table 21:**
**OLS model primary FDI with private credit interaction term**

OLS Growth and FDI Secondary sector and Private credit

| Variable | OLSSEC1 | OLSSEC2 | OLSSEC3 | OLSSEC4 | OLSSEC5 | OLSSEC6 | OLSSEC7 | OLSSEC8 | OLSSEC9 | OLSSEC10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.4647677 | -2.7434681 | -2.5685571 | -2.6883691 | -1.8081625 | -1.4865443 | -2.7109809 | -3.1523439 | -2.8538448 | -1.1431172 |
| | 0.0000 | 0.0000 | 0.0017 | 0.0000 | 0.0037 | 0.0128 | 0.0010 | 0.0000 | 0.0000 | 0.4591 |
| Ln(Initial level of GD~) | -.21067606 | -.15324063 | -.17346706 | -.15663581 | -.24621267 | -.12944756 | -.16230695 | -.25937484 | -.14643491 | -.15591036 |
| | 0.0069 | 0.0017 | 0.0152 | 0.0018 | 0.0003 | 0.0042 | 0.0342 | 0.0389 | 0.0052 | 0.3405 |
| Ln(Avg.year of seconda~) | .12614346 | | | | | | | | | -.16611733 |
| | 0.4327 | | | | | | | | | 0.4269 |
| Ln(1+Inflation) | | -.42373483 | | | | | | | | -.24145059 |
| | | 0.0000 | | | | | | | | 0.0984 |
| Ln(Government size) | | | .01748256 | | | | | | | -.17163653 |
| | | | 0.9365 | | | | | | | 0.5121 |
| Ln(Trade Openness) | | | | .17319659 | | | | | | .0242112 |
| | | | | 0.1252 | | | | | | 0.8471 |
| Ln(Access to private c~) | | | | | .3356734 | | | | | .0831062 |
| | | | | | 0.0200 | | | | | 0.7309 |
| Ln(Domestic investment) | | | | | | .9854444 | | | | 1.1678086 |
| | | | | | | 0.0087 | | | | 0.0348 |
| Press freedom | | | | | | | -.0305903 | | | -.15338835 |
| | | | | | | | 0.8388 | | | 0.5403 |
| Instiutional quality | | | | | | | | .01691536 | | .00567421 |
| | | | | | | | | 0.1869 | | 0.7225 |
| African dummy | | | | | | | | | -.0065431 | .26546926 |
| | | | | | | | | | 0.9752 | 0.3998 |
| Secondary FDI | -22.751776 | -21.990831 | -29.345862 | -25.415523 | -10.023846 | -21.885127 | -23.827575 | -24.243275 | -25.175323 | -21.356132 |
| | 0.0268 | 0.0161 | 0.0045 | 0.0063 | 0.3752 | 0.0314 | 0.0108 | 0.0075 | 0.0071 | 0.2090 |
| Secondary FDI x Privat~t | 52.45618 | 47.923097 | 55.803521 | 49.251107 | 24.552699 | 39.72643 | 54.218678 | 48.708031 | 53.000056 | 31.277417 |
| | 0.0001 | 0.0002 | 0.0002 | 0.0006 | 0.1570 | 0.0015 | 0.0000 | 0.0002 | 0.0001 | 0.2672 |
| N | 68 | 74 | 67 | 74 | 74 | 73 | 73 | 65 | 74 | 56 |
| r2_a | .19649713 | .19007697 | .17260967 | .17082961 | .20323994 | .22689844 | .16031491 | .184986 | .1398705 | .29607266 |

**Table 22:**
**OLS model secondary FDI with private credit interaction term**

OLS Growth and FDI Tertiary sector and Private credit

| Variable | OLSTER1 | OLSTER2 | OLSTER3 | OLSTER4 | OLSTER5 | OLSTER6 | OLSTER7 | OLSTER8 | OLSTER9 | OLSTER10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.5535679 | -2.9869878 | -3.387542 | -3.0181633 | -1.6083552 | -1.4495175 | -3.4408142 | -3.373536 | -3.1433577 | -1.9826235 |
| | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0124 | 0.0324 | 0.0001 | 0.0000 | 0.0000 | 0.2486 |
| Ln(Initial level of GD~) | -.20076139 | -.12373978 | -.10821002 | -.11779162 | -.26812762 | -.10213433 | -.08757444 | -.31787181 | -.11192675 | -.10533252 |
| | 0.0137 | 0.0106 | 0.1157 | 0.0147 | 0.0003 | 0.0223 | 0.2290 | 0.0315 | 0.0415 | 0.5510 |
| Ln(Avg.year of seconda~) | .20016565 | | | | | | | | | -.18770046 |
| | 0.1595 | | | | | | | | | 0.4418 |
| Ln(1+Inflation) | | -.48923462 | | | | | | | | -.31421477 |
| | | 0.0000 | | | | | | | | 0.0133 |
| Ln(Government size) | | | -.17003796 | | | | | | | -.41321515 |
| | | | 0.4610 | | | | | | | 0.1041 |
| Ln(Trade Openness) | | | | .14625837 | | | | | | -.09302938 |
| | | | | 0.2720 | | | | | | 0.5618 |
| Ln(Access to private c~) | | | | | .42942773 | | | | | .27809229 |
| | | | | | 0.0005 | | | | | 0.0825 |
| Ln(Domestic investment) | | | | | | 1.1840753 | | | | 1.0687316 |
| | | | | | | 0.0024 | | | | 0.0790 |
| Press freedom | | | | | | | .07580559 | | | -.11767894 |
| | | | | | | | 0.6417 | | | 0.5839 |
| Instiutional quality | | | | | | | | .02705736 | | .00422723 |
| | | | | | | | | 0.0550 | | 0.8001 |
| African dummy | | | | | | | | | -.01486703 | .35481799 |
| | | | | | | | | | 0.9476 | 0.2977 |
| Tertiary FDI | -2.2872742 | -.00285964 | -.14902347 | -1.1436102 | 2.2014005 | -.46069672 | -2.3380878 | -3.1819393 | -.55770754 | 3.2581363 |
| | 0.4064 | 0.9991 | 0.9527 | 0.6586 | 0.3055 | 0.8542 | 0.3602 | 0.2471 | 0.8305 | 0.3202 |
| Tertiary FDI x Private~t | 4.1119626 | 2.6264773 | 2.9259094 | 3.1376534 | -.07399439 | 2.632014 | 4.346644 | 4.746058 | 3.2623167 | -.74546505 |
| | 0.0467 | 0.1575 | 0.1516 | 0.1091 | 0.9626 | 0.1874 | 0.0271 | 0.0172 | 0.1058 | 0.7893 |
| N | 68 | 74 | 67 | 74 | 74 | 73 | 73 | 65 | 74 | 56 |
| r2_a | .10496838 | .13816567 | .11524449 | .08927342 | .21904217 | .20332897 | .06954246 | .12642546 | .07023278 | .31690466 |

**Table 23:**
**OLS model tertiary FDI with private credit interaction term**

OLS Growth and FDI Primary sector and Trade

| Variable | OLSPRI1 | OLSPRI2 | OLSPRI3 | OLSPRI4 | OLSPRI5 | OLSPRI6 | OLSPRI7 | OLSPRI8 | OLSPRI9 | OLSPRI10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.6257737 | -2.915312 | -3.6006038 | -2.7858788 | -1.3955678 | -1.1219962 | -3.4620085 | -3.5480587 | -3.1758819 | -.96342008 |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0203 | 0.0654 | 0.0001 | 0.0000 | 0.0000 | 0.4929 |
| Ln(Initial level of GD~) | -.18349832 | -.11668661 | -.07234715 | -.12697741 | -.27919973 | -.08921041 | -.07520717 | -.2686017 | -.09372923 | -.1873173 |
| | 0.0325 | 0.0177 | 0.3000 | 0.0098 | 0.0001 | 0.0446 | 0.3042 | 0.0850 | 0.0830 | 0.3278 |
| Ln(Avg.year of seconda~) | .19224283 | | | | | | | | | -.14665366 |
| | 0.2801 | | | | | | | | | 0.5393 |
| Ln(1+Inflation) | | -.54560819 | | | | | | | | -.22032842 |
| | | 0.0000 | | | | | | | | 0.0596 |
| Ln(Government size) | | | -.19552165 | | | | | | | -.2878472 |
| | | | 0.4251 | | | | | | | 0.2202 |
| Ln(Trade Openness) | | | | .31132734 | | | | | | .09629039 |
| | | | | 0.0037 | | | | | | 0.4360 |
| Ln(Access to private c~) | | | | | .46926682 | | | | | .31067629 |
| | | | | | 0.0000 | | | | | 0.0179 |
| Ln(Domestic investment) | | | | | | 1.4183876 | | | | 1.0924133 |
| | | | | | | 0.0001 | | | | 0.0613 |
| Press freedom | | | | | | | .07950912 | | | -.16564511 |
| | | | | | | | 0.6286 | | | 0.4053 |
| Instiutional quality | | | | | | | | .02436629 | | .00496387 |
| | | | | | | | | 0.1171 | | 0.7617 |
| African dummy | | | | | | | | | .06196145 | .32301449 |
| | | | | | | | | | 0.7723 | 0.3079 |
| Primary FDI | 1.4182097 | -4.5785687 | -22.648226 | -.54226102 | 6.2167301 | 5.696645 | -5.9665878 | 1.0101425 | -6.4638069 | 35.931985 |
| | 0.8513 | 0.3583 | 0.2151 | 0.9157 | 0.2435 | 0.2762 | 0.2922 | 0.9065 | 0.2718 | 0.0515 |
| Primary FDI x Trade op~s | -6.0080351 | -2.3119071 | 22.28397 | -7.297763 | -9.5887139 | -10.413739 | -1.0018601 | -3.3648567 | -.74330592 | -45.454907 |
| | 0.2081 | 0.4592 | 0.2481 | 0.0336 | 0.0013 | 0.0034 | 0.7856 | 0.4357 | 0.8473 | 0.0399 |
| N | 68 | 74 | 67 | 74 | 74 | 73 | 73 | 65 | 74 | 56 |
| r2_a | .07261616 | .12087117 | .03411589 | .13023408 | .22729746 | .2138732 | .04361554 | .04259543 | .03648968 | .30001408 |

**Table 24:**
**OLS model primary FDI with trade openness interaction term**

OLS Growth and FDI Secondary sector and Trade

| Variable | OLSSEC1 | OLSSEC2 | OLSSEC3 | OLSSEC4 | OLSSEC5 | OLSSEC6 | OLSSEC7 | OLSSEC8 | OLSSEC9 | OLSSEC10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.6440212 | -3.0740439 | -3.2125101 | -3.093006 | -1.5930774 | -1.4754452 | -3.0154452 | -3.4650029 | -3.2255437 | -1.2357312 |
| | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0113 | 0.0519 | 0.0004 | 0.0000 | 0.0000 | 0.4558 |
| Ln(Initial level of GD~) | -.19377287 | -.10583391 | -.10565361 | -.10182355 | -.26213089 | -.08613023 | -.11442808 | -.28318244 | -.09399661 | -.16208669 |
| | 0.0228 | 0.0213 | 0.1176 | 0.0295 | 0.0003 | 0.0517 | 0.1196 | 0.0610 | 0.0664 | 0.3580 |
| Ln(Avg.year of seconda~) | .23350511 | | | | | | | | | -.15687354 |
| | 0.1479 | | | | | | | | | 0.4795 |
| Ln(1+Inflation) | | -.48390646 | | | | | | | | -.24255237 |
| | | 0.0000 | | | | | | | | 0.0842 |
| Ln(Government size) | | | -.08818534 | | | | | | | -.26715366 |
| | | | 0.7242 | | | | | | | 0.3082 |
| Ln(Trade Openness) | | | | .16042858 | | | | | | -.01721724 |
| | | | | 0.2509 | | | | | | 0.9223 |
| Ln(Access to private c~) | | | | | .42996509 | | | | | .27025445 |
| | | | | | 0.0003 | | | | | 0.0419 |
| Ln(Domestic investment) | | | | | | 1.2020485 | | | | 1.1022261 |
| | | | | | | 0.0078 | | | | 0.0546 |
| Press freedom | | | | | | | -.05055763 | | | -.12768285 |
| | | | | | | | 0.7567 | | | 0.6357 |
| Instiutional quality | | | | | | | | .02478144 | | .00553802 |
| | | | | | | | | 0.0893 | | 0.7339 |
| African dummy | | | | | | | | | -.01751708 | .26445536 |
| | | | | | | | | | 0.9357 | 0.4282 |
| Secondary FDI | -5.6108619 | -7.4923693 | -11.696275 | -7.3531585 | -5.7669275 | -8.7599634 | -8.5828723 | -10.955658 | -10.401831 | -7.8513576 |
| | 0.6713 | 0.5302 | 0.4376 | 0.5462 | 0.5227 | 0.3998 | 0.4822 | 0.2791 | 0.3995 | 0.4596 |
| Secondary FDI x Trade ~s | 10.920684 | 9.7623765 | 11.073358 | 7.204002 | 7.9572459 | 6.4831536 | 12.278132 | 10.435641 | 11.843171 | 3.9192228 |
| | 0.0169 | 0.0246 | 0.0580 | 0.1544 | 0.0161 | 0.1654 | 0.0238 | 0.0233 | 0.0137 | 0.5520 |
| N | 68 | 74 | 67 | 74 | 74 | 73 | 73 | 65 | 74 | 56 |
| r2_a | .08689113 | .09810525 | .0647547 | .05191197 | .20512783 | .16108976 | .0431379 | .08084241 | .03236762 | .27608044 |

**Table 25:**
**OLS model secondary FDI with trade openness interaction term**

OLS Growth and FDI Tertiary sector and Trade

| Variable | OLSTER1 | OLSTER2 | OLSTER3 | OLSTER4 | OLSTER5 | OLSTER6 | OLSTER7 | OLSTER8 | OLSTER9 | OLSTER10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.6815029 | -3.0585745 | -3.4074724 | -3.1222835 | -1.6262934 | -1.5074701 | -3.5230165 | -3.5108614 | -3.2446074 | -2.0627999 |
| | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0107 | 0.0310 | 0.0000 | 0.0000 | 0.0000 | 0.2092 |
| Ln(Initial level of GD~) | -.18634087 | -.1139973 | -.10133332 | -.10526688 | -.26516988 | -.09193658 | -.07540773 | -.30521767 | -.09843409 | -.09999577 |
| | 0.0239 | 0.0168 | 0.1423 | 0.0259 | 0.0003 | 0.0380 | 0.3011 | 0.0430 | 0.0658 | 0.5751 |
| Ln(Avg.year of seconda~) | .20735327 | | | | | | | | | -.17609872 |
| | 0.1516 | | | | | | | | | 0.4692 |
| Ln(1+Inflation) | | -.50009481 | | | | | | | | -.30735426 |
| | | 0.0000 | | | | | | | | 0.0126 |
| Ln(Government size) | | | -.14859028 | | | | | | | -.47247243 |
| | | | 0.5557 | | | | | | | 0.1075 |
| Ln(Trade Openness) | | | | .13601706 | | | | | | -.07010949 |
| | | | | 0.3107 | | | | | | 0.6661 |
| Ln(Access to private c~) | | | | | .42167424 | | | | | .27646442 |
| | | | | | 0.0003 | | | | | 0.0422 |
| Ln(Domestic investment) | | | | | | 1.1974969 | | | | 1.0594781 |
| | | | | | | 0.0026 | | | | 0.0828 |
| Press freedom | | | | | | | .06367881 | | | -.13567259 |
| | | | | | | | 0.6972 | | | 0.5176 |
| Instiutional quality | | | | | | | | .02762256 | | .00348755 |
| | | | | | | | | 0.0574 | | 0.8246 |
| African dummy | | | | | | | | | -.00444576 | .39445481 |
| | | | | | | | | | 0.9843 | 0.2708 |
| Tertiary FDI | -.47965651 | .51566891 | .50339779 | -.18061726 | 1.347771 | .13982926 | -.62435592 | -1.9207521 | -.05759223 | 4.4263474 |
| | 0.8623 | 0.8342 | 0.8703 | 0.9430 | 0.5286 | 0.9558 | 0.8120 | 0.4826 | 0.9823 | 0.1988 |
| Tertiary FDI x Trade o~s | 1.3229269 | 1.1003751 | 1.1783274 | 1.1653849 | .40619499 | 1.0601202 | 1.4893099 | 1.9833221 | 1.4466531 | -.99828946 |
| | 0.2114 | 0.2678 | 0.3712 | 0.2339 | 0.6457 | 0.3248 | 0.1384 | 0.0562 | 0.1821 | 0.5019 |
| N | 68 | 74 | 67 | 74 | 74 | 73 | 73 | 65 | 74 | 56 |
| r2_a | .0765277 | .12956243 | .10187887 | .07438278 | .2199856 | .19392056 | .04106567 | .09823984 | .05830081 | .3214096 |

**Table 26:**
**OLS model tertiary FDI with trade openness interaction term**

## OLS Eq. 5

OLS Growth and FDI by sector

| Variable | OLSPST1 | OLSPST2 | OLSPST3 | OLSPST4 | OLSPST5 | OLSPST6 | OLSPST7 | OLSPST8 | OLSPST9 | OLSPST10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.7339691 | -2.8959532 | -3.6030216 | -2.7961064 | -1.5733256 | -1.2450501 | -3.5742599 | -3.4908995 | -3.1934028 | -2.4414358 |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0130 | 0.0672 | 0.0000 | 0.0000 | 0.0000 | 0.1857 |
| Ln(Initial level of GD~) | -.17421243 | -.13014549 | -.08952896 | -.13215373 | -.2698233 | -.10921574 | -.07575934 | -.28227043 | -.10356578 | -.11371615 |
| | 0.0410 | 0.0079 | 0.1859 | 0.0067 | 0.0002 | 0.0156 | 0.3153 | 0.0706 | 0.0548 | 0.5065 |
| Ln(Avg.year of seconda~) | .14164829 | | | | | | | | | -.27813408 |
| | 0.4103 | | | | | | | | | 0.2584 |
| Ln(1+Inflation) | | -.5283124 | | | | | | | | -.2964168 |
| | | 0.0000 | | | | | | | | 0.0143 |
| Ln(Government size) | | | -.21787168 | | | | | | | -.40829867 |
| | | | 0.3485 | | | | | | | 0.0779 |
| Ln(Trade Openness) | | | | .23301381 | | | | | | -.10451729 |
| | | | | 0.0816 | | | | | | 0.5271 |
| Ln(Access to private c~) | | | | | .40551139 | | | | | .23520434 |
| | | | | | 0.0003 | | | | | 0.0628 |
| Ln(Domestic investment) | | | | | | 1.2459018 | | | | 1.1832799 |
| | | | | | | 0.0018 | | | | 0.0429 |
| Press freedom | | | | | | | .11441491 | | | .00098145 |
| | | | | | | | 0.4883 | | | 0.9970 |
| Instiutional quality | | | | | | | | .02438945 | | .01294699 |
| | | | | | | | | 0.1137 | | 0.4738 |
| African dummy | | | | | | | | | .11261981 | .22771182 |
| | | | | | | | | | 0.5921 | 0.5207 |
| Primary FDI | -5.6156959 | -6.6255601 | -2.5628783 | -8.1903875 | -4.6219859 | -5.9888841 | -6.8377853 | -2.489686 | -6.9058385 | 3.4299469 |
| | 0.0356 | 0.0016 | 0.7530 | 0.0025 | 0.0806 | 0.0299 | 0.0017 | 0.5987 | 0.0019 | 0.6673 |
| Secondary FDI | 2.0837957 | -.15363073 | -2.4753791 | -3.053936 | .02456351 | -4.8416915 | -1.9371116 | -2.0968546 | -.42712327 | -11.793656 |
| | 0.8270 | 0.9850 | 0.8070 | 0.7282 | 0.9972 | 0.5234 | 0.8215 | 0.7939 | 0.9605 | 0.2658 |
| Tertiary FDI | 1.869176 | 2.4132393 | 2.9053916 | 1.4355959 | 2.0033212 | 2.1612799 | 2.1973493 | 2.0707872 | 2.6052682 | 3.1102258 |
| | 0.0424 | 0.0049 | 0.0006 | 0.1817 | 0.0185 | 0.0039 | 0.0131 | 0.0373 | 0.0032 | 0.0426 |
| N | 69 | 75 | 67 | 74 | 74 | 73 | 73 | 65 | 75 | 56 |
| r2_a | .08492995 | .15720536 | .08222511 | .12117056 | .23032624 | .21973152 | .06376634 | .05989863 | .07974062 | .32456119 |

**Table 27:**
**OLS model all sectors**

## OLS Eq. 6

OLS Growth and FDI by sector and Education

| Variable | OLSPST1 | OLSPST2 | OLSPST3 | OLSPST4 | OLSPST5 | OLSPST6 | OLSPST7 | OLSPST8 | OLSPST9 | OLSPST10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.5673744 | -2.6365503 | -4.2854338 | -2.5989228 | -1.3969592 | -1.1007344 | -2.7774686 | -3.1565316 | -2.8680838 | -2.7446184 |
| | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0328 | 0.1429 | 0.0052 | 0.0000 | 0.0000 | 0.1140 |
| Ln(Initial level of GD~) | -.20123296 | -.15990154 | -.03209717 | -.15420124 | -.28909536 | -.12708814 | -.14951521 | -.32451886 | -.14322601 | -.15809401 |
| | 0.0242 | 0.0078 | 0.7220 | 0.0118 | 0.0002 | 0.0230 | 0.1015 | 0.0749 | 0.0200 | 0.3813 |
| Ln(Avg.year of seconda~) | .23727407 | | | | | | | | | -.06966769 |
| | 0.3494 | | | | | | | | | 0.8344 |
| Ln(1+Inflation) | | -.51372127 | | | | | | | | -.30943331 |
| | | 0.0000 | | | | | | | | 0.0188 |
| Ln(Government size) | | | -.42150825 | | | | | | | -.52668593 |
| | | | 0.0793 | | | | | | | 0.0456 |
| Ln(Trade Openness) | | | | .2223746 | | | | | | -.12031776 |
| | | | | 0.1238 | | | | | | 0.4883 |
| Ln(Access to private c~) | | | | | .42117036 | | | | | .23690891 |
| | | | | | 0.0003 | | | | | 0.0827 |
| Ln(Domestic investment) | | | | | | 1.233399 | | | | 1.2086692 |
| | | | | | | 0.0041 | | | | 0.0634 |
| Press freedom | | | | | | | -.01230392 | | | .00207875 |
| | | | | | | | 0.9457 | | | 0.9938 |
| Instiutional quality | | | | | | | | .02471083 | | .01823413 |
| | | | | | | | | 0.1630 | | 0.3011 |
| African dummy | | | | | | | | | .19432825 | .23190597 |
| | | | | | | | | | 0.4667 | 0.5514 |
| Primary FDI | -2.3404283 | -7.3809381 | 13.060192 | -8.021874 | -5.9930834 | -4.7136389 | -6.9025335 | -4.503647 | -8.9102947 | 32.597496 |
| | 0.6064 | 0.0014 | 0.5031 | 0.0025 | 0.0107 | 0.1043 | 0.0070 | 0.6773 | 0.0053 | 0.1751 |
| Secondary FDI | 15.138449 | 6.2663047 | 16.768796 | 4.2488212 | 8.6312302 | -.73457342 | 6.9180182 | 4.5355798 | 4.1368217 | -15.350208 |
| | 0.4253 | 0.6401 | 0.4940 | 0.7784 | 0.4865 | 0.9579 | 0.6187 | 0.8226 | 0.7755 | 0.6127 |
| Tertiary FDI | -3.6439537 | -3.2961078 | -2.0913607 | -4.0914516 | -1.6294792 | -1.848521 | -4.3522508 | -5.1689676 | -4.0330217 | 8.7694078 |
| | 0.4344 | 0.5323 | 0.6846 | 0.4091 | 0.6702 | 0.6172 | 0.3968 | 0.4812 | 0.4465 | 0.1299 |
| Primary FDI x Avg.Year~g | -2.8972958 | -.06754098 | -9.4288741 | -.98329892 | .11508186 | -2.5944489 | -.19838573 | .06413918 | .97339765 | -14.567314 |
| | 0.4303 | 0.9771 | 0.3516 | 0.7312 | 0.9668 | 0.3868 | 0.9374 | 0.9911 | 0.7303 | 0.2363 |
| Secondary FDI x A..Yea~g | -5.1894393 | -1.6475999 | -9.3373449 | -2.2614562 | -3.2382285 | -.89496729 | -1.9654203 | -2.0710707 | -.35667077 | -.48873243 |
| | 0.4341 | 0.6822 | 0.3529 | 0.6705 | 0.5063 | 0.8853 | 0.6988 | 0.7619 | 0.9350 | 0.9672 |
| Tertiary FDI x Avg.Yea~g | 1.8327097 | 1.7134819 | 1.6462619 | 1.7048523 | 1.0493668 | 1.2038171 | 2.127703 | 2.3805896 | 2.0300077 | -1.7946105 |
| | 0.1809 | 0.2733 | 0.3038 | 0.2610 | 0.3623 | 0.2830 | 0.1602 | 0.2785 | 0.1942 | 0.3544 |
| N | 69 | 69 | 61 | 68 | 68 | 68 | 68 | 62 | 69 | 56 |
| r2_a | .06821268 | .13942336 | .09902229 | .09523841 | .2269702 | .19558816 | .0504487 | .04088119 | .05978635 | .30221607 |

**Table 28:**
**OLS model all sector with human capital interaction term**

OLS Growth and FDI by sector and Income level

| Variable | OLSPST1 | OLSPST2 | OLSPST3 | OLSPST4 | OLSPST5 | OLSPST6 | OLSPST7 | OLSPST8 | OLSPST9 | OLSPST10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.1660295 | -2.4016095 | -2.7394791 | -2.28028 | -1.1645799 | -.41006897 | -2.8692853 | -2.9650079 | -2.5815436 | -2.2892348 |
| | 0.0010 | 0.0000 | 0.0044 | 0.0000 | 0.0755 | 0.5490 | 0.0008 | 0.0000 | 0.0000 | 0.2580 |
| Ln(Initial level of GD~) | -.25271103 | -.20228023 | -.1886014 | -.20819733 | -.33188363 | -.20991028 | -.16960773 | -.35163603 | -.19128226 | -.13182553 |
| | 0.0068 | 0.0012 | 0.0376 | 0.0006 | 0.0000 | 0.0001 | 0.0400 | 0.0329 | 0.0040 | 0.4817 |
| Ln(Avg.year of seconda~) | .14083297 | | | | | | | | | -.27968131 |
| | 0.4489 | | | | | | | | | 0.2754 |
| Ln(1+Inflation) | | -.47481831 | | | | | | | | -.29464779 |
| | | 0.0000 | | | | | | | | 0.0187 |
| Ln(Government size) | | | -.11376666 | | | | | | | -.41252012 |
| | | | 0.6221 | | | | | | | 0.1339 |
| Ln(Trade Openness) | | | | .21573799 | | | | | | -.13204105 |
| | | | | 0.1105 | | | | | | 0.4825 |
| Ln(Access to private c~) | | | | | .38885895 | | | | | .23747234 |
| | | | | | 0.0006 | | | | | 0.0808 |
| Ln(Domestic investment) | | | | | | 1.3350679 | | | | 1.2654151 |
| | | | | | | 0.0007 | | | | 0.0521 |
| Press freedom | | | | | | | .08747162 | | | -.01501264 |
| | | | | | | | 0.5617 | | | 0.9567 |
| Instiutional quality | | | | | | | | .02387333 | | .01456023 |
| | | | | | | | | 0.1225 | | 0.4430 |
| African dummy | | | | | | | | | .11488735 | .22499409 |
| | | | | | | | | | 0.5988 | 0.5530 |
| Primary FDI | -6.6316972 | -8.4980043 | -6.8840316 | -10.311761 | -7.1078091 | -8.4550371 | -8.7290004 | -5.6425881 | -9.08983 | 8.6076137 |
| | 0.0137 | 0.0001 | 0.5866 | 0.0003 | 0.0030 | 0.0029 | 0.0001 | 0.2070 | 0.0000 | 0.5472 |
| Secondary FDI | .97863353 | -.73867856 | -2.8145199 | -2.423902 | -.05129776 | -7.9313974 | -2.6173561 | -1.2714372 | -1.743132 | -17.635848 |
| | 0.9425 | 0.9492 | 0.8546 | 0.8480 | 0.9956 | 0.4574 | 0.8265 | 0.9092 | 0.8860 | 0.2156 |
| Tertiary FDI | -.88231501 | .27798498 | .53799165 | -.96508546 | .29072746 | .0072573 | -.18008072 | -.2078217 | .28335233 | 4.4057656 |
| | 0.7554 | 0.9090 | 0.8439 | 0.7095 | 0.8807 | 0.9975 | 0.9434 | 0.9367 | 0.9125 | 0.1318 |
| Primary FDI x Income l~l | .00099615 | .00152021 | .00153689 | .00175114 | .00179876 | .00200298 | .00164854 | .00155891 | .00176308 | -.00065045 |
| | 0.2707 | 0.0826 | 0.2908 | 0.0463 | 0.1086 | 0.0263 | 0.0498 | 0.1539 | 0.0538 | 0.6926 |
| Secondary FDI x Income~l | .00061289 | .00054264 | .00065604 | .00047205 | .00043938 | .00096466 | .00070135 | .00039681 | .00071052 | .00055971 |
| | 0.4601 | 0.4815 | 0.5622 | 0.5250 | 0.5436 | 0.1362 | 0.3547 | 0.5904 | 0.3729 | 0.5961 |
| Tertiary FDI x Income ~l | .00022347 | .00018338 | .00019114 | .00020944 | .0001533 | .00019156 | .00019954 | .00018593 | .00020122 | -.00008417 |
| | 0.1669 | 0.2191 | 0.2778 | 0.1860 | 0.2216 | 0.1996 | 0.1754 | 0.2181 | 0.2060 | 0.6428 |
| N | 69 | 75 | 67 | 74 | 74 | 73 | 73 | 65 | 75 | 56 |
| r2_a | .09253513 | .16431437 | .08180374 | .13527898 | .23931589 | .26527821 | .08155714 | .0594438 | .10126591 | .28284423 |

**Table 29:**
**OLS model all sectors FDI with income level interaction term**

OLS Growth and FDI by sector and Private credit

| Variable | OLSPST1 | OLSPST2 | OLSPST3 | OLSPST4 | OLSPST5 | OLSPST6 | OLSPST7 | OLSPST8 | OLSPST9 | OLSPST10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.4989246 | -2.5568299 | -2.6089383 | -2.5174423 | -1.8042559 | -1.3873551 | -2.9103689 | -3.1070098 | -2.7647993 | -1.9840873 |
| | 0.0000 | 0.0000 | 0.0010 | 0.0000 | 0.0077 | 0.0214 | 0.0010 | 0.0000 | 0.0000 | 0.2845 |
| Ln(Initial level of GD~) | -.19224862 | -.18030311 | -.18952105 | -.17943111 | -.25354372 | -.15095655 | -.15393472 | -.28099751 | -.16443448 | -.10965726 |
| | 0.0225 | 0.0006 | 0.0073 | 0.0007 | 0.0006 | 0.0018 | 0.0575 | 0.0428 | 0.0042 | 0.5118 |
| Ln(Avg.year of seconda~) | -.00760741 | | | | | | | | | -.26895245 |
| | 0.9693 | | | | | | | | | 0.2545 |
| Ln(1+Inflation) | | -.42122523 | | | | | | | | -.28642238 |
| | | 0.0001 | | | | | | | | 0.0433 |
| Ln(Government size) | | | -.02258408 | | | | | | | -.33821079 |
| | | | 0.9137 | | | | | | | 0.2240 |
| Ln(Trade Openness) | | | | .15279398 | | | | | | -.10019177 |
| | | | | 0.2348 | | | | | | 0.5621 |
| Ln(Access to private c~) | | | | | .2952327 | | | | | .10483485 |
| | | | | | 0.0524 | | | | | 0.6809 |
| Ln(Domestic investment) | | | | | | .94980283 | | | | 1.2949656 |
| | | | | | | 0.0155 | | | | 0.0329 |
| Press freedom | | | | | | | .05778804 | | | -.08858351 |
| | | | | | | | 0.7184 | | | 0.7461 |
| Instiutional quality | | | | | | | | .01816735 | | .00976425 |
| | | | | | | | | 0.2105 | | 0.6095 |
| African dummy | | | | | | | | | .12928256 | .2892066 |
| | | | | | | | | | 0.5338 | 0.4432 |
| Primary FDI | -7.4827879 | -5.7610884 | .17737799 | -6.2266077 | -.93421447 | -1.9947499 | -7.5633596 | .24836176 | -7.6809636 | 3.4505689 |
| | 0.3366 | 0.4556 | 0.9917 | 0.4310 | 0.9012 | 0.8126 | 0.3117 | 0.9819 | 0.3068 | 0.8631 |
| Secondary FDI | -25.673472 | -24.940995 | -36.613297 | -27.19865 | -17.731862 | -25.494467 | -23.114887 | -23.72728 | -27.246997 | -33.481198 |
| | 0.0344 | 0.0393 | 0.0058 | 0.0265 | 0.1817 | 0.0536 | 0.0626 | 0.0493 | 0.0284 | 0.0603 |
| Tertiary FDI | 1.1214937 | 3.1496626 | 4.3520112 | 2.3062315 | 3.5156155 | 2.6587687 | .99615407 | .69682741 | 3.3501069 | 6.4537491 |
| | 0.6381 | 0.2005 | 0.0831 | 0.3562 | 0.1177 | 0.2558 | 0.6640 | 0.7837 | 0.1732 | 0.0551 |
| Primary FDI x Private ~t | 5.1797764 | 1.8519071 | 11.074727 | .22448956 | -10.529513 | -9.0541253 | 7.7610789 | -.05310032 | 7.2153724 | .0181009 |
| | 0.8142 | 0.9338 | 0.7171 | 0.9923 | 0.6308 | 0.7114 | 0.7191 | 0.9982 | 0.7354 | 0.9996 |
| Secondary FDI x Privat~t | 49.983297 | 46.105641 | 59.78126 | 47.085416 | 30.739375 | 39.723125 | 45.78323 | 44.512331 | 50.477365 | 35.708934 |
| | 0.0020 | 0.0063 | 0.0024 | 0.0089 | 0.1116 | 0.0121 | 0.0061 | 0.0089 | 0.0036 | 0.2042 |
| Tertiary FDI x Private~t | .76329526 | -.6583412 | -1.3778449 | -.46506725 | -1.3326421 | -.43253791 | .93727168 | 1.1461717 | -.65547688 | -3.0030848 |
| | 0.6802 | 0.7186 | 0.4747 | 0.7988 | 0.4115 | 0.8138 | 0.6058 | 0.5546 | 0.7262 | 0.2803 |
| N | 68 | 74 | 67 | 74 | 74 | 73 | 73 | 65 | 74 | 56 |
| r2_a | .20834959 | .23055523 | .19562424 | .19725376 | .2238099 | .25699732 | .16979218 | .16483517 | .18353014 | .31344358 |

**Table 30:**
**OLS model all sectors FDI with private credit interaction term**

OLS Growth and FDI by sector and Trade

| Variable | OLSPST1 | OLSPST2 | OLSPST3 | OLSPST4 | OLSPST5 | OLSPST6 | OLSPST7 | OLSPST8 | OLSPST9 | OLSPST10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Constant | -2.5670602 | -2.8469566 | -3.3042397 | -2.8155969 | -1.4684773 | -1.128873 | -3.2072178 | -3.4020916 | -3.0764732 | -1.898509 |
| | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0290 | 0.1377 | 0.0004 | 0.0000 | 0.0000 | 0.2976 |
| Ln(Initial level of GD~) | -.19639183 | -.13490523 | -.11129275 | -.13101897 | -.28189136 | -.11020766 | -.10514275 | -.31149829 | -.11489904 | -.15399933 |
| | 0.0310 | 0.0053 | 0.0999 | 0.0072 | 0.0003 | 0.0171 | 0.1718 | 0.0555 | 0.0290 | 0.3968 |
| Ln(Avg.year of seconda~) | .18242929 | | | | | | | | | -.23095724 |
| | 0.3615 | | | | | | | | | 0.3592 |
| Ln(1+Inflation) | | -.47911109 | | | | | | | | -.28141115 |
| | | 0.0000 | | | | | | | | 0.0398 |
| Ln(Government size) | | | -.14450043 | | | | | | | -.45530357 |
| | | | 0.5741 | | | | | | | 0.1296 |
| Ln(Trade Openness) | | | | .1967616 | | | | | | -.10590017 |
| | | | | 0.2574 | | | | | | 0.6974 |
| Ln(Access to private c~) | | | | | .42550404 | | | | | .28151386 |
| | | | | | 0.0009 | | | | | 0.0398 |
| Ln(Domestic investment) | | | | | | 1.3137484 | | | | 1.2241334 |
| | | | | | | 0.0050 | | | | 0.0441 |
| Press freedom | | | | | | | .04351212 | | | -.10021318 |
| | | | | | | | 0.8067 | | | 0.7126 |
| Instiutional quality | | | | | | | | .02684316 | | .01100985 |
| | | | | | | | | 0.1021 | | 0.5467 |
| African dummy | | | | | | | | | .08269851 | .34414933 |
| | | | | | | | | | 0.7074 | 0.3814 |
| Primary FDI | 4.479831 | -.67095552 | -9.1158639 | .65061774 | 9.0514963 | 9.2903514 | -1.7698519 | 7.2202421 | -2.1935898 | 24.7646 |
| | 0.5628 | 0.9174 | 0.6297 | 0.9229 | 0.1489 | 0.1482 | 0.8037 | 0.4860 | 0.7545 | 0.2140 |
| Secondary FDI | -8.4842421 | -9.0352989 | -13.005774 | -8.0482495 | -10.688691 | -12.441393 | -9.8570918 | -12.011372 | -11.137925 | -18.149467 |
| | 0.5712 | 0.5134 | 0.4388 | 0.5794 | 0.2950 | 0.2557 | 0.4835 | 0.3512 | 0.4421 | 0.1176 |
| Tertiary FDI | -.23490705 | .85421734 | 1.9322458 | -.07247847 | 2.1139513 | 1.0519674 | -.19009451 | -.59870721 | .75408171 | 6.2204826 |
| | 0.9366 | 0.7483 | 0.5236 | 0.9799 | 0.3256 | 0.6577 | 0.9463 | 0.8467 | 0.7908 | 0.0623 |
| Primary FDI x Trade op~s | -8.2915269 | -5.0855252 | 9.4471301 | -7.4428404 | -11.6137 | -13.154367 | -4.0931071 | -7.2088387 | -3.8891884 | -26.397993 |
| | 0.0843 | 0.2293 | 0.6408 | 0.1262 | 0.0024 | 0.0028 | 0.3788 | 0.1855 | 0.3946 | 0.3110 |
| Secondary FDI x Trade ~s | 10.093645 | 8.1947845 | 9.1949193 | 4.8893429 | 8.4107467 | 5.6356667 | 9.493448 | 8.9419044 | 10.037188 | 6.48172 |
| | 0.0444 | 0.1261 | 0.1576 | 0.4665 | 0.0284 | 0.2167 | 0.1232 | 0.0690 | 0.0636 | 0.3755 |
| Tertiary FDI x Trade o~s | 1.0296117 | .79133617 | .40619006 | .87982452 | -.02267904 | .61922147 | 1.0885361 | 1.3284328 | .90788072 | -1.6014135 |
| | 0.3684 | 0.4681 | 0.7413 | 0.4295 | 0.9792 | 0.5418 | 0.3327 | 0.2670 | 0.4465 | 0.2375 |
| N | 68 | 74 | 67 | 74 | 74 | 73 | 73 | 65 | 74 | 56 |
| r2_a | .10522853 | .15388469 | .07412072 | .1062477 | .24314137 | .23321802 | .06862786 | .07886721 | .087776 | .31206331 |

**Table 31:**
**OLS model all sectors FDI with trade openness interaction term**

## GMM

xtdpd Growth and Total FDI

| Variable | xtdpdTOT1 | xtdpdTOT2 | xtdpdTOT3 | xtdpdTOT4 | xtdpdTOT5 | xtdpdTOT6 | xtdpdTOT8 | xtdpdTOT9 | xtdpdTOT11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .18139368 | .22565282 | .18527233 | .26850175 | .27306878 | .22556039 | .27451264 | .26632665 | .19777868 |
| | 0.0038 | 0.0062 | 0.0542 | 0.0009 | 0.0010 | 0.0095 | 0.0009 | 0.0046 | 0.0096 |
| Ln(Initial GDPPC level) | -.00802101 | -.00365971 | -.00360496 | -.00339272 | -.00357235 | -.00358902 | -.00372347 | -.00713937 | -.00445607 |
| | 0.0000 | 0.0000 | 0.0072 | 0.0001 | 0.1126 | 0.0000 | 0.0028 | 0.0003 | 0.1371 |
| LN(Avg. Year of second~) | .02107569 | | | | | | | | .01260531 |
| | 0.0001 | | | | | | | | 0.0475 |
| LN(1+Infaltion) | | -.01514428 | | | | | | | -.00464664 |
| | | 0.0000 | | | | | | | 0.1902 |
| LN(Government size) | | | -.00656122 | | | | | | -.00320762 |
| | | | 0.1798 | | | | | | 0.5754 |
| LN(Trade Openness) | | | | .00140222 | | | | | -.00011482 |
| | | | | 0.6365 | | | | | 0.9766 |
| LN(Private Credit) | | | | | .00092138 | | | | -.00995979 |
| | | | | | 0.8368 | | | | 0.0032 |
| LN(Domestic Investment) | | | | | | .03308669 | | | .02862507 |
| | | | | | | 0.0001 | | | 0.0038 |
| Freedom of press | | | | | | | -.00120185 | | -.00428089 |
| | | | | | | | 0.7105 | | 0.2768 |
| Institutional Quality | | | | | | | | .00059728 | .0001264 |
| | | | | | | | | 0.0049 | 0.6415 |
| LN(FDI total) | .12203335 | .12356526 | .08025546 | .14045673 | .13189119 | .08867524 | .12922339 | .11478617 | .04156695 |
| | 0.0014 | 0.0054 | 0.1478 | 0.0092 | 0.0040 | 0.0475 | 0.0049 | 0.0044 | 0.5415 |
| N | 423 | 466 | 243 | 458 | 456 | 453 | 455 | 408 | 204 |
| sargan | | | | | | | | | |
| arm2 | -.49773767 | -.03511446 | -1.6631795 | .36377884 | .3589449 | .21940817 | -.11051263 | -.40792022 | -1.9617147 |

**Table 32:**
**GMM model total FDI**

xtdpd Growth and Primary sector

| Variable | xtdpdPRI1 | xtdpdPRI2 | xtdpdPRI3 | xtdpdPRI4 | xtdpdPRI5 | xtdpdPRI6 | xtdpdPRI8 | xtdpdPRI9 | xtdpdPRI11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .18308488 | .16754536 | .29598931 | .22353505 | .27784246 | .20469834 | .23144355 | .29214135 | .24725176 |
| | 0.0680 | 0.0710 | 0.1027 | 0.0149 | 0.0182 | 0.0452 | 0.0086 | 0.0004 | 0.3255 |
| Ln(Initial GDPPC level) | -.00819493 | -.00273183 | -.00381276 | -.00242171 | -.00140937 | -.00241099 | -.00199522 | -.00502207 | -.00632492 |
| | 0.0000 | 0.0165 | 0.0652 | 0.0276 | 0.6443 | 0.0397 | 0.2353 | 0.0597 | 0.1710 |
| LN(Avg. Year of second~) | .02222908 | | | | | | | | .01932415 |
| | 0.0016 | | | | | | | | 0.0216 |
| LN(1+Infaltion) | | -.01183612 | | | | | | | -.01085192 |
| | | 0.0036 | | | | | | | 0.1395 |
| LN(Government size) | | | -.0016857 | | | | | | .00701518 |
| | | | 0.7787 | | | | | | 0.4518 |
| LN(Trade Openness) | | | | .00351532 | | | | | .00270762 |
| | | | | 0.2450 | | | | | 0.5684 |
| LN(Private Credit) | | | | | -.0029869 | | | | -.00735905 |
| | | | | | 0.6176 | | | | 0.0447 |
| LN(Domestic Investment) | | | | | | .03594334 | | | .02492784 |
| | | | | | | 0.0015 | | | 0.1635 |
| Freedom of press | | | | | | | .00082591 | | -.00187305 |
| | | | | | | | 0.8297 | | 0.6720 |
| Institutional Quality | | | | | | | | .00044704 | -.00016332 |
| | | | | | | | | 0.1340 | 0.5257 |
| LN(FDI Primary) | .12282923 | .23694413 | .56349264 | .25673171 | .28876198 | .25456614 | .26579108 | .36874459 | .32152276 |
| | 0.2248 | 0.0223 | 0.1489 | 0.0202 | 0.0118 | 0.0405 | 0.0060 | 0.0001 | 0.1828 |
| N | 273 | 295 | 185 | 291 | 290 | 286 | 292 | 267 | 161 |
| sargan | | | | | | | | | |
| arm2 | -1.025234 | -.8512388 | -1.1681969 | -.76749478 | -.9081485 | -1.2168969 | -.70598851 | -.86073424 | -1.4762921 |

**Table 33:**
**GMM model primary FDI**

xtdpd Growth and Secondary sector

| Variable | xtdpdSEC1 | xtdpdSEC2 | xtdpdSEC3 | xtdpdSEC4 | xtdpdSEC5 | xtdpdSEC6 | xtdpdSEC8 | xtdpdSEC9 | xtdpdSEC11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .13520586 | .0823119 | .24359935 | .14144849 | .16959699 | .07498903 | .16152111 | .22375045 | .19988981 |
| | 0.2214 | 0.5252 | 0.1833 | 0.3127 | 0.2162 | 0.5440 | 0.1196 | 0.0958 | 0.3689 |
| Ln(Initial GDPPC level) | -.00778891 | -.0033412 | -.00269893 | -.00327958 | -.00238354 | -.00205005 | -.00299035 | -.00440222 | -.00238916 |
| | 0.0000 | 0.0051 | 0.2034 | 0.0063 | 0.3442 | 0.0415 | 0.0212 | 0.0415 | 0.5809 |
| LN(Avg. Year of second~) | .02057147 | | | | | | | | .01364083 |
| | 0.0031 | | | | | | | | 0.0931 |
| LN(1+Infaltion) | | -.01486111 | | | | | | | -.00979372 |
| | | 0.0034 | | | | | | | 0.1062 |
| LN(Government size) | | | -.00427898 | | | | | | .00044737 |
| | | | 0.4756 | | | | | | 0.9448 |
| LN(Trade Openness) | | | | .00811434 | | | | | .00615976 |
| | | | | 0.0093 | | | | | 0.1485 |
| LN(Private Credit) | | | | | -.00092387 | | | | -.01046251 |
| | | | | | 0.8664 | | | | 0.0103 |
| LN(Domestic Investment) | | | | | | .03728839 | | | .02576472 |
| | | | | | | 0.0000 | | | 0.1155 |
| Freedom of press | | | | | | | -.00070263 | | -.00165123 |
| | | | | | | | 0.8014 | | 0.6796 |
| Institutional Quality | | | | | | | | .00029248 | -.0002046 |
| | | | | | | | | 0.2315 | 0.3810 |
| LN( FDI Secondary) | .4044327 | .35103125 | .19595146 | .11936943 | .36782913 | .17208518 | .33792784 | .24992998 | .05618363 |
| | 0.0268 | 0.0443 | 0.4503 | 0.6338 | 0.0595 | 0.3128 | 0.0495 | 0.1955 | 0.8585 |
| N | 301 | 323 | 205 | 316 | 319 | 318 | 317 | 294 | 177 |
| sargan | | | | | | | | | |
| arm2 | -1.2102182 | -1.5321912 | -.95062207 | -1.3719408 | -1.2623769 | -1.28157 | -1.2836437 | -1.3495694 | -1.4230125 |

**Table 34:**
**GMM model secondary FDI**

xtdpd Growth and Tertiary sector

| Variable | xtdpdTER1 | xtdpdTER2 | xtdpdTER3 | xtdpdTER4 | xtdpdTER5 | xtdpdTER6 | xtdpdTER8 | xtdpdTER9 | xtdpdTER11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .15910681 | .1306224 | .30204392 | .16993033 | .24081294 | .13605176 | .2278178 | .26553816 | .34465567 |
| | 0.1760 | 0.3462 | 0.1189 | 0.1597 | 0.0988 | 0.2640 | 0.0759 | 0.0812 | 0.0904 |
| Ln(Initial GDPPC level) | -.00841898 | -.00438088 | -.00379851 | -.00350823 | -.00177808 | -.00307365 | -.00336611 | -.00645388 | -.00568451 |
| | 0.0000 | 0.0003 | 0.0566 | 0.0018 | 0.5222 | 0.0040 | 0.0333 | 0.0383 | 0.1831 |
| LN(Avg. Year of second~) | .02041356 | | | | | | | | .01524821 |
| | 0.0034 | | | | | | | | 0.0633 |
| LN(1+Infaltion) | | -.0151439 | | | | | | | -.00831819 |
| | | 0.0074 | | | | | | | 0.1681 |
| LN(Government size) | | | -.00487146 | | | | | | .00252648 |
| | | | 0.4721 | | | | | | 0.7438 |
| LN(Trade Openness) | | | | .00684323 | | | | | .00668899 |
| | | | | 0.0403 | | | | | 0.1136 |
| LN(Private Credit) | | | | | -.00459468 | | | | -.00880703 |
| | | | | | 0.3948 | | | | 0.0156 |
| LN(Domestic Investment) | | | | | | .0348648 | | | .01428262 |
| | | | | | | 0.0009 | | | 0.3312 |
| Freedom of press | | | | | | | .00212272 | | -.00313932 |
| | | | | | | | 0.5449 | | 0.4814 |
| Institutional Quality | | | | | | | | .00044313 | -.0001041 |
| | | | | | | | | 0.2303 | 0.6373 |
| LN(FDI tertiary) | .07852451 | .127413 | .09224697 | .03522646 | .13688994 | .08859617 | .09487234 | .10054309 | -.01848745 |
| | 0.0117 | 0.0054 | 0.1622 | 0.4933 | 0.0015 | 0.0140 | 0.0181 | 0.0025 | 0.7664 |
| N | 306 | 328 | 205 | 324 | 324 | 323 | 322 | 295 | 179 |
| sargan | | | | | | | | | |
| arm2 | -1.3362264 | -1.6903385 | -1.475109 | -1.4776191 | -1.4121727 | -1.461745 | -1.3645599 | -1.4658535 | -1.5461748 |

**Table 35:**
**GMM model tertiary FDI**

xtdpd Growth and Primary, Secondary and Tertiary Sector

| Variable | xtdpdPST1 | xtdpdPST2 | xtdpdPST3 | xtdpdPST4 | xtdpdPST5 | xtdpdPST6 | xtdpdPST8 | xtdpdPST9 | xtdpdPST11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .18927073 | .15461172 | .17312063 | .21351127 | .23001824 | .19234044 | .22389337 | .2826695 | .27747899 |
| | 0.0580 | 0.0470 | 0.1587 | 0.0173 | 0.0017 | 0.0217 | 0.0135 | 0.0008 | 0.2498 |
| Ln(Initial GDPPC level) | -.00743429 | -.00260473 | -.004569 | -.00292855 | -.00154377 | -.00220845 | -.00227746 | -.00580772 | -.00629207 |
| | 0.0001 | 0.0183 | 0.0203 | 0.0106 | 0.4427 | 0.0398 | 0.2104 | 0.0531 | 0.2985 |
| LN(Avg. Year of second~) | .02040141 | | | | | | | | .01826396 |
| | 0.0082 | | | | | | | | 0.0395 |
| LN(1+Infaltion) | | -.0120253 | | | | | | | -.00839573 |
| | | 0.0004 | | | | | | | 0.2227 |
| LN(Government size) | | | .00360139 | | | | | | .00752923 |
| | | | 0.5941 | | | | | | 0.4388 |
| LN(Trade Openness) | | | | .00366516 | | | | | .00232586 |
| | | | | 0.3417 | | | | | 0.6813 |
| LN(Private Credit) | | | | | -.00152428 | | | | -.00811856 |
| | | | | | 0.7217 | | | | 0.0944 |
| LN(Domestic Investment) | | | | | | .03391108 | | | .0261321 |
| | | | | | | 0.0036 | | | 0.1443 |
| Freedom of press | | | | | | | .00169863 | | -.00322073 |
| | | | | | | | 0.6774 | | 0.5087 |
| Institutional Quality | | | | | | | | .00053537 | -.00011433 |
| | | | | | | | | 0.1129 | 0.6561 |
| LN(FDI Primary) | .17799113 | .32726913 | .67085107 | .35446983 | .35252818 | .33732589 | .35342378 | .37187388 | .37305745 |
| | 0.2539 | 0.0002 | 0.0245 | 0.0023 | 0.0000 | 0.0025 | 0.0013 | 0.0001 | 0.0334 |
| LN( FDI Secondary) | .24964474 | .34735372 | .31984603 | .33567741 | .32631947 | .39843858 | .35929303 | .20319308 | .13300408 |
| | 0.2717 | 0.1282 | 0.2985 | 0.2671 | 0.1839 | 0.1525 | 0.2265 | 0.4610 | 0.7483 |
| LN(FDI tertiary) | .06184614 | .04252009 | .03046645 | .09125357 | .05205108 | .03124988 | .11641542 | .03713584 | -.06576269 |
| | 0.2566 | 0.5677 | 0.6875 | 0.2445 | 0.4541 | 0.6821 | 0.1115 | 0.5859 | 0.4808 |
| N | 266 | 284 | 180 | 280 | 280 | 279 | 281 | 260 | 158 |
| sargan | | | | | | | | | |
| arm2 | -.88155092 | -1.0036663 | -.79254726 | -1.0380586 | -.86436455 | -.94263136 | -1.0295894 | -1.0980595 | -1.3119283 |

**Table 36:**
**GMM model all sector FDI**

xtdpd Growth and Total FDI and Education

| Variable | xtdpdTOT1 | xtdpdTOT2 | xtdpdTOT3 | xtdpdTOT4 | xtdpdTOT5 | xtdpdTOT6 | xtdpdTOT8 | xtdpdTOT9 | xtdpdTOT11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .17396545 | .13712821 | .17233098 | .19052404 | .20912781 | .13903574 | .18000527 | .16300177 | .1979284 |
| | 0.0055 | 0.0477 | 0.0097 | 0.0102 | 0.0031 | 0.0736 | 0.0118 | 0.0543 | 0.0133 |
| Ln(Initial GDPPC level) | -.00803626 | -.00429982 | -.00519851 | -.00378053 | -.00443502 | -.00378191 | -.00414942 | -.00877009 | -.00480636 |
| | 0.0000 | 0.0001 | 0.0002 | 0.0006 | 0.0342 | 0.0002 | 0.0044 | 0.0003 | 0.1117 |
| LN(Avg. Year of second~) | .03002069 | | | | | | | | .01709063 |
| | 0.0000 | | | | | | | | 0.0671 |
| LN(1+Infaltion) | | -.01704133 | | | | | | | -.00460886 |
| | | 0.0000 | | | | | | | 0.2019 |
| LN(Government size) | | | -.0037502 | | | | | | -.00335485 |
| | | | 0.5040 | | | | | | 0.5690 |
| LN(Trade Openness) | | | | .00017014 | | | | | -.00024207 |
| | | | | 0.9597 | | | | | 0.9514 |
| LN(Private Credit) | | | | | .00201161 | | | | -.00943679 |
| | | | | | 0.6206 | | | | 0.0062 |
| LN(Domestic Investment) | | | | | | .03396826 | | | .02714892 |
| | | | | | | 0.0006 | | | 0.0079 |
| Freedom of press | | | | | | | -.00141786 | | -.00417333 |
| | | | | | | | 0.6818 | | 0.3038 |
| Institutional Quality | | | | | | | | .0007623 | .00011701 |
| | | | | | | | | 0.0046 | 0.6693 |
| LN(FDI total) | .50468988 | .07202822 | -.00731198 | .10065209 | .07614572 | .03452741 | .130483 | -.00045079 | .17374626 |
| | 0.0005 | 0.6261 | 0.9745 | 0.4954 | 0.6749 | 0.8074 | 0.3819 | 0.9982 | 0.5840 |
| Total FDI x Avg. year ~l | -.3025236 | .02919991 | .0636948 | .02917317 | .02308425 | .02735833 | .01809056 | .0704318 | -.09717352 |
| | 0.0046 | 0.7867 | 0.6856 | 0.7793 | 0.8602 | 0.7882 | 0.8737 | 0.5989 | 0.6430 |
| N | 423 | 422 | 222 | 414 | 412 | 414 | 416 | 385 | 204 |
| sargan | | | | | | | | | |
| arm2 | -.40252188 | -1.2727181 | -1.7883111 | -.67739596 | -.76428785 | -.65183059 | -.520813 | -.93206057 | -1.9124944 |

**Table 37:**
**GMM model total FDI and human capital**

xtdpd Growth and Primary sector and Education

| Variable | xtdpdPRI1 | xtdpdPRI2 | xtdpdPRI3 | xtdpdPRI4 | xtdpdPRI5 | xtdpdPRI6 | xtdpdPRI8 | xtdpdPRI9 | xtdpdPRI11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .19429238 | .11004815 | .23473407 | .21593811 | .25766165 | .17014285 | .23205811 | .24168103 | .36342107 |
| | 0.0490 | 0.3177 | 0.0643 | 0.0791 | 0.0045 | 0.1742 | 0.0519 | 0.0721 | 0.1166 |
| Ln(Initial GDPPC level) | -.00794998 | -.00424965 | -.00707168 | -.00437764 | -.00328802 | -.00373551 | -.00338391 | -.00829384 | -.00695381 |
| | 0.0000 | 0.0010 | 0.0001 | 0.0009 | 0.1990 | 0.0027 | 0.1225 | 0.0485 | 0.1195 |
| LN(Avg. Year of second~) | .02038438 | | | | | | | | .01273025 |
| | 0.0030 | | | | | | | | 0.1230 |
| LN(1+Infaltion) | | -.01499131 | | | | | | | -.00878132 |
| | | 0.0012 | | | | | | | 0.2139 |
| LN(Government size) | | | .00578546 | | | | | | .00989513 |
| | | | 0.3617 | | | | | | 0.2393 |
| LN(Trade Openness) | | | | .0057244 | | | | | .00260326 |
| | | | | 0.0726 | | | | | 0.5496 |
| LN(Private Credit) | | | | | -.00124719 | | | | -.00596814 |
| | | | | | 0.7773 | | | | 0.0920 |
| LN(Domestic Investment) | | | | | | .03411528 | | | .02017125 |
| | | | | | | 0.0030 | | | 0.1962 |
| Freedom of press | | | | | | | .00216691 | | -.00370602 |
| | | | | | | | 0.6030 | | 0.4210 |
| Institutional Quality | | | | | | | | .00057535 | -.00022124 |
| | | | | | | | | 0.2420 | 0.3490 |
| LN(FDI Primary) | -.04398546 | -.23154454 | -.50857636 | -.27492942 | -.67058863 | -.35574818 | -.23468329 | -.8852038 | -.61389627 |
| | 0.7603 | 0.1974 | 0.6802 | 0.3426 | 0.0063 | 0.1645 | 0.3681 | 0.0672 | 0.3473 |
| Primary FDI x Avg. yea~l | .2502771 | .44078546 | .75709 | .4529416 | .8547153 | .55149478 | .45360913 | 1.0037849 | .82315886 |
| | 0.3108 | 0.0400 | 0.2611 | 0.1266 | 0.0001 | 0.0510 | 0.0837 | 0.0105 | 0.0339 |
| N | 273 | 273 | 171 | 269 | 268 | 268 | 270 | 252 | 161 |
| sargan | | | | | | | | | |
| arm2 | -1.0590938 | -1.2368 | -1.3591972 | -1.112821 | -1.1473361 | -1.2562376 | -1.0784982 | -1.3727397 | -1.5787528 |

**Table 38:**
**GMM model primary FDI and human capital**

xtdpd Growth and Secondary sector and Education

| Variable | xtdpdSEC1 | xtdpdSEC2 | xtdpdSEC3 | xtdpdSEC4 | xtdpdSEC5 | xtdpdSEC6 | xtdpdSEC8 | xtdpdSEC9 | xtdpdSEC11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .12214515 | .0468442 | .3087697 | .12593798 | .18122468 | .04412579 | .15923312 | .11766942 | .20760172 |
| | 0.2818 | 0.6842 | 0.0253 | 0.3240 | 0.1382 | 0.7413 | 0.1689 | 0.4146 | 0.3572 |
| Ln(Initial GDPPC level) | -.0077096 | -.00523337 | -.00619178 | -.00540993 | -.00488175 | -.00368112 | -.00490501 | -.00885278 | -.00265749 |
| | 0.0000 | 0.0004 | 0.0005 | 0.0002 | 0.0489 | 0.0017 | 0.0043 | 0.0071 | 0.5303 |
| LN(Avg. Year of second~) | .0212262 | | | | | | | | .01113847 |
| | 0.0080 | | | | | | | | 0.2722 |
| LN(1+Infaltion) | | -.01741598 | | | | | | | -.00967743 |
| | | 0.0002 | | | | | | | 0.1162 |
| LN(Government size) | | | -.00061294 | | | | | | .00074851 |
| | | | 0.9050 | | | | | | 0.9072 |
| LN(Trade Openness) | | | | .00537186 | | | | | .00607749 |
| | | | | 0.0359 | | | | | 0.1544 |
| LN(Private Credit) | | | | | .00067123 | | | | -.01023555 |
| | | | | | 0.8886 | | | | 0.0108 |
| LN(Domestic Investment) | | | | | | .03876661 | | | .02455735 |
| | | | | | | 0.0006 | | | 0.1328 |
| Freedom of press | | | | | | | -.00057855 | | -.00134763 |
| | | | | | | | 0.8581 | | 0.7328 |
| Institutional Quality | | | | | | | | .00055573 | -.00018155 |
| | | | | | | | | 0.1331 | 0.4334 |
| LN( FDI Secondary) | .61640344 | -.4375834 | -1.1463781 | -1.0437944 | -.64373602 | -.53044713 | -.49188568 | -.85860241 | -.43998131 |
| | 0.4410 | 0.5159 | 0.0952 | 0.1990 | 0.3829 | 0.3807 | 0.4954 | 0.3300 | 0.6724 |
| Secondary FDI x A.. ye~l | -.14294497 | .68671284 | 1.1982063 | 1.025597 | .88118614 | .63285579 | .7974019 | 1.0945007 | .41897144 |
| | 0.8039 | 0.1826 | 0.0313 | 0.0873 | 0.1269 | 0.1636 | 0.1592 | 0.1321 | 0.5406 |
| N | 301 | 301 | 191 | 294 | 297 | 296 | 297 | 283 | 177 |
| sargan | | | | | | | | | |
| arm2 | -1.2302698 | -1.4122104 | -1.1483794 | -1.0832974 | -1.054378 | -1.0998358 | -1.0948303 | -1.266382 | -1.4443627 |

**Table 39:**
**GMM model secondary FDI and human capital**

xtdpd Growth and Tertiary sector and Education

| Variable | xtdpdTER1 | xtdpdTER2 | xtdpdTER3 | xtdpdTER4 | xtdpdTER5 | xtdpdTER6 | xtdpdTER8 | xtdpdTER9 | xtdpdTER11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .14713735 | .08059412 | .16876877 | .16125901 | .19415145 | .07571114 | .1726529 | .15906613 | .34075488 |
| | 0.2141 | 0.5149 | 0.1574 | 0.2272 | 0.0751 | 0.5380 | 0.1883 | 0.2359 | 0.0944 |
| Ln(Initial GDPPC level) | -.00841654 | -.00579388 | -.00643095 | -.00480845 | -.00385645 | -.0037659 | -.00441403 | -.00766351 | -.00579595 |
| | 0.0000 | 0.0001 | 0.0001 | 0.0004 | 0.1255 | 0.0020 | 0.0234 | 0.0090 | 0.1769 |
| LN(Avg. Year of second~) | .02318038 | | | | | | | | .01596452 |
| | 0.0034 | | | | | | | | 0.1195 |
| LN(1+Infaltion) | | -.01818535 | | | | | | | -.0085045 |
| | | 0.0003 | | | | | | | 0.1697 |
| LN(Government size) | | | .00132063 | | | | | | .00280558 |
| | | | 0.8012 | | | | | | 0.7196 |
| LN(Trade Openness) | | | | .00522432 | | | | | .00669641 |
| | | | | 0.1014 | | | | | 0.1201 |
| LN(Private Credit) | | | | | -.00121361 | | | | -.00851142 |
| | | | | | 0.7860 | | | | 0.0196 |
| LN(Domestic Investment) | | | | | | .03809357 | | | .01386102 |
| | | | | | | 0.0012 | | | 0.3511 |
| Freedom of press | | | | | | | .00095378 | | -.00307172 |
| | | | | | | | 0.7961 | | 0.4983 |
| Institutional Quality | | | | | | | | .0004827 | -.0001095 |
| | | | | | | | | 0.1340 | 0.6180 |
| LN(FDI tertiary) | .33520618 | -.21447133 | -.22083887 | -.11094753 | -.17547541 | -.10561315 | -.03771503 | -.18256811 | -.00187738 |
| | 0.0861 | 0.5298 | 0.4435 | 0.6963 | 0.5063 | 0.7098 | 0.8806 | 0.6175 | 0.9942 |
| Tertiary FDI x Avg. ye~l | -.17506082 | .20887029 | .17481451 | .11746376 | .17015158 | .09327926 | .09877869 | .18139215 | -.01559032 |
| | 0.1789 | 0.3384 | 0.3428 | 0.5339 | 0.3205 | 0.6255 | 0.5609 | 0.4316 | 0.9322 |
| N | 306 | 306 | 191 | 302 | 302 | 301 | 302 | 284 | 179 |
| sargan | | | | | | | | | |
| arm2 | -1.3488109 | -1.6328291 | -1.4484545 | -1.239352 | -1.4116578 | -1.4388113 | -1.2775679 | -1.5484257 | -1.5554981 |

**Table 40:**
**GMM model tertiary FDI and human capital**

xtdpd Growth and Primary, Secondary and Tertiary Sector and Education

| Variable | xtdpdPST1 | xtdpdPST2 | xtdpdPST3 | xtdpdPST4 | xtdpdPST5 | xtdpdPST6 | xtdpdPST8 | xtdpdPST9 | xtdpdPST11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .19260972 | .10013325 | .43598557 | .21424196 | .25640256 | .21064877 | .22493086 | .2434289 | .39415748 |
| | 0.0520 | 0.3735 | 0.0021 | 0.0630 | 0.0203 | 0.0985 | 0.0376 | 0.0292 | 0.0654 |
| Ln(Initial GDPPC level) | -.00722927 | -.00518921 | -.00800456 | -.005291 | -.00462394 | -.00453488 | -.0048707 | -.01048394 | -.00806976 |
| | 0.0001 | 0.0009 | 0.0001 | 0.0002 | 0.0805 | 0.0002 | 0.0418 | 0.0026 | 0.1598 |
| LN(Avg. Year of second~) | .01855572 | | | | | | | | .01640669 |
| | 0.0493 | | | | | | | | 0.2050 |
| LN(1+Infaltion) | | -.01514224 | | | | | | | -.00582749 |
| | | 0.0003 | | | | | | | 0.3637 |
| LN(Government size) | | | .0034629 | | | | | | .01120317 |
| | | | 0.6444 | | | | | | 0.1939 |
| LN(Trade Openness) | | | | .00352502 | | | | | .00302218 |
| | | | | 0.4051 | | | | | 0.5784 |
| LN(Private Credit) | | | | | -.00126231 | | | | -.005762 |
| | | | | | 0.7883 | | | | 0.1949 |
| LN(Domestic Investment) | | | | | | .02959018 | | | .02001852 |
| | | | | | | 0.0162 | | | 0.1997 |
| Freedom of press | | | | | | | .00056761 | | -.00503646 |
| | | | | | | | 0.8947 | | 0.3130 |
| Institutional Quality | | | | | | | | .0007754 | -.00015295 |
| | | | | | | | | 0.0403 | 0.5416 |
| LN(FDI Primary) | -.19932498 | -.5619149 | -.60760763 | -.66702787 | -.5752445 | -.66898179 | -.58958948 | -.64529524 | -.3960452 |
| | 0.6517 | 0.1678 | 0.3590 | 0.1372 | 0.1813 | 0.1423 | 0.1622 | 0.0978 | 0.4233 |
| LN( FDI Secondary) | -.21890945 | -.43871731 | -.96898572 | -.81873408 | -.8167617 | -.53181231 | -.71521804 | -1.2510522 | -.05032498 |
| | 0.7896 | 0.5194 | 0.2789 | 0.4178 | 0.4520 | 0.5900 | 0.4729 | 0.2170 | 0.9548 |
| LN(FDI tertiary) | .41367707 | .05950076 | -.04457618 | .26593721 | .24039978 | .12563711 | .23771814 | .17921596 | .09902329 |
| | 0.0604 | 0.8378 | 0.8745 | 0.3964 | 0.4463 | 0.6813 | 0.4469 | 0.5781 | 0.7688 |
| Primary FDI x Avg. yea~l | .37881693 | .66361358 | .81624313 | .75186398 | .70900611 | .78098139 | .71032873 | .80452638 | .69241 |
| | 0.3356 | 0.0590 | 0.0271 | 0.0446 | 0.0505 | 0.0377 | 0.0456 | 0.0097 | 0.0531 |
| Secondary FDI x A.. ye~l | .36568575 | .56797037 | .95605355 | .88147257 | .91117625 | .74730848 | .82950879 | 1.1634921 | .09624175 |
| | 0.5087 | 0.2230 | 0.1871 | 0.2031 | 0.2227 | 0.2730 | 0.2293 | 0.1069 | 0.8640 |
| Tertiary FDI x Avg. ye~l | -.25736851 | .00972775 | .03555565 | -.13178477 | -.09605977 | -.07070441 | -.0929458 | -.09292459 | -.13368486 |
| | 0.1089 | 0.9624 | 0.8461 | 0.5709 | 0.6728 | 0.7513 | 0.6826 | 0.6709 | 0.5455 |
| N | 266 | 266 | 168 | 262 | 262 | 261 | 263 | 249 | 158 |
| sargan | | | | | | | | | |
| arm2 | -.90009027 | -1.1742607 | -1.4871675 | -1.0003229 | -1.0264746 | -1.0064353 | -1.0149472 | -1.1940971 | -1.412205 |

**Table 41:**
**GMM model all sector FDI and human capital**

xtdpd Growth and Total FDI and Income

| Variable | xtdpdTOT1 | xtdpdTOT2 | xtdpdTOT3 | xtdpdTOT4 | xtdpdTOT5 | xtdpdTOT6 | xtdpdTOT8 | xtdpdTOT9 | xtdpdTOT11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .15774187 | .22811974 | .18425386 | .26787155 | .2721463 | .23399011 | .27539789 | .25460574 | .19411926 |
| | 0.0067 | 0.0049 | 0.0546 | 0.0005 | 0.0006 | 0.0061 | 0.0009 | 0.0063 | 0.0123 |
| Ln(Initial GDPPC level) | -.00616459 | -.00212621 | -.00186047 | -.00162204 | -.00204852 | -.00251123 | -.00212564 | -.00471607 | -.00355145 |
| | 0.0001 | 0.0196 | 0.2981 | 0.0873 | 0.3594 | 0.0111 | 0.1242 | 0.0157 | 0.2778 |
| LN(Avg. Year of second~) | .01870729 | | | | | | | | .01215144 |
| | 0.0007 | | | | | | | | 0.0548 |
| LN(1+Infaltion) | | -.01402462 | | | | | | | -.00453704 |
| | | 0.0000 | | | | | | | 0.2059 |
| LN(Government size) | | | -.0082571 | | | | | | -.00411268 |
| | | | 0.1010 | | | | | | 0.4951 |
| LN(Trade Openness) | | | | .00182424 | | | | | .00004939 |
| | | | | 0.5173 | | | | | 0.9904 |
| LN(Private Credit) | | | | | .00106889 | | | | -.00936652 |
| | | | | | 0.8075 | | | | 0.0069 |
| LN(Domestic Investment) | | | | | | .0301636 | | | .02668382 |
| | | | | | | 0.0006 | | | 0.0064 |
| Freedom of press | | | | | | | -.00123887 | | -.00403631 |
| | | | | | | | 0.7051 | | 0.3161 |
| Institutional Quality | | | | | | | | .00053881 | .00011783 |
| | | | | | | | | 0.0060 | 0.6684 |
| LN(FDI total) | .18468959 | .20919061 | .15927736 | .21023655 | .22701475 | .16131685 | .22130472 | .23955641 | .08426135 |
| | 0.0006 | 0.0002 | 0.0490 | 0.0011 | 0.0000 | 0.0122 | 0.0001 | 0.0000 | 0.4206 |
| Total FDI x Income | -5.225e-06 | -5.726e-06 | -4.285e-06 | -6.380e-06 | -6.262e-06 | -4.411e-06 | -6.639e-06 | -7.524e-06 | -2.494e-06 |
| | 0.0005 | 0.0006 | 0.0542 | 0.0001 | 0.0001 | 0.0215 | 0.0001 | 0.0000 | 0.3041 |
| N | 423 | 466 | 243 | 458 | 456 | 453 | 455 | 408 | 204 |
| sargan | | | | | | | | | |
| arm2 | -.64575479 | -.09980662 | -1.6767618 | .196561 | .29838335 | .21051352 | -.07300198 | -.40844973 | -1.9332877 |

**Table 42:**
**GMM model total FDI and income**

xtdpd Growth and Primary sector and Income

| Variable | xtdpdPRI1 | xtdpdPRI2 | xtdpdPRI3 | xtdpdPRI4 | xtdpdPRI5 | xtdpdPRI6 | xtdpdPRI8 | xtdpdPRI9 | xtdpdPRI11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .20758384 | .17911086 | .17152135 | .2347412 | .27673284 | .19925784 | .23016332 | .29185655 | .23961618 |
| | 0.0545 | 0.1185 | 0.1271 | 0.0310 | 0.0180 | 0.0263 | 0.0080 | 0.0002 | 0.3192 |
| Ln(Initial GDPPC level) | -.00901921 | -.00365554 | -.00337453 | -.00309657 | -.00156506 | -.00226626 | -.0020187 | -.00480403 | -.00633141 |
| | 0.0000 | 0.0086 | 0.0941 | 0.0138 | 0.6115 | 0.0562 | 0.2364 | 0.0696 | 0.1651 |
| LN(Avg. Year of second~) | .02388329 | | | | | | | | .01912491 |
| | 0.0006 | | | | | | | | 0.0189 |
| LN(1+Infaltion) | | -.01330468 | | | | | | | -.01100977 |
| | | 0.0156 | | | | | | | 0.1225 |
| LN(Government size) | | | -.00040381 | | | | | | .00705845 |
| | | | 0.9439 | | | | | | 0.4480 |
| LN(Trade Openness) | | | | .00587706 | | | | | .0028688 |
| | | | | 0.0781 | | | | | 0.5482 |
| LN(Private Credit) | | | | | -.00301377 | | | | -.00750609 |
| | | | | | 0.6130 | | | | 0.0374 |
| LN(Domestic Investment) | | | | | | .03453589 | | | .02582551 |
| | | | | | | 0.0007 | | | 0.1358 |
| Freedom of press | | | | | | | .00082282 | | -.00179342 |
| | | | | | | | 0.8306 | | 0.6832 |
| Institutional Quality | | | | | | | | .00044351 | -.00016649 |
| | | | | | | | | 0.1311 | 0.5356 |
| LN(FDI Primary) | .13773116 | .18753869 | .74475103 | .21784591 | .27204024 | .23090665 | .2659952 | .39039567 | .30437986 |
| | 0.0739 | 0.0810 | 0.0442 | 0.0718 | 0.0153 | 0.0269 | 0.0065 | 0.0001 | 0.2060 |
| Primary FDI x Income | 1.699e-06 | 7.022e-06 | -.00002316 | 7.809e-06 | 5.648e-06 | .00001049 | -5.406e-07 | -.0000116 | 5.399e-06 |
| | 0.9432 | 0.7465 | 0.2290 | 0.7122 | 0.7777 | 0.6078 | 0.9770 | 0.5254 | 0.8205 |
| N | 273 | 295 | 185 | 291 | 290 | 286 | 292 | 267 | 161 |
| sargan | | | | | | | | | |
| arm2 | -.99902605 | -1.1323477 | -1.1519428 | -.94681949 | -.92732716 | -1.0486252 | -.70379615 | -.79898977 | -1.4933228 |

**Table 43:**
**GMM model primary FDI and income**

xtdpd Growth and Secondary sector and Income

| Variable | xtdpdSEC1 | xtdpdSEC2 | xtdpdSEC3 | xtdpdSEC4 | xtdpdSEC5 | xtdpdSEC6 | xtdpdSEC8 | xtdpdSEC9 | xtdpdSEC11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .13620084 | .08572999 | .24003866 | .14401727 | .16696345 | .07594219 | .16500232 | .22126254 | .20603721 |
| | 0.2120 | 0.5045 | 0.1727 | 0.2986 | 0.2091 | 0.5396 | 0.1444 | 0.0983 | 0.3584 |
| Ln(Initial GDPPC level) | -.0071882 | -.00267839 | -.00145748 | -.00267568 | -.0016934 | -.00157663 | -.00260146 | -.00370138 | -.00281153 |
| | 0.0004 | 0.0692 | 0.5914 | 0.0639 | 0.5093 | 0.1657 | 0.0817 | 0.1116 | 0.5274 |
| LN(Avg. Year of second~) | .02029485 | | | | | | | | .01341982 |
| | 0.0040 | | | | | | | | 0.0968 |
| LN(1+Infaltion) | | -.01450023 | | | | | | | -.00990301 |
| | | 0.0049 | | | | | | | 0.1046 |
| LN(Government size) | | | -.00570168 | | | | | | .00080044 |
| | | | 0.3676 | | | | | | 0.9038 |
| LN(Trade Openness) | | | | .00795177 | | | | | .00627928 |
| | | | | 0.0111 | | | | | 0.1560 |
| LN(Private Credit) | | | | | -.00056968 | | | | -.01054698 |
| | | | | | 0.9154 | | | | 0.0113 |
| LN(Domestic Investment) | | | | | | .03695361 | | | .02559958 |
| | | | | | | 0.0001 | | | 0.1190 |
| Freedom of press | | | | | | | -.00033463 | | -.00178109 |
| | | | | | | | 0.9082 | | 0.6574 |
| Institutional Quality | | | | | | | | .00026186 | -.00018987 |
| | | | | | | | | 0.2780 | 0.4193 |
| LN( FDI Secondary) | .55854011 | .51481513 | .40216817 | .26511781 | .57927552 | .28968898 | .56866963 | .4019713 | -.01416071 |
| | 0.0979 | 0.1261 | 0.2942 | 0.4958 | 0.1166 | 0.2875 | 0.0931 | 0.2936 | 0.9776 |
| Secondary FDI x Income | -8.404e-06 | -.00001112 | -.00001487 | -.00001091 | -.00001434 | -8.436e-06 | -.00001206 | -8.191e-06 | 3.259e-06 |
| | 0.4466 | 0.3571 | 0.2598 | 0.3999 | 0.2642 | 0.3858 | 0.3029 | 0.5018 | 0.8137 |
| N | 301 | 323 | 205 | 316 | 319 | 318 | 317 | 294 | 177 |
| sargan | | | | | | | | | |
| arm2 | -1.2238691 | -1.5311077 | -.80617283 | -1.4023842 | -1.280804 | -1.2964864 | -1.3372137 | -1.3437436 | -1.4360966 |

**Table 44:**
**GMM model secondary FDI and income**

xtdpd Growth and Tertiary sector and Income

| Variable | xtdpdTER1 | xtdpdTER2 | xtdpdTER3 | xtdpdTER4 | xtdpdTER5 | xtdpdTER6 | xtdpdTER8 | xtdpdTER9 | xtdpdTER11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .12040044 | .1163986 | .29058623 | .16926822 | .24116337 | .11744316 | .21370626 | .25809751 | .38753547 |
| | 0.2635 | 0.3396 | 0.1297 | 0.1465 | 0.0832 | 0.2827 | 0.0393 | 0.0852 | 0.0539 |
| Ln(Initial GDPPC level) | -.0068596 | -.00296101 | -.00274238 | -.00278599 | -.00097625 | -.00220163 | -.00259445 | -.00534885 | -.00670059 |
| | 0.0004 | 0.0172 | 0.2707 | 0.0187 | 0.7193 | 0.0387 | 0.1106 | 0.0780 | 0.1423 |
| LN(Avg. Year of second~) | .01747313 | | | | | | | | .01568696 |
| | 0.0149 | | | | | | | | 0.0548 |
| LN(1+Infaltion) | | -.01374579 | | | | | | | -.00756712 |
| | | 0.0031 | | | | | | | 0.1892 |
| LN(Government size) | | | -.00658606 | | | | | | .00352846 |
| | | | 0.3712 | | | | | | 0.6450 |
| LN(Trade Openness) | | | | .00630951 | | | | | .00759889 |
| | | | | 0.0522 | | | | | 0.0886 |
| LN(Private Credit) | | | | | -.00462994 | | | | -.00935122 |
| | | | | | 0.3760 | | | | 0.0100 |
| LN(Domestic Investment) | | | | | | .03538704 | | | .01277163 |
| | | | | | | 0.0003 | | | 0.3546 |
| Freedom of press | | | | | | | .00077529 | | -.00359074 |
| | | | | | | | 0.8177 | | 0.4285 |
| Institutional Quality | | | | | | | | .00042811 | -.00009443 |
| | | | | | | | | 0.2341 | 0.6665 |
| LN(FDI tertiary) | .18549711 | .21694121 | .1748507 | .14929911 | .24205638 | .14960828 | .17467493 | .24777179 | -.10249434 |
| | 0.0062 | 0.0090 | 0.1211 | 0.0877 | 0.0017 | 0.0294 | 0.0166 | 0.0006 | 0.4182 |
| Tertiary FDI x Income | -5.424e-06 | -5.257e-06 | -3.504e-06 | -4.810e-06 | -4.937e-06 | -3.942e-06 | -5.664e-06 | -6.591e-06 | 2.961e-06 |
| | 0.0193 | 0.0381 | 0.2435 | 0.0526 | 0.0410 | 0.0672 | 0.0159 | 0.0049 | 0.3710 |
| N | 306 | 328 | 205 | 324 | 324 | 323 | 322 | 295 | 179 |
| sargan | | | | | | | | | |
| arm2 | -1.3703503 | -1.6428508 | -1.4698759 | -1.4214259 | -1.3696336 | -1.4866602 | -1.3599464 | -1.3593609 | -1.5326725 |

**Table 45:**
**GMM model tertiary FDI and income**

xtdpd Growth and Primary, Secondary and Tertiary Sector and Income

| Variable | xtdpdPST1 | xtdpdPST2 | xtdpdPST3 | xtdpdPST4 | xtdpdPST5 | xtdpdPST6 | xtdpdPST8 | xtdpdPST9 | xtdpdPST11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .17979987 | .15598631 | .26828718 | .20969552 | .23882692 | .19025872 | .21365764 | .2649301 | .28368091 |
| | 0.0497 | 0.0384 | 0.1029 | 0.0039 | 0.0060 | 0.0130 | 0.0023 | 0.0005 | 0.2541 |
| Ln(Initial GDPPC level) | -.0054517 | -.00140854 | -.00113773 | -.00109661 | -.00092531 | -.00099201 | -.00097564 | -.00518869 | -.00608136 |
| | 0.0124 | 0.2897 | 0.6820 | 0.4137 | 0.7190 | 0.4546 | 0.5999 | 0.1163 | 0.3265 |
| LN(Avg. Year of second~) | .01734222 | | | | | | | | .01873756 |
| | 0.0268 | | | | | | | | 0.0419 |
| LN(1+Infaltion) | | -.0118133 | | | | | | | -.00815802 |
| | | 0.0003 | | | | | | | 0.2353 |
| LN(Government size) | | | -.00302407 | | | | | | .00730885 |
| | | | 0.6735 | | | | | | 0.4361 |
| LN(Trade Openness) | | | | .0017929 | | | | | .0018856 |
| | | | | 0.5865 | | | | | 0.7416 |
| LN(Private Credit) | | | | | -.00143423 | | | | -.00740397 |
| | | | | | 0.7703 | | | | 0.1319 |
| LN(Domestic Investment) | | | | | | .03190214 | | | .0244027 |
| | | | | | | 0.0039 | | | 0.1663 |
| Freedom of press | | | | | | | .00013997 | | -.00338015 |
| | | | | | | | 0.9719 | | 0.5139 |
| Institutional Quality | | | | | | | | .0005785 | -.00011289 |
| | | | | | | | | 0.0928 | 0.6769 |
| LN(FDI Primary) | .1884725 | .32937124 | .77096236 | .35840817 | .35033956 | .3089894 | .36243301 | .38439529 | .39478523 |
| | 0.1724 | 0.0009 | 0.0792 | 0.0002 | 0.0025 | 0.0020 | 0.0001 | 0.0001 | 0.0813 |
| LN( FDI Secondary) | .24370927 | .31159034 | .21324325 | .26941807 | .3629235 | .32537996 | .28438102 | -.03658958 | .3115661 |
| | 0.5251 | 0.3832 | 0.6232 | 0.4850 | 0.4447 | 0.3827 | 0.4487 | 0.9341 | 0.5828 |
| LN(FDI tertiary) | .19659789 | .19113368 | .20742941 | .19392454 | .25783842 | .10840905 | .19944109 | .22187558 | -.0578676 |
| | 0.0209 | 0.0804 | 0.0797 | 0.0657 | 0.0236 | 0.3639 | 0.0480 | 0.0326 | 0.7293 |
| Primary FDI x Income | -5.420e-06 | 2.111e-07 | -.00002117 | -1.293e-06 | 6.446e-06 | 6.927e-06 | -1.427e-06 | -3.216e-06 | -2.820e-06 |
| | 0.8086 | 0.9910 | 0.3145 | 0.9462 | 0.7517 | 0.7420 | 0.9417 | 0.8692 | 0.8902 |
| Secondary FDI x Income | -3.982e-06 | -4.555e-06 | -.00001401 | -3.753e-06 | -8.720e-06 | 5.987e-07 | -3.941e-06 | 6.923e-06 | -.00001174 |
| | 0.7817 | 0.7233 | 0.3443 | 0.7843 | 0.6088 | 0.9670 | 0.7702 | 0.6654 | 0.4990 |
| Tertiary FDI x Income | -7.305e-06 | -7.869e-06 | -5.813e-06 | -8.252e-06 | -8.034e-06 | -6.985e-06 | -8.079e-06 | -9.174e-06 | -1.082e-07 |
| | 0.0089 | 0.0179 | 0.0835 | 0.0122 | 0.0267 | 0.0268 | 0.0081 | 0.0084 | 0.9796 |
| N | 266 | 284 | 180 | 280 | 280 | 279 | 281 | 260 | 158 |
| sargan | | | | | | | | | |
| arm2 | -.70333518 | -.89568101 | -.48271558 | -.75486527 | -.91130954 | -.62250356 | -.7534343 | -.89548028 | -1.276985 |

**Table 46:**
**GMM model all sectors FDI and income**

xtdpd Growth and Total FDI and Private credit

| Variable | xtdpdTOT1 | xtdpdTOT2 | xtdpdTOT3 | xtdpdTOT4 | xtdpdTOT5 | xtdpdTOT6 | xtdpdTOT8 | xtdpdTOT9 | xtdpdTOT11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .1677232 | .2584989 | .1842243 | .29905149 | .29229683 | .25533947 | .31501853 | .32564469 | .19407543 |
| | 0.0036 | 0.0018 | 0.0475 | 0.0001 | 0.0002 | 0.0035 | 0.0003 | 0.0002 | 0.0086 |
| Ln(Initial GDPPC level) | -.00665095 | -.00249739 | -.00127892 | -.00196321 | -.00378351 | -.00238435 | -.0019573 | -.00480203 | -.00448178 |
| | 0.0006 | 0.0208 | 0.3912 | 0.0772 | 0.0686 | 0.0090 | 0.1366 | 0.0133 | 0.1252 |
| LN(Avg. Year of second~) | .01924469 | | | | | | | | .01272885 |
| | 0.0013 | | | | | | | | 0.0476 |
| LN(1+Infaltion) | | -.01358683 | | | | | | | -.00490885 |
| | | 0.0000 | | | | | | | 0.1531 |
| LN(Government size) | | | -.00741762 | | | | | | -.00346882 |
| | | | 0.1188 | | | | | | 0.5556 |
| LN(Trade Openness) | | | | .00290656 | | | | | -.00008258 |
| | | | | 0.3377 | | | | | 0.9839 |
| LN(Private Credit) | | | | | .00631404 | | | | -.00847255 |
| | | | | | 0.1472 | | | | 0.1611 |
| LN(Domestic Investment) | | | | | | .03043868 | | | .02749484 |
| | | | | | | 0.0004 | | | 0.0064 |
| Freedom of press | | | | | | | .00056146 | | -.00423481 |
| | | | | | | | 0.8552 | | 0.2992 |
| Institutional Quality | | | | | | | | .00047381 | .00010308 |
| | | | | | | | | 0.0100 | 0.7049 |
| LN(FDI total) | .07526714 | .08837406 | .06711723 | .06786051 | .05138984 | .0594089 | .0854319 | .05265584 | .03154242 |
| | 0.1319 | 0.0227 | 0.2407 | 0.2112 | 0.2233 | 0.1251 | 0.0494 | 0.2459 | 0.6271 |
| Total FDI x Private cr~t | -.05668347 | -.09090552 | -.12949 | -.1066084 | -.14856045 | -.09561655 | -.10276628 | -.11559126 | -.02413511 |
| | 0.2603 | 0.0227 | 0.0185 | 0.0047 | 0.0000 | 0.0050 | 0.0110 | 0.0007 | 0.7970 |
| N | 412 | 455 | 242 | 452 | 456 | 447 | 450 | 403 | 204 |
| sargan | | | | | | | | | |
| arm2 | -.51595474 | .20164393 | -1.4832368 | .57878539 | .5390227 | .54929466 | .20265885 | .02273299 | -1.9488934 |

**Table 47:**
**GMM model total FDI and Private credit**

xtdpd Growth and Primary sector and Private credit

| Variable | xtdpdPRI1 | xtdpdPRI2 | xtdpdPRI3 | xtdpdPRI4 | xtdpdPRI5 | xtdpdPRI6 | xtdpdPRI8 | xtdpdPRI9 | xtdpdPRI11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .17770838 | .23499458 | .30948693 | .25872 | .30476867 | .24190393 | .30085725 | .32470877 | .22090168 |
| | 0.0755 | 0.0682 | 0.0790 | 0.0068 | 0.0119 | 0.0122 | 0.0146 | 0.0000 | 0.4200 |
| Ln(Initial GDPPC level) | -.00788114 | -.00322071 | -.00299894 | -.00225708 | -.00179861 | -.0018789 | -.00162087 | -.00456226 | -.0067209 |
| | 0.0001 | 0.0155 | 0.1324 | 0.0292 | 0.5270 | 0.0729 | 0.3385 | 0.0625 | 0.1450 |
| LN(Avg. Year of second~) | .02157616 | | | | | | | | .02112519 |
| | 0.0026 | | | | | | | | 0.0233 |
| LN(1+Infaltion) | | -.01179784 | | | | | | | -.01142575 |
| | | 0.0326 | | | | | | | 0.1364 |
| LN(Government size) | | | -.00170814 | | | | | | .00767241 |
| | | | 0.7590 | | | | | | 0.4182 |
| LN(Trade Openness) | | | | .00401363 | | | | | .00272031 |
| | | | | 0.1690 | | | | | 0.5828 |
| LN(Private Credit) | | | | | -.00183601 | | | | -.00837652 |
| | | | | | 0.7504 | | | | 0.0358 |
| LN(Domestic Investment) | | | | | | .02927765 | | | .02496833 |
| | | | | | | 0.0046 | | | 0.1866 |
| Freedom of press | | | | | | | .00286334 | | -.001532 |
| | | | | | | | 0.4578 | | 0.7269 |
| Institutional Quality | | | | | | | | .00039569 | -.00017218 |
| | | | | | | | | 0.1467 | 0.5066 |
| LN(FDI Primary) | .15315171 | -.02261866 | -.12203744 | .1053921 | .05041159 | .1624011 | .03545387 | .19113669 | .49404248 |
| | 0.7324 | 0.9188 | 0.7247 | 0.6525 | 0.8398 | 0.5137 | 0.8744 | 0.4218 | 0.1333 |
| Primary FDI x Private ~t | .0480883 | -.12740396 | -.51163942 | -.08570934 | -.10703787 | -.05052298 | -.11528311 | -.07753657 | .23624534 |
| | 0.8671 | 0.1151 | 0.0174 | 0.2981 | 0.2379 | 0.5684 | 0.1635 | 0.3611 | 0.4392 |
| N | 268 | 290 | 184 | 289 | 290 | 284 | 290 | 266 | 161 |
| sargan | | | | | | | | | |
| arm2 | -1.0317175 | -1.0659564 | -1.142103 | -.73222301 | -.88638127 | -.98675575 | -.78719208 | -.7976427 | -1.538332 |

**Table 48:**
**GMM model primary FDI and Private credit**

xtdpd Growth and Secondary sector and Private credit

| Variable | xtdpdSEC1 | xtdpdSEC2 | xtdpdSEC3 | xtdpdSEC4 | xtdpdSEC5 | xtdpdSEC6 | xtdpdSEC8 | xtdpdSEC9 | xtdpdSEC11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .15189435 | .11096084 | .29753081 | .15916199 | .17440527 | .11388733 | .19874112 | .2678532 | .17618925 |
| | 0.1858 | 0.4413 | 0.0618 | 0.2608 | 0.1906 | 0.3916 | 0.0935 | 0.0203 | 0.4372 |
| Ln(Initial GDPPC level) | -.0084201 | -.00320179 | -.00090402 | -.00294558 | -.00218799 | -.00162735 | -.00307784 | -.00438053 | -.00384862 |
| | 0.0001 | 0.0561 | 0.6759 | 0.0362 | 0.3474 | 0.1502 | 0.0724 | 0.0437 | 0.3746 |
| LN(Avg. Year of second~) | .02170897 | | | | | | | | .01548804 |
| | 0.0014 | | | | | | | | 0.0506 |
| LN(1+Infaltion) | | -.01254109 | | | | | | | -.01126133 |
| | | 0.0189 | | | | | | | 0.0784 |
| LN(Government size) | | | -.00589595 | | | | | | .00325415 |
| | | | 0.3201 | | | | | | 0.6403 |
| LN(Trade Openness) | | | | .00617506 | | | | | .00573643 |
| | | | | 0.0421 | | | | | 0.1811 |
| LN(Private Credit) | | | | | -.00089594 | | | | -.01445334 |
| | | | | | 0.8424 | | | | 0.0118 |
| LN(Domestic Investment) | | | | | | .03524229 | | | .023266 |
| | | | | | | 0.0000 | | | 0.1685 |
| Freedom of press | | | | | | | -.00052112 | | -.00175047 |
| | | | | | | | 0.8617 | | 0.6696 |
| Institutional Quality | | | | | | | | .00029716 | -.00008279 |
| | | | | | | | | 0.2018 | 0.7397 |
| LN( FDI Secondary) | .51894881 | .44511611 | -.0810774 | .17296267 | .34980477 | .08341922 | .40059132 | .33391657 | .29745752 |
| | 0.0068 | 0.0238 | 0.8137 | 0.5643 | 0.0299 | 0.7000 | 0.0503 | 0.0474 | 0.3294 |
| Secondary FDI x Privat~t | .12723512 | .00598876 | -.50051541 | -.00714544 | -.0824451 | -.24038689 | -.09521875 | -.11802794 | .45355011 |
| | 0.6523 | 0.9864 | 0.1884 | 0.9823 | 0.8016 | 0.4034 | 0.7874 | 0.8003 | 0.2406 |
| N | 297 | 319 | 204 | 315 | 319 | 317 | 316 | 293 | 177 |
| sargan | | | | | | | | | |
| arm2 | -1.1875778 | -1.4359159 | -.50579725 | -1.3758122 | -1.2122404 | -1.1567164 | -1.234185 | -1.2254433 | -1.4975166 |

**Table 49:**
**GMM model secondary FDI and Private credit**

xtdpd Growth and Tertiary sector and Private credit

| Variable | xtdpdTER1 | xtdpdTER2 | xtdpdTER3 | xtdpdTER4 | xtdpdTER5 | xtdpdTER6 | xtdpdTER8 | xtdpdTER9 | xtdpdTER11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .12622202 | .12612996 | .25756572 | .17887561 | .22612027 | .15627442 | .22889879 | .28364755 | .3546052 |
| | 0.2409 | 0.3034 | 0.1330 | 0.1326 | 0.1015 | 0.2144 | 0.0207 | 0.0346 | 0.0784 |
| Ln(Initial GDPPC level) | -.00640123 | -.00208533 | -.00149937 | -.0018831 | -.0021366 | -.00131575 | -.002146 | -.00419559 | -.00579557 |
| | 0.0032 | 0.0629 | 0.4822 | 0.1062 | 0.3749 | 0.1796 | 0.1544 | 0.1510 | 0.1756 |
| LN(Avg. Year of second~) | .01686536 | | | | | | | | .01560458 |
| | 0.0262 | | | | | | | | 0.0598 |
| LN(1+Infaltion) | | -.01384797 | | | | | | | -.00808886 |
| | | 0.0014 | | | | | | | 0.1688 |
| LN(Government size) | | | -.00639993 | | | | | | .00287375 |
| | | | 0.3504 | | | | | | 0.7073 |
| LN(Trade Openness) | | | | .00687925 | | | | | .00684996 |
| | | | | 0.0192 | | | | | 0.1322 |
| LN(Private Credit) | | | | | .00159922 | | | | -.00955092 |
| | | | | | 0.7684 | | | | 0.0873 |
| LN(Domestic Investment) | | | | | | .03144363 | | | .01433669 |
| | | | | | | 0.0033 | | | 0.3042 |
| Freedom of press | | | | | | | .00037401 | | -.0030773 |
| | | | | | | | 0.9088 | | 0.4945 |
| Institutional Quality | | | | | | | | .00035893 | -.00009147 |
| | | | | | | | | 0.2826 | 0.6855 |
| LN(FDI tertiary) | .06686946 | .10396764 | .09642046 | .04553048 | .11992084 | .10039347 | .05314079 | .10662988 | -.02402449 |
| | 0.0936 | 0.0291 | 0.1482 | 0.3833 | 0.0038 | 0.0069 | 0.1953 | 0.0538 | 0.7245 |
| Tertiary FDI x Private~t | -.12098279 | -.19932637 | -.21378455 | -.19841088 | -.24963223 | -.20946405 | -.1731631 | -.20828355 | .03314238 |
| | 0.0290 | 0.0001 | 0.0037 | 0.0003 | 0.0002 | 0.0000 | 0.0013 | 0.0002 | 0.7466 |
| N | 302 | 324 | 204 | 323 | 324 | 322 | 321 | 294 | 179 |
| sargan | | | | | | | | | |
| arm2 | -1.3914222 | -1.6583318 | -1.4003597 | -1.3883098 | -1.342193 | -1.4184808 | -1.3279964 | -1.3203948 | -1.5362439 |

**Table 50:**
**GMM model tertiary FDI and Private credit**

xtdpd Growth and Primary, Secondary and Tertiary Sector and Private credit

| Variable | xtdpdPST1 | xtdpdPST2 | xtdpdPST3 | xtdpdPST4 | xtdpdPST5 | xtdpdPST6 | xtdpdPST8 | xtdpdPST9 | xtdpdPST11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .21307013 | .20606154 | .31248965 | .23081172 | .23676922 | .23887213 | .26156263 | .2984969 | .28247766 |
| | 0.0449 | 0.0612 | 0.0660 | 0.0050 | 0.0012 | 0.0156 | 0.0102 | 0.0002 | 0.2697 |
| Ln(Initial GDPPC level) | -.00582718 | -.00166594 | -.00181095 | -.00116531 | -.00166641 | -.0003964 | -.00068851 | -.00554012 | -.00761447 |
| | 0.0097 | 0.2987 | 0.3872 | 0.3715 | 0.3958 | 0.7276 | 0.7070 | 0.0615 | 0.2008 |
| LN(Avg. Year of second~) | .01737834 | | | | | | | | .01827283 |
| | 0.0256 | | | | | | | | 0.0517 |
| LN(1+Infaltion) | | -.01125265 | | | | | | | -.00816363 |
| | | 0.0114 | | | | | | | 0.2543 |
| LN(Government size) | | | .00100911 | | | | | | .00915621 |
| | | | 0.8888 | | | | | | 0.3345 |
| LN(Trade Openness) | | | | .00244356 | | | | | .00153707 |
| | | | | 0.4576 | | | | | 0.7797 |
| LN(Private Credit) | | | | | .00219138 | | | | -.00729954 |
| | | | | | 0.6184 | | | | 0.4066 |
| LN(Domestic Investment) | | | | | | .02897288 | | | .02164969 |
| | | | | | | 0.0121 | | | 0.2249 |
| Freedom of press | | | | | | | .00109279 | | -.00321318 |
| | | | | | | | 0.7656 | | 0.5168 |
| Institutional Quality | | | | | | | | .00062457 | -.00003929 |
| | | | | | | | | 0.0580 | 0.8934 |
| LN(FDI Primary) | .28284395 | .23959339 | .1534026 | .32532169 | .33668612 | .42370677 | .34099416 | .24569823 | .32526603 |
| | 0.5198 | 0.5180 | 0.7069 | 0.2931 | 0.2794 | 0.3287 | 0.3526 | 0.4414 | 0.2309 |
| LN( FDI Secondary) | .26369472 | .34934357 | -.0666775 | .34411599 | .31201358 | .14018403 | .20839067 | .36004587 | .23897605 |
| | 0.4059 | 0.3308 | 0.8553 | 0.3245 | 0.2567 | 0.6963 | 0.5348 | 0.2561 | 0.6014 |
| LN(FDI tertiary) | .02784463 | .03082033 | .03979844 | -.02254696 | -.02058541 | -.03268353 | .04376439 | -.04665845 | -.06822379 |
| | 0.7312 | 0.6724 | 0.5748 | 0.7697 | 0.7758 | 0.6933 | 0.5248 | 0.6336 | 0.5166 |
| Primary FDI x Private ~t | .11064519 | -.02724211 | -.35045685 | .00142029 | -.00059044 | .06310424 | .00772469 | -.05294236 | -.06074362 |
| | 0.6693 | 0.8280 | 0.1926 | 0.9895 | 0.9958 | 0.6724 | 0.9510 | 0.6431 | 0.8179 |
| Secondary FDI x Privat~t | .12072826 | .13807714 | -.1913295 | .17531139 | .10226007 | -.15151516 | .0212289 | .48595535 | .13871872 |
| | 0.7005 | 0.7179 | 0.6705 | 0.5553 | 0.7352 | 0.6755 | 0.9541 | 0.2219 | 0.7470 |
| Tertiary FDI x Private~t | -.21226398 | -.23169018 | -.15903368 | -.22418053 | -.23487955 | -.20648219 | -.22209295 | -.30138249 | -.04090124 |
| | 0.0179 | 0.0100 | 0.0542 | 0.0066 | 0.0043 | 0.0451 | 0.0126 | 0.0037 | 0.7684 |
| N | 262 | 280 | 179 | 279 | 280 | 278 | 280 | 259 | 158 |
| sargan | | | | | | | | | |
| arm2 | -.74970821 | -1.0533007 | -.81318696 | -.73128352 | -.72512543 | -.70809904 | -.82562278 | -.76372469 | -1.3249098 |

**Table 51:**
**GMM model all sectors FDI and Private credit**

xtdpd Growth and Total FDI and Trade openness

| Variable | xtdpdTOT1 | xtdpdTOT2 | xtdpdTOT3 | xtdpdTOT4 | xtdpdTOT5 | xtdpdTOT6 | xtdpdTOT8 | xtdpdTOT9 | xtdpdTOT11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .18201048 | .23208757 | .24679136 | .27014997 | .27760949 | .23225383 | .28358403 | .27401395 | .19380552 |
| | 0.0053 | 0.0040 | 0.0356 | 0.0007 | 0.0005 | 0.0066 | 0.0006 | 0.0022 | 0.0097 |
| Ln(Initial GDPPC level) | -.00817416 | -.00361903 | -.0031208 | -.00329054 | -.00358781 | -.00351193 | -.00334845 | -.00689888 | -.0046087 |
| | 0.0000 | 0.0000 | 0.0488 | 0.0001 | 0.0969 | 0.0000 | 0.0098 | 0.0003 | 0.1092 |
| LN(Avg. Year of second~) | .02220074 | | | | | | | | .01319494 |
| | 0.0001 | | | | | | | | 0.0544 |
| LN(1+Infaltion) | | -.01489161 | | | | | | | -.00488341 |
| | | 0.0000 | | | | | | | 0.1596 |
| LN(Government size) | | | -.00650675 | | | | | | -.00121068 |
| | | | 0.2342 | | | | | | 0.8416 |
| LN(Trade Openness) | | | | .00323358 | | | | | -.00228848 |
| | | | | 0.3162 | | | | | 0.5808 |
| LN(Private Credit) | | | | | .00110123 | | | | -.01008504 |
| | | | | | 0.8011 | | | | 0.0024 |
| LN(Domestic Investment) | | | | | | .03309335 | | | .03015451 |
| | | | | | | 0.0001 | | | 0.0015 |
| Freedom of press | | | | | | | .00015424 | | -.00370177 |
| | | | | | | | 0.9613 | | 0.3175 |
| Institutional Quality | | | | | | | | .0005762 | .00013575 |
| | | | | | | | | 0.0051 | 0.6162 |
| LN(FDI total) | .11523245 | .11368282 | .10566978 | .10934458 | .11961369 | .08626031 | .13312035 | .10568829 | .05788715 |
| | 0.0004 | 0.0030 | 0.0339 | 0.0171 | 0.0028 | 0.0207 | 0.0004 | 0.0034 | 0.3506 |
| Total FDI x Trade open~s | -.02361163 | -.03314089 | -.00253424 | -.07654476 | -.04015695 | -.01834283 | -.0637329 | -.04021862 | .07542843 |
| | 0.5997 | 0.4717 | 0.9699 | 0.0913 | 0.4177 | 0.6644 | 0.1961 | 0.3641 | 0.1896 |
| N | 414 | 457 | 240 | 458 | 452 | 450 | 451 | 404 | 204 |
| sargan | | | | | | | | | |
| arm2 | -.66826606 | -.18118269 | -1.7114527 | .27828184 | .21262369 | .12485721 | -.1771881 | -.61120529 | -1.9963194 |

**Table 52:**
**GMM model total FDI and Trade openness**

xtdpd Growth and Primary sector and Trade openness

| Variable | xtdpdPRI1 | xtdpdPRI2 | xtdpdPRI3 | xtdpdPRI4 | xtdpdPRI5 | xtdpdPRI6 | xtdpdPRI8 | xtdpdPRI9 | xtdpdPRI11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .20463557 | .16568738 | .14978481 | .22503297 | .28174171 | .20971014 | .23306124 | .32105713 | .21812549 |
| | 0.0612 | 0.0755 | 0.1569 | 0.0136 | 0.0168 | 0.0399 | 0.0089 | 0.0033 | 0.3533 |
| Ln(Initial GDPPC level) | -.00913015 | -.00276279 | -.00383059 | -.00237674 | -.0013909 | -.00222506 | -.00203485 | -.00537611 | -.00730882 |
| | 0.0000 | 0.0180 | 0.0143 | 0.0319 | 0.6516 | 0.0728 | 0.2200 | 0.1408 | 0.0918 |
| LN(Avg. Year of second~) | .02421699 | | | | | | | | .02282727 |
| | 0.0007 | | | | | | | | 0.0088 |
| LN(1+Infaltion) | | -.01183075 | | | | | | | -.01133061 |
| | | 0.0034 | | | | | | | 0.1014 |
| LN(Government size) | | | -.0022517 | | | | | | .00803959 |
| | | | 0.6650 | | | | | | 0.3819 |
| LN(Trade Openness) | | | | .0039989 | | | | | -.0020874 |
| | | | | 0.2075 | | | | | 0.6831 |
| LN(Private Credit) | | | | | -.00301375 | | | | -.00819868 |
| | | | | | 0.6207 | | | | 0.0257 |
| LN(Domestic Investment) | | | | | | .03722175 | | | .0229871 |
| | | | | | | 0.0010 | | | 0.1765 |
| Freedom of press | | | | | | | .00063164 | | -.00213937 |
| | | | | | | | 0.8684 | | 0.6197 |
| Institutional Quality | | | | | | | | .00046243 | -.00010535 |
| | | | | | | | | 0.2790 | 0.7115 |
| LN(FDI Primary) | .16982854 | .26051023 | 2.1374873 | .20318284 | .25836665 | .113001 | .24446589 | .31475939 | 1.673388 |
| | 0.1649 | 0.0154 | 0.0417 | 0.0228 | 0.0724 | 0.1624 | 0.0098 | 0.0544 | 0.0098 |
| Primary FDI x Trade op~s | .12055452 | .03767089 | 1.7548621 | -.09475012 | -.05548623 | -.2127481 | -.04508634 | -.10082765 | 1.6002888 |
| | 0.6110 | 0.8492 | 0.0585 | 0.5944 | 0.8076 | 0.1723 | 0.7988 | 0.7056 | 0.0475 |
| N | 269 | 291 | 184 | 291 | 289 | 286 | 291 | 266 | 161 |
| sargan | | | | | | | | | |
| arm2 | -.96451256 | -.87615997 | -1.2413634 | -.78748462 | -.91862976 | -1.2800011 | -.73704215 | -1.0143707 | -1.4450883 |

**Table 53:**
**GMM model primary FDI and Trade openness**

xtdpd Growth and Secondary sector and Trade openness

| Variable | xtdpdSEC1 | xtdpdSEC2 | xtdpdSEC3 | xtdpdSEC4 | xtdpdSEC5 | xtdpdSEC6 | xtdpdSEC8 | xtdpdSEC9 | xtdpdSEC11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .14132436 | .09152087 | .24826641 | .13577108 | .19120581 | .08150138 | .18635654 | .23424833 | .19839639 |
| | 0.2375 | 0.5100 | 0.1997 | 0.3271 | 0.1150 | 0.5075 | 0.1426 | 0.1475 | 0.3656 |
| Ln(Initial GDPPC level) | -.00853417 | -.00355214 | -.00314659 | -.00322078 | -.00134578 | -.0020934 | -.00330585 | -.00644042 | -.0027336 |
| | 0.0000 | 0.0041 | 0.1209 | 0.0065 | 0.5642 | 0.0427 | 0.0284 | 0.0358 | 0.5272 |
| LN(Avg. Year of second~) | .02289777 | | | | | | | | .01375635 |
| | 0.0014 | | | | | | | | 0.0900 |
| LN(1+Infaltion) | | -.01522125 | | | | | | | -.01004984 |
| | | 0.0053 | | | | | | | 0.0950 |
| LN(Government size) | | | -.00359972 | | | | | | .00078503 |
| | | | 0.5078 | | | | | | 0.9052 |
| LN(Trade Openness) | | | | .00898363 | | | | | .00517112 |
| | | | | 0.0218 | | | | | 0.2638 |
| LN(Private Credit) | | | | | -.00309046 | | | | -.01033969 |
| | | | | | 0.5347 | | | | 0.0105 |
| LN(Domestic Investment) | | | | | | .03662609 | | | .02573861 |
| | | | | | | 0.0001 | | | 0.1109 |
| Freedom of press | | | | | | | .00041544 | | -.00184338 |
| | | | | | | | 0.9061 | | 0.6569 |
| Institutional Quality | | | | | | | | .00050319 | -.00019384 |
| | | | | | | | | 0.1836 | 0.4043 |
| LN( FDI Secondary) | .39324848 | .52592093 | .38762386 | .09842653 | .34400028 | .20468674 | .48199538 | .41536954 | .14028361 |
| | 0.0418 | 0.0354 | 0.1383 | 0.6822 | 0.1162 | 0.3035 | 0.0651 | 0.1074 | 0.6694 |
| Secondary FDI x Trade ~s | .19263946 | .34504992 | .37051709 | -.15911303 | .21707923 | .00796706 | .22136995 | .21855666 | .11969629 |
| | 0.4408 | 0.2666 | 0.1561 | 0.6448 | 0.5124 | 0.9711 | 0.5012 | 0.4454 | 0.6782 |
| N | 294 | 316 | 202 | 316 | 315 | 315 | 313 | 290 | 177 |
| sargan | | | | | | | | | |
| arm2 | -1.3141791 | -1.6307579 | -1.0135109 | -1.3362589 | -1.321435 | -1.3736164 | -1.3810058 | -1.5463655 | -1.4254167 |

**Table 54:**
**GMM model secondary FDI and Trade openness**

xtdpd Growth and Tertiary sector and Trade openness

| Variable | xtdpdTER1 | xtdpdTER2 | xtdpdTER3 | xtdpdTER4 | xtdpdTER5 | xtdpdTER6 | xtdpdTER8 | xtdpdTER9 | xtdpdTER11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .12349893 | .11818774 | .15523652 | .16259471 | .2210477 | .13214555 | .22930989 | .27117363 | .34708473 |
| | 0.2758 | 0.3539 | 0.2717 | 0.1849 | 0.0564 | 0.2775 | 0.0763 | 0.0798 | 0.0902 |
| Ln(Initial GDPPC level) | -.00808811 | -.00380097 | -.0042493 | -.00354789 | -.0015208 | -.00307962 | -.00340125 | -.00642744 | -.00602794 |
| | 0.0000 | 0.0013 | 0.0281 | 0.0016 | 0.5036 | 0.0033 | 0.0297 | 0.0395 | 0.1591 |
| LN(Avg. Year of second~) | .0196063 | | | | | | | | .01556115 |
| | 0.0064 | | | | | | | | 0.0626 |
| LN(1+Infaltion) | | -.01400742 | | | | | | | -.00802451 |
| | | 0.0042 | | | | | | | 0.1801 |
| LN(Government size) | | | -.00051181 | | | | | | .00438251 |
| | | | 0.9405 | | | | | | 0.5923 |
| LN(Trade Openness) | | | | .00774344 | | | | | .00454967 |
| | | | | 0.0333 | | | | | 0.3581 |
| LN(Private Credit) | | | | | -.00411561 | | | | -.00890156 |
| | | | | | 0.3535 | | | | 0.0153 |
| LN(Domestic Investment) | | | | | | .03505301 | | | .0161533 |
| | | | | | | 0.0007 | | | 0.2810 |
| Freedom of press | | | | | | | .00214091 | | -.00287218 |
| | | | | | | | 0.5415 | | 0.5143 |
| Institutional Quality | | | | | | | | .00043244 | -.00006801 |
| | | | | | | | | 0.2452 | 0.7608 |
| LN(FDI tertiary) | .05543725 | .08757873 | .06413547 | .02708255 | .093558 | .08381587 | .0890594 | .0938507 | .00983661 |
| | 0.0982 | 0.0419 | 0.3467 | 0.5538 | 0.0381 | 0.0120 | 0.0260 | 0.0035 | 0.8489 |
| Tertiary FDI x Trade o~s | .00592299 | .00550591 | .08315463 | -.05278456 | .01915688 | -.03258058 | -.00760502 | -.00649104 | .0835735 |
| | 0.9002 | 0.9379 | 0.3552 | 0.4043 | 0.7795 | 0.6021 | 0.9117 | 0.9138 | 0.2514 |
| N | 302 | 324 | 204 | 324 | 323 | 323 | 321 | 294 | 179 |
| sargan | | | | | | | | | |
| arm2 | -1.4306688 | -1.7034024 | -1.466153 | -1.4884548 | -1.5048787 | -1.4865953 | -1.3629046 | -1.4508718 | -1.534258 |

**Table 55:**
**GMM model tertiary FDI and Trade openness**

xtdpd Growth and Primary, Secondary and Tertiary Sector and Trade openness

| Variable | xtdpdPST1 | xtdpdPST2 | xtdpdPST3 | xtdpdPST4 | xtdpdPST5 | xtdpdPST6 | xtdpdPST8 | xtdpdPST9 | xtdpdPST11 |
|---|---|---|---|---|---|---|---|---|---|
| growth | | | | | | | | | |
| L1. | .20305024 | .15626581 | .23562579 | .2094679 | .23516274 | .20387327 | .21786949 | .28928737 | .2233445 |
| | 0.0673 | 0.0434 | 0.1743 | 0.0171 | 0.0019 | 0.0189 | 0.0044 | 0.0008 | 0.3415 |
| Ln(Initial GDPPC level) | -.0080914 | -.00265622 | -.00392317 | -.00295141 | -.00154833 | -.00212037 | -.00248366 | -.00569843 | -.00683296 |
| | 0.0000 | 0.0187 | 0.0490 | 0.0097 | 0.4526 | 0.0681 | 0.1783 | 0.0624 | 0.1996 |
| LN(Avg. Year of second~) | .02213041 | | | | | | | | .02187776 |
| | 0.0050 | | | | | | | | 0.0123 |
| LN(1+Infaltion) | | -.01212212 | | | | | | | -.01018796 |
| | | 0.0005 | | | | | | | 0.1468 |
| LN(Government size) | | | -.00179322 | | | | | | .00805233 |
| | | | 0.7676 | | | | | | 0.3994 |
| LN(Trade Openness) | | | | .00663149 | | | | | -.00272047 |
| | | | | 0.2271 | | | | | 0.7543 |
| LN(Private Credit) | | | | | -.0015045 | | | | -.00839043 |
| | | | | | 0.7276 | | | | 0.0601 |
| LN(Domestic Investment) | | | | | | .03309542 | | | .02595992 |
| | | | | | | 0.0045 | | | 0.1158 |
| Freedom of press | | | | | | | -.00067764 | | -.0032619 |
| | | | | | | | 0.8696 | | 0.4970 |
| Institutional Quality | | | | | | | | .00052094 | -.00011233 |
| | | | | | | | | 0.1345 | 0.6696 |
| LN(FDI Primary) | .1626185 | .31083715 | 2.1370932 | .22766143 | .28771528 | .17679747 | .2843604 | .31843539 | 1.4396236 |
| | 0.2785 | 0.0161 | 0.0743 | 0.0555 | 0.0063 | 0.0687 | 0.0081 | 0.0089 | 0.0073 |
| LN( FDI Secondary) | .39567715 | .42822038 | .10087991 | .33714034 | .43524349 | .69224268 | .4452146 | .30635155 | .3152755 |
| | 0.3489 | 0.3374 | 0.8643 | 0.5420 | 0.2663 | 0.2993 | 0.3139 | 0.5320 | 0.6560 |
| LN(FDI tertiary) | .02043617 | .04747412 | .06537475 | -.02327675 | .04708789 | -.07234348 | .04108509 | -.00852582 | -.06270463 |
| | 0.8283 | 0.7016 | 0.6772 | 0.8535 | 0.6826 | 0.6162 | 0.7521 | 0.9463 | 0.6261 |
| Primary FDI x Trade op~s | .06850607 | -.02338088 | 1.7727789 | -.18087937 | -.11046977 | -.20034486 | -.11932305 | -.10242582 | 1.2931761 |
| | 0.8249 | 0.9165 | 0.1060 | 0.3947 | 0.5526 | 0.2079 | 0.5288 | 0.6560 | 0.0465 |
| Secondary FDI x Trade ~s | .09064263 | .07877982 | .00713122 | -.02801934 | .13488232 | .30178108 | .11272932 | .0973839 | .13657807 |
| | 0.8448 | 0.8580 | 0.9896 | 0.9629 | 0.7524 | 0.6101 | 0.7924 | 0.8142 | 0.8388 |
| Tertiary FDI x Trade o~s | -.08183162 | .01730021 | .00643637 | -.18763705 | -.00709847 | -.12745206 | -.01137335 | -.06792592 | -.01739078 |
| | 0.5102 | 0.9287 | 0.9774 | 0.3546 | 0.9674 | 0.4896 | 0.9541 | 0.7286 | 0.9188 |
| N | 262 | 280 | 179 | 280 | 279 | 279 | 280 | 259 | 158 |
| sargan | | | | | | | | | |
| arm2 | -.96270714 | -1.03472 | -.3056924 | -1.1504313 | -.9343361 | -1.0837876 | -.97702665 | -1.1846209 | -1.0948299 |

**Table 56:**
**GMM model all sectors FDI and Trade openness**