FOREIGN DIRECT INVESTMENT – A CURSE OR A BLESSING?

THE IMPACT OF FDI ON GROWTH AND INEQUALITY IN SUB SAHARAN AFRICA

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ABSTRACT

The purpose of this thesis is to provide the impact Foreign Direct Investment (FDI) has on economic growth and economic inequality in Sub Saharan Africa. Based on econometric estimates of 44 countries, the authors evaluate the impact on economic growth and on distribution of income in the region.

A lot of the African countries hold valuable natural resources. Consequently, one would expect the countries to flourish sooner or later. Unfortunately, in many cases, this is an incorrect vision of how reality actually occurs. Multinational companies choose to locate their business in these countries and the outcome appears considerably different. We hope to contribute to the field through measuring the impact FDI has on economic growth and economic inequality depending on if the countries are relatively rich or poor in natural resources.

In order to measure the involvement of the foreign investors we will use aggregated FDI net inflow as an indicator of the amount of foreign involvement. In an attempt to catch changes in economic inequality, we intend to use income distribution and for this measurement, the Gini coefficient will be used.

Key words:

- Economic Growth
- Economic Inequalities
- Foreign Direct Investments
- Sub Saharan Africa
- Natural Resources
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1. INTRODUCTION

The Sub Sahara Africa is often debated from both a social and an economic perspective. Under the latest decades the majority of the African countries have shown an increase in economic growth\(^1\). The possibility to adapt technology and structures from more developed countries could be one of the factors to the growth, likewise the involvement from relatively rich countries (often multinational companies). Despite that this region contains some of poorest countries in the world, Sub Saharan Africa still attract foreign multinational companies to invest and locate their business there.

Even if Foreign Direct Investments (FDI) has declined on a global level the last years, the involvement from richer countries has increased in Africa, and in particular in the Sub Saharan Africa.\(^2\) The Sub Saharan Africa is a region that contains a lot of natural resources like oil, gold, copper etc. and the investors see a great possibility to earn large amount of money and possibly contribute to the national development. Sub Saharan Africa is a region that differs from the rest of the world when it comes to social and economical conditions. These conditions play a decisive role when it comes to how the impact of FDI turns out in reality.\(^3\)

\[\text{FIGURE 1.1 – FDI 1990-2009 (THE WORLD BANK, WORLD DEVELOPMENT INDICATORS)}\]

\(^{1}\) See figure 2.1

\(^{2}\) See figure 1.1

1.1 PURPOSE

One of the cornerstones for this thesis is to establish what FDI implies in general for the countries that are concerned. Theory in general says that when the amount of FDI increases in a country, economic growth increases as well. The reason for this can be explained in many ways through empirical evidence, economic models and economic theory.

The step from economic growth to economic inequality is not far. Even though it is interesting to see just how FDI affects economic growth, we want to go beyond this point and see how it affects economic inequality in the region. The reason for this is that it often is argued that economic growth is something good for the inhabitants in a country, however if inequality is not changed this might not necessarily be the case. Therefore, it is of interest to explain how both these variables are affected by an increase in FDI inflow. Consequently, the following question is asked:

- How does FDI inflow affect economic growth and economic inequality in Sub Saharan Africa?

As already mentioned, a lot of the countries in Sub Saharan Africa possess a lot of natural resources. Since empirical research disagree in the matter how natural resources combined with FDI affect a countries economic growth and economic inequality, this also will be investigated. In order to stand out from previous research on the subject, one further question connected to the one above is asked:

- Depending on the endowment in natural resources how does the effect of FDI on economic growth and economic inequalities differ?

1.3 DISPOSITION

The thesis is constructed such that in chapter two, the more underlying theoretical perspective on the impacts of FDI will be declared. Chapter three, in addition to the preceding chapter, will introduce previous research such as current reports and scientific articles in order to make a good foundation to build further analysis and discussion on. The concerned variables, both dependent and independent, and dataset

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5 Ibid p. 35-36.
is shown in chapter 4. The next chapter will include how the dataset is used and how the general econometric approach is done. In chapter 6 the results from the empirical study, the regressions, is shown. The results will be explained from an econometric perspective, as well as a perspective based on the theories and previous research presented earlier. The thesis will end with a discussion where the authors make a summary of the entire work followed by a conclusion of the results combined with the theoretical parts.
2. THEORETICAL FRAMEWORK

In this chapter the authors intend to illustrate more concrete definitions of the concerned variables. Those are FDI, economic growth and economic inequalities, where the two latter will be defined as the dependent variables explained by FDI. Besides that, a more theoretical perspective of the variables will be added to give a general picture. To extend the analysis on the impact of FDI the authors mean to explain the basic comprehension of the phenomenon from a theoretical perspective and also try to clarify why multinational companies are investing in these concerned countries.

2.1 FOREIGN DIRECT INVESTMENT - FDI

The definition of FDI is "An investment made by a company or entity based in one country, into a company or entity based in another country."\(^6\). For example, a company makes an investment into an already existing production where they see a possibility to expand or maybe they set up a new production from scratch. FDI belongs to a category of cross-border investments where another country or company having power or some influence on how to manage and control an enterprise in another country.\(^7\) FDI is measured, in this case, as the amount of money floating into the country (net inflow) as a share of GDP. This net inflow is the value of the investment made by non-resident investors in the concerned country. However, FDI could occur in different forms depending on purpose and geographic location.

2.1.1 VERTICAL FDI (RESOURCE SEEKING)

Vertical FDI takes place when a company through foreign investment moves upstream or downstream in value chains. In other words it takes place when a company moves some part of its production process to a country where that particular stage in the value adding process can be made at a cheaper cost. This mainly happens when the host country is rich in natural recourses, raw material and cheap labour.\(^8\) A

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\(^8\) Erdal Demirhan and Mahmut Masca, 2008, p. 357-358.
lot of the FDI that flows into Sub Saharan Africa is examples of this fashion since this region contains lots of natural resources.

**Resource Curse**

Although a country is abundant with natural resources and exports in large extent, the outcome is not always of a desirable dimension. A country that is categorized as resource-rich has good prospects for success, both from an economic perspective as well as a social. Possessing over immense amount of natural resources is often equal to large productions of the same. Even if this often should increase the chances of bringing in large sums of money into the country and its inhabitants, there is empirical evidence that claim the contrary. This not desirable, and also paradoxical outcome, is called “The Resource Curse”\(^9\). This will be discussed further in next chapter.

2.1.2 Horizontal FDI (Market Seeking)

Horizontal FDI, in contrast to vertical FDI, is when a firm is duplicating its production to another country. More concrete, when a company situates its production or services in a host country. For example, if the fixed cost to set up a new plant is low but the trade costs are very high, there might be a clear cost advantage in settling a new plant in another country. While avoiding trade costs, it is more profitable to export to countries nearby the new location. Consequently horizontal FDI will be involved in a lot of exports.\(^10\) Imagine a big multinational company duplicating its production to a developing country in Sub Saharan Africa in order to get rid of trade costs, the company will not only aim to serve the market in the country where it is situated, but the entire African market.

2.1.3 Economies of Scale and Scope (Efficiency Seeking)

This kind of FDI takes place when companies find possibilities to take advantage of economies of scale and scope. Economies of scale imply that a company gets cost advantages when they increase output. This since an increase in output will decrease the fixed cost per production unit. It may also decrease variable cost due to learning by doing and synergies within the company.\(^11\) This would imply both more revenue

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for the company as well as for the country, due to lower production cost and potential rent from the company. The theory behind economies of scope is simply that the average total cost of the production decreases as the companies variety of products increases.¹²

Mutual for these three types are that companies take actions to decrease their own costs. When looking at the aggregated value of FDI (which is used in this study) horizontal tends to be the more common one. However horizontal FDI tend to mainly take place between more developed countries of roughly the same size. Vertical FDI, on the other hand, mainly appears between one developed home country and a developing host country. Thus, the purpose for the different kinds of FDI is rather different. Primarily, horizontal concentrates on how to serve the host countries market, while vertical mainly concentrates how to serve the home market.¹³

2.2 ECONOMIC GROWTH

Economic growth is a concept many leading economists argue that one should strive for, since it could be considered as the ultimate goal of economic policy. Economic growth is defined as “the increase in the capacity of an economy to produce goods and services, compared from one period of time to another.”¹⁴ In this thesis the economic growth is measured in real terms, thus it is adjusted and inflation is taken into account.

Theory about economic growth is a well-studied area. The elder neoclassical theory has evolved in a more developed endogenous theory that is more appropriate for the purpose of this thesis.

¹²Pepall et al., 2008 p.72.
2.2.1 Endogenous Growth Theory

Meanwhile the aim of the thesis is to observe and examine the impact of FDI in a specific region, Sub Saharan Africa, the most appropriate growth model (equation 2.1) is one based on endogenous theory. The model is well suited for developing countries since it deals with the possibility to adapt the worldwide technology when you are not able to create your own. A scenario that is common for many developing countries. FDI could, namely, be a way of transferring technology across borders.

\[ y = k^\alpha \cdot h^{1-\alpha} \quad \text{(Equation 2.1)} \]

\[ g_h = \frac{\mu e^{\psi u} h^{1-\gamma}}{h} \quad \text{(2.2)} \]

\[ g_h = g_y \quad \text{(2.3)} \]

The initial model shows the level of GDP per capita. In order to understand what drives economic growth \((g_y)\) it is of importance to know what affects the growth in human capital \((g_h)\). The variables and parameters that drive growth in human capital also drive economic growth. As can been FDI is implied in the equation 2.2 through the parameter \(\mu\), which is measuring a country’s ability to catch the technology used by the technology frontier. In other words it could be claimed to be a measurement of openness and infrastructure, since a certain degree of them both is

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15 See equation 2.2.
16 See equation 2.3 and derivation in Appendix 8.3.
needed for a country to be able to absorb technology.\textsuperscript{17} As the \textit{equation} 2.3 implies, the economic growth is equal to the growth in human capital. This condition only takes place in equilibrium, also known as “steady state”.

“Steady state” is the long run state of the economy where it would be without external shocks\textsuperscript{18}. It can be observed that investments in real capital ($k$) increase GDP per capita ($y$) as well as human capital ($h$)\textsuperscript{19}. The elements causing growth in human capital, and thereby economic growth, are the worldwide technology or the technology frontier in the world ($A$). Also the ability to absorb technology ($\mu$), years of schooling ($u$) and productivity in the education sector ($\psi$) decide the change in human capital.\textsuperscript{20}

Moreover it can be said that more years of schooling ($u$) is necessary in order to take advantage of the world technology. To connect this reasoning with the main question of this thesis it should be stated that FDI is crucial in order for technology to be transferred in first place. Another way of stating this is to say that this evolved endogenous growth model is a model where technological spillovers are present. As the productivity of one firm increases it will lead to gains for other firms and industries. These spillovers might very well be a consequence of FDI.\textsuperscript{21}

This endogenous theory is new compared to the elder neoclassical growth theory, but it still contains some assumptions that are based on the traditional way of thinking. This could be a problem when it is been introduced to developing countries. Some shortcomings are the fact that it only assumes that there is a single sector of production and that all sectors are symmetric. This does not permit the growth generating process when labour and capital is relocating to more productive industries.\textsuperscript{22}

\textsuperscript{18} Ibid p.28-29.
\textsuperscript{19} See equation 2.1
\textsuperscript{20} Jones and Vollrath 2013, p.142-145.
\textsuperscript{22} Ibid p. 153.
2.2.2 Convergence

Developing countries, such as those in Sub Saharan Africa, strive to catch up and start to challenge the relatively rich and industrialized states, on social as well as economic levels. This claim can be justified from a more theoretical standpoint and by a phenomenon called convergence.

Convergence refers to the scenario where relatively poor and underdeveloped countries tend to close the gap to the more industrialized countries. Under the right circumstances, less developed countries tend to grow faster than relatively rich countries. One of the factors is that it is easier to adapt and transfer for example technology, than it is to develop your own technology and ideas.\(^{23}\) Besides it is more resource demanding to start up your own industry from scratch than it is to duplicate already existing knowledge, given the absence of any obvious obstacles such as patent, copyright, using fee etc.

However, to achieve convergence it is necessary to prevail the right conditions and to operate under the right circumstances. Developing countries need to have similar levels of human capital and real capital, but since there are different levels of capital intensity in developing and industrialized countries, this is rarely the case. Given the law of diminishing returns, developing countries have a higher level of intensity and therefore investments have a bigger impact on for instance production. As a result of this, higher investment rates could be expected in relatively poor countries and it will attract both domestic and foreign investments. This will lead to more rapid capital accumulation.\(^{24}\) With faster growth of capital and with the possibility to transfer foreign technology, developing countries tend to catch up relatively rich countries and their incomes, in the long run, would exhibit convergence. Though, it should be stated that the convergence theory is only relevant for some set of countries, like in-between OECD-countries, and there is no apparent tendency between developing and industrialized countries\(^{25}\).

\(^{23}\) Jones and Vollrath 2013, p.63.
\(^{24}\) Todaro and Smith 2011, p.78-79.
\(^{25}\) Ibid, p.79.
2.3 ECONOMIC INEQUALITIES

Inequalities in different kinds and shapes can be found in all countries and they permeate both economic and social structures. An inequality that can be seen in both structures is the distribution of income and wealth, especially in developing countries where poverty characterizes peoples living. Economic inequality describes the economic circumstances between groups in the society. Fundamentally it is the gap between the relatively rich and poor of the population.

2.3.1 THE LEAKY BUCKET

The antagonism between economic inequality and efficiency is deeply discussed in economic literature, not least by Okun in “Equality and Efficiency: The Big Tradeoff.” from 1975. Equality is divided into two different kinds: inequality of income and inequality of opportunity. The first one, suggested the most important, refers to differences in purchasing power and thereby standard of living maintenance. The latter one refers to the fact that individuals should have the same opportunities to progress in life. Equality in opportunities might be hard to define since it is impossible in real life, individuals will be born during different conditions, some will find things in life easier than others. However one might strive to equalize opportunities as much as possible. Mutual for both types of inequality is that an efficiency loss has to take place in order to make them possible. The metaphor of “The leaky bucket” clearly states this. The foundation in the theory goes as follows: imagine that the earnings of the poorest part of the population are far below the earnings of the richer part of the population. Consider now that an extra tax is obliged to the richest part that is supposed to be redistributed to the poorest part, however in order for the money to reach the poor people it has to be carried in a leaky bucket. Consequently an unknown share of the money will get lost on the way. This leak symbolizes an efficiency loss to the expense of the society. In real world the leak represents the administrative costs of tax collection and transfer programs. Some might argue that as long as there is something left in the bucket the income distribution is a success, by contrast there are opinions saying that even the slightest

27 Ibid, p. 75-76.
loss of money from the bucket is unacceptable.\textsuperscript{28} The relevance of the leaking bucket theory for this thesis might not be straightforward, however the authors find it relevant since FDI also could be a national income. When a country’s national income increases due to FDI, this money could be redistributed to the poorest part of the population and reduce inequality, on the other hand the money might also be passed on to the politicians, or other parts of society, where no direct impact of inequality will be visualized.

2.3.2 \textbf{Gini Coefficient}

This thesis treats the impact of FDI on economic inequality and since FDI could be argued as a national income for the concerned countries, it is of interest to study the disproportionate distribution of income, the income inequalities. However it is hard to get an exact measuring of the phenomena and therefore it is common to use another variable as proxy in empirical studies. A variable that treats the income distribution among individuals and households in a country is the Gini coefficient and could therefore serve\textsuperscript{29}.

The GINI coefficient is an aggregated numerical measure of income distribution. The income inequality in a country or region will be determined in a range between 0 and 1, where 0 describes perfect equality among the population and 1 expresses a distribution with maximal inequality\textsuperscript{30}. Sometimes the range is between 0 and 100 and describes the relationship as a percentage, but the explanation and description remains the same.

There are several advantages with the Gini coefficient as measurement, since it fulfils some desirable properties. One of them is that it takes the anonymity among the population into account. In other words the measurement on inequalities does not depend on who has the higher income or whether the poor or the rich people are considered as good or bad individuals. Some other vital properties are that the measurement does not depend on the size of the economy (it is the dispersion that is of interest and not the scale of the income), the number of income recipients or if

\textsuperscript{28} Ibid, p.91-92.
\textsuperscript{29} Investopedia, “Gini index”, 2014, \texttt{http://www.investopedia.com/terms/g/gini-index.asp} (downloaded 2014-04-10)
\textsuperscript{30} Todaro and Smith, 2011, p.208.
income transfers between individuals. Thus, it does not matter what the actual size of the economy is, how big its population is or how many transactions between people is made.

While interpreting different kind of indicators or indices there are often some possible error measurements that have to be taken into account. To see if it is the best solution for the matter you have to be aware of that there are a lot of things that have an impact on the distribution of income and wealth in a country or region. Examples of that could be demographic structures in the concerned area or the level of unemployment. Yet, the authors consider the Gini coefficient as the most appropriate tool for explaining economic inequalities.

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31 Todaro and Smith, 2011, p.209.
3. EMPIRICAL STUDIES

The intension of this chapter is to provide some evidence for the actual impact of FDI that has been revealed in previous research. Different types of consequences will be discussed depending on which conditions that prevail. Empirical studies in comparison with theory will reflect what impact FDI has on economic inequalities and economic growth and in what extent this will appear. Because the Sub Saharan Africa is a region that contains a lot of natural resources, a discussion about the importance of these will also be included.

3.1 ECONOMIC GROWTH

The main argument in favour of FDI is the fact that it generates positive spillovers, externalities that affect those who are not directly involved. It is said that domestic companies may benefit from the information and technology that FDI bring into the country and thereby manage to make their own business more effective. Consequently the output in the entire country increases. FDI may also lead to something called a “crowding in” effect. That is when foreign investment inspires domestic investment which otherwise would not have taken place. This happens when foreign companies buy raw material from local firms for instance or when spillovers lead to local firms to expand. In many cases it also contributes to greater tax revenues for the government, due to tax payment by the foreign companies.\(^\text{32}\)

The importance of macroeconomic stability is fundamental for a country, both when it comes to attract FDI as well as to generate positive spillovers. With an overall degree of stability, a higher investment rate could contribute to increasing the capital stock in the economy and “boosting” the productivity, and therefore contribute to growth.\(^\text{33}\) However this report presents an imminent risk with large FDI. These concerned countries with large FDI are exposed to tighter global financing conditions (conditions that are sometimes hard for developing countries to achieve), but also to a general uncertainty about the global growth. These potential risks could result in postponed projects from foreign investors and thereby reduce the job opportunities.

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But these risks can be offset with a good macroeconomic stability where an improved structural agenda with the aim to increase productivity tend to attract the investors to stay.\textsuperscript{34} A question that tends to pop up is whether these consequences are destined for a short-term period or can we be sure that it will contribute to a sustainable growth. In a report from the International Monetary Fund (IMF) results are presented that indicate that even if there has been some progress, seen from a growth perspective, there is a long way to go for these countries to reach their full potential. For example, infrastructure is still substandard in many cases and productivity and exports remain low.\textsuperscript{35}

In “Foreign Direct Investment, domestic investment, and economic growth in Sub Saharan Africa” Samuel Adams argues that there is no clear link between the amount of FDI that flows into the country and the economic growth in the same. The increase in FDI, that took place in most of the Sub Saharan countries in the 1990s, did not have positive impact on the economic growth. On the other hand his empirical studies resulted in a significant and positive correlation between institutional infrastructure and domestic investment and economic growth. Nevertheless, Adams also points out that it is of importance that any positive effect of FDI on economic growth could be due to increase in total productivity rather than enlargement of domestic capital.\textsuperscript{36} It should be added that Adams performed two different estimates to examine the relationship between these variables. His results, mentioned above, are taken from an estimation including fixed effect; on contrary there is a positive correlation between FDI and economic growth in an OLS estimation.\textsuperscript{37}

In Peter Nunnenkamp’s paper, it is discussed if FDI can help to contribute to international development. Nunnenkamp states that FDI in developing countries is a strong tool for transferring capital, technology and “know how” to other countries. In spite of these arguments in favour of FDI it remains debated whether FDI results in productivity gains or not. He claims that it finally comes down to the local firms ability to actually absorb the spillover effects, and that this ability is different in different countries and industries. What might happen is that local firms are too far

\textsuperscript{34} International Monetary Fund, 2013, p.18.
\textsuperscript{35} Ibid p.52.
\textsuperscript{37} Ibid p.942.
behind the multinational companies and do not manage to capture their technology. Still a majority of the empirical studies made indicate a positive relationship between FDI and economic growth. Nevertheless it is argued, in parity with Adam’s results, that a lot of these studies have econometric defaults, such as not allowing country fixed effects.³⁸

### 3.2 Economic Inequalities

Often it is argued that FDI helps against inequalities and decrease the social gap in developing countries due to its positive impact on economic growth. However, very few studies have explicitly dealt with the relationships between inequalities and economic growth. There is little evidence saying that FDI decreases inequalities. Yet, there are some indirect links.

Nunnenkamp continues his reasoning, and claims that FDI-induced increases in national income could potentially benefit the poor. He also declares that well-developed linkages between local and international firms might induce more job opportunities for the poor. Finally, FDI might lead to higher wages, which could affect the income distribution. Concerning the third link, it is argued that this term of globalization tend to induce sub-standard salaries to the workers in the host country, working under so-called sweatshops conditions. This suggests that FDI tend to lead to more poverty rather than preventing it.³⁹

Nunnenkamp’s statement is, sort of, connected to what is discussed in Okun’s theory about “The Leaky Bucket”. In spite of low wages it still might be an increase for the workers in the host countries. However, the opposite is also argued, namely that less inequality is of prior interest during all circumstances.⁴⁰ In Paul Krugmans’s article “Liberty, Equality, Efficiency” the link between inequality and economic growth is brought up once again. Krugman refers to a study looking at this relationship made by the IMF. According to this study, countries with relatively low-income inequality are better at performing sustained growth. In another study made by the IMF it was found that redistribution does not seem to harm economic growth. This result contrasts Okun’s “trade off”, which is described earlier. The explanation for how this might be

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³⁹ Ibid p. 35.
⁴⁰ Okun, 1975, p.92-93.
the case is that the equality in opportunities smoothens out, thereby a larger amount of the inhabitants get the opportunity to contribute to society.\textsuperscript{41} Interesting with this statement is that the relationship described above also could be interpreted the other way around; less economic inequality leads to a bigger growth.

A further discussion between FDI and economic inequalities is made by Dirk Willem Te Velde in his paper “Foreign Direct Investment and Income Inequality in Latin America” from 2003. There are underdeveloped countries in Latin America that are facing the same economic problems and challenges as those countries in the Sub Saharan region. Although there are both demo- and geographic differences, the authors still consider the article useful.

Te Velde’s basic conclusion is that there may be a positive link between FDI and development but there is more that can be done to improve FDI’s effect on the income distribution\textsuperscript{42}. Te Velde discusses the results from early empirical studies but choose to distinguish between different types of studies. The positive and significant correlation between FDI and GDP per capita or productivity, comes mainly from macro-studies. Observations from these studies indicate that the foreign investors place their investments in more profitable industries. It is not validated that this new force of productivity lead to equalization of income or to higher productivity on a national level, but Te Velde means that local firms can take advantages of potential spillovers. If that is the case, there is a larger probability that FDI will generate a long-lasting effect.\textsuperscript{43}

When Te Velde examines more econometric studies he often find a correlation between FDI and development. But at the same time, econometric studies tend to ignore the effect of policy and economic factors. Therefore it is hard to validate the results since different countries have different policies and economic conditions and these will influence on the distribution of the benefits of FDI as well as the cost of the same.\textsuperscript{44}

\textsuperscript{42} Dirk Willem te Velde, “Foreign Direct Investment and Income Inequality in Latin America”, Overseas Development Institute, 2003, p.5.
\textsuperscript{43} Ibid p.15.
\textsuperscript{44} Ibid p.15.
Although, the link between FDI and income inequality is complex, Te Velde highlight some possible factors. FDI may increase profits and capital return for example, but also another factor with a more indirect effect, such as the effects of tax expenditures and revenues.\(^{45}\) At the same time, Te Velde states that it could have the opposite effect as FDI only benefits more skilled and educated workers and therefore make the gap bigger between social groups since this type of group will gain more income.\(^{46}\)

Nunnenkamp agrees with Te Velde that high skilled workers might benefit more than low skilled workers, and therefore the distinction between high skilled and low skilled workers is of importance, since foreign companies tend to supply more high skilled working opportunities. In order to prevent this it is argued that for FDI to be an appropriate tool for decreasing inequalities it should be settled in labour intensive industries (low skilled). Nevertheless, government in developing countries tend to be more interested in encouraging relatively advanced production technologies. Consequently the working opportunities are more biased towards higher skills. As a result of this it is unlikely that FDI leads to less inequality, especially in developing countries that depend on natural resources.\(^{47}\) However, the arguments above are relevant in the short run, FDI might indicate more inequalities in the presence, however, as productivity increases in the host country more and more people gains and income becomes more equal again.\(^{48}\)

### 3.3 The Importance of Natural Resources

Although Sub Saharan Africa contains some of the poorest countries in the world they still attract investors from all over the world, mainly from relatively rich countries. Many of the countries in Sub Saharan Africa possess a great amount of natural resources and investors beyond the borders see an opportunity to make a great fortune.

It is predicted that economic growth will continue to increase, partly thanks to the higher level of predicted FDI into the region. Doya claims that the predicted economic growth in the Sub Saharan Region rests on a foundation of natural resource-

\(^{45}\) Te Velde, 2003, p.16.
\(^{46}\) Ibid p.22.
\(^{47}\) Nunnenkamp, 2002, p.36.
\(^{48}\) Ibid p.38.
rich economies. These economies attract foreign investors that often have the purpose of exploiting the natural resources. Countries like Nigeria and the Democratic Republic of Congo (Africa’s biggest copper producer) set the example with a high-predicted economic growth.  

Elizabeth Asiedu agrees with Doya and claims that countries that are “endowed” with a lot of natural resources tend to tempt foreign investors more than countries that lack. However, she states that FDI in natural resource-based sectors tends to not generate the positive spillovers that theory often claims. However, there are a lot of aspects that indicate whether a country will attract foreign investment or not. Asiedu means that low inflation; good infrastructure and a good framework for investment are some of the factors that make FDI more efficient, as well as promoting FDI. Nevertheless, in a region like the Sub Saharan Africa, where some of these indicators not are developed in the same extent as they are in relatively rich countries, natural resources play a more decisive role.

3.3.1 EMPIRICAL EVIDENCE OF THE RESOURCE CURSE

In the paper “Natural Resource Abundance and Economic growth” from 1995, Sachs and Warner present a result where resource-poor countries tend to outperform those who are resource-rich. Countries with natural resource wealth have failed to grow more rapidly than those countries without, and Sachs and Warner found evidence for a negative relation between abundant possession of natural resources and subsequent growth. This surprising result points out that there even is a disadvantage in controlling immense amount of natural resources; undeniably there is a curse. An explanation to this phenomenon could be the differences in institutions. Mehlum, Moene and Torvik highlight the importance of efficient institutions and claim: “the quality of institutions determines whether natural resource abundance is a blessing or a curse”. Mehlum, et al, declares that in reality this problem is more applicable on resource-rich countries with institutions that are “grabber friendly”. They tend to

50 Aseidu, 2006, p.64.
51 Ibid, p.74.
suffer from this curse and push their aggregated income down.\textsuperscript{54} “Grabber-friendly” institutions are those who are less efficient and of poor quality. They exists in countries where it is easier to ”grab” and exploit the natural resources, often at the expense of being a local producer or just inhabitants overall.\textsuperscript{55}

\textbf{3.4 Capital Flight - A Threat Against The Development of Sub Saharan Africa}

Whilst the optimism and inspiration rises as a consequence of the growing economies in the Sub Saharan region, there is a downside of the increasing involvement from international cooperation outside the concerned countries. The dilemma, likewise the injustice, is that the indigenous people may not take part of the profits that are extracted from the natural resources, thus there are large economic inequalities. The benefits of a having a great amount of natural resources escapes the people of Africa, in terms of lost revenue.\textsuperscript{56}

The description above fits the term capital flight and it is a recurring issue amongst developing countries, especially in Sub Saharan Africa. These enormous industries take out big profits and move the money to tax havens. As the companies do not pay taxes in the country where they placed their business, the indigenous population loose income, income that could be used for reinvestment in the industry or invested in infrastructure and education. Therefore it is a threat to development opportunities. An additional consequence of FDI, of this type, is that the countries stay in an aid-dependence and therefore cannot control their own economic development.\textsuperscript{57}

Khadij Sharife states that from a global perspective, it is more than sixty per cent of capital flight that comes from cooperation’s operating in regions that are rich in natural resources, such as Sub Saharan Africa. Besides this multinational companies, it is the tax havens that play a critical role in the exploitation of natural resources. By offering the possibility to pay considerably less taxes than the companies would do where they located their businesses, the tax haven will have an indirect effect of the

\textsuperscript{54} Mehlum et al. 2006, p. 1128-1129.
\textsuperscript{55} Ibid, p. 1121
investments. The investors rely on the countries where the tax regulation is far below African standard.58

Nevertheless it is the investing companies’ responsibility to give back to indigenous people and contribute to the social and economic structure. Unfortunately the companies’ ideas and actions are not of a long-term nature. Furthermore, capital flight indicates inequalities in the economy and has implications on equity. Capital flight slows down the capital accumulation and therefore also the economic growth in the long-run.59 In the play of this immense external finance that FDI are, the perspective of humanistic and compassionate lacks. Instead it is a profiting desire that reflects the situation and drives the investors towards the goal of making as much money as possible, sometimes with a dire output when it is at the expense of the people of Africa.

4. DATA

The dataset consists of data, between 1990-2009, from 44 countries in Sub Saharan Africa. The two dependent variables in this thesis is economic growth, measured in growth in GDP per capita, and economic inequalities where the Gini coefficient is used as a proxy. The first variable is collected from World Development Indicators (WDI), a database provided from the World Bank. The latter variable, the Gini coefficient, is provided from The Standardized World Income Inequality Database (SWIID). This database uses a lot of other sources, such as World Income Inequality Database and OECD Income Distribution Database, then standardizing them into one database. The purpose is: “to minimizing reliance on problematic assumptions by using as much information as possible from proximate years within the same country”\(^\text{60}\). The main independent variable is FDI, which also is gathered from WDI. FDI is measured as the net inflow as a share of GDP.

Since the used data are multidimensional, in other words including measurements over time and cross-sections, it is decided to compile it as panel data. The data is divided into five-year periods to avoid any temporary cyclical fluctuations, particularly in the data measuring economic growth, and to take into account potential “outliers” in the data set. Besides, most of the variables in the data set do not change that much over a year and therefore are five-years periods preferred.

4.1 CONTROL VARIABLES

Control variables are used with the purpose to control whether it is a coincidence or not that the independent variable seems to explain the change of the dependent variable. Imagine two variables that during no circumstances could be connected, however they both might increase or decrease over time, and in order not to be mislead by such a relationship further variables are added in the regression. These newly added variables are assumed of having explanatory power for the dependent variable. Based on theory and the authors’ assumption, different variables are added to examine the relationship with each dependent variable.

\(^{60}\) Frederick Solt, “Standardizing the World Income Inequality Database” http://myweb.uiowa.edu/fsolt/swiid/swiid.html (downloaded 2014-05-20)
4.1.1 Economic Growth as Dependent Variable

Investments as a Share of GDP (%)
Theory claims that investment in real capital has an effect on a country’s economic growth. Bigger investments today predict a higher level of GDP per capita in the future, hence the more capital per worker a firm has obtained the bigger is the potential output per worker. It is an important element when it comes applying new technology, thus investment in real capital might be an indication that a country is absorbing new technology. 61

Life Expectancy - Life Expectancy at Birth, Total (years)
This variable simply indicates how many years an infant is expected to live at birth. In the theory of economic growth this is a variable that always has a positive significant effect on economic growth. In Sala-I – Martin’s paper, this is one of the variables he used in all his regressions trying to explain economic growth. 62 The reason to the positive effect on growth brought by life expectancy is that the longer people live the more incentive to get a higher level of education and thereby being able to absorb more technology, which is a source contributing to growth in most modern growth models. 63

Infrastructure - Telephones, Logarithmic (Number)
The amount of telephone lines in the country is used as a proxy to get a general view of the level of infrastructure. To avoid non-stationarity in the data, which could be an implication since telephone lines tend to grow over time, the variable is logarithmic. The reason for using this proxy is that numerous of other essays and papers successfully has been using this variable to explain economic growth. Two different countries might have the same investment in real capital, human capital and the same access to technology; however depending on the infrastructure level there might be considerable differences in economic growth. 64 Research made by the World Bank

61 Jones and Vollrath 2013, p.157-158.
64 Jones and Vollrath 2013, p.178-179.
shows that every ten per cent increase in infrastructure provision, rise a country’s output with one per cent.\textsuperscript{65}

\textit{Initial GDP Per Capita - Logarithmic (USD)}

The variable initial GDP per capita is used as a control variable since economic growth theory states that the lower initial GDP per capita is, the higher tend the economical growth to be.\textsuperscript{66} The variable is logarithmic since GDP per capita grow exponentially over time, which would lead to non-stationarity in the data.

\textit{Openness – [(Import + Export)/GDP] (%)}

Countries’ openness can be measured as the amount of international trade the country participates in. The measurement is calculated as exports plus imports divided by GDP. According to observations between 1950-1998, countries that liberated their trade experienced an annual increase in growth with about one and a half per cent compared to before the liberalization.\textsuperscript{67} The idea behind openness inducing economic growth is basically when a country participates in more trade with the rest of the world. The country gets access to more production ideas and technology that contributes to more advanced and effective production possibilities.\textsuperscript{68}

\textit{Human capital - Net Enrollment of Secondary schooling (%)}

Human capital is often an indicator on economic growth. To quantify this indicator, a proxy that is measuring enrollment in secondary schooling is added to examine its potential effect on economic growth. A higher level of education creates a possibility to adapt new and more advanced technology.\textsuperscript{69} In addition to the chosen variable, it was considered to use data from Barro Lee Educational Attainment Dataset, but since the enrollment in secondary schooling gave more observations the authors found it more suited for the purpose.

\textsuperscript{68} Jones and Vollrath 2013, p.151-152.
4.1.2 Economic Inequalities as the Dependent Variable

**Life Expectancy - Life Expectancy at Birth, Total (years)**
It is neither a long shot to suppose that life expectancy has a positive effect on inequalities as well. In this context implying that it leads to less inequality. When people live longer this often implies that their social standards are rising as well, and poorer people tend to die in a younger age than those who earn a lot more. Through these assumptions above, life expectancy is used even in this case.

**Initial GDP Per Capita - Logarithmic (USD)**
As mentioned in section 3.2, there could be an indirect link between growth and inequality, which is why this variable is used as a control variable. Since a low initial GDP per capita often implies a more rapid growth.\(^{70}\) This might lead to a sequence of mechanisms that could affect inequality.

**Economic Growth – Growth in GDP Per Capita (%)**
The authors follow the same reasoning for this variable as for the previous one (Initial GDP per capita), namely, that economic growth could affect the outcome but often as an indirect factor.

**Human Capital - Net Enrollment of Secondary Schooling (%)**
Education, here as a proxy for human capital, is often mentioned as an explaining factor in several discussion about inequalities, poverty etc. A journalist named John Kraushaar wrote an article where he describes the importance of education as a factor to reduce the gap of income inequality. Kraushaar states the “increasing access to quality education” is one of the prior achievements for this purpose.\(^{71}\)

Data for corruption and unemployment was also considered to be used, however since the loss of observations was too big, the outcome could be misleading.

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\(^{70}\) See section 2.2

5. METHOD

In this thesis and in particular in the empirical study, the econometric approach plays an important role. In this section the model will be presented but also the general approaches. There are also some econometric terms that have to be considered and discussed during this kind of empirical study.

5.1 REGRESSION MODEL

In order to be able to interpret the results the right way it is of great importance to choose the right way to handle the variables, thus to do the right estimation. Since the data is treated as panel data the econometric model of this purpose will be a panel regression model:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \cdots + \beta_k X_{k, it} + \epsilon_{it} \quad (5.1)$$

$Y_{it}$ represents the dependent variable given index for time ($i$) and individuals ($i$). $\epsilon_{it}$ is the error term and $\beta_k$ denotes the coefficients standing in front of all the independent variables. Typically, the coefficients imply that an increase or decrease with one unit in the $X$-value increase or decrease the dependant variable with the value of the coefficient, given that all the other variables remain constant.\(^{72}\)

5.1.1 FIXED EFFECTS

In a region like Sub Saharan Africa and when examining this kind of variables, it is common that there are unique preferences that are not a result of random variation in each country. Consequently the best-fitted estimation is a fixed effect regression, where the individual heterogeneity over time is taken into account.\(^{73}\)

When adding this individual effect for the cross section data the different countries in the sample will have various intercepts depending on individual properties.

$$Y_{it} = \beta_0 + \alpha_i + \beta_1 X_{it} + \cdots + \beta_k X_{k, it} + \epsilon_{it} \quad (5.2)$$

Another way of explaining this is that we insert a dummy variable ($\alpha_i$) into the equation for each country, this is important since there exist individual differences

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\(^{73}\) Ibid p. 518-519.
between them, when doing this you will get different relationships between the dependent and the independent variables. The intercept will indeed be very different if you compare, South Africa and Comoros. Considering one specific variable, for example exports, most certainly some countries are more inclined to export than others. Furthermore the estimation of the $\beta$-values becomes more accurate due to the individual dummy. If we do not include the individual effect, when there is one, the considered value will be estimated incorrectly. (In general this is the main reason for using panel data, when cross section data is used there is no way of estimating individual effects.)

When taken into account the potential time effects, meaning that different years have different effects, a dummy variable ($y_t$) will be added in the regression model. The effect will be the same for all countries every year, however different from year to year. This makes sense since for example economic cycles are going to effect countries different from year to year.

\[ Y_{it} = \beta_0 + \alpha_i + y_t + \beta_1 X_{it} + \cdots + \beta_k X_{k, it} + \varepsilon_{it} \] (5.3)

5.1.2 THE EXTENSION OF THE REGRESSION MODEL – CONTROL VARIABLES
Control variables are used with the purpose to control whether it is a coincidence or not that the independent variable seems to explain the change of the dependent variable. The procedure is to add one or two control variables at a time in order to see how the significance and $\beta$-coefficient change for FDI, the variable mainly used to explain changes in the dependant variables.

5.1.2 THE USAGE OF DUMMY VARIABLES
Often when doing a regression there will be differences between the individuals in the sample. If you do not divide the different groups the effect of one variable can either be over- or underestimated. To overcome this problem one might divide a sample into two various parts using a dummy variable ($D$). In this thesis this was of interest since one of the main purposes is to establish if there might be a difference between the set of countries that are in rich in natural resources and poor in natural resources. The initial approach was to divide all the countries into two samples and make an

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74 Dougherty, 2011, p.525.
76 See Appendix 8.4.
additional regression since the estimation of the control variables would be more accurate. However, the outcome of that regression made us lose to many observations or degrees of freedom, consequently an estimation including dummy variables is more justified in this case.

The dummy variable can either take the value 1 or 0 depending on which one of the two groups that are concerned. The interpretation of the β-value for the dummy variable is the extra intercept this group of countries will have.\(^{78}\) In addition to different intercepts, sets of countries might also have dissimilar slopes on the regression line. In order to solve for this problem one can interact a dummy variable with the X-variable. The β-value will now indicates the extra effect for the set of countries where the dummy variable is interacted. The X-variable that we did not interact with the dummy variable points out the effect for countries poor in natural resources.\(^{79}\) By doing this, it can be seen how FDI affect growth and inequality when the set of countries is divided into rich respectively poor in natural resources.

\[
Y_{it} = \beta_0 + \alpha_i + \gamma_t + \beta_1 X_{2it} + \beta_2 X_{2it}D + \cdots + \beta_k X_{k, it} + \varepsilon_{it} \tag{5.4}
\]

To separate the countries in Sub Saharan Africa depending on their amount of natural resources, a measurement of total natural resource rents in each country has been included. It is measured as a share of GDP (\%)\(^{80}\). At the ten per cent level the countries are divided into two, approximately, equally sized groups. To clarify even more; Nigeria, with a relatively big resource rent, take the value 1 in the dummy variable while Comoros, relatively low in resource rent, will take the value 0.

5.3 MULTICOLLINEARITY

In a multiple regression, when you include several variables, there is often a risk that the variables are correlated and therefore could give results that are misleading. This problem is called multicollinearity. It is an undesirable situation, and to investigate whether there is a correlation between the independent variables or not, we will examine a correlation matrix. Often will the value of 0.8 be used as a criterion if there

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\(^{78}\) Dougherty, 2011 p.225–226.


is correlation or not. The observation of the correlation matrix clarifies that this is not the case and the approach will proceed.

5.4 Heteroscedasticity
Heteroscedasticity is a common problem in econometric studies. It implies that the variation in the error term is unequally distributed. When the data contains heteroscedasticity two problems arise. The first problem is that the estimate of the \( \beta \)-value will not be as accurate. The second problem is that the standard errors will be incorrect as a consequence the \( t \)-value and thereby also the value of probability (\( p \)-value) will be invalid. Subsequently there is a possibility that the estimation by the regressions coefficients will be misleading.

When using data from countries of different sizes, it might very well be a problem since the error term might be different depending on a country’s size. It is not a long shot to suppose that the error term in South Africa is bigger than the error term Comoros. However, as can be seen in the residual plots of these regressions, no clear sign of heteroscedasticity exists, since the residuals follow a standard normal distribution.

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81 Dougherty, 2011, p.165 - 169
82 See 8.1.1 in Appendix
83 Dougherty 2011, p.281 - 283
84 See 8.2 in Appendix
6. Results

In this chapter the results from our various regressions will be presented. The main independent variable, FDI, is presented in the first step as a solely independent variable and later we involve control variables. Firstly, the regression treating economic growth as dependent variable is examined and later the same procedure will be made, however with economic inequalities as the dependent variable. At last, the regression where we interact a dummy variable with the purpose to distinguish between resource-rich and resource-poor countries will be presented.

6.1 FDI’s Impact on Economic Growth

The first regression treats the effect FDI, solely, has on economic growth in the entire Sub Saharan region. According to theory and previous research\textsuperscript{85}, we are expecting to find a positive relationship between these two variables, the more FDI the higher economic growth. As to be seen we get a very significant $p$-value and a positive $\beta$-value. Accordingly we can establish that there is a positive relationship between the two variables. Even though this is the relationship we expected to find based on economic theory, we were not sure since the economies in Sub Saharan Africa often have slightly different economical conditions, as mentioned earlier, compared to the rest of the world.

After this regression we decided to add one or two variables at a time in order to study how the $\beta$-value and significance for FDI changes. As can be viewed the appendix 8.4, nothing major happens to the FDI variable and we can establish a positive correlation between FDI and economic growth in Sub Saharan Africa. Even though this thesis does not treat the effect of the control variables a shorter analysis of those is interesting, since the values gotten in the regressions confirm the validity of the data gathered and thereby confirm the weight of FDI on economic growth. It can be seen that apart from FDI only life expectancy and openness is significant on a five per cent level\textsuperscript{86}. Surprising with this result is that openness has a negative effect on growth, which stands against what is observed in the rest of the world as well as in theory. One explanation could be if FDI and openness would be highly correlated, the

\textsuperscript{85} See section 2.2
\textsuperscript{86} See Appendix 8.4.2
more open a country is, the easier it is for foreign companies to situate their business there. Though, as can be seen in the correlation matrix no such relationship exists. Based on theory there is not any plausible explanation other than the fact that Sub Saharan Africa is one of these regions where the economic growth theories validity is questioned.

One further interesting observation is that investment and infrastructure (Log Tele) is significant on a ten per cent level until we add openness, schooling and logarithmic initial GDP per capita.\textsuperscript{87} Neither in this case multicollinearity is a problem, consequently the explanation could be that the effect of infrastructure and investments goes through openness as a mechanism. Openness, for example, takes significance away from infrastructure and human capital when it is added into the regression. This goes against what is claimed in economic theory, investments is supposed to improve a countries ability to capture and use new technology and also make it possible to increase output per worker. An explanation for the negative coefficient might be that many of the countries included in this study might be too poor. When countries are too poor and have too low level of institutions to be able to absorb the world technology, investment in real capital will have no effects since they are not distributed the right way. This is a plausible explanation since we are investigating one of the poorest regions in the world. Also openness had a negative coefficient\textsuperscript{88}, this is harder to explain, a higher degree of openness according to theory is supposed imply access to the most recent technology and input from the foreign countries. This could also be explained by not having the sufficient resources to apply the new technology.

6.2 **FDI’s Impact on Economic Inequalities**

This regression has the economic inequalities (Gini coefficient) as dependant variable and FDI as explanatory variable. As the table 8.4.3 illustrates, the $p$-value is too high to make any further conclusions concerning FDI’s effect on income distribution. Since it was established that more FDI inflows lead to higher economic growth it would have been interesting to see if FDI would show the same effect on inequality.

\textsuperscript{87} See Appendix 8.4.1
\textsuperscript{88} See Appendix 8.4.1
However, with FDI as a solely independent variable no direct relationship could be stated.\textsuperscript{89}

The same procedure with adding one control variable at a time is made. The relationship between FDI and inequality remains insignificant. Life expectancy is the only the only significant variable with a negative coefficient, thereby the only variable in this regression that can be said contributing to less inequality. This since a lower value of the Gini coefficient represents a more equal distribution of income in a country. The logarithmic value of initial GDP per capita is the only variable apart from life expectancy that is significant. The relationship is positive which indicates that the higher initial GDP per capita the higher is the economic inequality. One might imagine that this is a mechanism since it is speculated that economic growth leads to less inequality. Furthermore high initial GDP per capita tend to lead to slower growth and based on this reasoning it seems plausible that a higher initial GDP per capita could lead to more inequality. More convincing proof for this would be if economic growth had a significant relationship with inequality, however no such relationship could be established.\textsuperscript{90}

6.3 The Weight of Natural Resources
Sub Saharan Africa is a region where a lot of the countries possess large quantities of natural resources, in many cases exploited by foreign investors. Therefore the authors found it of interest to examine whether a difference in the impact of FDI could be determined depending on if the countries were rich or poor in natural resources. These results are derived from regressions where a dummy variable is integrated with FDI. In the results there were not a significant $\beta$-value for FDI on economic growth for the countries poor in natural resources\textsuperscript{91}; hence the purpose to establish a negative or smaller effect for countries with more natural resources could not be rejected. There might be various reasons for not being able to predict a significant relationship between FDI and economic growth in countries poor in natural resources. One explanation could be that there is a smaller level of FDI in these countries, since the incentives for FDI are smaller there. Therefore it is harder to determine a relationship.

\textsuperscript{89} See Appendix 8.4.3
\textsuperscript{90} See Appendix 8.4.3
\textsuperscript{91} See Appendix 8.4.2
This might be due to a smaller degree of openness, or simply because companies do not see the same opportunity to invest in a country that does not have a lot of natural resources.

On the other hand the significance for countries rich in natural resources is high in all regressions, also when all control variables are present. When the division is made, it can be stated that the $\beta$-value for FDI is slightly higher which indicates that these foreign direct investment’s effect on economic growth is greater when countries are rich in natural resources. This could probably be explained from the fact that more inflows of FDI tend to lead to greater economic growth and countries rich in natural resources tend to attract more FDI. Concerning the control variables, their significance and $\beta$-values does not change remarkably from before the interaction variable was included, apart from infrastructure that is being significant on a ten per cent level. The same pattern as earlier can be seen concerning investments, it is significant on a ten per cent level until human capital is added to the regression.92

A similar procedure was made having economic inequalities as dependant variable. More interesting results was found this time than earlier. Before adding any control variables there is a negative relationship between FDI and economic inequalities on a ten per cent level. This implies that FDI contributes to less inequality in countries rich in natural resources. For countries poor in natural resources the $p$-value of FDI is too high for establishing a valid relationship, this goes throughout adding all the control variables. The significance and $\beta$-value of FDI on economic inequality in countries rich in natural resources stays on roughly the same level until we add the human capital into the regression, when the $p$-value suddenly increases drastically.93

Since the integration of the dummy variable only affects the FDI data directly, a rise in life expectancy still has a significant effect towards less inequality, and the higher initial GDP/capita is the more inequality in the country. However initial GDP per capita is insignificant until adding human capital, which stands against the effect adding that variable, has on FDI.

92 See Appendix 8.4.2
93 See Appendix 8.4.4
7. DISCUSSION

The purpose with this paper was to investigate whether FDI contribute to economic growth and less inequality in Sub Saharan Africa. In addition to these two principal questions we also wanted to examine if the impact of FDI could be different depending on the endowment in natural resources. In this last chapter the authors will compare the results gained in this study with the theoretical framework and previous empirical studies.

In the earlier theoretical chapter it can be seen that FDI is supposed to contribute to a greater economic growth, especially if the country is not in the technology frontier in the world. This due to the fact that it gives the host country access to new technology from the rest of the world. Technology can be absorbed and increase productivity and thereby output. The results gained in this study suits very well with what could be expected from theory. FDI increases economic growth in all occasions apart from when the sample is divided into rich and poor in natural resources. As already mentioned this could be since the incentives from exploiting FDI is smaller in countries poor in natural resources, thus if the levels of FDI is to low it would be harder to establish a relationship. This reasoning also follows the empirical findings that vertical FDI (resource seeking) is the most common in Sub Saharan Africa, consequently countries less endowed in natural resources should not experience as big inflows of FDI as more endowed. Unfortunately this relationship could not be statistically established.

FDI having a positive effect on economical growth also matches the findings from most previous research, as mentioned some papers argued that the reason for the positive impact is due to econometric defaults, especially when not using country fixed effects. However, both cross-section and period fixed effect are used in this thesis, and the effect of FDI remains positive. Furthermore, based on some of the articles in chapter 3, econometric studies tend to ignore both economic and policy factors. It is a useable addition to the discussion since a region like Sub Saharan Africa contains countries where both the political and the economical situation are unstable. Moreover, this result opposes the theory about “The Resource curse” that claims that resource-rich countries should establish a lower growth rate. However,
this is slightly remarkable as the empirical study, during “The Resource Curse” arose, was based on countries in Sub Saharan Africa.

In previous research it is argued that FDI indirectly lead to less inequality through economic growth. When growth increases all the inhabitants will be better of as a consequence, since the country turns richer. Against this argument stands that FDI mainly attract high skilled labour, which in general is the richer part of the population. Consequently the already rich people will be richer and the gap between rich and poor will increase. A counterpart to this argument is that that FDI leads to a better standard of living for everyone, due to spillover effects in increased production for the country as a whole. Better standard of living does not have to imply less inequality. In this study no significant results for FDI’s impact on economic inequalities was found, however as “the leaky bucket theory” states this does not have to be due to FDI not having a positive effect on the poorest. It might be that the poor people gets better of however the rich people gets even better of, subsequently no evidence of FDI leading to less inequality will be found.

When we distinguish between countries with more or less endowment in natural resources, there was some evidence that FDI might lead to less inequality in countries rich in natural resources. Since FDI also had a significant positive impact on economic growth in countries rich in natural resources there is a possibility that the indirect relationship actually exists. In the regression on economic inequalities with the interacted dummy variable, was economic growth insignificant, however no dummy variable is interacted for economic growth due to losing of degrees of freedom, which could be a reason this variable not being significant.

The fact that FDI tending to lead to less inequality in countries rich in natural resources could also be supportive for “the leaky bucket theory” or existence of a well-functioned redistribution system. Imagine that more FDI lead to more national income, thereby more redistribution, and less inequality.

It is important to have in mind that this thesis only covers a 20 years period. As argued in earlier chapters it might take time before the impact on inequality can be observed. 20 years might be a too short for FDI-induced productivity gains to take place and lead to inequality alleviation. Due to the fact that a big raise in FDI, that
took place in Sub Saharan Africa around 2004 -2006, it is possible that the effect from this inflow is not observable yet.

A general conclusion is that some of the results are consistent with the existing theory and earlier studies. However, there are some of them that are not, especially estimations on control variables, which can be explained that Sub Saharan Africa contains poor and underdeveloped economies. Therefore some of the theories that have been brought up are not very applicable on this type of countries since in a lot of them try to overcome their economical obstacle under certain circumstances. These circumstances differ between relatively rich and more developed parts of the world. Some consequences of FDI can remain positive and contribute to a better social and economic standard, but in some cases even be devastating and sometimes also be a threat against whole the development. Examples of that is capital flight, contribute in the opposite way, often at the expense of the people of Africa. A dilemma that is highly current and effecting a lot of people why more research are desirable.
### 8. APPENDIX

#### 8.1 TABLES

##### 8.1.1 DESCRIPTIVE STATISTICS

<table>
<thead>
<tr>
<th>ECO. GROWTH</th>
<th>FDI</th>
<th>LIFE EXP.</th>
<th>GROWTH</th>
<th>FDI</th>
<th>LIFE EXP.</th>
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<th>OPEN.</th>
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<th>LOG TELE.</th>
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##### 8.1.2 CORRELATION MATRIXES

**ECONOMIC GROWTH AS DEPENDENT VARIABLE**

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ECONOMIC INEQUALITIES AS DEPENDENT VARIABLE

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8.2 RESIDUAL PLOTS

8.2.1 REGRESSION WITH ECONOMIC GROWTH AS DEPENDENT VARIABLE

RESID

![Histogram of Residuals](image)
8.2.2 Regression with Economic Inequalities as Dependent Variable

RESID

8.3 Derivation of GDP Per Capita-Growth From Endogenous Theory

\[ y = k^\alpha \cdot h^{1-\alpha} \]

\[ \rightarrow \ln y = \alpha \ln k + (1 - \alpha) \ln h \]

\[ \rightarrow \frac{\partial \ln y}{\partial t} = \alpha \frac{\partial \ln k}{\partial t} + (1 - \alpha) \frac{\partial \ln h}{\partial t} \]

\[ \rightarrow g_y = \alpha g_k + (1 - \alpha)g_h \]

\[ g_K = \frac{k}{K} = s \frac{y}{K} - d \rightarrow g_y = g_K \]

\[ \rightarrow g_y = \alpha \cdot g_y + (1 - \alpha)g_h \leftrightarrow (1 - \alpha)g_y = (1 - \alpha)g_h \leftrightarrow g_y = g_h \]
## 8.4 Regressions

### 8.4.1 Economic Growth as Dependent Variable

**β-values for each variable**

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<tr>
<th>Column</th>
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*** = p-value<0.01  
** = p-value<0.05  
* = p-value<0.1  
Standard error in the parentheses

### 8.4.2 Economic Growth as Dependent Variable

**β-values for each variable**

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<tr>
<th>Column</th>
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*** = p-value<0.01  
** = p-value<0.05  
* = p-value<0.1  
Standard error in the parentheses
### 8.4.3 Economic Inequalities as Dependent Variable

**β-values for each variable**

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***p-value<0.01
**p-value<0.05
*p-value<0.1

Standard error in the parentheses

### 8.4.4 Economic Inequalities as Dependent Variable

**β-values for each variable**

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***p-value<0.01
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Standard error in the parentheses
9. REFERENCES

9.1 ARTICLES AND PAPERS


te Velde, Dirk Willem (2003), “Foreign Direct Investment and Income Inequality in Latin America”, Overseas Development Institute


9.2 ELECTRONIC SOURCES
Afrikgрупперна (2013-09-23), ”En dollar till fattiga länder – tio dollar till dem”,


9.3 PRINTED SOURCES


9.4 DATABASES

Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 7.1, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, Nov 2012.


The World Bank, World development Indicators, (Last updated 06-May-2014)