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Foreign Direct Investment and Welfare:

Is Sub-Saharan Africa Different?

by

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Abstract: Foreign Direct Investment (FDI) is often considered to be favorable to long-run economic growth and has in recent years been promoted as a poverty-reducing tool. Although FDI to developing countries has increased rapidly in recent decades, Sub-Saharan Africa (SSA) has been unsuccessful in attracting large inflows of FDI. This study assesses the effect FDI has had on poverty and human development in Sub-Saharan Africa. The paper also explores what the determinants of FDI are in SSA. The study employs Fixed Effects and General Method of Moments (GMM) methods to empirically analyze the effects of FDI. The results found indicate: i) a weak relationship between FDI and human development, ii) lower levels of corruption and better infrastructure having a positive effect on human development, and that iii) the FDI inflows to SSA are of resource- and market-seeking nature. These results imply that FDI alone is not a solution for either poverty or human development in the long run.

Key Words: Sub-Saharan Africa, Foreign Direct Investment, Poverty, Human Development, HDI, Fixed Effects, General Method of Moments

List of Abbreviations

CPI: Corruption Perception Index

FDI: Foreign Direct Investment

FE: Fixed Effects Model

GDP: Gross Domestic Product

GMM: Generalized Method of Moments

HDI: Human Development Index

IMF: International Monetary Fund

MNE: Multinational Enterprise/Firm

OLI: Ownership, Location, Internalization Advantages

PG: Poverty gap

PHR: Poverty headcount ratio

POP: Population

UNDP: United Nations Development Programme

WDI: The World Bank's World Development Indicators

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1   Introduction

Sub-Saharan African countries are consistently ranked as the poorest and least developed in the world, even though the region has experienced surprising economic growth and reduction in poverty (World Bank n.d.). In addition, according to forecasts made by the IMF, the five fastest-growing economies in the world are located in Africa (Mitchell, 2019). Although these are great signs of progress, SSA is still the world's poorest region with both the highest and deepest poverty rates. Additionally, the region continues to experience periods of shrinking, which hampers its long-term development and growth (Broadberry & Wallis, 2017). Taking it into context, The Millenium Goal 1a which aimed to halve the proportion of people whose daily income was less than $1.25, was achieved by all developing regions except SSA (Fuente, 2016). In addition, while extreme poverty is falling rapidly in all other regions, the number of extremely poor people continues to rise in SSA, and forecasts imply that by 2030 global extreme poverty will mainly be concentrated in SSA – where 9 out of 10 extremely poor people will live in the region (Wadhwa 2018).

Due to the high and persistent poverty in Sub-Saharan Africa, a plethora of studies has been made in an attempt of finding ways of reducing the region's high poverty rates. In doing this, foreign direct investments (FDI) have been identified as an important tool in stimulating growth and in turn, reducing poverty (World Bank, 2007). FDI refers to direct investment equity flows in the host country, which is the sum of equity capital, reinvestment of earnings, and other capital (World Bank, 2021a). To be more specific, FDI is a type of cross-border investment in which a company or entity from one country has control, or a considerable amount of influence, over the management of a company in another country. The presence of a FDI relationship is determined by the ownership of 10% or more of the ordinary shares of voting stock.

In recent decades, with the increasing rates of globalization, there has been a rapid growth of FDI in the developing world and in recent years it has become the largest source of foreign funds flowing to developing countries (Todaro & Smith 2011: pp. 685-686). Traditionally, a majority of FDI went from one developed country to another. This pattern has changed as developing countries have become more influential. In 2019, developing countries received

more than half of the global FDI, where the largest recipient was China with inflows of $140 billion (UNCTAD, 2020). The inward flows to SSA have also increased, going from $829 million in 1970 to $31.7 billion in 2019 (World Bank, n.d.). However, this translates to only 3.1 percent of the global FDI inflows. Developing countries are not only receiving more FDI, but investment flows and stocks between developing countries are growing substantially. For instance, FDI inflows to Africa from China have increased rapidly, and in 2013 China's FDI stock in the continent reached nearly $24 billion (Besada *et al.,* 2008).

FDI is thought to be more favorable to long-term growth and development than other forms of capital inflows (Walsh & Yu, 2010). This notion has been supported by a variety of arguments, the most common of which being that FDI brings foreign technology and managerial skills, which can then be adopted by the host country in their local firms. In some cases, FDI might even bring about structural change (Rodrik, 2016). Therefore, the research question asks:

What is the effect of foreign direct investment on poverty and human development in Sub-Saharan Africa?

To answer this question thoroughly, it is necessary to take into account that SSA has been unsuccessful in attracting FDI. Between 2000 and 2012, an average of 55 countries made 1082 institutional policy changes to promote and enable a more favorable environment for foreign investors (Demir, 2016). This reflects how important FDI has grown to be for host countries, and to what great lengths their governments are ready to go to in order to strengthen their competitiveness. It is, therefore, necessary to investigate what the determinants of FDI in SSA are, to see if they differ from other regions. This is to ultimately know which ones are vital for attracting a larger share of FDI inflows to SSA. This leads to the sub-question:

What are the most important determinants of FDI in Sub-Saharan Africa?

1.1   Research Problem

A substantial amount of research investigating the effects of FDI on economic growth has been made, but much less on how FDI affects poverty and human development directly.

Although the overall assumption common to these studies that investigates the effects of FDI has been positive, the literature existing is not fully conclusive – particularly regarding the effects FDI has on welfare. While some scholars are convinced that FDI inflows contribute to poverty reduction and are essential, others are more questioning since multinational corporations (MNEs) are not in the development business, but are primarily concerned with maximizing their returns to capital.

Areas of concern among researchers investigating poverty in Sub-Saharan Africa is the lack of complete data, which makes it more difficult to perform statistically significant empirical analysis. Another limitation is that this research, similar to other studies in the same field, uses non-experimental data which makes it impossible to draw causal conclusions.

1.1.1   Delimitations

As past research has made clear, is that factors such as poverty rates, development, and institutional quality are affected by historical context (North, 1990). Within the scope of this thesis, it is impossible to examine all the factors that might impact the outcome of FDI in the selected host countries. This study does not test for colonial past, slave trade, pre-colonial governance, initial wealth, income inequality, ethnic fragmentation, or regional and international agreements. Moreover, this study does not distinguish between Mergers and Acquisition FDI (foreign investment taking the form of acquisition of existing assets), and greenfield FDI (foreign investment in new assets), which makes it impossible to see if one is more effective in reducing poverty and increasing human development. Lastly, the study does not test for sectorial FDI, which is mainly because of the lack of data covering the region. This limits the study in examining whether investments in particular sectors are more beneficial for the host country's welfare. Some studies have also focused on South-South FDI flows (i.e., investment between developing countries). This thesis does not focus on these flows in particular, since the data on this can be inaccurate and insufficiently disaggregated (Gonzalez *et al.,* 2015).

The primary limitation of the thesis is its data. The available data concerning countries in SSA has been criticized for being inaccurate, full of error, incomplete and inconsistent (Jerven, 2013). However, it is the best data available at the moment, but the consequence is that the results should be treated with a high degree of caution.

1.2   Aim and Scope

This thesis aims to investigate the effect foreign direct investment has on poverty and human development in Sub-Saharan Africa, which is done through a quantitative research method. The research is limited to the time period of 1990 to 2019. The countries included can be seen in Appendix A. The empirical research uses three measures of FDI net inflows: i) FDI in absolute value, ii) FDI as a ratio of GDP, and iii) FDI per capita. The variables used to measure poverty and human development are the poverty headcount ratio, the poverty gap, and HDI. The poverty headcount ratio is the share of people living below the poverty line and the poverty gap is a ratio showing the mean shortfall in income or consumption of the total population from the poverty line. HDI is a summary measure of average achievement in three dimensions of human development: health, education, and standard of living. Moreover, there have not been any studies distinguishing the countries that have received the most and least FDI to examine the effects FDI has had on poverty and human development in these particular cases. This thesis aims to fill that gap.

Due to the lack of data on poverty, the empirical analysis was very limited, and thus the results found were disappointing. However, a negative correlation was found between FDI (FDI and FDI/GDP) and poverty. Also, FDI per capita is found to have a significant positive effect on HDI in countries that have had the largest inflows of FDI. In contrast, FDI per capita is found to have a significant negative effect on HDI in countries that have received the most FDI per capita. Nevertheless, this study does not claim to derive causality.

To answer the sub-question, the main research method has been to review the literature, and to examine which countries that receive the most and the least FDI to see if these countries have any common characteristics. Similar to previous research, it is found that the main determinant of FDI in SSA is large reserves of natural resources.

1.3   Outline of the Thesis

The thesis is structured as follows. Chapter 2 presents the theoretical background of FDI. The theoretical frameworks that are provided explain convergence, the motivation and the growth of multinational activities, and also how FDI can affect poverty, economic growth, and

development. Chapter 3 provides a literature review of previous research, followed by a summary of their main findings. Chapter 4 presents the data that has been gathered and the variables that have been used. The quality of the data is discussed, and a summary table of the descriptions and sources of the variables is provided at the end of the chapter. Chapter 5 presents the quantitative methods that have been used, followed by a discussion of their weaknesses and limitations. Chapter 6 documents the empirical analysis, which includes statistics and results from the regression analysis. In addition, the results are discussed and compared to the findings of previous research. Finally, chapter 7 summarizes and concludes the findings of the study.

2 Theory

In the following chapter, the theoretical background regarding the effects of foreign direct investment will be presented. While there exists little theory about the effects of FDI on the income of the poor, there is a significant amount of literature that has investigated the influence of FDI on traditional economic aggregates such as GDP, investments, and savings. The chapter aims to present different theoretical frameworks that explain the motivation and the growth of multinational activities and the channels through which FDI has its effects. The effect FDI can have on poverty, economic growth, and development is usually divided into three, which are the direct effect, the multiplier effect, and the spillover effect. First, the theoretical framework on why countries in SSA have been unsuccessful in attracting FDI and "catching up" to developed countries, will be presented.

2.1 Convergence and the Lucas Paradox

According to traditional growth models, such as the Solow growth model (1956), poorer economies will tend to grow at faster rates than richer economies because diminishing returns to capital are not as strong as in capital-rich and developed countries. So, the simple Solow model predicts that if countries have the same population growth rate, savings rate, and capital depreciation rate, they then will have the same steady-state which they will "converge" or catch up to. The hypothesis asserts that backwardness in the level of productivity carries potential for rapid growth and advancement. To put it another way, the premise is that, when comparing countries, productivity growth rates over time tend to be negatively related to baseline levels of productivity. The larger the technological and productivity gap between developing and developed countries, the stronger is the developing country's potential for rapid growth. Developing countries, "followers", catch up faster if they are initially more backward – and the follower's potential for growth weakens as its productivity level converges towards that of the leader. This hypothesis relies on the fundamental assumption that developing countries can replicate already available production methods, technologies, and institutions of developed countries.

The traditional growth theory (Solow, 1956) therefore predicts that capital should flow from rich countries to poor countries, due to increased returns of capital in the host country. An explanation for underdevelopment is, in part, because poor countries have a shortage of capital – which explains why they are poor in the first place. The scarcity of capital relative to labor should, therefore, mean that the returns related to investment of capital are higher in developing countries than in developed countries. As a result, foreign investors should see poor countries as profitable places in which to invest. In reality, however, very little capital flows from developed countries to developing countries – especially to the very poor, as in countries in SSA. This is called the Lucas paradox, which refers to that capital does not flow to developing countries as much as economic theory suggests it should (Lucas, 1990). Lucas states a couple of reasons for the limited capital flows to developing countries, which are political risk, differences in human capital, and capital market imperfections which make the expected returns associated with a high level of uncertainty.

Abramovitz (1986) further explains why developing countries have not been able to converge in the way that was envisaged by the traditional growth theories. He emphasizes the role of a country's "social capability" and adds it to the catch-up hypothesis. The transformed theory states that a country's potential for rapid growth is strong when it is technologically backward but socially advanced. The potentiality for generating rapid growth is dependent on the host country's social capabilities and that they are sufficiently developed to allow successful exploitation of technologies already employed by the technological leaders. The social capabilities depend on factors limiting the diffusion of knowledge, the rate of structural change, and economic institutions encouraging and sustaining capital investment and the expansion of demand. In other words, a country's potential for convergence is determined by its social capabilities to absorb more advanced technologies.

2.2   The Gravity Model

One of the first theoretical models in trade theory, and what later was extended to explain bilateral FDI flows, is the gravity model (Baier & Standaert, 2020). The model was originally proposed as a simple analogy between Newton's Universal Law of Gravitation and factors that affect bilateral FDI flows. The flow of FDI between two countries was assumed to be proportional to their economic size and inversely proportional to their distance from each

other. The market size of a country is related to its economic size; larger countries have larger potential markets and thereby attract FDI.

Since the original gravity model lacks explanatory power, several augmented gravity models have been developed (Mishra & Jena, 2018). The variables that have been incorporated in addition to the original model (which are FDI, gross domestic product, distance, source, and host countries) are factors such as market size, cultural distance, and institutional variables. A specific example of an augmented model of the standard gravity model is Carr, Markusen, and Maskus's (2001) theoretical framework that suggests additional possible factors that determine FDI patterns. They call it the knowledge-capital model, which categorizes the motivations of FDI into two; horizontal and vertical. Horizontal motivations, where firms look to replicate their operations in other countries to be more proximate to consumers in those "new" markets, can be captured by gravity variables. However, vertical motivations, where firms look for low-cost locations for labor-intensive production, require additional variables that can capture other parameters necessary. The theory presented by Carr, Markusen, and Maskus (2001) assumes that those countries with relatively high shares of unskilled labor will be attractive locations for MNEs due to lower wages. They do make a distinction between R&D activities and production though. Where skilled labor is cheap, motives for locating R&D activities increase, whereas production will be located in places where unskilled labor is cheap.

2.3   The Eclectic (OLI) Paradigm

To explain the growth of multinational activities, Dunning's Eclectic Paradigm has been the main theoretical framework used over the last decades. Dunning's framework of international production is an integration of many other theories that covers internationalization. It explains the motives of multinational enterprises' FDI and various internationalization activities such as location selection and market entry mode preference (Dunning, 1988). This, in turn, can be translated into what determinants are important in attracting FDI. This theoretical framework also helps explain MNE's investment incentives. The main hypothesis of the Eclectic Paradigm, also known as the OLI Paradigm of international production, is divided into three parts; i) Ownership advantages, ii) Location advantages and, iii) Internalization advantages.

According to this theory, for a firm to become a MNE and engage in multinational activities, such as foreign investments, the mentioned three conditions must be fulfilled.

2.3.1 Ownership Advantages

The first requirement is that the firm must have certain comparative advantages over local rivals that are unique to the nature of their ownership. It means that, as a foreign player, the firm must have certain ownership advantages to cover the cost of international production or to outweigh the disadvantages of doing business in another country. In Dunning's (1988) own words: *"These* (ownership) *advantages - sometimes called competitive or monopolistic advantages - must be sufficient to compensate for the costs of setting up and operating a foreign value-adding operation, in addition to those faced by indigenous producers or potential producers."* Dunning divided the ownership advantages into two groups, asset-based (Oa) and transaction-based (Ot) advantages. The ownership asset advantages (Oa) apply to the exclusive ownership of a particular asset, such as property rights, and intangible assets such as patents, technology, product innovation, reputation, etc. The ownership transaction advantages (Ot) is a firm's ability to reduce transactional costs and capture transactional benefits in different countries.

2.3.2 Location Advantages

The second part of the OLI paradigm is concerned with where production will be, as MNEs have to decide on selecting host countries that are the most advantageous (Dunning, 1988). First, MNEs have to fulfill the first requirement, which means that they must possess comparative advantages necessary over the domestic firms. Second, MNEs will consider if the locational advantages of the host countries are of interest to them, which can be the availability and low costs of needed factor endowments for production. The locational advantages can also be market size and benefits of institutional nature, such as market imperfections that influence the locational decisions of MNEs. Structural market distortions, which can be the result of some kinds of government intervention that affect the costs and/or revenues of producing in different locations can either encourage or discourage inward direct investment. The access to immobile factor endowments (natural or created resources) on favorable terms, makes international production, and thus foreign investment in the host country, highly attractive.

2.3.3 Internalization Advantages

The third condition for international production is that it must be in the best interest of enterprises that possess ownership-specific advantages to transfer them across national boundaries within their own organizations rather than sell them, or their right of use, to foreign-based enterprises. The internalization theory stresses the role of market imperfections, which Dunning and Rugman (1985) classifies as structural and transactional market imperfections to explain the different types of ownership advantages possessed by the MNEs. Structural market imperfections can be caused by the behavior of i) monopoly power, which for example causes distorted prices, external markets, and trade barriers, and, ii) government intervention, which poses tariffs, taxes, and price control. Transactional market imperfections can be caused by information asymmetry. The greater the perceived costs of transactional market failure, the more MNEs are likely to exploit their competitive advantages through international production rather than by contractual agreements with foreign firms, i.e. the preference for internalization increases (Dunning, 1988). Transactional failures are emphasized to be the main reason behind international production. Moreover, Dunning explains that the most successful MNEs are those that nurture and exploit both asset and transactional ownership advantages best.

However, the identification and value of the specific OLI parameters that will influence individual MNEs, in particular production decisions, will vary accordingly to the motives of the firms and their production. Later, Dunning (1993) introduced a model of internationalization motives where he established four motives for MNEs investing in other countries. These are: i) Market-Seeking (to exploit possibilities offered by markets of greater dimensions and size), ii) Efficiency-Seeking (to take advantage of differences in the availability and cost of traditional factor endowments, economies of scale, and scope in different countries), iii) Strategic Assets-Seeking (to gain and complement a new technological base) and, iv) Resource-Seeking (to access specific resources, such as natural resources, that are not available or are more expensive in the home country) (Cruz *et a*l., 2020).

2.4   The Direct Effect

Economic underdevelopment is often seen as a consequence of capital shortage. Therefore, a traditional economic view of foreign direct investments is typically seen as a way of filling in resource gaps (Todaro & Smith, 2011: pp. 688-689). This view has largely grown out of the growth theories, inspired by Solow (1956), where growth follows from increases in the capital stock (Calvo & Hernandez, 2006). More recent growth models, where growth is supported by the expansion and mobilization of savings, also emphasize the importance of filling in the savings gap by increasing the capital stock. From this perspective, FDI accelerates economic growth by supplementing domestic capital formation.

However, stimulating larger FDI inflows is not sufficient to achieve and sustain long-term economic growth (Rodrik, 2016). What is crucial for long-run growth in poor countries is industrialization and structural change. However, the African pattern of structural change is very different compared to the one that produced high growth in Asia, and before that, the industrialization in Europe. Although labor is moving out of agriculture and rural areas, it is not moving towards formal manufacturing industries. Instead, the urban migrants are absorbed into unproductive services and informal activities. This leads to the pace of industrialization being too slow for the convergence process to take place. The countries that have grown rapidly recently in Africa have either relied on commodity booms or foreign investment, which has only generated booms that will not translate into either long-run economic growth or development. While manufacturing industries exhibit unconditional convergence regardless of geographical disadvantages, poor institutions, or bad governance – productivity gains from the service sector are more conditional, as it requires relatively high skills. Host countries cannot rely on their natural resource-based growth patterns to help them "catch up" either, since the primary sector tend to be highly capital-intensive and absorb little labor. So, although SSA has grown rapidly over the last decade, where some of the fastest-growing economies are located in the region, it has been accompanied by little structural change, which does not bode well for future growth. Broadberry and Wallis (2017) further argue that the main difference between rich and poor countries is not that poor countries have lower growth rates, but rather that they grew in fewer years and experienced periods of very rapid negative growth – which he calls episodes of "shrinking". To achieve sustainable growth and development, it is needed to reduce the variability of short-run growth rates,

rather than increasing short-run growth rates. To reduce the rate of shrinking a couple of proximate and ultimate factors are presented. The proximate factors include: i) structural change (movement from agriculture, which is very exposed to shrinking due to weather shocks and climate), ii) technological change, iii) a reduction in population growth, and iv) reduction in the incidence of warfare. They argue that the key ultimate factor is institutional change.

Additionally, for FDI to affect poverty, the expansion of capital stock must translate into the appearance of new job opportunities - thereby having a direct effect on the local economy (Calvo & Hernandez, 2006). An increase in the firms' capital stock can thereby reduce the level of poverty through new hires, if the individuals have sufficient human capital to be employable in the first case. The poor can also benefit from increased tax revenues if the additional expenditure is directed towards education, health, services, and other types of social spending, which is specifically important when national income rises. Conversely, FDI can also be harmful to the poor. FDI inflows, regardless of increased capital inflows to the host country, cannot be directly be taken as increases in the local capital stock, due to crowding-out effects (Calvo & Hernandez, 2006). This occurs, for example, when the inflow of FDI is made through acquisitions of domestic firms, without expansion of the firm in question. Other crowding-out effects may operate through market mechanisms, such as when domestic firms lose their market shares to new foreign firms. This is referred to as the "competition effect". The competition effect will be particularly harmful to the poor if small, and sometimes informal, businesses are those who are pushed out from the local markets. These small and informal businesses tend to be agricultural, which individuals living in poverty are dependent on to make a living. Additionally, the effect will be even more harmful if the foreign firms hire fewer workers than the domestic firms which they displace. This will lead to a negative impact on unemployment. If foreign firms attain their position in local markets through price competition, the poor will benefit, like all other consumers in the economy benefit from falls in consumption prices.

2.5   The Multiplier Effect

FDI does not only have a direct effect in the form of increasing the capital stock in domestic firms, but it also has an indirect effect on the local economy through different linkages (Calvo

& Hernandez, 2006). The multiplier effect is expressed in the relationship between the foreign subsidiary and the economic agents in the host country through backward and forward relationships in the value chain, or what is more specifically referred to as backward and forward linkages (Fowowe & Shuaibu, 2016). Backward linkages mean an increase in the demand for intermediate goods whose production will expand and enhance efficiency through scale economies (Calvo & Hernandez, 2006). Backward linkages are especially effective when the using industry becomes so large that supplying industries can achieve economies of scale on their own (Perkins *et al*., 2006: pp. 661-662). In this case, the supplying industries can lower their production costs and become more competitive in domestic or even export markets. Forward linkages refer to the ability of foreign firms to provide domestic firms with cheaper inputs or ultimately supply local consumers at lower prices (Calvo & Hernandez, 2006). By making lower-cost primary goods available as inputs into other industries, expanded production of primary goods can stimulate forward linkages (Perkins *et al*., 2006: pp. 661-662). In other words, FDI can allow domestic firms to expand and exploit scale economies, to release the economy from their low-equilibrium traps, through backward and forward linkages.

Concerning poverty alleviation, backward linkages are of more importance (Calvo & Hernandez, 2006). This is because an increase in FDI leads to an expansion in the local production of intermediate goods, which might raise the productivity of domestic firms and wage rates. If FDI projects create smaller backward linkages than the domestic firms, that have been displaced due to the competition effect, a welfare loss occurs. Welfare gains occur when MNEs export their output and/or act as catalysts for the development of local industries.

2.6   The Spillover Effect

The spillover effect is closely related to the multiplier effect. Spillover effects can be divided into two categories, namely horizontal and vertical. It is worth noting, however, that spillovers are difficult to quantify or measure directly (Meyer, 2004). In addition, it is important to have in mind that MNEs are first and foremost profit-maximizing, and are therefore not interested in creating benefits for others if they are harmful to the MNE in question. For foreign investors to allow positive externalities depend on their opportunity

costs of sharing the knowledge and the transaction costs of establishing barriers to knowledge transfers.

Horizontal spillovers are externalities that result from the transfer of technology from foreign firms to domestic firms, without any contractual or market transactions (Meyer 2004; Magombeyi & Odhiambo, 2017). One specific type of horizontal spillover effect is the demonstration effect, which works through the direct contact between MNEs and local agents operating at different levels of technology (Meyer, 2004; Magombeyi & Odhiambo, 2017). The presence of new and more effective technology makes the adoption of it by domestic firms much easier. Thus, the technological spillover is achieved through the imitation of technology and products by domestic firms. Another type of horizontal spillover is the movement of labor. MNEs help develop local human capital by aligning local employees with the firm's degree of technology. Via the movement of laborers to local businesses, improvements in human capital contribute to improvements in welfare and technological spillover (Magombeyi & Odhiambo, 2017). The improvement in human capital has two effects on the local workers' welfare; it enhances the quality of human capital for individuals, which can in turn lead to an increase in real wages due to raised productivity.

In contrast, vertical spillovers are a part of the consumer and producer surplus created by market transactions, and do not rely on externalities (Meyer, 2004). Vertical spillover is composed of backward and forward linkages (Magombeyi & Odhiambo, 2017). Backward linkages entail a foreign subsidiary acquiring intermediate products from domestic firms. As a consequence, the increase in demand leads to an expansion in production in domestic firms. In this process, there may be transfers of technological innovation and skills from the foreign subsidiaries to the domestic firms. Forward linkages refer to the growth of an industry that uses the output from the foreign subsidiary.

Other factors determine the magnitude of spillover effects in both intra-industry and inter-industry, such as the technological gap between domestic and foreign firms, the absorptive capacity of domestic firms, the institutional capacity of host countries, and foreign firm characteristics (Magombeyi & Odhiambo, 2017). The spillover effect increases when there is a technological gap between the domestic firm and foreign firm since it gives the domestic firm a "catch-up" potential. The absorptive capacity, which is crucial for adopting new technologies, is dependent on the level of education and infrastructure. Therefore, institutional

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frameworks and other country characteristics play an important role in determining the magnitude of the spillover effect.

3   Previous Research

This chapter presents previous research regarding the effect of FDI on poverty and economic development. In addition, it aims to review to what extent previous research reflects the theoretical background presented. To extend this research analysis, a literature review on FDI determinants will be made by discussing the empirical evidence. Their methodological approach applied in the studies differs from each other, although a large majority of them are of quantitative nature. The chapter is structured as follows. First, the previous research regarding FDI determinants in SSA will be reviewed. Second, empirical evidence of the effects of FDI will be introduced. Third, empirical evidence of FDI on poverty and human development will be presented. At the end of each section, there will be a short summary of the main findings.

3.1   Foreign Direct Investment Determinants

Asiedu (2002) examines the reason why SSA has been unsuccessful in attracting FDI, in comparison to other regions. In the process of doing this, she finds the determinants of FDI to developing countries and analyzes whether these factors have a differential impact on FDI flows to SSA. The study makes use of cross-sectional data containing 71 developing countries. The explanation found for why countries in SSA have on average received less FDI than countries in other regions is because the continent is perceived as risky, due to its geographical location, political instability, and lack of information about the countries in the continent which leads to investment decisions that are not guided by country-specific conditions. That the SSA is seen as risky and unstable is a widespread perception among investors (Ajayi, 2006: p. 13). Moreover, Asiedu (2002) finds that while higher return on capital promotes FDI to other developing countries, it does not have a significant effect on FDI flows to SSA countries. This is mainly due to its risky environment that prevents higher returns to induce more investment, as the Lucas Paradox predicts. The risky environment, which includes policy uncertainty, increases the risk of potential sunk costs. Therefore, investment risks may explain why higher returns do not translate into increased FDI inflows

in SSA. Additionally, the study finds that although trade openness promotes FDI, the marginal benefit from increased openness is less for SSA - suggesting that trade liberalization will generate more FDI to non-SSA countries than SSA countries. Instead, the impact of openness on FDI inflows depends on the type of investment. For example, trade restrictions, and thus less openness, can have a positive impact on FDI if the investment is market-seeking. However, capital account openness may affect FDI, since restrictions on currency convertibility are likely to deter FDI - in particular market-seeking FDI. This is because restrictions such as foreign exchange control laws make it difficult for foreign firms to repatriate their profits. Lastly, while good infrastructure increases the productivity of investments and thereby stimulates FDI in non-SSA countries, infrastructure development has no significant impact on FDI flows to SSA countries. Asiedu argues that this is because FDI to SSA tends to be natural resource-based, and that infrastructure development, therefore, is not very relevant for those types of investments.

In a study conducted by Onyeiwu and Shrestha (2004) they use fixed and random effects models to examine the determinants of FDI flows to Africa. The study uses a panel dataset for 29 African countries over the period 1975 to 1999. They find that economic growth, inflation, openness of the economy, international reserves, and the availability of natural resources are significant for FDI flows to Africa. In contrast, political rights and infrastructures were found to be unimportant. Dupasquier and Osakwe (2005) found similar results in their qualitative paper, where they examined the performance, promotion, and prospects for FDI in Africa. They argue that the reason why African countries have been unsuccessful in attracting significant FDI flows is due to political and macroeconomic instability, weak infrastructure, poor governance, inhospitable regulatory environments, intensification of competition for FDI due to globalization, and poor marketing strategies. In addition, they argue that if the entry of MNEs is mainly in the natural resource sector it will accelerate the pace of environmental degradation. Moreover, Dupasquier and Osakwe state that foreign investors in African countries are often attracted to natural resources and the exploitation of them.

Marandu, Mburu & Amanze's study (2019), where they examine the FDI inflows to Africa, find that the FDI that reach Africa are concentrated sub-regionally and country-wise, where the most FDI is concentrated on Southern Africa followed by Northern Africa while East Africa and Central Africa receive the least. Another important finding is that FDI is further concentrated in resource-rich and large countries, while smaller and resource-poor countries

have been unable to attract as much FDI. In addition, past data shows that the main sector receiving FDI is the primary/extractive sector, although there are some indications that a sectoral shift into services is occurring.

The literature concerning the investment flows from developing countries to other developing and transition economies have grown, since their share in global FDI has more than doubled. Outward FDI flows from developing countries accounted for just 4 percent of global FDI in 1995, but by 2014, it had risen to a record high of 27 percent (Stephenson & Perea, 2018). This has given rise to the term "South-South FDI". Aleksynska and Havrylchyk (2013) examine the location choices of investors from emerging countries, using bilateral FDI inflow data. The dataset covers 82 host countries, of which 62 are located in the South, and 163 source countries, of which 139 are from the South. First, they find that institutional distance can be seen as a driving force when countries from the South invest in countries with better institutions. They argue that this is because of FDI's asset-seeking nature, as emerging investors are interested in acquiring new innovations, products, and intellectual property, which are more likely to be located in a good institutional setting. Second, they find that South-South FDI is driven by firms that invest in countries with relatively similar and only marginally worse institutions, as they are on average deterred by the very bad institutions. Third, they find that if host countries are well endowed with natural resources, the institutional setting does not matter as much. Moreover, Aleksynska and Havrylchyk find that large reserves of natural resources are an important determinant of South-South FDI and that South investors may intentionally direct their investments to environments suffering from the "resource curse" - that is, having natural resources but suffering from poor institutions.

The majority of the research done on South-South FDI has however focused on China, whose outward FDI accounts for circa 10 percent of the total FDI flows from developing countries. In an influential paper by Kolstad and Wiig (2012), where they examine the motivation and drivers of Chinese investment abroad, they find that Chinese outward FDI is attracted to large markets and countries with a combination of large natural resources and poor institutions. The worse the host country's institutional environment is, the more is Chinese FDI attracted by the host country's natural resources. In addition, they find that Chinese FDI outflows differ from FDI from other regions in their attraction to countries with poor institutions but that are rich in natural resources - which suggests that Chinese foreign investors are attracted to countries suffering from the "resource curse".

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3.1.1   Summary: Foreign Direct Investment Determinants

In summation, the majority of the literature emphasizes that the reason why SSA has been unsuccessful in attracting FDI is because the region is perceived as risky, not only due to its geographical location but also because of its political and macroeconomic instability. The main motive found for foreign investment in SSA is primarily natural resource-based, as FDI is concentrated in extractive industries. Other important determinants seem to be market growth and market size. This suggests that the locational advantages are of value for MNEs that choose to invest in SSA. Several studies mentioned openness to not be as marginally beneficial in attracting FDI for SSA as it is for other regions. The reason for this might be that the foreign investments are mainly market- and resource-seeking, which are in accordance with Dunning's (1988; 1993) internalization motives. Market-seeking investment might even benefit from less openness, while resource-seeking investment may not be affected at all. It is also found that political rights and infrastructure are unimportant for SSA, which might go hand in hand with foreign investors being primarily interested in accessing large reserves of natural resources. Lastly, in recent times a distinction has been made between source countries and their motives in FDI outflows. It has been found that natural resources play an even bigger role in South-South FDI and that South investors may intentionally choose locations that are suffering from the "resource curse".

3.2   The Effects of Foreign Direct Investment

The bulk of the literature on FDI has focused on its impact on economic growth, as economic growth has traditionally been used as a proxy for development and poverty reduction in the field of economics. However, this has later been challenged by several scholars. Although economic growth may be a critical factor in a country's development, it is not sufficient to eradicate poverty. For instance, Fuente (2016) argues that economic growth and its effectiveness in fighting poverty will only be productive if it is inclusive and beneficial for the poorest. The research focus has therefore shifted from only concentrating on the effect FDI has on economic growth, to include other factors that might influence poverty. This section will present the empirical literature on the effects of FDI on economic growth, institutional development, and the economy of the host country overall.

In a study by Lensink and Morrisey (2006), where they use data from a total of 115 countries, they examine the impact of FDI on growth by taking volatility of FDI flows into account. They find that while FDI has a positive effect on economic growth, volatility has a negative impact (see volatility of FDI in SSA in Appendix B). However, it is suggested that it is not the volatility of FDI *per se* that affects growth negatively, but that volatility captures the growth-hampering effects of unobserved variables. They argue that it is because of this SSA countries are particularly vulnerable to both external and internal shocks.

The World Bank (2007) argues that Sub-Saharan Africa needs to attract more foreign capital to foster economic growth, raise living standards and accelerate development. Moreover, they argue that so far SSA has benefitted from greater FDI flows through increased economic growth, but that it has had a limited impact on employment and per capita incomes. FDI needs to be attracted to sectors that have a larger employment impact. This will in turn enhance the region's growth and promote political and macroeconomic stability. The reason why too little foreign investment has gone to SSA is argued to be because potential investors still perceive the region as uninviting due to corruption, poor infrastructure, few skilled workers, and lax governance. Several studies suggest that the effect of FDI flows is dependent on which sector the investments target. In Walsh and Yu's (2010) study, where they break down FDI flows into different sector investments by analyzing 27 advanced and emerging economies, they found that primary sector FDI has no strong linkages to either macroeconomic stability, level of development, or institutional quality. Although, it does have a clustering effect, meaning that larger stocks attract greater additional inflows. However, FDI in the tertiary sector appears to be more strongly impacted by macroeconomic conditions. In addition, tertiary FDI flows are higher in more rapidly growing economies, and are positively affected by openness, better infrastructure, and a more independent judiciary. In addition, they find that more flexible labor markets and deeper financial markets attract more secondary FDI, while better infrastructure and a more independent judiciary attract more tertiary FDI.

Several other studies emphasize the role of financial institutions in both attracting more FDI and in regard to economic growth. Levine (2005) explains that financial systems can influence saving rates, investment decisions, technological innovation, and consequently, long-run growth rates. Since there are large costs associated with making investment decisions, investors will be reluctant to invest in activities about which there is little reliable

information. Additionally, the costs of gathering information, enforcing contracts, and conducting transactions, create incentives for the emergence of specific types of financial contracts and contracts. Thus, high information costs in the host country may keep capital from flowing to its economy and might also determine what kind of FDI the country attracts. Easterly and Levine (1997) argue that Africa's poor growth is associated with low schooling, political instability, underdeveloped financial systems, distorted foreign exchange markets, and insufficient infrastructure. These factors can in turn depress the rates of investment.

Todaro and Smith (2011: pp. 688-691) lists a couple of arguments against FDI, that are mostly linked to widening gaps – such as widening wage differentials between modern-sector workers and the rest, worsening the imbalance between rural and urban economic opportunities, and that FDI generally favors a small, rich minority of the local population and foreign consumers. They also refer to a "race to the bottom" concerning MNEs using their economic power to influence government policies in directions unfavorable to development. Moreover, they argue that it is difficult for a majority of developing countries, especially the smaller and the least developed ones, to attempt to bargain with powerful MNEs. The success of China in negotiating better deals with MNEs regarding technology transfer and taxation has had limited applicability elsewhere because no developing country has China's combination of great size and strong central government authority.

Some studies confirm the arguments put forth by Todaro and Smith (2011: pp. 688-591) concerning the "race to the bottom" in government policies and institutions in general. For example, Madsen (2009) examines the effect FDI has on public policy, and more specifically on environmental regulation. He argues that governments face a clear trade-off between attracting investment and protecting local environments. In other words, if a government seeks to attract corporate investment, it will have no choice but to set lax environmental policies. He finds that environmental regulation has a larger effect on what kind of firms invest in a country than on the aggregate amount of investment. This suggests that policymakers discourage investment that has higher environmental standards by setting lax environmental policies and instead attracts firms that will exploit the local environment and ultimately lead to environmental degradation.

Another example of this is a study conducted by Demir (2016), who examines the effects of bilateral FDI flows on institutional development and analyzes further if it matters whether the

investments are from developed or developing countries. The empirical results are based on bilateral flows among 134 countries during 1990-2009. Demir finds no significant effect of aggregate North-South FDI flows on host country institutions, while aggregate South-South FDI is found to have a negative effect on host country institutions. In addition, some evidence suggests that South-South FDI flows may be harmful to institutional development in host countries, while the opposite is true for North-South flows. This is argued to be because Northern investments are known to push for strong conditionality requirements in their economic exchanges with foreign governments involving trade policy, business environment, transparency, and rule of law. In addition, Southern investments are argued to have weaker horizontal spillover effects (i.e., demonstration and professionalization effect) on domestic firms. Although Northern investment is regarded to be "better", increasing FDI flows from both North and South may worsen institutional quality through other transmission channels. For example, the increased flows may broaden the pool of money available for bribery, domestic market access, or natural resources access.

Ahmed, Ghani, Mohamad, and Derus (2015) find both negative and positive effects of FDI when analyzing its effect on the aggregate economy and the sectoral level in Uganda, using data from 1992 to 2012. They find that on a sectoral level there have been crowding-in and crowding-out effects. More specifically, they find that there is a persistent crowding-out effect in the agriculture and construction sectors, while a consistent crowding-in effect is found in the mining, wholesale, and manufacturing sectors. What the ultimate effect is, is impossible to say without knowing factors such as the additional job opportunities created through competition effect and/or price effects. However, individuals living in poverty tend to be dependent on agricultural firms, which means that a displacement of those will be particularly harmful to them, especially if they remain unemployed.

3.2.1   Summary: The Effects of Foreign Direct Investment

To summarize, several studies find that the effects of FDI are dependent on several other factors: such as volatility, institutional setting, and which sector the investment targets. There seems to be an agreement that FDI must be attracted to sectors that have larger employment impact, preferably not the primary sector, which is argued to be the reason why the benefits of FDI have had a limited effect on employment and per capita incomes in SSA. In addition, it is found that primary sector FDI has no strong linkages to macroeconomic stability, level of

development, or institutional quality - which are argued to be important determinants in attracting larger inflows of FDI. These findings are in line with the framework proposed by Abramovitz (1986), meaning that the effects are determined by the social capabilities of the host country. Some studies support the argument that FDI might not be as beneficial as one would think, where a "race to the bottom" in government policies and institutional development is referred to. It is found that: i) governments face a trade-off between attracting investment and protecting local environments, ii) FDI flows may worsen institutional quality, and iii) South-South FDI flows are harmful to institutional development in host countries, iv) Southern investment has weaker horizontal spillover effects, and v) FDI has both crowding-in and crowding-out effects.

3.3   The Effects of Foreign Direct Investment on Poverty and Human Development

The empirical literature on the direct impact FDI has on poverty reduction and human development is limited and the findings are mixed. While some find positive effects, others find negative and insignificant effects. This section will discuss the empirical literature and studies on the impact of FDI on welfare. It will begin with presenting the positive results, followed by the negative and insignificant results.

Some studies confirm the positive relationship between FDI and poverty reduction and human development, these include Calvo and Hernandez (2006), Reiter and Steensma (2010), Gohou and Soumare (2012), and Fowowe and Shuaibu (2014).

Calvo & Hernandez (2006) investigated the effect of FDI on poverty in Latin America between 1984 and 1998, using the poverty headcount and poverty gap as dependent variables. They found that the benefits of FDI varied and that it reduces poverty only under certain circumstances. What these conditions entail is unclear. However, they argue that policies designed to attract FDI are not sufficient and do not guarantee the maximization of the benefits FDI brings in theory. Similar to Abramovitz's (1986) social capabilities, Calvo and Hernandez (2006) argue that it is necessary to promote policies aimed at enhancing the "absorptive capacity" of the host country (e.g. educational training), for it to be able to absorb spillovers. They add that advanced technology requires skilled labor, which means that

unskilled workers might miss out on the benefits of FDI. This "skill-bias" will therefore affect the poor in particular. It is also found empirically that wages paid by foreign firms are 20 percent higher than the average among local firms, where the gap can be explained by skills – or lack thereof. This means that FDI can exacerbate inequality within the host country. Perkins, Radelet, and Lindauer (2006: p.80) also emphasize the necessity of enhancing the host country's absorptive capacity. They argue that both increased levels and improved quality of education should translate into a more highly skilled workforce and increased productivity. This will eventually attract new investment and thereby contribute to capital accumulation as well.

Reiter and Steensma (2010) carried out a study, using data from 49 developing countries over the time period of 1980 to 2015, with HDI as their dependent variable. They found that FDI had a strong, positive effect on human development if foreign investors were restricted from entering some economic sectors and when there is discrimination against foreign investors relative to domestic investors. However, it is argued that FDI does not with certainty promote economic growth in developing countries. While it may contribute to a country's development by providing capital and jobs and through spillover effects, it may also increase industry concentration, drive out domestic firms and suppress spillovers in absence of policies that do not promote development. Additionally, they found that FDI inflows decreased improvement in HDI when corruption was high.

Gohou and Soumaré (2012) examine if FDI reduces poverty in Africa and if there are regional differences in its impact on welfare. The study uses a sample of 52 African countries over the time period 1990-2007, with HDI and real GDP per capita as dependent variables. While they find a strong positive relationship between FDI and welfare improvements in Africa as a whole, they also find that the impact on welfare differs for various African regions. The results suggest that FDI has a greater impact on poverty reduction the poorer and less developed the country is - although richer countries benefit more in absolute terms.

Fowowe and Shuaibu (2014) analyzed the impact FDI has on poverty in 30 selected African countries over the time period 1981-2011. The dependent variable used is the poverty headcount ratio, measured as the proportion of people living under $1.25 a day. They found that FDI has significantly contributed to poverty reduction in African countries, and similar to

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Gouhou and Soumare (2012) they found that FDI has greater impact on poverty reduction in countries with higher levels of poverty.

Apart from studies that have found positive effects of FDI on poverty reduction, there are also a few studies that have found negative or insignificant effects. Among these are Huang *et al.* (2010), and Ogunniyi and Igberi (2014).

Huang, Teng, and Tsai (2010) investigated the effect of FDI on poverty by examining how the mean income of the poorest quintile of the population was affected by both inward and outward FDI. The study used 12 countries from East Asia, South Asia, and Latin America between 1970 and 2005. Their study found that the inflow of FDI has a negative effect on the mean income of the poorest quintile, implying that FDI is not poverty-reducing - but rather the opposite. They argue that the expected benefits of FDI inflows bypass low-income workers through exacerbating income inequality.

Ogunniyi and Igberi (2014) found insignificant results when investigating the impact of FDI on poverty in Nigeria. The study covered the period of 1980-2012. They used real income per capita as the dependent variable. Although having results that show positive but not significant impact of FDI on reducing poverty in the country, they argue that it may be due to the underdevelopment of human capital, backward institutions, crowding-out of domestic investment (i.e. foreign investment substituting domestic investment, instead of complementing) or other unobserved factors.

3.3.1   Summary: The Effects of Foreign Direct Investment on Poverty and Human Development

As mentioned, the findings on the impact FDI has on poverty reduction and human development are mixed. The positive results suggest that inflows of FDI are not sufficient and do not guarantee the benefits FDI brings in theory. For a host country to be able to absorb the spillovers created by FDI it needs to promote its absorptive capacity/social capabilities, by improving its institutions (such as the quality of education). Policies that are only designed to attract FDI will not automatically lead to increased welfare in the host countries, in fact, Reiter and Steensma (2010) found that FDI inflows decreased improvement in HDI when corruption was high. Other findings suggest that FDI reduces poverty more in poorer and less

developed countries, although richer countries benefit more in absolute terms. The majority of the studies found positive results, but Huang, Teng, and Tsai (2010) found that the inflow of FDI has a negative effect on the mean income of the poorest quintile. Ogunniyi and Igberi (2014) found insignificant results, which they argue be due to the lack of social capabilities proposed by Abramovitz (1986).

4   Data

The following chapter presents the data that have been used and collected in the research. First, an overview is given of how the data has been collected and processed, and later the variables will be more specifically described and critically reviewed. This chapter will critically review the different data sources used to further discuss their reliability, representativity, and validity.

4.1   Source Material

This study makes use of pooled data for a total of 48 countries located in Sub-Saharan Africa, over the time period 1990 to 2019. To conduct the empirical research seven datasets have been used, whereas one contains all the 48 countries, while the rest are distinguished between countries who receive the most and the least FDI, FDI as a percentage of GDP, and FDI per capita. To see more detailed information about which countries are included in each dataset, see Appendix A. The data on which the survey is based is unbalanced panel data. Unbalanced data in simple terms means that there is not complete data for each country for each year and that some variables have more observations, both between countries within the variable and relative to other variables. The lack of complete data is one of the biggest weaknesses of this research, and other studies focused on Sub-Saharan Africa. The lack of data in the region regarding poverty, in particular, but also other development indicators make it difficult to capture the effects of foreign direct investment. Regression analysis in Stata drops all observations that have a missing value for any of the variables used in the model. The issue with lack of data has therefore an impact on the regression results since it affects the reliability of the estimates and increases the risk of finding insignificant results.

4.1.1   Variables

The main variables are used to explain the impact of foreign direct investment on welfare and poverty, are the net inflows of FDI, the HDI, and a number of control variables.

Foreign Direct Investment

FDI is measured by FDI net inflows, which is the sum of equity capital, reinvestment of earnings, and other capital (both long and short term). The data are in current U.S. dollars. I use three FDI variables: i) FDI, ii) FDI as a percentage of GDP, and iii) FDI per capita. The data is gathered from the World Bank database, more specifically from their collection of development indicators which are compiled from officially recognized international sources.

Welfare variables

The variables that were initially chosen to reflect poverty were the poverty headcount ratio and the poverty gap at the levels of $1.9/day, $3.20/day, and $5.20/day. The data on these poverty measures are gathered from the World Bank database. The poverty headcount ratio is the share of people living below the poverty line while the poverty gap is a ratio showing the mean shortfall in income or consumption of the total population from the poverty line. The poverty gap reflects the intensity and the depth of poverty in a nation by considering how far, on average, the poor are from the poverty line. As mentioned above, three poverty lines are included to examine if FDI has a different effect on different levels of poverty. However, these poverty measures are not recorded annually and lack a lot of observations. Therefore, this limitation leads me to not being able to use these measures in the empirical analysis.

Instead, the dependent variable measuring welfare in this research is the Human Development Index. As defined by the UNDP, HDI is a summary measure of average achievement in three dimensions of human development: health, education, and standard of living. The health dimension is measured by life expectancy at birth. Education is measured by expected years of schooling for children of school entering age, and mean years of schooling of the adult population (adults above 25 years old). The standard of living is measured by the gross national income (GNI) per capita. The data on HDI is gathered from UNDP.

There are limitations in using HDI to measure poverty since it does not directly measure poverty and simplifies and captures only part of what development entails. Therefore, the results of estimations using HDI cannot be used to make conclusions about poverty. Moreover, HDI has been criticized for being redundant, being full of measurement errors, and having an inappropriate treatment of income (Fowowe & Shuaibu, 2014). However, as Gohou and Soumare (2012) argue, it is available on an annual basis which is highly valued when examining welfare in Sub-Saharan Africa, due to the lack of data covering the region.

Additionally, it is widely used when examining the relationship between FDI and development, and poverty reduction in SSA (e.g. Reiter & Steensma, 2010; Gohou & Soumare, 2012).

Control variables
The control variables that were chosen aim to consider economic and policy factors, business environment, and institutional quality.

GDP/POP: GDP per capita is a measure of average income, which is important when examining individual demand and is thus a proxy for overall economic demand. The issue with GDP per capita is that it does not show detailed income distribution, which is an even bigger issue when examining Sub-Saharan Africa due to its high inequality levels. Apart from that, there are huge issues with SSA estimates of GDP and their statistical capacity, in that they are unreliable, incomplete, error-ridden, inconsistent, and sometimes even contradictory (Jerven, 2013). The data on GDP per capita was gathered from the World Bank's Development Indicators.

CPI: The Corruption Perception Index (CPI) of Transparency International, is used as a proxy for institutional quality. As with all indices, the CPI has limitations as well due to its nature of generalizing and ranking countries. Hough (2016) mentions three flaws with the measurement: i) corruption is too complex to be captured by a single score, and that different regions within a country have different levels of corruption; ii) it does not measure corruption directly, but rather a perception of corruption which may lead to the index reinforcing stereotypes; iii) the index only measures the public sector corruption and not the private sector corruption, which leads to a large number of corrupt actions being ignored. Moreover, Louis (2007) mentions that the key challenge of the index is that it cannot capture and detect corruptive practices in less transparent contexts. However, it is difficult to measure institutional quality and scholars are overall not in consensus regarding what "bad" and "good" institutions entail, which makes it difficult to find good proxies for institutional quality.

OPENNESS: The ratio of trade (imports + exports) to GDP is often used as a measure of the openness of an economy or interpreted as trade restrictions, which I do in my study as well. The data was obtained from the World Bank's Development Indicators.

TELSUB: The data on fixed telephone subscriptions per 100 people is used to measure infrastructure development, which in the literature leads to improved standards of living. However, as Demir (2016) explains, a good measure of infrastructure should take both the availability and reliability of infrastructure into account. This measure only takes the availability aspect of infrastructure into account, which limits the measurement a lot since the reliability of infrastructure (e.g. how often the telephone lines are down) to be of more importance to foreign investors. It is therefore an imperfect and limited proxy of infrastructure development. The data was obtained from the World Bank's Development Indicators.

DEBT (omitted): Originally, I intended to use total government debt as a ratio of GDP as a measure of macroeconomic stability, as a stable macroeconomic environment is found to be a determinant of FDI. However, due to the inefficiency of the regressions when the variable was included as several variables were omitted due to collinearity, *DEBT* was excluded from the model. Therefore, my study lacks a variable controlling for macroeconomic stability. The data on the total debt-GDP ratio was gathered from World Bank's Development Indicators.

Table 1. *The variables: descriptions and sources of data*

Variable	Description	Source
PHR $1.90	Poverty headcount ratio: proportion of people living on <$1.90 a day	WDIs
PHR $3.20	Poverty headcount ratio: proportion of people living on <$3.20 a day	WDIs
PHR $5.50	Poverty headcount ratio: proportion of people living on <$5.50 a day	WDIs
PG $1.90	Poverty gap: mean shortfall in income or consumption from the poverty line $1.90 a day	WDIs
PG $3.20	Poverty gap: mean shortfall in income or consumption from the poverty line $3.20 a day	WDIs
PG $5.50	Poverty gap: mean shortfall in income or consumption from the poverty line $5.50 a day	WDIs
HDI	Human Development Index, score between 0-1. 0 being the "least developed", 1 being the "most developed".	UNDP
FDI	Foreign Direct Investment	WDIs
FDI/GDP	Foreign Direct Investment as a ratio of GDP	WDIs
FDI/POP	Foreign Direct Investment per capita	WDIs
GDP/POP	Real Gross Domestic Product per capita	WDIs
CPI	Corruption Perceptions Index, score between 0-100. 0 being "the most corrupt" and 100 being "the least corrupt"	Transparency International
OPENNESS	The ratio of trade (imports + exports) to GDP	WDIs
TELSUB	Fixed telephone subscriptions per 100 people	WDIs

5   Methodology

This chapter describes the models used in my study, with the previous research and theory as background. The purpose of this study is to examine the effect foreign direct investment has on human development and poverty through a quantitative research method. As mentioned in the previous chapter, the direct poverty measures are not recorded annually and therefore lack a lot of observations. This makes me unable to use them in the main empirical analysis. However, they are used to examine if there is any relationship or correlation between the FDI variables and the poverty variables. This is done with a fixed effects method. Although, this chapter will primarily focus on the main model specification, examining the effect FDI has on HDI – which is done through generalized method of moments method (GMM). Moreover, the weaknesses and limitations of the methods used will be discussed. As with all non-experimental quantitative studies, the primary weakness is the difficulty of drawing a causal relationship between the examined variables, even though the analysis may give a general quantifiable relationship. The chapter ends with regression diagnostics.

5.1   Model Specification

The following section will present the models used to examine the effect of FDI on welfare. First, the model used to examine if there is a relationship between FDI and the poverty measures is presented. Second, the main model examining the effect of FDI on HDI will be presented, which is the model this research is based upon.

5.1.1   Fixed Effects

The first model examines the relationship between the FDI variables and the poverty variables with a simple fixed effects model. Since the aim is to examine the simple relationship between the variables, no control variables have been used. The baseline model can be written as:

$$Poverty_{it} = \beta_0 + \beta_1 FDIv_{it} + \varepsilon_{it} \tag{1}$$

where *i* refers to the recipient country and *t* describes the time period. The dependent variable, *Poverty,* represent the different poverty variables: i) PHR \$1.90, ii) PHR \$3.20, iii) PHR \$5.50, iv) PG \$1.90, v) PG \$3.20, and vi) PG \$5.50. The independent variable, *FDIv,* represents the different FDI variables: i) FDI, ii) FDI/POP, and iii) FDI/GDP. ε_{it} stands for the error term of the regression. When making comparisons between countries, it is appropriate to keep in mind that there may be country-specific and time-specific effects, and if so, the error term looks as follows:

$$\varepsilon_{it} = a_i + u_{it} \tag{2}$$

which is a composition consisting of a random component, a_i, which is the country-specific effect, which is constant over time but varies between countries, and u_{it} which is the effect of a predictor which is assumed to be the same in all subgroups, in this case, host countries. The unobserved random component (also called the unobserved effect) is only included if it is uncorrelated with the independent variable (Wooldridge, 2012: pp. 484-497). This condition is tested through a Hausman test to see if which method is more appropriate and efficient: the random effects or fixed effect method. The null hypothesis was rejected, which means that the fixed effect method is the most appropriate. This means that there was a correlation between the independent variable and the country-specific effect. The fixed effects method is widely seen as a more convincing tool for estimating *ceteris paribus* effects. The fixed effects model's main feature is that it eliminates the influence of time-invariant factors from the equation, which is achieved through a within-transformation. It subtracts the value of each observation from the series' mean value. Mathematically, this yields the same result as including a dummy variable for each country. Conclusively, the regression model lands in a fixed effects model, which therefore looks as follows:

$$Poverty_{it} = \beta_0 + \beta_1 FDIv_{it} + u_{it} \tag{3}$$

However, it is important to have in mind that the estimates produced by the regressions of this model are highly limited and do not show any causal effects of FDI on poverty. It does not give a general quantifiable relationship either but rather suggests if there may be a relationship between the variables or not. There are several limitations to using the fixed effects method (FE) as well, some of them are listed by Collischon and Eberl (2020). First, FE models are more sensitive to classical measurement errors than any other models. This is

because all of the variances in the model are time-varying and therefore only stem from measurement error. This leads to FE models being more prone to classical measurement error, which in turn can lead to attenuation bias – meaning that the coefficients being biased toward zero. Second, FE estimations are sensitive to reverse causality. The issue of reverse causality is also brought forth by Fowowe and Shuaibu (2014), who explain that given the nature of these variables the risk of reverse causation increases. As poverty decreases, households will boost their spending on products and services, which will increase productivity and attract additional investment (both domestic and foreign). As a result, poverty may have an impact on FDI. The FE model is not capable of capturing simultaneity problems such as these. Dynamic panel estimation methods (such as GMM) are used to overcome reverse causality problems (Collischon & Eberl, 2020). Third, fixed effects regressions have issues with external validity, in other words, the generalizability of the estimates is highly limited outside of the context of that specific study.

However, the fixed effects model is a useful tool to deal with the threat of omitted variable bias and it limits the sources of bias to time-varying variables that correlate with the "treatment" (FDI in this case) as well as the outcome (poverty) over time. Moreover, it is recommended to use if one is not interested in group-level differences (Collischon & Eberl, 2020). When examining the variables (see Appendix B), one can see that the countries in SSA are very heterogeneous. Therefore, it can be of interest to use a within-estimator as it can provide some type of estimations of partial correlation – even though they must be taken with a grain of salt. It is especially useful since the poverty variables cannot be used in the dynamic panel estimations.

5.1.2 Generalized Method of Moments (GMM)

The second model examines the effect of FDI on HDI with a dynamic panel estimation method, more specifically: the GMM method. The model specified is inspired by Gohou and Soumare (2012) and Fowowe and Shuaibu (2014) but differ from the former in that I consider the effect of FDI on HDI, not only on all countries in SSA, but also specifically on countries receiving the most and the least FDI, FDI as a ratio of GDP, and FDI per capita. The dependent variable is log-transformed to remove and/or reduce the skewness of the variable, making the model log-linear. When having a log-linear model the estimated coefficient for the regressors must first be exponentiated to be interpreted. The main model is as follows:

$$logHDI_{it} = \beta_0 + \beta_1 logHDI_{it-1} + \beta_2 FDIv_{it} + \beta_3 GDP/POP_{it} + \beta_4 CPI_{it} +$$

$$\beta_5 OPENNESS_{it} + \beta_6 TELSUB_{it} + \mu_i + d_t + \varepsilon_{it} \qquad\qquad (4)$$

where i refers to the recipient country and t describes the time period. The dependent variable is HDI, and $logHDI_{it-1}$ is the lagged dependent variable. It is the lagged dependent variable that makes the model dynamic. The independent variable, $FDIv$, represents the different FDI variables: i) FDI, ii) FDI/POP, and iii) FDI/GDP. Lastly, the control variables are GDP/POP, CPI, $OPENNESS$ and, $TELSUB$. Moreover, μ_i, is the country-specific, d_t is a time dummy, and ε_{it} is the error term. Due to the lagged dependent variable being a regressor in the model, the instruments are lagged 3 years to avoid correlation between the instruments and the error term (Fowowe & Shuaibu, 2014).

There are tests to perform when choosing between a Difference or System GMM specification. Bond *et al.* (2001) proposes a rule-of-thumb, which is that the dynamic model should initially be estimated by pooled OLS and fixed effects model. The pooled OLS estimate is considered to be an upper-bound estimate, while the fixed effects estimate is considered to be lower-bound. If the difference GMM estimate obtained I close to, or below, the fixed effects estimate it suggests that the former estimate is downward biased because of weak instrumentation. In that case, System GMM is preferred.

This study relies on the System GMM estimator, based on the works of Blundell and Bond (1998) and Roodman (2009). GMM controls for endogeneity of the lagged dependent variable in a dynamic panel model, meaning when there is correlation between the independent variable and the error term in a model. It also controls for omitted variable bias, unobserved panel heterogeneity, and measurement errors. This model is suited for: i) when your data has few time periods but many countries (i.e., "small T, large N" panels), ii) independent variables that are not strictly exogenous (meaning that they are correlated with the past and possibly current realizations of the error term), iii) arbitrarily distributed fixed effects, iv) heteroscedasticity and autocorrelation within, but not between, panels or groups (in this case countries) (Roodman, 2009). System GMM uses orthogonal deviations, meaning that instead of subtracting the previous observation from the contemporaneous one, it subtracts the average of all future available observations of a variable. No matter how many gaps, it is computable for all observations except the last for each individual. This minimizes data loss. All of the estimations in this study uses the two-step System GMM, as it is more efficient and robust to heteroscedasticity and autocorrelation.

There are some limitations and challenges to this model as well. The GMM estimators are complicated and can therefore easily generate invalid estimates. In addition, too many instruments weaken the Sargan and Hansen test, which may yield implausible p-values. Results can also easily be biased if the instruments outnumber individual units in the panel.

5.2   Regression Diagnostic

This section presents the series of tests performed to test and check the properties of the variables and thus the quality of the models. All econometric tests are performed in the program Stata.

All the variables used in both models have been tested for stationarity by using a Fisher-type unit-root test, which is the Augmented Dickey-Fuller test – since it is adjusted to best suit unbalanced data. The null hypothesis of this test is that all panels contain a unit root, which could be rejected for all variables except GDP per capita (*GDP/POP*). To transform the non-stationary variable to being stationary, I attempted to both log-transform the variable and lag at different levels, but the variable remained non-stationary. The issue with non-stationary variables is that it can lead to the problem of spurious regression, where the estimated results suggest that there are statistically significant relationships between the variables in the regression, when in fact there may be evidence of contemporaneous correlations instead of causal effect (Westerlund, 2005: p. 201).

Moreover, the variables used in the second model are tested for exogeneity with the Hansen J-statistics of overidentifying restrictions. The null hypothesis, that the variables are exogenous, was failed to be rejected – indicating that the instruments used in the models as a group are exogenous. In addition, all regressions have been performed with the sub-options "robust" and "orthogonal". The former one yields robust standard errors, while the latter requests forward-orthogonal transformation instead of first-differencing, which leaves the errors serially uncorrelated. The first model uses robust standard errors as well.

Lastly, a test the Breusch-Pagan-Godfrey test is performed to test for heteroscedasticity of the errors in the regressions. The null hypothesis that the error variances are all equal (i.e., constant variance) was rejected, resulting in heteroscedasticity. The weakness of heteroscedasticity is that it makes the coefficient estimates less precise and tends to produce

p-values smaller than they should be. Although GMM is robust to heteroscedasticity, there is uncertainty about if it only occurs within the countries and not between.

6 Empirical Analysis

The following chapter presents the results of the research, which are divided into two: a statistical and regression analysis. First and foremost, the chapter will begin with presenting the descriptive statistics over the variables that have been used, followed by a correlation matrix. The following section presents the tests performed when estimating the quality of each model relative to the other models, which is done in an attempt in selecting the most appropriate FDI measure. This is followed by an overview of how FDI is allocated, to see if there is a special pattern in choosing which host countries have received the most foreign investment. Later, the focus shifts to the main area of the study: the effect of FDI on human development and poverty. In the regression diagnostics, the quality of both the models and the regression results are discussed. The results are then presented and interpreted. Finally, the results are analyzed and discussed.

6.1 Statistics

This section is divided into two subsections. First, a summary of the variables is presented in tables. This is followed by a table over the FDI measure selection criteria is presented. Second, the tables over the countries that have had the largest and the smallest FDI inflows are presented and briefly discussed.

6.1.1   Variables

Table 2. Descriptive statistics for Sub-Saharan Africa, 1980-2019

Variable	Obs.	Mean	Std. Dev.	Min	Max
PHR $1.90	182	46.87	22.56	.2	94.3
PHR $3.20	182	68.70	21.76	1.1	98.5
PHR $5.50	181	84.19	17.52	5.2	100
PG $1.90	182	19.80	13.33	0	64.1
PG $3.20	182	35.78	16.51	.4	77.4
PG $5.50	181	53.44	17.45	1.5	100
HDI	1 204	.47	.11	.192	.804
FDI	1 440	426.84	1 136.12	-7 397.29	10 028.22
FDI/GDP	1 356	3.97	9.04	-11.62	161.82
FDI/POP	1 401	80.42	303.08	-922.21	6 944.37
GDP/POP	1,44	.002	.003	0	.021
CPI	825	30.62	11.75	6.9	66
OPENNESS	1 271	69.05	35.44	11.09	311.35
TELSUB	1 389	2.53	5.21	0	36.13

Note: FDI is stated in millions in current USD. The poverty headcount ratio (*PHR*) and the poverty gap (*PG*) are stated in percent. The *HDI* and *CPI* are indices. *HDI* ranges from 0 to 1, where 0 refers to "least developed" and 1 refers to "most developed" regarding human development. *CPI* ranges from 0 to 100, where 0 refers to "most corrupt" and 1 refers to "least corrupt".

A conclusion that can be drawn by looking at table 2 is that the countries in Sub-Saharan Africa are far from homogenous. Extreme poverty ($1.90/day) measured by the poverty headcount ratio and poverty gap ranges from 0.2 to 94.3, and respectively 0 to 64.1 – with the mean being 46.87 and 19.80. Looking at HDI, the variable ranges from 0.11 to 0.804, with the average value being 0.47. FDI has an average inflow of 426.84 million USD, but the maximum inflow of 10 028.22 million USD – which is over 20 times more in comparison. Thus, there are extreme differences between the countries and the mean values as well. While some countries have very high HDI scores and almost no poverty, some countries have the complete opposite. The same goes for all other variables. Additionally, what can also be seen is that the CPI is quite low, even though the highest value is 66 (score belonging to Seychelles), the mean value is 30.62. This reflects Sub-Saharan Africa's low quality of governance.

Table 3. *FDI measure selection criteria*

Variable	Model 1	Model 2	Model 3
FDI	3.32e-05*		
	(1.79e-05)		
FDI/GDP		0.00282	
		(0.00170)	
FDI/POP			4.68e-05
			(2.99e-05)
Constant	-0.800***	-0.794***	-0.788***
	(0.00860)	(0.00655)	(0.00261)
Diagnostic tests			
AIC	-1603.347	-1518.834	-1513.102
BIC	-1601.54	-1517.028	-1511.295
L-L	802.6734	760.4172	757.5508
Observations	1,204	1,177	1,191
R^2	0.060	0.021	0.007
Number of country	45	45	45

Note: logHDI is the dependent variable in the three models and the estimations are carried out using fixed effects. AIC is the Akaike information criterion, BIC is the Bayesian information criterion, and L-L denotes the log-likelihood function.
Robust standard errors in parentheses. Significance level: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 3 presents a Goodness-of-Fit test, which is made in order to decide which FDI variable is more appropriate to use in the model. These tests are performed to estimate the quality of each model and to prevent the risk of overfitting. Both Akaike information criterion (AIC) and Bayesian information (BIC) are performed, the main difference between the two is that the BIC considers the number of observations in the formula. Lower AIC and BIC values indicate a better model. Therefore, the FDI/POP variable is chosen as the explanatory variable

Table 4. *Correlation matrix for Sub-Saharan Africa, 1980-2019*

	logHDI	*logHDI$_{t-1}$*	*FDI/POP*	*GDP/POP*	*CPI*	*OPENNESS*	*TELSUB*	*YEAR*
logHDI	1.0000							
logHDI$_{t-1}$	0.9981	1.0000						
FDI/POP	0.3678	0.3655	1.0000					
GDP/POP	0.7033	0.7013	0.5672	1.0000				
CPI	0.6164	0.6157	0.2195	0.4157	1.0000			
OPENNESS	0.3893	0.3908	0.4228	0.4928	0.3319	1.0000		
TELSUB	0.6465	0.6433	0.3939	0.5985	0.6001	0.3431	1.0000	
YEAR	0.2863	0.2786	0.0599	0.0266	0.0553	-0.0105	-0.0643	1.0000

As can be seen in table 4, there is a high correlation between some of the variables used in the regressions. It is interesting to see that FDI per capita has a small correlation with the welfare variable, relatively to the other control variables (such as *CPI* and *TELSUB)*. It can also be seen that GDP per capita has a large correlation with FDI per capita, which suggests a relationship between the two variables.

However, correlation matrices can be used to control multicollinearity as well. Multicollinearity exists when an independent variable is highly correlated with one or more of the other independent variables. Since multicollinearity is almost always present in regressions, it is rather a question of what degree of multicollinearity exists and how severe it is (Wooldridge, 2015: pp. 94-95). The problem with multicollinearity is that it can increase the variance of the coefficient estimates and make them very sensitive to minor changes in the model, and overall undermine the statistical significance of an independent variable. In other words, the coefficient estimates produced by the regressions may be unstable and difficult to interpret. A rule of thumb regarding a critical value for severe multicollinearity is when the value exceeds the threshold of 0.7 (Dormann *et al.*, 2012). Another indication of this is when the R^2 value approaches 1. As can be seen in the matrix above, the correlation between independent variables is below 0.7. However, the correlation between them is high, meaning that the risk of multicollinearity cannot be fully dismissed.

6.1.2   Foreign Direct Investment Allocation

In the following section an overview of the allocation of FDI will be presented, where the host countries that have received the most and the least will be ranked. It is found that depending on the FDI measure, different host countries are ranked as the top and bottom receivers. This will be followed by a brief discussion.

Table 5. Countries receiving the most and least foreign direct investment 1990-2019, total

TOP		BOTTOM	
Country, ranked high-low	*FDI, millions*	*Country, ranked low-high*	*FDI, millions*
Nigeria	97324.29	Angola	-1349.97
South Africa	93413.47	South Sudan	-808.94
Ghana	41437.84	Comoros	107.09
Mozambique	41266.68	Burundi	276.99
Congo, Rep.	30286.81	Guinea-Bissau	318.79
Sudan	28613.44	Sao Tome and Principe	486.51
Ethiopia	24845.25	Central Africa Republic	544.24
Congo, Dem. Rep.	21276.87	The Gambia	946.82
Tanzania	21243.03	Eritrea	973.57

Note: the FDI is stated in current USD.

Source: The data is compiled from The World Bank's World Development Indicators.

Table 6. Countries receiving the most and least foreign direct investment per capita 1990-2019, total

TOP		BOTTOM	
Country, ranked high-low	*FDI, millions*	*Country, ranked low-high*	*FDI, millions*
Seychelles	36510.07	South Sudan	-76.62
Equatorial Guinea	17472.65	Burundi	29.50
Gabon	6645.80	Central African Republic	126.08
Guinea	6563.08	Comoros	153.65
Namibia	4928.49	Burkina Faso	167.67
Mauritius	4715.42	Cabo Verde	207.83
Cabo Verde	4496.47	Eritrea	208.33
Botswana	3201.24	Benin	214.07
Liberia	3068.17	Somalia	233.61
Sao Tome & Principe	2691.03	Malawi	237.42

Note: the FDI is stated in current USD

Source: The data is compiled from The World Bank's World Development Indicators.

Table 7. *Countries receiving the most and least foreign direct investment (% GDP) 1990-2019, total*

1990				2000			
TOP		**BOTTOM**		**TOP**		**BOTTOM**	
Country	*%GDP*	*Country*	*%GDP*	*Country*	*%GDP*	*Country*	*%GDP*
Equatorial Guinea	9.9	Angola	-3.0	Equatorial Guinea	14.8	Congo, Rep.	-3.0
Zambia	6.2	Cameroon	-1.0	Angola	9.6	Benin	-0.4
Seychelles	5.5	Sudan	-0.3	Chad	8.3	Comoros	0.0
Sierra	5.0	Congo, Dem. Rep.	-0.2	Cabo Verde	6.3	Central African Rep.	0.1
Leone	4.5	Benin	-0.2	Sierra Leone	6.1	Guinea-Bissau	0.2
Gambia, The	2.8	Zimbabwe	-0.1	Mauritius	5.7	Guinea	0.3
Lesotho	2.7	Uganda	-0.1	Gambia, The	5.6	Zimbabwe	0.3
Eswatini	2.5	South Africa	-0.1	Gabon	5.5	Rwanda	0.4
				Eswatini	5.2	Congo, Dem. Rep.	0.5
		.		Namibia	5.1	Somalia	0.6

2010				2019			
TOP		**BOTTOM**		**TOP**		**BOTTOM**	
Country	*%GDP*	*Country*	*%GDP*	*Country*	*%GDP*	*Country*	*%GDP*
Liberia	103.3	Angola	-3.9	Liberia	103.3	Mauritania	-11.6
Sao Tome & Principe	25.7	Burundi	0.0	Sao Tome & Principe	25.7	Angola	-4.6
Equatorial Guinea	16.8	Burkina Faso	0.4	Equatorial Guinea	16.8	Namibia	-1.4
Seychelles	16.5	Lesotho	0.4	Seychelles	16.5	South Sudan	0.0
Congo, Dem. Rep.	12.7	Kenya	0.4	Congo, Dem. Rep.	12.7	Burundi	0.0
Congo, Rep.	11.6	Benin	0.6	Congo, Rep.	11.6	Comoros	0.3
Mozambique	11.3	Somalia	0.6	Mozambique	11.3	Guinea	0.4
Niger	10.1	Comoros	0.9	Niger	10.1	Nigeria	0.7
Sierra Leone	9.2	Ethiopia	1.0	Sierra Leone	9.2	Central African Rep.	1.2
Madagascar	9.1	South Africa	1.0	Madagascar	9.1		
		Zimbabwe	1.0				

Note: the FDI is stated in current USD and the value is a ratio of the host country's GDP.
Source: The data is compiled from The World Bank's World Development Indicators.

Table 8. *Resource-rich countries in Sub-Saharan Africa, ranked*

Country	% GDP	Country	% GDP
Congo, Rep.	47.9	Congo, Dem. Rep.	10.8
Equatorial Guinea	30.9	Burundi	9.2
Eritrea	27.0	Nigeria	9.2
Angola	26.2	Guinea-Bissau	8.6
Chad	21.1	Central African Republic	8.3
Gabon	20.9	Ghana	7.8
Somalia	13.5	Zambia	6.4
Sierra Leone	13.2	Uganda	6.1
Mauritania	12.8	Sudan	5.8
Liberia	12.4	Cameroon	5.5
Mozambique	11.3	Niger	5.2
South Sudan	11.2	Malawi	5.1

Note: Resource-rich countries are those with average annual rents from natural resources that exceed 5 percent of GDP in 2019.
Source: Ranking is based on data from The World Bank's World Development Indicators, with values from 2019.

Table 9. *Fragile and conflict-affected countries in Sub-Saharan Africa*

Burundi	Liberia
Central African Republic	Madagascar
Chad	Malawi
Comoros	Mali
Congo, Dem. Rep.	Sierra Leone
Congo, Rep.	Sudan
Cote d'Ivoire	Togo
Guinea-Bissau	Zimbabwe

Note: Defined as countries having either a harmonized average CPIA[1] rating of 3.2 or less, or presence of UN and/or regional peace-keeping or peace-building mission during the past three years.
Source: World Bank. (2014). Sustaining Economic Growth in Africa: State of the Africa region, World Bank – IMF Spring Meetings 2014. Available here.

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[1] The Country Policy and Institutional Assessment (CPIA) rates countries against a set of 16 criteria grouped in four clusters: i) economic management, ii) structural policies, iii) policies for social inclusion and equity, and iv) public sector management and institutions (World Bank, 2019a). This measurement is created by the World Bank and is exercised annually. According to the World Bank, the CPIA assess the conduciveness of a country's policy and instutional framework to poverty reduction and growth.

What can be seen from Table 5-7 is that the majority of countries receiving the most FDI are countries that are rich in natural resources (see table 8). For instance, Nigeria, Mozambique, Sudan, Gabon, Equatorial Guinea, Democratic Republic of the Congo, and Republic of the Congo are all countries rich in natural resources. One can also see that many countries that are receiving the least FDI, are countries that are fragile and conflict-ridden (see table 9). For example, Burundi, Comoros, Central African Republic, and South Sudan are among the countries that have received the least FDI, in all measures. Comoros is not listed as resource-rich in table 8, but the other three are. Although South Sudan is not listed as fragile and conflict-affected in the table by the World Bank (which can be because of the country's "newly" independence), it is caught in fragility, economic stagnation, high poverty rates, and instability due to the cumulative effects of years of conflict (World Bank, 2021b). However, there are some other resource-rich countries such as Sudan, Chad, Democratic Republic of the Congo, and Republic of the Congo that are fragile and conflict-affected but are still among the top countries receiving the most FDI. While the statistics regarding the former group suggest that instability may be a FDI determinant, it may not be so in all cases. In contrast, the latter group shows support for the literature arguing that some foreign investments are attracted to countries with poor institutions but that are rich in natural resources.

Looking at table 7, one can see that Democratic Republic of Congo went from being a bottom FDI (%GDP) recipient to a top recipient in 2010 and onwards. This might suggest that the country was too heavily conflict-ridden, due to its civil wars in the late 1990s, to attract large inflows of FDI. Maybe, there is such a thing as having too much conflict despite being resource-rich.

An example of a country that has a large stock of natural resources and is not listed as fragile and conflict-affected, yet still having the lowest inflows of FDI, is Angola. While the reason for Angola being unsuccessful in attracting FDI cannot be derived from its instability due to conflict, a possible explanation might be its macroeconomic instability. The country has one of the highest inflation rates in the region (World Bank, 2019b). The same goes for Somalia, which is in the bottom-ranked list of FDI per capita inflows, although being resource-rich and not listed as conflict-affected either. However, there are also countries that have had large inflows of FDI and high inflation rates, such as Sudan, Ethiopia, Nigeria, and Ghana.

South Africa has received the most FDI in absolute measures, but when measuring FDI as a ratio of GDP, it is among the countries that are ranked lowest (in 2010). This does not mean that the country receives less in relative terms, compared to other countries, but rather suggests that a determining factor in investing in South Africa may be due to its high GDP. In other words, foreign investors seeking to invest in South Africa may be, first and foremost, market-seeking. Especially since South Africa is not as resource-rich as the countries listed in table 8. Both Nigeria, which is ranked as the country that has received the most FDI in total, (and ranked bottom FDI as % of GDP in 2019), and South Africa are the two top countries in Sub-Saharan Africa that have the significantly highest GDP (World Bank, 2019c).

6.2   Results

In the following section, the results will be presented and interpreted. First, the results from specification 1, the simple FE model, will be presented. Second, the main regressions regarding the effect of FDI on HDI will be presented. The results with HDI as dependent variable will be divided into two parts, one where all countries are included, and one where the effect is estimated on top and bottom FDI receivers. The next section will discuss the results further.

6.2.1   Relationship between Foreign Direct Investment and Poverty

Table 10 contains all the results of using fixed effects in estimating the relationship between the different FDI variables and the different poverty variables. It is seen in the regressions, which is surprising, that the effect is both larger and more significant at the poverty line of 1.90 USD a day. In other words, FDI is more poverty-reducing for people living in extreme poverty. If taking the previous research and the theory into account, one would expect FDI to have a smaller impact, if not a negative impact, on the extreme poor – while being more beneficial for people that are "less" poor.

It can also be seen in table 10 that all coefficients are negative, even though FDI per capita being insignificant in all regressions. The only significant variable measuring the effect on the poverty headcount ratio at 5.50 USD a day is FDI in absolute value. However, when investigating the effect of FDI on the poverty headcount ratio, it is very small. For example, if

FDI would increase by one unit (one million in this case), the poverty headcount ratio at $5.50 would decrease by 0.015 percentage points.

However, I will not rely on the estimated values and the quantifiable estimates produced by the regressions. This is because the model is in its most simplified form and thus produces estimates that lack reliability and validity. Therefore, the estimates will only be discussed in terms of "effects" and how large or small they are. It is important to note that the estimates can neither be interpreted as causal effects nor can they be taken as support or evidence of FDI being poverty-reducing. To obtain a more general quantifiable relationship, a more thorough analysis has to be done.

Moreover, FDI as a ratio of GDP has the largest effect on the poverty headcount ratio. Table 11 show similar results to table 10. In table 11, both FDI and FDI (% GDP) are significant in all regressions at least at a 5 percent significance level. Another difference between the two tables is that FDI in table 11 has a, very small, but larger effect on the poverty gap at the $3.20 and $5.50 level, than on the $1.90 level. The results presented in table 10 and table 11 *suggest* that there may be a negative relationship between FDI (in absolute terms and as a ratio of GDP) and poverty. This means that FDI may have poverty-reducing effects.

Table 10. *Relationship between Foreign Direct Investment and the Poverty Headcount Ratio*

VARIABLES	(1) PHR $1.90	(2) PHR $1.90	(3) PHR $1.90	(4) PHR $3.20	(5) PHR $3.20	(6) PHR $3.20	(7) PHR $5.50	(8) PHR $5.50	(9) PHR $5.50
FDI	-0.0026***			-0.0022***			-0.0015**		
	(0.00077)			(0.00075)			(0.00057)		
FDI/GDP		-0.506**			-0.301*			-0.193	
		(0.229)			(0.175)			(0.118)	
FDI/POP			-0.00680			-0.00724			-0.00652
			(0.00584)			(0.00583)			(0.00526)
Constant	48.34***	48.77***	47.35***	69.92***	69.77***	69.21***	85.03***	84.83***	84.63***
	(0.421)	(0.889)	(0.399)	(0.410)	(0.683)	(0.398)	(0.314)	(0.460)	(0.361)
Observations	182	179	181	182	179	181	181	178	180
R^2	0.073	0.036	0.009	0.088	0.022	0.018	0.102	0.023	0.036
Number of country	46	45	46	46	45	46	46	45	46

Note: Robust standard errors in parentheses. Significance level: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 11. Relationship between Foreign Direct Investment and the Poverty Gap

VARIABLES	(1) PG $1.90	(2) PG $1.90	(3) PG $1.90	(4) PG $3.20	(5) PG $3.20	(6) PG $3.20	(7) PG $5.50	(8) PG $5.50	(9) PG $5.50
FDI	-0.0017***			-0.0020***			-0.0019***		
	(0.000487)			(0.000571)			(0.000590)		
FDI/GDP		-0.425***			-0.413**			-0.349**	
		(0.155)			(0.167)			(0.152)	
FDI/POP			-0.00382			-0.00511			-0.00592
			(0.00327)			(0.00434)			(0.00489)
Constant	20.71***	21.40***	20.06***	36.88***	37.32***	36.13***	54.51***	54.71***	53.84***
	(0.267)	(0.603)	(0.223)	(0.314)	(0.649)	(0.296)	(0.326)	(0.595)	(0.335)
Observations	182	179	181	182	179	181	181	178	180
R^2	0.051	0.046	0.005	0.070	0.041	0.009	0.082	0.037	0.014
Number of country	46	45	46	46	45	46	46	45	46

Note: Robust standard errors in parentheses. Significance level: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

6.2.2 Effect of Foreign Direct Investment on Human Development

Table 12 contains the results of the two-step System GMM in estimating the effects of FDI on HDI, using several control variables. Table 12 contains all 48 countries in the sample, so the estimates are for all countries in Sub-Saharan Africa.

The results suggest that FDI per capita has poverty-reducing effect on HDI, where the results imply that a unit (one million) increase in FDI per capita will lead to a decrease in HDI by 0.00271 percent ($e^{-2.71e-05}- 1$). The results imply that FDI per capita leads to a reduction in human development.

It is seen in table 12, that all columns, except for column 6, contain insignificant estimates of FDI. *FDI/POP* is significant at a 10% level in column six. However, as can be seen in the table is that *FDI/POP* changes its coefficient sign along with what control variable is included in the model. This may be a consequence of severe multicollinearity, that the outcome of the regression depends on the interrelation between predictors and outcome. Additionally, the *GDP/POP* shows an implausible coefficient estimate in column 6. The presence of autocorrelation is also supported by the Arellano-Bond test (except for columns 3 and 6). The AR(1) null hypothesis, which tests for the first order of serial correlation, is rejected – meaning that the regressions do not suffer from the first order of serial correlation. The null

hypothesis of AR(2) is that there is an absence of the second-order serial correlation in disturbances, is failed to be rejected in regression 1, 2, 4, and is very low in regression 3. There are no signs of autocorrelation in regression 6 where all variables are included, according to the Arrellano-Bond test.

Table 12. *Effect of Foreign Direct Investment on Human Development in Sub-Saharan Africa, 1990-2019*

Dep. var.: logHDI	(1)	(2)	(3)	(4)	(5)	(6)
logHDI$_{t-1}$	0.976***	0.957***	0.961***	0.884***	0.954***	0.944***
	(0.0215)	(0.0386)	(0.0207)	(0.0505)	(0.0283)	(0.0421)
FDI/POP	1.75e-06	-2.76e-05	1.30e-06	2.34e-05	-4.04e-06	-2.71e-05*
	(1.06e-05)	(3.34e-05)	(5.73e-06)	(2.36e-05)	(7.40e-06)	(1.52e-05)
GDP/POP		3.843				5.252*
		(6.382)				(2.741)
CPI			0.000295			0.000159
			(0.000243)			(0.000280)
OPENNESS				0.000333		-0.000106
				(0.000273)		(0.000108)
TELSUB					0.00104**	-0.000327
					(0.000506)	(0.000820)
Constant	-0.00744	0	0	-1.194	-0.0209	0
	(0.0145)	(0)	(0)	(1.091)	(0.0175)	(0)
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
AR(1) test	[0.002]	[0.003]	[0.008]	[0.003]	[0.004]	[0.018]
AR(2) test	[0.043]	[0.079]	[0.115]	[0.060]	[0.072]	[0.819]
Sargan test	[0.230]	[0.425]	[0.000]	[1.000]	[0.230]	[0.287]
Hansen test	[0.890]	[0.861]	[0.673]	[0.990]	[0.826]	[0.937]
Observations	1,127	1,127	695	975	1,101	670
Number of country	48	48	45	44	48	44

Note: All the instruments have 3 lags, to keep the instruments low in relation to the number of observations. Robust standard errors in parentheses. Significance level: *** p<0.01, ** p<0.05, * p<0.1

The Hansen and Sargan test of over-identifying restrictions tests the null hypotheses of overall validity of the instruments used. Failure to reject these null hypotheses gives support to the choice of the instruments. However, there are reasons to be skeptical when Hansen tests are too high, in Roodman's own words (2009; p.129): "Also, because of the risks, do not take

comfort in a Hansen test p-value below 0.1. View higher values, such as 0.25, as potential signs of trouble". The Hansen test is high in column 6 in Table 12, and when looking at GDP per capita, one can see that the effect is abnormally high. Thus, the results should be interpreted with caution.

Table 13 contains the results of two-step system GMM in estimating the effects of FDI on human development in countries that have had the largest and smallest total net inflows of FDI, measured by: i) FDI, ii) FDI as a ratio of GDP, and iii) FDI per capita.

It is found that FDI per capita has a positive effect on HDI in countries that have received the most FDI, where an increase in a unit (one million) of FDI per capita leads to an increase in HDI by 0.0276 percent. This suggests that FDI per capita is positively related to increased human development in countries that have large inflows of foreign investment. It is also found that FDI per capita harms HDI in countries that have received the most FDI per capita. This means that a unit (one million) increase in FDI per capita leads to a decrease in HDI among the top FDI per capita recipients, by 0.00149 percent. Similar to the results in table 12, the results in table 13, column 5, suggest that FDI per capita leads to a decline in human development.

It is also found that lower levels of corruption, in top FDI recipient countries, and better infrastructure, in top FDI per capita recipient countries, improve human development. Both *CPI* in column 1 and *TELSUB* in column 5 are found to be significant. *CPI* is significant at a 10% level in countries that have received the most FDI, where a unit increase in *CPI* leads to an increase in *HDI* by almost 0.1 percent. *TELSUB* is significant at a 5% level in countries that have received the most FDI per capita. A unit increase in *TELSUB* leads to an increase in *HDI* by almost 0.2 percent. Both corruption and infrastructure have larger effects on HDI compared to FDI, which suggests that they are of more importance regarding improvement in human development in these countries.

Looking at the AR(1) test, several regressions show serial correlation of the first order. However, this is expected due to the lagged dependent term and should generally not be a problem when performing tests in dynamic panel models.

Table 13. *Effect of Foreign Direct Investment on Human Development in countries received most and least FDI in Sub-Saharan Africa, 1990-2019*

Dep. var.: log*HDI*	**(1)** *FDI* top	**(2)** *FDI* bottom	**(3)** *FDI/GDP* top	**(4)** *FDI/GDP* bottom	**(5)** *FDI/POP* top	**(6)** *FDI/POP* bottom
logHDIt-1	0.866***	0.882***	0.918***	0.884***	0.730***	0.628**
	(0.0584)	(0.0238)	(0.0122)	(0.0812)	(0.140)	(0.238)
FDI/POP	0.000276**	7.10e-05	1.23e-05	0.00141	-1.49e-05*	0.000934
	(0.000117)	(6.91e-05)	(1.23e-05)	(0.00132)	(8.97e-06)	(0.000719)
GDP/POP	2.398	15.70	0.647	8.334	1.743	211.1
	(6.265)	(10.55)	(0.514)	(15.69)	(10.24)	(155.0)
CPI	0.000999*	0.00155	0.000407	-0.00212	0.000907	-0.0100
	(0.000540)	(0.00179)	(0.000343)	(0.00357)	(0.000961)	(0.00791)
OPENNESS	-0.000874	-6.34e-05	-3.69e-05	-0.000630	0.000718	0.00327
	(0.000486)	(0.000337)	(0.000133)	(0.00331)	(0.00157)	(0.00252)
TELSUB	0.000582	0.000880	-0.000197	-0.00846	0.00199**	-0.0369
	(0.00346)	(0.00528)	(0.00114)	(0.00812)	(0.000922)	(0.0280)
Constant	0	-0.135**	-0.0611***	-0.00830	-4.304	-1.250
	(0)	(0.0511)	(0.0214)	(0.205)	(2.864)	(3.022)
AR(1) test	[0.123]	[0.032]	[0.066]	[0.291]	[0.209]	[0.019]
AR(2) test	[0.984]	[0.593]	[0.989]	[0.869]	[0.516]	[0.462]
Sargan test	[0.130]	[0.964]	[0.057]	[0.333]	[0.000]	[0.043]
Hansen test	[1.000]	[1.000]	[1.000]	[1.000]	[1.000]	[1.000]
Observations	133	76	71	99	115	64
Number of country	9	7	10	8	10	8

Note: All the instruments have 3 lags, to keep the instruments low in relation to the number of observations.

Robust standard errors in parentheses. Significance level: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

6.3   Discussion

The following chapter will discuss the findings of the research by relating the results to previous research and interpreting them with the theoretical background in mind. First, the results of the findings of the determinants of FDI in SSA will be discussed further. Second, the effect of FDI on poverty and human development found in the regressions will be discussed and compared with previous research and literature. Lastly, the implications of the findings will be considered.

6.3.1   Determinants of Foreign Direct Investment in Sub-Saharan Africa

Similar to the results found by previous research, it is found that a common characteristic for countries that have been relatively successful in attracting FDI is the endowment of natural resources. This suggests that the main motive for foreign investors to invest in SSA is of resource-seeking nature since FDI is concentrated on resource-rich host countries. However, another important determinant might be the size of the host country's economy. As can be seen in Table 14, the majority of countries that have received the most FDI are relatively larger economies in comparison to those that have received the least. Measured in GDP, both Nigeria and South Africa, are the largest economies in SSA and are also the two countries that have had the largest inflows of FDI. This implies that market size and natural resources are two important determinants in attracting FDI, which is in line with Marandu *et al.* (2019), who found that FDI is concentrated on resource-rich and large countries which is the reason why resource-poor and small countries have been unable to attract large FDI inflows. The cases of South Africa, Ethiopia, and Tanzania further confirm the evidence of this, as they are not resource-rich countries but have still managed to attract large inflows of foreign investment. In addition, the cases of Comoros, Sao Tome, and Principe, and Lesotho support the argument made by Marandu *et al.* as well, seeing that they are both resource-poor and small, which may be the reason why they are in the bottom group of FDI recipients.

Taking the theoretical background into account, both the gravity and the OLI model help explain this phenomenon. While the gravity model emphasizes the host country's economic size, as they have larger potential markets, in attracting FDI, the location advantages of the OLI model also underline the attractiveness of access to natural resources.

Table 14: Data over the countries that have had the largest and smallest inflows of FDI in total, 1990-2019.

	GDP	Inflation	Trade	Fragile & conflict affected	Resource-rich
Top FDI COUNTRIES					
Nigeria	448.12	10.4	34		Yes
South Africa	351.43	4.0	59		No
Ghana	66.98	9.2	71		Yes
Mozambique	15.29	4.5	117		Yes
Congo, Rep.	12.27	-0.8	122	Yes	Yes
Sudan	30.51	49.6	17	Yes	Yes
Ethiopia	95.91	12.9	29		No
Congo, Dem. Rep.	50.40	4.7	63	Yes	Yes
Tanzania	63.18	4.6	32		No
Bottom FDI countries					
Angola	88.82	27.2	69		Yes
South Sudan	12	17.7	66	Yes	Yes
Comoros	1.17	2.3	42	Yes	No
Burundi	3.01	0.8	42	Yes	Yes
Guinea-Bissau	1.34	-7.4	57	Yes	Yes
Sao Tome and Principe	0.42	5.7			No
Central African Rep.	2.22	2.4	66	Yes	Yes
Gambia	1.83	7.1	56		Yes
Eritrea	2.07	19.5	47		Yes
Lesotho	2.38	1.6	139		No

Note: The table is compiled of data gathered from the World Bank (World Bank's Development Indicators). *Top FDI countries* are the countries that have received the most FDI in total, during 1990-2019. *Bottom FDI countries* are the countries that have received the least FDI in total, during 1990-2019. The values presented are the most recent values of the countries, which are mainly from 2019 except for some exceptional values that can be from earlier years. Missing values of GDP, inflation, and trade are denoted by empty cells. GDP is measured in millions $USD. Trade is the sum of exports and imports of goods and services measured as a share of GDP, and proxies for openness of the host country. Fragile and conflict-affected is based on Table 9. Resource-rich is based on Table 8. Source: World Bank. (2019). World Development Indicators.

Furthermore, looking at the top FDI recipients in table 14, one can distinguish two other possible common features of the countries that are not resource-rich, which are macroeconomic and political stability. Neither South Africa, Ethiopia, or Tanzania is listed as fragile and conflict-affected nations. Additionally, South Africa and Tanzania have relatively low inflation rates. The table suggests that political and macroeconomic stability matters less when the host country is resource-rich.

When looking at the bottom FDI recipients in table 14, it becomes unclear why a country such as Angola, which has high GDP, is resource-rich, politically stable (in relative terms), and has

a high degree of openness, is unable to attract FDI. One would argue that it may be because of the country's high inflation rates. However, Sudan has almost the double inflation rates and is a highly fragile and conflict-affected country. Additionally, it has a very low value of trade. If foreign investors are attracted to countries with poor institutions but that are rich in natural resources, as suggested by Kolstad and Wiig (2012), is impossible to say.

Generally, the results suggest that the main motive for foreign investors to invest in SSA countries is first and foremost, of resource-seeking nature, and secondly, market-seeking. This might explain why political stability and level of openness might not be of importance. As argued by Aseidu (2002), FDI is not attracted by more openness if the investment is market-seeking, and as found by Aleksynska and Havrylchyk (2013), and Onyeiwu and Shrestha (2004), the negative effect of poor institutions is diminished if the investment is resource-seeking.

It is highly problematic that the primary motive for FDI in SSA is resource-seeking, and therefore concentrated in the primary sectors. As found by several studies (e.g., Walsh and Yu, 2010; World Bank, 2017) primary sector FDI does not have strong linkages to either macroeconomic stability, level of development, institutional quality and has a very limited impact on employment and incomes. This has negative consequences, which will be further discussed in the following sections.

6.3.2   The effect of Foreign Direct Investment on Welfare

When looking at the correlations in the simple FE regressions in table 10 and 11, it can be seen that there is a stronger negative relationship between foreign investments (FDI and FDI as a ratio of GDP) and the lower poverty lines. These results suggest that FDI is better at reducing poverty for people living in extreme poverty than for those living above the poverty line of $1.90 a day. However, when estimating the effect FDI has on HDI, the results show that FDI only improves human development in host countries that have been top FDI recipients. This may be in line with Gohou and Soumaré's (2012) findings: that FDI has a greater impact on poverty reduction the poorer and less developed the country is, but richer countries benefit more in absolute terms. Since HDI takes education, standard of living, and health into account – one can argue that richer countries do benefit more in the long term.

However, it is also found that FDI has a small, negative effect on HDI, or in general insignificant effects. This has been found before by other scholars, such as Huang *et al.* (2010), and Ogunniyi and Igberi (2014). Additionally, the found significant effects, while positive, are also small and have therefore very little marginal effect on human development. This implies that the countries in SSA do not have sufficient social capabilities to absorb the benefits of FDI.

Moreover, both lower levels of corruption and better infrastructure were found to improve HDI much more, compared to FDI. However, these estimates were only significant in countries that are top FDI or FDI per capita recipients. This suggests that institutional development is of more importance for human development than FDI, and may be a more efficient tool for improving welfare. This is an interesting finding, as Reiter and Steensma (2010) found that FDI harmed HDI when corruption levels were high – which may further explain the disappointing results found in my study.

6.3.3 Implications

The results found suggest that FDI alone is not a solution for either poverty or human development in the long run, but that it requires more to reduce poverty and increase human developmental rates. In addition, it is found that lower levels of corruption and better infrastructure have a bigger impact on improving human development, compared to FDI. These arguments are all connected to the theoretical framework proposed by Abramovitz (1986), who argues that a country's potential for development is dependent on its social capabilities, which determines the country's absorptive capacity to absorb the spillovers brought about by FDI. A country's social capabilities are in turn dependent on factors limiting the diffusion of knowledge, the rate of structural change, and economic institutions encouraging and sustaining capital investment and the expansion of demand. This implies that the effect of FDI is determined by some country characteristics, such as the: i) level of human capital, ii) level of industrialization, and iii) level of institutional development.

A country's level of human capital will determine how employable the population is and is particularly important in lifting people out of poverty, as argued by Calvo and Hernandez (2006). If the individuals living in poverty have insufficient human capital, they will not be employed in the first case, which will further trap them in poverty. In addition, the spillover

effects will be highly restricted when only a limited group can benefit from FDI, which can additionally cause crowding-out effects if the primary sector is not capable of creating more job opportunities relative to the lost ones due to displacements of firms caused by FDI. The level of industrialization is important for long-term growth, as argued by Rodrik (2016). Larger FDI inflows can only do so much and will not be sufficient to achieve sustainable growth and development. Especially when they are mainly targeted at the primary sector, which tends to absorb little labor. For the expansion of capital stock to translate into new job opportunities in SSA, structural change is needed. Lastly, the level of institutional development, macroeconomic, financial, and political stability is something several scholars emphasize the importance of (e.g, Easterly & Levine, 1997; Asiedu, 2002; Dupasquier & Osakwe, 2005). Not only to attract more FDI, but to steer investments to more favorable sectors. For example, Walsh and Yu (2010) found that more flexible labor markets and better developed financial institutions attract secondary FDI, and better infrastructure and more independent judiciary attract more tertiary FDI. The consequence of poor financial institutions, political and macroeconomic instability, weak infrastructure, and poor governance is that investors will be reluctant to invest in activities about which there is little reliable information, and activities they perceive as risky. This might explain why SSA is not following the augmented gravity model by Carr *et al.* (2001) either, which suggests that production should in theory be located in places where unskilled labor is cheap. Although the labor may be cheap, the market imperfections and the risky environment make the investment be perceived as costly. This will further lead the investors to be primarily resource-seeking and may exacerbate the exploitation of natural resources. As Dunning's (1988) theoretical framework proposes, the greater the perceived costs due to market imperfections, the more will MNEs exploit their comparative advantage and internalize – which will, in turn, limit the potential spillovers.

To sum up, the study's main findings imply that FDI alone will not be a solution for either poverty reduction or improvements in human development, no matter how large the capital inflows are. If the institutional environment remains risky and unstable, foreign investors will remain resource-seeking and FDI will continue to flow to extractive sectors. This may not only limit the benefits of FDI but might also lead to environmental degradation (as found by Dupasquier and Osakwe, 2005) and exacerbation of the "resource curse" (as suggested by Kolstad & Wiig, 2012). Perhaps the aim should thus not be to attract larger inflows of FDI but to attract them to more favorable sectors and have the necessary preconditions to make the

most out of the FDI. To achieve this, institutional change that encourages a less risky environment and promotes development is necessary. This will ultimately also lead to less shrinking of the economies in SSA, according to Broadberry and Wallis (2017).

7 Conclusion

The purpose of this study was to examine the effect of foreign direct investment on poverty and human development in Sub-Saharan Africa. The study also aimed at finding determinants of FDI that are of most importance in SSA. To measure FDI net inflows, I used FDI, FDI as a ratio of GDP, and FDI per capita. The conclusions that can be drawn from the results are limited, due to the lack of significant estimates but also because of the issues mentioned with the data.

On this basis, I find mixed results regarding the effect of FDI on welfare. When estimating the relationship between FDI and poverty, the results suggest that FDI is more poverty-reducing for the extreme poor. Examining the effect of FDI on human development, I find very weak relationships. When testing for all 48 countries in SSA, it is found that FDI per capita has a small, but negative effect on HDI. When testing for countries that have received the most and the least FDI, it is found that FDI per capita improves human development in top FDI recipient countries, while it harms human development in top FDI per capita recipient countries. However, these effects are small as well.

In contrast, a stronger relationship is found between lower levels of corruption and HDI in top FDI recipient countries, which suggests that less corruption improves human development. Infrastructure is also found to have a stronger relationship with HDI in top FDI per capita recipient countries, where better infrastructure benefits HDI. Having this in mind, one can conclude that there is a stronger relationship between human development and better institutions, compared to higher inflows of foreign investment.

Similar to previous research, it is found that foreign investors are primarily interested in investing in countries with large reserves of natural resources. Another important determinant seems to be the host country's market size. This means that the FDI in SSA is mainly resource- and market-seeking.

These findings have serious implications. As mentioned in the introduction, during 2000-2012 alone, an average of 55 countries in the world adopted a total of 1 082 institutional policy changes in order to promote FDI. In other words, governments in countries in need of capital are ready to go to great lengths to create a more beneficial environment for foreign investors. However, in a context where the main motives for investment in SSA are of market- and resource-seeking nature, what may be a beneficial environment for foreign investors might be harmful to the host country's development. Especially, since resource-seeking FDI is concentrated in extractive sectors that do not absorb much labor and do not promote institutional development. What can be derived from the study is that FDI alone will not reduce poverty and improve human development significantly. To reap the benefits of FDI, the host countries need to increase their social capabilities to be able to better absorb the positive effects of FDI. To achieve this, institutional change is necessary to create a friendly environment for foreign investors to invest in sectors that might bring about structural change. This can ultimately lead to long-term development and sustainable growth.

7.1 Future Research

Although the importance of policies, institutional environment, and structural change is briefly discussed in this study – it is necessary to concentrate much further on how the political, economic, and social context of host countries influences foreign direct investment. The institutional environment will not only affect the choices that are made in terms of incentive policies, but also in which sectors the FDI will be concentrated. Since the institutional environment in the host country directly affects its social capabilities, it will moreover also lead to how efficient FDI is in terms of welfare improvements. Due to data limitations and lack of enough detailed information on sectorial FDI and incentive policies to attract FDI, I could not include these factors in this study. These are areas of interest and may further explain what effects FDI has on host countries in Sub-Saharan Africa, and are important to take into account in future research.

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Appendix A: Countries

Angola	Cote D'Ivoire	Liberia	Senegal
Benin	Equatorial Guinea	Madagascar	Seychelles
Botswana	Eritrea	Malawi	Sierra Leone
Burkina Faso	Eswatini	Mali	Somalia
Burundi	Ethiopia	Mauritania	South Africa
Cabo Verde	Gabon	Mauritius	South Sudan
Cameroon	Gambia, The	Mozambique	Sudan
Central African Republic	Ghana	Namibia	Tanzania
Chad	Guinea	Niger	Togo
Comoros	Guinea-Bissau	Nigeria	Uganda
Congo, Dem. Rep.	Kenya	Rwanda	Zambia
Congo, Rep.	Lesotho	Sao Tome and Principe	Zimbabwe

Note: The countries in the table are those included in the data and in the regression estimating the effects of FDI on all countries in Sub-Saharan Africa.

Appendix B: Within and Between Variance

Variable		Mean	Std. Dev.	Min	Max	Observations
PHR $1.90	overall	46.86923	22.5612	.2	94.3	N = 182
	between		21.74764	.4	85.75	n = 46
	within		10.70693	19.01923	79.51923	T = 3.95652
PHR $3.20	overall	68.7033	21.76146	1.1	98.5	N = 182
	between		22.82934	2.1	94.95	n = 46
	within		8.103368	44.9533	96.4833	T = 3.95652
PHR $5.50	overall	84.19392	17.52331	5.2	100	N = 181
	between		19.81253	6.1	98.8	n = 46
	within		5.115188	65.91392	103.4139	T = 3.93478
PG $1.90	overall	19.7989	13.33364	0	64.1	N = 182
	between		11.94595	.0666667	51.7	n = 46
	within		7.919578	1.638901	53.5589	T = 3.95652
PG $3.20	overall	35.77912	16.51493	.4	77.4	N = 182
	between		15.95241	.6	67.75	n = 46
	within		8.14394	16.55412	65.35912	T = 3.95652
PG $5.50	overall	53.43591	17.44944	1.5	100	N = 181
	between		17.86008	2.05	80.2	n = 46
	within		7.341607	35.03591	86.17591	T = 3.93478
HDI	overall	.4705116	.1135576	.192	.804	N = 1204
	between		.101982	.2980667	.7526	n = 45
	within		.0523329	.2708116	.6218116	bar = 26.7556
FDI	overall	426.8387	1136.12	-7397.295	10028.22	N = 1440
	between		672.4543	-44.99884	3244.143	n = 48
	within		920.6987	-6925.458	10500.05	T = 30
FDI/GDP	overall	3.974918	9.039255	-11.6248	161.8238	N = 1356
	between		4.896563	-.7363876	25.04377	n = 48
	within		7.816502	-21.90493	143.9385	bar = 28.25
FDI/POP	overall	80.41896	303.083	-922.2066	6944.371	N = 1401
	between		193.2021	-9.577894	1217.002	n = 48
	within		233.3132	-1424.209	5807.787	bar = 29.1875
GDP/POP	overall	.0019711	.0028866	0	.020533	N = 1440
	between		.0026764	0	.0104522	n = 48
	within		.001146	-.0075984	.0124384	T = 30
CPI	overall	30.62036	11.74723	6.9	66	N = 825
	between		10.98916	10.5	60.13636	n = 48

	within		4.43291	11.3537	47.84764	bar = 17.1875
OPENNESS	overall	69.04713	35.43836	11.08746	311.3541	N = 1271
	between		31.74249	25.97892	147.805	n = 47
	within		19.06888	-25.28892	232.5963	bar = 27.0426
TELSUB	overall	2.528433	5.213838	0	36.12755	N = 1389
	between		4.906116	.0054559	24.12359	n = 48
	within		1.705222	-16.33371	14.53239	T = 28.9375

Note: N stands for country-observation, n for countries, and T for the number of time periods. The between variance can be described as "how much are the countries different from each other?" and the within variance can be described as "how much are countries different from themselves over time?". If the between variance is higher than the within variance, it means that it is more common for the countries to deviate from each other. If comparing the between variance with the within variance, one can see that all variables, except FDI, have a higher between variance. This implies that the countries in Sub-Saharan Africa are heterogeneous and differ more from each other, than themselves over time. The FDI variables have bigger within variances, which shows that it is more common for FDI to deviate over time within the host countries, than differ between the host countries. This suggests a type of volatility of the FDI inflows.