

## On Geography and Institutions as Determinants of Foreign Direct Investment. A cross country comparative analysis of sub-Saharan African relative to developing countries

### *Geografía e Instituciones como Determinantes de la Inversión Extranjera Directa. Un análisis comparativo de los países del África Subsahariana relativo a los países en desarrollo*

*Felix P. Meier zu Selhausen*

**Abstract.** This work explores what factors determine foreign direct investment (FDI) in sub-Saharan Africa (SSA) relative to non-sub-Saharan African countries, using a panel data set which encompasses most of the world's developing countries between 1997 and 2006. The results indicate that institutions and infrastructure development promoted FDI to non-SSA but did not induce FDI to sub-Saharan Africa. Geography played a modest and indirect role. The marginal benefit from openness to trade was higher for SSA, which is closely related to resource-seeking FDI that did not translate into sustained economic growth, neither institutional change, but consequently crowded out the second FDI wave of manufacturing. At the same time, FDI into value-added manufacturing largely located in non-SSA countries acted as engine for scaling the economic development ladder through institutional improvement for a number of non-SSA countries. Hence, FDI has the potential to act as a reliable and equitable driver of sustained economic development and poverty alleviation. The destiny of the "resource curse" linked to FDI failure marks the novelty of this paper in the FDI and development literature.

**Key words.** Foreign direct investment, developing countries, sub-Saharan Africa, resource curse, geography, institutions

**Resumen.** Este trabajo investiga los factores determinantes de la Investigación Extranjera Directa (IED) en los países de África Subsahariana, en comparación con el resto de los países en desarrollo, usando para ello datos de panel de entre los años 1997 y 2006. Los resultados indican que las instituciones y las infraestructuras de desarrollo promueven la IED en los países no subsaharianos, pero no en los países de la región subsahariana. Los factores geográficos parecen desempeñar un modesto e indirecto papel. Se observa también que el beneficio marginal de la apertura comercial es más elevado en los países subsaharianos, lo cual presenta una íntima relación con el hecho de que su IED esté focalizada en la extracción de recursos naturales. Este tipo de inversión no se traduce en crecimiento económico sostenible ni en cambios institucionales destacados, y desplaza, además a una segunda ola de IED manufacturera. Por otro lado, la IED en sectores manufactureros con valor añadido, y localizada en países no subsaharianos, actúa como motor de desarrollo a través de la mejora institucional en varios de estos países. Por tanto, la IED tiene un papel potencial como catalizador del desarrollo económico sostenible y alivio de la pobreza. El destino de la denominada "maldición de los recursos" y su vínculo con la IED marcan la novedad de este artículo en la literatura del desarrollo y la IED.

**Palabras clave.** Inversión extranjera directa, países en desarrollo, África Subsahariana, maldición de los recursos naturales, geografía, instituciones

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## **On Geography and Institutions as Determinants of Foreign Direct Investment. A cross country comparative analysis of sub-Saharan African relative to developing countries**

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## Abbreviations

FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HIPC	Heavily Indebted Poor Countries
IMF	International Monetary Fund
OECD	Organisation for Economic Co-operation and Development
SSA	Sub-Saharan Africa
UNCTAD	United Nations Conference on Trade and Development
VOC	Vereenigde Oost-Indische Compagnie (Dutch East India Company)

## 1. Introduction

*Despite the efforts of African governments to attract foreign direct investment by improving their policy frameworks, and despite signs of renewed economic activity in Africa, Africa has been largely bypassed by the recent foreign direct investment boom. (UNCTAD, 1999, p. 1)*

Foreign direct investment (FDI) has been growing globally, however, not in Africa. Africa suffers under persistent poverty and high inequality which is symptomatic for the region's low growth performance and productivity levels. African countries face considerable difficulties to attract FDI. Subsequently, FDI inflows to Africa are the lowest in the world. Global FDI inflows grew in 2006 by 34 percent. The past decade witnessed a sharp increase in FDI to developing countries, reaching 23.7 percent in 2006, as shown in **Table 1**. However, African countries did not benefit from the FDI boom as much as other developing countries did. Africa failed to capitalize on the rising trend of world FDI. Why is that?

In **Table 1**, when subtracting the economic more prosperous regions of North Africa, as well as the driver economy South Africa, the percentage declines significantly over time. In 2006, FDI flows as a percentage of GDP into sub-Saharan African (SSA) countries amounted to 1.0 percent relative to global FDI. Hence, countries in SSA have on average received less FDI than countries in other regions by virtue of their geographical location. This begs the question, what determines FDI flows to SSA relatively to other developing countries?

Many reasons have been offered to explain Africa's low growth performance: in particular geographic, institutional, historical, tribal and cultural. While each of them is persuasive, this work isolates geography and institutions to account for Africa's FDI failure.

**Table 1.** Developing countries and African percentage of global FDI 1970-2006

	1970	1980	1990	2000	2005	2006
<b>Developing countries*</b>	28.7	13.9	16.1	15.3	25.6	23.7
<b>Africa**</b>	32.8	5.2	7.8	3.8	9.4	6.3
<b>Other Africa***</b>	3.7	0.5	0.9	0.4	1.0	1.0

\*excluding China; \*\* Africa as share of FDI inflows of developing countries, excluding China; \*\*\*excluding North Africa and South Africa

Source: Derived from UNCTAD (2008), Development and Globalization: Facts and Figures.

There have been a relatively small number of recent studies that have focused on FDI in Africa. Research revealed a limited number of predecessors on this highly relevant field in development economics and economic geography. These include Asiedu (2002), Cotton and Ramachandran (2001), Pigato (2000) and Morissett (2000). Hence, it may be relevant to produce a current approach in 2009, since structural policy reforms have been provoked through conditional HIPC (Highly Indebted Poor Countries Initiative) debt relief, which intensified the promotion of macroeconomic stability and the rule of law. Furthermore, a number of SSA countries have emerged from conflict into stable orders and implemented macroeconomic forces and liberalized their markets that show profound effects and high trade volumes - regardless of the global economic downturn. Consequently, the IMF projects an economic growth of 6.3 percent for sub-Saharan Africa in 2009 (IMF, 2008).

This work can be considered as an extension while, at the same time, amplifying a new approach to Asiedu (2002) that finds that FDI to developing countries and Africa are not the same and

underlie different determinants of FDI promotion. Furthermore, Asiedu's regressions do not control for geographic variables and most institutional variables remain insignificant. Recent Panel data estimations on FDI flows to Africa was brought forward by Naudé and Krugell (2007). They investigated geographic and institutional determinants of FDI to Africa, but omitted the inclusion of non-SSA developing countries while their estimations focused on an earlier period 1970-1990. They therefore left the main question unanswered: why have other developing countries attracted far more FDI relative to SSA? In short, the main novelty of the paper lies in a more detailed and current study of the relationship between SSA and the group of other developing countries' institutional and geography variables and FDI flows - as additional explanatory variables compared to Asiedu's study.

The aim of this paper is three-fold. The first is to empirically investigate how and to what extent the impact of physical geography and geology on FDI mattered for SSA relative to non-SSA developing countries. The second is to observe whether the difference in the intensity of FDI to non-SSA relative to SSA countries may be due to their variation in the quality of institutions. If it is fixed geography that impedes economic growth, it could be manipulated by the formation of a region of economic integration and liberal trade policies. The third and final goal is to find evidence for the perception that Africa is unable to attract significant flows of FDI, except in the natural resource sectors of agriculture, petroleum and mining. Did institutional quality improve due to high resource-seeking FDI inflows into SSA countries in the past decade? If this is not the case it would downplay the benefits of institutional improvement in SSA for FDI promotion. At this point the work is interested in the feedback effect of FDI on SSA and non-SSA developing countries' institutional quality when natural resources oil and mining are the main drivers behind it. Did institutional quality improve due to high FDI inflows into both country sets? This will be re-evaluated in the context of primary natural resource rich developing countries that are trapped in the paradox of plenty, commonly known as the "resource curse". May it be that resource-seeking FDI actually impedes future sustained economic growth through industrial diversification? Analysis of such causality is quite novel and can be regarded as the core contribution of the paper. If natural resource-seeking FDI affects the quality of political institutions negatively this outcome may demand a revolution in FDI and economic development strategies.

This work uses panel data to identify the determinants of FDI in SSA and the remaining developing countries. An advantage of using a dataset that includes a large set of African and developing countries is that it increases the degrees of freedom and therefore enhances the credibility of the paper's results and conclusions. In a first Panel regression, I will estimate for the ten-year period 1997-2006 in order to replicate Asiedu's (2002) approach, while including the paper specific new geographic and institutional variables for SSA and non-SSA countries. The panel data set will explore the cross-sectional and time series dimension, while increasing the observations, augmenting the validity of the results.

The remainder of the work is organized as follows: Section 2 establishes the relevance of the topic, while Section 3 reviews the empirical findings and discusses them in light of the literature of economic geography and institutions. Section 4 conducts the econometric analysis and discusses the results. Section 5 concludes and provides policy implications.

## 2. Why is FDI important for economic development?

Primarily, the following section deals with the question: What is FDI and why may it be of relevance for developing countries, hence being the *raison d'être* for this work?

The ancestors of large scale international merchant “trade” were the Portuguese and Spanish treasure fleets, the Dutch East India Company (VOC) and the East India Company of the British Empire during the early 16<sup>th</sup> to 18<sup>th</sup> century. Oversea colonies and merchant trade were closely connected to immense profits from gold, silver, silk, spices and slaves. However, modern trade includes foreign direct investment, which today not only exploits peacefully natural resource wealth but in fact more importantly manpower and low labour costs for production. The Industrial Revolution and its subsequent revolution in manufacturing production techniques gave rise for new industrial production sites in other countries. Simultaneously, since 1750 real transport costs of ocean shipping declined dramatically and represented only a sixth in 1990 relative to the mid 18<sup>th</sup> century (Crafts and Venables, 2002). After the Second World War, first “multinationals” anticipated these developments and in the course of the “Globalisation” the period saw the growing role of FDI. Firms started to invest into other countries to gain technological spillovers, market shares and cheap labour to “survive” in a more and more competitive market.

FDI is defined by the IMF (1993) and OECD (1996) as an investment to acquire a “lasting interest” in a foreign firm (country) where the foreign investor owns at least 10 percent of the ordinary shares. FDI flows are being classified as equity capital, reinvested earnings and other direct investment capital.

FDI has become a vital instrument of economic development and poverty reduction, since in contrast to multilateral foreign aid, FDI is more difficult to be misallocated by corrupt government officials, in view of the fact that it serves as a source of capital, provides employment, stimulates domestic investment and enhances the diffusion of technology to the host country's economy. Firms pursuing international business opportunities analyse a number of factors regarding the FDI location decision wherein geographic and institutional variables play a significant role.

FDI has proven to be a trigger for regional development. Since the last 15 years of the 20<sup>th</sup> century, South East Asia has benefited from large increases in FDI, either in the horizontal or vertical dimension. Besides the direct economic effect through higher employment, FDI can also trigger a “snowball effect” due to positive externalities. This is because agglomeration economies can in theory be so strong that as soon as a critical mass in a region or country is reached, capital inflows are likely to occur just because other firms now see the need to participate in this market as well. Attracting FDI is, however, not straightforward and depends on many inter-related factors; two important ones are tested quantitatively: geography and institutions.

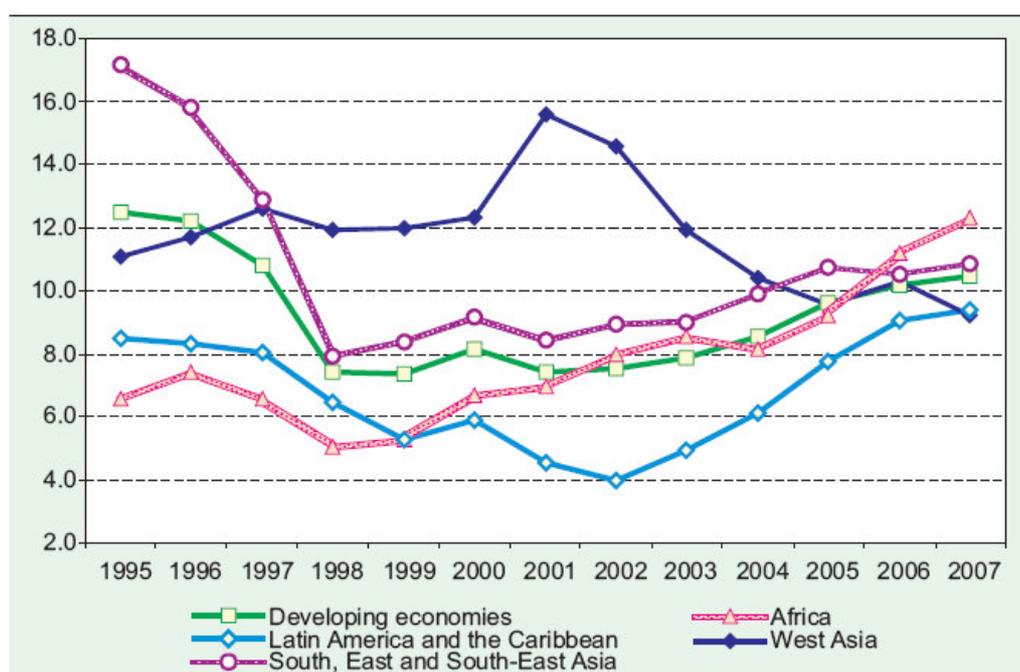
Once a country manages to attract FDI, the question remains whether the influence on the host economy is of positive nature, meaning that for instance the overall welfare effect is positive. In most of the literature it is suggested that FDI can influence the host economy's productivity, factor markets, employment volatility, and firm efficiency through externalities, and the intended transfer of firm assets to the host economy (Navaretti and Venables, 2004). Technological spillovers are, however, thought of as being subject to distance decay so that positive effects are regionally limited (Jaffe et al., 1993 and Keller, 2002).

In the case of developing countries, the biggest hurdle appears to be the triggering of FDI inflows in the first place. Once substantial amounts have been taken place, further inflows are more likely to occur. Therefore, developing countries are only capable of benefiting from foreign activity if they satisfy a minimum threshold stock with respect to human capital and technology (Navaretti and Venables, 2004). According to some, it also depends on the institutional quality of the providing country if spillovers are necessarily fruitful (Ford et al., 2008).

Nevertheless, countries need to persuade potential investors with their factor endowments, factor prices, demand-related factors, and also their trade regime (De Mello, 1997). Often, developing countries can only merchandise themselves by means of few of these factors. A country which has a large stock of cheap labour, a large market-size, proximity to other large markets, and a MNE-friendly trade regime is very likely to attract FDI. Collins (2004) has supported the positive growth effect linked to FDI inflows for African countries and for developing countries in general.

A related recent debate on this matter has been encouraged recently by Paul Collier (2008) and Dambisa Moyo (2009) that point to the importance of alternative instruments, apart from aid. At this juncture, they highlight a market-driven entrepreneurial culture being part of the African development puzzle, while relying less on aid transactions. Moyo (2009) calls for a revolution in the allocation of systematic (bilateral and multilateral) aid-payments to Africa which have not lived up to expectations the past 40 years but in fact perpetuated the cycle of poverty for African countries. She claims that aid increased unproductive public consumption, failed to promote investment, and facilitated corruption while instilling a culture of dependency. Her view conflicts with Jeffrey Sachs's (2005) demanded antique "Big Push" model – a substantial increase in investment (aid) directed at key areas to end world poverty. Furthermore, Collier (2008) argued that Sachs (2005) overplayed the importance of aid and wider range of policies - FDI. Easterly (2006) shares Moyo's (2009) concerns, to introduce an alternative to the "Big Push" model, highlighting the importance of piecemeal interventions: setting incentives for aid agencies, finding particular interventions through emphasis on independent evaluation of aid projects. Hence, in Moyo (2009) she presents original development approaches whereby FDI is given a central role and has the potential to become part of the solution of economic underdevelopment in Africa.

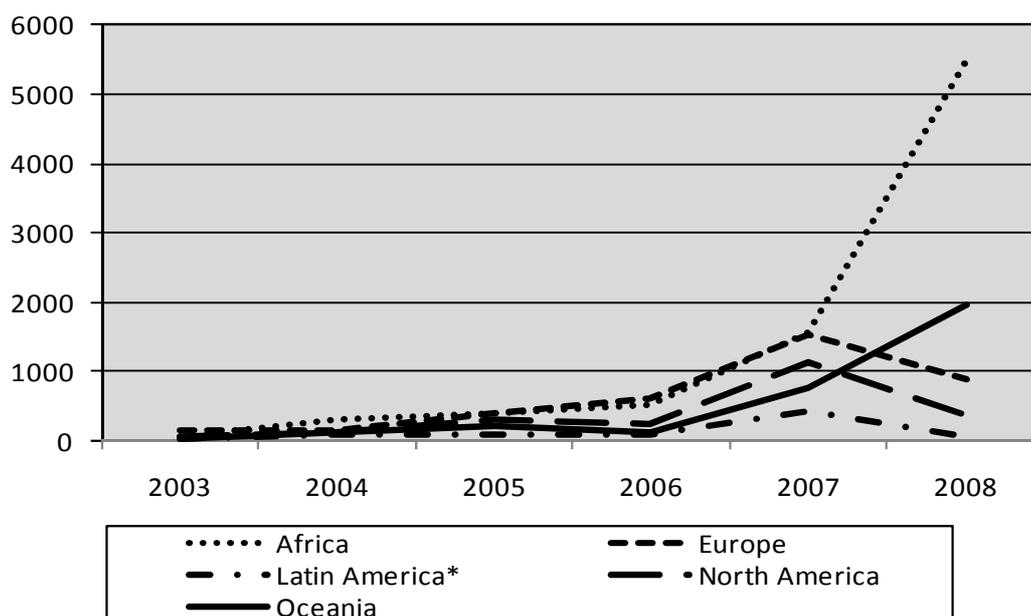
Asiedu (2002) has already presented evidence that the average return on US investment to Africa is higher than to other developing countries for the period 1991-1996. According to the World Investment Report 2008, this trend steadily increased for global FDI to Africa, as shown in **Figure 1**. Again, this would promote Africa's position as a natural suitor of FDI, however a large portion of FDI ventures in Africa are closely linked to the extraction of natural resources (oil and base metals), associated with high revenues for private capital. However, in theory the marginal product of capital is subject to diminishing returns based on the long-run neoclassic Solow model. It implies that every additional unit of capital will be less productive than the one before while the economy moves from one steady-state level to another. Therefore, the marginal product of capital should be higher in poor countries (SSA) than in rich.

**Figure 1.** Rates of return on inward FDI to developing regions, 1995-2007

Source: UNCTAD (2008), World Investment Report 2008, p. 41.

Hence, Africa has some serious growth potential due to their low stock of capital. The top ten FDI countries accounted for 82 percent of Africa's FDI inflows mirroring the inequality of FDI distribution on the continent (UNCTAD, 2008). However, being poor does not necessarily give a country an advantage for FDI promotion. Subsequently, Africa is still unable to harness its return on capital potential, as long resource-seeking FDI dominates, rather than the manufacturing sector, in which the low labour cost could be evidently exploited. According to Asiedu (2002), if FDI inflows are natural resource based, then the rate of return variable will not be significant. In addition, without the framework of sound infrastructure, macroeconomic stability and low transport costs the return on capital won't affect multinational's willingness to set up a manufacturing entity in SSA. One exception is the natural resource sector, which story may be different from the regular path of determinants of FDI, symbolized by recent China's FDI commitment to Africa.

Therefore, a crucial element of relevance establishes Chinese FDI into Africa which has been growing dramatically in recent years, revealed in **Figure 2**. From 2003 to 2008 FDI outflows from China into Africa increased from 75 to 5,491 million US\$ (9.82 percent of total Chinese FDI outflows in 2008). If we exclude Asia that constitutes the region's lion share of Chinese FDI inflows (78 percent in 2008), one notices that China relies more and more on Africa (**Figure 2**). In the last decade no country has made as big an impact on FDI flows into Africa as China with its "going out" strategy. The "African Silk Road" and its resource-seeking FDI (Broadman, 2007) became the source to satisfy its voracious appetite for natural energy commodities, such as crude oil, metalliferous ores, timber, cotton and agriculture (biofuels). Hence, it is not surprising that the most populous country in the world accounted for 40 percent of global growth in oil demand over the past 4 years (Moyo, 2009). In fact, 60 percent of Africa's exports to China are related to oil and minerals (Broadman, 2007).

**Figure 2.** China's outward FDI flows per region 2003-2008

\*Latin America and Caribbean excluding tax havens Cayman Islands and British Virgin Islands that make up 98.67% of total Latin American FDI inflows in 2008.

Source: Derived from China Trade in Services, *Statistical Bulletin of China's Outward Foreign Direct Investment 2008*.

China's role in Africa is more pragmatic and commercial than of any other country practiced since African independence. Through their economic interests China improves Africa's infrastructure by investing into railways, roads, pipelines and hydropower, becoming a real alternative to aid. Chinese FDI has also some challenges attached. The significant concentration of Chinese investment in nations like Angola, the Democratic Republic of Congo, Equatorial Guinea, Nigeria and the Sudan where corruption is high led to serious concerns by OECD, IMF and World Bank. They fear that they won't be able anymore to argue that corruption and civil war deters FDI (The Economist, 2008). Critics contend that the trade partnership with the Sudan, where in the region of Darfur died about 300,000 as result of fighting since 2003 and more than 2.5 million have been displaced. China's thirst for oil supports the military army indirectly in Darfur through FDI and trade revenues - guns for oil. Consequently, one wants to know how accurate the popular notion is that Chinese FDI into Africa does not pay attention to the rule of law and is mainly resource-seeking. Given that China is contained in the dataset a dummy variable approach of countries that received major Chinese FDI inflow is inadequate and will suffer multicollinearity. However, it will become important for the analysis of the relationship between natural resource-seeking FDI and institutional change in Section 4.3.

### 3. Theoretical Paradigms

Theoretically, Africa should be FDI's natural suitor, since foreign firms can profit from low labour costs comparatively to its wages in the home-country and Africa's high investable opportunities. Despite a comparative advantage in labour costs, FDI to Africa remains low. Africa's comparative advantage in labour costs is being swept away by high transportation costs, unskilled labour and low firm- and plant-level economies of scale. Hence, it is not surprising that

FDI to Africa has been mainly concentrated in sectors of natural resource endowments and in countries with a large market size. This leaves institutional policies and geography as a possible direct determinant of FDI to Africa. Asiedu (2002) confirms the trend of declining FDI flows to Africa by finding an adverse regional effect of being an African country. Therefore, Africa and developing countries underlie different determinants of FDI. Infrastructure development and a higher return on capital promote FDI flows to non-SSA developing countries, while for SSA these factors had no impact. Furthermore, policy reforms such as openness to trade have not been equally successful in Africa as in other developing countries. However, Asiedu (2002) did not control for geographic variables and most institutional variables, such as political instability remain insignificant, motivating the present approach.

In the voluminous literature on this subject, three deep dimensions of thoughts stand out, determining directly and indirectly income levels: exogenous physical geography and endogenous factors, such as the quality of institutions and trade (Rodrik, 2003).

### **3.1 Geography**

First, one “deep” determinant of income is physical geography. The scholars who pioneered global geographic inequality between countries were Gallup, Sachs and Mellinger (1999) that found that there exists a direct relationship between geography and economic growth, perfectly observable on a global map of GDP per capita. Geography has been important throughout history and may be associated closely with Europe’s economic growth (already pointed out by Fernand Braudel, 1972) and perhaps the “First Great Divergence” (the economic rise of Western Europe in the post 1500 period, due to institutional change in England and the Dutch Republic relative to the Spanish Empire and Portugal), partly through fundamental advantages in coastal (Atlantic) trade, accessible rivers, its temperate climate and low disease occurrence (Acemoglu et al., 2005).

Geography determines FDI flows to developing countries, in particular to SSA through high transport costs owed to large distances to core markets; tropical and hot climate accompanied by infectious disease burden (malaria) that lowers productivity severely. Subsequently, geography directly affects agricultural output, productivity and health. Indirectly, it provokes declining knowledge and technological diffusion highlighted by the low FDI inflows to SSA relative to non-SSA countries. Moreover, it affects the economy via the institutional framework (Gallup et al., 1999). A large share of FDI in Africa has gone to countries that are rich in natural resources. In particular in the mining sector of high-value minerals and petroleum Africa acts as a host to FDI, where lies according to Basu and Srinivasan (2002) vast future FDI growth potential. Morisset’s (2000) panel data and cross section estimations indicate that natural resources have been highly significant in attracting FDI, which mirrors the fact that 41 percent of FDI inflows to SSA in 1995-1998 went to four oil-exporting countries (Angola, Congo Republic, Equatorial Guinea and Nigeria). Another large stake was allocated to mineral resources, such as diamonds, gold, copper, cobalt and manganese (Pigato, 2000). Countries with abundant natural resources have inevitably attracted FDI regardless of the country’s institutions. These results would downplay the benefits of institutional improvement in SSA countries where FDI is natural-resource based and will be subject to proof. This hypothesis will be taken up in Section 4.3 to check whether FDI inflows and oil- and mineral-exporter status induce institutional change in developing countries.

SSA’s geographic distance to European core markets results in high shipping costs. In particular, landlocked African countries suffer under elevated transport costs. The World Trade Report

2004 of the World Trade Organisation (WTO) revealed the existence of a negative correlation between inland transport costs and the quality of infrastructure since adequate infrastructure facilitates production and reduces trade costs. Mody and Wheeler (1992), Asiedu (2002) as well as Naudé and Krugell (2007) found infrastructure (number of telephones per 1,000 population) as key to economic development and FDI inflows, since adequate infrastructure enhances the productivity of investment by which it encourages FDI flows. However, Asiedu (2002) found that infrastructure development encouraged FDI to non-SSA countries but showed no significant inflow-effect for SSA countries. Once again, she links this with the largely extractive natural resource based FDI to Africa. Asiedu (2002) finds the per capita telephones instrumental variable, capturing the infrastructural effect, unconvincing, given that a high proportion of FDI inflows to SSA consists of natural resource exploitation. For natural resource extractive industries the availability of telecommunication may not be particularly relevant but the transport conditions of roads and railways to the ports for trade prove to be essential. The per capita telephone instrumental variable struggles to capture the quality of the transport network to which I will refer in detail in Section 4.1.

African geographic landlocked countries face huge cost disadvantages owed to high shipping and insurance costs compared to sea-based countries. This is due to higher costs of overland transport in comparison to sea freight costs, since landlocked export freight must be transported both by land and sea. Transit railway and road-infrastructure connecting the inland economy and the neighbouring country's port are especially poor in SSA. Fifteen of global 37 landlocked countries (29 non-European) are located in SSA. Ten out of these 15 landlocked SSA countries are rated among the 22 official countries with the lowest level of "human development" (UNDP, 2008). This fits well with the findings of Limao and Venables (2001) that landlocked countries face a trade obstacle since their transportation costs on average are 50 percent higher than for equivalent coastal economies. Land transport, including road, rail transport and pipelines are found to be 7 times more costly than sea-transport. These results are not in line with the results of the relationship of the African landlocked variable and FDI inflows, estimated by Naudé and Krugell (2007). According to them, geography does not seem to have a direct influence on FDI flows to Africa because of the insignificance of their geographic explanatory variables. However, good infrastructure quality is essential, because the more foreign firms will have to pay for imported intermediate commodities, due to high inland freight costs, the less they will receive relatively for their exports. For example, Radelet and Sachs (1998) estimated that landlocked Rwanda, Burundi and Malawi face 181 percent, 228 percent and 124 percent additional costs, respectively, due to the high proportion of transit road-transportation when shipping its exports to Northern Europe from the port of Dar es Salaam in Tanzania. In addition, Radelet and Sachs (1998) found that small differences in shipping costs, especially for vertical FDI in labour-intensive manufacturing (characterized by thin profit-margins) can offset the profitability of FDI into manufacturing. Therefore, for geographic disadvantaged economies it is complicated to integrate into global markets for any product that requires a great deal of transport. Consequently, geography scares off manufacturing which is the most reliable and equitable driver of rapid development (Collier, 2008). The use of labour rather than land is the key-difference of development in Asia.

These results are well in line with Redding and Venables (2004) who argue that more distant countries suffer a permanently market access penalty on their export sales. Moreover, they face additional costs on imported intermediate inputs due to their large distance to Western core markets, framing a rather pessimistic picture for FDI inflows into SSA.

### 3.2 Institutions

A second strand of literature centres on institutions, which highlights the importance of the rule of law, private property rights, independence of the judiciary, bureaucratic capacity, personal liberty and political stability. It is widely believed that institutions are an important determinant of economic development for Africa. Three papers above all (Acemoglu et al., 2001; Easterly and Levine, 2003; and Rodrik et al., 2002) claim to show that the role of geography in explaining cross-country patterns of income per capita runs predominantly through the selection of institutions, while a direct geographical effect on income remains modest. North and Thomas (1973) claim that institutions serve as preconditions and determinants for economic growth, while in turn also arising endogenously as a by-product of economic development.

Rodrik et al. (2004) have identified the primacy of institutions and policy reforms as key determinant for developing countries' economic growth. This implies that institutional quality becomes an important determinant for FDI inflows. Policies that have been able to reduce the risk of investment improve the local business environment and enhance economic growth by the liberalization of trade. In turn, trade liberalization promotes FDI inflows. Morisset (2000), for example, found that countries with sound economic policies and good institutions attracted substantially more FDI relative than African countries with bigger local markets or natural resource wealth. Natural resource scarce SSA countries, such as Mozambique and Uganda have been able to increase significantly their FDI inflow, which provides a positive perspective that any African country, given its geographic location, is able to attract FDI. In addition, Asiedu (2002) argues that openness to trade (sum of a country's exports + imports divided by its GDP in national current prices) promotes FDI, although the marginal effect for SSA is less than for non-SSA developing countries. She ascribes this outcome with the fact that openness is globally determining FDI and therefore many countries have implemented such liberal policies. Several other scholars also found that African countries that have liberalized their trade will attract FDI through a better investment climate (Morisset, 2000 and Noorbakhsh et al., 2001). In sum, this implies that countries that wish to promote more FDI need to increase their efforts in terms of economic integration.

Jaspersen et al.'s (2000) African dummy remained significant throughout their regressions for the period 1990-94 regarding risk ratings. In particular, the risk of expropriation and policy reversal in African countries influenced firm's investment decisions. They concluded that Africa has been a significantly less attractive host for multinationals due to the high risk ratings which mirror the poor macroeconomic fundamentals and political and social risk factors. Investors have been irrationally averse to place FDI in Africa. Asiedu (2002) attributes this strong effect to the nature of irreversible FDI that becomes a "costly adventure", regarding the sunk costs of foreign firms resulting from possible expropriation and policy reversal.

Kurtzman et al. (2004) found that every one-point increase in a country's opacity index leads to a US\$986 lower per capita income and a one percent decline in FDI/GDP. The opacity index is defined as the degree of a country's lack of transparent, accurate and easily discernible practice concerning the governance of business, investment and government. A survey conducted by the World Bank (1997) that covered 3,600 firms in 69 countries, with the sample for SSA consisting of 540 foreign firms from 22 countries, showed that foreign firms do not trust SSA government policies and perceive them as being uncertain and "unpredictable" – corruption was important. Factors such as good governance and the rule of law become meaningless in the absence of trust (hard to define and measure), deeply settled into investor's thinking about Africa's history. Additionally, high risk ratings of commercial agencies combined with a lack of knowledge of the continent, impedes FDI. Africa's bad reputation also stems from the fact that it has been treated

as one large country instead of focusing on a country by country based approach. Another serious constraint to FDI is the large bureaucratic barrier in African countries, which makes the procedure of acquiring a business license a time-costly mission for foreign firms (Moyo, 2009). The previous results are not in line with Asiedu's (2002) insignificant "political instability" variable that expresses the risk of investing in an African country. However, Asiedu (2002) argued that it were the resource-rich African, political unstable countries that attracted major FDI inflows which explains the insignificance of the independent variable.

However, the feedback-mechanism of resource-seeking FDI on institutional quality remains unexplored in the African FDI literature and therefore requires detailed focus in Section 4.3. Empirical examples reveal an ambivalent scene, since all SSA oil-producing countries are/were trapped in the "resource curse", while there are a couple of mineral-endowed countries, such as Botswana, South Africa and Namibia, that have been able to prevent a "resource-curse" through the implementation of their mining sectors (diamonds, gold and copper) in sound government management. Additionally, countries that have less natural wealth commodities have been able to attract FDI by improvements of their institutional quality. The case of Madagascar offers a two-sided institutional response. Madagascar established an export processing zone in the late 1990s, mainly driven by sound policy reforms; as a result 300,000 jobs were created by multinational firms. However, when in 2002 civil war broke out and the port was blockaded the previous FDI success story devoted to good governance was decimated and multinationals moved their production to Asia. Only, 40,000 FDI-jobs remained in Madagascar. This leaves room for optimism that fixed geographic constraints attributed to low FDI levels must not be destiny but can be overcome by institutional enhancement.

Other studies by Naudé and Krugell (2007) do not verify a direct influence of geography on FDI, while almost all institutional variables indicated a positive and significant effect on FDI attraction for Africa. Furthermore, Sachs and Sievers (1998) see political stability as one of the crucial determinants of FDI location in Africa. Given the presence of competition for FDI among developing countries a multinational firm would choose a country in which market uncertainty is lower. Several scholars have argued that global competition for FDI within the wave of globalisation has intensified. Among developing countries' locations, multinational firms have a wide production choice. Since the 1980s Asia stands out as global manufacturing hub (Dupasquier and Osakwe, 2006; Pigato, 2000; Asiedu, 2002 and 2003). Precisely, an explosive shift (outsourcing or delocalization) of manufacturing from the US and Europe to Asia occurred during the past 3 decades.

Particularly, the economic and institutional differences between Africa and other developing countries remain high, which explains the relative low investment flows to Africa for which the African natural resource sector remains the exception. Collier (2008) argues that African countries are locked into resource-seeking FDI (to China) twice over by the threshold effects of Asian export agglomerations and cost-competitiveness. Hence, low wages and spatial economies of scale in manufacturing attract largely manufacturing FDI to Asia. Breaking in private capital is more complex for Africa than before Asia managed to become a global manufacturing-hub. The theory of economic development starts off with agricultural development (SSA), followed by industrial manufacturing. This step is important because manufacturing and service exports offer a much better perspective of sustainable and rapid development, making use of labour instead of land. In practice, Asia experienced a transition from commodity exporter to scaling the manufacturing ladder. Latin American countries are in between these 2 stages. Predominantly, Europe and the US make up the services and R&D third economic development stage. This historical economic development ladder has been proven the same for FDI development.

Acemoglu et al. (2001) rediscovered the historical importance of institutions on per capita income to account for the different colonizing policies with diverse associated institutions. They constructed the instrumental variable of European settler mortality for the 17<sup>th</sup>, 18<sup>th</sup> and 19<sup>th</sup> centuries (Helpman, 2004). In locations where Europeans faced high mortality rates they installed extractive institutions that still persist and influence economic performance. Krugell and Naudé (2007) estimated “settler mortality” to be significant while having only a marginal impact on FDI/GDP in Africa. Moreover, it may be possible that geographic variables (climate, diseases and hostile locals) caused high settler mortality rates and still inhibit growth today. Analogously, the importance of well developed pre-colonial state hierarchy for present-day governance quality in African countries found recent support (Spear, 2003 and Bolt and Smits, presented at a seminar in front of the “research group Social and Economic History” of Utrecht University, Utrecht 12/02/2009). Therefore, this paper does not control for mortality rates of European settlers and will capture it by other institutional indexes as provided by Kaufmann et al. (2008).

Many factors are important in influencing a firm’s choice of FDI. Earlier works by Brainard (1997) and Wheeler and Mody (1992) reveal that tax-differentials and tax-incentives on investment location are minimal relative to other host-country’s assets. On the other hand, taxation policies, as argued by Naveretti and Venables (2004) are of increasing importance since competition for FDI is high between developing economies. Furthermore, tax incentives in Africa found by Basu and Srinivasan (2002) have been regarded by investors, seeking to locate their affiliates abroad as irrelevant in comparison to the “African factor” and natural resource endowments. Due to the above reasoning for SSA, and the lack of data on corporate taxes for most developing countries, this paper ignores tax-policy variables in the econometric stage.

## 4. Empirical Analysis

The dataset is a panel of annual economic data from 1997 until 2006 and covers 72 developing countries of which 37 are African (33 SSA), 22 Latin American and 13 Asian developing countries (Appendix Table 1). The dataset contains a number of geographic, policy and institutional variables. A full description of the variables and their characteristics is provided in **Table 2**. The data sources may be reviewed in Table 3 of the Appendix. The analysis uses Asiedu’s (2002) country grouping selection while adding 2 countries. The sample size for SSA countries has been extended in view of testing whether FDI went to natural resources in SSA and its implication on the institutional framework. Hence, 2 major oil-exporting countries that received major FDI inflows, namely, Angola and the Sudan were added to Asiedu’s (2002) original sample. Asiedu (2002) most likely excluded those countries due to the lack of data. However, a more current approach offers statistical information. The dataset is complete for each country and therefore has no missing values. For the cross section estimation there are 72 observations and 216 respectively for the panel data set.

### 4.1 Descriptive Statistics

**Table 2** presents the dependent and explanatory variables of the analysis and their expected impact on net inflows of FDI as a share of GDP. Regrettably, data on real wages are unavailable for most developing countries, in particular SSA.

**Table 2.** Variables and their possible effect on FDI

Variable	Abbreviation	Measure	Prediction
FDI as share of GDP*	<i>fdigdp</i>	% of GDP	
GDP growth rate	<i>growth</i>	Percentage change	+
Openness to trade	<i>open</i>	% of GDP	+/-
Return on capital	<i>return</i>	1/GDP per capita	+
Infrastructure = number of telephones per 100 population	<i>tel</i>	Per 100 population	+
Inflation rate	<i>inflation</i>	Percentage rate of change in price levels	-
Money and quasi money (M2) as % of GDP	<i>m2gdp</i>	% of GDP	+
Rule of law	<i>rule</i>	Rating from -2.5 to 2.5	+
Absence of conflict	<i>conflict</i>	Rating from -2.5 to 2.5	+
HIPC = highly indebted poor country	<i>hipc</i>	Dummy variable = 1 if HIPC country, 0 otherwise	+
Bureaucracy = time required to start a business	<i>time</i>	Days	-
>33% export revenues from fuels	<i>oil</i>	Dummy variable = 1 if oil-exporter, otherwise 0	+
>33% export revenues from minerals	<i>mineral</i>	Dummy variable = 1 if mineral-exporter, otherwise 0	+
Landlocked	<i>landlocked</i>	Dummy variable = 1 if landlocked country, 0 otherwise	-
Distance to the equator	<i>dfe</i>	Latitude/90	+
Land area	<i>landarea</i>	km <sup>2</sup> /1,000,000	+/-
Land area lying in the tropics	<i>tropicar</i>	Percentage	-

\*dependent variable

### Dependent variable

As is standard in the literature, the dependent variable is the share of net **FDI inflows** of the country's national GDP. This measure is obtained from the World Development Indicators (WDI) of the World Bank.

### Policy

**Openness** measures total trade as a percentage of GDP, referring to the sum of exports and imports divided by GDP in national current prices. Nevertheless, there are several problems associated with this openness index, since trade is endogenous to geography. Trade volumes depend on other values than policy measures, such as endowments, market and supplier access, technologies and possibly conflicts (Helpman 2004, p. 72). Frankel and Romer (1999) found a strong effect of their specifically constructed openness index on income per capita with which they solved for the endogeneity problem. According to them, a rise of one percentage point in the trade/GDP ratio raises income per capita by 2 percent, spurring accumulation of physical and human capital (Frankel and Romer, 1999, p. 394) which may be relevant for FDI. Furthermore, in the case of high trade restrictions (less openness) foreign firms with market-seeking intentions may employ the "tariff jumping" strategy when it becomes costly to import the products. Subsequently, trade restrictions may encourage FDI in this particular case. Market-seeking FDI for my SSA sample will be less important, therefore I hypothesize a positive correlation between openness and FDI. However, for other developing countries where there is a greater market-seeking potential, the coefficient may be lower.

As a standard infrastructure proxy, telephones **lines per 100 population** in a country is used. Good infrastructure stimulates productivity of investment and therefore attracts FDI. However, the variable only captures the availability of infrastructure but falls short regarding its reliability. For foreign investors the availability of infrastructure becomes less important than its reliability, since no profit-seeking firm can afford to bet on a country's unreliable power and telecommunications network. However, data on the reliability of telecommunications is not available because data on the frequency of power outages for most countries in my sample is unavailable. Another problem associated with this variable represents the increased amount of households that switched to mobile phones, substituting the phone line which reduces the significance of the infrastructure proxy. Albeit imperfect, I apply this infrastructure proxy, which is the best we have.

International firms invest in countries offering high return on investments. As touched upon in Section 2, the **return on capital** in Africa is higher than for other developing countries. The paper faces difficulties to implement such a measure of return on capital since the majority of developing countries in the sample, does not have well-functioning capital markets. This work uses the ln of the inverse of real GDP per capita as utilized by Jaspersen et al. (2000) and Asiedu (2002). The inverse relationship finds its explanation in the Solow-Model where the marginal product of capital is subject to diminishing returns in the long-run. It implies that every additional unit of capital will be less productive than the one before, while the economy moves from one steady-state level to another. Therefore, Africa has some serious growth potential due to their low stock of capital.

**GDP growth rate** serves as a proxy for demand growth. In the literature, Schneider and Frey (1985) found a positive relationship between real GDP per capita and FDI/GDP. They argued that a higher real GDP per capita in the host country implies better prospects for market-seeking FDI. I hypothesize that for SSA, where FDI goes mainly to natural resources, which is non-market-seeking the effect of economic growth on FDI will be insignificant. The **inflation rate** measures the general economic stability of the country. As a measure of financial depth I use the ratio of **liquid liabilities** (M2) to GDP.

### *Institutions*

The decision to present the governance indicator the "**rule of law**" is a logic response to measure the confidence of agents into the rules of society, the quality of contract enforcement, property rights, judicial quality as well as the likelihood of crime and violence, all important for FDI promotion (chapter 3.2). These informative indicators are provided by Kaufmann et al. (2008). They report the latest update of the Worldwide Governance Indicators (WGI), measuring six dimensions of governance between 1996 and 2007, drawn from 35 different data bases from 32 different world organisations. Second, the conflict variable **political stability and absence of violence/terrorism** measures the perception of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism (Kaufmann et al., 2008). Additionally, the debt reduction initiative **HIPC** (highly indebted poor countries) of World Bank and International Monetary Fund (IMF) functions as another rough measurement of good governance performance (or less bad governance) of highly indebted countries. Of the current 41 HIPC member countries, I selected the ones that have reached the completion and decision points for the dummy variable approach. The initiative cancels bilateral and multilateral debts when governments ex-ante conditional have improved their governance to avoid moral hazard for debt relief (IMF, 2007). As a measure of bureaucratic quality the paper applies the **time required to start a business** measured in days.

### *Geography*

As geographical variables, dummies are being plugged in for major natural resource-exporting countries for which the exports of **oil** or **minerals** constitute more than one third of total export revenue. It will be interesting to see whether in SSA FDI has gone in general to resource rich countries as many predecessors have found.

Most geographic analyses stress the impact of climate, geographical isolation and disease environment. I included a dummy for **landlocked** countries to see whether unfavourable physical geographic locations, regarding coastal trade, distance to core markets and consequently high transportation costs have a negative impact on FDI inflows in such countries. As a rough measure of climate, I use the **distance from the equator**, measured as the absolute value of latitude in degrees divided by 90 to place it on a 0 to 1 scale. Some scholars use distance from the equator as an instrumental variable to account for income per capita. Empirical evidence presented by Hall and Jones (1997) and Bloom et al. (1998) found that a country's distance from the equator is positively associated with income per capita. Others tried to capture the effect of tropical infectious and parasitic diseases environment predominantly malaria, which lowers productivity considerably (Bloom et al., 1998). This is due to that the equator represents a zone of intense year-round rainfall, high temperature and no freezing, nurturing diseases. The **percentage of country area lying in the tropics** is an additional variable to account for tropical climate and affectedness of malaria. **Land area** divided by a million measures the magnitude of a country.

## **4.2 Empirical Results**

In this section the empirical results are reported and plausible explanations for each result are provided (STATA 9.2). Additionally, I describe the econometric method I used to assess the relationship between the selected “determinants” and FDI inflows. The estimation results and the robust standard errors are reported in **Table 4**. I first use panel data (Column 1-4) for which the variables have been averaged over 3 sub-periods: 1997-1999, 2000-2002 and 2003-2006. Second, I use cross section data (Column 5), employing the computed averages of the variables over the period 1997-2006. In Table 2 of the Appendix the summary statistics for the full sample is provided.

The combined panel estimation results in Column 4 indicate that policy, institutional and geographic factors determine FDI/GDP to both SSA and other developing countries. As a group these factors explain around 43 percent of the variability in FDI/GDP. And for the cross-section estimation the  $R^2$  in Column 5 is quite high at 56 percent. Formally, the 5 percent critical value for the Hausman test, in this case with 8 degrees of freedom is 15.51 which is higher than the Hausman statistic of 8.87 (or indeed higher than any other critical value). Therefore, I reject the  $H_1$  hypothesis of a fixed effects model in favour of the  $H_0$  hypothesis, which indicates that a random effects model is the most appropriate one, capturing the binary variables in my sample. The discussion of the results is based on the panel estimation results in Column 4, given that the panel data set explores the cross-sectional and time series dimensions, which increases the observations.

**Table 3.** Differences between SSA and non-SSA countries (means of selected variables)

<b>Variables</b>	<b>SSA</b>	<b>Non-SSA</b>
<b>100 * (FDI/GDP)</b>	3.391	3.707
<b>Openness to trade = 100 * (Imports + Exports)/GDP</b>	76.418	84.296
<b>Infrastructure = ln(phones per 100 population)</b>	2.318	4.396
<b>Return on capital = ln(1/GDP per capita)</b>	-6.237	-7.537
<b>Growth rate</b>	1.550	2.259
<b>Rule of Law</b>	-0.677	-0.267
<b>Absence of Conflict</b>	-0.461	-0.416
<b>Distance from the equator</b>	-0.001	0.093
<b>Land area (km/1,000,000)</b>	0.246	0.528

**Table 4:** Random Effects Model estimation

Variable	(1)	(2)	(3)	(4)	(5)
	Policy	Institutions	Geography	Combined	OLS robust
<b>Intercept</b>	0.587 (0.853)	3.957*** (0.000)	12.477*** (0.000)	-1785 (0.467)	-0.663 (0.838)
<b>Open</b>	0.036*** (0.000)			0.023*** (0.000)	0.026*** (0.000)
<b>Infrastructure</b>	0.399 (0.548)			0.781* (0.100)	1.640** (0.023)
<b>Return</b>	0.195 (0.777)			0.260 (0.510)	0.653 (0.257)
<b>Growth</b>	0.097 (0.146)				
<b>Inflation</b>	0.001 (0.402)				
<b>M2/GDP *100</b>	-0.008 (0.718)				
<b>Rule of law</b>		1.841* (0.061)		1.216** (0.047)	0.653 (0.747)
<b>Absence of conflict</b>		-0.428 (0.646)			
<b>HIPC</b>		0.897 (0.311)			
<b>Bureaucracy (days)</b>		-0.000 (0.922)			
<b>SSA</b>	0.517 (0.554)	-0.040 (0.967)	-0.846 (0.371)	2192 (0.762)	5211 (0.406)
<b>Oil</b>			1507 (0.252)	1000 (0.298)	0.819 (0.354)
<b>Minerals</b>			0.459 (0.577)		
<b>Landlocked</b>			-1.309* (0.061)		
<b>Tropicar</b>			1418 (0.137)		
<b>Land area</b>			-0.109 (0.509)	-0.023 (0.865)	-0.095 (0.526)
<b>Distance from the equator</b>			-2.412* (0.095)	-1771 (0.286)	-1385 (0.454)
<b>Open * SSA</b>				0.052* (0.056)	0.054** (0.036)
<b>Infrastructure * SSA</b>				-0.626 (0.592)	-1.781* (0.068)
<b>Return * SSA</b>				0.809 (0.565)	0.568 (0.623)
<b>Rule * SSA</b>				-0.998 (0.404)	0.610 (0.612)
<b>Oil * SSA</b>				0.457 (0.845)	1174 (0.601)
<b>Distance from the equator * SSA</b>				4732 (0.220)	4692 (0.254)
<b>Land area * SSA</b>				2.311** (0.023)	2.407** (0.032)
<b>R<sup>2</sup></b>	<b>0.2849</b>	<b>0.0399</b>	<b>0.0711</b>	<b>0.4293</b>	<b>0.5587</b>
<b>Number of observations</b>	<b>216</b>	<b>216</b>	<b>216</b>	<b>216</b>	<b>72</b>

(1-4) Panel data estimation 1997-1999; 2000-2002; 2003-2006, (5) Cross-section estimation 1997-2006

(Robust p-values in parentheses)

\* Significance at the 0.10 level.

\*\* Significance at the 0.05 level.

\*\*\* Significance at the 0.01 level.

**(i) Result 1**

*The period 1997-2006 reveals no negative SSA-effect on FDI/GDP.*

In Column 4 of **Table 4** the statistically insignificant estimate for the dummy variable SSA suggests that there is no clear adverse SSA-effect. When reducing the regression equation to policy indicators (openness, return on capital and infrastructure development) as used by Asiedu (2002), the SSA dummy variable remains still insignificant. Hence, one can observe a distinct comparative change of FDI inflows into SSA between Asiedu's (2002) period of 1988-1997 and this work's more recent period of 1997-2006.

There are two plausible explanations for this result. First, during the past decade SSA experienced increased resource-seeking FDI, driven by SSA immense natural resource wealth. However, manufacturing FDI felt short in view of inadequate infrastructure and institutions (*Result 4* and *5*), that form an inherently risky business environment for value-added FDI in manufacturing. Hence, in SSA FDI inflows increased significantly during the past decade relative to other developing countries, due to their major oil and mineral production and scattered manufacturing sites. The increased foreign investment in natural resources may explain the marginal difference between the average of FDI/GDP in SSA and non-SSA countries, as shown in **Table 3**. On average, the difference of FDI/GDP between SSA and non-SSA regions for 1997-2006, in comparison with Asiedu's period 1988-1997 reduced remarkably. While for the period 1988-1997 FDI/GDP for SSA was 0.885 and 2.467 for non-SSA (Asiedu, 2002), in 1997-2006 FDI/GDP for SSA was 3.391 and amounted to 3.707 for non-SSA (**Table 3**). Although, SSA still attracts less FDI relative to non-SSA, the not statistically different average mirrors the increased importance of FDI to SSA.

Second, SSA has improved its infrastructure, institutions and liberalised its trade framework, which has attracted some primitive manufacturing industries, in particular in countries like Madagascar, Mauritius and South Africa. However, in a competitive globalized economy SSA still cannot live up to its potential, since improvements have to be made both in absolute and relative terms (Asiedu, 2003). In view of non-SSA countries' relative progress, SSA still limps behind. Collier (2008) predicted that SSA countries will have to wait for quite a long time until economic development in Asia will enlarge the wage-gap with SSA, comparable to the gap that existed between Asia and the Western industrial countries around 1980. For now this particular process that drove Asian development hampers analogously FDI-development into manufacturing businesses for SSA.

Hence, the subsequent results provide hope that there occurred an absolute rise in FDI/GDP for most SSA countries in the past decade in comparison with the former decade. However, this increase in FDI/GDP may be due to increased demand for resource-seeking FDI in SSA which has potential negative implications on institutional quality and future manufacturing FDI, in view of the shadows of the "resource curse" (see Section 4.3).

**(ii) Result 2**

*Openness to trade promotes FDI to both SSA and non-SSA countries, however the marginal benefit from increased openness is higher for SSA.*

This result suggests that SSA countries profit three-fold more from trade liberalization than non-SSA countries, when summing the SSA and non-SSA coefficients of 0.053 and 0.023 respectively. Also, it does not conflict with Asiedu's (2002) opposite findings, since she focused on an earlier time period of 1988-1997, while this work considers a more recent period of 1997-

2006. It suggests that it was more rewarding to liberalize for SSA in the late 1990s than in previous years. Hence, policy recommendations suggested by Asiedu's (2002) results that SSA countries need to liberalise their markets for trade, yielded fruit, since SSA countries have largely proliferated their policy environments in a positive way in the last decade. In particular former trade policies that hampered openness were reversed (Collier and Gunning, 1999) in order to enhance future growth. The results may actually capture the successful implementation of these liberal trade policies, for example the efforts of inter-regional economic integration in SSA, targeted to reduce inter-country trade barriers. Here, I consider the SSA trading blocs of the Common Market for Eastern and Southern Africa (COMESA), active since 2000 and the East African Community (EAC), in force since 2005 as having played a constructive role.

Dimaranan et al. (2008) assesses that the intra-regional trade between COMESA members is rather low and the member countries rely heavily on third countries as sources of imports and as export destinations, hence intra-country trade may be spurred. Furthermore, it enhances the possibility of the occurrence of growth spillovers from SSA member states. In particular for landlocked SSA countries man-made or political geography may be a winning strategy to lower transport costs, increase market and supplier access and improve infrastructure coordination, while lessening geographic inequality in SSA. Trade and currency unions have the potential to increase neighbourhood growth spillovers, improve neighbour's economic policies and coastal access for landlocked states, hence creating a transparent and investor-friendly environment for FDI.

Second, Millennium conditional debt relief, another form of aid conditionality of the World Bank's HIPC initiative set off trade reforms and improved macroeconomic stability in eligible SSA countries. Also, the thirst for and trade of SSA natural resources, such as oil and minerals increased drastically during the past decade relative to previous periods, which has been captured by the positive openness variable and anticipated by foreign investors. In particular, the recent "resource scramble for Africa" of Asian countries, such as China, India and Russia increased the coefficient of openness. Nevertheless, greater openness led to higher trade and FDI flows but these have been mainly aimed at to the natural resource sector. To attract additional FDI into manufacturing rather than relying on extractive FDI, SSA countries must not only improve economic policies (as they did with openness) but also institutional principles and infrastructure reliability to close the gap to Asian manufacturers.

There is a threat for SSA that economic history repeats itself, as new world colonies "priming the pump" of European economies, such as England in 1800. At that time England obtained its grain, sugar (for calories) and cotton (for clothing) from their colonial "ghost acres", being almost twice as large in volume as their own national arable land (Pomeranz, 2000). In 2009, China needs to feed approximately 20 percent of the world population with only 7 percent of the world's arable land. Hence, they are naturally looking abroad for energy resources, investing into SSA's "garden". However, in the near future international trade and SSA-fixation with China might keep away sustained manufacturing businesses and isolate the SSA status to only a natural commodity exporter in the long-term, while serving an expanding Chinese and Asian resource market, in view of economic and demographic growth. History has shown that hardly any country on earth became sustainably developed by only relying on its natural exports alone.

### ***(iii) Result 3***

*Higher returns on capital have no significant impact on FDI/GDP inflows to both SSA and non-SSA.*

Economic growth was excluded as an explanatory variable from the regression, shown in Column 4, since there is a high degree of correlation between economic growth and returns on investment/capital which was constructed as the inverse of GDP per capita. Since GDP per capita and the growth rate of GDP per capita are highly collinear, the resulting multicollinearity problem may change the coefficient of the independent variables erratically in response to small changes in the model.

The insignificance of return on capital for FDI in SSA may be plausibly explained by two facts. First, FDI in SSA is largely resource-seeking, channeled into oil and mining sectors. In primary resource industries low local wages are not taken advantage of as much as its practice in manufacturing businesses in non-SSA countries. Subsequently, FDI in natural resources is not determined by returns to capital than equivalent FDI in high-tech manufacturing or services (Navaretti and Venables, 2004). According to Asiedu (2002), if FDI inflows are natural resource based, then the rate of return variable will not be significant. Second, in a risky environment, higher returns do not translate into more investment but deters it. The uncertainty of government policy and poor infrastructure has a negative impact on private investment even though return on business' capital may be theoretically higher in SSA than in non-SSA. The "advantage to be poor" via lower wages cannot be exploited, if SSA is still performing under the institutional and infrastructure threshold relative to non-SSA countries.

It remains a puzzle why higher returns on investment for non-SSA countries do not lead to increased FDI inflows, as theory robustly predicts. The inverse of real GDP per capita may be a fragile and imperfect proxy for return on capital. There are 3 plausible explanations to this puzzle. The first is that sustained GDP per capita growth in non-SSA implies better prospects for market-seeking FDI. However, the higher per capita income yields, the lower will be the inverse of GDP per capita as proxy for return on capital. Therefore, the imperfect proxy does not capture the recent effects of market-seeking FDI, which supports the insignificance of the estimate. Second, the return to capital effect may be captured through the rule of law (variable) which induces growth and FDI inflows (*Result 4*) for non-SSA countries. Since, the return on capital proxy is constructed as the inverse of GDP per capita it will be sensitively related to GDP growth. Third, the return on capital is a long-run designed, financial measure due to diminishing returns to labour and capital in the long-run, while this paper is embedded in a medium-run analysis of a ten-year period.

The SSA question is whether return on capital through primary resources can be channeled into sustained return on investment, economic growth, diversified industries and improved governance quality in the future. In that case, higher return on capital should boost future FDI inflows in SSA.

**(iv) Result 4**

*The rule of law promotes FDI to non-SSA countries, but has no significant impact on FDI flows to SSA countries.*

Non-SSA countries benefit from increased FDI inflows when the quality of the legal-political regime improves. In non-SSA developing countries, institutions act as preconditions and determinants of FDI inflows and economic growth. Policies that have been able to reduce the risk of investment in non-SSA countries enhance the local business environment and increase regional FDI inflows.

According to Asiedu (2003), the degree of SSA policy development is only mediocre compared to reforms, implemented in other developing countries. Despite SSA's absolute progress on the quality of the rule of law, in relative terms they have been thin (**Table 3**), given that the developing world has become more competitive and integrated, underlined by the insignificance of the rule of law variable for SSA. Investors have been irrationally averse to place manufacturing FDI in Africa, attributing on the nature of irreversible FDI that becomes a costly and risky adventure of foreign firms, resulting from low institutional development.

SSA countries with abundant natural resources have inevitably attracted FDI/GDP, regardless of their country's institutions (rule of law). These results downplay the benefits of institutional improvement in SSA countries. However, when major institutional improvements, as for example in Madagascar, Mauritius, South Africa, Namibia and Botswana were realized, non-resource based FDI was the result. According to Basu and Srinivasan (2002), resource-scarce Mozambique and Uganda attracted investors by their long-term commitment to macroeconomic stability and market-friendly environment. This case study based analysis "à la Rodrik" reveals that institutional enhancement of the rule of law yields fruit for FDI into second industry branches of manufacturing and services. Morisset (2000) for example, found that countries with sound economic policies and good institutions attracted more FDI flows than African countries with bigger local markets or natural resources. Therefore, natural-resource scarce SSA countries, such as Mozambique and Uganda have been able to increase significantly their FDI flows that provide a positive perspective that any African country, given its geographic reality is able to attract FDI.

However, as we have seen through the lenses of the econometric estimation, it's still the natural resource sector that papers over the institutional importance of SSA, in which the utility of natural commodities stand above institutional preconditions, being part of the "resource curse". Conversely, future sustained growth and FDI inflows in SSA, by means of industry diversification will hinge on the relative progress of institutions compared to the rest of the developing world.

Next in Section 4.3, I am interested in the reverse relationship or feedback mechanism of FDI/GDP on institutional quality, analyzing whether FDI inflows have the same impact on institutional quality in SSA and other developing countries.

#### **(v) Result 5**

*Infrastructure development promotes FDI to non-SSA countries, but has no significant impact on FDI streams to SSA.*

This may be explained by 2 motivations. First, FDI to SSA is largely natural resource based, predominantly in capital-intensive extractive industries. For example, the 24 African countries classified by the World Bank as oil- and mineral-dependent have, on average, accounted for three quarters of annual FDI flows over the past two decades (UNCTAD, 2005). Furthermore, in 2003 the top 4 SSA countries that received FDI flows were all major petroleum-exporters, namely: Angola, Equatorial Guinea, Nigeria and Sudan. Second, infrastructure development, especially the availability of telephones is less relevant for natural resource-based FDI. Indeed, foreign firms investing into an extractive SSA industry do not expect to find access to power supply and water in isolated distant exploration sites. When the utility of natural resources is higher than their associated costs, the use of private generators solves for shortages of electricity for extractive FDI. However, an underdeveloped transport infrastructure results into soaring transport costs especially for adverse located countries, since the World Trade Report 2004 of

the World Bank revealed that there exists a negative correlation between the quality of infrastructure and inland transport costs. In sum, although for the exploration of natural resources infrastructure might not be essential for FDI, but for its transportation, weak transport infrastructure, as unpaved and pot-holed roads, lack of railways and bridges enlarge transport costs considerably, consequently reducing trade and FDI in future non-resource segments.

It's importance is highlighted by China's heavy investment into infrastructure development in SSA, building roads in Ethiopia, pipelines in Sudan, railways in Nigeria and power in Ghana (Moyo, 2009). Chinese FDI is directed to the construction of the road and rail networks in SSA. Once again, as suggested by *Result 4*, this proves that raw-materials are on a large-scale transported away instead of experiencing local processing, subsequently explaining SSA's low FDI in manufacturing. However, there is hope that the development curve of SSA will pick up due to Chinese investment into SSA infrastructure, employing local labour and reducing transport costs for future trade and FDI. At the same time scholars, like Moyo (2009) and Collier (2008) are concerned that SSA will be highly receptive to Chinese cheaper import manufacturing goods that may undercut SSA's potential to build on diversified manufacturing industries. Moreover, it may threaten existing manufacturing jobs, subsequently isolating SSA furthermore from manufacturing associated FDI, as discussed in *Result 2*. Many SSA countries however welcome Chinese FDI, since it appears that in poor SSA countries the future plays a less important role because for many countries it's about "survival" today – not tomorrow.

For non-SSA high income developing countries a reliable transport and power infrastructure is indispensable in addition to an adequate telecommunication network, given that their type of FDI is mainly market-based and directed to manufacturing and services. Hence, the infrastructure development coefficient for non-SSA is positive and on average twice as high relative to SSA (**Table 3**).

**(vi) Result 6**

*Oil-exporting status in SSA and non-SSA countries has no significant impact on FDI inflows - not in line with previous case studies.*

Historically, resource endowments used as energy sources, like coal and iron ore were central to the Industrial Revolution in the late 18<sup>th</sup> century and Western Europe's subsequent economic development. Europe's largest deposits were located in Britain, Germany and Belgium in the late 18<sup>th</sup> century. However, in the past decades resource-abundance status has not lived up to its historical potential, but is closely related to civil conflicts and unfulfilled economic growth in developing countries. Oil-exporters have had historically high levels of foreign ownership (control) of their key resource because oil-exploitation from the start required unusually high levels of capital, drilling technology and know-how which developing petro-states did not possess (Karl, 1997).

Although recognized by scholars (Pigato, 2000 and Morisset, 2000) that FDI into SSA is mainly directed to resource-rich countries, the interaction term for SSA oil-exporting countries remains insignificant, even though oil-rich Angola and Sudan were added to the sample. In fact from 1990 to 2005, oil production in Africa rose from 6.5 to 9.3 million barrels per day - accounting for over 11 percent of world production in 2005 (UNCTAD, 2006).

A possible answer to this puzzle may be that the "resource curse" that is closely connected with increased conflict potential and corrupt institutions that scare off diversified FDI. Hence, FDI in such countries will not flow into industry branches, other than natural resources. Consequently,

petrochemical, petroleum refining and plastic industry branches have not been targeted by foreign investors in such countries. The example of Saudi-Arabia shows that good governance and absence of risk of civil violence has the potential to establish a new industry linked to oil, where petrochemical and plastic manufacturing has become quite active.

It's an important policy implication that institutional improvement in natural resource abundant developing countries has the potential to bring about a second FDI-wave, in diversified oil-related industries. Hence, for FDI into oil-related industries a safer institutional environment is vital and can become a way out of the "resource curse", if being accompanied by non-oil based fiscal policies, education and a diversified industry in competitive sectors, as for instance, tourism (Section 5).

Contrary, in developing countries and in particular in SSA, where the institutional environment has not reached such threshold level, multinational firms are scared off by civil conflict and the high risk of expropriation and policy reversal. Subsequently, the crude oil and minerals are traded and transported away, along with later processing at home instead of being processed locally in the developing country. However, the "resource flight" today, may explain why the marginal benefit of openness is higher for SSA countries, if natural-resources are mainly traded away rather than being processed in the region itself, mirroring the legal, bureaucratic and conflict risk restriction for non-resource-seeking FDI – prohibiting the second (manufacturing) FDI wave. Hence, *Result 6* has the potential to reduce the shiny *Result 2* of openness. However, since most of the SSA oil-producers are still quite young relative to other oil-producing developing countries, such as Venezuela. There is hope that time may bring diversification into value added oil-related industries.

**(vii) Result 7**

*Geography - greater distance from the equator has no impact on FDI for SSA and non-SSA countries. However, larger SSA countries in terms of land area attracted more FDI.*

This would be a novelty since there are hardly any papers that were able to prove that geography impacts on firm's decisions to invest in developing countries. The recent work by Krugell and Naudé (2007) failed to find this direct relationship. Analogously, my results do not point out geography as a direct and strong determinant of FDI in developing countries.

SSA countries further away from the equator have not received higher FDI/GDP flows. Theory does not find quantitative support for both SSA and non-SSA countries. However, the explanations are different. Primary, SSA FDI is resource-based for which the location of these resources are secondary, since natural resources are located randomly over the surface of the earth and do not follow a geographic scheme. However, when checking on a map, manufacturing FDI is clustered further away from the equator in SSA. This observation can be made by the geographic FDI poles of South Africa, Mauritius and Botswana, all located in the south of Africa, representing the FDI hubs in manufacturing and services, textile production and mineral extraction respectively. Also, resource-scarce northern African countries, such as Morocco and Tunisia are more active in manufacturing FDI than any other tropical SSA country. In short, although not captured through the regression, geographic distance from the equator may function as direct determinant for FDI into manufacturing on the African continent.

Second, for FDI into non-SSA countries the distance to the equator does not matter, since other developing countries have managed to overcome the geographic constraint by adequate infrastructure and good health care that promoted manufacturing and market-seeking FDI.

However, also there geographic tendencies of FDI location can be observed within the countries, due to the historical roots of coastal urbanization and settlement caused by colonialist transoceanic trade and exploration of natural resources in developing countries of today.

Responsible for Africa's division into separate states were the former colonial powers that drew African borders arbitrary at the Berlin conference in 1884, deciding on African countries' land area (geography) today: an example of how history modified geography and subsequently economics. Larger SSA countries by virtue of their magnitude will have a greater likelihood to have resource-wealth contained within its borders if the land area is larger. For that reason the modest correlation of SSA countries' land area and resource-based FDI is traceable.

### **4.3 The Resource Trap and FDI**

The term "resource curse" or "paradox of plenty" describes the failure of resource-endowed countries to benefit from its natural wealth. Paradoxically, natural resources might become more an economic curse than an economic blessing, since many resource-rich countries are more miserable in terms of political conflict and economic setback than other resource-poor countries (Auty, 1993).

The "resource curse" is a complex phenomenon for which three processes come into play. The first is currency appreciation due to resource revenues and its negative effect on competitive industries in the country, called "Dutch Disease". The second is the fluctuation (boom and bust cycle) in commodity prices, having an unreliable effect on revenue inflows. The third is the effect on political and institutional conditions which impact is far greater than for the previous two economic processes (Humphreys et al., 2007). It is the third factor that determines FDI effectively to non-SSA but less to SSA countries, revealed in the previous regression results (**Table 4**, Column 4). According to Karl (1997), the fate of petro-states needs to be acknowledged in the circumstance in which economies shape institutions and in turn are shaped by them.

However, it's not compelling that many resource-rich SSA countries are poor precisely because they have abundant natural resources and consequently suffer under the "resource curse". There are other countries like natural abundant Botswana that have grown rapidly over the past 50 years. Without doubt, natural-endowed countries are more vulnerable than other non-endowed developing countries. However, natural abundance becomes a curse through the channel of fundamental institutional and political economy factors that lead to worse economic outcomes (Acemoglu, 2008). Hence, the disappointing outcomes of oil-exporting states cannot be fully understood detached from their institutional development. Consequently, this chapter seeks to explain the effect of FDI into resource-rich SSA and non-SSA countries and its effects on institutional, conflict and present and future FDI development.

Its complex to say whether FDI has the potential to influence institutions since theoretically the causal direction is regarded to go the other way – a superior rule of law attracts FDI. However, the causal arrow between economic development and institutional change runs in both directions. Therefore, this permits to reverse the causal direction and check upon a feedback mechanism of FDI/GDP inflows on the rule of law for non-SSA and SSA countries. For this purpose the interaction term SSA\*FDI/GDP was constructed to estimate whether SSA countries that received FDI also have improved their rule of law as a consequence. Have investors given the rule of law

as much importance in SSA as in other developing countries and what has been the net institutional effect of FDI to SSA and non-SSA countries?

A simultaneity problem may arise; in the case of at least one of the explanatory variables is determined (endogenous) jointly with the dependent variable. The dependent variable (rule of law) would be endogenous as it is correlated with the error term. However, the inclusion of explanatory variables in the regression model in **Table 5**, such as oil and mineral exporter status were statistically insignificant in the combined regression of in Column 4, **Table 4** which solves for the simultaneity problem. Hence the error term does not correlate with the dependent variable, not picking up an unobserved simultaneity bias.

*Result 4* identified that the rule of law promotes FDI/GDP to non-SSA but has no significant impact on FDI/GDP to SSA countries. In this sub-section, I am interested in the feedback mechanism of FDI/GDP onto developing countries' confidence of agents into the rules of society and conflict occurrence. The results have been drawn from the robust Panel data of the same sample as applied before, where this time the dependent variable is the "rule of law" and "absence of conflict". I favour the robust panel regression of the 3 sub-periods between 1997 and 2006 in column 1 and 2, given that the panel data set explores the cross-sectional and time series dimension, increasing the number of observations.

The Hausman test statistic is 5.17. So with an  $\alpha$  of 0.05 I would reject the  $H_0$  hypothesis. Formally, the 5 percent critical value (with 2 degrees of freedom) is 5.99 which is higher than the Hausman statistic of 5.17. Therefore, I reject the  $H_1$  of a fixed effects model and accept the  $H_0$  hypothesis, which indicates that a random effects model is most appropriate, capturing the binary variables in my sample as before.

**Table 5:** Random Effects Model Estimation: Resource Curse and FDI

Dependent variable: panel data	(1)	(2)
	Rule of Law	Absence of Conflict
<b>Intercept</b>	-0.446*** (0.000)	-0.436*** (0.000)
<b>FDI/GDP</b>	0.049*** (0.000)	0.046*** (0.002)
<b>Oil</b>	-0.339* (0.064)	-0.670*** (0.003)
<b>Mineral</b>	-0.125 (0.626)	-0.165 (0.279)
<b>FDI/GDP*SSA</b>	-0.044*** (0.001)	-0.054** (0.021)
<b>Oil*SSA</b>	-0.470** (0.036)	-0.062 (0.864)
<b>Mineral*SSA</b>	0.041 (0.891)	0.334 (0.174)
<b>R<sup>2</sup></b>	<b>0.2748</b>	<b>0.2155</b>
<b>Number of observations</b>	<b>216</b>	<b>216</b>

(Robust p-values in parentheses)

\* Significance at the 0.10 level.

\*\* Significance at the 0.05 level.

\*\*\* Significance at the 0.01 level.

**(viii) Result 8**

*FDI induces institutional change (rule of law) in non-SSA countries. However, FDI flows into SSA left institutions unchanged and fueled (financed) slightly violent conflicts and civil unrest. Oil-seeking FDI in developing countries (SSA and non-SSA) is not selective in terms of institutions.*

This highlights the fact that FDI into SSA has not been directed to economic sectors in which the rule of law and absence of conflict is important, and therefore FDI did not induce growth and neither institutional change in SSA. FDI flows into SSA improved the rule of law only marginally by 0.005 for which the sum of the estimates of FDI to SSA and non-SSA was calculated, as shown in **Table 5**, Column 1. However, FDI into non-SSA promoted the rule of law, which was ten times higher (0.049) than for SSA. Through which channels did FDI induce institutional improvements in non-SSA?

FDI to non-SSA specialized in manufacturing goods triggered sustained economic growth through the division of labour, which indirectly induced additional fundamental institutional change. Economic growth reduced unemployment and social and economic inequality in many non-SSA countries, while enriching and strengthening the working middle class, as well as commercial interest groups. Consequently, economic and political interest groups outside the government circle became sufficiently powerful to place limits and reforms on the state power. Additional political reforms and institutions to protect property rights spurred further FDI inflows to non-SSA regions, such as East and South-East Asia. This institutional development induced by growth is in line with the experience of countries in early modern Europe (1500-1850) with easy access to the Atlantic and non-absolutist initial institutions. According to Acemoglu et al. (2005) in non-absolutist countries, such as England and the Dutch Republic, Atlantic trade provided substantial profits and political power for commercial interests outside the royal circle. Hence, in the early 21<sup>st</sup> century this growth mechanism of stimulating institutional change has led to similar effects in terms of FDI, economic historically somewhat analogous to Atlantic trade, back in times.

Oil-seeking FDI does not distribute resource-revenues to the broad middle-class but contrary enriches corrupt government officials and therefore prevent institutional enhancement by the explained process, above. Furthermore, investors do not give much importance to the institutional framework because their investment is resource-seeking, especially in SSA. The rule of law in oil-exporting SSA countries is more than twice as low as for non-SSA oil-exporting countries, when summing the two coefficients to get the total effect for SSA oil-exporters in **Table 5**, Column 1. Hence, oil-seeking FDI is not selective in terms of institutions. The prerequisite for the rule of law becomes relatively less important since the utility of natural commodities for multinationals is higher than the hazard of low institutional quality and violent conflict. Additionally, SSA oil is state-owned; consequently foreign firms in these countries will deal directly with the local government that will treat multinationals well since they themselves rely on the associated rewards of the companies, export revenues, exploration technology and know-how.

In sum, investors have advocated more importance to the rule of law in non-SSA countries than in SSA simply due to the different type of FDI, given that on average non-SSA countries have more stable institutions and fewer violent conflicts (check **Table 3**). Hence, foreign businesses in capital-intensive manufacturing in non-SSA face a lesser risk of expropriation and policy reversal than in SSA. In addition, non-SSA countries have on average higher per capita income levels than in SSA, which may have resulted into extra market-seeking FDI. These features have

tremendous consequences especially for petro-states. Their exclusive wealth means that they differ structurally and strategically from non-natural resource endowed developing countries (mostly non-SSA) that are intensive in manufacturing and agricultural exports. Capital-intensive, large-scale and technological complex industrial production and associated FDI is common in non-resource-endowed developing countries, mostly non-SSA. The statistically insignificant effect of mineral-exporters relative to petro-exporters may be explained by the fact that mining states are economically dependent on a single resource, while oil-exporters comparatively face an even greater acuteness (dilemma) of their dependence characterized by vulnerable export-earnings (windfall rents) which affects the growth rate, inflation and investment rates (Karl, 1997).

The relevance of “resource-rich poverty” for developing countries cannot be overstated, since 29 percent of the African population lives in countries in which resource-wealth is a major income-source (Collier, 2008), therefore let’s focus on oil-exporting SSA and non-SSA countries. Being an oil-exporting non-SSA country has a negative impact on its institutional measure. For SSA this effect is even more negative, formulating the natural resource abundance trap. Natural resource dependency is likely to induce autocracy and dictatorship, rent-seeking behaviour, indirect finance of conflicts, the “Dutch Disease” exchange rate dilemma, exposure of the national economy to external shocks and endless resource-seeking FDI. This assortment is highly detrimental for economic development and good policies, while condemning non-resource-seeking FDI.

FDI flows into SSA did not induce peace but fueled (financed) to some extent violent conflicts. FDI into the Sudan represents a fitting example of the negative effect FDI flows can have, regarding conflict occurrence, as shown in **Table 5**, Column 2. For SSA countries, conflict occurrence increased slightly to -0.008, when summing the SSA and non-SSA coefficients of absence of conflict. Despite strong FDI and commercial ties between China and the oil-exporter Sudan, the Chinese have not pressured the Sudanese regime to withdraw from war in Darfur but rather added “fuel” via oil-revenues and military arms imports in a cynical attempt to secure oil-resources. In turn, these revenues have been spent on arms, indirectly financing the conflict – oil for military arms. Chinese FDI into Africa does not pay attention to the rule of law and conflict occurrence but is mainly resource-seeking, while improving infrastructure development in SSA for the purpose of resource-transportation and trade. Memories come to mind of colonial powers formerly supplying African rulers with military equipment to establish control of the natural resources. Overall, it reflects the intensity of China’s quest for energy security and compliance to do business with the most devastated and dangerous countries in the world, while doing harm to economic development prospects in these countries.

According to Collier and Hoeffler (1998), dependence on natural resources increases the risk of civil war considerably. They compared countries with 10 percent and 25 percent of their GDP coming from natural resources the risk of a civil war in the following 5 years increases from 11 percent to 29 percent. Furthermore oil is distinctive, since it is more likely to be related to civil unrest than any other natural export-commodity, justifying the statistically insignificant mineral-exporter variable relative to oil-exporters for both the rule of law and conflict dependent variables.

However, it’s not only primary commodity dependence but also per capita income that influences the likelihood of civil war occurrence. Resources trigger sustained economic prosperity in countries of high levels of per capita income (for example Norway and Australia), whereas in poor developing countries it becomes a trigger for civil unrest. Subsequently,

developing countries that find themselves under a particular income threshold are particularly vulnerable to primary commodity dependency - SSA societies are a long way below this threshold. It is self-explaining why civil violence does not act as a magnet for business investments - apart from resource-seeking FDI. The negative investment effect comes from within and outside. If local businesses in SSA are aware that they are located in a country at risk of violent conflict, they anticipate by being less likely to invest (Collier, 2009). The same holds for FDI when civil conflict is present. FDI will be absent in manufacturing but still be directed to natural resources.

There are little examples of countries that have prospered sustainably of an oil-driven economy, but contrary, states have failed to harness resource wealth for sustained growth. In particular in SSA-oil exporter countries FDI in manufacturing remains an illusion. The danger may occur, if a country has enough natural resources it may forget about other economic activity – because it can afford it as the Persian Gulf states: Saudi Arabia and Kuwait. However, particularly in resource-rich countries investment is evidently important since this is how the resource-wealth is able to undergo the transformation of a sustainable income. Therefore, the diversification of FDI into other industrial sectors is imperative for sustained growth, which may only occur by major enhancement of institutional quality. Madagascar reveals to be a good example of demonstrating the importance of institutional quality. Madagascar attracted through good policies manufacturing FDI in the textile sector. After a coup d'état vertical FDI re-emigrated drastically. The well-known success-story of diamond-endowed Botswana is an example of how important a good institutional framework can be for sustained economic growth and peace. Botswana was able to prevent the “resource-curse” through the implementation of sound government management in the mining sectors (diamonds, gold and copper), while good governance, low corruption levels and political stability spurred economic growth and FDI.

The consequence of the “resource curse” is two-folded for FDI. First, resource-dependent developing countries have on average poorer institutions and a higher probability of civil conflict, which attracts solely resource-seeking FDI, but crowds out manufacturing FDI and decreases the prospects for a flexible and appropriate modification to an oil-led development path. As a result of institutional decay, future FDI into the manufacturing sectors becomes an illusion, while the profound dependency on natural resources in turn reduces future growth (Sachs and Warner, 2001).

The conclusion to be drawn from this additional estimation is that FDI to non-SSA induces growth, institutional change and reduces conflict occurrence. However, FDI into SSA is resource-seeking and non-growth inducing, consequently leaving institutions unchanged. SSA's resource wealth attracts major FDI inflows but crowds out FDI into manufacturing, essential for sustained economic growth. This “resource-seeking FDI trap” eventually impedes sustained economic growth and may condemn a country in the long-run to the “slow lane” of resource-dependency. The relevant policy implication for resource-endowed developing countries is to diversify into manufacturing industries with the support of international FDI and simultaneous institutional enhancement.

The following policy implications in section 5 are directed to tackle the dilemma of the “resource-seeking FDI trap” and exploit the resource wealth in a more fruitful, sustainable and economic viable approach.

## 5. Conclusion and Policy Implication

So that oil does not become "the excrement of the devil" as Perez Alfonzo, Venezuelan oil-minister labeled it in the 1960s, but an opportunity for diversified future FDI inflows, a couple of measures need to be taken. My policy implications will not focus on direct remedies to the "resource curse". However, I will address exit strategies for resource-endowed developing countries that suffer from the maladies of the paradox of plenty through the power of FDI. In particular, SSA must inhibit long-run growth-focused structural changes to attract diversified FDI that inevitably may lead to a break-down of the negative effects of the "resource curse". The promotion of good governance and the reduction of corruption is a precedent condition for future sustained growth via industry diversification. Oil revenues need not to be a curse.

It's an important policy implication that institutional improvement in natural resource abundant developing countries has the potential to bring about a second FDI-wave, in diversified resource-related industries and manufacturing that theoretically and historically led to sustained economic growth. Hence, for FDI into oil-related industries a safer institutional environment with less corruption (more transparency) is vital and can become a potential escape from the "resource curse", if being accompanied by non-resource based fiscal policies, education and a diversified non-resource industry in competitive sectors, as for instance, tourism. Reinvested oil earnings into resource-related industries and manufacturing industries will enhance productivity and minimize the risk of "Dutch Disease". Hence, FDI can play an active development role and has the potential to run complementary to aid, which has been highly misdirected in these environments in the past.

Historically, multinational oil and mining firms benefited from asymmetric bargaining power, capturing natural resources in the less developed world (Humphreys et al., 2007). However, oil and minerals are highly demanded scarce commodities. On the other hand, natural resource's bargaining power has fallen short of potential and is undermined by rent-seeking and corrupt government officials of resource-cursed countries, unable to implement sustainable growth promoting measures. The potential "muscle-power" of resource-endowed countries needs to be harnessed to force investment from abroad into diversified oil- and non-oil-related industries, setting up the institutional framework and fiscal policies to finally lift the "resource curse", which detains FDI into these specific branches.

Responses are therefore required not only from host countries but also at the international level of FDI, since reforms that bring an end to the "resource curse" are in the interest of both SSA countries and consumer states' multinational firms. Hence, the international soaring demand for SSA's natural commodities can in turn be made use of by being made conditional to diversified FDI, additional to the largely resource-seeking investments. A contract with a compulsory development appointment clause would bind resource-seeking FDI to additional investments into mining- and petroleum-related process industries, as well as non-resource export sectors of manufacturing plants. Development and resource-seeking FDI in SSA must not be a contradiction but need to be understood by multinationals to go hand in hand. Only then, FDI can play a prominent role in the design of economic development strategies for poverty alleviation.

A serious concern to this policy strategy is that foreign oil and mining firms need to obtain a concession to exploit natural resources of the rulers of the countries. Here, SSA faces a serious agent-principal dilemma. Because the rulers of resource-rich SSA countries are often rewarded by foreign firms and therefore act adverse to their own country's interest since they have little

incentive to produce public goods (Humphreys et al., 2007; Olson, 2000). This creates incentives for personal gain and explains why rulers remain in power longer in resource-rich countries as rulers in resource-scarce countries which ultimately increase the proneness to political turmoil and civil strife within such countries. In turn, adverse international attention from the non-resource-seeking FDI community is the consequence. Subsequently, who should enforce these conditional clauses regarding FDI diversification in such prohibitive environments?

In this respect, the government's ministries of economic development and international cooperation in the FDI home-countries need to understand to make this policy implication part of their general development strategy, to ensure that FDI outflows are directed to diversified non-resource sectors. This may go quite contrary to multinational's interest, therefore the governments of resource-seeking FDI origin is required to set incentives. Concretely, original aid payments made directly to governments (bilateral aid) should be selectively transferred to businesses that commit themselves to this development policy and invest into Africa's resource-related industries rather than transporting it back home for processing. Additionally, investments into manufacturing segments require incentives via subsidies, too. This would propound quite a revolution in the aid appointments of which Dambisa Moyo (2008) indubitably would be in favour of.

The role of Africa's largest foreign investor China is ambivalent, since it provides substantial infrastructure development and employment for SSA, while simultaneously not allocating its FDI towards diversified and natural resource wealth related industries, that in turn would promote productivity and long-term growth. This must be the next strategy. However, Chinese imports outcompete and underbid local SSA firms and are not hiring enough local labour, while the pure interest in resources and land dominates. The recent acquisitions of Chinese companies of foreign SSA land for grain production, not only demonstrates a recent distrust in market-values but exemplifies the trend that Chinese people work in SSA to send the grain home for later biofuel fabrication and food-processing (The Economist, 2009).

Chinese investment into transport, telecommunication and power infrastructure needs to serve as a base for the second FDI-wave, while good governance will encourage this wave. Foreign Chinese, Indian, Russian, Japanese and other investor's capital into SSA's natural resources has the potential to become a serious development tool when a marriage between primary resource business interest and development gets a chance of implementation. More than ever the natural commodities, like crude oil must stay temporarily in the country for linkage to oil-related industries and manufacturing FDI, which in turn will employ and train local labour and generate technology and future FDI spillovers. In short, the globalization of profit-opportunities for multinational firms via FDI needs to be understood and cannot forego without the globalization of social responsibility (Domínguez Martín, 2008).

Liberal trade policies had a positive effect on FDI inflows (**Table 4**), hence interregional SSA trade blocs should intensify their efforts to pursue potential FDI inflows and economic growth benefits from trade liberalization. However, this positive trade-effect may actually hide and indicate part of the problem of "resource flight" rather than resources staying in the country awaiting the second FDI wave. On the other hand, its complex to isolate this effect, therefore in general, liberal trade policies induce FDI growth in SSA, which needs to be maintained and further stimulated. The break-down of trade barriers stimulates an investor friendly environment since inter-SSA trade has the potential to encourage infrastructure coordination, increase market and supplier access, while cutting transport costs due to lower tariffs and improved transport facilities. This becomes particularly significant for geographic adverse SSA countries, located in

the landlocked hinterland. Their geographical distance constraint for international trade may be reduced and neighbourhood-growth-spillovers launched to lessen geographic inequality.

This work examined the determinants of FDI to developing countries, while giving special attention to the unsuccessful FDI-history for SSA, which by and large, has been confirmed. At the same time the regression results report a dramatic increase in FDI/GDP into SSA relative to Asiedu's (2002) period of time of 1988-1997 and this work's modern timeframe 1997-2006. Furthermore, increased FDI inflows from Asian developing countries into SSA are expected to increase in the future. The dilemma appears, when defining the type of FDI to SSA, it's mainly resource-seeking rather than directed to manufacturing- or even market-seeking FDI segments as it's the case in non-SSA countries, in particular for South-East Asia. The recent intensity of FDI into corrupt and conflict-driven resource-rich SSA reflects the global "scramble" for energy security and profits in the early 21<sup>st</sup> century, for which Chinese FDI stands out and marks a unique case study.

Almost all fundamental determinants of FDI were found to be relative superior for non-SSA relative to SSA countries. This all is strong evidence that specifically, infrastructure development and superior institutional quality captured by the rule of law variable promote FDI to non-SSA countries. Despite absolute progress in FDI for SSA, a relative decline regarding infrastructure and institutions remains, which in the framework of a global integrated competing economy won't be enough to promote non-resource FDI. For SSA openness to trade was the only significant determinant, which by itself is a positive sign, capturing for the first time the positive FDI effects of the SSA concert effort of economic integration and trade liberalisation. Regrettably, the interpretation is more complex, since the higher is the openness to trade coefficient for SSA, it may capture the increased resource-seeking FDI effect by increased trade-flows for SSA. In a "neo-colonialist fashion" natural resources are explored by foreign firms but not processed locally by SSA labour but transported back to the home-country for subsequent value-added treatment.

A second conclusion is that the quality of institutions is a reliable and equitable driver of rapid economic development and FDI in non-SSA countries. FDI into SSA is based in primary agriculture and natural resources (oil and mining), which in combination with low institutional settings have not attracted, but scared off related processing industries of local resource wealth and manufacturing businesses. It's institutions, which allow foreign investors to reduce their aversion and risk perception of the African continent via dependable property rights, management of conflict and law and order to create investment opportunities. In recent history many non-SSA and a handful SSA countries with past institutional change were in turn rewarded by a sustainable wave of FDI for economic growth. Interestingly, these policy implications for African countries have not been identified to be different from those small resource-scarce countries, such as Ireland and Singapore almost 30 years ago.

A third finding is that geography does not influence directly FDI flows to SSA and non-SSA countries, because none of the geographic variables were significant, except land area in SSA. However, geography might have an indirect impact on FDI via infrastructure, transport costs and GDP per capita growth, in particular in tropical adverse geographic SSA. When checking on the African map, manufacturing FDI is clustered further away from the equator in Africa, in both the north and south of the natural resource-blessed continent, suggesting a geographical relationship of FDI, directed to non-resource segments, such as manufacturing.

Fourth and final, I conclude that understanding the SSA FDI tragedy requires not only a description of the unfavourable country characteristics, but also an understanding of why these characteristics were so unfavourable for FDI. The formulation of the “resource curse” has its influence via FDI for economic growth in natural resource rich countries, concerning strongly the oil sector. Resource-seeking FDI therefore does not induce sustained growth and institutional change. The consequence of the “resource curse” is two-fold for FDI. First, resource-dependent developing countries have on average poorer institutions and a higher probability of civil conflict. Second, this attracts solely resource-seeking FDI, but crowds out the second FDI wave into manufacturing and resource-related industries. This restrains future sustained growth and traps these countries even more profoundly, by making them more dependent on volatile natural resource rents in the long-run. The acknowledgement of the “resource curse” in relation with FDI is absolutely crucial for future policy implications.

In a closing appeal I would like to address that foreign investors should not re-invent African colonial history in a capitalistic business manner that once contributed to the bleak reality of Africa today. The extraction and depletion of African treasures must serve both capitalist consumer states and African growth and welfare sustainably. To ensure this on the international level governments are required to live up to their historical and social responsibility. The time is ripe for multinationals to rethink SSA opportunities and simultaneously to help the region achieve its promise by contributing much-needed capital, business skills and global connections (Collier and Warnholz, 2009). Until then, according to the former UN-secretary-general Kofi Annan (United Nations, 1999), “Africa's profitability will remain one of the best kept secrets in today's world economy”.

Future research may study the effect of changes in wages, monetary and exchange rate policies, taxation and other variables that may determine FDI flows for developing countries. Moreover, the development of institutions and resource-seeking FDI yields potential and therefore deserves additional future research. An accurate splitting (if available) of the types of FDI (resource-seeking or manufacturing-seeking) may give more accurate and straightforward results at the regression stage. The direction of China's future FDI and trade will be serving as a historical study to see the demographical and economic growth of China versus its scarce arable land area and energy sources which outcome will change economic history in the medium and long-term, in particular in resource-rich African countries.

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## 7. Appendix

**Table A1.** Countries grouped by region

Sub-Saharan Africa	Latin America & Caribbean	Asia	Other
Angola	Argentina	Bangladesh	Algeria
Benin	Bolivia	China	Egypt
Botswana	Brazil	India	Morocco
Burkina Faso	Chile	Indonesia	Papua New Guinea
Cameroon	Colombia	Malaysia	Tunisia
Cape Verde	Costa Rica	Nepal	
Central Africa	Ecuador	Pakistan	
Congo Republic	El Salvador	Philippines	
Cote d'Ivoire	Grenada	Singapore	
Equatorial Guinea	Guatemala	South Korea	
Gabon	Guyana	Sri Lanka	
Gambia	Haiti	Thailand	
Ghana	Honduras		
Guinea	Jamaica		
Guinea Bissau	Mexico		
Kenya	Nicaragua		
Madagascar	Panama		
Malawi	Paraguay		
Mali	Peru		
Mauritania	Trinidad and Tobago		
Mauritius	Uruguay		
Mozambique	Venezuela		
Niger			
Nigeria			
Senegal			
Sierra Leone			
South Africa			
Sudan			
Swaziland			
Tanzania			
Togo			
Uganda			
Zambia			
Zimbabwe			

**Table A2.** Summary statistics for the full sample (72 countries)

Variables	Mean	Standard deviation	Minimum	Maximum
100 * (FDI/GDP)	3.562	3.825	-1.977	23.025
100 * (Imports + Exports)/GDP	79.06	53.51	17.313	433.421
Ln(phones per 100 population)	3.439	1.538	0.541	6.301
Ln(1/GDP per capita)	-6.969	1.182	-10.203	-4.98
Δln of GDP per capita * 100	1.056	6.655	-17.52	18.428
Inflation rate	10.166	36.141	-0.207	528.219
100 * M2/GDP	39.916	27.781	7.977	144.084
Rule of Law	-0.446	0.673	-1.783	1.767
Conflict	-0.443	0.805	-2.384	1.262
Bureaucracy (days)	56.486	41.645	7	233
Distance from the equator	0.050	0.197	-0.407	0.417
Land area (km <sup>2</sup> /1,000,000)	0.811	1.527	0.0003	9.326

**Table A3.** Variables and data sources

Variables	Source of data
<b>Institutional variables</b>	
Rule of Law	Kaufmann et al. (2008)
Absence of violence and political	Kaufmann et al. (2008)
Time required to start a business	World Development Indicators (WDI), World Bank
HIPC status (until 2007)	International Monetary Fund (2007), Heavily Indebted Poor Countries (HIPC)
<b>Policy variables</b>	
Openness, trade (% GDP)	World Development Indicators (WDI), World Bank
Infrastructure proxy (phone lines per 100 population)	World Development Indicators (WDI), World Bank
Growth in GDP per capita	World Development Indicators (WDI), World Bank
Inflation, consumer prices (annual	World Development Indicators (WDI), World Bank
<b>Geography variables</b>	
Land area (km)	Gallup et al. (1999) data set (obtainable from <a href="http://www.cid.harvard.edu/ciddata">www.cid.harvard.edu/ciddata</a> )
Distance from equator	Hall and Jones (1997) data set (obtainable from <a href="http://elsa.berkeley.edu/~chad/HallJones400.asc">http://elsa.berkeley.edu/~chad/HallJones400.asc</a> )
Landlocked	Gallup et al. (1999) data set (obtainable from <a href="http://www.cid.harvard.edu/ciddata">www.cid.harvard.edu/ciddata</a> )
Oil-exporter status (more than 33% of total exports)	Miguel et al. (2004) data set
Mineral-exporter status (more than 33% of total exports)	U.S. Geological Survey (USGS), 2006 Minerals Yearbook, (obtainable from <a href="http://minerals.usgs.gov/minerals/pubs/country/africa.html">http://minerals.usgs.gov/minerals/pubs/country/africa.html</a> )