THE DETERMINANTS DRIVING FDI IN AFRICA DEVELOPING COUNTRIES: HOW CAN SENEGAL BE MORE ATTRACTIVE?

By

Etienne Desire Diouf

THESIS

Submitted to

KDI School of Public Policy and Management

in partial fulfillment of the requirements

for the degree of

MASTER OF DEVELOPMENT POLICY

2014

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Approval as of May, 2014

ABSTRACT

Among the external sources of investment helping Sub-Saharan African countries to meet the Millennium Development Goal (MDG) we have Official Development Assistance (ODA) and Foreign Direct Investment (FDI). The former being instable as depending on the donor country's economic performances, the latter is deemed more sustainable and more reliable. Aware of this situation, policy makers started designing and implementing a set of new rules aiming to build a business-friendly environment and then attract more foreign investors. Despite these changes noticed during the last two decades, the share of foreign investments inflow to the continent is still the lowest compared to other regions in the world, which might be due to: in one hand, a mis-implementation of the policies set-up by African policy makers, and/or on the other hand a mis-perception of the variety of investment opportunities, besides the natural resources sector, that the continent has to offer to investors. In this paper we are trying to identify the key factors that positively and effectively affect foreign investment inflows to Sub-Saharan Africa. We came up with the conclusion that the size of the market and openness to trade are very important in attracting FDI and we suggest regionalism as a way to achieve it. We also found that the development of financial markets is a key factor to overcome the dependence on natural resources which is the key factor driving FDI to Africa. Surprisingly, we found that the policy variables don't have a strong negative influence on FDI inflows between the different African sub-regions.

ACKNOWLEDGMENTS

I would like to thank all the persons in Korea and Senegal who supported me throughout this Master program. First of all, I would like to thank all the emeritus professors of the prestigious KDI School here in Korea who made this year 2013 a very instructive and memorable one for me. I especially thank the wonderful Professor Seung-Joo Lee and Professor Choi Seulki who helped me achieve this work by guiding me and sharing their outstanding experience and knowledge with me. Thanks to the KOICA agency that granted me with the scholarship that allowed me to live this wonderful and memorable experience. I also thank Mr Papa Birama Thiam, Head of the Technical Assistance Office in Senegal for the trust, support, and advices provided to my colleagues and me. I thank my family for their support. I want to mention my siblings (Anne Mary, Rosalie and Louis) and especial thank to my mother Louise and my wife Cecile for the loneliness my leave of absence caused to them. Finally I would like to thank all the staff of the Senegalese Embassy in Seoul with special recognition for His Excellency Mr. Mamadou Ndiaye, Ambassador, and Mr. and Mrs. Gilbert Diouf for their support and encouragements.

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ACRONYMS

GDP:	Gross Domestic Product
EAC:	East African Community
ECOWAS:	Economic Community of West African States
ECCAS:	Economic Community of Central African States
FDI:	Foreign Direct Investment
ILO:	International Labor Organization
OECD:	Organization for Economic Co-operation and Development
SADC:	Southern African Development Community
UNCTAC:	United Nations Conference on Trade and Development
WAEMU:	West African Economic and Monetary Union
WDI:	World Development Indicators
WGI:	World Governance Indicators

I. INTRODUCTION

1. Statement of the problem:

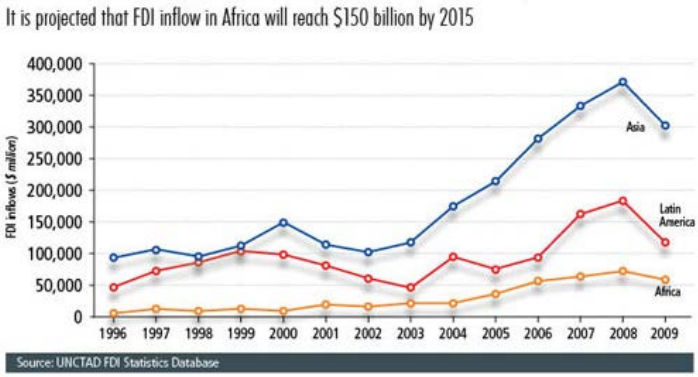
The two main sources of investment helping Africa meet the Millennium Development Goals for the reduction of poverty and also achieve economic growth are official development aid (ODA) and foreign direct investment (FDI). Despite the fact that the former "has risen in recent years as a share of donor countries' gross national income (GNI)," [1] developing countries cannot just rely on this aid and then need additional and more sustainable external sources. In addition, the African economy is overwhelmed by the informal sector, the low savings of households, the difficult access to financial markets associated with the high interest rate charged on loans by banks; these lead to low performances of the local private sector. The combination of these factors confirms once again the critical importance of FDI as the complementary, but also more sustainable source of investment in Sub-Saharan Africa. Soumare (2012) confirms this statement in one of his research papers on the impact of FDI in poverty reduction in Africa, stressing "there is positive and strongly significant relationship between FDI net inflows and poverty reduction in Africa [even though there are] differences among African regions." Overall, he supports the idea that FDI significantly influence welfare in host countries including Africa.

Moreover, not only in Africa but across the world, developing countries more and more rely on foreign investments as a way to diversify their products and services, create new jobs, get access to new technologies and increase their productivity for higher economic growth. In all cases, it seems that the benefits of inflows investments are bigger than the cost for the host countries.

Overall, there has been an increase of investment inflow for Africa and other developing countries during the last decade despite the financial crisis of 2008. The World Development Report 2012 states, "Capital inflows rebounded strongly in 2010, especially in

[1] World Bank, World Development Indicators Report 2012, Copyright by International Bank 2012, P33.

Table 1: FDI inflows into Africa, Asia and Latin America



low- and middle-income economies."[2] But despite this overall increase, the share of Africa is still the lowest compared to other regions such as Latin American or Asian as shown in Graph 1 comparing the three regions.

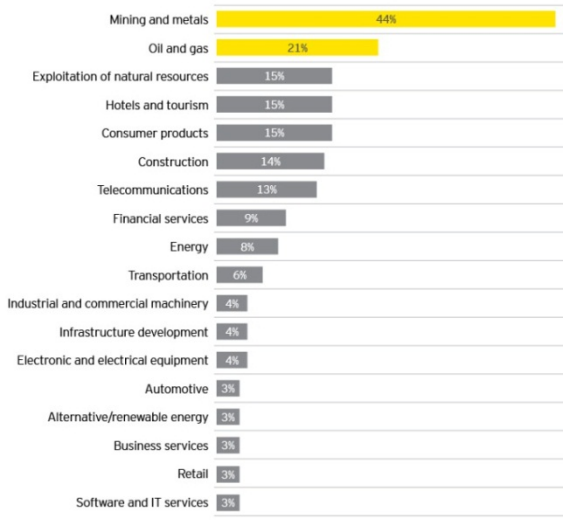
The poor economic and social performances of the African continent characterized by poverty and low economic growth are reflected in many Sub-Saharan countries like Senegal where the unemployment rate is high and the share of the population living below the poverty line is about 40% with a per capita GDP of about 1,653 USD in 2012.[3] The main sectors driving the economy like agriculture, tourism and services are suffering from very low productivity due to insufficient investments. To boost the economic growth of the country, policy makers have implemented institutional and economic policies during the last decade aiming to build a business-friendly environment and attract more foreign investors. The country also has other assets giving it a competitive advantage such as its political stability and geographic location (e.g. hub of Africa with openness to Atlantic seacoast and European and American countries by air). Senegal also relays on the wide size of its market, the improving quality of its infrastructures and other factors. But despite all these measures, inflow of foreign investment is very low and the country ranks fourth behind Nigeria, Ghana and Ivory Cost according to the Doing Business and the latest World Investment Report.

2. Hypothesis and Assumptions

Some international organizations like the World Bank or the World Economic Forum assessing the economic climate of countries in the world acknowledge the consistent changes

[2] World Bank, World Development Indicators Report 2012, Copyright by International Bank 2012, P337.
[3] UNDP, Human Development Report 2013. The Rise of the South: Human Progress in a Diverse World P47.

made by African countries to improve the business environment of their countries during the last decade. But many scholars are not surprised by the slow changes and minor effects of these political measures on the African economy, because as they say, “Africa is different.” It seems that “the factors that drive FDI to developing countries have a different impact on FDI to Sub-Saharan Africa” (Elizabeth Asiedu 2002). However, I do believe that if Africa is lagging behind it’s due to two main reasons: in one hand it’s because of the mis-implementation, in the host countries side, of the key determinants driving FDI. On the other hand, in the investors’ side, there is a mis-understanding of the local realities of the continent and the different potentials and opportunities that the continent can offer to investors in other sectors different from mining and natural resources that have been attracting more FDI in the continent so far, as we can observe in Graph 2.



Even if Africa is different from other economic regions in some extent, the factors driving FDI in other countries can also have similar impact on FDI inflow in Africa and its sub-regions if the business environment is friendly. Investors are concerned about the conditions surrounding their activity. Starting from the first step in the place to invest, they take into consideration economic but also social, political and environmental aspects in the host country. When the conditions are met by a host country, no matter where the location is, any investor would like to develop activities and gain from the competitive advantages a country is offering. As a solution to make the business environment friendly, the combination of the most efficient policies, that we will try to identify in this paper, can make a big

difference and boost considerably the competitiveness of Sub-Saharan Africa and the one of Senegal.

Assumptions:

From the main statement mentioned above, I came up with three sub-claims to support the idea. First, because of the globalization of the world economy and the increasing competition among nations to attract more FDI, investors have become more stringent and host countries need to update and improve their policies in order to catch up with the best performers and keep following the pace dictated by the new world economy. The so-called traditional factors driving FDI are still very important but not sufficient to make the difference and then need to be adapted following investors' requirements. I assume that the following determinants are among the most important that policy makers have to focus on: the improvement of the quality of human resources, the openness to trade, the quality of institutions and the development of infrastructures.

Second, given the importance of the size of the market in FDI promotion, African countries need to enlarge their market shares through regional alliances. Regionalism might be a good way to overcome the low per capita GDP or small size of the population characterizing many African countries. The continent is already divided into sub-regions depending on the location of countries and other economic or political interest: East, North, Central, South and West Africa and into economic and/or political zones (ECOWAS, EAC, SADC, etc.) but commercial exchange is not as well developed as it should be. One of the reasons is the lack of good transportation system to connect countries and populations but also legal framework binding countries. We assume that African countries need to build strong but also fluid blocks between neighbors first and in the long run have Africa as one unique big market where persons and goods and services can circulate safely and freely.

Third, from the assumptions above on the key factors driving FDI in Africa and into the specific sub-regions, we realize that there are still many adjustments to make in Senegalese political strategy to attract foreign investments.

These changes will hardly yield the expected effects if they are not accompanied with a good marketing and promotion strategy. Many investors view Africa as a very risky region and sometimes they are not aware of the progresses made in many sectors.

3. Research questions:

These are the questions I will try to seek answers throughout this research paper:

- What are the factors driving FDI in Sub-Saharan Africa and into its sub-regions?
- How can these factors be translated into concrete political or economic decisions?
- What other political and economic measures are required in the context of the globalization of the world economy?
- Can Senegal be more attractive than its neighboring countries in West Africa and attract more FDI by using the key factors we will identify in this analysis?

4. Statement of significance:

The economic and social situation of Senegal, similar to many other African countries, makes the authorities believe that FDI is a critical factor for alleviation of poverty and unemployment. Even though during the last decade the country has made some progresses to improve its business environment, which is acknowledge by international organizations like the World Bank, it remains less attractive in the point of view of many investors compared to its peers in Sub-Saharan Africa. Finding the key drivers for more FDI inflows will help the country to be more competitive to foreign investment inflows and then create jobs, boost the productivity and the economic growth and improve the living conditions of populations.

In addition, there have been a few research papers on the subject for the count of West Africa and Senegal, most of the studies talking briefly about the region. There is no doubt

that the results of this paper we are adding to the literature review will be very useful for other scholars or professionals who are interested in FDI policy in West Africa and Senegal.

The research paper will be divided into three main parts. The first part will be devoted to the literature review of academic journals and other research papers dealing with the issue of the key determinants of FDI. This work will specially help us have a better grasp of the topic and see on which other points we should focus to contribute to the existing literature. In the second part we will talk about the methodology adopted and give the definition and overview of the summarized variables. The third part will be for the discussion and interpretation of the results. After that, the paper will end up with some concluding remarks and policy recommendations.

I. LITERATURE REVIEW

Being aware of the importance of the issue, many governors started a process of changing their economic policy to make their economic environment more business-friendly since the early 1990s. More recently, the Ease of Doing Business ranking from the World Bank has also contributed to increase the competition especially between African countries because anyone wants to lag behind. Some are getting the expected results but other countries are not. As Bitzenis (2004) states, because of "the large investment opportunities that a few countries offer to MNEs and due to the large number of host countries, at the end, MNEs invest only in specific countries". The factors explaining the disproportion of investments might be either the policies do not produce the same effects everywhere they are implemented or countries are different. Since a long time, many experts have been debating the issue; many scholars are also running research projects and trying to find the best determinants for FDI. Even though there are many factors identified, researchers cannot agree on their effects on attractiveness of FDI.

There are many classification systems of FDI determinants in the literature review. Some researchers like Nunnenkamp (2002) make the distinction between traditional and new variables with the globalization of the world economy as the parting line. Others like Fernandez-Arias (1996), Gottschalk (2001) talk about the "push" factors as those external to recipients of FDI and which mainly guide the countries in the "supply side", and on the other hand, the "pull" factors as those internal and somehow controlled by FDI host countries who are in the "demand side". Even though all the internal and external factors are very important and need to be taken into consideration as Fernandez-Arias (1996) suggests it (because both affecting FDI inflows), we will obviously focus on the "pull factors" which are under the control of host countries. The reason is that the countries in our panel data are in this group of the demand side and second, we can make some policy recommendations at the end of our

analysis, which might influence the decision-makers in Sub-Saharan Africa. Still in the process of classifying the determinants of FDI but this time in the host countries side we were talking about previously, we have identified three groups of determinants that we also found in one of the Anyanwu's (2011) working paper. First of all, we have the basic economic factors considering more economic questions such as return on investment, the size of the host country market, the diversity of investment opportunities. Second group of investment factors is trade and foreign exchange policies referring to openness to trade, inflation, exchange rate and so forth. Third, we have business climate factors in reference to the quality of infrastructures, the human capital, the political stability and efficiency of public institutions, the per capita GDP and other social factors. Our analysis is more related to this classification approach.

We will try to go through each of the variables we have selected, analyzing them from different prospective in order to find answers to these following questions: What is the link between FDI and economic growth? What are the determinants driving FDI in developing countries in general? Are they changing over time or depending on the specificity of countries? We will try to give an overview of what different writers and scholars think about the issue in the following lines.

1. **Size of host countries' market:**

Measured either by the per capita GDP or the total population, the size of the market is the most widely accepted as a significant determinant of FDI flows in the literature review especially when the purpose of investment is to serve the local market. This perspective seems to be proven by data if we know that the countries attracting FDI in Africa are those with either biggest size of market or most endowed with natural resources. The bigger the size of the market is, the more investors the country will attract. The size of the market can also be extended to other economic zones a country give access to through regionalism.

According to Asiedu (2006),"regionalism expands the size of the market and therefore makes the region more attractive for FDI". This economic alliance has other advantages such as promoting political stability in the region or helping to coordinate economic policies implemented in the economic zone. This is especially for Africa because many countries are small in terms of size of the population and level of income measured by the GDP per capita.

This idea is supported by Mijiyawa (2012) who considers regional integration as a way to "increase trade openness, enlarge the size of domestic markets, and generate more political stability." The data on FDI within African sub-regions have shown that the most integrated regions are more likely to attract FDI and that political instability in one side of the region might affect other countries as well. For the author, there is no doubt that the size of the market promotes FDI if the political conditions are met.

Gamal Ibrahim (2009) classifies the FDI motives following Dunning's categorization of the four types of factors: resources seeking, market seeking, efficiency seeking and knowledge seeking. For the author, market size proxy is the key-factor for market seeking investors. His empirical analysis shows that FDI inflow to Africa is highly correlated to the market size of the host country. This is the reason why like the previous scholars, he calls for "intensification of efforts by African countries to accelerate regional integration" in order to create larger sub-regional markets and in a longer-term, the emergence of continental market.

Using panel data and time-series method, Gastanaga, Nugent and Pashamova (1998) emphasize in their paper on the impact on FDI of policy reforms conducted by less developed host countries. They argue that the expected increase of growth rate measure by GDP "is a highly significant determinant of FDI-GDP ratios." According to them, the policies implemented even if they are not aiming at FDI directly, they affect it. But vice-versa, Soumare (2012) also found that "FDI has a significantly positive impact on per-capita GDP" in many African sub-regions.

2. Policy Variables:

In this paper the policy variable is measure by **inflation** rate and **openness** to trade of the host country. The latter is measured as the ratio of trade (imports + exports) to GDP. The openness of the host country to trade entails exchange of goods and services as well as international capital inflows. In the past, the assumption was that for market seeking investment, the less the country is opened the more it will attract FDI. The reason is that a tariff jumping strategy might push investors to open subsidiaries in the host country. But in the framework of a regional integration and more widely in the context of decreasing barriers between countries, less openness might be no-profitable for the country especially for attracting international capital flows. Asiedu (2002) for example, found that "SSA countries have received less FDI than other regions because openness is globally important for FDI and countries in SSA are less opened than countries in other regions." In the same wave, she also found a negative impact of inflation on foreign investment inflows. According to Asiedu, high inflation might be seen as the signal of weakness in the host country economy.

Nunnenkamp (2002) argues that the impact of many factors on FDI such as openness to trade hasn't changed that much between the period before and after globalization of the world economy. As regarding to the openness, he found for example that "the tariff jumping motive for FDI had lost much of its relevance well before globalization became a hotly debated issue."

While testing the robustness and sensitivity of the most used variables in the literature about the determinants of FDI, Chakrabarti (2001) found that openness of the country (measured by the level of exports and imports over GDP) has a relatively high correlation with FDI even though the robustness test is not conclusive. Further in the policy recommendations, the author calls policy makers for an increase of participation in international trade. Moreover the fragility of the inflation variable has motivated many

scholars to combine it with other factors like inflation as a way to measure macro-economic stability.

About the impact of inflation rate on FDI, Ezeoha and Cattaneo (2011) found a positive correlation in their empirical study. According to them, “the higher the inflation rate in a country, the more the level of FDI flows into the country.” As a reason to this situation, the authors argue that a rising inflation rate might be explained as the consequence of an increase in the level of economic activities which of course is not always the case.

3. Human capital:

We use secondary schooling and the labor force available in the country to measure the quality of human capital. It appears in the literature review that for some researchers, the quality of human resource is key factor to attract FDI in developing countries but others do not agree. Looking at the determinants of FDI from the perspective of a globalized world economy, Peter Nunnenkamp (2002) considers what he calls traditional variables and non-traditional variables; the difference being the changes brought about by the globalization of the economy. He considers human capital as part of the latter group meaning the variables that have become more important and more demanding. Having a huge human capital is not sufficient but also the quality and level of qualification matters and affects economic growth.

Supporting this idea of the necessary availability of absorptive human capital, Borensztein, Gregorio and Lee (1998) argue that sufficient labor force is a necessary condition to optimize the benefits of capital inflows. For them, “the higher productivity of FDI holds only when the host country has a minimum threshold stock of human capital.” This theory is very relevant and applicable to many African countries when we know that many investments are human labor-intensive. But if African countries want FDI inflows to have

more impact on economic growth, there is a need to focus on training human capitals because for Borensztein, Gregorio and Lee (1998), the level of qualification is more needed for efficient technology transfer by the channel of MNCs.

In many African countries like in Senegal, there has been a warning from experts stressing that the profile of fresh graduate students sometimes do not accommodate the markets demand. Hence, the necessity for authorities to improve education systems by setting up curriculum and programs that better meet the needs of investors as they think that well-skilled labor force will attract more FDI.

Bartels, Kratzch and Eicher (2008) do not agree with the idea that well qualified labor force will attract more FDI in SSA because for them there is a "general absence of skill-intensive FDI activities in SSA." They found that most of MNEs operating in SSA run "low-technology-based operations" and then are more concerned by the total labor force abundance than their level of qualification. As regard to the cost of this labor force, the authors argue that SSA is in competition with other countries such as China, Bengladesh and India where workers cost less for the same or even higher level of qualification.

In a research paper which title is "Foreign Direct Investment and Economic Growth: Evidence from Cross-Country Data for the 1990s", Ram and Zhang (2002) assess the role of FDI on economic growth in developing countries especially in the 1990s corresponding with "massive increase in the global FDI flows." The results show that "the nexus between FDI and the host countries economic growth seems generally positive for the 1990s." However, they didn't find strong evidence on "complementarity between FDI and the host country's (average) level of education" during this period. The study included African, Asian and Latin American countries.

4. Governance and Political stability:

As many scholars think it is fundamental in the decision process of investors, we use the control of corruption and the rule of law as a way to measure the political stability and good governance of Sub-Saharan African countries. These are key factors influencing FDI in Africa as the continent is deemed to have weak institutions and to be unstable referring to civil wars and other conflicts. But it is worth mentionning that the bad perception people have is sometimes different from the reality because things have evolved over time and situations vary depending on SSA countries. Bartels, Kratzch and Eicher (2008) agree with our point of view but think that other regions might have made more progress and undertaken better reform that is why investors are more interested in these places. In their working paper, they try to identify the determinants of FDI location decision in SSA for MNEs. To do so, they run a survey among 11 SSA countries, including 718 MNEs. The results show that these MNEs decision was twenty six per cent (26%) guided by the political and economic stability of the country where they are operating, "while all others together explain less than 25% of the variance, in the data" for the country legal framework factor.

Asiedu (2006) acknowledges the adverse effect of weak institutions and shows that improvement in the reliability of the legal system and the decline of the perception of the corruption positively affects FDI in SSA.

According to Mijiyawa (2012) "more politically stable African countries attract more FDI" that is why he thinks that African governments should give the same weight to political stability as they give to other factors such as trade openness. This statement is proven in his paper analyzing factors that drive or deter FDI in Africa. The empirical panel data tests shows that political stability is very significantly affecting FDI in Africa.

Gamal (2009) used the corruption risk indicator from the ICRG database for his empirical study. He argues that financial corruption perception has more correlation with FDI

than other political risk indicators such as government effectiveness, voice and accountability, regulatory quality used in the WGI. He stresses that "as the corruption risk declines, the volume of net FDI inflows increases." Overall he stresses that social and political development has a vital role in attracting further investment flows to Africa. For Gamal (2009) good public institutions is not just about policies and procedures but also the people playing that role namely the civil servants. He highlights the importance of human capital in the public service. In his analysis he found that "well trained and adequately paid bureaucrats have contributed to high-levels of investment and economic take-off in emerging economies."

Analyzing the determinants of FDI in developing countries, Kok and Erseo (2009) found that the factors contributing to build a business friendly environment are more attractive for investors than the special tax favors offered. For the authors, transparency and accountability of governments and corporations are fundamental conditions.

Nunnenkamp (2002) supports the idea that many things didn't change between before and after globalization. Assessing the changes on the level of significance of some FDI factors, the author considers political risk among developing countries as a traditional determinant. But beside this relative oldness, he argues that the variable has become more important today than ever before, in opposition to other experts who stress that the globalization has changed the rules of the game and that the traditional variables are no more relevant as regard to FDI attraction. Nunnenkamp (2002) considers that the traditional variables are still relevant and they have become more stringent for some of them.

Still, in this issue of globalization, Bitzenis (2004) states "The theory of globalization is not very effective when FDI is concerned." Considering globalization as a generic term applied in many issues of the daily life where some changes have been observed over a long period of time, he believes that "today's FDI orientation is not as global as expected" but without failing to acknowledge the decreasing transaction cost, the increased capital and

labor mobility, the openness of the borders of many countries the liberalization of economies and other factors he describes as "a new phase of an old phenomenon."

Gastanaga, Nugent and Pashamova (1998) not only found a positive correlation between FDI inflows and quality of institutions variables but also adverse impact as the grade of the host country on corruption, bureaucratic delay issues is low. They have just confirmed what many papers have been supporting on the impact of weak institutions on FDI for less developed countries.

5. National Assets:

For the purpose of this paper, we have combined two determinants that many scholars used to separate and that we call national asset variable. It includes the share of natural resources in the total GDP of the country and the total reserves of the government. In the literature review, natural resource is one of the most used variables when it comes to the key factors driving FDI to Africa. The reason is that the region is one of the most endowed in natural resource hence attracting many foreign investors. It's not by chance if Nigeria and Angola, among the biggest oil-producing countries in Africa also attract more FDI than other countries according to the World Bank[4]. This perception is confirmed by Aisedu (2006) in a panel data analysis for 22 countries in SSA over the period 1984-2000, stating that "countries that are endowed with natural resources or have large markets will attract more FDI."

Gamal (2009) empirical study supports this claim. The author found that "FDI inflows are strongly associated with natural resource presence." He goes further and discovers that it's not all natural resources that are drivers of FDI. For him, fuel/oil presence has more impact than other natural resources.

[4] World Bank, 2004b, FDI Flows is as follow: 36% to South Africa, 16% to Nigeria, 13% to Angola, and 19% to the remaining 45 countries in the region.

6. Financial development:

We are using two proxies: credits provided by banks and credits going to private sector. Throughout the literature review, we didn't find many research papers using this variable as to assess the key determinants driving FDI to Sub-Saharan Africa. This situation might be due to the lack of data for the region especially when the study covers a long period of time. Second notice is that like for many other variables, the results of empirical studies show that the impacts of financial development on FDI inflows are controversial. Anyanwu (2011) found that "FDI is negatively correlated with financial development." The panel data analysis including African countries (Sub-Saharan Africa and North Africa) considers FDI as a substitute of domestic financial market development. The results show that the lower the development of the financial sector is, the strongest the FDI predictions will be.

Contrary to this idea that financial development has adverse effects on FDI, Ezeoha and Cattaneo (2011) think that it is among the most important factors influencing FDI in SSA despite the fact that many SSA countries don't have a well-functioning financial market system. According to the authors, the financial development helps reducing the transaction costs, the flow of financial information but also "financial intermediaries increase the productivity of capital by directing financial resources to projects with the highest rates of return."

7. Infrastructure development:

There are many kinds of infrastructures considered in the literature review (transportation, telecommunications) and the choice is often done depending on the availability of data. In this paper we use telephone lines per 100 inhabitants. The good quality of infrastructure is deemed to have an impact on the productivity of local business activities as well as it contributes to attract more foreign investments. But this statement is controversial and the level of significance depends on the kind of infrastructure, weather

telecommunication or transportation infrastructure and also very depending on countries' structure.

Among those who think that infrastructure plays a key role for FDI attraction we can name Ersoy (2009). Supporting the idea that the determinants must aim to build a business friendly environment, the author considers communication among the most significant determinants with strong positive effects on FDI. This finding might be explained by the fact that he considers telephone lines as proxy for infrastructure variable in an efficiency looking market.

Asiedu (2002) thinks differently and does not support the previously mentioned idea. Even though she acknowledges the importance of it, she found that infrastructure "has no significant impact on FDI flows to SSA Countries". The reason, for her, is that FDI in the region of SSA is more driven by natural resources and mining companies which often use their own generators for electricity or water production. She gives the example of Nigeria, an oil exporting country witch receive huge amount of FDI but has weak infrastructure.

Ezeoha and Cattaneo (2011) share this idea that the impact of infrastructure is limited to some specific countries. For them, infrastructure plays a most important role in non-resources endowed countries than in natural-resources endowed countries. In these latter countries, companies more interested by natural resources do not rely on local infrastructures. Instead of that, they build by themselves electricity generators, water supply systems, even roads and healthcare infrastructures.

II. METHODOLOGY AND OVERVIEW OF DATA

1. Methodology:

As William Zikmund (1984) stated in Business Research Methods 9th Edition, "the degree of uncertainty about the research problem determines the research methodology." In other words, the methodology of a research paper is defined by the nature and characteristics of the problem. As we mentioned above, Senegal like many Sub-Saharan African countries has been implementing many policies these last decades in order to attract more FDI but either the fruits did not yield what the flowers had promised or the policies are not adequate enough. We believe that in a globalizing economy, a combination of social and economic measures, implemented properly can make the country more attractive. To support our claim, both quantitative and qualitative approaches are necessary. They will be based on explanatory analysis of how our so identified independent variables also called explanatory variables can influence our dependent variable or explained variable which is FDI inflow. The methodology can be divided into two main steps. First, we will need empirical facts and evidences to better illustrate our hypothesis and the literature review is a good way to achieve this goal. During our documentary research, we have found academic journals, reports, articles and other documents dealing with this topic on FDI and its key determinants. But it is worth mentioning that just a few of them deal specifically with the case of Sub-Saharan Africa or Senegal, leading to a lack of data concerning this part of the continent. To fill this gap, we will rely on international organizations' reports like World Bank, UNDP, UNCTAC World Development Index. Second, with these qualitative and quantitative data collected on African countries from the literature review and diverse database, we will run a panel data analysis to measure the effects of these driving factors on FDI inflows.

For this panel data, we are working on Sub-Saharan African countries but just forty-one (41) of them. The lack of data for some countries has led to exclude them from the panel.

The period of time of the study covers twenty-one (21) years, from 1992 to 2012. We consider that this period of time is long enough to explain the main trends of FDI in Africa. Moreover, many African countries really started implementing FDI policies starting from this period.

For our panel data analysis, we will use the fixed affects methods. It's the most used in the research papers read for this thesis. In addition to that, the Hausman test made from the beginning of the analysis justify the well-founded reason of using the fixed effects model.

Table 1: Hausman Test

	Coefficients (b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
l_pop	22.44849	-1.1485	23.59699	5.485481
gdp	-.0028033	-.0010963	-.0017069	.0002197
lopen	-3.156917	4.453277	-7.610194	1.07074
l_inf	.7070585	.0198736	.6871849	.1238242
school	-.1747646	.1245651	-.2993297	.0558847
labor	.8656935	.1606161	.7050774	.2648711
l_reserv	-1.042329	-1.195908	.1535784	.2646998
natres	.0075789	.0985761	-.0909972	.0202033
credps	.4917526	.1923161	.2994364	.0580022
credbk	-.186765	-.0850292	-.1017358	.0167514
tel	.0146085	-.3971852	.4117937	.3274713
corrup	-.171441	-1.217334	1.045893	.5554207
lawrul	1.837133	1.048386	.7887479	.6776422

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(12) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 163.81
Prob>chi2 = 0.0000
(V_b-V_B is not positive definite)

In most articles we have read for the literature review of our paper, we have seen both cases where either the random or fixed effects method were used or just simply a combination of both methods depending on the purpose of the study, the availability of data and other factors. We have chosen the Hausman test as a way to see between fixed and random effects method which one is more appropriate to test our hypothesis. As the results in

Table 3 show, it appears that the fixed effects is better in the sense that it will give more accurate results than the random effects method. That has motivated our choice for fixed effects analysis.

On the other hand, in order to have more accuracy on our results, we will have time fixed effects to see how the explanatory variables are influencing over time but also an entity fixed effects to see the overall trend between entities.

2. Definition of variables

As mentioned earlier, our dependent variable is FDI inflows and we have divided the independent variables into six sub-groups which are: Size of the market, human capital, macroeconomic policy variables, financial development, national assets, infrastructures and other. The definition, scoop and source of each of them as defined by the World Bank Data website are as follow:

Foreign direct investment, net inflows (% of GDP): Represents the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It comprises the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital. The data come from International Monetary Fund, International Financial Statistics and Balance of Payments databases, World Bank, International Debt Statistics, and World Bank and OECD GDP.

Size of the market:

Population, total: We use Log Population (l_pop) based on the total population, which counts all residents regardless of legal status or citizenship (except for refugees not permanently settled in the country of asylum, who are generally considered part of the

population of their country of origin). The values shown are midyear estimates. The data come from (1) United Nations Population Division, the Statistical Division, Census reports and other statistical publications. As part of proxies used to measure the size of the market, we assume that the bigger the population is, the more FDI a country will get.

GDP per capita, PPP (constant 2005 international USD): is based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus (+) any product taxes and minus (–) any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2005 international dollars and they are from World Bank, International Comparison Program database. Just like the previous variable a high GDP equal to a large purchasing power for the population and then calls for more investors in the host country.

Human Capital variables:

I support the idea that the human capital must be sufficient and well skilled in management as well as in science and technology fields and operational. This latter is calling for a good match between the profile of new graduate students and the requirements of recruiters. I measure the labor force through the following two variables:

Labor force participation rate, total (% of total population ages 15-64) is the proportion of the population ages 15-64 that is economically active: all people who supply labor for the production of goods and services during a specified period. It’s a compilation by the ILO from labor force surveys, censuses, establishment censuses and surveys, and administrative

records such as employment exchange registers and unemployment insurance schemes. For some countries a combination of these sources is used. The source is the International Labor Organization, Key Indicators of the Labor Market database.

School enrollment, secondary (% gross): Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Secondary education completes the provision of basic education that began at the primary level, and aims at laying the foundations for lifelong learning and human development, by offering more subject- or skill-oriented instruction using more specialized teachers. The source is the United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.

Macroeconomic Policy variables:

Many African countries still have in mind the structural adjustments required by international organizations such as the World Bank and IMF in the 1980s which effects where very controversial. However, liberalization in some strategic sectors is a necessary step to undertake in order to welcome more foreign capital inflow in a way that will not harm local small businesses. Policy makers should also be concerned about inflation rate and have more control on it depending on trade policies. I have two variables to measure macroeconomic policies:

Merchandise trade (% of GDP) as a share of GDP is a way to measure the openness of the country to trade. It's the sum of merchandise exports and imports divided by the value of GDP. We consider openness of the host country in both exchange of good and services and in terms of capital inflows. The more the country's policy is allowing foreign capital to enter the host country's market, the more investors are willing to make business in that country. Values

for this data are all in current U.S. dollars and collected from the World Trade Organization, and World Bank GDP estimates.

Inflation, consumer prices (annual %) measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly or quarterly. Assuming that the Central Bank can manipulate the inflation rate, the Government policy often determines the level of inflation in order for example to gain more foreign currency through higher exportations. The Laspeyres formula is generally used to measure it. The data come from International Monetary Fund, International Financial Statistics and data files and labelled as log inflation (l_inflation).

Financial development variables:

Domestic credit provided by banking sector (% of GDP): Domestic credit provided by the banking sector includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net. The banking sector includes monetary authorities and deposit money banks, as well as other banking institutions where data are available (including institutions that do not accept transferable deposits but do incur such liabilities as time and savings deposits). Examples of other banking institutions are savings and mortgage loan institutions and building and loan associations. The dataset is from International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimates.

Domestic credit to private sector (% of GDP): Domestic credit to private sector refers to financial resources provided to the private sector, such as through loans, purchases of no equity securities, and trade credits and other accounts receivable that establish a claim for repayment. For some countries these claims include credit to public enterprises. Source:

International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimates.

National Assets variables:

Total reserves (includes gold, current US$): We use log reserves labelled as l_reserves. It comprises holdings of monetary gold, special drawing rights, reserves of IMF members held by the IMF, and holdings of foreign exchange under the control of monetary authorities. The gold component of these reserves is valued at year-end (December 31) London prices. Data are in current U.S. dollars. Source: International Monetary Fund, International Financial Statistics and data files.

Total natural resources rents (% of GDP): Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents. It helps measure the contribution of natural resources to GDP. Estimates are based on sources and methods described in "The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium" (World Bank, 2011).

Quality of Infrastructures:

Improvement of the quality of infrastructures is one of the most serious issues in Africa. Even though many progresses had been made in the last decade, many areas are not covered by transportation system which is not to facilitate exchanges and trade between countries in the same economic zone. Moreover, Africa is facing challenges in electricity and water supply and other social facilities. Given the luck of data to measure the influence of these facilities, I only use the telephone lines.

Telephone lines (per 100 people): Telephone lines are fixed telephone lines that connect a subscriber's terminal equipment to the public switched telephone network and that have a port

on a telephone exchange. Integrated services digital network channels and fixed wireless subscribers are included. Source: International Telecommunication Union, World Telecommunication/ICT Development Report and database, and World Bank estimates.

Good Governance variables:

The quality of institutions is very critical and I assume that there is a necessity for African countries to reduce administrative burdens that extend procedures and waste the time of investors. ICT is a good way to achieve this goal. Good institutions also refer to less corruption and more efficiency facing investors demand. The variables used to measure it are:

Rule of law: It reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimate of governance covers the period from 1995 to 2012 and ranges from approximately -2.5 which refer to weak governance performance, to 2.5 referring to strong governance performance. The data is from the World Governance Indicators.

Corruption: Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance). The dataset is form the World Governance indicator

Table 2: Definition of the variables and data source:

No	Indep. Variables	Description	Nature	Source
	FDI inflows	net inflows as percentage of GDP)	Dependent	WDI
	Size of the market			
1	Population	Log population	Independent	WDI
2	Per capita GDP	GDP per capita, PPP constant 2005 international in $	Independent	WDI
	Human capital			
3	Labor force	Percentage of total population ages 15-64	Independent	WDI
4	Schooling	Gross percentage of secondary school enrollment	Independent	WDI
	Macroeconomic policy			
5	Openness to trade	Merchandise trade (export + Import) as percentage of GDP	Independent	WDI
6	Inflation	Annual percentage inflation of consumer prices	Independent	WDI
	Financial development			
7	Credits by banks	Domestic credit provided by banks as percentage of GDP	Independent	WDI
8	Credits to private sector	Domestic credit provided to private sector as percentage of GDP	Independent	WDI
	National assets			
9	Reserves	Total reserves including gold in current US$	Independent	WDI
10	Natural resources	Total natural resources rents as percentage of GDP	Independent	WDI
	Infrastructures			
11	Telephone lines	Number of telephone lines per 100 people	Independent	WDI
	Good Governance			
12	Corruption	Estimate of governance ranging from -2.5 to 2.5 governance performance	Independent	WGI
13	Rule of law	Estimate of governance ranging from -2.5 to 2.5 governance performance	Independent	WGI

3. Summary and correlation test

Table 3: Summary of data

Variable	Obs	Mean	Std. Dev.	Min	Max
country1	861	21	11.83904	1	41
years	861	2002	6.05882	1992	2012
fdi	860	4.636151	11.45038	-82.892	145.202
l_pop	861	15.65939	1.525056	11.71936	18.94443
gdp	861	2639.979	3875.006	101.6	27346.41
l_open	861	3.966392	.5552683	2.270062	6.894312
l_inf	798	2.065309	1.319304	-3.296837	10.07631
school	854	33.73219	21.9639	-14.283	109.218
labor	861	71.33043	11.10887	48.6	90.8
l_reserv	858	19.66392	1.924565	10.61673	24.7048
natres	861	12.70423	20.28615	.005	218.886
credps	861	18.88472	23.50907	-4.7	167.536
credbk	859	27.81028	42.96189	-72.994	268.812
tel	861	2.245377	4.317296	.006	29.842
corrup	738	-.5684553	.5958949	-2.06	1.25
lawrul	738	-.6685095	.6616555	-2.23	1.06

As we can see from the summary of the data in Table 2, there are still some minor gaps in the observations specially the log inflation where we have some observations missing. For the governance proxies (Corruption and Rule of Law) the dataset has a gap of three years compared to other variables because starting from 1994 instead of 1992. But despite these shortcomings our dataset is strongly balanced.

We also notice that the distribution among entities is quite balanced when we compare the gap between the mean in one side and the minimum and maximum on the other side. But this of course is not the case for all variables, showing that there are as well big differences among countries and over years.

Table 3: Correlation test

In order to have a broader view of the correlation links, we have divided our variables in two groups. In the first table we have the independent variables positively correlated with FDI and in another table the independent variables with negative correlation with FDI.

We are more focusing on correlation between FDI and the independent variables than in-within independent variables. The correlation analysis shows that half of these have negative correlation with FDI and the other half a positive correlation. This result somehow, can make us feel more confident about the choice of our independent variable to explain the key factors driving FDI

Table 4.A: Positive Correlation test

	fdi	gdp	l_open	l_inf	school	labor	natres
fdi	1.0000						
gdp	0.0022 0.9483	1.0000					
l_open	0.2558 0.0000	0.3420 0.0000	1.0000				
l_inf	0.0408 0.2503	-0.1385 0.0001	0.0765 0.0307	1.0000			
school	0.0617 0.0718	0.4804 0.0000	0.3348 0.0000	-0.1405 0.0001	1.0000		
labor	0.0091 0.7905	-0.0872 0.0105	-0.2380 0.0000	-0.0101 0.7752	-0.3375 0.0000	1.0000	
natres	0.1990 0.0000	0.3023 0.0000	0.3944 0.0000	0.1672 0.0000	-0.0435 0.2043	-0.0218 0.5227	1.0000
credbk	0.0259 0.4479	0.0522 0.1262	0.1807 0.0000	-0.0185 0.6014	0.3311 0.0000	-0.3610 0.0000	-0.0773 0.0235

Among the variables with positive correlation with FDI we have per capita GDP, openness to trade, inflation, schooling, labor force, natural resources and credits provided by banks. But for some variables, despite this a positive correlation, the level of significance is weak. Only l_open and natural resources are very significant.

Table 4.B: Negative Correlation test

```
. pwcorr  fdi l_pop l_reserv credps tel corrup lawrul, sig
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	fdi	l_pop	l_reserv	credps	tel	corrup	lawrul
fdi	1.0000						
l_pop	-0.1412 0.0000	1.0000					
l_reserv	-0.1465 0.0000	0.4850 0.0000	1.0000				
credps	-0.0719 0.0350	0.0284 0.4046	0.3310 0.0000	1.0000			
tel	-0.0388 0.2555	-0.3249 0.0000	0.1970 0.0000	0.6269 0.0000	1.0000		
corrup	-0.0905 0.0139	-0.2393 0.0000	0.1866 0.0000	0.5005 0.0000	0.5551 0.0000	1.0000	
lawrul	-0.0907 0.0137	-0.2434 0.0000	0.2345 0.0000	0.4626 0.0000	0.6037 0.0000	0.8673 0.0000	1.0000

Without drawing any conclusion at this level of the analysis, we can notice that most of our controlled variables such as per capita GDP, openness to trade and labor force, not surprisingly, are positively correlated with FDI. Confirming some ideas we got previously from the literature review.

III. ANALYSIS AND INTERPRETATION OF THE RESULTS

In all our regression models, we have applied the same methodology. In Model 1 we have all our variables. In Model 2 we only selected the most significant variables based on the first model and in Model 3 we did the opposite by just selecting the least significant variables following the first model. The idea behind this logic is to see how independent variables will impact on FDI put all together or separated according to the level of significance.

1. Analysis of the determinants in Africa

Table 5.A: Entity fixed effects for Africa

	fdi	fdi	fdi
l_pop	22.448***		7.321
	(5.535)		(5.079)
gdp	-0.003***	-0.002***	
	(0.000)	(0.000)	
l_open	-3.157*	-0.400	
	(1.745)	(1.304)	
l_inf	0.707		0.204
	(0.453)		(0.502)
school	-0.175**		0.042
	(0.070)		(0.075)
labor	0.866***	0.929***	
	(0.275)	(0.226)	
l_reserv	-1.042*	0.904***	
	(0.537)	(0.323)	
natres	0.008		0.037
	(0.040)		(0.044)
credps	0.492***		0.045
	(0.081)		(0.069)
credbk	-0.187***	-0.097***	
	(0.029)	(0.019)	
tel	0.015		-0.593
	(0.408)		(0.451)
corrup	-0.171		1.759
	(1.878)		(2.112)
lawrul	1.837		1.775
	(1.841)		(2.072)
_cons	-365.992***	-70.421***	-109.308
	(82.352)	(16.547)	(77.808)
R2	0.25	0.12	0.02
N	692	855	692

Table 5.B: Time fixed effects for Africa

	fdi	fdi	fdi
l_pop	-0.302		-0.974**
	(0.542)		(0.466)
gdp	-0.000**	-0.000***	
	(0.000)	(0.000)	
l_open	5.713***	5.083***	
	(1.083)	(0.790)	
l_inf	0.238		0.988**
	(0.411)		(0.417)
school	0.053		0.074**
	(0.036)		(0.035)
labor	0.123**	0.058*	
	(0.048)	(0.035)	
l_reserv	-1.714***		-1.113**
	(0.476)		(0.431)
natres	0.097***	0.077***	
	(0.029)	(0.021)	
credps	0.045		-0.031
	(0.041)		(0.041)
credbk	-0.002		0.026
	(0.019)		(0.018)
tel	-0.242		-0.374**
	(0.169)		(0.174)
corrup	-0.454		-1.458
	(1.609)		(1.617)
lawrul	0.707		0.663
	(1.519)		(1.546)
_cons	9.929	-19.661***	38.556***
	(9.074)	(4.361)	(6.856)
R2	0.18	0.11	0.10
N	692	860	692

The entity fixed effects regression on FDI influence over different countries shows that per capita GDP, labor force, and financial market are the most significant variables influencing FDI supporting some claims of our hypothesis but also confirming some ideas of other scholars

One of the differences between the entity fixed model and the time fixed model is that in addition to some traditional variables such as the per capita GDP and openness to trade, the latter method shows us the importance of natural resources and how it has been attracting FDI since a long time ago. It is more significant analyzed over time than within countries. Confirming what we were saying from the beginning that natural resources used to be the key driver of FDI in the past.

Surprisingly the quality of infrastructure, represented here by telephone lines is not significant in both entity and time fixed effects. From the tables above we can also notice that among the human capital proxies, the size of the labor force is more significant than the schooling. The reason might be the fact that foreign investments were more human capital driven that knowledge and technology driven especially when we know that they were more natural resource oriented. Confirming the idea supported by Bartels, Kratzch and Eicher (2008).

We notice that when natural resources is important, the financial market has less influence and when there is there is less, it does which is understandable and meaning that enterprises will need additional resources to fund their activities which they can get from banks or through other ways in the financial market.

About the good governance variable we notice that despite the reputation of SSA as the most corrupted region in the world, it does not affect FDI inflows in Africa. It might just have affects when we compare the continent with other parts of the world.

2. Analysis of the determinants in West Africa sub-region

Entity and Time fixed effect regression for West Africa sub-region

Table 6.A: Entity fixed effects for West Africa sub-region

	fdi	fdi	fdi
l_pop	32.057***	23.938***	
	(11.230)	(7.009)	
gdp	-0.001		0.002
	(0.005)		(0.005)
inf	0.069		0.002
	(0.094)		(0.104)
open	-0.057***	-0.051***	
	(0.013)	(0.011)	
school	-0.415***	-0.281***	
	(0.126)	(0.099)	
labor	0.236		0.558
	(0.738)		(0.777)
l_reserv	-0.249		2.528***
	(1.150)		(0.938)
natres	-0.278*	-0.317***	
	(0.168)	(0.113)	
credps	0.360**	0.277**	
	(0.176)	(0.111)	
credbk	-0.166***	-0.164***	
	(0.045)	(0.033)	
tel	0.200		-0.904
	(1.295)		(1.064)
corrup	-3.677		-0.722
	(3.842)		(3.659)
lawrul	4.217		1.635
	(3.646)		(3.853)
_cons	-490.778***	-356.060***	-82.700
	(167.710)	(107.970)	(50.939)
R2	0.30	0.33	0.06
N	267	305	269

Table 6.B: Time fixed effects for West Africa sub-region

	fdi	fdi	fdi
l_pop	-2.284		0.260
	(1.547)		(1.516)
gdp	-0.007**	-0.003	
	(0.003)	(0.002)	
inf	0.156		0.085
	(0.107)		(0.111)
open	-0.046***	-0.043***	
	(0.014)	(0.013)	
school	-0.011		0.114
	(0.088)		(0.079)
labor	-0.293**	-0.225**	
	(0.113)	(0.096)	
l_reserv	1.445		-1.653*
	(1.193)		(0.952)
natres	-0.017		0.019
	(0.117)		(0.097)
credps	-0.324**	-0.352***	
	(0.133)	(0.114)	
credbk	0.117***	0.131***	
	(0.037)	(0.025)	
tel	0.766		-0.449
	(0.570)		(0.485)
corrup	5.777*	5.085**	
	(3.414)	(2.399)	
lawrul	-3.014		-0.764
	(2.661)		(2.123)
_cons	45.040**	30.777***	29.023**
	(17.835)	(8.473)	(14.469)
R2	0.25	0.22	0.12
N	267	269	267

There are fifteen (15) Western African countries in the sample. In terms of the key factors driving FDI in the West African region, the population is more significant than the per capita GDP as a way to measure the size of the market. It might be explained by the fact that except a few of them (Cap Vert, Togo, Mauritania and Gambia) West African countries represent an huge market of more than 5 billion consumers comprised of a country like Nigeria representing one of the most populated in Africa. The Mean of the population is about 16 Million inhabitants.

The Openness to trade is very significant as well and highly influences FDI inflows in the sub-region. Even though there are political and economic mechanisms helping to achieve a better integration (ECOWAS, WAEMU) there is still a lot of work to do in terms of

reducing the barriers for trade and having all the West African countries sharing the same currency.

Natural resource does not seem to be the main driver of FDI as only a few countries are well endowed with natural resources. Except Nigeria one of the biggest oil and gas exporters in the continent and Liberia with its gold and diamond mines, natural resources represents on average 9.33% share in the GDP in western countries but with huge disparities between the most and the least endowed.

As to compensate low investments in natural resource, financial market system looks very important for the sub-region. The regressions show that Credits provided by banks and other credits to private sector influence significantly FDI inflows calling for an improvement of the banking system by lowering interest rate and other taxes or any other way that can help facilitate the access to finance for foreign as well as local companies. West-African countries have a regional stock exchange but still not popular among other reasons because of the large share played by the informal sector in the economy.

Finally, among the good governance indicators, corruption has influence on FDI inflows in the sub-region. But the relatively low level of significance of the good governance indicators might be explained by the fact that foreign investors consider Africa as one entity without differences among countries in term of corruption or the quality of institutions, leading them not to give too much attention to this variable when they decide to invest in Africa. They more focus on other economic factors than institutional. But compared to other regions, corruption has an adverse effect in SSA.

3. Analysis of the determinants in East Africa sub-region

Entity and Time fixed effect regression for East Africa Sub-region

Table 7.A: Entity fixed effects for East Africa sub-region

	fdi	fdi	fdi
l_pop	-1.561		5.375**
	(4.056)		(2.418)
gdp	-0.002**	-0.001*	
	(0.001)	(0.000)	
inf	-0.001		-0.000
	(0.001)		(0.001)
open	0.105***	0.082***	
	(0.032)	(0.025)	
school	0.166***	0.146***	
	(0.063)	(0.037)	
labor	-0.146		0.198
	(0.172)		(0.214)
natres	0.102***	0.128***	
	(0.019)	(0.017)	
l_reserv1	-1.782***	-0.847**	
	(0.668)	(0.386)	
credps	0.188		-0.204*
	(0.119)		(0.105)
credbk	-0.064		0.112*
	(0.061)		(0.067)
tel	0.373		0.269
	(0.240)		(0.266)
corrup	-1.648		2.127
	(1.307)		(1.578)
lawrul	0.119		-3.025*
	(1.297)		(1.534)
_cons	65.062	11.645	-100.551**
	(61.866)	(7.134)	(42.868)
R2	0.45	0.39	0.05
N	216	249	216

Table 7.B: Time fixed effects for East Africa sub-region

	fdi	fdi	fdi
l_pop	0.432		0.196
	(0.752)		(0.500)
gdp	-0.003***	-0.002***	
	(0.001)	(0.000)	
inf	-0.001		0.002*
	(0.001)		(0.001)
open	0.078***	0.070***	
	(0.019)	(0.015)	
school	-0.027		-0.077**
	(0.043)		(0.038)
labor	0.011		-0.063
	(0.067)		(0.071)
natres	0.107***	0.091***	
	(0.019)	(0.014)	
l_reserv1	0.330		0.621
	(0.564)		(0.407)
credps	0.156*	0.059	
	(0.079)	(0.058)	
credbk	-0.111**	-0.047	
	(0.049)	(0.029)	
tel	0.903***	0.621***	
	(0.238)	(0.135)	
corrup	0.213		0.850
	(1.035)		(1.266)
lawrul	0.778		0.230
	(1.107)		(1.131)
_cons	-12.773*	0.365	-5.070
	(6.742)	(0.705)	(7.408)
R2	0.51	0.45	0.13
N	216	252	216

The panel of Eastern region is comprised of twelve African countries even though the UN scheme of geographic regions identifies twenty territories but some of them are dropped in this analysis because of the luck of enough data. The empirical analysis shows that the per capita GDP is more significant than the population size might be because it is on average higher in this area than in the western region.

For the human capital variable, the schooling is more significant than total labor force as to support the idea that foreign investors are also interested in well-skilled workers than just cheap labor. These results contradict some scholars who argue that the labor market in Africa is of “low-technology-based operations” and then does not require highly skilled workers.

Natural resource plays a key factor in attracting FDI in East Africa as the average share in the per capita GDP is higher than in other regions. The natural resource being often correlated with financial development, this latter is not significant only in the time fixed effects analysis for the region. The infrastructure variable is also significant in the time fixed effects model as to confirm the shift of foreign investment in other sectors different from mining and requiring better quality of infrastructures.

Finally as in the West African region and contrary to our expectations, the good governance indicators are not significant due to the fact that here we are just looking at African countries. We presume that the corruption and rule of law have more effect in FDI to Africa when we compare the region with others but in within Africa the effects is minimize but not meaning that it's not important for foreign investors. In the world economic race where Africa is deemed to be the riskier place, the good governance can have real good impact on FDI inflows to Africa.

4. Analysis of the determinants in Central Africa sub-region

Entity and Time fixed effect regression for Central Africa Sub-Region

Table 8.A: Entity fixed effects for Central Africa

	fdi	fdi	fdi
l_pop	20.180*		14.573
	(12.008)		(14.334)
gdp	-0.002***	-0.001***	
	(0.001)	(0.000)	
inf	-0.002		-0.012
	(0.011)		(0.014)
open	0.558***	0.624***	
	(0.083)	(0.058)	
school	-0.215		0.502***
	(0.182)		(0.172)
labor	3.396**	1.463*	
	(1.540)	(0.786)	
natres	-0.473***	-0.367***	
	(0.092)	(0.075)	
Lreserv1	-0.794		-3.461***
	(0.964)		(1.193)
credps	0.150		0.135
	(0.306)		(0.370)
credbk	-0.190		0.087
	(0.166)		(0.210)
tel	-1.488		-3.888*
	(1.644)		(2.145)
corrup	-5.779		-1.007
	(5.265)		(6.891)
lawrul	4.675		4.390
	(4.257)		(5.591)
_cons	-524.951**	-117.882**	-157.034
	(208.511)	(54.384)	(201.953)
R2	0.60	0.52	0.26
N	161	189	161

Table 8.B: Time fixed effects for Central Africa

	fdi	fdi	fdi
l_pop	-1.108		-2.211*
	(1.285)		(1.171)
gdp	-0.001***	-0.001***	
	(0.000)	(0.000)	
inf	-0.017*	-0.017*	
	(0.010)	(0.009)	
open	0.618***	0.617***	
	(0.063)	(0.049)	
school	0.006		0.172**
	(0.100)		(0.086)
labor	-0.275*	-0.126	
	(0.159)	(0.113)	
natres	-0.510***	-0.482***	
	(0.099)	(0.068)	
Lreserv1	-0.700		-5.090***
	(0.917)		(0.974)
credps	-0.114		0.393
	(0.310)		(0.367)
credbk	0.157		-0.330*
	(0.150)		(0.188)
tel	-2.385		-3.969**
	(1.569)		(1.680)
corrup	-12.468**	-5.152*	
	(5.847)	(3.018)	
lawrul	5.852		-3.528
	(4.623)		(4.162)
_cons	33.917	-8.134	134.939***
	(25.559)	(6.131)	(18.374)
R2	0.66	0.64	0.33
N	161	161	162

The sample is comprised of nine (9) Central African countries. Among the African sub-regions, the classification in this one is more controversial given that some countries are often included or excluded from the group depending on economic or social factors. The countries referred in this sample are listed in the annex. The economic union of Central-African countries promoting economic and political integration is called Economic Community of Central African States (ECCAS). It's comprised of eleven countries.

In central Africa, like everywhere in the continent, the size of the market is a key determinant of FDI inflows. The per capita GDP variable is very significant in the sub-region and the average is higher than in other African areas even though the average population is almost the same.

We also notice that the openness to trade is very important. The more the region will be opened to other countries, the more FDI investments will flow in the sub-region. But we cannot say the same for the inflation variable which is not relevant to attract FDI.

In terms of human capital development, the labor force is more important than the level of education of workers as the secondary schooling used as a proxy is less significant. This result leads us to think that in Central Africa, FDI activities are more labor intensive and require less qualification. Here they are highly dominated by natural resource sector. This latter is very significant over time and within countries lowering the importance of the financial market. The financial development seems to be bypassed by investments in natural resource sector. But as mentioned previously, it does not mean that the development of the financial market is not required to develop investments in other sectors such as telecommunication, services, banking, etc.

IV. CONCLUSION AND POLICY RECOMMENDATIONS

From the results above, we are now more confident in making some policy recommendations because this analysis allowed us to strengthen our knowledge on the key factors driving FDI in Africa. We have also acquired a better understanding of the specificities characterizing some African sub-regions. These are the key points we would like African policy makers to focus when shaping plans and programs aiming to make their countries more attractive. Also given the similarities we have noticed in African countries, we are convinced that these policies can also work in a country like Senegal. Any country can attract FDI by relying on its own assets and the spillovers will be greater if these policies also include neighboring countries and all others willing to build a strong partnership. There is a necessity to harmonize policies and as the founding fathers of African nations have been claiming since a long time, it's more than a necessity for African countries to be united and build one big and strong African market. Here are some policy recommendations we can provide, based on our empirical analysis:

As the market size has a big influence on FDI to Africa, regionalism can be a good way to overcome low GDP and small population characterizing African countries. As seen in the summary of the data, there are huge disparities between African countries. The per capita GDP or the total population is sometimes two or three times bigger from a country to another. Isolated, these small countries will never be able to attract investors and even big countries often need larger markets in specific sectors. That is why regional integration should be strongly encouraged in Africa.

Restrictions on trade and the protection of some sectors affect FDI. Openness to trade has been among the most significant variables in Africa as one entity as well as in the sub-region. Governments should rather open markets to services and goods instead of using barriers to

protect local small companies. It is proven that FDI is a good way for technology transfer in the host country. This channel can be profitable to small companies if they are supported by government putting in place a good financial system helping SMEs to have access to more resources in order to develop their activities. This point is leading us to another point which is the strengthening of the financial market in Africa.

Given the importance of financial development, financial markets should be strengthened by lowering interest rate on loans especially in countries which are not well endowed with natural resources. The financial market is more than needed in order to attract more FDI inflows in these places. The empirical study has shown that when a region is not endowed with natural resources, the financial development become very important as a way to compensate foreign investment inflows. This can be done through the banking system but also stock exchanges as we know these are not well functioning in Africa for many reasons like the strong informal sector, and the political or economic instability noticed in some countries.

Depending on the low contribution of natural resources in the GDP, the human capital variable has been less significant than the schooling proxy in some sub-regions. For example the natural resource sector is more labor-force intensive than banking or services sector which require more qualification from workers. In order to diversify the economic activities and shift it towards more productive and sustainable sectors and technology-based activities, there is a necessity to focus on the qualification of labors by setting up an adequate education system able to meet MNEs demand. This policy is not only a way for diversity but also will help maximize the benefits and spillovers of FDI inflows the technology transfer which will result from it.

These changes will hardly yield the expected effects if they are not accompanied with a good marketing and promotion strategy. There is a necessity to improve the image of the

continent at the overseas level. This point is fundamental as we know that Africa is suffering from a bad reputation as a continent of wars, political instability and conflicts, starvation and every kind of disasters. Because the media are interested mainly in reporting the hot news, many investors view Africa as the most risky continent in the world, without differentiating the specificities of each country or the relativeness of dangers. Most of the time they also fail to acknowledge the progresses made in many domains, forgetting that the continent has come very far in the history of humankind. Without a strategy to change the mindset of others, many investors will say no to an investment in Africa even if they do not have that much knowledge about the continent. Hence a marketing and communication strategy is fundamental to cure this wound and change how Africa is perceived abroad.

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APPENDIX

African countries by sub-region:

East Africa	West Africa	Central Africa
Angola	Benin	Cameroun
Burundi	Burkina Fasso	Central African Republic
Comoros	Cape Verde	Chad
Ethiopia	Ivory Coast	Democratic Rep. of Congo
Kenya	Gambia	Republic of Congo
Madagascar	Ghana	Equatorial Guinea
Malawi	Guinea	Gabon
MUS	Guine Bissau	Sao Tome Principle
Mozambique	Liberia	Sudan
Rwanda	Mali	
Tanzania	Mauritania	
Uganda	Niger	
	Nigeria	
	Senegal	
	Togo	