Foreign Direct Investment, Demand-driven and Structural Factors at Play in Africa

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Abstract

To African developing countries seeking to attract and keep foreign investors, this paper suggests that FDI is predominantly demand-driven. To evidence this hypothesis, we reviewed four critical theories and used for application, a sample of twenty-one (21) middle income countries (MICs) in Africa. The data covers the period 1990-2017. Net FDI inflow (% of GDP) has been used as the dependent variable. By employing the Feasible Generalized Least Squares (FGLS) method, we found that it's only through FDI active policy conducts that a country can become preferred target for foreign firms. In practice, our findings imply that liberalization through facilitating trade measures, political reforms, skill upgrading for industrial requirements, infrastructure development, and government discipline need further improvement to create an appropriate, accessible and a secure environment for all investors.

Key Words: Africa, Middle Income Countries, FDI Inflows, demand-driven, Feasible Generalized Least Squares.

1. Introduction

For many years, foreign direct investment (FDI) has been too low in Africa. The inability of many countries to attract foreign capitals to enable structural upgrading and growth remains a growing concern over the continent. Referring to the period 1990-2000, evidences show that Africa was completely left out of attracting foreign investors (Figure 2.1). By contrast, in the early 1990s many countries in Central and Eastern Europe (CEECs) have undergone substantial economic liberalization, and these developments have contributed to CEECs becoming popular destinations for foreign direct investment (Kalotay, 2004; Majocchi & Strange, 2007). With well-targeted policies, the primary goals of their economic liberalization aimed to allow the free flow of capital from advanced nations, the efficient allocation of resources in pursuance of competitive advantages. These goals were achieved by relaxing protectionist policies such as tariffs, trade laws and other trade barriers. Also, when European and American countries seemed to slow down in the post-2000s, most emerging markets in Asia have relayed FDI accumulation, and then, kept an increasing pace leaving Africa far behind in the race.

FDI however, is believed to be a driving force in the current African economic development. In fact, FDI is seen to fill the gap between domestic investments and savings in African countries as their income and savings are often very low. According to Odenthal (2001), African countries have been engaged in active FDI policies reforms since the early 1980s. These policies, in some countries, include political reforms and economic reforms such as macroeconomic stabilization, trade and investment liberalization, privatization and reduction of bureaucracy. But the overall effect of these policies is still unclear.

There is evidence that political stability has a positive impact on foreign investors' decision (Liargova and Skandalis, 2012), and some authors advocate for political transparency as they found that corruption and low transparency hinder FDI inflows (Voyer and Beamish, 2004; Zhao and Du,

2003). However, other studies have questioned the previous findings suggesting that the relationship is not true in every case (Al-Sadig, 2009; Kim, 2010). Furthermore, an earlier report of the Overseas Development Institute (ODI, 1997) mentioned that when the host country owns rich natural resources, no further incentive may be required; and that in politically unstable countries, such as Nigeria and Angola, high returns in the extractive industries seem to compensate for political instability.

While there is evidence that most African countries are richly endowed with various natural resources, it's also true that not all investors are resource-seekers. Therefore, other factors may contribute to foreign investment such as the quality of the workforce, infrastructure development, financial development, macroeconomic stability. Indicators such as inflation, exchange rate and interest rate are often considered to measure countries' macroeconomic stability (Buckley et al., 2007), and have been found to have a significant effect on investor's behavior. A stable macroeconomic environment promotes FDI as it is an indicator of a low investment risk. While skilled labor was not a major focus for investors in China in the pre-80s, Cheng and Kwan (2000) find that good infrastructure was one, and that only in the mid-80s onward, has education become an important part of FDI determinants worldwide.

While home to a growing population and cheap labor, Africa has not been able to become FDI target. A variety of studies including Culem (1988), Lucas (1993) and Cheng and Kwan (2000), have revealed that wage cost has downward effects on inward FDI. If this, in addition to the oversized population of China have been two of its major FDI pulling forces, one might be concerned over the poor situation in Africa. Also, though some countries in Africa are obtaining important capital flows, the continent as a whole is still receiving only the smaller share of the global FDI inflows. Even worse, FDI to Africa has been falling recently although it already compares poorly to other regions. According to UNCTAD (2018), FDI flows to Africa slumped to \$42 billion in 2017, a 21 per cent

decline from 2016. Weak oil prices and harmful ongoing macroeconomic effects from the commodity bust saw flows contract in Egypt, Mozambique, the Congo, Nigeria, and Angola. In addition, foreign investment to South Africa continued to underperform while FDI inflows to diversified exporters, including Ethiopia and Morocco, were more resilient.

Such trends show that perhaps, time has come to think and act differently i.e. whilst natural resources play an important role in the eyes of some investors, it's only through rigorous FDI active policies – and not oil – that Africa can become a preferred target for all type of investments. A recent case study may well illustrate this view. In a study jointly conducted by the Institute of New Structural Economics (INSE) and the Overseas Development Institute (ODI) on 640 manufacturing firms operating in China, findings suggest that Southeast Asia remains a far more likely destination than Africa for a set of 62 firms willing to go out. Among them, only three firms had already invested in Africa (all in Ethiopia) and two indicated Africa as a preferred destination for planned FDI in the next three years (Xu et al. 2017). From this, one may ask why Ethiopia, a landlocked and non-oil country is being featured as a favorite destination for FDI in Africa. First, some preconditions are in place. Ethiopia government managed to open the country to right investors by attracting anchor firms such as the footwear giant Huajian from China, Belgium's sanitary product manufacturers, Indians' and Turkish textile factories, alongside global buyers such as PVH –formerly known as Phillips-Van Heusen Corporation. This has opened doors to others to target the market as the fear for risk has been minimized and confidence increased. Also, Ethiopian GDP growth rate, not only has it been very high, but also kept consistent around 10% on average since 2005 as sign of prudence, discipline and rigor in governance. In addition, the nationwide construction projects of industrial parks (IPs) have created favorable opportunities for investors as the IPs have enabled the country to respond to infrastructural challenges.

The current study is conducted in the quest for rethinking and proposing new approaches for African countries in their effort to attracting FDI. Our principal focus is to demonstrate that FDI to Africa should be looked at as “predominantly demand-driven”. The subject on determinants of FDI inflows in Africa is not new, however, new approaches to policies are needed to discover what will be the most worthwhile reforms and actions to implement. In the rest of the paper, section two will offer an overview to FDI performance in Africa, section three describes the research methodology, combining sections on theoretical frameworks, data analysis and discussion. section four concludes the paper with policy recommendations.

2. Overview of FDI Performance in Africa

We lent a particular attention to the evolution of FDI over time by first putting all the continents into a comparative perspective. Figure 2.1 shows a poor performance of the African continent as opposed to its peers. We also highlight investment performance at regional level (Figure 2.2) and describe in detail the performance of Africa in terms of who invest in, where and why foreign capitals mostly go to some countries. We also clarify and shed light on some misconceptions in order to promote Africa current investment environment.

2.1. FDI inflows: How does Africa Compare to other Continents

On average, European countries, closely followed by the Northern America’s have been the dominant locations to host global FDI in the past. Following the devastation, facts of the war¹ in Europe and Japan, foreign direct investment during the 1950s and 1960s was solely and heavily

¹ After world war 1, international capital markets in the late 1920s and early 1930s severely collapsed, however FDI expanded during the inter-wars period, fell in the 50s and surged again in the 1980s and so on. For more detail, see Paprzycki, Ralph; Fukao, Kyoji (2005), “The Extent and History of Foreign Direct Investment in Japan”.

dominated by US firms. Only during the 1970s, after successful rebuilding of European countries and Japan, did firms from these economies once again join the fray in earnest.

Figure 2.1: Share of FDI, Africa compared with other continents

The global share of FDI in Europe decreased substantially from 53.02% in 2000 to 33.5% in 2016 and the stabilization in Northern America have seen a coming out of major emerging markets. Rapid economic development in Asia namely South Korea, Taiwan, and Singapore, among others, has led companies from these countries to become increasingly international in their operations over the past decades. During the period 1994-2003, other developing countries such as China (including Hong Kong) and a string of other East and Southeast Asian countries brought the rising share in Asia. Outside Asian regions, the only developing countries (in South America) that account for sizeable

shares of global FDI inflows are Brazil and Mexico. In contrast most countries in Africa have received only negligible amounts of foreign direct investment.

2.2. What is Causing Africa low Performance?

The image of Africa as a location for foreign direct investment (FDI) has not been favorable throughout times, and we are concerned to know why this has been an unfortunate reality.

2.2.1. Misconceptions, Risk Aversion and Lack of Investment Promotion

Too often Africa has been mostly associated with pictures of political instability, civil unrest, starvation, deadly diseases and economic disorder. All these factors act as a disincentive to investment in Africa.

However, these factors do not prevail in all countries in Africa as much as it is true that some African countries have been characterized by economic depression, military conflicts, unstable political regimes and mounting social and health problems during some periods, it is also true that there have been positive developments in Africa that are highly relevant for foreign direct investors but that are seldom reported and not widely known. Like any other region in the world, Africa deserves to be looked at in a differentiated way.

Africa should not be mistaken for a single country, rather, a continent consisting of over 50 countries –around a quarter of the nation States of the world – each of which differ in terms of their political systems, economic and human development, and last but not least, their attractiveness as locations for FDI. There is, then, a need to take a closer and differentiated look at the conditions and opportunities for FDI in Africa.

2.2.2. Investment Cost and Cultural Bias

Today, majority of African countries are considered relatively low wage locations for investments. Unfortunately, investment cost includes various indicators which mostly are hard to have in place. These are non-wage costs. The most commonly cited according to World Bank's annual Doing Business report are: the ease of setting up enterprises, obtaining construction permits, transferring property, securing loans, investor protection, the ease of paying fees and taxes, cross-border trade, fulfilment of contractual obligations, and resolving insolvency cases.

Besides these costs, the diversity of African countries in terms of cultures, ethnicities, political differences, historical background and economic status is a parameter that needs to be understood by foreign investors. It is difficult to be successful if one takes Africa for one country. In every country that foreigners want to invest in, in-depth business survey is needed so as take advantage of the differences from one country to another. Shallow investigations or trying to monitor business remotely while investing in Africa may not guarantee success.

2.3. Who Invest in Africa?

In the first place, figures show that in 2015, Africa was the second largest contributor to the continent in terms of number of projects invested just behind the Western Europe. For the period 2015-2016, major players in intra-African investments included South Africa, Kenyan, and Morocco. Overall, FDI to Africa in the same category, originating from different region including Europe, North America, Africa, Asia-Pacific, and Latin America during the last two years is being led by the Western Europe. According to a recent report by fDi Markets, out of the top 10 source locations for FDI into Africa in 2016 by project numbers, six countries achieved an increase in the number of projects destined for the continent. On this prospect, France and the Asia-Pacific countries –where

much could be attributed to China– were the only to achieve an increase in projects number from 2015 to 2016.

Figure 2.2: Top investors by projects number in Africa

Source: Adapted from FDI Markets (2016, 2017)

At regional/country-level, projects per origin declined except for Asia-Pacific, France and China. Although China’s relative low rank in this area, its performance in terms job creation – 38,234 jobs according to FDI Markets in 2016 – and of capital investment were the highest in Africa (Africa Investment Reports, 2017).

2.4. Where does FDI go in Africa?

According to World Bank (2015), Africa as a whole has become the second most attractive investment destination in the world – ranking just behind North America. In reality, the profile of FDI inflow in Africa varies according to its geographical and sectorial destinations. In terms of geographical destinations, the two principal sub-regional hubs for FDI inflows to Africa – Northern and Southern Africa – together account for the majority of the inflows. The Northern region has been

taking the lead until 2009, but the Southern countries were able to relay the race to become the new location for inward FDI.

In fact –figure 2.3– FDI inflow was the regional highest in North Africa at over \$23 billion in 2007 from its \$21.6 billion peak in 2006. A decline had followed ever since. Signs of downfall began in 2009 on the eve of the so-called “Arab Spring”, a series of socio-political unrests causing FDI a drop of nearly 60% in just two years (2009-2011). However, until recently, investors appear to be ready to return in the region given that the political tensions are now stabilizing. In contrast, amidst the chaotic events in the North, the southern countries became the most courted destination and still relatively maintain the lead, reaching an overall highest inflow of \$25.15 billion in 2014. The Western region which kept momentum until 2011, is now losing ground while overseas investments to the Eastern countries are propelling probably due to China’s increasing interest for the coastline markets, an area which fits better in the Belt and Road initial map and also featured with the most beneficial development corridors in Africa (IUCN, 2017).

Figure 2.3: Annual evolution of FDI inflows across African sub-regions (Billion, current US\$)

According to fDi Markets (2016), oil and gas were major contributors to the Northern and Southern subregions in becoming FDI top locations. This however posits a problem of sustained inflows which is why it's often into diversified exporters and policy-focused countries such as Ethiopia, Morocco or so that FDI inflows remain the most resilient (UNCTAD, 2018).

3. Methodology and Data Analysis

3.1. Review of Theoretical Frameworks

We explain the theoretical foundations of foreign direct investment from both the foreign investor and the host country's perspectives. From the literature, contributions to the macro level of analysis can be found in the form of theories of international trade. Alternatively, micro theories engage the organization, as the level of analysis and consideration is given to both the foreign direct investment decision process and the pattern pursued by firms in internationalization. In this section, we explain that FDI can be either predominantly supply-driven when the foreign firm has some monopoly-like of specific advantages, demand-driven when the host country creates or disposes of some conditions that can trigger foreign firms interest to embark on inward investment, or both, i.e. FDI can be supply and demand-driven at a time (see Figure 3.1 below).

Figure 3.1: Different frameworks on policy driven FDI

Note: Authors' compilation based on the literature²

² The terms supply-driven and demand-driven should be understood in the context of analyses in this paper.

3.1.1. The Firm's Competitive Advantages of Hymer

Suggestion 1: FDI is exclusively supply-driven

Investors embark on FDI when firm internal structure allows overcoming cost of doing business abroad.

The microeconomic theory related to international production is known to have been championed by Stephen Herbert Hymer. According to the author, the reasons for internationalization of companies are of two kinds: variables associated to the company's dimension and ownership of specific assets, and variables resulting from the existence of market failures. Hymer (1976) has demonstrated that FDI only takes place when the benefits of exploiting firm-specific advantages (FSAs) across borders allow overcoming the additional costs of doing business overseas.

The shortcoming of Hymer's hypothesis has been addressed later in the literature including Dunning (1980), Krugman (1991), Porter (1994), Ghemawatt (2001) Lin (2012) and Loewendahl & Barklie (2018) among others. Hymer studied the power that advantages provided multinational enterprise (MNEs) and studied the implications for resource allocation provided by MNE hierarchies relative to Pareto-optimality of perfect markets. Limitations to Hymer's study included non-consideration for location advantages, internalization of ownerships advantages and modern binding constraints to FDI in the host economies (Dunning, 1980 and Lin, 2012).

3.1.2. The Eclectic Paradigm: the OLI Framework of Dunning

Suggestion 2: FDI is both supply and demand-driven

Investors pay equal attention to both firm internal strengths and the host country's advantages.

Also, they have the ability to make prudent decisions over FDI such as licensing or export.

After Hymer (1976), several researches on the selection of FDI recipients have followed. Studies have received boost from the work of various scholars who have argued that many of the factors that determine firm competitiveness are location-bound and that the choice of location for their activities is an important strategic decision for transnational companies (TNCs). Among the prominent scholars on the issue of foreign direct investment is John H. Dunning (1980) who framed the OLI-Model.

Figure 3.2: The OLI-Conceptualization

Source: Adapted from Dunning (1980)

With Dunning conception, it is understood that firms can connect to a foreign market in three different ways: licensing, export and FDI.

- Licensing: Must license over export and FDI, a company which has ownership advantages such as knowledge about the target market abroad, staff with language skills, and information about

import permissions, appropriate products, and contacts and so on. The licensing is less cost-intensive than the other forms of internalization.

- Export: If there are internalization advantages, the company can invest more capital abroad. This can be achieved by export in the form of an export subsidiary.
- Foreign direct investment: FDI is the costliest undertaking a company can pursue. According to Dunning, it is considered that locational advantages are necessary for FDI. This can be realized by factories which are either bought or completely constructed abroad. Also, foreign investors embark on FDI on different schedules. The market-seeker aims at penetrating the local markets of host countries and is usually connected with market size and per capita income, market growth, access to regional and global markets, consumer preferences and structure of the domestic market. The resource-asset seeker seeks to secure natural resources, for example: raw materials, lower per unit labor cost of unskilled labor force, the pool of skilled labor, physical infrastructure (ports, roads, power, and telecommunication), and the level of technology. The efficiency-seeker is motivated by creating new sources of competitiveness for firms and it goes where the costs of production are lower. The strategic asset seeker aims at advancing company's global or regional strategy into foreign networks of created assets like technology, organizational abilities and markets.

Ghemawatt (2011) and Lin (2012) went on to support Dunning ideology by designing additional approaches for entry decision. They have further raised concerns over identifying many of the challenges that can deter foreign investors' decisions in offshoring businesses in developing countries and proposed how these constraints can be eventually overcome.

3.1.3. The Psychic Distance Theory

Suggestion 3: FDI is predominantly demand-driven (not exclusively)

Investors may pay more attention to the host country advantages/disadvantages than to the firm readiness to go out.

According to Ghemawatt (2001), the distance between two countries can manifest itself along four basic dimensions including cultural, administrative, geographic, and economic (CAGE). He argued that the CAGE distance framework helps managers identify and assess the impact of distance on various industries; thus distance matters, and managers of MNEs are increasingly able to segment their activities and seek the optimal location for specialized activities.

Figure 3.3: The CAGE framework

Source: Adapted from Ghemawatt (2001)

Based on the work of Kuo and Fang (2009),³ the CAGE framework can be understood following the construct of each element. In fact, the psychic distance was defined as the extent to which top-management perceives the degree to which a set of factors prevents or disturbs information flow between firms and foreign markets. These, as in the framework, include:

- Cultural distance or the differences in religious beliefs, races, social norms, and languages between the investor's country of origin and the host economy
- Administrative distance: differences in a set of factors, including absence of colonial ties, absence of shared monetary or political association, political hostility, government policies, and institutional weakness.

³ Based on Chin-Lung Kuo, Wen-Chang Fang "Psychic Distance and FDI Location Choice: Empirical Examination of Taiwanese Firms in China"

- Geographic distance: differences in a set of factors, including physical distance, lack of common borders, lack of sea or river access, weakness of transportation, and communication links and climate.
- Economic distance: differences in consumer incomes, cost and quality of infrastructures, and natural, financial, and human resources.

Recent considerations and discussions on the “death of distance” (Cairncross, 1997) has the ideology worried, especially on the physical distance. Today, technology has reduced the costs associated with distance, and developments in transportation technology and distance-spanning information and communication technology, including e-mail, social media and video conferencing, are evidencing the fact that the traditional distance-sensitive internationalization process no longer makes sense in a rapidly globalizing world. However, much is left for the renewed concept as described by Ghemawatt (2011). One of the most recent literature to have addressed the issues over FDI helping developing governments to identify and overcome binding constraints and achieve quick wins is the Growth Identification and Facilitation Framework (GIFF) developed by Lin (2012).

3.1.4. The Growth Identification and Facilitation Framework (GIFF)

Suggestion 4: FDI is supply, but more demand-driven

Investors are reluctant to be first movers in unknown locations though they may be completely ready to shift all or parts of their production lines abroad. Also, they value the equal role of the potential host government to be a facilitating state, in the presence of an effective market.

The GIFF is a pilot practical policy tool derived from a ‘new’ space of economic frameworks: the “New Structural Economics” (NSE). The NSE, championed by Professor Lin, can be understood as the latest wave of economics thinking, encompassing the scope of an economy under either market or government pro-dominance. Its particularity, unlike the Structuralism (market failure) and the

Neoliberalism (government failure), is that the dynamics of a thriving economy are simultaneously governed by a facilitating State and an effective market. According to Lin and Xu (2016), the GIFF –in a six-step technical framework (figure 3.4) is “designed to help policymakers in catching-up developing countries to develop feasible and sharply focused policies in an effort to identify and unlock their latent comparative advantage to achieve structural transformation”. The GIFF stands as a client-based and rigorous approach to help developing countries identify right FDI and trade partners, select appropriate industries, and create conditions for foreign and domestic firms to expand their businesses.

Figure 3.4: GIFF in six steps

Source: Authors' compilation based on Lin (2012)'s description

Putting the framework into our context, it appears that steps 2, 5 and 6 are more feasible and can be perfectly under host countries control and that for everything else kept equal, a country is more likely to be favorite FDI destination if the government is more committed in meeting the aforementioned requirements. If this is the case, FDI might be considered as critically more demand driven.

3.2. Data Analysis and Discussion

3.2.1. Sample selection, Data Source and descriptive statistics

The empirical analysis is based on a panel of 21 African developing countries spanning the period 1990-2017. We select Middle Income Countries (MICs) as benchmarks to the rest of African states as we believe that LDCs are trying to achieve such a development level first. The learning ground may not be through attraction to FDI, however today, growth is largely influenced by cross-country business vertical integration. Due to data availability, it was not possible to include all MICs. For the current 2018 fiscal year, low-income economies are defined as those with a GNI per capita, calculated using the World Bank Atlas method, of \$1,005 or less in 2016; lower middle-income economies are those with a GNI per capita between \$1,006 and \$3,955; upper middle-income economies are those with a GNI per capita between \$3,956 and \$12,235; high-income economies are those with a GNI per capita of \$12,236 or more (World Bank). The relationship between FDI and its determinants is estimated by regressing the following econometric model.

3.2.2. The Econometric Model

The model is built following the fundamental theories discussed earlier. Based on our previous construct, the relationship between FDI and its determinants can be expressed as in the following equation:

$$FDI_{it} = \beta_0 + \sum_{(k,i,t)=(1,1,1)}^{(K,n,T)} \beta_k X_{k,it} + \mu_{it}$$

Where:

FDI_{it} as the dependent variable is the net inflow of foreign direct investment (% of GDP). $X_{k,it}$ is the set of independent variables including:

- *Openness* = Trade openness is measured as the sum of a country's export and import as a share of that country's GDP. Trade openness is defined so and is used to capture the scope of liberalization of an economy toward the external world. More liberalized economies are better at attracting investors in export-oriented activities
- *Oil* = oil rents (% of GDP). Oil rents are difference between the value of crude oil production at world price and the production costs. As the percentage share of a country's GDP, they measure the level of dependency of that country on oil exploitation. The higher the share the more dependent the country is. Such countries are preferred destination for resource-seeking investors
- *Resource* = Total natural resources rents (% of GDP); In addition to oil rents, total natural resources rents are the sum of natural gas rents, coal rents, mineral rents, and forest rents. Countries with higher rents are preferred destinations for resource-seeking investors.
- *Growth* = GDP growth (% annual) in our analyses is used for government discipline and reliability in monitoring the whole economy. Any country with consistent growth rate over the years can be deemed keen to the details, accountable, trustworthy and as such, willing to solve problems.
- *Laborforce* = Labor force (individuals aged 15+ years per 100 of the the total population); Investors seeking to invest in developing countries, especially in Africa are largely motivated by the access to the huge pool of labor which is also relatively cheaper. Market-seeking investors are more attracted to these countries.
- *Politic* = political stability and absence of violence/terrorism (percentile rank among all countries from 0 to 100; the higher the better). Between two countries with similar investment environment, investors will most likely want to invest in a safer place.
- *FDIstk* = FDI stock (in log), proxied by inward FDI stock which is the overall value of foreign investors' equity in and net loans to enterprises resident in the reporting economy. It

is originally reported in US\$, but is log-transformed to match the scale of other variables.

When a country's FDI rises consistently, other investors may be attracted to that location which they may consider as low-risk environment for investment.

- *Electricity* = access to electricity (% of total population); It can be defined as the percentage of people in a given country that have relatively simple, stable access to electricity. Electricity is an important source of energy widely used in modern day firms for production. Higher access rate to electricity could mean, in short, lower costs for production. Relatively low-cost production countries are better at attracting FDI.
- *Inflation* = inflation rate (%) is proxied by the distance from the previous value (in yearly basis) to capture the level of stability in monetary handling by a country (the larger the worse). Unstable monetary system is unlikely to guarantee a secured environment for foreign investors. ,
- μ_{it} the error term, $k = 1, \dots, K$ the number of parameters to estimate –intercept not included, $i = 1, \dots, n$ the number of countries ($n = 21$), $t = 1, \dots, T$ the time span (1990-2017).

Our econometric model is in the form $Y = X\beta + u$ where Y as the outcome variable is an $n \times 1$ vector, X a matrix of $n \times k$ predictors, β is a $k \times 1$ parameter vector and u an $n \times 1$ vector of unobserved errors terms. Following Miller & Startz (2018), assume: (i) regressors are exogenous ($E[u|X] = 0$); (ii) there is no perfect collinearity between regressors such that $X'X$ is invertible; (iii) errors are uncorrelated across observations and u exhibits heteroskedasticity of unknown form such that $v(X) = Var(u|X)$ is non-constant. Miller & Startz suggest that an appropriate approach to estimating such models is by using Feasible Generalized Least Squares (FGLS), which, as its name indicates, is a feasible form of Generalized Least Squares (GLS).

3.3. Regression Results and discussion

This section presented the descriptive statistics in Table 3.1, regression of importance of preconditions in Table 3.2, regression of power of oil and other natural resources table 3.3 and the regression of the importance of FDI active policies in table 3.4.

Table 3.1: Descriptive Statistics of Main Regression Variables

Variable	Mean	Std. Dev.	Minimum	Maximum
FDI	4.355252	10.04233	-8.589432	161.8238
Openness	.8909568	.5064465	.2072252	5.317374
FDI (lag, 1 year)	4.358824	10.05071	-8.589433	161.8237
FDIstk (in log)	8.043122	1.904516	1.335512	12.09829
Oil	7.164509	12.99549	0	63.81976
Oil ²	219.912	568.8029	0	4072.962
Resources	12.02864	14.42043	.0011475	74.40291
Labor force	34.74795	9.381929	0.028078	49.30952
Growth	4.664821	8.366014	-9.089059	149.973
Electricity	54.30151	30.39649	.01	100
Politic	3.822543	.6896505	1.450537	4.60517
Inflation	-.3471855	9.638155	-128.7107	68.0642

Hypothesis 1: Preconditions are important

Foreign investors are likely to pay particular attention to the prevailing conditions in the host country while deciding to go out.

$$FDI_{it} = \beta_0 + \beta_1 Open_{it} + \beta_2 FDI_{it-1} + \beta_3 FDIstk_{it} + \mu_{it}$$

Table 3.2: Importance of preconditions

VARIABLES	FDI net inflow (% of GDP)
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Trade openness	13.43*** (0.614)	11.93*** (0.773)	14.34*** (0.643)	13.27*** (0.832)
FDI net inflow (lag, 1 year)		0.129*** (0.0393)		0.0884** (0.0405)
FDI stock (in log)			0.810*** (0.179)	0.750*** (0.186)
Constant	-7.792*** (0.631)	-6.980*** (0.684)	-14.98*** (1.739)	-13.93*** (1.870)
Observations	552	542	519	510
Number of countries	21	21	20	20

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Keeping other things else equal, an increase in trade openness by 1% is associated with an increase in FDI inflow by 13.43% (column 1) and similar percent points (11.93, 14.34 and 13.27 respectively in columns 2; 3 and 4) as other variables are added. The positive coefficients and their high significant level show that investors are more satisfied with countries which trade more with outside. In fact, no company will want to move in a country where it'll have difficulties to import –says machines, services and intermediate goods for production – or to export under hefty export tariffs and face other administrative bottlenecks. Besides the trading advantages, the lagged net inflows and the stock of FDI in the target country feature significant feedback as strong sign to deal with investors doubting on whether a location is safe or not. This suggests that when some multinationals (MNCs) are already settled in a country and are eventually making progress, other foreign companies may automatically view their success as proof for profitable and secured conditions.

Hypothesis 2: Oil and other natural resources are associated with higher FDI inflow

General perceptions suggest that countries endowed with consequent reserve of natural resources, especially oil, are more attractive to foreign investors (Anyanwu, 2012).

$$FDI_{it} = \beta_0 + \beta_1 Open_{it} + \beta_2 Oil_{it} + \beta_3 Ress_{it} + \mu_{it}$$

Table 3.3: Power of oil and other natural resources [control for “Trade openness”]

VARIABLES	FDI net inflow (% of GDP)	
	Restriction (temporal)	Restriction (by category)

	Overall	Before 2000s	After 2000s	Upper MICs	Lower MICs
Trade openness	12.73*** (0.692)	14.32*** (1.191)	5.521*** (0.854)	15.20*** (1.261)	4.936*** (0.785)
Oil rent (%of GDP)	-0.268*** (0.0529)	-0.644*** (0.171)	-0.164*** (0.0377)	-0.843*** (0.179)	-0.120*** (0.0383)
Total natural resources rent (%of GD)	0.289*** (0.0490)	0.618*** (0.157)	0.205*** (0.0350)	0.787*** (0.173)	0.195*** (0.0345)
Constant	-8.716*** (0.647)	-11.51*** (1.123)	-2.049*** (0.767)	-12.94*** (1.232)	-1.896*** (0.659)
Wald $\chi^2(3)$	498.04	290.72	93.71	325.81	113.03
$Prob > \chi^2$	0.000	0.000	0.000	0.000	0.000
Observations	537	193	344	180	357
Number of countries	21	20	21	7	14

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The positive signs confirm that resource endowments do contribute to FDI overall but only for countries' compounded rent of natural resources to GDP. Unexpectedly, coefficients on oil rent to FDI were negative throughout the robust controls. We seek to explain such a paradoxical finding arguing that, there is possibility that if data could have been broken down into two components, oil will certainly boost oil-FDI while having a crowding out effect on non-oil FDI at the same time. Thus, the negative sign is understandable when majority of potential FDI are non-oil types. But, there is also a possibility of non-linear relationship between the two variables which will be verified with more controlling factors in section below.

Hypothesis 3: Foreign direct investment is predominantly demand-driven.

It's not completely true that a firm will engage in FDI if it possesses all the internal specific advantages to do so. It still has the possibility to license or export. However, if the conditions to establish abroad are welcoming, this will minimize the level of risk perception and create confidence. Thus, even the small medium-sized enterprises (SMEs) will follow the first movers.

$$FDI_{it} = \beta_0 + \beta_1 Open_{it} + \beta_2 FDI_{it-1} + \beta_3 FDI_{stk\ it} + \beta_4 Oil_{it} + \beta_5 Oil^2_{it} + \beta_6 Ress_{it} + \beta_7 Labor_{it} + \beta_8 Elect_{it} + \beta_9 Politic_{it} + \beta_{10} Inf_{it} + \mu_{it}$$

Table 3.4: Importance of FDI active policies

VARIABLES	FDI net inflow (% of GDP)			
	(1)	(2)	(3)	(4)
Trade openness	13.79*** (0.888)	14.25*** (0.888)	11.73*** (0.828)	11.77*** (0.824)
FDI (lag, 1 year)	0.108*** (0.0405)	0.0967** (0.0401)	0.649*** (0.0514)	0.744*** (0.0579)
FDI stock (in log)	0.704*** (0.183)	0.662*** (0.181)	0.400* (0.216)	0.403* (0.212)
Oil rent	0.0719 (0.0904)	0.110 (0.0901)	0.120 (0.0849)	0.197** (0.0859)
Oil ²	-0.00800*** (0.00170)	-0.00874*** (0.00169)	-0.00573*** (0.00158)	-0.00697*** (0.00159)
Total natural resources (%of GDP)	0.240*** (0.0494)	0.230*** (0.0490)	0.0576 (0.0426)	0.0297 (0.0428)
Labor force		0.0110*** (0.0032)	0.0637** (0.0284)	0.0699** (0.0280)
GDP growth			0.455*** (0.0610)	0.379*** (0.0638)
Access to electricity			0.00349	-0.00288

Political stability			(0.0127)	(0.0128)
			-1.060**	-1.102**
			(0.481)	(0.476)
Inflation				0.0219
				(0.0566)
Constant	-15.72***	-19.47***	-12.70***	-12.32***
	(1.846)	(2.145)	(2.944)	(2.896)
Observations	495	495	343	336
Number of countries	20	20	20	20

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The first caveat in constructing the model is that, there are no firm-specific variables introduced to back the supply-driven assumption. Secondly, as the linearity in the relationship between “Oil rent” and FDI can be questioned, we include the quadratic term (Oil^2) as we to apprehend the meaning of the persistent negative effect. By doing so, results in columns 1 and 2 of Table 3.4 can be compared to previous findings (Table 3.2 and column 1 of Table 3.3) as there are very little changes in the magnitude and significance of coefficients despite the inclusion of Oil^2 and labor force as controls. The use Oil^2 tells us importantly about inverted U-shaped relationships between oil rent and FDI inflow and the existence the turning points (O^*). In column 4 for example, $O^* = -\frac{0.197}{-2*0.00697} = 14.13$. This implies that, oil exporting countries face decreases in FDI as the share of oil rent in their GDP exceeds 14.13%. The main causes for the reverse effect can be due to excessive reliance on oil-FDI, monopolies (e.g. some big companies may take over the whole industry, leaving little room for others to enter) or competition from most diversified economies.

Other important findings include the positive and significant effect of labor force and GDP growth rate. Estimates in column 4 suggest that a 1% point increase in labor force and GDP growth can pull an additional 0.0699% and 0.379% respectively of GDP share of FDI in a country. These results should be viewed as very important for African countries, especially the labor force. . As foreign investors continue to target Africa for its demography, its labor force needs to be equipped with

adequate skills in order to be able to quickly absorb foreign technologies and work toward Africa's industrialization and structural transformation.

Going further on resource endowments, note that, once we control for other factors, natural resources lose their significance (column 3 and 4). Also, if natural resources were the sole interest of foreign investors, most African countries may have become major hubs for FDI decades ago. Unfortunately, this did not happen, suggesting that it's only through active policy conducts that interest for FDI in Africa can be effectively triggered. Also, other factors including FDI stock, political stability and inflation variability are unstable results either in signs or significant levels. High variability in inflation should normally have negative effect on FDI and stable political environment a positive effect. Whether investors target the domestic market or choose to export, measures should be taken to maintain inflation between decent thresholds. It is also possible that, among several destinations, investors choose to stay in countries with slightly higher inflation if they invest exclusively in export-oriented activities. Even so, monetary policies regarding inflation should not be overlooked as country with very volatile inflation rate can be viewed as unsafe for investment. Lastly, the role of energy proxied by "access to electricity" in our regression is unclear as to whether its impact on FDI is positive or not. Despite having non-significant estimates, it is no secret that today most companies are simply unable to operate without energy. Moreover, deficit or absence of reliable supply of electricity may be a cost in addition for foreign investors and given situations, industrial firms will choose to set up in locations with competitive supply of energy.

4. Conclusion and Policy Implications

We suggest that FDI is predominantly demand-driven, then provide evidence that foreign investors can only be attracted through FDI active policy conducts. First, we found that foreign investors pay attention to some preconditions such trade openness which we think can be materialized through

facilitating trade measures. Also, countries which dispose of relatively higher stock of FDI are better at attracting new investors as this stands as a proof of profit and safety for foreign firms. By contrast, “Oil rent” negatively affects investors’ decision. The explanation, as the result seems not to align with common perceptions, is that, “Oil endowments” can only boost oil-FDI while having a crowding out effect on non-oil FDI at the same time. Thus, in countries where non-oil firms enter but are unable to be successful due to governments’ attention increasingly shifted toward oil-firms, non-oil investments will be driven out over time. Another interesting finding on this, when the regression includes the quadratic term, suggest that, keeping all other things constant, oil does have a positive effect on FDI. At a certain point however (14.13% of GDP), the sign turns significantly negative, implying that, oil-endowed countries lose their attractiveness in favor of other destinations with better incentives such as larger pools of workforce, consistent growth rates and relaxed trade policies among other things.

With these findings, the following policy points shall be taken into consideration by every African nation seeking to attract and keep FDI. First and foremost, countries should liberalize their economies by adopting trade policies that promote import of intermediate goods, export of domestic finished products with preferential measures. By doing so, they may easily attract foreign investors, create conditions for local employment, foster local labor productivity, promote exports and boost domestic industrialization. Secondly, in order to speed up these outcomes, it is important that African countries strive to equip the growing workforce with discipline and with adequate skills for industrialization –the adoption of this Chinese-like model in some parts of Ethiopia can be a reference. Seeking right partners to finance infrastructure in order to cope with energy or electricity constraints is also worthwhile for countries which face financial challenges. For oil exporting countries, oil should be used as tool not only to attract foreign investors but also to channel them to the other sectors of the economy. In a nutshell, African governments need to become more strategic, proactive and more aggressive in investment promotion as it’s thereon true that, attracting FDI,

especially for industrialization, has created a harsh competitive field among all developing countries (World Bank, 2018).

Possible extensions to the current study may include: (i) looking at the supply-driven side of FDI impact factors using overseas firm-level data in the specific context of African countries; and (ii) finding decomposed data to conduct a comparative analysis between driving forces to oil and non-oil FDI in the same context. These two points, when rigorously discussed, could bring more clarity and quality to our policy recommendations.

Declarations

1. Ethics approval and consent to participate Manuscripts reporting studies involving human participants, human data or human tissue must: **“Not applicable”**
2. Consent for publication **“Not applicable”**
3. Availability of data and material ; **Data for this article are available**
4. Competing interests **"We declare that they have no competing interests"**
5. Funding All sources of funding for the research reported should be declared. **“Not applicable”**
6. Authors' contributions. **"KWT analyzed and interpreted the economic data. KS performed the economic analysis, and was a major contributor in writing the manuscript. All authors read and approved the final manuscript."**
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Figures

Figure 1

2.1: Share of FDI, Africa compared with other continents

Source: Adapted from FDI Markets (2016, 2017)

Figure 2

2.2: Top investors by projects number in Africa

Figure 3

2.3: Annual evolution of FDI inflows across African sub-regions (Billion, current US\$)

Note: Authors' compilation based on the literature²

Figure 4

3.1: Different frameworks on policy driven FDI

Source: Adapted from Dunning (1980)

Figure 5

3.2: The OLI-Conceptualization

Source: Adapted from Ghemawatt (2001)

Figure 6

3.3: The CAGE framework

Source: Authors' compilation based on Lin (2012)'s description

Figure 7

3.4: GIFF in six steps