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The Effect of Foreign Direct Investment on Industrialisation in Sub-Saharan Africa: The Role of Institutional Quality

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Abstract: This study examines the relationship between Foreign Direct Investment (FDI) and industrialisation through the role played by the quality of institutions. It examines the effect of FDI on industrialisation for a sample of 39 sub-Saharan African countries over the period 2006-2019. The estimation techniques are based on Dynamic Least Squares (DOLS) and Fully Modified Least Squares (FMOLS) methods. On the one hand, the results of the estimates show that FDI does not contribute directly to the industrialisation of sub-Saharan Africa, but does have a positive and significant impact on industrialisation. On the other hand, foreign direct investment contributes to the industrialisation of sub-Saharan Africa through the role played by the quality of the institutions in place. This positive and significant effect is a characteristic of the sub-Saharan African region, but varies from one country to another. These differences are mainly explained by the availability of natural resources and the varying quality of existing institutions in the different countries. Based on these results, sub-Saharan African countries should establish a strong link with foreign direct investment and promote industrialisation through quality institutions in order to ensure adequate structural transformation.

Keywords: foreign direct investment; industrialization; Sub-Saharan Africa; institutions

1. Introduction

At the end of the colonial period in the 1960s, the countries of sub-Saharan Africa had a low level of economic and social development. Apart from these factors, which go a long way to explaining the scarcity of foreign direct investment and the lag in industrialisation, in the case of sub-Saharan Africa, the sub-region has a virtually non-existent level of infrastructure and health coverage, as well as a low level of education and inefficient systems in place. With a view to a better future, the countries of SSA have placed particular emphasis on strategies to attract and retain foreign investment.

This focus on FDI stems, firstly, from the fact that FDI is a concept that has been emerging since Rostow (1960) and has a variety of positive spin-offs[2]. And secondly, the fact that researchers such as Solow and international institutions rely on capital theories to argue that capital liberalisation in African countries is necessary for prosperous growth. As a result, the last 25 years have seen a significant inflow of FDI into the SSA region.

For example, based on the World Development Report (2000), Alfaro et al. (2004) point out that in 1998, FDI accounted for more than half of all private capital investment in developing countries; In

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addition, by combining the report of the United Nations Conference on Trade and Development (UNCTAD) published in 2003 with the one published in 2015, we observed that, alongside with the increase in the number of agreements, most often bilateral, the governments of SSA countries are taking more and more measures to attract foreign capital. These measures include easing investment conditions through specific institutions (tax breaks, for example) in host countries, which is also one of the recommendations of financial institutions such as the WB and the IMF.

As a result, many investors are heading to SSA to take advantage of the changes in investment rules. As an indication, in 2014, more than 80% of investment policy measures were aimed at improving the conditions for the entry of foreign investment and reducing existing restrictions.

Foreign direct investment (FDI), even more than other types of capital flows, has given rise to concern in the past because it can lead to majority ownership by multinational companies, often large ones, over which it is feared that national authorities have little control. Controversy has focused on FDI inflows, with the issue of foreign control of domestic industry being particularly sensitive. This is why understanding why firms decide to internationalise and choose to set up in one country or region rather than another is a question that is arousing greater interest among economists; it has become "virtually strategic for economic and political authorities striving to attract foreign investment to their territory" (Mayer & Mucchielli, 1999). But the answer is proving difficult.

Not only are the variables shaping the behaviour of multinational firm are multiple and disparate, but their strategies are also constantly changing in response to the incessant changes in the global political and economic environment. Capturing the behaviour of multinational firms within a theoretical framework therefore remains an arduous task. Over the past 30 years, several theories have emerged with the common aim of explaining the development of MNCs, the deployment of their activities, the process of economic globalization and the emergence of networks. Each theory, given its field of application, has been obliged to explain the behaviour of firms either globally or in terms of specific aspects.

On the other hand, in recent years there has been a proliferation of work that demonstrates the validity of an institutional approach to analyzing the attractiveness of nations in terms of FDI. Investment is affected by both risk and profitability, which are highly dependent on a country's institutional framework. As Younsi, and Bechtini (2019) point out, foreign investors want to operate in an environment characterized by reduced uncertainty and transaction costs. This environment is linked to the regulations inherent in the laws governing the activities of foreign firms. Such regulations may contain obstacles that make it more difficult for foreign firms to set up in a country, thereby diverting FDI flows to countries with more flexible and transparent legislation.

Moreover, since this environment also determines the incentive system of local firms, their efficiency, specialisation and competitiveness, its quality will largely determine the quality of inward FDI. In today's interdependent global economy, Africa remains a weak link. If the world is to achieve the Sustainable Development Goals, and thus the United Nations 2030 Agenda for Sustainable Development, it must help Africa to accelerate its development by promoting rapid and responsible industrialisation. Africa is by no means condemned to lag behind the rest of the world.

On the contrary, it could easily become a global economic powerhouse in less than ten years. Except that to realise its economic potential, it needs to industrialise. The importance of this issue has been

underlined repeatedly at recent international forums, most notably at the 6th Tokyo International Conference on African Development (TICAD VI) last August, and at the G20 summit held in Hangzhou (China) the following month. For the first time, the G20 included industrialisation in Africa and all the least developed countries (LDCs) on its agenda. The African Union's Agenda 2063 also supports this initiative. The recent United Nations General Assembly resolution making 2016-2025 the third industrial development decade for Africa provides further impetus in this direction. The United Nations Industrial Development Organization (UNIDO) has been tasked with operationalizing and steering the implementation of the concurrent programme (which takes place at the same time as another event), including by mobilising the necessary resources. These declarations and commitments are an important first step towards concrete and effective measures that will advance African industrialisation, create jobs and promote inclusive and sustainable economic growth and development, but by what means?

The immediate response is money and action. The international community and development partners must be challenged to back up their words with real financial commitments. And we need to create partnerships capable of implementing the programmes that will make Africa the next engine of global economic growth.

These programmes must identify and seek to address the acute problems facing the continent. The economic growth recorded over the last few decades has not been structurally sound, sustainable or fully inclusive. Growth rates vary considerably across the continent, and not all Africans are benefiting. Although the middle class has grown considerably in Africa in recent years, generating strong growth in consumption and stimulating domestic investment, part of the population is struggling to earn a living. Unemployment rates are high, especially among young people and women, and this reality is driving many Africans to head north.

To sustain these populations, African economies need to move beyond the production of raw materials to build dynamic and competitive manufacturing sectors with higher added value. To do this, Africa needs to participate in global and regional value chains by putting in place innovative new industrial development strategies, and carefully tailored measures to attract foreign direct investment. Naturally, to develop such strategies and participate effectively in industrial value chains, Africans need knowledge. Successful and sustainable industrialisation requires investment in education and vocational training. By drawing on innovations that have proved their worth around the world, Africa could make a technological leap towards the more developed countries, and strengthen its capacity to produce more complex, higher-value goods.

Furthermore, by learning from the experiences of other countries, Africa will be able to avoid the pitfalls of unbridled industrialisation, particularly in terms of environmental damage. It must ensure that its industrial development strategy includes effective environmental safeguards.

Africa is well placed to industrialise. In addition to its wealth of natural resources, it has a favorable demographic profile (it will soon have the largest working population in the world) and a high rate of urbanization. It also benefits from a highly educated diaspora.

But industrialisation is never an automatic process. Governments must take steps to compensate for market failures while planning, implementing and enforcing industrial policies. Most often, when we talk about industrial policies, we think of manufacturing industry, but the concept covers a much wider

field than just industrialisation in the narrow sense of the term, or simply increasing GDP. We need to broaden our vision of industrial policies.

Industrial policy refers to any policy pursued by public authorities that has an impact on sectoral composition, technological choices or the direction of innovation. This can include energy policies, modern service sectors and many other aspects that favor a whole range of non-traditional activities and technologies.

So, industry here is not just manufacturing. The development of a manufacturing sector has its advantages, as it is a good way of moving from an agricultural economy to a more prosperous one, but it should be noted that the total number of jobs in this sector is declining worldwide. This decline is the result of the very success of the manufacturing sector. Productivity is rising faster than output, so not all countries can create jobs in this sector. In both the US and Europe, there will be, or has been, a significant reduction in employment in the sector, and countries will have to adapt to this situation. As a result of rising labor costs and changing comparative advantages, manufacturing activities are shifting (Banque Mondiale, 2014).

An institution such as the United Nations Industrial Development Organization (UNIDO) can play an important role in helping certain countries, for example in Africa, to recover a greater proportion of the jobs that will leave the countries where they are currently located. There have been great successes in some African countries, for example in Ethiopia, where 50, 000 jobs have been created in the footwear industry. This is a real success story for industrial policies that remedy the shortcomings of previous policies that proved ineffective. They must then institutionalize these new policies in national and regional development strategies. To succeed, governments need the capacity, skills and legitimacy to mobilize and interact with all stakeholders to create a favorable investment climate. This is why a focus on the role that the quality of institutions will play on the impact of foreign direct investment on industrialisation in sub-Saharan Africa will be judiciously developed.

After their independence in the 1960s, African countries in general and sub-Saharan Africa in particular faced enormous economic difficulties, particularly in the area of FDI and industrialisation. Their growth has remained insufficient to enable these countries to emerge from underdevelopment. Between 1980 and 2013, World Bank figures show that the share of industry in sub-Saharan African countries fell from 12% to 11%; the unemployment rate in most of these countries is still below 50% of the working population, despite the wealth that this sub-region possesses; their industrial fabric is still embryonic and dominated by the food sector; the trade balance of these countries with the European Union is in deficit in most cases.

In addition to these economic problems, the sub-region is faced with a lack of political vision, political instability, a small market, difficulties in accessing finance, which is moreover more debated and ambiguous on international trade, employment in investor countries, working conditions and the environment.

The lack of political vision, political instability, the small size of the market, difficulties in accessing finance, which is moreover more controversial and ambiguous than the impact on international trade, employment in investor countries, working conditions and the environment, and the low level of human capital are also highlighted as major obstacles to industrialisation on the African continent. In recent years, FDI from OECD countries to developing countries has been the target of criticism1 from NGOs

and others who blame these investments for the decline in labor and environmental standards. Countries that have seen an increase in FDI inflows have often felt uneasy. Until recently, a large number of developing countries have been wary of it.

Even in the United States, the increase in FDI from Japan during the 1980s gave rise to major concerns about excessive foreign control and adverse effects on national security, as expressed by the popular press and legislators. According to critics of FDI, the host country observes adverse economic and political effects. Alleged effects on the economy include balance of payments deficits, reduced domestic research and development, reduced competition, crowding out of domestic companies and reduced employment.

Economic analysis has shown that most of the alleged economic disadvantages have little justification (Graham & Krugman, 1995). FDI has little lasting effect on employment and the balance of trade, which depend on macroeconomic factors (Graham, 2000). Although negative microeconomic effects on domestic competition and local R&D activities are conceivable, FDI inflows are more likely to promote competition and encourage the development of local technical capabilities. This is how Binh Duong Nguyen (2010) showed in his essay the important role that foreign direct investment plays in industrialisation. Similarly, on the basis of an estimate using the method of generalized moments in a system for data from 53 African countries, Bruno Emmanuel (2016) asserted that the contribution of foreign direct investment to the industrialisation process is very high. Furthermore, it is known that the relationship between foreign direct investment and industrialisation is not always an easy task, since some authors describe this relationship as harmful, especially in the industrial sector.

Some studies tend to show that the impact of FDI on domestic savings, productivity and national investment in developing countries is positive only in rare cases (Lalwani, 2002; Hanson, 2001), while others explain how national firms can be disadvantaged by the massive inflow of foreign investment. On this subject, Manuel R. Agosin and Ricardo Mayer, who have found that the impact of FDI on domestic investment varied considerably from one continent to another, remind us of the importance of nuancing perspectives according to national contexts.

However, in view of all the above, the question is: "**What is the effect of foreign direct investment and institutions on industrialisation in Sub-Saharan Africa?** This question is the main focus of our work. The following series of questions stem from this issue:

- What is the effect of foreign direct investment on industrialisation in Sub-Saharan Africa?
- What is the role of institutional quality in the relationship between foreign direct investment and industrialisation in Sub-Saharan Africa?

The main hypotheses of this study states that, foreign direct investment influences industrialisation in sub-Saharan Africa. Specifically, these are

Hypothesis 1: Foreign direct investment does not directly influence industrialisation in sub-Saharan African countries.

Hypothesis 2: The quality of institutions has a positive and significant influence on the effect of foreign direct investment on industrialisation in sub-Saharan Africa.

2. Literature Review

A number of authors have attempted to show the importance of foreign direct investment on economic growth, particularly in the industrial sector, through the factors that promote or undermine the relationship between these two concepts.

2.1. Summary of Studies Showing the Positive Effect of Foreign Direct Investment on Industrialisation

The debate on the relationship between foreign direct investment and industrialisation is of great importance, since foreign direct investment is seen as a factor in industrial development. In practical terms, foreign direct investment influences industrialisation through two mechanisms. A direct mechanism is based on the crucial role played by the presence of foreign companies in increasing manufacturing value added. Indeed, by estimating the impact of FDI on the total factor productivity of local firms for 18 sectors of Moroccan manufacturing industry over the period 1987-1996, Bouoiyour Jamal and Toufik Said (2007) have shown that the increase in human capital and trade openness, together with FDI, have a positive and significant impact on the productivity of the industrial sector.

Based on an estimate using the system-generalized moments method, for data from 53 African countries, Bruno Emmanuel (2016) has argued that the contribution of FDI to the industrialisation process is very high. FDI makes a significant contribution to the value added of industry to GDP and not to employment in the industrial sector in Africa for the period 1975-2014. The positive and significant effect is observed in four sub-regions except East Africa. Based on panel data between 1986 and 2006. Binh Duong Nguyen (2010) has shown the importance of the role of FDI in industrialisation. Indeed, there is a strong positive correlation between employment growth in manufacturing and the presence of multinational firms. Jamel Bouoiyour (2006) cited by Kria and Akrout, Z., (2017) has shown that foreign presence has a positive and significant impact on the labour productivity of local firms through the transfer and diffusion of technology.

2.2. Synthesis of Previous Work Showing the Negative Effect of Foreign Direct Investment on Industrialisation

The relationship between foreign direct investment and industrialisation is not always an easy task, since some authors describe this relationship as negative, especially in the industrial sector. Thus, for M. Amara and K. Thabet (2012), foreign direct investment had a negative effect on manufacturing value added for 138 delegations in Tunisia between 1998 and 2004. In the same vein as M. Amara, the results obtained did not reveal the existence of a positive impact of foreign direct investment on the growth of manufacturing value added in Morocco over the period 1983-1986. For a sample Kria and Akrout, Z., (2017) admitted that there was no clear relationship between FDI and the intermediate goods and capital goods industries

2.3. Summary of Previous Work Showing the Role of Certain Variables on the Relationship between Foreign Direct Investment and Industrialisation

Some studies tend to show that the impact of FDI on domestic savings, productivity and national investment in developing countries is positive only in rare exceptional cases (Lalwani, 2002; Hanson, 2001), while others explain how national firms can be disadvantaged by the massive inflow of foreign investment. On this subject, Manuel R. Agosin and Ricardo Mayer, who found that the impact of FDI on domestic investment varied considerably from one continent to another, remind us of the importance of nuancing perspectives according to national contexts.

In addition, several studies show that foreign direct investment has a positive impact on economic growth in China. Using analyses based on macroeconomic data from 49 African countries over the period 1980-2009, Gui Diby (2016) showed that the impact of FDI on the manufacturing sector was not significantly different from zero. As for the indirect mechanism, it is present through the advantages of technology transfer procured by the presence of foreign companies. Indeed, the relationship between FDI and industrialisation can be addressed through the spillover effect, since the new technologies and innovation transferred improve the ability of FDI recipient countries to sustain their industries. In this respect, the results of research carried out with 10 manufacturing companies

Louise Marchand and Nancy Lauzon (2004) show that the knowledge and know-how transmitted by foreign companies improves added value in the context of training in the manufacturing sector. E-learning is seen as an innovation in the industrial sector. Based on estimated panel data. In conclusion, the development of human capital through technology transfer in the industrial sector leads to greater productivity and improves the willingness of employees to perform their tasks.

3. Methodological Approach

The econometric estimates are based on a panel of 39 sub-Saharan African countries. The data used in this study comes from the World Bank's database of World Development Indicators.

The quality of data from these institutions is subject to controversy. The study period runs from 2006 to 2019, in order to cover a sufficient number of years to identify more or less significant trends. In addition, the year 2006 is taken as the starting point because this is the most recent period in which changes have been felt or have begun to be felt, whether in the areas of foreign direct investment or industrialisation. The year 2019 is motivated by the availability of data published by the World Bank and the World Development Indicators on our various areas of study.

Here, industrialisation is the focus of our study where the explanatory variable is the role of institutional quality as well as FDI which represent the explained variables.

In this work, we present the results of the estimations of the equations presented below using different methods. First, we propose classical estimators in the context of panel data such as fixed or random effects models.

Thus, the estimation of our models poses the problem of cointegration on the panel data of the variables. To correct these problems, the dynamic least squares (DOLS) and the fully modified least squares (FMOLS) methods will be adopted. Our model is inspired by Gui-Diby and Renard (2015) for the

variables of control and interest and Zhang (2014) for the construction of the interactive variables needed to explain the channels through which FDI influences industrialisation, which is moreover explained here by the emphasis on the quality of institutions in sub-Saharan Africa. In its compact version, the model to be estimated takes the following form:

$$Indu = aXit + bIDEit + eit$$

Where Indu measures industrialisation. Unlike the above studies, we consider three indices to measure industrialisation. We have manufacturing value added, which captures the capacity to transform natural resources into final goods (Di Maio, 2009). Then we have the ratio of industrial employment to total employment. It explains how intermediate goods are transformed and describes the quality of the workforce required (Gui-Diby, Renard, 2015; Kaya, 2010).

Finally, we calculate the role played by the quality of institutions in sub-Saharan Africa. Unlike previous studies, this is the major innovation of our work. The calculation of such an index is useful for several reasons: (1) it makes it possible to bring together certain factors capable of explaining the state of industrialisation in sub-Saharan Africa; (2) the data for the two indicators usually used are sometimes non-existent for certain countries, whereas the quality of institutions makes it possible to fill the gaps created by the absence of certain data; (3) the quality of institutions speaks better for itself. It also incorporates the heterogeneous industrial policies of developed and developing countries. Secondly, industrial policy can vary from one country to another. For example, industrialisation in East Africa is essentially based on tourism and mining.

In Central Africa, in some countries (Congo and Equatorial Guinea), industrial policies are inspired by natural resource processing models. In Cameroon, industrial policy is partly based on the transformation of raw material resources, but much more on agro-industry. For the explanatory variables, foreign direct investment (FDI) corresponds to total FDI inflows as a percentage of GDP. FDI directly boosts the host country's industry (Kang & Lee, 2011).

3.1. Dependent Variable

The dependent variable is measured by manufacturing value added as a percentage of GDP, which explains the capacity of African countries to transform raw materials into industrial goods.

3.2. Explanatory Variables

In this study, we use the explanatory variables that are necessary to explain the channels through which FDI influences industrialisation. These correspond to total FDI inflows as a % of GDP. Generally speaking, FDI drives industry. Indeed, inward FDI is the route to industrial development for host countries. Domestic investment (DI) is captured by gross fixed capital formation as a percentage of GDP. This is the indicator that measures national investment and reflects the capacity of the national economy to accumulate capital. Gross domestic product (GDP) is presented by GDP per capita (current US$). The development of domestic demand and the efficiency of economic activities drive industrialisation. Indeed, income growth plays a powerful role in industrial development.

4. Estimation and Discussion of Results

Table 1. Stationarity Test

VARIABLES	TEST PESARAN DEPENDANCE CROSS-SECTIONNELLE (Pesaran CD)		STATIONARITY TEST To level I(0)		STATIONARITY TEST 1sr différence I(1)	
	Stat	Prob	Levin, lin & chu	Im, pesaran & shin	Levin, lin & chu	Im, pesaran & shin
LIND	44.22	0.0000	-1, 65**	2, 71		-8, 56***
LEFFGOV	-1.13	0.2602	2, 86	1, 61	-8.108***	-7, 507***
LMAN	59.73	0.0000	-1.63**	3.12**	-8.56***	5.90***
LIDE	4.37	0.0000			-22.20***	-16.82***
: LIDEINST			-1.74**	-0.44	20.85***	14.83***

This table presents the stationarity test of levin, lin and chu and im, pesaran and shin. it emerges from our results that some of our variables, are stationary at level with the test of levin, lin and chu (LIND LMAN LIDEINST) and only one variable is stationary with the test of im, pesaran and shin (LMAN). In addition, the first difference stationarity test stipulates that these two tests (levin, lin and chu and im, pesaran and shin) show that all the variables are integrated of order 1 with the im, pesaran and shin and levin, lin and chu tests except for the LIND variable; apart from this, the two tests show that the variables are weakly stationary, which leads us to look at the cointegration between the variables in the model.

Table 2. Cointegration Test

TEST	Model 1	Model 2
Panel v-Statistic	-4.33	-2.70
Panel rho-Statistic	3.88	4.85
Panel PP-Statistic	-4.33***	-2.80***
Panel ADF-Statistic	-4.45***	-4.08***
Group rho-Statistic	6.61	7.24
Group PP-Statistic	-5.43***	-3.99***
Group ADF-Statistic	-3.70***	-2.58***

From this test, we can see that the result gives the result of the pedroni test, we can see from this table for model 1, 4 statistics out of 7 indicate that model 1 is cointegrated. The same applies to model 2, which also shows that 4 out of 7 statistics are cointegrated. This result of the cointegration test shows that there is a long-term relationship between our variables, hence the importance or relevance of using cointegration methods for estimating, in particular the DOLS method, the dynamic ordinary least squares method and the FMOL (fully modified ordinary least squares) method.

Tableau 3. The Dynamic Ordinary Least Squares Method (Dols)

VARIABLE	MODEL 1	MODEL2
LIDE	0.040** (2.42)	0.008 (0.564201)
LPIB	1.013*** (11.44)	0.829*** (11.70495)
LSCOL	0.454** (2.04)	-0.520*** (-3.043357)

EFFGOV	-0.909 (-1.31)	-2.230*** (-4.188807)
LIDEINST	0.036 (1.12)	0.104*** (4.281262)
R^2= 0.798589 0.899115		

This table presents the results of the dynamic least squares (DOLS) panel test. Our results show that model 1 is globally explained, i.e. the variables selected explain the model well. On the other hand, for model 2 the coefficient is positive but not significant. The EFFGOV variable shows that for model 1 the coefficient is negative and not significant, while for model 2 the coefficient is negative but significant. The SCOL variable is also significant for both models.

5. Conclusion

The main purpose of our research is to emphasise the undeniable link between the various frameworks of knowledge, particularly foreign knowledge conveyed between countries by foreign direct investment, and total factor productivity in the context of a sound institutional framework. In fact, using a panel sample of 39 developing countries observed over the period 2006-2019, we have shown why some developing countries benefit more from the international externalities of foreign direct investment from advanced countries. While following the approach of Lichtenberg and De La Potterie (1998, 2001), we have adopted an alternative formulation for foreign research.

In effect, we have estimated two benchmark models by interacting R&D, capital stocks with governance indicators, in an attempt to explain the differences between advanced and developing countries. firstly, we adopted a conventional approach to panel data, namely fixed and random effects models. In the second stage, we applied the asymptotic theory of cointegrated panels developed by Kao and Chiang (2000). The estimates obtained with these different methods are relatively close. In conclusion, the vast majority of economists agree that a developing country can promote its economic growth, particularly in the industrial sector, by following the example of more advanced economies. In many aspects, this process requires a framework that encourages technology diffusion and transfer.

In order to have the necessary internal capacity to use this technology effectively, it is essential to improve the level of skills and training of the population. These capabilities can only be put in place once a certain degree of development has been achieved. Moreover, this technological progress could enable developing economies to compete in sectors other than those that are labour-intensive. At the same time, the econometric results suggest that the elements of good governance in recent years provide a favorable framework for industrialisation policy and hence for economic growth. This confirms the results found by Bouoiyour Jamal and Toufik Said (2007), who showed that the progression of human capital and trade openness, together with FDI, have a positive and significant impact on the productivity of the industrial sector.

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