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Foreign Direct Investment Inflows and the Industrialization of African Countries

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Summary. — This paper examines the relationship between inward foreign direct investment (FDI) and the industrialization process in Africa. It uses panel data from 49 countries over the period of 1980–2009. The results indicate that FDI did not have a significant impact on the industrialization of these countries, while other variables, such as the size of the market, the financial sector, and international trade were important. This study concludes that the role of FDI in the transformation agenda, which is currently being discussed in Africa, should be carefully analyzed to maximize the impact of these capital inflows.

Key words — foreign direct investment, industrialization, panel data, Africa

1. INTRODUCTION

Over the last several decades, African countries have been exporting sizeable quantities and values of raw materials and commodities. They have generally failed, however, to diversify their international trade and their economy according to UNECA (2013): (i) the diversification indices published by the United Nations Conference for Trade and Development (UNCTAD) show that the structure of international trade for all African countries is highly concentrated, compared with the structure of the world average; (ii) the concentration of goods exports increased during the period from 1995 to 2012; and (iii) the share of primary products in exports is equal to at least 50% in three quarters of African countries, and 90% in one third of these countries.

It is recognized that this type of trade does not generate significant value added or enough jobs (UNECA, 2013) and that it increases countries' exposure to international exogenous shocks. One solution to the above-mentioned issues could be industrialization because it can contribute to the increase of household consumption, the demand for intermediate goods (Fleming, 1955; Rosenstein-Rodan, 1943), and change in the main drivers of economic growth. In this regard, African countries have been called upon by different organizations to move toward more diversified economies because such a move would reduce the volatility of economic growth and bring confidence to investors.

Yet, achieving this objective would require additional financial and technical resources. Financial resources may reach countries through the participation of national private investors, the involvement of foreign investors through foreign direct investment (FDI), or the mobilization of sizeable amounts of government resources, as many African countries are resource rich. Finding additional technical resources for initiating a "big push" would be more challenging, however, because private enterprises do not use the most advanced technologies. Therefore, attracting FDI could be a good policy option because foreign investors can bring financial assets as well as knowledge assets. In fact, previous studies have found that East Asian countries benefited extensively from FDI inflows during the transformation of their economies (Akkemik, 2009; Dahlman, 2009; Di Maio, 2009). Several studies, including Dong, Song, and Zhu (2011) and Borensztein, Gregorio, and Lee (1998), find that host countries could benefit from FDI through different channels, such as forward and backward linkages and technological transfers. Markusen and Venables (1999) and Rodríguez-Clare (1996) have shown theoretically that FDI could be a catalyst for industrialization.

Nonetheless, to our knowledge, there is a lack of econometric studies that analyze the impact of FDI on industrialization with a special attention to African countries; therefore, this paper attempts to fill this gap. Achieving this objective is important because FDI inflows to Africa have been increasing steadily, and it would be worth having a critical view on their impacts. Knowing whether policies that aim to attract FDI inflows were integrated in industrial policies would help to set a direction for a new generation of policies, providing that African countries desire to move in this direction. To this effect, the impact of FDI inflows on industrialization is analyzed with panel data from 49 countries observed during the period from 1980 to 2009.

The remainder of the paper is organized as follows: Section 2 explains how FDI inflows can induce industrialization and presents the relevant review of the literature; Section 3 presents stylized facts on industrialization in Africa; Section 4 presents an overview of the data used and addresses econometric and methodological issues; Section 5 presents the empirical results and their interpretation, while Section 6 concludes and summarizes the results from the study.

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2. REVIEW OF LITERATURE

It is worth noting that industrialization can be defined on the basis of national accounts indicators, and employment indicators. Industrialization can be defined as the increase of the value added of the manufacturing sector as a percentage of GDP (Chandra, 1992). In this regard, the realization of industrialization implies faster growth recorded in the manufacturing sector compared with other sectors. For Echaudemaison (2003), industrialization is observed through the increasing share of the secondary sector in terms of employment and GDP, and de-industrialization is observed when the tertiary sector gradually decreases in importance, accompanied by a crisis in traditional industries. De-industrialization is defined by UNIDO (2013) as the "long-term decline in manufacturing relative to other sectors," and is measured by the share of manufacturing employment in total employment.

From the above definitions, the analysis of the impact of FDI inflows on industrialization can be translated into two types of analyses: (i) one based on key components of the supply and use table (SUT) of the economy, a table that represents a set of national accounts transactions recorded by industries and products during a reference period (generally one year); and (ii) a second based on the impact on the sectorial distribution of jobs. If there is ongoing industrialization, the input matrix of the supply and use table, which records intermediate consumption of different industries by product, is expected to be modified, and the vector of production by industries is expected to be concomitantly altered. We consider this first set of effects as "direct impacts on industrialization." According to different studies, the phenomenon of technological transfer in the host economy can take place with the entry of FDI inflows in the manufacturing sector. The occurrence of this phenomenon would have an impact on the productivity of local firms in this sector and other related sectors, thus potentially impacting the industrialization process. We consider this type of effects as "indirect impacts on industrialization." While there can be an overlap between the two types of impacts, the main difference stems from the fact that direct impacts are mainly related to changes in goods or jobs, and indirect impacts result from the transfer of knowledge. Finally, in each country, there is a government that is supposed to play an important economic role by addressing market failures and improving its people's welfare; its actions and their impacts on FDI-led industrialization should be considered carefully. For example, in the domain of the training of the labor force, which supports the industrialization process, Rosenstein-Rodan (1943, p. 204) notes that: "*The automatism of laissez-faire never worked properly in this field.*" Another point is that the government can help reduce the magnitude of potential negative spillovers. The following sections therefore present theoretical and empirical studies on the direct and indirect impacts of FDI inflows on industrialization, and the role that can be played by the government in connection with these impacts.

(a) *Direct impacts of FDI inflows on industrialization*

Two major theoretical models have been developed by Rodríguez-Clare (1996) and Markusen and Venables (1999). The model developed by Markusen and Venables (1999) analyzes this impact in terms of the number of enterprises, and can be used to analyze the impact on industrialization defined in terms of GDP or value added, while the second model can be used for the employment-oriented definition of industrialization. The model developed by Rodríguez-Clare's (1996) analyzes the above-mentioned impact in terms of employment, specifically the "ratio of employment generated in upstream industries through the demand for specialized inputs to the labor force hired directly by the firm" (Rodríguez-Clare, 1996, p. 854). In general, these models' findings concur on the potential existence of positive spillovers under specific circumstances, which are presented in each model.

According to Markusen and Venables (1999), two effects emerge from the entry of MNCs: a competition effect and a linkage effect. The competition effect emerges from the fact that MNCs compete with domestic firms by producing substitutable products which can also be imported. The size of this effect increases with the size of the surplus of products present on the market, as compared to the initial supply of products without MNCs, and decreases with the productivity of the local firms. Linkage effects arise from connections with local suppliers. Specifically, if the intensity of usage of local inputs by multinational firms is lower compared with that of local firms, the exit of local firms producing final goods will be followed by the closure of domestic firms producing intermediate goods because the demand for the latter will decrease. On the contrary, if multinational firms use more local inputs than *local* firms producing the final good, the number of firms producing intermediate goods will increase due to *backward linkages*. In the case of an increase in the demand for intermediate goods, Markusen and Venables (1999) predict that new domestic firms will be created to satisfy the demand of multinational companies, which will contribute to the reduction of the price of intermediate goods (in a monopolistic competition). The decrease in the price of intermediate goods would be beneficial to domestic firms producing final goods because their cost of production would decrease, and other domestic firms in the industry of final goods will be able to break-even and make non negative profits through *forward linkages*. The emergence of these new firms would then be beneficial to other local firms through other rounds of backward and forward linkages.

Pertaining to the number of firms or the size of the industry, the study by Blomström (1986) of Mexican plant-level data aggregated at the four-digit level from 1965 and 1970 finds that an increasing presence of FDI in an industry increases the concentration of firms in an industry, meaning that less firms are present after the entry of the multinational.[1] Barrios, Görg, and Strobl (2005) provide similar results using Irish plant-level data observed during the period from 1972 to 2000. They find competition effects at the early stage of the entry of a multinational, but it appears that positive externalities resulting from this exogenous event outpace the initial negative effect at a later stage, so that the general impact on the number of local firms producing the same type of final good (compared with the multinational) is positive. The authors suggest that this result can be explained by the fact that local producers need some time to adjust and improve their capacities. It can then be assumed that the increase or decrease in the number of firms will result, respectively, in higher or lower manufacturing outputs (value added or employment), which will subsequently modify the matrix of intermediate consumptions, at least in the short-run. Although the primary objective of Liu (2002) was not to analyze the impact of FDI on industrialization in China, the dependent variable is the value added generated by firms, and as such, the study can be considered as a contribution to understanding this issue. The author finds a statistically significant and positive impact of the presence of FDI on the value added generated by firms in the Shenzhen Special Economic Zone. By