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FDI AND STRUCTURAL CHANGE IN AFRICA: DOES THE ORIGIN OF INVESTORS MATTER?

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**FDI and structural change in Africa: Does the origin of
investors matter?**

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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

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Abstract

The African continent represents a new frontier for global investment flows. The size and geographical coverage of FDI in Africa are steadily increasing with a rather peculiar balance of ‘old’ investors from OECD countries and ‘new’ ones from emerging and other developing economies. In this study, we first discuss the relevance and main characteristics of FDI inflows in Africa using a macro perspective, and then turn to the relative importance of traditional OECD investors and ‘new’ investors from BRICS. Secondly, we use original micro-level data recently developed by UNIDO (African Investor Survey 2010) to study the differences and similarities of these two groups of investors in terms of their development potential. More specifically, we investigate the role of investors as agents of structural change by looking at their propensity to generate (i) linkages and other market interactions with domestic firms; (ii) employment and human capital formation; (iii) knowledge transfers and development of new products and processes.

Our analysis sheds new light on the heterogeneous impact of FDI development in Africa and addresses important policy implications for the attraction of foreign investors to the continent.

Keywords: FDI and development; South-South investment; backward linkages; Africa

1. Introduction

Foreign investments are a fundamental driver of modernization and structural transformation of developing countries' economies. After a long period of marginality in the global capital markets, the African continent is now the new frontier for FDI inflows.

Will FDI help African economies achieve a higher level of economic performance and increase the standard of living of its citizens? If we look at the experiences of other developing countries, the answer is 'yes' if the surge of foreign investments is accompanied by appropriate policies that select the 'right' investments, i.e. those that maximize the positive benefits for the host country's economy. The institutional context is a fundamental element for enhancing the pro-development effects of FDI in Africa (Asiedu, 2006). However, the type and characteristics of the investors play a role as well.

The aim of this chapter is twofold. First, we discuss recent trends of FDI inflows in Africa and highlight the relative importance of South-South investment, in particular, investments from BRICS countries. This macro perspective allows us to highlight the growing significance of BRICS countries as investors in the African continent, and to demonstrate that OECD investors continue to be the major players (albeit not uniformly across Africa). Secondly, we use a micro-perspective based on data collected by UNIDO (UNIDO, 2012) from a large and representative sample of foreign and domestic firms in 19 sub-Saharan African countries. We present novel analyses of the differences and similarities between OECD and BRICS countries with respect to: (i) propensity to generate (backward) linkages with domestic firms, (ii) 'knowledge diffusion activities' (knowledge transfers to and training of domestic supplier/buyers), (iii) labour market effects (employment, wages, demand for skilled workers).

We find evidence of significant differences across investors, even after controlling for a fairly comprehensive set of firm characteristics. Foreign investors from developed countries generally generate a higher share of linkages with domestic suppliers, but we also document a higher propensity of firms from BRICS countries to sign long-term contractual agreements with domestic suppliers (a proxy for more intense collaboration between domestic and foreign firms). This result seems to confirm some existing anecdotal evidence of the relatively scarce linkages generated by some South-South investors, for example, Chinese investors (Ozawa and Bellak, 2011; Amendolagine et al., 2013).

A relatively large share of foreign investors engages in direct knowledge transfer, upgrading of product and production processes and workforce training of local buyer/suppliers. Some differences between OECD and BRICS investors emerge, but are fairly minor. Knowledge

transfers are slightly more likely to occur from BRICS investors, which confirms the importance of South-South FDI as a pro-development mechanism (Amighini and Sanfilippo, 2015).

Our results highlight that the impact of foreign firms with different origins diverge considerably with respect to labour market outcomes. The overall demand for labour is larger from BRICS investors, in fact, cheap labour is one of the most crucial drivers of investment projects by these firms in Africa (see *Table A1* in the Appendix). Clearly, this result highlights the important contribution of South-South investments in terms of generating employment opportunities. On the other hand, we find evidence that OECD investors pay substantially higher wages compared to both domestic and BRICS firms with similar characteristics. Another dimension of our analysis suggests that OECD investors provide ‘better jobs’: their demand for highly qualified workers (white collar) is higher.

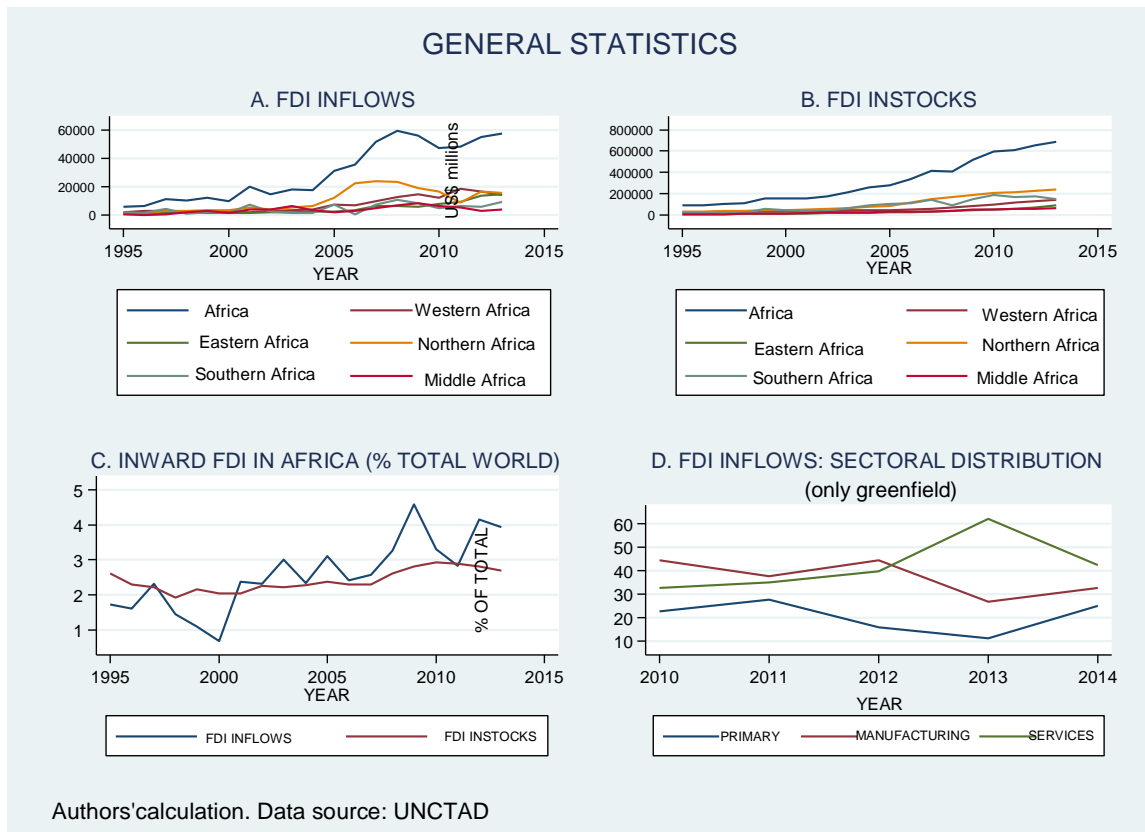
This paper is organized as follows. In *Section 2* we describe the changing nature of FDI in Africa using aggregate data and highlighting the relative importance of OECD and BRICS investors across the continent. We also contrast FDI inflows with changes in the Economic Complexity Index developed by a team of researchers at Harvard University¹. In *Section 3*, we shift to a micro-level approach using UNIDO firm level data (UNIDO AIS, 2010). An empirical analysis is conducted to shed light on the differences between how investors do business in Africa. In the last section, *Section 4*, we briefly discuss why the origin of investment might drive different behaviours and its implications in terms of policy.

2. The changing nature of inward FDI on the African continent

The appeal of investing in African economies has been increasing among foreign investors in the last decades. In 2014, FDI inflows to Africa amounted to US\$ 54 billion, approximately 4.4 per cent of worldwide FDI inflows (UNCTAD, 2015). Despite the current stagnant pattern attributable to the financial crisis, FDI inflows increased nearly six-fold between 2000 and 2013, showing positive variations in all sub-regions (*Figure 1.A*). Eastern Africa, in particular, recorded the largest FDI inflows during this period (around 8.9 times higher), followed by Southern (6.2) and Western Africa (5.6).

¹ Data on the Economic Complexity Index are taken from Atlas of Economic Complexity, which is provided by the Center for International Development at Harvard University.

Figure 1 FDI in Africa: Recent trends



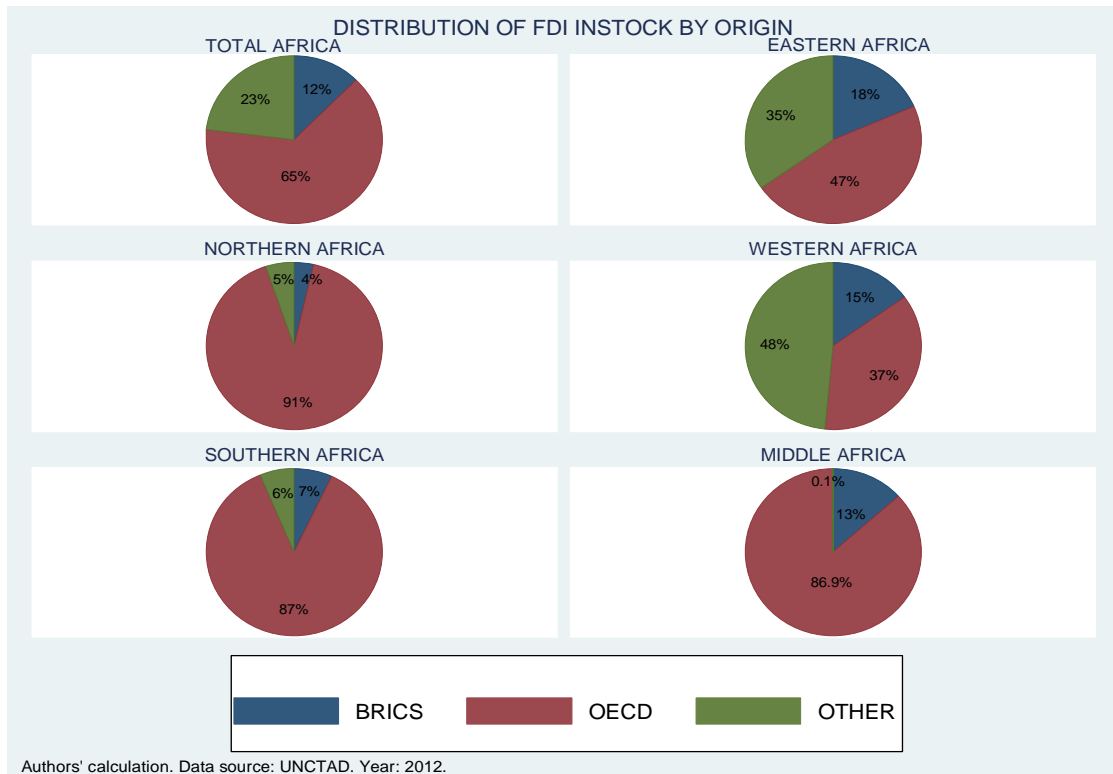
In terms of stocks, inward FDI in Africa grew by 3.5-fold between 2000 and 2013, rising from US\$ 154 billion (2 per cent of global FDI stocks) to US\$ 687 billion (2.7 per cent of total stocks). FDI instocks have been increasing across all of Africa, particularly in Eastern Africa (5 times higher), in Northern Africa (4.3) and in Central Africa (3.6). With the exception of Angola and Burundi, which recorded negative growth rates of FDI instock, the remaining countries saw the amount of foreign capital investments grow between 2000 and 2013. Countries reporting the highest growth rates were Somalia, where FDI instock rose 240-fold (from US\$ 3.6 million to US\$ 566 million), Niger (from US\$ 45 million to US\$ 5 billion), Burkina Faso (from US\$ 27 million to US\$ 1.4 billion) and Madagascar (from US\$ 140 million to US\$ 6.5 billion). The distribution of FDI instocks across the African continent changed between 2000 and 2013: foreign investments in Northern African economies rose from 29.6 per cent of total African inward FDI instocks to 35.2 per cent, and those in Eastern Africa increased from 9.2 per cent to 12.6 per cent. On the other hand, the relative importance of the Southern African economies dropped, decreasing from 30.8 per cent to 21.8 per cent of aggregate FDI instocks, while Western and Middle African economies' shares remained similar.

The sectoral composition of FDI in Africa has changed over time, increasingly moving from resource-seeking investments in the primary sector's extractive industries to light manufacturing and, more recently, to services. This general trend, which follows the FDI sectoral development experienced in other emerging and developing economies, has been affected by the recent financial crisis. In fact, looking at the value of announced greenfield projects² carried out between 2010 and 2014 (see Figure 1.D), the decrease of FDI in the manufacturing sector from US\$ 39.5 billion (44 per cent of total FDI) to US\$ 28.7 billion (32 per cent of the total for the last available year). Investments in the textile industry decreased by more than 10-fold (from US\$ 23.2 billion to US\$ 2 billion), and those in the motor vehicle industry fell by 38 per cent (from US\$ 2.6 billion to US\$ 1.6 billion). The food & beverages and the non-metallic mineral products industry indicated small increases in inward investments (by 11 per cent and 5.7 per cent, respectively). On the other hand, the value of greenfield investments in the service sector recorded a large jump (from US\$ 29.1 billion to US\$ 37.5 billion; from 32 per cent of the aggregate value in 2000 to 42 per cent in 2013). In an 'energy hungry continent', greenfield investments in the energy sector grew two-fold (from US\$ 5.4 billion to US\$ 10.6 billion), while they increased by 16 per cent in the business sector (from US\$ 5.4 billion to US\$ 6.3 billion). Finally, the value of investments in the primary sectors increased, but less than those in the service sectors (from US\$ 20.2 billion to US\$ 21.9 billion). At the macro-level, it is possible to argue that foreign investments are increasingly being channelled into relatively more modern sectors and in areas—such as energy and banking—where capital accumulation is crucial for boosting structural change and development.

As highlighted previously, one peculiarity of FDI in Africa is the growing relevance of so-called South-South investments. The recent financial crisis has reinforced the relative importance of investments from developing and emerging economies in Africa as developed countries, i.e. those that at least initially were more affected by economic contraction, are decreasing their role as investors (UNCTAD, 2015).

² Mergers & acquisitions are much less relevant for Africa: in total, their value was equal to 9 % and 5.7 % of that of greenfield-type investments in 2010 and 2014, respectively.

Figure 2 The origin of foreign investors in Africa: OECD versus BRICS



The declining role of investments from developed countries continues to be evident. In 2012, FDI instocks from OECD countries represented 65 per cent of the total; those from BRICS³ economies, on the other hand, amounted to 12 per cent (Figure 2). Based on these aggregate figures, the significance of OECD and BRICS investors across different geographical areas is highly heterogeneous. More specifically, FDI instocks from OECD investors were 91 per cent of the total in Northern Africa; they were also prevalent in Southern and Central Africa, where they represented 87 per cent of total FDI instocks. Looking at the country level, OECD investments make up nearly 100 per cent of total FDI instocks in Sao Tome and Principe, Capo Verde and Côte d’Ivoire, Egypt and Tunisia (Table 1). The largest investment stocks from OECD economies are recorded in South Africa (US\$ 144.8 billion), Mauritius (US\$ 90.3 billion), Morocco (US\$ 36.9 billion), Egypt (US\$ 34.4 billion) and Nigeria (US\$ 26.4 billion).

³ BRICS stands for Brazil, Russia, India, China and South Africa.

Table 1 Top 10 destinations of FDI instocks by investor origin

% of total FDI in stock in the country		US \$ million	
OECD	BRICS	OECD	BRICS
Sao Tome and Principe (100%)	Gambia (100%)	South Africa (144799)	Mauritius (33431)
Capo Verde (100%)	Namibia (100%)	Mauritius (90378)	Nigeria (13450)
Côte d'Ivoire (98%)	Sudan (99.83%)	Morocco (36942)	South Africa (5479)
Egypt (97.78%)	Niger (98.90%)	Egypt (34416)	Namibia (4627)
Tunisia (97.50%)	Sierra Leone (98.30%)	Nigeria (26434)	Mozambique (2639)
Cameroon (95.76%)	Mauritania (95.50%)	Angola (23467)	Angola (2419)
Libya (95.52%)	Eritrea (93.68%)	Algeria (12619)	Tanzania (2226)
Madagascar (93.89%)	Zimbabwe (93.55%)	Zambia (9016)	Zambia (2225)
Gabon (91.49%)	Djibouti (93.16%)	Mozambique (4685)	Zimbabwe (1780)
Angola (90.65%)	Ethiopia (92.87%)	Libya (4522)	Ghana (1396)

Source: Authors' elaboration on UNCTAD data

In the same year, FDI instocks from BRICS economies represented 18 per cent of the total in Eastern Africa, 15 per cent in Western Africa and 13 per cent in Central Africa, while the lowest share was registered in Northern Africa (4 per cent). In terms of FDI instocks, BRICS represented nearly the totality of investments in the following countries: Gambia, Namibia, Niger, Sierra Leone and Sudan. On the other hand, the countries receiving the largest investment stocks in absolute terms from BRICS investors were Mauritius (US\$ 33.4 billion), Nigeria (US\$ 13.4 billion), South Africa (US\$ 5.4 billion), Namibia (US\$ 4.6 billion) and Mozambique (US\$ 2.6 billion). Certain countries attract the bulk of investments from OECD and BRICS investors (Angola, Mauritius, Mozambique, Nigeria, South Africa and Zambia), while origin-area specificity emerges in other destination countries: for OECD economies, Algeria, Egypt, Libya and Morocco are important targets while BRICS mostly target Ghana, Namibia, Tanzania and Zimbabwe.

2.1 FDI and economic complexity

Does FDI contribute to the modernization and upgrading of production capabilities in destination countries? Does the origin of such investments matter? These are important and at the same time complex questions that have inspired a great deal of research in the last decades. To shed some light on these questions at the macro-level, we look at the relationship between inward FDI in Africa and its origin from OECD and BRICS countries, and the Economic Complexity Index, henceforth ECI (see Atlas of Economic Complexity provided by the Center for International Development at Harvard University). This index allows the ranking of countries according to the *diversification* (i.e. how many different products the country can produce) and the *ubiquity* (i.e. how many countries are able to produce those products) of the countries' export baskets. Following the approach developed by the seminal work of Hausmann, Hwang and Rodrik (2007), the more complex the products that are produced are, the more developed the economy capable of producing such products is expected to be.

In Figure 4 we plot the growth rate of FDI instocks against the ECI-value growth rate for all African economies over 5 and 10-year intervals (the left and right panels, respectively). A positive relationship can be observed: higher FDI inflows are associated with an increase in the complexity of the country's production and export basket. The positive relationship between these two variables becomes more evident when a longer time period (10-year lags) is considered. Inward FDI might, over sufficiently long periods of time, affect the level of economic development of destination countries by promoting the production of more complex goods and services.

Figure 3 FDI inflows and change in the Economic Complexity Index in Africa

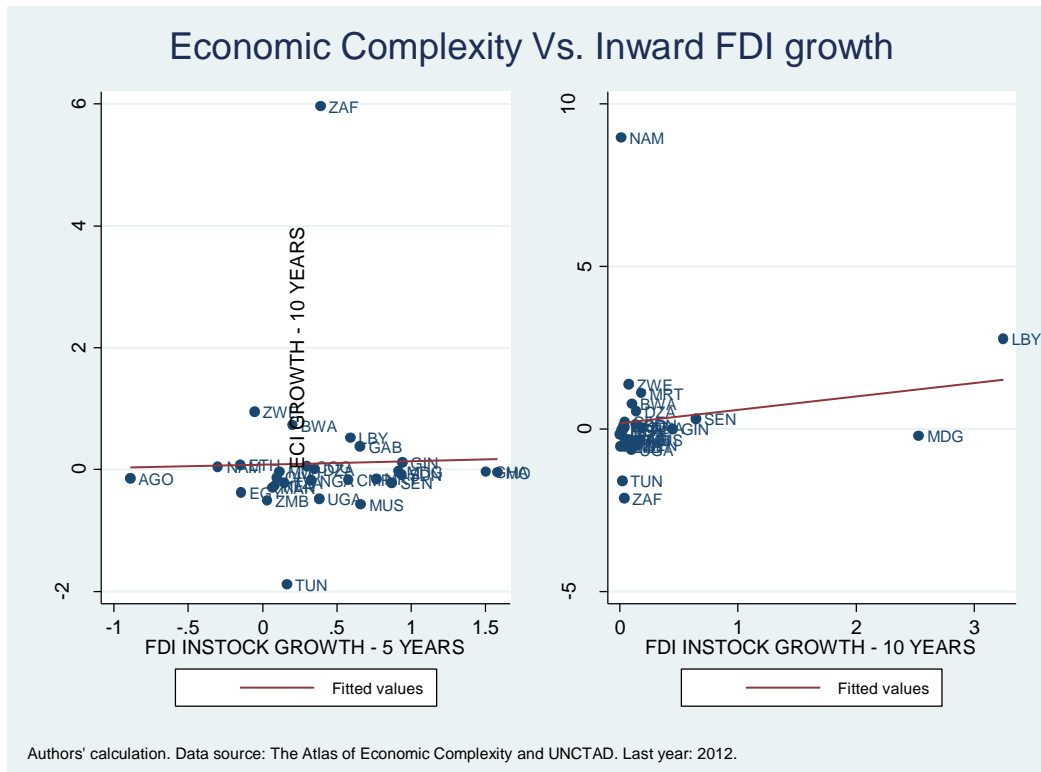


Figure 4 Economic complexity of origin and destination countries

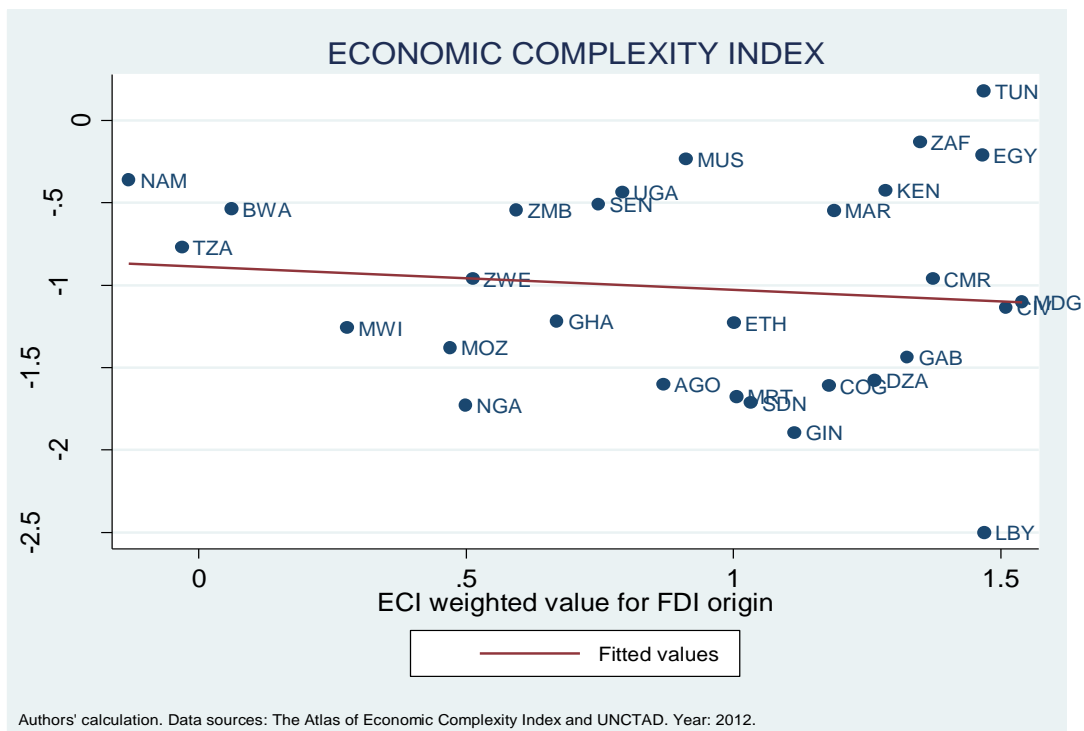


Table 2 Economic Complexity Index of selected African economies (Year 2013)

TOP 10 VALUES	BOTTOM 10 VALUES	TOP 10 10-YEAR GROWTHS
Tunisia (0.17)	Guinea (-2.07)	Namibia (1128.5%)
South Africa (-0.09)	Mauritania (-1.93)	Libya (181 %)
Mauritius (-0.10)	Nigeria (-1.88)	Mauritania (142.9%)
Egypt (-0.16)	Libya (-1.86)	Zimbabwe (109.3%)
Zambia (-0.42)	Cameroon (-1.44)	Botswana (109 %)
Kenya (-0.43)	Gambia (-1.42)	Senegal (68.2 %)
Namibia (-0.44)	Ethiopia (-1.41)	Ethiopia (10.4 %)
Morocco (-.53)	Sudan (-1.38)	Côte d'Ivoire (10.2%)
Botswana (-0.70)	Mozambique (-1.21)	Guinea (9.3 %)
Uganda (-0.65)	Congo (-1.19)	Nigeria (5.9%)

Source: Atlas of Complexity (Harvard University)

African countries with higher Economic Complexity Index values in 2013 (Table 2) are mostly located either in the Northern part (Tunisia, Egypt and Morocco) or Southern part (South Africa, Namibia and Botswana) of the continent, where OECD investors have the largest share of FDI instocks (see Figure 3). At a first glance, BRICS investors have a relatively larger share of FDI stocks in low-ECI African countries in East Africa (Ethiopia and Mozambique), West Africa (Guinea, Mauritania and Nigeria) and in Central Africa (Cameroon and Congo).

However, a more systematic approach reveals a blurred relationship between the origin of investors and the complexity of production in destination countries. In Figure 5, we plot the ECI value of all African countries against the ECI value of foreign investors (weighted by their importance in total FDI instocks); a U-shaped relationship between the two variables seems to emerge. African countries with a high ECI value are targeted by both investors with a low ECI value (see Botswana and Namibia) and by countries with a high ECI value (such as Egypt, Kenya and Morocco). Moreover, a high ECI value among investors is found for African countries with a high production complexity (for instance, South Africa and Tunisia) and for those with the worst level of production complexity (Libya).

At the macro-level, some interesting features and differences between investors emerge but the relevance of such differences in terms of economic development potential are better investigated using a micro-level perspective. This is the main focus of the next paragraph of this study.

3. Foreign investors as agents of structural change: A firm-level approach

In the context of developing and capital-scarce countries, foreign firms might act as key drivers of structural change. Foreign investors can influence the host economy through several channels. Firstly, direct effects materialize through an increase in endowments—and the relative productivities—of factors of production (capital, labour, technology). In this respect, the existing literature is rather unanimous in concluding that such effects are positive, as MNEs add to the stock of physical and human capital and often generate significant employment opportunities⁴.

Another important channel is related to the creation of forward and backward linkages with domestic firms (Amendolagine et al., 2013). These linkages are fundamental components of FDI-induced structural change and production upgrading. Linkages boost the likelihood of spillovers and technological transfers between foreign and domestic firms. Albeit important, linkages are neither a necessary nor a sufficient condition for spillovers to materialize (Morrisey, 2012). In fact, the ‘quality’ and intensity of linkages matters, and every so often spillovers might be realized in the absence of linkages as domestic firms might ‘learn by imitation’ from their foreign counterparts.

Finally, foreign firms might induce positive or negative effects by altering the competitive pressure in host-country markets. Boly et al. (2015) highlight the heterogeneous impact foreign investors have on domestic firms in the context of sub-Saharan Africa. The authors shed light on the factors that determine whether domestic firms are ‘winners’ or ‘losers’ from FDI inflows.

Recent research based on firm-level data has revealed how the origin of foreign investors might matter for all channels discussed above.

In this section, we use a rich firm-level database (UNIDO AIS, 2010)⁵ which contains information on a large sample of foreign and domestic firms (around 7,000) located in 19 sub-Saharan African countries. Our goal is to highlight the different ‘behaviours’ of foreign

⁴ Clearly, the gains from FDI inflows are far from automatic. In the context of Africa, Asiedu (2006) emphasizes the role of good institutions and a favourable business environment as facilitators of such gains.

⁵ UNIDO African Investor Survey (2010) includes detailed information on the general characteristics of firms, such as organizational structure, country of origin, market orientation, output and production factors, prices and quantities; moreover, it provides detailed information on the linkages between domestic and foreign producers.

investors from OECD versus BRICS countries with respect to some of the channels discussed above. Do foreign investors with different origins systematically differ from each other with respect to drivers of structural change in Africa?⁶

3.1 Linkages between foreign and domestic firms

Backward and forward linkages generated by foreign firms can be a fundamental driver of the host country's production upgrading and economic development. In fact, FDI inflows do not only increase the endowment of capital but also improve the quality of the capital stock itself by introducing new technologies and better management practices and, moreover, by connecting domestic economies to global value chains (Görg and Greenway, 2004). Domestic companies might learn from foreign investors through linkages on account of direct and voluntary transfers of new knowledge, but also by imitating new product/processes and managerial practices. The answer to the provocative question by Rodrik (2003:37): Is "one dollar of FDI [...] worth no more (no less) than a dollar of any other kind of investment?" is likely "No, it is not".

The theoretical mechanism through which linkages can benefit host economies has been developed in Rodriguez-Clare (1996). In that study, the (positive) effects of foreign investments depend on the propensity of MNEs to generate "backward" linkages, where the latter are defined as the ratio of employment generated among suppliers of specialized inputs to labour directly employed by the firm. If backward linkages generated by MNEs are larger than those established by domestic producers, then the host economy will start producing a larger variety of specialized inputs, which, in turn, will lead to larger productivity of local firms and higher wages for local workers ("forward linkages"). More significant effects are expected in case MNEs produce relatively more sophisticated goods and, interestingly, come from countries that are technologically similar to the host country, as this facilitates technological transfer to domestic producers. Therefore, the country origin of foreign investors is expected to matter in terms of propensity to generate upstream linkages with local producers, and this might indeed be helpful for understanding the impact of FDI directed to the African economy.

⁶ The advantage of using firm-level data stems from the ability to more precisely isolate—using parametric and non-parametric techniques—the role played by the origin of investors by explicitly considering other features of the foreign investors which might affect their behaviour in the host country (for instance, size, capital intensity, sector, market orientation, etc.).

Table 3 The propensity of foreign investors to generate linkages with domestic supplier evidence from sub-Saharan Africa

	Origin of investors	mean	median	s.d.	min	max
<i>Backward linkages (1)</i>	<i>TOTAL</i>	0.155	0	0.241	0	0.99
	<i>OECD</i>	0.176	0.021	0.253	0	0.99
	<i>BRICS</i>	0.144	0	0.234	0	0.94
<i>Long-term supplier share</i>	<i>TOTAL</i>	0.453	0.4	0.388	0	1
	<i>OECD</i>	0.43	0.375	0.387	0	1
	<i>BRICS</i>	0.501	0.5	0.381	0	1

(1) Backward linkages = value of locally sourced inputs over total costs

(2) Long-term supplier share = % of local suppliers with a long-term contractual agreement

Source: Authors' elaboration based on UNIDO AIS (2010) data

In Table 3 we report the (unconditional) share of backward linkages generated by foreign investors in the 19 African countries covered by the Africa Investor Survey 2010 (UNIDO). The value of locally sourced inputs by foreign firms is on average 15.5 per cent of total costs. Firms from OECD countries tend to source a higher share (17.6 per cent) compared to those from the BRICS countries (14.4 per cent).

As a proxy for the 'density' of knowledge transfer between foreign and local firms, we consider the share of local suppliers with long-term contractual agreements with foreign investors. In this respect, we observe that approximately half of the local suppliers of BRICS investors have concluded long-term contracts. The share of long-term partnerships with local suppliers is lower for OECD investors.

The numbers in Table 3 reveal some differences between the two groups of investors, but do not take into account the micro-level differences across firms, which contribute to explaining the propensity of generating local linkages (size, sector, capital intensity, etc.). In order to assess whether differences continue to persist after controlling for firm-level characteristics, an econometric exercise is performed in the next section.

3.2 Determinants of backward linkages: An econometric analysis using UNIDO African Investor Survey (2010)

We follow the study of Amendolagine et al. (2013) and examine the determinants of backward linkages to domestic suppliers established by affiliates of foreign firms in SSA. We estimate an econometric model which explains the *share of inputs locally sourced* (our dependent variable) using a highly representative sample of foreign and domestic firms.⁷ Our estimates include a set of firm-level characteristics (size, firm age and its square, capital intensity, local partnership, level of management authority, sector dummies, etc.), mode of entry, diaspora investment and dummies identifying the OECD versus BRICS origin of the foreign investors. Table A2 in Appendix 4 provides a description and summary statistics of the dependent and independent variables used in the analysis. The results are reported in Table 4 (Panel A). The firm's age has a positive and significant effect on the size of locally sourced inputs, an effect that tends to weaken over time. We find evidence that more capital-intensive firms—and to a lesser extent, those with a more autonomous management—generate more backward linkages to the host economy. The larger the investor's technological level (i.e. the larger the share of skilled workers to total employment), the more difficult it becomes to outsource intermediates from local suppliers, which are likely to be poorly endowed in terms of human capital. Market-oriented foreign investors generate more linkages: employing local inputs is an effective option for companies targeting local markets of final goods (Kiyota et al., 2008). Positive effects are also driven by the presence of local partners.

Does the origin of the investor (still) matter—after controlling for all of the covariates included in the analysis—in explaining the intensity of locally sourced inputs? Our analysis shows that foreign investors from OECD countries have a significantly larger propensity to generate linkages to upstream local suppliers (Panel A), while BRICS investors have a larger propensity to establish long-term linkages to local intermediate producers (Panel B). Therefore, high-income economies seem, on the one hand, to be more likely to source intermediates locally; this might at least partly be explained by the relatively higher communication and transportation costs between headquarters and local subsidiaries in Africa⁸. On the other hand, we find that foreign investors from BRICS countries show, *ceteris paribus*, a larger propensity to establish long-term supplier relationships with local producers. This latter result seems to indicate that even if the size of production linkages between BRICS investors and the African economy is

⁷ We estimate a translog cost function as in Kiyota et al. (2008). For a detailed description of the data and empirical methodology, we refer the readers to Amendolagine et al. (2013).

⁸ This argument is developed in Rodriguez-Clare (1996).

smaller, the ‘nature’ of such linkages might be more likely to generate (positive) spillover effects due to the longer duration of supplier relationships.

Table 4 Determinants of locally-sourced inputs of foreign and domestic firms in Africa

	Panel (A)			Panel (B)		
	Backward linkages			Long-term supplier share		
	Dependent variables: share of local input costs over total costs			Dependent variables: share of suppliers with a long-term contract over total number of suppliers		
Total sales	0.00584 (0.00906)	0.00235 (0.00912)	-0.00018 (0.00932)	0.00957 (0.0147)	0.0109 (0.0148)	0.0103 (0.0149)
Firm age (in years)	0.00517** (0.00203)	0.00467** (0.00202)	0.00403** (0.00203)	-0.00178 (0.00356)	-0.00218 (0.00356)	(0.00178) (0.00356)
Firm age squared	-6.07e-05** (2.50E-05)	-5.54e-05** (2.48E-05)	-4.54e-05* (2.48E-05)	1.29E-05 (4.46E-05)	1.78E-05 (4.44E-05)	1.12E-05 (4.41E-05)
Capital intensity (capital-labour ratio)	0.0220** (0.00926)	0.0202** (0.00928)	0.0185* (0.00954)	-0.0412*** (0.0159)	-0.0463*** (0.0158)	-0.0454*** (0.0162)
Management autonomy	0.0771** (0.0345)	0.0432 (0.0351)	0.0434 (0.0355)	-0.110* (0.0603)	-0.113* (0.0617)	-0.127** (0.0614)
Diaspora firm	0.0986** (0.047)	0.106** (0.0469)	0.104** (0.0471)	0.123 (0.0818)	0.131 (0.0812)	0.144* (0.0812)
OECD	0.0827** (0.0359)	0.0860** (0.0358)	0.0869** (0.0362)	0.027 (0.062)	0.026 (0.0617)	0.0172 (0.0618)
BRICS	-0.0105 (0.0387)	-0.00719 (0.0385)	-0.0203 (0.0387)	0.155** (0.0667)	0.162** (0.0663)	0.170** (0.0664)
Greenfield		0.00551 (0.0395)	-0.00296 (0.0399)		-0.00872 (0.0676)	0.0188 (0.0672)
Local partner		0.146*** (0.0326)	0.149*** (0.033)		0.0392 (0.0565)	0.048 (0.0567)

Skill mix			-0.256**			0.139
			(0.104)			(0.17)
Local market			0.103***			-0.0713
			(0.0309)			(0.0506)
Constant	-0.904**	-1.003***	-1.204***	0.365	0.344	0.346
	(0.377)	(0.376)	(0.382)	(0.23)	(0.242)	(0.252)
INDUSTRY DUMMY	YES	YES	YES	YES	YES	YES
FACTOR PRICES (1)	YES	YES	YES			
Observations	1,070	1,063	1,036	986	977	952
Pseudo R-squared	0.0515	0.068	0.0859	0.0106	0.0122	0.0152
<i>Standard errors in parentheses</i>						
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$						
<i>Tobit estimates</i>						
(1) Estimate with backward linkages as output also uses price of alternative inputs (with respect to domestic intermediates, i.e. labour, capital and imported intermediates) as regressors (see Amendolagine et al., 2013).						

3.3 Forward linkages

Production linkages between foreign firms and domestic buyers can boost the host economy's productivity level by increasing the variety and quality of inputs and, furthermore, by promoting technological transfers. These production linkages are known in economic literature as “forward linkages”.

In a study based on a sample of Irish manufacturing companies, Görg and Strobl (2002) show that the presence of MNEs leads to smaller start-up sizes among domestic companies entering the market, particularly in modern industries. Foreign investors increase market competition and consequently, efficiency both in final goods and in intermediates markets. Furthermore, Boly et al. (2014) demonstrate that relatively larger and more productive domestic companies—along with those with a downstream market orientation—have the highest probability of positive effects from the presence of foreign investors. In terms of “forward” linkages, companies with a higher probability of benefitting from foreign investors are those that are most likely to adopt an

“imitation” strategy in response to new foreign competitors, while those suffering negative consequences from foreign competition are likely to adopt a “no response” strategy. This drives positive competition effects through an expansion of the best domestic companies and a decline of the least productive producers.

3.4 Innovation, workers’ training and knowledge transfers

Foreign firms have a strong incentive to promote knowledge transfers and strengthen their domestic partners to enhance productivity along the local value chain. This is particularly relevant for investors with intensive backward and forward linkages. In Table 5 we present figures on the active engagement of foreign investors in 19 SSA countries in four different activities that enhance the knowledge base in the host country: technology transfers to domestic suppliers/sub-contractors, upgrade of their product quality and production efficiency and training of their workforce.

Table 5 FDI and innovation support in the local economy: OECD vs. BRICS

Channels used to support local suppliers	OECD	BRICS	TOTAL
Technology transfer	111 (19.88%)	87 (22.03 %)	270 (21.04 %)
Product quality upgrade	259 (44.82%)	173 (43.25 %)	602 (45.53 %)
Production efficiency upgrade	216 (38.23 %)	144 (36.18 %)	477 (36.52 %)
Workforce training	126 (22.42 %)	90 (22.78 %)	281 (21.70 %)
Obs.	605 (100 %)	417 (100 %)	1409 (100 %)

Authors’ calculation. Data source: UNIDO AIS, 2010.

It is interesting to note that a larger share of BRICS investors actively promotes technology transfers compared to investors from the OECD. This evidence supports the idea that the ‘technology gap’ between foreign and domestic producers is an important element determining the host economy’s ‘absorptive capacity’. A higher technological gap might reduce both the propensity to transfer and the capacity to absorb new knowledge. OECD investors in Africa seem to be slightly more inclined to help local suppliers/buyers in improving the quality of their products and their production processes. No significant differences are observed with respect to direct training of the workforce in domestic firms.

3.5 The employment effect of foreign investors: Where you come from matters!

While most of the existing literature on the effects of FDI in the host economy has been devoted to the ‘holy grail’ of finding evidence of spillovers and technological transfers, policymakers in developing countries have been (and still are) to a large extent interested primarily in employment generation (and its quality) from foreign investors.

In fact, attraction policies are often customized to maximize the labour market impact of FDI in host countries.

In this section, using the firm-level data contained in the UNIDO AIS 2010 survey, we investigate the main labour market differences between investors originating from different areas. Summarized statistics of the main variables employed are reported in Table A3 in the Appendix. The first two columns, Mod. 1-2, in Table 6 present estimates of the overall labour demand of domestic and foreign firms in Africa; (log of) the number of workers.⁹ Our model controls for firm size (proxied with the log of total sales), factors’ prices (wages and long term-interest rate), the age of the firm and export propensity. Moreover, we include country of destination and sector fixed effects in order to capture the average differences in labour demand related to these two dimensions

Foreign firms from the BRICS countries are on average larger than domestic ones (+17.8 per cent) while those from OECD countries are approximately 11 per cent larger. The higher demand for labour is mainly driven by Chinese and South African investors. Model 2 suggests that, *ceteris paribus*, Chinese firms are 42.5 per cent larger than domestic firms, while South Africa’s firms employ 21 per cent more workers than domestic ones. This result is in line with the higher importance attributed to the location factor of the cost of labour for these investors. Also note that firms oriented towards foreign markets are generally larger employers.

Although OECD investors are smaller in size, we find evidence of a strongly positive and significant ‘wage premium’ compared to domestic firms. They paid circa 17 per cent more, all else being equal. This result, as in Coniglio et al. (2015), is in line with previous work that has found that foreign firms pay higher wages than domestic ones in several developing countries (te Velde & Morrissey, 2003; Lipsey & Sjöholm, 2004; Chen, Demurger, & Fournier, 2005).

Our econometric analysis does not find robust evidence of a wage premium for South–South FDI (Models 3-4 in Table 6). On the contrary, when we include country of origin dummies for

⁹ As in Coniglio et al. (2015), we derive our empirical specification from a constant elasticity of substitution production function.

the BRICS, our analysis reveals a negative wage gap between Chinese and domestic firms (approximately 60 per cent less). This result seems to confirm anecdotal evidence or case studies on the low wages paid by Chinese investors in African countries. More research is necessary to establish the precise determinants of the large wage gaps observed in the data.¹⁰

We also find that larger and more skill-intensive investors pay higher salaries. On the contrary, export-oriented firms are associated with lower wages.

Finally, we consider the propensity of foreign investors vis-à-vis domestic ones of hiring skilled workers (Models 5-6). Clearly, this is a fundamental dimension for assessing the development impact on inward FDI as argued by Javorcik (2013). Our dependent variable, the share of white collar against the overall number of workers (skill-ratio), is significantly and negatively associated with BRICS. Specifically, we find evidence of a reduced demand for skilled workers by Chinese investors. Demand for qualified workers from other countries of origin, including from the OECD, does not differ significantly from that of African domestic investors.

These results highlight the significant difference of the labour-market impact of foreign investors across countries of origin. A trade-off between the quantity of generated work opportunities and their ‘quality’ in terms of wages and demand for skilled workers seems to emerge between OECD and BRICS (mostly Chinese) investors. As argued in Coniglio et al. (2015), these findings are highly relevant for assessing the impact of FDI and for designing appropriate policies in the host countries.

¹⁰ Note that our estimates control for several characteristics of the firm—age, sector, size, skill intensity, export propensity, share of female workers—and include country of destination fixed effects. The lower wages might be associated with other investor characteristics not fully observed in the data; one possible candidate is the specific geographical location of investors within the country. In fact, some foreign investors might be more willing to locate in relatively more remote or peripheral areas where wages are lower.

Table 6 The labour market effects of foreign investors: OECD vs. BRICS

	Mod. 1	Mod. 2	Mod. 3	Mod. 4	Mod. 5	Mod. 6
	No. of workers (in log)	No. of workers (in log)	Average wages (in log)	Average wages (in log)	Skill ratio*	Skill ratio*
Firm average labour costs (ln)	-0.289*** (0.018)	-0.287*** (0.018)				
Wages of white collar workers (ln)					-0.021*** (0.006)	-0.022*** (0.006)
Long-term cost of capital (ln)	-0.081** (0.032)	-0.082** (0.032)			-0.009 (0.008)	-0.009 (0.008)
Total sales (ln)	0.463*** (0.011)	0.461*** (0.011)	0.231*** (0.011)	0.231*** (0.011)	-0.017*** (0.003)	-0.017*** (0.003)
Firm age (t - 1)	0.010*** (0.001)	0.010*** (0.001)	0.001 (0.001)	0.001 (0.001)	0.001** (0.000)	0.001** (0.000)
Skill ratio			0.820*** (0.067)	0.817*** (0.067)		
Foreign workers (share)			0.311* (0.185)	0.318* (0.183)		
Female workers (share)			0.087 (0.091)	0.099 (0.091)		
Export intensity (t-1)	0.196*** (0.037)	0.196*** (0.037)	-0.243*** (0.081)	-0.224*** (0.080)	-0.002 (0.009)	-0.002 (0.009)
Labour productivity (t-1; ln)					0.033*** (0.004)	0.033*** (0.004)
Multi-product firm					0.018** (0.007)	0.017** (0.007)
OECD	0.109*** (0.036)	0.109*** (0.036)	0.254*** (0.044)	0.250*** (0.044)	-0.005 (0.010)	-0.006 (0.010)
BRICS	0.178*** (0.054)		-0.053 (0.071)		-0.027** (0.011)	
Other countries of origin	0.133*** (0.042)	0.091** (0.045)	0.141*** (0.050)	0.135** (0.055)	-0.022** (0.011)	-0.022* (0.012)

China		0.425*** (0.106)		-0.470*** (0.126)		-0.055*** (0.018)
India		0.068 (0.061)		0.107 (0.077)		-0.021 (0.013)
South Africa		0.210** (0.093)		0.007 (0.095)		-0.004 (0.021)
Constant	-0.695*** (0.206)	-0.685*** (0.208)	4.091*** (0.27)	4.081*** (0.271)	0.366*** (0.052)	0.368*** (0.052)
Observations	4,525	4,525	4,501	4,501	3,554	3,554
R-squared	0.631	0.633	0.347	0.35		
Country destination and Industry FE	of Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1 /

(*) Skill ratio = share of white collar workers against firm total employment; Model 5 and 6 present marginal average effects from Tobit estimates.

4. Discussion

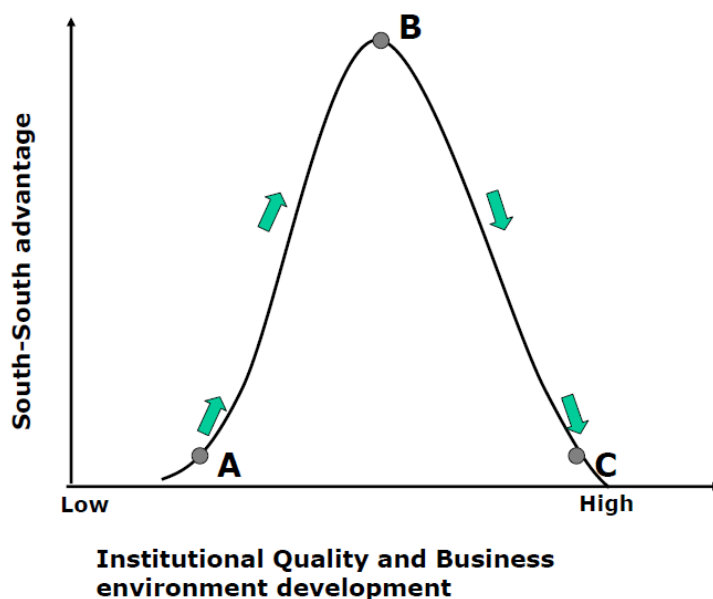
Is one dollar of FDI always equal, regardless where it comes from? The answer to this question is “no”. Foreign investments differ from other (arm’s length) forms of capital investment, as they do not only bring capital, but also introduce different knowledge, business practices, different values and different people. Many of these elements are peculiar to each single firm, but a relevant share is highly related to the investor’s country/area of origin.

The main objective of this study is to highlight the commonalities and differences between OECD and BRICS investors in Africa. Why should OECD and BRICS investment differ? One explanation may be the different factors that drive these firms’ investments in Africa. In fact, different motives might explain heterogeneous ‘investors’ and, in turn, significant differences in the way the firms operate in the host economy.

Table A1 in the Appendix reports self-reported ‘crucial’ motives which led to foreign firm investments in 19 sub-Saharan African countries. Some investors are driven more by location advantages based on a cheap labour force and, hence, are likely to re-locate all or part of their labour-intensive production processes. Other firms are attracted by local market opportunities and might be more or less sensitive to the social, political or economic stability of the host countries. Some of the findings above can be explained by such differences.

An additional theoretical argument for the observed differences across investors can be found in the “South-South FDI advantage” illustrated by Dixit (2012). Investors from emerging and developing countries might be more used to dealing with the difficult economic environment and the ‘bad’ institutional framework, which often characterizes African countries, than OECD investors. This advantage translates into lower entry costs and operations in these markets, which in turn might explain the larger size and reduced reliance on local partners by BRICS investors.

Figure 5 Quality of the institutional and business environment in the host country and the “South-South advantage”



It is likely that this ‘South-South advantage’ depends on the host countries’ institutional quality and business environment as depicted in Figure 6. When the quality of institutions is very low, for instance, in a ‘failed’ state afflicted by civil conflicts, the advantage of investing is low or null, even for investors from less developed countries. For an intermediate level of institutional quality, it is likely that investors from the South are better able to conduct business in the host country compared to other investors. On the contrary, where institutions are well-functioning then—at least in principle—a reduced cultural and social proximity to the host economy represents a minor handicap to conducting business, also for countries with a very different socio-economic context. Hence, the ‘South-South advantage’ is likely to be bell-shaped and, when institutional quality improves, erodes over time.

In the context of Africa, the differences are relevant in terms of the capacity of host countries to fully reap the benefits of the growing inflows of FDI. Our results highlight important

differences, but do not allow to conclude that some investors are, *ceteris paribus*, better than others. Some trade-offs emerge, and how our results can help shape more effective FDI attraction policies depends on the specific goals host countries pursue.

Appendix

Table A1 - Which location factors matter more for foreign investors in Africa?

Location factors	Total MNE	OECD	BRICS	China	India	South Africa
Political stability	28.0	27.3	27.4	32.7	24.3	34.8
Economic stability	22.2	22.7	23.6	23.0	23.7	29.8
Transparency of business regulations	13.6	14.6	12.9	9.9	14.1	14.4
Quality of life	9.3	9.2	10.6	7.4	10.4	14.4
Bilateral agreements and double taxation treaties	8.2	8.1	8.9	8.9	8.9	8.8
Local market	19.2	17.5	20.9	18.2	21.5	22.4
Export market	10.1	10.5	11.5	21.0	7.2	8.8
Labour costs	9.2	9.3	10.5	13.0	7.4	14.4
Availability of skilled labour	13.1	13.6	13.4	13.8	12.0	16.3
Costs of raw materials	17.7	17.6	17.9	16.4	19.9	15.3
Availability of local suppliers	9.4	9.4	9.6	8.2	10.7	8.8
Incentive packages	10.0	8.9	11.3	8.2	14.3	8.8

Source: Authors' elaborations based on UNIDO AIS (2010).

Table A2 – Determinants of backward linkages. Description of variables employed

<i>Variable</i>	<i>Description</i>	<i>Mean</i>	<i>S.D.</i>	<i>Min</i>	<i>Max</i>	<i>N.Obs.</i>
Backward Linkages (<i>dependent variable</i>)	Share of cost of local intermediate inputs in total costs	0.1556494	0.2410552	0	0.9947794	1144
Long-term Supplier Share (<i>dependent variable</i>)	Share of long-term suppliers in total local suppliers	.4531344	.3879713	0	1	1082
Total Sales	Log of sales/turnover in the last financial year	1.07E+08	3.18E+09	0	1.17E+11	1340
Firm Age	Year of survey (2010) minus year of original investment	18.10712	16.73628	0	141	1391
Capital Intensity	Log of capital–labour ratio (multiplied by US\$ 10,000)	105.416	3344.297	0	119338.8	1274
Skill Mix	Log of ratio of white collar workers against total employment	0.3124404	0.2593223	0	5.882353	1318
		<i>% in sample</i>				
Management Autonomy	Dummy equal to 1 if local management is strongly autonomous in capital expenditure, and 0 otherwise	73.88 %				1359
Diaspora Firm	Dummy equal to 1 if the foreign investment is a diaspora investment or if it is the main source of awareness	9.79 %				1409
OECD	Dummy equal to 1 if the foreign investor is from an OECD country, and 0 otherwise	42.94 %				1409
BRICS	Dummy equal to 1 if the foreign investor is from a BRICS	29.60 %				1409

	country, and 0 otherwise		
Greenfield	Dummy equal to 1 if the initial investment took place as a new operation, and 0 otherwise	84.97 %	1377
Local Partner	Dummy equal to 1 if the foreign company has a local partner, and 0 otherwise	25.5 %	1392
Local Market	Dummy equal to 1 if the local market is very important or crucial in the company's decision to invest, and 0 otherwise	59.46 %	1332

Table A3 – Labour market effects of foreign and domestic firms in Africa. Summarized statistics of variables employed

<i>Variable</i>	<i>Obs</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
Number of workers (in log)	6306	3.74368	1.388086	0	9.680344
Average wages (in log)	5860	7.888494	1.309459	0.1814533	15.87545
Skill ratio	6179	0.4121082	0.2772683	0	1
Firm average labour costs (ln)	4721	1.066446	0.645318	0.0061411	4.404609
Long term cost of capital (ln)	5462	2.605617	0.482617	-1.049822	4.976734
Total sales (ln)	6161	13.78581	2.248966	-0.6845076	25.48202
Firm age (t - 1)	6419	16.27839	15.18894	0	161
Export intensity (t-1)	5810	0.2363167	0.4248555	0	1
Foreign workers (share)	5777	0.0465808	0.099739	0	1
Female workers (share)	6186	0.2587544	0.2188598	0	1
Labour productivity (t-1; ln)	5575	9.897998	1.668465	-4.217733	13.80361
Multi-product firm	6406	0.6645333	0.4721902	0	1
OECD	6497	0.1740803	0.3792077	0	1
BRICS	6497	0.0746498	0.2628457	0	1
China	6497	0.0257042	0.1582635	0	1
India	6497	0.0474065	0.2125231	0	1
South Africa	6497	0.0255503	0.1578014	0	1
Other origin countries	6497	0.1334462	0.3400825	0	1

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