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Foreign Direct Investment in Africa – Does Human Capital Development Matter?

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Abstract: The aim of this study was to examine the effect of human capital development on foreign direct investment (FDI), using a panel of nine African countries, during the period 2009 -2016. Building on from the eclectic paradigm, the results from the random effects model show that human capital development positively influences inward FDI, and that the relationship is statistically significant. Other FDI determinants that emerged were real exchange rate that was positive and very significant at 1%, while the lag of FDI and infrastructural development were positive and significant at 5%. In light of these findings, we therefore recommend that host countries promote the attainment of secondary school education and post-school skills in order to enhance the attraction of host countries to FDI inflows. This was also reiterated at the recent World Economic Forum (WEF) in Davos. The fourth industrial revolution will see the automation of many previously manually done operations requiring an upskilling of human capital. Further to this, they should ensure that their investment and macroeconomic policies are suitable to ensure capital accumulation, which will spur productivity and increase employment. As such, we can confirm that indeed human capital development matters for African economies.

Keywords: FDI; human capital development; Africa

JEL Classification: F21

1. Introduction

As one of several forms of international capital flows, FDI is increasingly becoming accepted as a key source of capital and knowledge by economies world-over (De Santis & Ehling, 2007; Humanicki, Kelm & Olszewski, 2013). The effect that FDI has on a country's economy depends largely on the characteristics inherent in that particular country. Traditionally, in Africa and many other developing economies, FDI is motivated by the abundance of natural resources, infrastructure and quality of institutions (Asiedu & Lien, 2011). In return, others found that the spill-over effects of FDI on a country's economy cannot be ignored. These include spurring economic growth, enhancing the further development of the host country's financial markets, supplementing domestic savings and investment with additional capital flows, increasing employment, bringing in advanced skills and improving technology (Kokko, Zejan & Tansini, 2001; Iamsiraroj, 2016). It is not all FDI inflows that strive to exploit the extractive industries of a country. It is however investors that seek to also promote their presence positively. This is seen in the development of basic infrastructure such road construction, and other corporate social responsibilities such as ensuring a steady supply of clean water, building of schools and health facilities, in previously under-developed communities where the multinational corporations (MNCs) establish their business operations (Blomström & Kokko, 1998). Despite this attractiveness of FDI, the African Development Bank (AfDB, 2015) laments that inflows to the African

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continent and other developing economies have remained relatively lower than in other regions, particularly after the 2008 global financial crisis.

Wilhelms and Witter (1998) affirmed that in order for developing countries to attract FDI inflows, an educated workforce is necessary. Human capital development enhances manual labour, research and development (R&D) creativity, as well as information processing ability. It is not the actual level of education that matters for FDI; but rather the various skills needs of labour for the projects to be undertaken. It is however noted that a basic education of labourers may affect the productivity and efficiency of FDI operations, making formative education such as the ability to speak, hear, understand, interpret and implement instructions key for attracting FDI (Wilhems & Witter, 1998).

While there is a plethora of literature that examines the determinants of FDI, those that focus on human capital are relatively limited. It has been acknowledged in literature that combined, FDI and human capital development are deemed key motivators of economic growth. It is against this background that we sought to explore the relationships that exist between foreign direct investment and human capital development, by assessing how the latter affects FDI inflows to selected African countries. We adopt a panel data approach using nine selected African countries comprising of Botswana, Cote D'Ivoire, Egypt, Ghana, Kenya, Mauritius, Morocco, Nigeria, and South Africa for the period from 2009 to 2016. The contribution of our paper is that it examines the period that supercedes the global economic crisis, which affected the financing and investment decisions of several multinational corporations. We test the proposition that economies that are have a large supply of labour have a higher likelihood of attracting FDI inflows.

The remainder of this paper considers the associated literature, methodology to test our variables and the analysis thereof. We end the paper with our conclusions and policy recommendations based on our findings.

2. Literature Review

The theory of FDI is grounded in the seminal work of Hymer (1976), and later the eclectic paradigm of Dunning (1977) (see Dunning & Lundan, 2008). Multinational corporations (MNCs) are motivated to seek investment opportunities outside their home countries by a multitude of factors. As per the ownership, locational and internalisation (OLI) model, it is argued that international investors pursue FDI opportunities for market-seeking, efficiency-seeking, strategic-asset-seeking and rent-seeking reasons.

The international trade, imperfect markets (monopoly) and internalisation theories, complemented by the location theory, were integrated by Dunning (1980) into the eclectic theory. According to Dunning (2000), a firm must simultaneously fulfil the ownership, locational and internalisation (OLI) conditions in order to assess the possibility of engaging in foreign direct investment. Ownership advantages are firm specific, exclusive and based on imperfect markets. They include both tangible and intangible assets such as trademarks, patents, information and technology, which would result in production cost reductions for the firm, enabling it to therefore compete with firms in a foreign country (Hymer, 1976; Kindleberger, 1969). In order to realise a profit, an MNC should be able to exploit locational advantages through production, in collaboration with additional input factors such as natural resources and human

capital, outside its home country; failing which, foreign markets would then be served through exports, and local markets by domestic production. Lastly, it must be more profitable for the MNC possessing these ownership advantages, and having access to location-specific attributes, and to use them for itself (internalisation), rather than to sell or lease them to host country' firms through licensing or management contracts (externalisation) (Boddewyn, 1985).

The OLI theory explains foreign direct investment among countries based on the national wealth of a country, such as its natural resources endowment, availability of labour, infrastructure, trade openness and macroeconomic policies regarding these national resources (Popovici & Calin, 2014). In addition, they argued that market-seeking FDI was relevant to those MNCs exploring new markets to boost their revenue, while efficiency-seeking MNCs are driven by the need to be located in as few countries as possible but serving a much larger market. MNCs pursuing strategic-asset FDI are determined to have a global footprint while increasing competitiveness. Rent-seeking MNCs are inspired by natural resources' endowment, and the availability and cost of factors of production such as labour and capital, to complement their existing operations (Popovici & Calin, 2014).

The theory of human capital assumes labour productivity to be a result of the capital necessary to develop it, while economic theory assumes that human capital in the form of education is a key determinant of FDI (Cleeve, Debrah and Yiheyis, 2015). The resource-based view theory advocates that employees are a strategically vital resource and positively contribute to firm performance by availing assets and resources that are scarce, unique, inimitable and non-substitutable, thus enhancing sustainable competitive advantage (Emeagwal & Ogbonmwan, 2018; Barkat & Beh, 2018). According to Mincer (1958) and Schultz (1961), education is a form of capital, as are the skills and knowledge acquired by people. Konara and Wei (2019) assert that education and training empowers a nation's workforce to be literate, numerate, creative and skilled in the adoption, use and development of knowledge and technology. Investments in the upskilling of people yield dividends for a country through its enhanced attractiveness to both domestic and foreign investors. They further argue that human capital assists multinational corporations to build legitimacy for FDI in host countries, manage transaction costs in FDI and to transfer resources (Konara & Wei, 2019). Cleeve et al. (2015) affirm that skilled workers are a determinant of inward FDI to developing countries.

According to Kottaridi and Stengos (2010), foreign direct investment is not only a source of financial capital, but it also facilitates the transfer of new ideas, advanced technology and skills across borders. Scholars such as Zhang and Markusen (1999), Lucas (1990) and Dunning (1988) theorised human capital development as being a prominent driver of inward FDI inflows, particularly to developing countries. It has been assumed that foreign direct investment and human capital share a dynamic, non-linear relationship, implying that FDI inflows are determined by the type and level of human capital development (Cleeve et al., 2015). However, the presence of a large pool of cheap labour alone is inadequate to attract FDI inflows. It is also for this reason, amongst others, that there is no consensus in the literature as to which variable is most appropriate to measure human capital development (Salike, 2016). Various studies have used the secondary school level of education, adult literacy rate, cost of labour, and growth rate of the labour force as proxies of human capital development (Root & Ahmed, 1979; Barro, 1991; Noorbakhsh, Paloni & Youssef, 2001).

Empirically, the findings of studies on the relationship between FDI and human capital development is mixed. Root and Ahmed (1979) in their study on 58 developing economies over the 1966 – 1970 period found that none of their proxies of human capital development were significant drivers of inward FDI flows. Similarly, Schneider and Frey (1985) and Hanson (1996) found no significant correlation between FDI and human capital development; but it emerged that other determinants such economic and socio-political variables mattered more for FDI than human capital itself.

On the other hand, Nunnenkamp and Spatz (2004) found a robustly positive and statistically significant relationship between FDI and human capital development. Later, Majeed and Ahmad (2008), as well as Cleeve, Debrah and Yiheyis (2015), also concluded that, human capital development matters most for efficiency-seeking FDI; of which the level of basic schooling is the minimum requirement to benefit from FDI flows.

3. Methodology

The main aim of this study was to examine the relationships that exist between foreign direct investment and human capital development in a selected sample of African countries. We examined in the period immediately after the global economic meltdown of 2007 – 2008 because it affected the decisions of international multinational corporations, in terms of whether it was safe to place their investment capital in host countries abroad. The countries of interest, for which we used panel data extracted from the World Bank's World Development Indicators' database were; Botswana, Cote D'Ivoire, Egypt, Ghana, Kenya, Mauritius, Morocco, Nigeria, and South Africa for the period 2009 to 2016. These countries selected on the basis of availability of complete data, and the level of inherent development.

In determining the relationship between FDI and human capital development, we estimated the following model:

$$FDI_{it} = \alpha_0 FDI_{t-1} + \alpha_1 HUMCA_{it} + \alpha_2 RGDPG_{it} + \alpha_3 REXCR_{it} + \alpha_4 NATRES_{it} + \alpha_5 TRDOPN_{it} + \alpha_6 INFRAS_{it} + \varepsilon_{it} \quad (1)$$

where, FDI is measured as the ratio of net FDI to GDP. The independent variable is human capital development (HUMCA). The control variables include: the one period lag of FDI, the real GDP growth rate (RGDPG), the real exchange rate, (REXCR), natural resources endowment (NATRES), trade openness (TRDOPN), and infrastructural development (INFRAS). The lag of FDI determines the effect of pervious FDI undertaken by MNCs as it indicates the success of earlier investments in a host country. We capture the one period lag of FDI as a proxy for the persistence and dynamic characteristic of present day FDI inflows. The real GDP growth rate and the real exchange rate macroeconomic stability in a country, while natural resource endowment proxies the availability and access to mineral, oil and other similar natural resources. Trade openness assessed the restrictions imposed on imports and exports, while infrastructural development is a proxy for the available basic infrastructure in a country and includes telecommunication, energy and transport variables. i denotes country, t denotes time, α_0 is a constant term, and ε_it is a random error term. These variables were identified from the review of earlier theoretical and empirical literature, as sourced from the World Bank's database.

Prior to estimating the above model, diagnostic tests were run. To avoid spurious results of the regression analysis, the data was tested for serial correlation, multicollinearity and heteroskedasticity. The correlation matrix tested for any multicollinearity that may exist amongst the dependent, independent and control variables. The pooled Ordinary Least Squares (OLS) model was applied to the multiple regression to determine the nature of the relationship between the FDI and its independent variables. The next section presents the results of the regression analysis.

4. Results

The estimation results are presented in Table 1 below, in the form of a correlation matrix. Multiple regression analysis suffers from multicollinearity. In order to assess whether our study is affected, we conducted a correlation analysis on our data. In light of this, and according to the table below, the results do not portray any high correlations between the variables under study at the 5% level of significance; hence, we can conclude that multicollinearity is not present in this panel data set.

Table 1. Correlation Matrix (at 5% level of significance)

```
. pwcorr FDI HUMCA RGDPG REXCR NATRES TRDOPN INFRAS, star(0.05)

             |   FDIGDP    HUMCA    RGDPG    REXCR    NATRES   TRDOPN   INFRAS
-------------+---------------------------------------------------------------
      FDIGDP |   1.0000
       HUMCA |   0.1092   1.0000
       RGDPG |  -0.0244  -0.4483*  1.0000
       REXCR |  -0.0739  -0.3280*  0.2562*  1.0000
      NATRES |  -0.2137  -0.2307   0.1237   0.2812*  1.0000
      TRDOPN |   0.2783*  0.2021  -0.0605   0.0047  -0.6188*  1.0000
      INFRAS |   0.4244*  0.4899* -0.2290  -0.4368* -0.5378*  0.6135*  1.0000
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Source: Author's own computations

Table 2 below presents the estimation results. The one-period lag of foreign direct investment (FDI) was included in the regression to control for dynamic effects.

Table 2. Estimation Results

	POOLED OLS	FIXED EFFECT	RANDOM EFFECT	2-STEP GMM	GLS	LSDVC
L.FDIGDP	0.0174	0.00648***	0.0174	-0.0647*	0.000504	0.153
	(0.183)	(0.000573)	(0.0266)	(0.0194)	(0.00656)	(0.284)
HUMCA	0.118	-0.0154	0.118***	-0.0131	-0.109***	-0.0179
	(0.0959)	(0.0139)	(0.0349)	(0.0450)	(0.00784)	(0.159)
RGDPG	0.245	-0.307	0.245	0.128	0.269***	-0.271
	(0.380)	(0.494)	(0.216)	(1.695)	(0.0205)	(4.491)
REXCR	0.0319	0.201	0.0319***	-0.127	0.0291***	0.242
	(0.0282)	(0.267)	(0.00872)	(0.704)	(0.00372)	(1.843)
NATRES	0.269	0.583	0.269	0.874	-0.265***	0.520
	(0.321)	(0.924)	(0.420)	(1.759)	(0.00566)	(0.536)
TRDOPN	-0.131	-0.529	-0.131	-0.100	-0.0966***	-0.551
	(0.131)	(0.652)	(0.0784)	(0.260)	(0.0289)	(0.778)
INFRAS	0.216	0.0222	0.216***	-0.272	0.194***	0.0359
	(0.176)	(0.0498)	(0.0311)	(0.319)	(0.0204)	(0.401)
_cons	6.485	26.26	6.485		5.226***	
	(6.786)	(24.12)	(6.518)		(0.876)	
N	63	63	63	54	63	63
R^2	0.645	0.007				

*Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

Source: Author's own computations

The estimation techniques used in this study include the pooled OLS, Fixed effects (FE) model, Random effects (RE) model, Generalized Method of Moments (GMM) model, the generalized least squares (GLS) and the Least squares dummy variable (LSDV) corrected for Kiviet bias (Kiviet, 1995), primarily as a method for rigorous robustness testing. Table 3 below shows the diagnostic statistics of all the estimation models presented in Table 2 above.

Table 3. Diagnostic statistics

	Pooled OLS	**Fixed effects**	**Random effects**	**Diff GMM**	**GLS**	**LSDVC**
Observations	63	63	63	54	63	63
Groups	9	9	9	9	9	9
F-stats/Wald chi2	54.01	467.73	3730.53	6.00	16839.17	
Prob>F/Prob>Wald chi2	0.0000	0.0000	0.0000	0.0011	0.0000	
Hausman (Chi2)		1.01	1.01			
Prob>chi2		0.9947	0.9947			
R-SQUARED						
Within		0.00072	0.0002			
Between		0.1404	0.9524			
Overall	0.6452	0.0355	0.6452			
Arellano-Bond AR(1)				-1.03		
Prob>z				0.302		
Arellano-Bond AR(2)				-0.74		
Prob>z				0.457		
Sargan test of overid				48.23		
Prob>chi2				0.002		
Hansen test of overid				4.22		
Prob>chi2				0.995		
Instruments				31		

Source: Author's own computations using Stata software

The Hansen test with a p-value of 0.995 implies that the instruments used in the empirical estimation are appropriate. The Hausman test results are presented in Table 4 below.

Table 4. Hausman test results

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Test:  Ho:  difference in coefficients not systematic

              chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                      =         1.01
            Prob>chi2 =       0.9947
```

Source: Author's own computations

According to the Hausman test results in Table 4 above, we fail to reject the null hypothesis, that the unobservable, country-specific effects and the regressors are statistically independent (orthogonal). Mundlak (1978) argued that the random effects model assumes exogeneity of all the regressors and the random individual effects. Applying random effects would further allow generalisation of inferences beyond just the sample in the study. Therefore, the random-effects estimation results are analysed and discussed in the next section.

5. Discussion of Findings

According to the random effects model, the estimation results show that there is a positive and statistically significant relationship between foreign direct investment and human capital development in our sampled African countries. This implies that a country that has a large pool of educated and skilled labour force has a greater probability of attracting inward FDI flows. This is particularly important for developing countries so as to ensure alignment between the inherent assets of the host country, and the strategies on multinational corporations. MNCs no longer go to countries that are resource-rich such as oil and mineral wealth, but now also seek efficiency factors such as the right calibre of human capital. This ensures that the labour force is able to absorb and benefit from enhanced technology and skills transfer from the MNC. These results are in line with theory and the earlier empirical findings of Blomström, Kokko and Zejan (1994), Noobakhsh, Paloni and Youssef (2001) and Salike (2016).

Regarding the other explanatory and control variables, the lag of FDI, being the previous period's FDI inflows, as well as infrastructural development are positive and statistically significant at 5%; while the real exchange rate is also positive and statistically significant at 1%. FDI tends to be destined to economies wherein other MNCs have managed to enter the host country markets, as reflected by the lag of FDI. Infrastructural development is another important variable for inward FDI as it points to the minimum basic infrastructure available in a host country, to aid the operations of MNCs. This can be in the form of transport, communication and energy, amongst others. Another FDI driver is the real exchange rate, which proxies macroeconomic stability, and currency risk. A host country's currency encourages inward FDI as it increases export earnings potential. These variables are considered to be important drivers of FDI inflows, which international capital flow is needed for developing countries to be weaned off from official development aid and other loans.

6. Conclusions

The main aim of this paper was to investigate the effect of human capital development on foreign direct investment (FDI), using a panel data set of nine selected African economies, from 2009 to 2014. The study employed various econometric techniques. The analysis was done based on the random effects model, as recommended from the Hausman test results. The results revealed a positive and statistically significant relationship between foreign direct investment and human capital development. Similarly, there was a positive and significant relationship between the lag of FDI, infrastructural development and the real exchange rate.

In light of the above findings, the implications are that African countries need to adopt macroeconomic policies that focus on not only the availability of labour, but also the level of education and skills, thereof. Although the cost of labour can also be a determinant of FDI, it was not the proxy of interest for human

capital. The availability of an educated workforce ensures that host countries are able to receive and absorb the spillover effects that come with inward FDI, in the form of advanced technology and skills transfer. The new growth theories affirm the important role played by FDI in enhancing domestic economic growth. As such, the host country investment environment needs to be conducive for current and potential future foreign investors. MNCs are moving away from resource-seeking mandates, and are now more interested in the complementary efficiency-seeking aspects of host economies. In light of this, host country governments should ensure that their macroeconomic policies are in tandem with expectations from MNCs from which the countries can enjoy sustainable economic growth and reduction of unemployment rates. Developing countries that wish to attract inward FDI should upskill the domestic workforce so as to reduce the influx of expatriates for MNC projects that can be equally handled and managed by domestic staff. Continuous investments in human capital will ensure positive, sustainable economic growth, improved productivity and employment rates.

In conclusion, we can affirm that human capital development does matter for African countries, particularly those without the commensurate natural resource endowment. The fourth industrial revolution will see the automation of many previously manually done operations requiring an upskilling of human capital in order to ensure job security. Future studies may investigate the minimum threshold levels of education that need to be achieved for human capital development to have an effect on FDI, particularly in developing and African economies.

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