FDI DETERMINANTS IN LEAST RECIPIENT REGIONS: THE CASE OF SUB-SAHARAN AFRICA AND MENA

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Abstract

This paper explores the determinants of FDI into FDI least recipient regions. Panel data for 20 Sub-Saharan Africa (SSA) and 11 Middle East and North Africa (MENA) countries are used for the period 2000 – 2012. Findings of the fixed effects estimations suggest that FDI inflows into these regions are influenced by GDP per capita, infrastructure development, trade openness, and control of corruption. Conversely, inflation negatively affects FDI inflows and rents from natural resources do not significantly influence FDI. Furthermore, the findings show that marginal benefits from any increase in the quantity of FDI determinants (with the exception of control of corruption) will be less for SSA countries. The paper concludes with important policy implications deduced from the findings.

Key words: FDI, Least Recipient Regions, Sub-Saharan Africa, MENA

1   Introduction

Sub-Saharan Africa (SSA) and the Middle East and North Africa (MENA) receive the lowest levels of FDI inflows in the world with the SSA and the MENA regions receiving around 2% and 5% respectively of all global FDI inflows (WDI, 2015). The poor record of FDI flows into these regions is surprising considering the quality and quantity of natural

resources and their strategic location. It is often argued that the high levels of instability and corruption, weak governance, and poor quality infrastructure account for their inability to attract FDI (Kandiero and Chitiga, 2006). However, over the last couple of years efforts have been focussed on attracting more FDI. For example, in the late 1980s the MENA countries began a significant shift toward trade and FDI openness and the creation of an environment that is more favourable to FDI and exports (AbuAl-Foul and Soliman, 2008). In Sub-Saharan Africa, structural adjustment programmes were also introduced to attract investment after years of policies that deterred foreign investment due to fears that this would result in a loss of political sovereignty, a negative impact on domestic firms and economic degradation with respect to the natural resource sectors (Dupasquier and Osakwe, 2006).

Tables 1 and 2 report levels of FDI inflows across different periods. In Table 1 it is clear that both SSA and the MENA regions received very little FDI prior to the 1980s. However, the 1980s have seen a significant shift in flows particularly for the MENA region. In Table 2 (Panel A) it is also clear that the countries in SSA have received by far the lowest amount of inward investment in the latter period, followed by the MENA countries. Interestingly, the coefficient of variation for all regions, with the exception of Europe and Central Asia, is very similar suggesting that the dispersion of foreign investment activity is uniform. Panel B in the Table shows some encouraging growth in inward FDI for both regions in the present study although SSA lags behind the MENA region to a considerable extent.

Table 1: FDI Inflows ($ billions) to SSA and MENA Regions (1970 – 1999)

Panel A FDI Inflows (1970 - 1979)				
Regions	**Mean**	**Std. Dev.**	**Minimum**	**Maximum**
SSA	0.821	0.203	0.574	1.200
MENA	0.335	1.476	-3.025	2.658
Panel B FDI Inflows (1980 - 1999)				
Regions	**Mean**	**Std. Dev.**	**Minimum**	**Maximum**
SSA	2.883	2.625	0.252	9.105
MENA	4.209	3.444	-3.077	11.674

Source: WDI (2015)

Table 2: FDI Inflows to Developing and Emerging Regions ($ billions)

Panel A	FDI Inflows (2000 – 2012)				
Regions	Mean	Std. Dev.	Coef of Var.	Minimum	Maximum
SSA	5.92	9.11	1.54	0.74	28.70
East Asia & Pacific	66.30	104.00	1.57	1.39	328.00
Latin America & Caribbean	30.60	42.90	1.40	0.61	122.0
MENA	13.00	27.10	1.40	-0.02	87.50
Europe & Central Asia	190.00	286.00	2.08	4.31	852.00

Panel B	Growth in FDI Inflows for SSA and MENA Regions	
Regions	2000-2002	2003-2006	2007-2012
SSA	11.040	15.524	31.736
MENA	9.295	45.759	87.886

Source: WDI (2015)

FDI can play a critical role in providing capital for investment, high quality managerial skills and technology transfer. It also creates employment, competition and productivity, transfer of modern technology, increases exports and enhances opportunities for growth and development, particularly in developing and emerging countries (Asiedu, 2002; Akinlo, 2004; Anyanwu and Yameogo, 2015a). Hence, it is important that Sub-Saharan Africa and the MENA region attract sustained foreign investment that can be used to assist in their development programmes and achieve higher levels of growth. Regrettably, as the data suggest, the regions are still at the lower end of the distribution of FDI inflows, which suggests that the reforms over the last couple of decades to attract FDI are still inadequate and have not attracted sufficient foreign investors.

This paper is largely motivated by Asiedu (2002), who examined the determinants of inward FDI to developing countries and questioned whether Africa is different from other potential investment destinations. However, the present study differs in a number of ways. Firstly, it focuses specifically on the determinants of FDI into the two least recipient regions. Both SSA and the MENA region have embarked upon trade liberalisation and reforms (adjustment programmes) at almost the same time, which makes them a more suitable for this study than the common approach of using a sample of developing countries with a huge disparity in characteristics, levels of trade liberalisation and reforms[i]. Secondly, it incorporates an investigation of the differences between the regions that arise from structural

and behavioural factors. In addition, the paper departs from much of the literature by using FDI per capita as the dependent variable as this allows for country size in a way that is not possible in the standard FDI inflows as a percentage of GDP. The use of FDI per capita will also avoid any bias in estimates that might arise due to the dominant importance of some large FDI recipient countries. Finally, comparing FDI flows between these regions contributes to the literature as while there are several shared characteristics some factors differ, which presents a platform for further incentives, reforms and complementarities.

Panel data estimation (fixed effects) was applied to a sample of 20 SSA and 11 MENA countries to determine the factors that influence FDI inflows. Findings suggest that trade openness, infrastructure development, and control of corruption positively influence FDI inflows. Surprisingly, rents from natural resources do not significantly influence FDI while inflation negatively affects FDI. In addition, the null hypothesis that both regions are not behaviourally and structurally different in terms of FDI determinants was rejected. When considered separately, SSA performed poorly compared with the MENA countries with the latter group attracting more FDI inflows.

The paper is organised as follows. Section 2 reviews the theoretical and empirical literature on the determinants of FDI. Section 3 develops the hypotheses to be tested. Section 4 describes the variables and presents the preliminary data analysis. Section 5 specifies the models and reports the results followed by a discussion of the implications. The final section concludes.

2   Determinants of FDI

a) A brief review of the theoretical literature

Braunerhjelm and Svensson (1996) note the complex nature of the theoretical foundation of FDI and the literature is now fragmented across different areas of economics and international business. The earliest explanation of FDI inflows was from a neoclassical trade theory perspective. The Heckscher-Ohlin model assumed that since commodities vary in relative factor intensities and countries vary in relative factor abundance, capital will move to those countries where the return to capital is higher and the return to labour is lower (Jones, 1957; Hodd, 1967). Aliber (1970) extended the discussion of why capital moves across borders to include differences in the premium associated with exchange rate risk. Multinational firms in

countries with stronger currencies have an advantage over local firms in countries with weaker currencies since they can borrow capital with a lower exchange rate risk premium (Harvey, 1990).

The neoclassical approach was criticised because of its inability to clarify the nature of FDI flows and was replaced with the concept of oligopoly by Kindleberger (1969) and Hymer (1976) to provide a better explanation of why firms move across borders (Faeth, 2009). Thus, firms will only operate internationally when they possess certain advantages over local firms and where the market to explore these advantages is imperfect (Denisia, 2010). Buckley and Casson (1976) formulated a theory of multinational enterprise within a broad-based intellectual framework defined as internationalisation. This theory suggests that firms internalise markets by bringing the activities linked by the market under common ownership and control and move abroad if the expected benefits exceed the expected costs. Dunning (1979) combined these two concepts to create the eclectic paradigm, which is a combination of traditional trade economics and internalisation theory, which assumes that the likelihood of a firm investing abroad is based on three main factors: the degree to which a firm owns an asset that its competitors do not; whether the firm can benefit from selling or leasing these assets to other firms; and the level of rents that can be earned by exploiting these assets. In all cases, the locational characteristics of the host country are important, where these include market size/market growth, skilled labour, labour costs, synergistic/knowledge-related assets, availability/quality of infrastructure and natural resources (Dunning, 1998; Sun et al, 2002; Dunning, 1980). It is the locational aspects of the eclectic paradigm that separates this theory of FDI from the earlier market structure approaches based on oligopoly and monopoly (Faeth, 2009).

In addition, national policies have had an impact on the determinants of FDI and these have tended to concentrate on attracting investment from abroad rather than emphasise differences in market structure. Hence, FDI can be regarded as a game between the multinational firm and the host government, complicated by the competition between host countries for inward FDI and various inducements and incentives are frequently offered with the intention of influencing the decision of the firm to invest in a particular location (Faeth, 2009). Exchange rates, tariffs and other trade barriers, taxes and the ease with which capital can be repatriated are some of the ways through which host governments influence FDI activity (Lim, 2002). In terms of negative influences, host governments that neglect to ensure a stable environment

can deter investment as political risk is a disincentive for firms wishing to undertake FDI (Khrawish and Siam, 2010).

b)   Empirical studies of FDI determinants

There is a vast empirical literature on FDI that includes developed and developing countries with interests on various sectors and for different time periods. However, the papers reviewed here focus solely on developing countries and regions as this is the context of the present study. The topics specific to developing countries tend to concentrate on the impact of corruption, rate of return, trade openness and natural resources with mixed findings on their relationship with FDI. Most emphasis has been on market size, education and economic growth. For example, Tsen (2005) attribute the positive significance of human capital to FDI to the fact that foreign investment does not only seek to reduce costs but also acquire access to technology and innovative capacity. Conversely, Oke et al (2012) find an insignificant relationship between education and FDI because of a lack of training and integration in the pool of human capital in their sample. Akin (2009) argued that their findings that FDI is not related to GDP per capita suggests that the small size of the market in low income countries is not an important determinant in the decision to invest internationally, although again this is sample specific. Sanfilippo (2010) argued that the significant relationship between FDI and gross national income shows that their study supports the market size hypothesis. Srinivasan (2011) claimed that the efforts by governments to increase economic growth and GDP per capita are successfully attracting market seeking FDI. In slight contrast, Anyanwu and Yameogo (2015a) found a U-shaped relationship between GDP per capita and FDI. They argued that for FDI to be positively related to GDP per capita, certain thresholds of GDP per capita should be attained.

With respect to infrastructure variables, there is further controversy. Adefeso and Agboola (2012), and Soremekun and Malgwi (2012) find that the positive and significant relationship between infrastructure development (mobile users) and FDI inflows is due to the fast penetration and adoption of mobile phones in the sample of developing countries they studied. However, Wadhwa and Sudhakara (2011) used internet access as a measure of infrastructure and found a negative relationship to FDI. This was justified by the fact that the developing countries in their sample have started using internet services extensively only in the last few years and hence are yet to have a positive influence on FDI.

Finally, governance measures have been used extensively in FDI studies, and in particular with developing country samples. Woo and Heo (2009) find a negative relationship between FDI and corruption in a sample of developing Asian countries and suggested this was due to weak economic reforms, monopolistic power and rent-seeking behaviours of government officials, all of which deter investors. Political instability was found to have a significant and negative impact on FDI in a study by Buthe and Milner (2008). This is explained by increases in the uncertainty of the political environment that heightens the risk of policy change and thus discourages FDI. Basemera et al, (2012) argue that the influence of free trade has been responsible for increased levels of FDI in a sample of sub-regional governments. A similar line of argument was also adopted by Anyanwu and Yameogo (2015b) following the positive relationship between FDI and trade openness in their study.

3   Hypothesis Development

The framework for the hypotheses was developed mainly according to the ownership, location and internalisation (OLI) paradigm although with emphasis on locational factors. Country-level studies can only explore the locational aspect of the OLI paradigm. The literature on the location-specific variables of FDI suggests that infrastructure, human capital, natural resources, market size, inflation, corruption, and trade openness influence the patterns of FDI inflows (Tsen, 2005; Mijiyawa, 2015).

H1. *Larger market size/growth is positively associated with FDI inflows*

The size of the market can be measured by GDP growth rate or GDP per capita. It is expected that a positive relationship will exist between market size and FDI inflows especially if FDI is motivated by market-seeking activities (Ranjan and Agrawal, 2011). However, while the growth rate of GDP or growth rate of per capita GDP is often argued to be a poor indicator for market seeking FDI activity in developing countries due to the fact that it is difficult to differentiate in the data the strategic imperative behind FDI, this study nevertheless hypothesises a positive relationship with FDI will be found (Akin, 2009).

H2. *FDI is positively related to rents from natural resources*

Natural resources have been found to be important in attracting FDI, particularly in African continent (Asiedu, 2006; Nsiah and Wu, 2014). The regions under review in this study are

rich in natural resources and this is the sector that has historically attracted large amounts of FDI, especially the mineral and oil sectors. This study uses rents from natural resources as a percentage of GDP to capture the availability of these resources.

H3. *Infrastructure development stimulates FDI inflows*

Available infrastructure increases productivity and thus the return on investment. Therefore a positive relationship between infrastructure and FDI is expected (Asiedu, 2002; Akin, 2009). However, the quality of infrastructure in these countries is highly variable and a quality adjusted measure would be preferred. Unfortunately, data constraints limit the construction of this variable and in common with the literature, infrastructure availability and or development is used. This is proxied by per capita mobile phone users, as is established in similar studies.

H4. *Human capital has a positive impact on FDI inflows*

An educated workforce has been recognised as an important determinant of FDI especially when firms are efficiency seeking. Srinivasan (2011) notes that a higher level of education can impact positively on FDI. The measure of human capital this study uses is the number of technical education students per capita. For some of the countries employed in this study, FDI is also attracted in technically oriented industries and not just in labour intensive countries. The use of technical education students is therefore justified because multinationals often seek to improve their technical efficiency particularly in the face of increased competitive pressures. Furthermore, technical knowledge available in a country can positively impact on FDI flows because innovation creates new demands for raw materials leading to FDI in their extraction and production. Such technical knowledge base can be supported through investments in skills acquisition. For example, large investments in education and training increased the stock of skilled labour in some Asia-Pacific countries and thus, helped increase their share of global FDI (Addison and Heshmati. 2003).

H5. *Trade openness has a positive impact on FDI inflows*

Countries with greater levels of trade openness and with more links to the world economy attract foreign capital and welcome overseas investment (Srinivasan, 2011; Owusu-Antwi, 2012). Using the established measure of openness (exports plus imports as a share of GDP),

the study hypothesises a positive relationship with FDI. Evidence of this has been provided by numerous empirical studies for the regions under review. This is particularly important because both SSA and MENA have embarked on adjustment programmes and trade liberalisation over the past two decades and few barriers to trade remain in these regions.

H6. *There is a positive relationship between control of corruption and FDI inflows*

Corruption can create a considerable barrier to investment. Corruption impedes investment directly and indirectly (Habib and Zurawicki; Al-Sadig, 2009). Although, several countries in this study are not known for their high levels of control of corruption (Owusu-Antwi, 2012), this study nevertheless hypothesises there is a positive relationship between control of corruption and FDI as the latter can reduce uncertainty in investment activities.

H7. *Foreign investors are less likely to invest in countries with high levels of inflation*

One of the indicators of stable macroeconomic environment is price stability. Foreign investors are often deterred by high inflation because it erodes their return on investment, raises uncertainty and shows the inability of host government to implement sound macroeconomic policies that are conducive to business activities (Azam, 2010).

4   Sample and Data

a)   Sample countries

Table 3 shows the sample of countries used in the analysis. The initial sample included all SSA and MENA countries but due to missing data or because some of the values were outliers that would bias the estimates, a few countries were removed. This also guided the chosen time period for the study. Regarding the outliers, preliminary regression plots of the standardised residuals against the fitted values confirms that Bahrain and Qatar are outliers and thus were excluded from the sample in the subsequent analysis. Bahrain and Qatar are likely to be outliers because of their high GDP per capita and thus they do not fit with the developing country profile of the remainder of the sample.

Table 3 Sample Countries

MENA Region	Algeria, Bahrain[*], Egypt, Iran, Jordan, Kuwait, Libya, Morocco, Qatar[*], Saudi

	Arabia, Syria, Tunisia and Yemen
SSA Region	Angola, Botswana, Burkina Faso, Burundi, Chad, Ethiopia, Ghana, Guinea, Kenya, Lesotho, Mali, Mauritania, Mozambique, Niger, Rwanda, Senegal, South Africa, Sudan and Uganda

Note: * These countries are outliers and excluded from the analysis

b)   Variable description

Given the widely different sizes of the countries under review it is important that the variables used take account of population size in order that comparisons are valid and useful. In addition, levels of development are not constant and some countries have higher income levels than others. Thus, the majority of variables in the modelling are considered on the basis of percentage of total population or values per capita. Data on FDI inflows, pupils in technical education, and mobile users are expressed in per capita terms. The data were obtained from the World Development Indicators, UNCTAD, and the World Bank Governance Indicators. Data definitions and sources are in Table 4.

Table 4 Variable Definitions

FDI inflows per capita	FDI inflows by country divided by the total host country population ($) (UNCTAD 2015)
% of Population in vocational or technical education	% of population enrolled in technical and vocational education (WDI, 2015)
Resource Rent	Total natural resources rent are the sum of oil rents, natural gas rents, coal rents, mineral rents and forest rents as a % of GDP (WDI, 2015)
% Population of Mobile Phone Users	% population using mobile telephones either on a post-paid or prepaid basis, proxies infrastructure (WDI, 2015)
Trade Openness	Sum of imports plus exports as % of GDP, proxies the degree of liberalisation, as in Srinivasan, 2011
Control of Corruption	Measures the extent to which public power for personal gain is controlled (WGI, 2015). Ranges from 0 (lowest) to 100 (highest) rank.
Inflation	Annual % change in the cost of consumer goods and services (WDI, 2015)
GDP per Capita	GDP per capita is gross domestic product divided by midyear population (WDI, 2015)

c)   Preliminary data analysis

   Table 5 reports the descriptive statistics for the variables used in the estimation. It is clear that the MENA region has a higher level of development at the mean, with many values greater than SSA. In particular, the extent of FDI, human capital, infrastructure development, resource rents, and GDP per capita are greater in the MENA sample. The mean trade openness is similar although the SSA sample has a much higher dispersion. The institutional governance variables, that is, control of corruption in this study is higher in the MENA region although the differences are not great. At the mean, inflation is lower in the MENA region including the variation from the mean. Correlation coefficients are listed in Table 6. The coefficients show no high collinearity between the variables.

Table 5 Descriptive Statistics

Sample Countries	Total				MENA		SSA	
Variables	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Mean	Std. Dev.
FDI Inflow per Capita ($ US)	79.402	170.693	-331.306	1458.000	151.736	251.108	39.618	78.575
GDP per Capita	3350.042	7233.623	108.015	56366.570	7275.122	10921.180	1191.248	1624.291
Resource Rent (% of GDP)	19.402	17.599	0.256	71.605	27.878	19.744	14.740	14.336
Infrastructure Development (% of Mobile Users)	37.079	41.447	0.019	193.453	57.731	50.423	25.720	30.122
% of Population in Technical Education	0.546	0.798	0.012	4.599	1.102	1.081	0.241	0.291
Trade Openness	74.641	34.157	19.356	202.850	76.786	22.025	73.461	39.255
Control of Corruption	37.434	21.222	0.957	85.854	41.208	19.992	35.358	21.627
Inflation	9.375	20.108	-9.798	324.997	5.835	6.405	11.322	24.380

Table 6 Correlation Matrix

		1	2	3	4	5	6	7	8
1	FDI Inflow per Capita ($ US)	1.000							
2	GDP per Capita	0.484	1.000						
3	Resource Rent (% of GDP)	0.259	0.482	1.000					
4	Infrastructure Development (% of Mobile Users)	0.600	0.590	0.233	1.000				

5	% of Population in Technical Education	0.121	0.108	0.317	0.188	1.000		
6	Trade Openness	0.234	0.119	0.103	0.156	-0.028	1.000	
7	Control of Corruption	0.244	0.324	-0.334	0.276	-0.069	0.215	1.000
8	Inflation	-0.013	-0.078	0.200	-0.096	-0.050	0.159	-0.219	1.000

5. Models, estimation and results

a)   *Panel specification*

The models use a balanced panel of 20 SSA and 11 MENA countries. The data are annual for the period 2000 – 2012. As already identified above, this was mainly due to data availability for some of the variables. Fixed effects estimation was used as the random effects estimator was rejected based on the Hausman test. Panel models are valuable for a number of reasons. Firstly, panel data allow both the cross-section and the time series aspects of the data to contribute to the parameter estimates. Secondly, panel data suggest that countries are heterogeneous. Time series and cross-section studies not controlling for this heterogeneity run the risk of obtaining biased results. Not accounting for country-specific differences in economic or behavioural assumptions, such as countries operating under different political systems or more or less restrictive regulations, can cause serious mis-specification in the models. Thirdly, it may be important to incorporate dynamic effects and these models provide a means to study the dynamics of adjustment (Greene, 1997).

Given the differences between the regions as highlighted by the descriptive statistics (summarised in Table 5), it is important that the models take into consideration possible heterogeneity across countries in order to reduce the risk of obtaining biased estimates. The fixed effects model data used also allows the intercept to vary for each individual country but still assumes that the slope coefficients are constant across the sample. The estimating equation can be expressed

$$y_{it} = \alpha_i + \beta X_{it} + \mu_i + v_{it} \qquad (1)$$

where y is FDI inflows per capita in country *i* at time *t*, X is a matrix of independent variables and α and β are coefficients to be estimated. μ_i and v_{it} represent the decomposed disturbance

term where μ_{it} are country specific effects and v_{it} are random errors distributed (Gujarati, 2004).

Equation (1) was first estimated with and without the SSA dummy. With respect to statistical tests, the Chow Test showed that SSA and the MENA countries are behaviourally and structurally different based on the F test and critical values. Given these statistical differences, the significant variables were interacted[ii] with the SSA dummy to establish any differences in marginal effects. These behavioural and structural differences could also have accounted for the differences at the means and variations already presented in the preliminary data analysis above.

In the specification tests, all models are acceptable. A Breusch-Pagan/Cook-Weisberg Test for heteroskedasticity indicated the presence of heteroskedasticity and therefore robust standard errors were used to relax the assumptions that the errors were both independent and identically distributed. The GMM results were not reported in this study as the estimates and instruments were inefficient and inconsistent. The inconsistency and inefficiency were not surprising considering that GMM fits better for panel with large numbers of cross-section (N) and small time-series (T). However, the fixed effects technique used is known to control for possible heterogeneity. Tests also revealed no statistical mis-specification of the model and no omitted variable bias. Thus, the conclusion can be drawn that the results obtained from the fixed effects estimation are consistent and not spurious.

b)   Results and discussion

The results are in Tables 7 and 8. The SSA dummy is negative and significant. This implies that all things being equal, the SSA region on average receives less FDI compared to the MENA region. H1 tested the importance of market size. The GDP per capita is positive and significant. Coefficient of the interaction between SSA dummy and GDP per capita was negative and significant. This shows that marginal effect of GDP per capita on FDI inflows is less in SSA than the MENA region. To further support the result of the interaction, the estimated partial coefficient of GDP per capita in SSA was insignificant compared to the positive and significant effect in MENA. These findings most likely reflect that the higher levels of disposable income in the MENA region attract FDI for market seeking opportunities. H2 tested the impact of rents from natural resources on FDI inflows. Surprisingly, this was

insignificantly related to FDI. These findings were similar to those of Asiedu and Lien (2011) and can be justified with similar arguments. Huge rents generated from natural resources can lead to the appreciation of local currency and thus can diminish the competitiveness of exports. This results in the crowding out of investments in non-natural resource tradable sectors. Some of the countries in the sample often attract huge FDI inflows into their resource sectors and thus, while the exploration of natural resources initially comes with high capital outlay, continued operations within that sector are usually accompanied by smaller cash flows. Also, countries with a significant share of natural resources in total merchandise exports are more prone to external shocks since they are weak in trade diversification. These shocks create macroeconomic instability and can lead to the decline in FDI.

Table 7: Fixed Effects Estimations (Robust standard errors)

FDI Inflow per Capita ($ US)	Fixed Effects	Fixed Effects	Fixed Effects	Fixed Effects	Fixed Effects	Fixed Effects	Fixed Effects
Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
GDP per Capita	0.014*	0.014*	0.014*	0.013*	0.014*	0.013*	0.014*
	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.007)
Resource Rent (% of GDP)	-0.137	-0.137	0.119	0.294	-0.554	-0.099	-0.334
	(0.965)	(0.965)	(0.987)	(1.150)	(0.893)	(0.968)	(1.048)
Infrastructure Development (% of Mobile Users)	2.199***	2.199***	2.379***	2.284***	1.795***	2.203***	2.249***
	(0.687)	(0.687)	(0.687)	(0.715)	(0.661)	(0.681)	(0.686)
% of Population in Technical Education	-37.269	-37.269	-16.384	-27.983	-44.698	-36.631	-42.864
	(30.798)	(30.798)	(29.431)	(34.563)	(32.431)	(30.222)	(32.913)
Trade Openness	1.969***	1.969***	1.628***	1.893***	6.052***	1.974***	1.996***
	(0.479)	(0.479)	(0.497)	(0.489)	(1.302)	(0.475)	(0.480)
Control of Corruption	66.477**	66.477**	68.859**	69.932**	42.325	58.554	62.978*
	(33.589)	(33.589)	(33.564)	(34.208)	(30.529)	(77.767)	(35.235)
Inflation	-0.606***	-0.606***	-0.446**	-0.553**	-0.517**	-0.610***	-0.899***
	(0.229)	(0.229)	(0.227)	(0.232)	(0.236)	(0.229)	(0.325)
SSA Dummy		-199.706***					
		(67.821)					
GDP per Capita * SSA			-0.031**				
			(0.014)				
Infrastructure Development (% of Mobile Users) * SSA				-0.513			
				(0.579)			
Trade Openness * SSA					-4.944***		
					(1.342)		
Control of Corruption * SSA						12.212	
						(74.842)	
Inflation * SSA							0.368
							(0.384)
Cons	47.14627	-53.569	-91.259	-82.554	-292.237***	-60.238	-16.061
	29.12621	(64.803)	(67.713)	(77.546)	(99.915)	(71.414)	(79.383)
No. of Obs.	403	403	403	403	403	403	403
F Stat	13.25	7.77	7.71	7.62	8.52	7.61	7.64
Prob. > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R-Squared	0.4097	0.6650	0.6713	0.6664	0.6865	0.6651	0.6655

Robust Standard Errors are in Parentheses; *Significance at the 10% Level; **Significance at the 5% Level; ***Significance at the 1% Level

Table 8: Marginal Effects of the Significant Variables

Variables	MENA	SSA
GDP per Capita	0.014*	-0.017
	(0.007)	(0.015)
Infrastructure Development (% of Mobile Users)	2.284***	1.771**
	(0.715)	(0.713)
Trade Openness	6.052***	1.108***
	(1.302)	(0.401)
Control of Corruption	58.554	70.765***
	(77.767)	(21.009)
Inflation	-0.899***	-0.530**
	(0.325)	(0.257)

Robust Standard Errors are in Parentheses; *Significance at the 10% Level; **Significance at the 5% Level; ***Significance at the 1% Level

Infrastructure development is clearly important as a determinant of FDI inflows and it is positive and significant although SSA has a lower elasticity overall than the MENA region. The interaction between infrastructure development and the SSA dummy was negative and the estimated partial coefficient was higher for MENA countries compared to SSA countries. The findings are expected and support the literature on FDI, particularly on the relationship between infrastructure and investment from developed to developing countries. The impact of human capital as a predictor of FDI was tested in H4. The results showed that technical education has an insignificant effect on FDI. The results suggest that human capital in these regions has not yet reached the required threshold in technical education to stimulate efficiency and attract skill-seeking FDI. A test of H5 showed that trade openness is positive and significant although SSA has a lower elasticity. That is, the result of the interaction between the SSA dummy and trade openness was negative and significant. These findings nevertheless, demonstrate the importance of trade openness in attracting FDI.

Results also showed that control of corruption has a positive influence on FDI inflows, however the marginal effect of corruption control on FDI is significantly higher in SSA countries compared to MENA countries. The result of the interaction between control of corruption and the SSA dummy is positive and the partial coefficient is positive but insignificant for the MENA countries. These findings support the empirical evidence that controlling for corruption can be a means through which FDI can be positively influenced. Foreign investors perceive SSA countries to be very corrupt and thus, genuine efforts against corruption will have the most impact on investment in SSA. The impact of Inflation was negative and significant. The partial coefficient shows that the negative impact of inflation will be higher in the MENA region compared to the SSA region. Inflation creates macroeconomic instability, reduces buying power, and erodes the return on investment.

6. Conclusion and Policy Implications

This study investigates the determinants of FDI inflows into two of the least recipient regions, SSA and MENA. The findings reveal that infrastructure development, trade openness and control of corruption encourage FDI into these regions. On the other hand, inflation deters FDI while rents from natural resources do not significantly attract FDI. Some of these findings are not consistent with the stated hypotheses. The analyses also considered whether the regions are behaviourally and structurally different and if so, how they compare in their FDI determinants. The results confirmed differences between the two regions and that the marginal benefits from increases in the quality of FDI determinants will be less for SSA countries compared to the MENA countries.

A number of policy implications follow from these findings. First, trade openness and control of corruption are very important determinants of FDI and thus, efforts targeted at reducing corruption and improving trade policies should be seriously pursued. Second, since rent from resources does not significantly influence FDI, the SSA and MENA regions should encourage more trade diversification by pursuing policies that will increase the competitiveness of the non-resource tradable sectors. Third, serious attention should be paid to technical education because countries with high levels of low-skilled labour are less likely to be attractive to foreign investors focussing on high value-added industries or FDI inflows motivated by efficiency seeking. This is also important because of the spillovers that flow to host country firms from FDI in high skilled sectors that contribute more value added than those from low-skilled sectors. Finally, all things being equal, SSA countries will attract less FDI compared to MENA countries and thus it is crucial that countries and sub-regional blocs in SSA direct their efforts towards programmes that improve their image as international partners. Therefore they should introduce credible policies targeted at restoring confidence and maintaining global relationships, thus countering the negative perception of SSA as a region.

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[i] For further details that African countries embarked on adjustment programmes in the 1980s see, Nsouli and Zulu, 1985; Campbell and Loxley, 1989.

[ii] An interaction is formed as of a product off two (or more) variables. An important application of the interaction variables is that it allows for differences in the slopes of two regression lines. For further reading, see (Dielman, 2005).