International Journal of Trend in Scientific Research and Development (IJTSRD)
Volume 5 Issue 1, November-December 2020 Available Online: www.ijtsrd.com e-ISSN: 2456 – 6470

Measuring the Impact of Financial Institutions Development on Foreign Direct Investment Inflow in Africa

Magakam Tchamekwen Alida, Zhao Xi Cang

School of Finance and Economics, Jiangsu University, Zhenjiang, China

ABSTRACT

This study examines the impact of financial institution development on the absorption of foreign direct investment in Africa. With a sample study including 32 African economies for the period 1980-2018, the paper apply the PMG, MG and DFE estimators, an unprecedent accomplishment of this research is that it provides a deep understanding of the influence of financial development on foreign direct investment both in the short and long term in five regions of the continent. The empirical result suggest that positive and significant impact are found in the long-term in regions while in the short-run no significant impact is found.

KEYWORDS: *Financial institution development, foreign direct investment, pmg, mg, dfe*

How to cite this paper: Magakam Tchamekwen Alida | Zhao Xi Cang "Measuring the Impact of Financial Institutions Development on Foreign Direct Investment Inflow in Africa" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-5 | Issue-1, December 2020, pp.569-577, URL: www.ijtsrd.com/papers/ijtsrd37992.pdf

IJTSRD37992

I. INTRODUCTION

A set of empirical evidence demonstrate that FDI (Foreign Direct Investment) generate gains and economic benefits for both host and home countries. Increasing the capital stock, Foreign direct investment is accessed as a key driver of country's economic growth and integration in the global economy (5). Domestic enterprises can gain from the multinational enterprises through forward and backward linkages leading to the enhancement of competitiveness and productiveness of the host country simulating growth (12). Conscious of the contribution that multinational enterprises bring to economic growth through increase of capital accumulation, rise of total factor productivity and creation of new jobs, countries of the world increasingly attempt to attract foreign direct investment (25). In the existing literature regarding the determinants of FDI, many scholars have stressed the importance of economic factors such as the level of the GDPpc (Gross Domestic Product per capita), inflation (5), market size proxied by GDP, and infrastructure development (1). While other studies focused on institutional variables such as recipient country's quality of bureaucracy and legal system (26). Among institutional variables, a prominent place has been given to the development of financial system of both source and destination countries. Financial development apprehends funds availability through various sources, money and capital markets development, stock market development, commercial banks position and the control of capital and exchange. In many economies, recent commotion in the financial system has pushed governments to improve their institution in order to become attractive destinations of foreign capital. Such a trend has led to a noticeable increment of the literature focusing on the analysis of the relation between financial development and foreign direct investment.

This study focuses on the effect of the development of financial institution on the host country's ability to attract foreign direct investment. This research is not the first study analyzing the impact of financial development on foreign direct investment. Nevertheless, previous studies reveal some shortcomings: they suffer from limited scope, absence of long-run and short-run effects identification and inappropriate measurement of financial development. In order to cover the gaps of the existing literature, this research uses countries-grouped panel data for 32 African countries from 1980 to 2017 to investigate the effect of financial development on FDI inflow. The research sample is sundered into five regional sub-samples comprising: North, South, West, East and Central with the aim of providing evidence of the effects across the different African regions. The research uses three financial institution development indicators (financial institution access, financial institution efficiency, financial institution depth) as measures of financial development. Moreover, this research provides evidence of the long-run and short-

run effects of financial development on foreign direct investment in Africa as a whole and in different regions of the continent. Precedent studies

II. Literature Review

2.1. Direct effect of financial development on FDI

(8) supported that a well-developed financial system allows to effectively attract capital inflows. Destination country' source of external finance along with favorable conditions act like an incentive driving and raising multinational desire engage in FDI (6).(9) emphasizes the degree to which the U.S. MNEs operate in recipient countries with high developed financial showing that the intensity of U.S. foreign subsidies' activities are very limited in recipient countries with constraint and expensive external finance. (5) stressed that considerably affecting local firms the quality of the financial system is also a key determinant of the host country ability to effectively attract foreign capital inflow because even in case multinational enterprises does not rely on host country's external finance, their decision to invest in the host country will still depend on the host country's financial state and conditions.

(2) support that well developed financial system in the host country could possibly exert a direct negative disintegration effect on foreign direct investment in case it fosters prominent replacement of foreign outsourcing for integration, This is due to the fact that lenders do not lay borrowings to multinationals under the obligation of holding equity share or controlling interest in the foreign partners in economies with well-developed financial system, thus limiting the multinational engagement in foreign direct investment. Empirical study of (Antras et al., 2009) corroborates this theory evincing that U.S. enterprises are less likely to engage in FDI in well financially developed countries and are more likely to engage in arm's length technology transfers. Furthermore, they indicates strong financial system in the host country does not necessarily lessen the overall activities of multinational as stronger financial system implies strong protection of investors, justifying an increase of U.S foreign affiliates in such countries, according to the authors this leads to conclude that the direct positive access to external finance effect of host country dominates any possible direct negative disintegration effect.

(18) supported that market liberalization increases the inflow of capitals which in turn diminish the risk-free rate and lower the cost of capital. In addition, the lending cost is lessened because foreign investors share a portion of the risk, consequently alleviating the risk premium. Following the same train, (11) found the existence of bi-directional causality relation between financial market liberalization and capital flows. The author indicated that developed financial system reduces cost for multinational enterprises thus affecting their decision to invest, the study stands that the liberalization of stock market can decrease the cost of equity capital, turning positive the NPV (net present value) of some investments, thus leading to an increase of physical investment. For Desai et al., (2006), well developed stock market improve a country's attractiveness of foreign capital through the enhancement of listed companies' liquidity and reduction of capital cost for multinational enterprises. The same study supports that capital control can also act like pull off of FDI due to complications and restrictions of profits repatriation which matters for multinationals pushing them to invest in countries with less restrictions of profits repatriation.

Investigating the impact of financial development on FDI, Exploring the diverse effects of source and destination countries' financial development on FDI, (27) provided the evidence of the fact that destination countries financial development promote foreign direct investment inflow, meanwhile playing an indirect role on the overall economic dynamic; indeed, well developed financial system in the host country has a positive direct external finance effect on the size of FDI inward if the destination country raises a part of the external finance needed by foreign firm to engage in FDI projects (27). Their research also indicated that there is a correlation between financial development and many other attributes of a country such as human capital, quality of institution, natural resources all playing a determinant role on FDI inflow. For Vahid Mahboobi Matin (2019), financial development exerts a dual effect on foreign direct investment inward and outward, and numerous difficulties of absorbing and issuing FDI originate from the level of financial development.

Governments seeking to attract foreign multinational firms and to promote the internationalization of their enterprises have to implement strategies and measures in order to ameliorate the access to external finance, in fact, FDI outflows are very sensitive to external finance access and availability, tight and restricted conditions for credit lead to the fall of FDI flows (25). FDI projects implies the necessity to purchase or establish production facilities in the host country (10).

Enterprises envisaging FDI projects must also engage upfront fixed costs (27) as exporting to a foreign market require the establishment of distribution channels and research to detect the most gainful destinations, identify their peculiarities in order meet their needs and tastes (24). Some FDI projects largely relies on external finance as the firm internal cash flow maybe insufficient (23), enterprise' access to external finance relies on financial development and better developed financial system of the home country has a positive direct external finance impact on the size of FDI outward (25). Existing literature indicates that both home and host countries financial development have a positive impact on foreign direct investment, but according to some researchers, the home country's financial system matters most for the funding of foreign direct investment projects as strong relationship exist between parent firms and their local lenders leading to less constraining borrowing conditions, credit availability at favorable conditions while relationship between parent firms and host country's local banks may be at early stage, precarious, fragile and sometimes tenuous, (16) also provide the evidence that credit restrictions and constraints has a negative influence on FDI outward, their study shows that during the banking crisis in Japan, the degree to which Japanese firms engage in FDI projects towards the United states was correlated with the depravation of the financial state of their principal bank. (3) in their work focus on the relationship between financial development and FDI inflows in

economies of the Eastern and Central European Union for the period 1996-2015. The result of their panel data analysis show that there is no cointegration between foreign direct investment and financial development, however, they found a unidirectional causality running from financial development to the inflows of foreign direct investment in the short run. (14) revisited in their work the link between the development of finance and the inflow of foreign direct investment in China, the applied VECM technique revealed a long-run relationship and two-ways causality between the two concepts. Utilizing the quality of institution as a moderator, (20) analyze the relationship between the development of finance and foreign direct investment in 79 economies partners of the Belt and Road Initiative, their findings indicate that in these countries well-developed financial sector enhance the inflows of FDI. (18) through threshold technique investigate the impact of financial deepening on foreign direct investment in countries partners of the Belt and Road Initiative, they find that financial deepening exerts on FDI inflows a positive and significant impact. But the study also reveals that economies with financial deepening less than 0.1803 threshold are slightly predisposed to attract inward FDI. Furthermore, their result indicate that in low-income economies financial system has a positive and significant impact on FDI while the relationship is insignificant in advanced markets economies.

2.2. Indirect effect of financial development on FDI

In addition to the direct and indirect effect that strong financial system in home and host countries exert on FDI, higher financial development also exert an important impact on FDI through the promotion and enhancement of economic activities (15). In home country, when some sectors experience the existence of large number of producers a well-developed financial system enhances the size of foreign direct investment projects. Meanwhile, when the number of active firms increase this results in higher competition leading to profits reduction pushing firms to engage in new FDI projects, but profits lost could also decrease firm's engagement in FDI due to lack of funds needed to cover fixed cost of FDI. In some cases increased competition can lead to increase of FDI projects when financial development allows firms to finds external finance (27).

Analyzing the impact of credit restriction on international trade, (19) found that through positive effect on overall production, financial development indirectly augments export activities. (13) indicated that recipient country's financial development could have indirect negative competition effect making recipient countries less attractive to multinational as local inputs prices may increase due to high competition pushing multinational to target other markets. (4) conducted a study where empirical result suggests that host country well developed financial system has indirect negative competition effect on FDI while exerting a direct positive financing effect on FDI.

III. Data and Analysis Techniques

3.1. Data

We use data of 32 African countries for the period 1980-2017, data extracted for the world bank database(2018) and the IMF (2018).

Table 1 Data summary

	lnfdi	lninf	lngfe	lnfia	lnfie	lnfid
Mean	0.285	1.849	2.505	-3.343	-0.656	-2.759
Median	0.425	1.886	2.613	-3.436	-0.589	-2.161
Maximum	3.740	10.076	3.998	-0.149	0.335	-0.124
Minimum	-8.928	-4.396	-4.178	-7.107	-3.223	-7.205
Std. Dev.	1.471	1.444	0.728	1.284	0.377	1.065
Skewness	-1.065	0.604	-2.242	0.338	-1.455	0.154
Kurtosis	6.075	7.852	14.056	2.341	6.912	3.744
Probability	0.000	0.000	0.000	0.000	0.000	0.000
Observation	1254	1254	1254	1254	1254	1254

Table 2 Correlation results

	lnfdi	lninf	lngfe	lnfia	lnfie	lnfid
lnfdi	1					
lninf	-0.1536	1				
lngfe	0.1698	0.0881	1			
lnfia	0.1628	0.1132	0.3578	1		
lnfie	0.0498	0.0412	0.0916	0.4155	1	
lnfid	0.1566	-0.0091	0.4123	0.6439	0.3383	1

3.2. Pooled Mean Group, Mean Group and Dynamic Fixed Effects Estimators

To analyze the long-run effects of financial institution access, financial institution efficiency and financial institution development on foreign direct investment the following basic regression can be estimated:

$$FDIit = \beta 1 + \beta 2\ lnfiait + \beta 3\ lnfieit + \beta 4\ lnfidit + \varepsilon it \quad (1)$$

Where FDIit is foreign direct investment, lnfiait is financial institution access, lnfieit is financial institution efficiency, lnfidit is financial institution depth and εit stands for the error term. The traditional estimations used in equation 6.1 will not allow us to detect the potential rich foreign direct investment adjustment dynamic. Thus, this study investigates the dynamic link between financial institution access, financial institution efficiency, financial institution depth and foreign direct investment through the use of the ARDL (Autoregressive Distributed Lag). The ARDL method is applied in the present research for the following motives. First of all, this gives us the possibility to control for heterogeneity in the connection between these variables across regions. Second, this method offers the possibility to control for endogeneity. Finally, the model eases the estimation of both long-run and short-run effects of financial institution development indicators on foreign direct investment. With reference to the research of (21), the basic following ARDL (p;q) estimation will be taken into consideration:

$$y = \sum_{j=1}^{p} \Lambda t, jy, t, t-j + \sum_{j=0}^{q} \delta' t, j\, xt, t-j + vi + \varepsilon it \qquad (2)$$

Where i = 1,2,... N represents the index of the countries, t represents j represents the number of time lags, yit represents foreign direct investment, xit represents a vector of financial institution access, financial institution efficiency and financial institution depth, specific effects are denoted in yit. Consideration of the adjustment coefficient and long-run effects requires re-framing equation 6.2 into:

$$\Delta yit = \emptyset i\left(yit-1-\theta i' xi,t\right) + \sum_{j=1}^{p-1} \Lambda ij^{*}\Delta yi,t-j + \sum_{j=0}^{q-1} \delta ij'^{*}\Delta xi,t-j + vi + \varepsilon it \qquad (3)$$

The vector θit is the long-run relationship between the variables, ℓ shows the short-run coefficients linking foreign direct investment to its past values and constructs it. Øi represents the coefficient of the error correction, it also measures the adjustment' speed of foreign direct investment towards its long-run equilibrium based on changes in financial institution access, financial institution efficiency, financial institution depth. There is a long-run relationship between foreign direct investment and the independent variables if Øi is < 0.

The estimation of equation 6.3 is completed through the use of three diverse dynamic panel applications: the mean-group estimator (MG) introduced by Pesaran and Smith (1995), additionally the pooled mean group estimator (PMG) introduced by(21)., and finally the dynamic fixed effects estimator (DFE). With the DFE although there is homogeneity on all error variances and slope coefficients, the intercepts shows difference across groups. (Pesaran and Smith, 1995) showed that in DFE heterogeneity bias can affect the estimated coefficients, later(21) suggest that the Pooled Mean Group (PMG) estimator can be applied in order to resolve the issues related with the DFE. The pooled mean-group implies that the long-run parameters are identical for all groups while allowing difference across groups in terms of error variances and short-run parameters. For the mean group estimator, the slope coefficients, error variances and intercepts can all differ across groups.

IV. Empirical Results

4.1. Unit root Results

The application of ARDL estimation requires the determination of order of integration. In this research we use two unit root tests, namely: the Augmented Dickey-Fuller Fisher (ADF) and the Im, Pesaran and Shin (IPS). Table 3 exhibits the results.

Table 3 Panel Unit Roots Results

Variables	ADF				IPS			
	Levels		First difference		Levels		First difference	
	Constant	Constant and trend	Constant	Constant and trend	Constant	Constant and trend	Constant	Constant and trend
lnfdi	-2.592***	-2.716***	-5.093**	-5.167**	-3.526***	-3.648***	-6.102***	-6.263***
lnfia	-2.136**	-2.668**	-4.090***	-4.164***	-2.035 *	-2.454***	-5.419***	-5.525***
lnfie	-2.175***	-2.601***	-4.744***	-4.777***	-2.479***	-3.114***	-5.965***	-6.108***
lnfid	-1.627	-2.575**	-4.171***	-4.328***	-1.607	-2.429	-5.522***	-5.629***

Note ***, **,* indicate significant at 1%, 5% and 10% level respectively

4.2. Long-and Short-run Effects of financial institution on FDI in Africa as a whole

Table 4 and 5 show the long and short-run effects of financial institutions access, financial institutions efficiency and financial institutions depth on foreign direct investment. In Table 6, we sunder into five different regions, namely: the North, Southern, West, East and Central. As mentioned above, the results of table 4 exhibit the short sand long-run effects of financial institutions access, financial institutions efficiency and financial institutions depth on foreign direct investment. In order to complete this task, three dynamic methods are applied, the pooled mean group PMG, the mean group MG and

the dynamic fixed effect DFE. Nevertheless, based on the Hausman test, its efficiency and consistency, over DFE and MG short-run adjustments may be different across groups when there is restriction on the long-run homogeneity (Kim et al. 2010), this research relies on the PMG. Generally, in the long-run, financial institutions access, efficiency and depth positively affect foreign direct investment inflow in Africa. Nevertheless, while the coefficient of financial institutions access is significant for the DFE and PMG estimators it shows insignificant coefficient for the MG estimator. In the long-run effects, the coefficient of financial institutions access in the PMG estimator is 0.136 and in DFE estimator is 0.619. This implies that when African financial institutions access increases by 1 percent, this leads to an increase of 0.136 and 0.619 in foreign direct inflows in Africa.

Beholding financial institutions efficiency, all the coefficients are significant and positive for the PMG, MG and DFE respectively equal 0.827, 1.042 and 0.441. This outcome suggests that in the long-run, financial institutions efficiency have a positive significant impact of foreign direct investment inflows.

In terms of financial institutions depth - foreign direct investment nexus, in the long-run estimation, the PMG shows that financial institutions development has a positive significant coefficient 0.410 while the MG and DFE estimators show negative insignificant coefficients. This implies that when financial institutions development increase by 1% then foreign direct investment in Africa increases by 0.410%.

Table 4 The effect of financial institution access, financial institution efficiency and financial institution depth on FDI without control variables

Dependent variable: LNFDI

	PMG	MG	Hausman test	DFE
Long-run coefficients	0.136*	0.774	[0.749]	0.619***
Lnfia	(0.076)	(0.519)		(0.140)
lnfie	0.827***	1.042*		0.441*
	(0.183)	(0.630)		(0.262)
lnfid	0.410***	-0.436		-0.144
	(0.065)	(0.414)		(0.153)
Error correction term	0.392***	-0.600*		-0.454***
	(0.043)	(0.048)		(0.024)
Short-run coefficients	0.148	-0.474		0.022
lnfia	(0.258)	(0.358)		(0.172)
lnfie	0.005	0.333		0.120
	(0.212)	(0.273)		(0.171)
lnfid	0.078	0.305		0.198
	(0.293)	(0.388)		(0.161)
Constant	0.971***	-0.078		0.779***
	(0.136)	(0.481)		(0.201)
Observations	941	941		941

All the short-run coefficients show different phenomenon. As mentioned earlier, there is no restriction implying that all the short-run coefficients will be the similar across countries. The output shows that the relationships between financial institution access, efficiency and depth and foreign direct investment are all positive but insignificant in the short-run. However, the MG estimator shows a negative and non-significant coefficient in the relation between financial institution access and foreign direct investment in the short-run. Consequently, when the short and long-run effects are compared, the primary general conclusion implies that the relationship between financial institution access, financial institution efficiency, financial institution development and foreign direct investment in Africa depends on the permanency (long-run) or temporarily (short-run) of their movements.

4.3. Robustness check

Our results are confronted for alternative explanations of our analysis. For this purpose, our results are evaluated through the inclusion of two control variables namely: Inflation and government final expenditure. Table 5 exhibits the outputs of PMG, MG and DFE estimators using ARDL (2,1,1,1). This output provides additional support to the precedent findings reported in table 6.4. Moreover, this output corroborate the fact that in the long-run the effect of financial institution access on foreign direct investment inflow is significant and positive where an increase of 1% of financial institution access leads to 0.826% increase of foreign direct investment inflow. Just as suggested by table 4, table 5 suggests that in the long-run financial institution efficiency has a positive significant impact on foreign direct investment inflow where an increase of 1% of financial institution efficiency lead to 0.530% increase in foreign direct investment inflow. Following the same tendency, financial institution depth shows a positive significant impact on foreign direct investment where an increase of 1% of financial institution depth leads to increase 1.164% of foreign direct investment inflow. Furthermore, we find that the error correction terms shows similar sign in both tables 4 and 5.

Table 5 The effect of financial institution access, financial institution efficiency and financial institution development on foreign direct investment with control variables

Dependent variable: LNFDI

	PMG	MG	HT	DFE
Long-run Coefficients	0.826**	0.783	[0.638]	0.451***
lnfia	(0.106)	(0.687)		(0.137)
lnfie	0.530**	1.043*		-0.385
	(0.253)	(0.589)		(0.249)
lnfid	1.164***	-0.098		-0.156
	(0.073)	(0.496)		(0.147)
lninf	-0.094**	-0.347		-0.280***
	(0.293)	(0.175)		(0.063)
lngfe	0.359*	0.481*		0.201
	(0.185)	(0.530)		(0.133)
Error correction term	0.409***	-0.706***		-0.476***
	(0.049)	(0.054)		(0.024)
Short-run coefficients	0.012	0.269		0.036
lnfia	(0.234)	(0.351)		(0.171)
lnfie	0.167	0.312		0.097
	(0.189)	(0.294)		(0.170)
lnfid	0.455*	-0.095		0.164
	(0.274)	(0.431)		(0.161)
lninf	0.131***	0.129		0.101**
	(0.467)	(0.092)		(0.034)
lngfe	0.160	0.307		-0.064
	(0.197)	(0.340)		(0.109)
Constant	0.481**	-0.777		0.558**
	(0.115)	(1.256)		(0.279)

Note: The values in the parentheses are the standard error [p-value] of corresponding coefficients estimates.***, **, and * denote a significance of 1%, 5%, and 10%, respectively.

4.4. Long-run and short-run effects of financial institution on FDI by Region in Africa

Tables 6.4 and 6.5 established that the impact of financial institutions access, efficiency and depth on foreign direct investment inflow depends on nature of the permanency or temporarily of their movements, additionally, we wonder if these relationships differ across regions. In order to find responses, we sunder our sample into five regions, namely: North, South, West, East and Central. Table 6 shows the coefficients of PMG, MG and DFE. Considering the long-run coefficients, financial institutions access has positive significant impact on foreign direct investment in all regions except the West where it shows a positive insignificant coefficient. Financial institution efficiency also shows positive significant effect on foreign direct investment in all regions except Central region where it shows negative non-significant coefficient. For financial institutions depth, in all regions it affects positively and significantly foreign direct investment , implying that in the long-run foreign direct investment inflow will increase in Africa when the level of financial institutions depth is high.

Table 6 Financial institution access, Financial institution efficiency, Financial institution development on FDI by Region

EAST

	PMG	MG	DFE
Long-run coefficients	0.842*	0.129	0.501**
lnfia	(0.256)	(0.702)	(0.236)
lnfie	2.702***	-2.624**	-0.401
	(0.749)	(1.050)	(0.450)
lnfid	0.857***	0.625	0.477
	(0.225)	(0.761)	(0.273)
Hausman test	0.253		
Error correction term	0.363***	0.516***	-0.491***
	(0.471)	(0.107)	(0.046)
Short-run coefficients	0.599	0.173	0.201
lnfia	(0.710)	(0.666)	(0.420)
lnfie	-1.399	1.360	-0.604*
	(0.429)	(0.535)	(0.352)
lnfid	0.751*	-0.580	0.306
	(0.455)	(0.404)	(0.299)
Constant	0.403***	0.954	1.483***
	(0.126)	(0.940)	(0.364)

SOUTH

	PMG	MG	DFE
Long-run coefficients	0.165*	-0.460	-0.173
lnfia	(0.097)	(0.506)	(0.232)
lnfie	0.787***	2.810**	0.985*
	(0.298)	(1.307)	(0.576)
lnfid	1.967***	1.086	0.961*
	(0.356)	(1.135)	(0.534)
Hausman test	0.583		
Error correction term	0.445***	-0.587***	0.344***
	(0.105)	(0.029)	(0.651)
Short-run coefficients	0.275	0.566	0.099
lnfia	(0.100)	(0.381)	(0.124)
lnfie	-0.158	-1.095	-0.160
	(0.265)	(0.249)	(0.321)
lnfid	1.409*	1.702	0.424
	(1.563)	(1.907)	(0.360)
Constant	1.0571***	0.967***	0.631***
	(0.216)	(0.138)	(0.212)

NORTH

	PMG	MG	DFE
Long-run coefficients	1.178***	3.784	2.264***
lnfia	(0.471)	(2.765)	(0.564)
lnfie	1.138*	-1.907	-2.241***
	(0.858)	(2.133)	(1.059)
lnfid	0.730***	-0.907	-0.990**
	(0.364)	(1.278)	(0.394)
Hausman test	0.365		
Error correction term	0.509***	-0.621	0.559**
	(0.173)	(0.190)	(0.071)
Short-run coefficients	1.240	-1.774	-1.038
lnfia	(1.293)	(1.443)	(0.916)
lnfie	0.147	-0.102	0.368
	(0.329)	(0.312)	(0.656)
lnfid	0.769*	0.922	0.415
	(0.423)	(1.327)	(0.436)
Constant	1.149**	0.579	1.128***
	(0.610)	(1.003)	(1.381)

CENTRAL

	PMG	MG	DFE
Long-run coefficients	0.851***	0.576***	0.867***
lnfia	(0.162)	(0.196)	(0.362)
lnfie	-0.540	0.118	-1.140
	(0.457)	(0.687)	(0.442)
lnfid	2.275**	-1.972	-1.853*
	(0 .290)	(0.458)	(0.423)
Hausman test	0.625		
Error correction term	-0.622**	-0.667*	-0.592*
	(0.151)	(0.136)	(0.070)
Short-run coefficients	0.207	0.101	-0.085
lnfia	(0.972)	(0.966)	(0.740)
lnfie	-0.061	-0.351	0.234
	(0.562)	(0.477)	(0.335)
lnfid	1.004	1.013	0.947
	(1.143)	(1.225)	(0.595)
Constant	-2.399**	-2.457*	-1.997
	(0.482)	(0.832)	(1.023

WEST

	PMG	MG	DFE
Long-run coefficients	0.094	0.808	0.544***
lnfia	(0.120)	(1.042)	(0.271)
lnfie	0.781**	-1.232	-0.291
	(0.353)	(1.252)	(0.609)
lnfid	0.412***	-1.152	-0.250
	(0.076)	(0.757)	(0.249)
Hausman test	0.603		
Error correction term	0.464***	-0.6648***	-0.457***
	(0.055)	(0.073)	(0.043)
Short-run coefficients	0.301	0.102	0.541
lnfia	(0.448)	(0.635)	(0.483)
lnfie	-0.166	0.393	-0.244
	(0.311)	(0.527)	(0.397)
lnfid	0.922***	0.393***	0.353
	(0.260)	(0.449)	(0.273)
Constant	1.128***	-0.602	0.548
	(0.260)	(1.005)	(0.410)

Conclusion

This study empirically analyzes the short and long-run effects of financial institutions access, financial institutions efficiency and financial institution depth on foreign direct investment inflow in Africa over the period 1980-2017. Over the MG and DFE estimators, Pooled Mean group (PMG) estimator is retained as the basis of the empirical evidence. The study establishes The following findings. First of all, in the long-run, financial institutions access, financial institutions efficiency and financial depth have positive and significant impact on foreign direct investment inflow when considering Africa as a whole. Still considering Africa as a whole, all variables did not show any significant effect on foreign direct investment in the short-run. In order to evaluate if the relationship between financial institutions access, efficiency, depth and foreign direct investment is region-specific, we classify the countries depending on their geographical position. The sample study is thus divided into five regions North, South, West, East and Central. The results substantiate that the effect of financial institution access, efficiency and depth on foreign direct investment varies across the regions. For instance, the effect of financial institutions access on FDI is positive and significant in the long-run for the North, South, East and Central while the effect is insignificant for West Africa. Financial institution efficiency have positive significant effect on FDI in the North, South, West and East while it shows a negative insignificant effect in Central Africa. With regard to financial institution depth, overall effect is positive and significant in all the regions. In the short-run, financial institutions access and financial institutions efficiency do not show any significant impact on foreign direct investment inflow FDI while financial institution depth has positive significant effect on FDI in the short-run in all regions excepted in Central Africa.

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