IMPACT OF FOREIGN DIRECT INVESTMENT (FDI) ON INDUSTRIALIZATION OF SELECTED DEVELOPING COUNTRIES: STRATEGIC POLICY OPTIONS, 2005-2020

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Abstract

This paper examines the causal impact of foreign direct investment (FDI) inflows on industrialization vis-a-vis the impact of control of corruption and political stability in 80 developing countries. Using dynamic panel data analysis, System GMM, the estimates show that an increase in foreign direct investment (FDI) inflows by 1 percentage point will increase the rate of industrialization by 0.11 percentage points. Furthermore, political stability is a potential mechanism to advance FDI's impact on industrialization as the interaction between FDI and political stability measures enhances the estimated impact to a significantly higher rate at 0.15 percentage points. Based on these findings, policymakers are advised to institute reforms aimed at removing hindrances to foreign investments, especially, the political architecture should be strengthened to ensure stability, reduce violence incidences, and control corruption. Scaling up industrialization, policymakers confront numerous policy choices and concerns to leverage attracting FDI inflows.

Keywords: Foreign Direct Investment, Industrialization, Control of corruption, Political stability, and System GMM

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Introduction

The increasing interdependence among nations and growing cross-border investment are crucial for inclusive and sustainable growth in contemporary global economy. Foreign direct investment (FDI) inflow, remains one of the most debated policy issues among policymakers and researchers in developing countries (DCs). There is a large volume of literature focusing on FDI, its impacts on economic growth and development, its determinants, and local absorptive capacity to support gains from FDI inflows. However, few studies exist on the investigation of the impact of FDI on industrial development in developing countries. Neoclassical theorists predict increasing industrial development in developing countries as interdependence and cross-border investment across the globe continue unabated (Porter, 1998; Bhagwati, 2002). Emma (2002) described FDI as not just a process by which assets are exchanged internationally but also as an international production process that

represents a transfer of package in which capital, management, and improved technology are combined.

One of the current concerns in developing countries is to what extent FDI inflows can support industrialization and policymakers are cautious to support foreign direct investment. It is the intention of this paper to examine the impact of FDI inflows on industrialization in a panel of 80 countries spanning over a period of 16 years (2005-2020) and to confirm the validity of the view of the optimists like the neoclassical economists that see developing countries benefiting from participating in the global market for FDI and to contribute to the literature on this topical debate among policymakers, economists, and political researchers in developing countries.

Studies by Akkemik (2009), Dahlman (2009), and Di Maio (2009) affirmed that East Asia benefited tremendously from FDI's positive externalities and attributed the industrial transformation of the region to FDI inflows. Several other studies, including Chen *et al*., (2015), Dong *et al*. (2011), and Borensztein *et al*., (1998), found that host countries could benefit from FDI through different channels, such as forward and backward linkages and technology transfers. Markusen and Venables (1999) and Rodriguez (1996) have shown theoretically that FDI could be a catalyst for industrialization. However, other strands of literature have suggested that FDI can have a debilitating impact on the industrialization process due to the growing competitive pressure that is capable of crowding out domestic firms (Kriaa *et al*. 2017; Gui-Diby and Renard 2015; Barrios *et al*. 2005; Konings 2001).

Studies of this nature are grounded in endogeneity and in this paper, endogeneity is addressed by adopting a dynamic panel data analysis, System Generalized Method of Moment (System GMM). System GMM has been proven in many empirical works to produce efficient estimates, as it uses both within-group variations in the data to instrument for the endogenous variable. Roodman (2009) which is an extension of Arellano and Bover (1995), used first-difference transformation of the data to eliminate the unobserved individual-level effects, and lagged levels of the variables used as instruments for the first-differenced variables. It is an approach that exploits the orthogonality conditions between the instruments and the error term and allows for a consistent estimate of the parameters.

The data for the analysis were extracted from the World Development Indicator (WDI) and the Worldwide Governance Index (WGI), both publicly available and accessible through the World Bank Group datasets. The approach adopted in this study is step-wise as three different econometrics techniques were used. Two of these were regarded as baseline comprising of ordinary least square (OLS) and the fixed effect (FE) models, the results of which were presented in Table 3 and 4 respectively. The system GMM estimates in Table 5 show that FDI inflows positively influenced the rate of industrialization. Specifically, an increase in FDI inflows by 1%point increases industrialization by at least 0.11% points. The impacts

increased to 0.15% points when an interaction between FDI and political stability is considered. While the result indicates that FDI has a significant impact on industrialization, the impact of other factors such as market size, labour participation, import and export, inflation, and institutional factors cannot be underestimated and should be given adequate attention to maximize the benefits from FDI inflows.

This study addresses a noticeable gap in the literature by controlling for control of corruption and political stability in the host countries as two critical institutional variables that could significantly influence the impact of FDI on Industrialization. Specifically, the study empirically unfolds the impacts of FDI on industrialization in 80 randomly selected middle-income level developing countries and provides answers to two important questions. First, do FDI inflows impact industrial development in developing countries? Second, to what extent can control of corruption and political stability influence the impact of FDI on industrialization in developing countries?

The study is structured into five sections. The first section is this introduction which presents the background to the study; the purpose of the study; the research questions and the objectives. Section two is a literature review; it reviews the theoretical perspectives and empirical evidence on FDI inflows in developing countries and its impact on their development in recent years. Section three describes the methodology adopted in the study; it presents the research design and approach, data sources and analysis techniques, limitations, and potential biases. Section four presents and discusses the results of the analysis and interprets the estimated parameters, while Section five concludes the discourse and makes recommendations.

Literature Review

To begin with, industrialization can be defined on the basis of national accounts indicators, and employment indicators. It is an increase in value-added of the manufacturing sector as a percentage of GDP (Chandra, 1992). In this regard, the realization of industrialization implies faster growth recorded in the manufacturing sector compared to other sectors. Echaudemaison (2003) opined that industrialization is observed through the increasing share of the secondary sector in terms of employment and GDP. It could be deduced that the analysis of the impact of FDI on industrialization can be illustrated from two different angles such as: (i) one based on key components of the supply and use table (SUT) of the economy and (ii) a second based on the impact on the sectorial distribution of jobs.

i. Theoretical Perspectives on FDI and Industrialization

To provide insight into the mechanism and dynamics underlying the complex relationship between FDI and industrialization, three prominent theoretical perspectives including Neoclassical, Dependency, and Technology Spillover theories are reviewed:

Neoclassical theory such as in Hosseini (2005) emphasizes the positive contributions of FDI to the economic and social development of the host countries as well as the role of market forces and efficiency in driving industrialization. It views FDI as a response to market imperfections, such as differences in factor endowments and market failures. The theory opines that FDI flows from capital-rich developed countries to labour-abundant developing countries, seeking lower production costs and higher profits (Dunning, 2000; Borensztein, 1999). According to Hermes (2003), developing countries require the advanced technologies produced by developed countries to enhance their industrial capacity and development and FDI remains the doorway to industrialization. As one of the notable neoclassical theories, endogenous growth theory emphasizes the role of technology in economic growth.

Dependency theory, on the other hand, looks at the structural inequalities and power imbalances between developed and developing countries (Gosh, 2001). This school of thought sees FDI as a tool for the domination and exploitation of developing countries by the imperialist using multinational companies to perpetuate economic deprivation. They argued that FDI can perpetuate a pattern of underdevelopment by reinforcing the dependence of developing countries on foreign capital, technology, and markets, thereby hindering efforts to build a self-sustaining industrial sector. Ghosh, (2001) and Brewer, (1990) provided insight into this theory by reviewing the ontology of dependency; Karl Marx on development and underdevelopment, and others.

The third perspective is the ***technology spill-over theory*** (Jovorcik, 2014) focuses on the potential knowledge and technology transfer from foreign investors to domestic firms via FDI which can stimulate industrial development by facilitating the diffusion of advanced technologies, managerial expertise, and best practices. Technological spillover happens in various means and channels, including backward linkages to domestic suppliers, training and skill upgrading of local workers, and demonstration effects that inspire domestic firms to effectively harness and adapt foreign technology. Empirical evidence suggests that FDI can generate technology spillover for domestic firms, especially through forward and backward linkages (OECD, 2014; Liu, 2008; and Javorcik, 2014).

ii. Empirical Review on the Impact of FDI on Industrialization in DCs

The discourse around the impact of FDI on industrialization in developing countries is yet to be concluded. Soreide (2001) affirms that FDI can reinforce

industrialization through technology transfer and industrial restructuring. Overall, the assumption behind the assertion that FDI fosters industrialization is associated with its positive externalities including technology transfer, the introduction of new processes and expertise in complex aspects of product development, job creation, productivity gains, and improved market access. All of which can promote the expansion of the industrial sector in terms of output and employment.
According to Markusen and Venables (1999), the impacts of FDI on industrialization in the host economy depend on two different effects including the competition and linkage effects. The competition effect evolves from the substitutable products produced by both local and foreign firms. The size of the effect increases with the size of the surplus of products present in the market as compared to the initial supply of the products before the foreign firms entered the market and decreases with the productivity of the local firms. Linkage effects, on the other hand, connect local suppliers with foreign firms. Specifically, if the intensity of usage of local inputs by foreign firms is lower compared to that of local firms, the exit of local firms producing final goods will be followed by the closure of domestic firms producing intermediate goods because the demand for their products will decline.

Chuang and Hsu (2004) investigated the relationship between FDI, trade, and spill-over efficiency in China's manufacturing sector and found the presence of foreign ownership to positively influence domestic firms' productivity. Moreover, the Chinese economy has benefited in terms of access to information and new technology which aided its output growth and enhanced its shares in global trade. Similarly, Barrios, Gorg, and Strobl (2005) studied the impact of FDI on domestic firms in Ireland and reported a positive and significant impact on domestic firms. They used Irish plant-level data from 1965 to 1970 and discovered that an increase in FDI enhances the concentration of firms in the industry. In another study, Kang and Lee (2011) investigated the role of FDI on industrialization, using the share of manufacturing employment in total employment and reported that inward FDI promotes industrialization while outward FDI produces opposite results for OECD countries. Also, in the study of China's East, Middle, and West regions, Daiyuel *et al*. (2012) examined the role of FDI on industrialization and found that FDI significantly influenced industrialization in the three regions.

In an earlier study, De Mello (1990) used time series and panel data on a sample of 32 OECD and non-OECD countries for the period 1970-1990 to estimate the effect of FDI on capital accumulation, output, and total factor productivity (TFP) growth in the host economy and found that FDI would raise long-run growth in the host economy through knowledge spillover and technology upgrading. Castellani and Zanfei (2003), in a firm-level study, using balanced panel data of manufacturing industries in France, Italy, and Spain over the period 1992-1997, found that the effect of FDI on the productivity of domestic firms was positive and significant for

Italy, significantly negative for Spain and produced insignificant effects on domestic firms in France. Also, Doytch and Uctum (2011) used data on 60 countries for the period 1990 – 2004 to estimate the impact of FDI on manufacturing and service growth by applying GMM, FE and Pooled OLS methods. They found that FDI wields a positive impact on the manufacturing sector in the Caribbean, Latin America, Europe, and Central Asia as well as in middle-income countries with a developed manufacturing base.

Other strands of literature held a dissenting opinion on the impact of FDI on industrialization. In this vein, Gui-Diby and Renard (2015) used panel data from 49 African countries over a period of 30 years between 1980 to 2009 to examine the relationship between inward FDI and industrialization in Africa while controlling for the size of the market, financial sector, and international trade, the result reveals that FDI's contribution is insignificant in the industrialization process in Africa. Masron and Hassan (2016), focused on the Malaysian manufacturing sector for the period 1999 to 2008 to investigate the spillover effects of US FDI by applying a seemingly unrelated regression (SUR) method and found that FDI inflows into various sectors within the manufacturing industry do not guarantee positive spillover effects. Luke Chana *et al* (2014), assert that cut-throat competition from foreign firms could lower the market share of domestic firms and may be inimical to industrialization. Besides, foreign firms may increase wages and prices of the local inputs, which may send local firms out of the market. De Backer and Sleuwaegen (2003) opine that increasing competition by the presence of foreign firms is a disincentive to domestic entrepreneurship.

Methodology

This study employs data from a sample of 80 developing countries covering 2005 to 2020, to determine the impact of FDI on industrialization. These countries are spread across Sub-Sahara Africa (SSA), Europe and Central Asia (ECA), East Asia and Pacific (EAP), Latin America and Caribbeans (LAC), Middle-East and North Africa (MENA), and lastly, South Asia (SA). *(See Appendix I for details)*. Both pooled OLS and fixed effect were used as the baseline models, while the System Generalized Method of Moments (system GMM) was adopted as the main identification strategy. Though the fixed effect technique captured countries' unobserved heterogeneity and preserved cross-country differences but could not address the endogeneity issue inherent in the study. The system GMM as a model of instrumental variable offers possible correction to the perceived endogeneity that may occur from measuring error, omission bias, reverse causality, and simultaneity problems in the study. Besides, the problem of weak instruments that characterized difference GMM is surmounted by the system GMM. Bond (2002), Heid *et al*. (2012) and Blundell and Bond (1998), through a Monte Carlo simulation, have

suggested system GMM as an efficient estimator compared to difference GMM estimator by Arellano and Bond (1991).

The study adopted Roodman (2009) as an extension of Arellano and Bover (1995) due to its capacity to limit instrument proliferation and at the same time control cross-sectional dependence (Baltagi 2008; Tchamyou 2019). Roodman's extension used a forward orthogonal dispersion as against the first differences. For the diagnostic tests, the test was conducted for the first-order and second-order autocorrelation of the error terms and the Hansen and Sargan test was, in addition, used to test for over-identification restriction.

Model Specification

This study is inspired by the modern endogenous growth theory due to its ability to tolerate key variables of the study in its assumptions. The cornerstone of the theory is the emphasis placed on the effectiveness with which a country's endowment e.g., technology progress, human and physical capital, knowledge capital, and other resources are employed in the production process. As noted by Sengupta (2011), technological progress here is conditioned on: (a) the level of labour force education and types of investment in research and development, (b) learning by attracting better technology from abroad through FDI or technology imports, and (c) the role of the institutions.

In line with existing literature simple model is specified as follows:

$$IND_{it} = \alpha IND_{it-1} + \beta fdi_{it} + \beta_2 X_{it} + \beta_3 Cont\_cor_{it} + \beta_4 Pol\_sta_{it} + (\gamma_1 Cont\_cor_{it} + \gamma_2 Pol\_sta_{it}) * fdi_{it} + \eta_i + \chi_i + \varepsilon_{it} \quad (1)$$

To avoid country effect bias equation (1) is estimated in difference as follows

$$IND_{it} - IND_{it-1} = \alpha(IND_{it-1} - IND_{it-2}) + \beta(fdi_{it} - fdi_{it-1}) + \beta_2(X_{it} - X_{it-1}) + \beta_3(Cont_{cor_{it}} - Cont_{cor_{it-1}}) + \beta_4(Pol_{sta_{it}} - Pol_{Sta_{it-1}}) + \gamma_1(Cont_{cor_{it}} * fdi - Cont_{cor_{it-1}} * fdi) + \gamma_2(Pol_{sta_{it}} * fdi - Pol_{Sta_{it-1}} * fdi) + (\chi_i - \chi_{i-1}) + (\varepsilon_{it} - \varepsilon_{it-1}) \quad (2)$$

The dependent variable for the study is industrialization denoted by IND_{it} in the model and is proxied by industrial value added as a percentage of GDP. It should be noted that manufacturing value-added has its roots in divisions 15-37 of ISIC and is widely used in literature as a proxy for industrialization as found in Musa *et al* (2021), Asongu and Odhiambo (2019), Gui-Diby and Renard (2015), UNIDO (2017) and Marconi *et al* (2016). The independent variable, on the other hand, includes Foreign Direct Investment (fdi_{it}) as main variable and matrix X_{it} which comprises of other control variables such as Gross Domestics Product per capita ($GDPpc_{it}$), Labour Participation Rate (LPR_{it}), Gross Fixed Capital Formation (CF_{it}), Export as percentage of GDP (EXP_{it}), Import as percentage of GDP (IMP_{it}), Inflation (INF_{it}),

Control of Corruption ($Cont\_cor_{it}$) and Politic stability and absence of violence (Pol_sta_{it}). η_i *in the equation* is the country fixed effect; χ_i is time fixed effect and ε_{it} is the error term.

Theoretically, FDI is expected to enhance industrialization in the host countries due to the diffusion of both technology and managerial know-how that are capable of expanding the domestic market. The linkage and competition effects as observed by Markusen and Venable (1999) would determine to a large extent the expected sign of selected variables in the study. These control variables were also favoured by Gui-Diby and Renard (2015); Emmanuel and Nkoa (2016). To capture the role of institutions in moderating the impact of FDI on industrialization, the study introduced the control of corruption and political stability into the model.

Data

The dataset comprises yearly observations of 80 lower and upper-middle-income developing countries from 2005 to 2020. For each variable, approximately 1154 observation were recorded. Data were sourced from World Development Indicator (WDI) and the Worldwide Governance Index (WGI). Employing panel data helps to control for individual heterogeneity and provides more information about the data, ensuring more variability, less collinearity among the variables, and a higher degree of freedom and efficiency (Baltagi, 2005).

From the descriptive statistics in Table 1 below, all variables, apart from the control of corruption and political stability, exhibited positive mean values and fell within the minimum and maximum estimates indicating an increasing tendency for all the variables, except two, with negative mean values. Similarly, Table 2 shows the report of correlation analysis for the variables in the study. It revealed a negatively insignificant relationship between FDI and industrialization. However, the relationship between FDI and control of corruption as well as political stability were positive and significant suggesting a moderating influence.

Table 1 and 2 showed the descriptive statistics and correlation matrix generated for this study:

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Table 1: Summary statistics

Variables	Measurement of variables	Mean	SD	Min	Max
IND	Industrialization proxied by Industrial Value Added (% of GDP)	29.80	11.58	5.050	86.67
FDI	Foreign direct investment, net inflows(%GDP)	4.088	4.856	-18.92	43.91
GDPpc	GDP per capita	10,617	6,551	1,388	41,249
CF	Gross fixed capital formation (% GDP) proxied Domestic invest.	24.12	8.532	2	81.02
LPR	Labour participation rate	64.12	10.31	41.47	89.65
IMP	Import as % of GDP	42.91	19.47	5.770	148.5
EXP	Export as % of GDP	7.645	22.14	-30.20	558.6
INF	Inflation rate	35.60	16.56	2.360	112.9
Cont_cor	Control of Corruption	-0.515	0.562	-1.673	1.663
Pol_sta	Political stability and absence of violence	-0.444	0.756	-2.826	1.284

Sources: Author's calculations based on various data sources

Table 2: Correlation matrix

	IND	FDI	GDPpc	INV	EXP	IMP	INF	Cont_cor	Pol_sta
IND	1								
FDI	-0.0409	1							
GDPpc	0.305***	0.0276	1						
CF	0.225***	0.228***	-0.0309	1					
EXP	0.446***	0.296***	0.319***	0.0746**	1				
IMP	-0.163***	0.387***	-0.0749**	0.242***	0.545***	1			
INF	0.0644*	-0.0140	-0.0351	-0.0982***	0.00514	-0.0362	1		
Cont_cor	-0.260***	0.0659*	0.168***	0.174***	0.110***	0.261***	-0.0915**	1	
Pol_sta	-0.0270	0.240***	0.216***	0.225***	0.349***	0.353***	-0.0596*	0.552***	1

Sources: Author's calculations based on various data sources

Empirical Results and Discussions

The empirical analysis and result presentation began with Table 3 which presents the Panel Ordinary Least Square (OLS). This shows an inverse relationship between FDI and industrialization. The result generated via this method cannot be relied upon due to the potential endogeneity among the regressors and reverse causality between FDI and industrialization. Table 4 presents the result of the Fixed Effect model which is considerably more reliable than OLS as it takes into account, the heterogeneity across countries. The result shows the impact of FDI is positive, however, it is insignificant. This aligned with some earlier literature that found an insignificant relationship between FDI and industrialization.

A systematic approach was adopted to depict both the result of the main effects i.e., when there is no interaction between FDI and control of corruption and political stability and also, when the interaction is considered. The arrangement of the models in the Table below from 1 to 6 was to reflect on the impacts of FDI when only traditional control variables are added (Model 1); when control of corruption and political stability were respectively controlled (Model 2 and 3); when an interaction between FDI and control of corruption and political stability were included (Model 4 and 5) and lastly, when regional dummy interacts with FDI (Model 6).

The baseline results as shown in Table 3 and Table 4 reveal an inconsistency in terms of the sign, magnitude, and statistical significance. As noted, the coefficient of FDI was negative and significant at a 1% level signifying an inverse relationship between FDI and industrialization in an OLS model while it is positive, however insignificant in the Fixed Effect model. These results were robust within the models whether with or without interactions, and unchanged even when regional interactions were added.

The main findings of the study are reported in Table 5 using the system GMM results overleaf, the initial level of industrialization is positive and statistically significant confirming the persistence of industrialization in developing countries i.e., current level of industrialization is to a large extent dependent on the previous year's level. Furthermore, in line with expectations, FDI plays a major role in the industrialization of developing countries as a 1% point increase in FDI inflows

stimulated industrialization by approximately 0.11% points. This impact was further increased to 0.15% points with the inclusion of the interaction term of FDI and political stability. In this regards, Soreide (2001) affirms the reinforcement of industrialization through technology transfer and that the spill-over effect dominates the competition effect of FDI on the domestic economy. This result is also in line with the submission of Markusen and Venables (1999) and the empirical findings of Kang and Lee (2011).

Regarding the control variables, the GDP per capita produced a signal contrary to expectation however negligible. This is not surprising due to the low purchasing power in developing countries. Consistently, the coefficient of capital formation, a proxy for domestic investment was positive and significant as expected. This explains the role of domestic investment in the industrialization process. The result cannot be exonerated from the increasing commitment of developing countries toward capital investment. In fact, most of the countries have earmarked significant parts of their annual budget to capital and infrastructural investment. This outcome coincides with those found by Haraguchi *et al* (2018) and Kang and Lee (2011).

Labour force participation is expected to enhance industrialization, however, findings from the analysis show otherwise as the coefficient is negative and significant. This can be likened to the low absorptive capacity of labour in developing countries, thus exposing the quality of labour available. Oyinlola *et al* (2020) confirmed this in their study on Sub-Sahara African countries. Export and import were statistically and economically significant as expected. They exhibited positive and negative signs respectively in line with the *a priori* expectation. Mendoza (2010), in support of international trade, stated that the learning curve of domestic firms and the complexity of export products would push local firms to learn from abroad.

Table 3: Impact of FDI on industrialization in developing countries (Pooled OLS)

	Dependent Variable: Industrial Value Added (% of GDP)					
	1	2	3	4	5	6
Variables	Controls	CC	Pol	FDI_cont	FDI_pol	R_dum
FDI	-0.293***	-0.325***	-0.266***	-0.453***	-0.266***	
	(0.0644)	(0.0574)	(0.0599)	(0.0728)	(0.0556)	
GDPpc	4.61E-05	0.000163***	0.000102**	0.000167***	0.000102**	6.63E-05
	(4.96E-05)	(4.49E-05)	(4.92E-05)	(4.49E-05)	(4.91E-05)	(5.37E-05)
INV	0.505***	0.548***	0.533***	0.533***	0.533***	0.479***
	(0.0323)	(0.0314)	(0.0312)	(0.0313)	(0.0312)	(0.0322)
LPR	-0.122***	-0.126***	-0.0805***	-0.130***	-0.0805***	-0.108***
	(0.0238)	(0.0219)	(0.0231)	(0.0219)	(0.023)	(0.026)
IMP	-0.392***	-0.334***	-0.369***	-0.330***	-0.369***	-0.380***
	(0.0269)	(0.023)	(0.0262)	(0.0228)	(0.0263)	(0.0273)
EXP	0.563***	0.535***	0.573***	0.530***	0.573***	0.545***
	(0.0272)	(0.0218)	(0.0258)	(0.0219)	(0.0258)	(0.0276)
INF	0.0575***	0.0454***	0.0538***	0.0458***	0.0538***	0.0529***
	(0.0192)	(0.0149)	(0.0179)	(0.0149)	(0.0179)	(0.0182)
FDI_EAP						0.404***
						(0.121)
FDI_ECA						0.553***
						(0.115)
FDI_MENA						0.395**
						(0.171)
FDI_SA						-0.817
						(0.561)
FDI_SSA						0.819***
						(0.131)
Cont_cor		-5.798***		-4.978***		
		(0.478)		(0.636)		
Pol_sta			-2.220***		-2.223***	
			(0.403)		(0.496)	
FDI_cont				-0.198**		
				(0.085)		
FDI_pol					0.000745	
					(0.0787)	
Observations	1,154	1,154	1,154	1,154	1,154	1,154
R-squared	0.58	0.642	0.594	0.644	0.594	0.596

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

Table 4: Impact of FDI on industrialization in developing countries (Fixed Effect)

	Dependent Variable: Industrial Value Added (% of GDP)					
	1	2	3	4	5	6
VARIABLES	Controls	CC	PS	FDI_cont	FDI_pol	R_dum
FDI	0.047	0.0453	0.0393	0.0615	0.0364	
	(0.0443)	(0.0437)	(0.0433)	(0.0639)	(0.0421)	
GDPps	0.000548***	0.000516**	0.000491***	0.000515**	0.000490***	0.000583***
	(0.00021)	(0.0002)	(0.00016)	(0.0002)	(0.00016)	(0.00021)
INV	0.219***	0.217***	0.203***	0.218***	0.203***	0.215***
	(0.0429)	(0.0437)	(0.0426)	(0.0437)	(0.0422)	(0.0431)
LPR	-0.203**	-0.189*	-0.185**	-0.187*	-0.187**	-0.199**
	(0.0989)	(0.0984)	(0.0923)	(0.1)	(0.0927)	(0.0979)
IMP	-0.281***	-0.280***	-0.270***	-0.281***	-0.270***	-0.282***
	(0.0392)	(0.0399)	(0.0389)	(0.0406)	(0.0389)	(0.0401)
EXP	0.430***	0.428***	0.419***	0.429***	0.419***	0.436***
	(0.0467)	(0.0465)	(0.0421)	(0.0461)	(0.0416)	(0.0454)
INF	0.0234***	0.0232***	0.0246***	0.0232***	0.0246***	0.0226***
	(0.00806)	(0.00804)	(0.00853)	(0.00806)	(0.00855)	(0.00759)
FDI_EAP						0.0486
						(0.0858)
FDI_ECA						0.177***
						(0.0459)
FDI_MENA						-0.116
						(0.194)
FDI_SA						-0.226
						(0.340)
FDI_SSA						0.0637
						(0.118)
Cont_cor		1.576		1.493		
		(1.067)		(1.076)		
Pol_sta			1.069		1.122	
			(0.692)		(0.772)	
FDI_cont				0.0225		
				(0.0731)		
FDI_pol					-0.0159	
					(0.0608)	
Observations	1,154	1,154	1,154	1,154	1,154	1,154
R-squared	0.632	0.635	0.637	0.635	0.637	0.639
Number of gid	80	80	80	80	80	80

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

Source: Author's presentation based on regression results obtained using STATA 17

In what appears to be the major contribution of this study, the inclusion of control of corruption and political stability and avoidance of violence. Control of corruption estimate captured the perception of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption. Also, political stability and absence of violence/terrorism measure the perception of the likelihood of political instability or politically motivated violence, including terrorism. As noted from the result in Table 5, the positive links between FDI and industrialization are further strengthened by these variables. However, the coefficient of these additional control variables was negative and significant reflecting the true situation and the abysmal ranking of most developing countries.

In Model 6 of Table 5, the heterogeneity across regions impacted significantly on the ability of FDI to bring about industrialization across regions. The effect across regions is captured by the coefficients of the interaction in terms of FDI and regional dummies. The result shows that East Asia and the Pacific increased industrialization rate by 0.25% points when FDI inflows increases by 1% points. Similarly, a positive effect is exhibited in Latin America and the Caribbean as well as in Sub-Saharan Africa, while, the Middle East and North Africa experience a negative impact of FDI on industrialization. However, FDI impact in the other two regions; Europe and Central Asia (ECA) and South Asia (SA) though positive but insignificant.

Table 5: Impact of FDI on Industrialization in developing countries (System GMM)

	Dependent Variable: Industrial Value Added (% of GDP)					
	1	2	3	4	5	6
VARIABLES	Control	CC	PS	FDI_cont	FDI_pol	R-dum
L.iva	0.344**	0.217**	0.231*	0.215**	0.226***	0.359***
	(0.145)	(0.0876)	(0.12)	(0.0867)	(0.0244)	(0.0971)
FDI	0.109*	0.105	0.136*	0.0728	0.148***	
	(0.0623)	(0.0687)	(0.0798)	(0.15)	(0.0247)	
GDPpc	-0.000480**	-0.000357*	-0.000468*	-0.000361*	-0.000468***	-0.000426**
	(0.00019)	(0.00021)	(0.00025)	(0.00022)	(0.0001)	(0.00006)
INV	0.345***	0.422***	0.436***	0.422***	0.440***	0.387***
	(0.0977)	(0.1)	(0.118)	(0.0979)	(0.0268)	(0.0211)
LPR	-0.147**	-0.172**	-0.116	-0.171**	-0.116***	-0.193**
	(0.0718)	(0.0751)	(0.0858)	(0.074)	(0.0393)	(0.0289)
IMP	-0.468***	-0.477***	-0.504***	-0.476***	-0.507***	-0.437***
	(0.095)	(0.0999)	(0.11)	(0.0988)	(0.0201)	(0.0927)
EXP	0.560***	0.590***	0.680***	0.589***	0.684***	0.538***
	(0.104)	(0.096)	(0.105)	(0.0973)	(0.0249)	(0.0883)
INF	0.0333**	0.0269*	0.0283*	0.0275*	0.0281***	0.0477**
	(0.0132)	(0.0148)	(0.0165)	(0.0147)	(0.00651)	(0.0206)
FDI_EAP						0.254**
						(0.709)
FDI_ECA						-0.017
						(0.575)
FDI_MENA						-1.048**
						(0.264)
FDI_SA						0.617
						(0.964)
FDI_SSA						0.056***
						(0.015)
FDI_LAC						1.094***
						(0.313)
Cont_cor		-4.208		-4.047		
		(3.056)		(2.957)		
Pol_sta			-3.893*		-4.138***	
			(2.031)		(0.523)	
Fdi_cont				-0.0354		
				(0.134)		
Fdi_pol					0.0459	
					(0.0548)	
Observations	1,080	1,080	1,080	1,080	1,080	1,080
Number of cid	79	79	79	79	79	79
AR(2)	0.651	0.404	0.445	0.392	0.384	0.792
Hansen	0.209	0.306	0.401	0.281	0.373	0.2

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

The test for the validity of the statistical inference of the estimated coefficients was examined. First-order (AR1) and second-order (AR2) autocorrelation tests confirmed the absence of serial correlation in the model. Also, Hansen and Sargan's tests of over-identification restrictions established the absence of correlation between the instruments and the error terms.

Summary, Conclusion and Policy Recommendations

The paper examines the causal impact of FDI inflows on industrialization in 80 developing countries within the period of 2005 and 2020. The result indicates that FDI has a significant impact on industrialization. A 1% point's increase in FDI inflows is projected to stimulate industrialization by 0.11% points, all things being equal. The result remains robust to the inclusion of control of corruption and political stability and the absence of violence. While the persistence of industrialization was confirmed, coefficients of variables such as FDI, domestic investment, export and inflation were positive and significant. Others including GDPpc, import, control of corruption and political stability were negative, however significant. This suggests some of the reasons why studies on the impact of FDI on industrialization have been inconclusive and the need for policymakers and think-tanks in developing countries to strategize further to drive FDI that would be impactful into their domains.

The findings from the study generate policy suggestions to drive industrial development in developing countries as a driver of sustained prosperity and a key enabler for sustainable development. More emphasis needs to be placed on strengthening the political environment to ensure stability and security for both local and foreign investors. UNCTAD, in its agenda for the future of investment and development stated that to meet the challenge of investment for development, most especially to achieve the UN's Sustainable Development Goals (SDGs), nation-states need to reconfigure investment policies to better harness the contribution of Transnational Companies (TNCs) for development, especially in light of the contemporary TNC universe and the new balance between the public and private sectors (UNCTAD, 2014).

Policies aimed at maximizing the benefits of FDI certainly need to be context-specific, considering the diversity of the developing countries in terms of their factor endowments, institutions, geography, labour composition, market size and lastly political power, among other features. However, a number of policy considerations can be applied, given the findings that are applicable across the countries in the study (UNECA, 2016; Perez, 2014; Farole and Winker, 2014; Moran, 2014). Such policies can be divided into two areas. The first area includes policies to attract and retain the right type of FDI such as putting in place non-selective policies to attract foreign investors and support the local firms. Also, policies like upgrading the

activities and investment of existing FDI, such as developing labour force to engage with new activities, supporting the availability and reliability of supplier networks, investing in infrastructures and strengthening the country's legal framework to support investment. The second area of policy considerations involves better engagement with existing and potential foreign investors in order to understand their priorities and constraints, given the complexity of their subsidiary-headquarters relationship and motivation.

This study is limited by the non-availability of sectoral FDI inflows to developing countries and each countries covered could possibly have different motives for attracting FDI. Further study can be conducted on this amidst the availability of sectoral FDI data.

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