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Implications of Foreign Capital Inflows on Manufacturing Sector in Third World Countries: A Nigerian Experience

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Abstract: As the world jostle for improved manufacturing and industrial technologies, third world countries in Africa, especially Nigeria still battles with the use of primitive tools in a technologically advancing world. This industrial bias in the country has led to abject poverty among the citizens, coupled with increasing tendencies of starvation, terrorism, banditry, kidnapping and youth unemployment being at 33% for the first quota of the year. To ameliorate this deficiencies and increase manufacturing sector performance in the economy, the government strives to achieve more foreign capital inflows in other to supplement the local production capacity. This study therefore aims to re-validate the implications this inflow has on local manufacturing sector in the country by re-assessing the implications of foreign capital inflows on manufacturing sector in third world countries: A Nigerian experience. Objectively the study is situated to examine the nexus between foreign portfolio investment, foreign direct investment and foreign development assistance with manufacturing sector productivity from 1981 to 2019, with statistical evidence obtained from central bank of Nigeria annual financial report for the year 2020. The study regressed for statistical stationarity of the variables using Augmented dickey and fuller test criterion, johansen test for cointegration to establish the nature of relationship between the parameter estimate in the model. Multiple regression analysis was carried out to substantiate the individual implications of the regressors on the regressed. Furthermore, the outcome of empirical evaluation is indicative of the existence of a short run relationship among the variables. It was likewise obtained that foreign direct investment (FDI) and exchange rate (EXCHR) were additively related to manufacturing sector productivity in Nigeria, while foreign portfolio investment (FPI) and interest rate (INTR) witnessed relative negative association ship with manufacturing productivity (MANU), which implies that a percent increase in the volume of foreign portfolio investment would equate 2.50% decline in local manufacturing capacity. The study recommended the adoption of endogenous growth model in Nigeria, while concluding based on theorization and argument against foreign capital inflows on its negative crowding out effect, it exerts on local industries in the country, that to achieve growth in the manufacturing sector, the country must evolve and begin a gradual industrial transition from primitive tools to the use of more advanced machines.

Keywords: Manufacturing Sectors, Umuahia, Nigeria

1. Introduction

One of the key ways capital-strapped nations supplement insufficient local capital for investment objectives is through the entrance of foreign capital. Indeed, these inflows are dispersed through foreign loans and credits, foreign direct investment (FDI), and foreign portfolio investment (FPI) (Cross Border Borrowing). The transfer of resources like capital, technology, and management is essentially what foreign direct investment is. IMF defined FDI as an investment made to obtain a long-term stake (at least 10% of voting stock) in a business operating in a country other than the investor's own to have a meaningful say in the business' management [12].

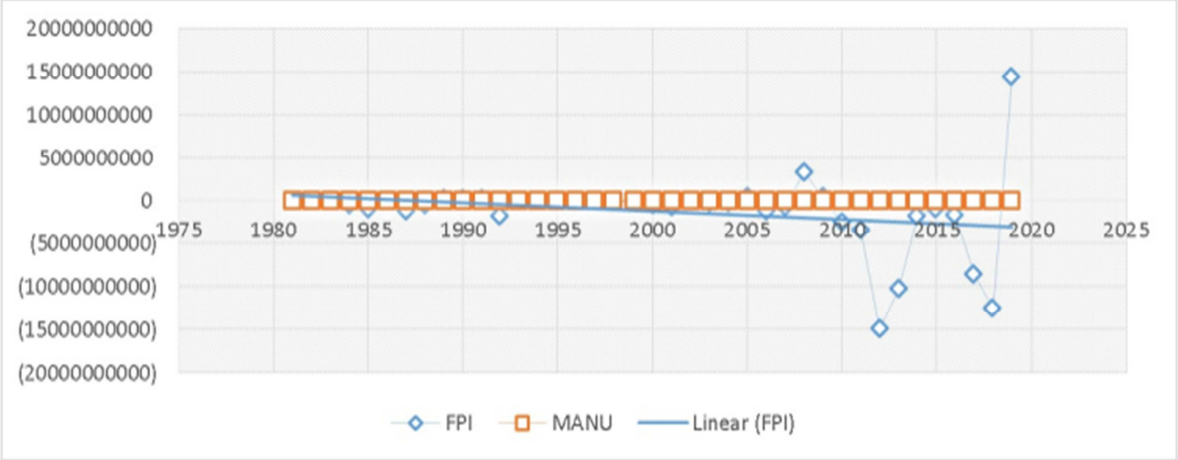
Capital inflows are the primary driver of economic growth because they provide the much-needed funding for investments, boost competition in the host country's industries, and help local businesses increase productivity

by implementing more productive technologies and investing in human and physical capital. Similar to this, FPI is defined as the transfer or purchase of financial assets through investments made by citizens, businesses, and institutions of one country in the securities of another, either directly through the companies' assets or indirectly through the financial markets. Since foreign money is viewed as a crucial component of the process of economic progress, its requirement to supplement domestic resources in the process has been welcomed as a catalyst for development. Overseas Development Assistance (ODA) was the main type of cash influx into Nigeria during the 1960s and 1970s (ODA) [17].

Studies show that Nigeria is one of Africa's top countries for international capital inflows. Nigeria got 11% of all capital inflows to Africa and 70% of all capital inflows to West Africa, according to UNCTAD [17]. Nigeria was among the top five recipient nations of foreign investment in Africa. Additionally, Nigeria recorded approximately US$6.4 billion in FDI and FPI in 2013, second only to South Africa, according to African Economic Outlook [1].

Exports from the manufacturing sector have several positive effects that are essential for economic change and play a catalytic function in the modern economy. Regarding an increase in the percentage of the Gross Domestic Product contribution, the manufacturing sector is particularly significant in the process of industrialization. As a potential engine of growth, modernization, industrialization, globalization, the creation of skilled jobs, and a producer of positive spillover and multiplier effects, the manufacturing sector export is of particular interest in this study [10].

As a result, the relationship or connection between capital inflows and manufacturing sector productivity is based on the idea that export growth, particularly for manufacturers, encourages specialization, which then increases productivity, particularly if the country has access to new technologies and better management techniques through Foreign Direct Investment and other capital inflows.



Source: Researchers Desk 2022.

Figure 1. *Trend of manufacturing sector output as a function of foreign portfolio investment.*

However, due to capital inadequacy and technological backwardness seen in most third-world countries, particularly African extract countries and, in particular, Nigeria, the need to supplement manufacturing productivity through the attraction of foreign capital inflows has remained the primary goal toward industrial growth and development of these regions of the globe, despite vastly lacking the likely requirements of improved financial systems, adequate infrastructural development, and so on. These countries see foreign capital inflows as the best way to conceal their unproductive industrial policies by crowding out domestic producers while providing tax breaks to foreign firms. However, this political gesture has proven to be addictive and has a positive implication on the nation's manufacturing output growth, as depicted above figure, where manufacturing sector output was regressed with foreign inflows of capital, indicating that increasing the presence of foreign companies in the country would result in further growth in the country's manufacturing productivity trend.

However, the country's administrative structure is more concerned with the short-term facts and figures depicted above, rather than the long-term local content utilization and potential local industrial revolution from third-world countries, although researchers and policymakers alike have advocated for technological and technical know-how transfer from well-developed and industrialized countries of the world to third-world countries as the most foreseeable and irreversible benefits accrued to them from foreign investment. As a result, the researcher wonders if this is why, despite its vast natural resource endowment, Nigeria remains a consuming nation. Is foreign capital inflows directly responsible for global poverty and inequality? Is there still hope for third-world countries to develop their respective industrial units without foreign intervention? And could the development of third-world countries lead to a surplus of goods and services from technologically advanced countries?

2. Aims of Study

Manufacturing activities in Nigeria have over the years witnessed massive inflows of foreign capital investment. This investment trend has boosted the Nation's employment generation capacity, improved national income, and led to export re-orientation in the manufacturing sector of the country. However, the economic success witnessed in the activity sector of the country is only linked to external investment, implying that the country's industrial and manufacturing growth has not been homegrown over the years, which further buttresses the crowding-out effect massive inflow of foreign investment has on local content production and utilization in the nation. it is against this necessary evil, that the study examines the economic implications of foreign capital inflows on manufacturing sector productivity in third world countries: A Nigerian experience.

3. Literature Review

3.1. Foreign Capital Inflows and Manufacturing Sector Productivity

Several more economies (particularly developing countries) now see attracting foreign direct investment as an important component of their economic development strategy. This is most likely due to the perception of FDI as a combination of capital, technology, marketing, and management. Sub-Saharan Africa as a region must now rely heavily on FDI for a variety of reasons, some of which are emphasized by Asiedu [5]. The preference for FDI stems from its well-known benefits [14].

According to Asiedu [5]., Nigeria qualifies to be a major recipient of FDI in Africa due to its natural resource base and large market size and is one of the top three leading African countries that have consistently received FDI over the last decade. However, Nigeria's FDI level is mediocre when compared to its resource base and the potential need. Furthermore, despite numerous studies that have examined the influence of FDI on Nigeria's economic growth with varying results, the empirical link between FDI and the growth of the manufacturing sector in Nigeria remains unclear [4].

The majority of previous studies on foreign direct investment and the expansion of the manufacturing sector in Sub-Saharan Africa have been multi-country studies. Recent evidence, however, suggests that the relationship between FDI and the manufacturing sector may be country and time-specific. According to Asiedu [5]., the determinants of FDI in one region may not be the same in another. Similarly, the determinants of FDI in different countries within a region may differ. Dipak and Ata [7] summarized the Nigerian economic scenario and the role of the manufacturing sector by identifying the major obstacles that have historically hampered its development and growth. Insecurity, political instability, market-distorting state-owned monopolies, weak infrastructure, and a lack of finance are among the obstacles.

3.2. Implications of Foreign Capital Inflow on Innovative Capacity

The above motion substantially slows the transfer of technology to the host country. However, Bernstein and Molinen [11] discovered that host-country firms could reap appropriate productivity benefits from R&D performed by foreign-owned firms, regardless of where it is performed, via imports of intermediate goods produced by the foreign firm and other channels. They also discovered that R&D performed by foreign firms increases the rate of return on R&D and other innovating activities performed by domestically owned firms. Globally, one of the direct benefits of FDI has been demonstrated to be innovation. As a result of the increased competition in the host country market, FDI forces local firms to innovate to remain competitive.

Olokoyo, [16] examined the effects of Foreign Direct Investment (FDI) on the development of the Nigerian economy. The paper tried to answer the question: what are the FDI determinants in Nigeria and how do they affect the Nigerian economy? The study employed the use of the Ordinary Least Square (OLS) regression technique to test the time series data from 1970 – 2007. The Cochrane-Orcutt iterative method was also used to correct for autocorrelation. The model used hypothesizes that there is a functional relationship between the economic development of Nigeria using the real gross domestic product (RGDP) and Foreign Direct Investment. The regression analysis results do not provide much support for the view of a robust link between FDI and economic growth in Nigeria as suggested by extant previous works of literature. Though the result does not imply that FDI is unimportant, the model analysis reduces the confidence in the belief that FDI has exerted an independent growth effect in Nigeria.

Obiechina and Ukeje, [13]. Examined the impact of capital flows (foreign direct investment), exchange rate, export and trade openness on economic growth in Nigeria as well as the causal long-run relationship among the variables, using time series data from 1970 – 2010. Using Engle-Granger 2-Step procedure, it was observed that all the variables, except the fdi are statistically significant and impact on economic growth in the short-run dynamic equilibrium model. Exogeneity test confirmed that fdi has weak exogeneity with economic growth. In addition, the Pairwise Granger causality revealed the existence of uni-directional causality between economic growth and FDI, and uni-directional and bi-directional causality among some of the variables.

Olaleye [15] empirically examines the effect of Foreign Direct Investment on the Nigerian economy over the period 1980-2009. His study, "Foreign Direct Investment and its Effect the Nigerian Economy", considers growth determining variables in the economy such as balance on current account (balance of payment), inflation and exchange rate and their effect on FDI in relation to GDP. Econometric models were developed to investigate the relationships between the aforementioned variables and discover that foreign direct investments have positive and significant impact on current

account balance in Balance of payment. While inflation was seen not to have significant impact on foreign direct investment inflows, while the exchange rate has positive effect on foreign direct investment in Nigeria.

Akanyo and Ajie, [3] evaluated the impact of capital flows on the level of economic growth in Nigeria. Based on empirical findings from dataset spanning 1981-2016, and using Johansen cointegration test, the paper showed that net capital flow significantly and positively influenced the level of economic growth in Nigeria. The results revealed that a net increase in capital flows, especially of Foreign Direct Investment by 1 per cent would increase the level of economic growth by 3 per cent in Nigeria, while a percentage increase in foreign capital inflows, holding outflows constant, leads to 40 per cent increase on the level of economic growth. The lower elasticity of net flows could be explained by a number of factors such as high level of corruption, political instability, lack of confidence on the domestic currency, that leads to capital flight in the economy.

4. Theoretical Framework and Methodology

Most third-world countries' dependency ratio is expected to remain unchanged as a result of renewed zeal for importation and increased policies to slow the growth of local manufacturing units, resulting in products deemed unfit for human consumption, combined with high handedness over operation costs, government regular regulation demands, infrastructural decadence, and general ethnocentrism among third-world nationals. The dependency theory emphasizes these issues and more, indicating that developing countries' poverty is caused by: imperial neglect; overdependence on primary products as exports to developed countries; foreign investors' malpractices, particularly through the transfer of price mechanics; foreign firms' control of key economic sectors with crowding-out effect on domestic firms; implantation of inappropriate technology in developing countries; and introduction of inappropriate technology. Based on the dependency theory postulates discussed above, the following empirical model is developed to assess the economic impact of foreign capital inflows on manufacturing sector productivity in Nigeria.

$$\text{LogMANP}_t = \alpha 0 + \text{Log}\alpha 1\text{EXCHR}_t + \text{Log}\alpha 2\text{FAID}_t + \text{Log}\alpha 3\text{FPI}_t + \text{Log}\alpha 5\text{INTR}_t + \text{Log}\alpha 6\text{FDI}_t + u_t$$

The study adopted multiple regression analysis and error correction mechanisms to test the long-run and short-run properties of the variables under study (provided they are co-integrated). OLS estimation technique will be employed and a unit root test will be carried out to check for stationarity, co-integration, and error correction mechanism will be employed to test for the long-run and short-run relationship between the dependent variables and the explanatory variables. The study model was structured after the work of [9]. The study regressed manufacturing sector productivity as the dependent variable (MANP), while the regressors explain the effect of foreign capital inflows on manufacturing sector productivity with is the exchange rate (EXCHR), foreign direct investment coming into Nigeria (FDI), foreign portfolio investment (FPI), foreign development assistance (FAID) and interest rate.

5. Results and Discussion

To provide an empirical overview of the relational association ship between foreign capital inflows and manufacturing sector productivity in third world countries, with Nigeria in view, the study regressed the series for stationarity.

5.1. Augmented Dickey-Fuller Stationarity Test

Augmented Dickey and fuller tests were implored to justify the stationarity of the series regressed to examine the economic implication of foreign capital inflows on manufacturing sector productivity in Nigeria, which is line with the procedure of [15]. The coefficient of exchange rate becoming stable after the first difference was taken at the probability values of 0.0061%, implying that, the inflows of foreign capitals weakens the exchange rate abilities of the naira, given the propensity of most foreign multinational companies to operate their businesses in the dollar, while foreign development assistance was stationary at level. Foreign direct investment became only statistically stationary after the second difference was taken, given the volatility inherent in the values of foreign direct investment inflows in the country, while the coefficient for foreign portfolio investment and interest rate became stationary at the level and first difference respectively as seen in appendix one.

5.2. Test of Long-Run Relationship

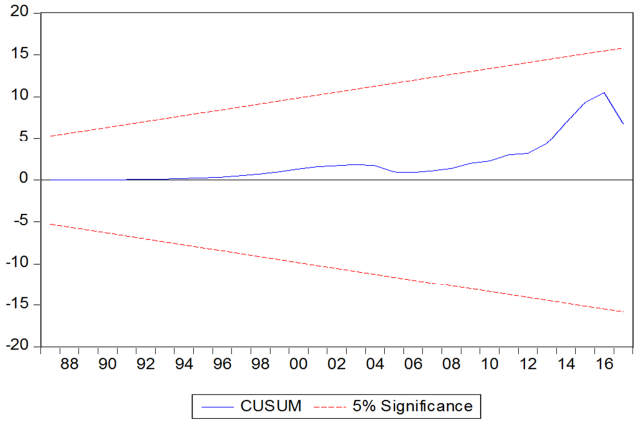
The study likewise sorts to assess the nature of the relationship between foreign capital inflows and manufacturing sector productivity in the country, by regressing for cointegration among the series. The outcome of the probability values, therefore, indicates the absence of a sustainable long-run relationship between foreign capital inflows and manufacturing sector productivity in the country. The outcome further buttresses that, foreign capital inflows hinder the growth and sustainability of local manufacturing companies in the host countries through the crowding-out effect. This result could further be linked to the degree and intensity of backwardness witnessed in Africa and Nigeria at large, where the dependency on foreign capital has resulted in a loss of local innovativeness, which has hampered the growth of African countries while harnessing the inflows of foreign capital into the nation. however, the result is in alignment with the findings of Obiechina and Ukeje, [13], who observed the absence of run relationship between capital flow, exchange rate, trade openness and economic growth in Nigeria. Evidence is seen in appendix seven.

5.3. The Economic Implication of Foreign Capital Inflow on Manufacturing Sector Productivity

To rationalize the effect of foreign capital inflows on manufacturing sector productivity in Nigeria, a multiple regression approach to the best linear unbiased estimator was used to elucidate this fact. Following the empirical exposure, interest rates reflected a native and insignificant relationship ship with manufacturing sector productivity in Nigeria, which justifies the pressure exerted on the financial system by massive inflows of foreign investors, which would skyrocket the interest rate and make it more difficult for local companies to cope with, resulting in the crowding out of local manufacturing companies in the country. Foreign portfolio investment also had a negative effect on manufacturing productivity in the country, implying a deductive implication on local manufacturing productivity values, resulting in a more than 2.50 percent decrease in the manufacturing sector's values. The findings support Adejumo's [2] empirical claim that foreign investment has a negative impact on manufacturing sector output. Furthermore, the findings indicated that foreign direct investment, foreign assistance inflows, and the exchange rate had an additive effect on the country's manufacturing output, which is in line with the empirical position of Obiechina and Ukeje, [13], who asserted that foreign direct investment has a significant positive effect on economic growth.

5.4. Recursive Stability Test

To checkmate the statistical stabilities of the variables implored on the regression line in estimating the economic implications of foreign capital inflows on manufacturing sector productivity in Nigeria, the study regressed for cusum test for significance.



Source: Author's Desk [6].

Figure 2. *Recurve Cusum test for model stability.*

The indications of the trend lines remaining within the boundary justify the variable's stability in measuring the economic implications of foreign capital inflows on manufacturing sector productivity in Nigeria at a five percent level of statistical significance. This, therefore, justifies that the model; $LogMANP_t = \alpha 0 + Log\alpha 1EXCHR_t + Log\alpha 2FAID_t + Log\alpha 3FPI_t + Log\alpha 5INTR_t + Log\alpha 6FDI_t + u_t$ is statistically significant in regressing the relationship between capital inflows and manufacturing sector productivity in the economy. This outcome agrees with the findings of Olaleye [15] who examined capital flows on economic growth in Nigeria and obtained stability of his model to stabilize economic growth in Nigeria.

6. Conclusion

The study was a direct effort to assess the economic implications of foreign capital inflows on manufacturing sector productivity in third world countries: A Nigerian experience. The study was necessitated by the degree of foreign multinational inflows in the industrial sector of the Nigerian economy, which has resulted in the crowding out of her local industries, with basic industrial materials in the country now produced by foreign-owned firms at the expense of the local industries in the country. Thus, the broad objective of the study bordered on understanding the very implication of these inflows on the industrial sector of the country, which empirical result aligns with the views of; Olokoyo, [16], who asserted empirically that foreign direct investment has no significant impact on economic growth in the country throughout his review. The result further justified this empirical assertion by obtaining foreign portfolio investment inflow to reflect a negative relationship with manufacturing sector productivity in the country throughout this empirical review. The result, therefore, postulates that foreign portfolio investment inflows the are grossly at the bedrock of our industrial sector decadence in Nigeria, import dependency, mono-economy orientation, poverty, and gross values of the youth unemployment rate, hence the local industrial sector that should create meaningful employment opportunities for the teeming population are crowded out by the inflow of this capitals into the country. The study, therefore, concludes that foreign capital inflows have a negative adverse implication on industrial sector productivity in Nigeria; while noting that, the industrial revolution in Nigeria can only occur to local content consumption and dependency.

7. Recommendation

The study recommends based on the empirical findings that the government should monitor and checkmate the efficiency of foreign portfolio investment in the country, hence it does not improve local manufacturing in the nation, but rather has a crowding-out effect over local industries in the country given known the best ways to regulate their activities in the nation over time. There should therefore be a deliberate and well-calculated effort by the government to increase financial access to local manufacturers while lowering the interest rate and providing an industrial-friendly atmosphere for indigenous manufacturing companies to thrive in the country.

Appendix

Table 1. *First difference exchange rate unit root output.*

Null Hypothesis: D(EXCHR) has a unit root				
Exogenous: Constant, Linear Trend				
Lag Length: 0 (Automatic - based on SIC, maxlag=9)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.422952	0.0061
Test critical values:	1% level		-4.226815	
	5% level		-3.536601	
	10% level		-3.200320	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(EXCHR,2)				
Method: Least Squares				
Date: 06/15/22 Time: 18:51				
Sample (adjusted): 1983 2019				
Included observations: 37 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EXCHR(-1))	-0.737967	0.166849	-4.422952	0.0001
C	-7.344224	6.335513	-1.159215	0.2544
@TREND("1981")	0.436131	0.288080	1.513923	0.1393
R-squared	0.365370	Mean dependent var		-0.049414
Adjusted R-squared	0.328039	S.D. dependent var		21.24586
S.E. of regression	17.41591	Akaike info criterion		8.630251
Sum squared resid	10312.68	Schwarz criterion		8.760866
Log likelihood	-156.6596	Hannan-Quinn criter.		8.676298
F-statistic	9.787282	Durbin-Watson stat		1.860975
Prob(F-statistic)	0.000439			

Table 2. *Foreign aid Unit Root Test Result at levels.*

Null Hypothesis: FAID has a unit root				
Exogenous: Constant, Linear Trend				
Lag Length: 1 (Automatic - based on SIC, maxlag=9)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.407451	0.0063
Test critical values:	1% level		-4.226815	
	5% level		-3.536601	
	10% level		-3.200320	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(FAID)				
Method: Least Squares				
Date: 06/15/22 Time: 18:52				
Sample (adjusted): 1983 2019				
Included observations: 37 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FAID(-1)	-0.793030	0.179929	-4.407451	0.0001
D(FAID(-1))	0.322131	0.164377	1.959712	0.0585
C	-5.92E+08	6.07E+08	-0.975756	0.3363
@TREND("1981")	85999000	32048155	2.683431	0.0113
R-squared	0.374118	Mean dependent var		94109459
Adjusted R-squared	0.317220	S.D. dependent var		2.05E+09
S.E. of regression	1.69E+09	Akaike info criterion		45.43675
Sum squared resid	9.44E+19	Schwarz criterion		45.61091
Log likelihood	-836.5799	Hannan-Quinn criter.		45.49815
F-statistic	6.575195	Durbin-Watson stat		1.957144
Prob(F-statistic)	0.001315			

Table 3. *Foreign direct investment Unit Root Test Result at Second difference.*

Null Hypothesis: D(FDI,2) has a unit root				
Exogenous: None				
Lag Length: 0 (Automatic - based on SIC, maxlag=9)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-2.962830	0.0042
Test critical values:	1% level		-2.630762	
	5% level		-1.950394	
	10% level		-1.611202	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(FDI,3)				
Method: Least Squares				
Date: 06/15/22 Time: 18:54				
Sample (adjusted): 1984 2019				
Included observations: 36 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI(-1),2)	-1.495920	0.504895	-2.962830	0.0055
R-squared	0.184180	Mean dependent var		2.31E+08
Adjusted R-squared	0.184180	S.D. dependent var		1.64E+09
S.E. of regression	1.48E+09	Akaike info criterion		45.09695
Sum squared resid	7.67E+19	Schwarz criterion		45.14093
Log likelihood	-810.7450	Hannan-Quinn criter.		45.11230
Durbin-Watson stat	1.080932			

Table 4. *Foreign portfolio investment Unit Root Test Result at levels.*

Null Hypothesis: FPI has a unit root				
Exogenous: None				
Lag Length: 6 (Automatic - based on SIC, maxlag=9)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-6.137438	0.0000
Test critical values:	1% level		-2.639210	
	5% level		-1.951687	
	10% level		-1.610579	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(FPI)				
Method: Least Squares				
Date: 06/15/22 Time: 18:55				
Sample (adjusted): 1988 2019				
Included observations: 32 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FPI(-1)	-1.419558	0.231295	-6.137438	0.0000
D(FPI(-1))	1.556267	0.315725	4.929190	0.0000
D(FPI(-2))	1.077678	0.336322	3.204303	0.0037
D(FPI(-3))	0.989925	0.256191	3.864017	0.0007
D(FPI(-4))	0.722119	0.277486	2.602362	0.0153
D(FPI(-5))	1.634704	0.252862	6.464811	0.0000
D(FPI(-6))	1.749736	0.303956	5.756538	0.0000
R-squared	0.834589	Mean dependent var		4.85E+08
Adjusted R-squared	0.794890	S.D. dependent var		5.85E+09
S.E. of regression	2.65E+09	Akaike info criterion		46.42257
Sum squared resid	1.75E+20	Schwarz criterion		46.74320
Log likelihood	-735.7611	Hannan-Quinn criter.		46.52885
Durbin-Watson stat	2.170291			

Table 5. *Interest rate Unit Root Test Result at first difference.*

Null Hypothesis: D(INTR) has a unit root				
Exogenous: Constant, Linear Trend				
Lag Length: 1 (Automatic - based on SIC, maxlag=9)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-5.320362	0.0006
Test critical values:	1% level		-4.234972	
	5% level		-3.540328	
	10% level		-3.202445	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(INTR,2)				
Method: Least Squares				
Date: 06/15/22 Time: 18:56				
Sample (adjusted): 1984 2019				
Included observations: 36 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INTR(-1))	-1.436235	0.269951	-5.320362	0.0000
D(INTR(-1),2)	0.189215	0.173945	1.087788	0.2848
C	1.006222	1.306775	0.770004	0.4469
@TREND("1981")	-0.045149	0.056858	-0.794078	0.4330
R-squared	0.617757	Mean dependent var		0.014248
Adjusted R-squared	0.581922	S.D. dependent var		5.417883
S.E. of regression	3.503147	Akaike info criterion		5.449640
Sum squared resid	392.7053	Schwarz criterion		5.625586
Log likelihood	-94.09351	Hannan-Quinn criter.		5.511050
F-statistic	17.23880	Durbin-Watson stat		1.884695
Prob(F-statistic)	0.000001			

Table 6. *Manufacturing sector productivity Unit Root Test Result at levels.*

Null Hypothesis: MANU has a unit root				
Exogenous: Constant				
Lag Length: 5 (Automatic - based on AIC, maxlag=9)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			5.633699	1.0000
Test critical values:	1% level		-3.646342	
	5% level		-2.954021	
	10% level		-2.615817	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(MANU)				
Method: Least Squares				
Date: 06/15/22 Time: 19:01				
Sample (adjusted): 1987 2019				
Included observations: 33 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
MANU(-1)	0.757503	0.134459	5.633699	0.0000
D(MANU(-1))	-0.259882	0.276720	-0.939151	0.3563
D(MANU(-2))	-1.639135	0.285483	-5.741622	0.0000
D(MANU(-3))	-0.759731	0.318190	-2.387668	0.0245
D(MANU(-4))	-1.597877	0.319962	-4.993954	0.0000
D(MANU(-5))	-1.492595	0.592455	-2.519339	0.0182
C	23.01250	42.39778	0.542776	0.5919
R-squared	0.964798	Mean dependent var		507.3458
Adjusted R-squared	0.956674	S.D. dependent var		886.9284
S.E. of regression	184.6135	Akaike info criterion		13.46024
Sum squared resid	886135.9	Schwarz criterion		13.77768
Log likelihood	-215.0939	Hannan-Quinn criter.		13.56705
F-statistic	118.7641	Durbin-Watson stat		1.991804
Prob(F-statistic)	0.000000			

Table 7. *Johansen Test for Cointegration Output.*

Date: 06/15/22 Time: 19:16					
Series: FDI EXCHR FAID INTR FPI					
Sample: 1981 2019					
Included observations: 39					
Null hypothesis: Series are not cointegrated					
Cointegrating equation deterministics: C					
Automatic lags specification based on Schwarz criterion (maxlag=9)					
Dependent	tau-statistic	Prob.*	z-statistic	Prob.*	
FDI	-0.935069	0.9973	-5.740786	0.9822	
EXCHR	-2.683760	0.7547	-12.20685	0.7688	
FAID	-3.766805	0.2737	-20.71227	0.2738	
INTR	-3.548043	0.3648	-244.2254	0.1200	
FPI	-4.154534	0.1654	14.17943	1.0000	
*MacKinnon (1996) p-values.					
Intermediate Results:					
	FDI	EXCHR	FAID	INTR	FPI
Rho – 1	-0.151073	-0.321233	-0.545060	-0.679083	-0.899947
Rho S.E.	0.161564	0.119695	0.144701	0.191396	0.216618
Residual variance	8.57E+17	632.6768	2.96E+18	8.824007	6.12E+18
Long-run residual variance	8.57E+17	632.6768	2.96E+18	931.6780	1.48E+18
Number of lags	0	0	0	3	6
Number of observations	38	38	38	35	32
Number of stochastic trends**	5	5	5	5	5
**Number of stochastic trends in asymptotic distribution					

Table 8. *Multiple Regression Result (Best Linear Unbiased Estimator).*

Dependent Variable: MANU				
Method: Least Squares				
Date: 06/15/22 Time: 19:08				
Sample (adjusted): 1981 2017				
Included observations: 37 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	119.8280	1466.795	0.081694	0.9354
INTR(2)	-49.26113	81.55025	-0.604059	0.5502
FPI	-2.50E-07	1.08E-07	-2.324556	0.0268
FDI(2)	5.60E-07	2.42E-07	2.315206	0.0274
FAID	1.18E-07	1.53E-07	0.770516	0.4468
EXCHR(1)	22.43227	8.786063	2.553165	0.0158
R-squared	0.684804	Mean dependent var		2150.246
Adjusted R-squared	0.633965	S.D. dependent var		2988.952
S.E. of regression	1808.340	Akaike info criterion		17.98560
Sum squared resid	1.01E+08	Schwarz criterion		18.24683
Log likelihood	-326.7336	Hannan-Quinn criter.		18.07770
F-statistic	13.47027	Durbin-Watson stat		0.626080
Prob(F-statistic)	0.000001			

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