JDE

Journal of Developing Economies

AN ANALYSIS OF THE INFLUENCE OF FOREIGN DIRECT INVESTMENT ON EMERGING MARKET ECONOMIES GROWTH

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ABSTRACT

This study examines FDI influence on economic growth in 24 emerging market economies. The generalized Method of Moment (GMM) method is used in this research using panel data to see the effect of FDI on economic growth. This study also uses the Panel Vector Error Correction Model (PVECM) method to see the short-term relationship and Fully Modified Ordinary Least Square (FMOLS) to see the long-term relationship. This study finds strong empirical evidence indicating that the influence of FDI on economic growth is statistically significant in the short and long term. These results vary if we include the level of development reached by countries in emerging market economies. In upper-middle and lower-middle-income countries, FDI positively and greatly influences economic growth. Different results occur in high-income countries, and the results are positive and insignificant. The results show that FDI in high-income countries tends to leave these countries.

Keywords: *FDI, Economic Growth, Emerging Market Economies, GMM, PVECM, FMOLS*

JEL: F21; O11; C33

To cite this document: Jayadi, A. & Praseto, S. B. (2022). An Analysis of The Influence of Foreign Direct Investment on Emerging Market Economies Growth. JDE (Journal of Developing Economies), 7(2), 309-327.

Introduction

FDI is the flow of foreign capital where an international company expands or establishes its company in another country. In its development, FDI has grown substantially in current years in several countries (Alvarado et al., 2017). FDI has become an essential external finance worldwide source, especially for developing countries. Various incentive policies have been implemented by developed and developing countries in their efforts to attract foreign companies. Based on World Bank statistics data (2020) shows that net FDI flows have increased from 0.5 percent of GDP in 1970 to 1.8 percent of GDP in 2019. It is because FDI is often associated with many advantages in job innovation, improved competitiveness, technology transfer, and economic development (Makiela & Ouattara, 2018). Emerging market economies play an essential part in the contribution of global FDI. In 2019, emerging market economies contrib-

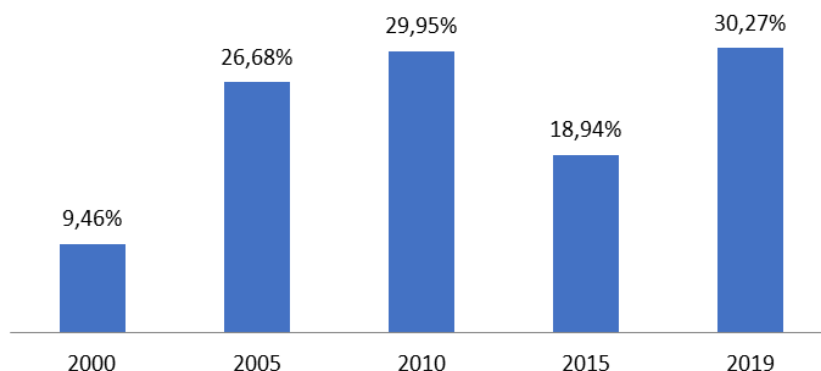uted 30.27 percent, an increase of almost three times compared to 2000.

Figure 1 : *FDI* Contribution *Emerging Market Economies* Against Global *FDI* in 2000, 2005, 2010, 2015, and 2019

Source: (*United Nations Conference on Trade and Development* , 2020)

Emerging market countries are big and potential markets for investment. According to MSCI Market Accessibility Review (2013) emerging market is a market that has some characteristics of an advanced market, but is still not fully developed. Emerging market economies benefit from large foreign capital flows with high volatility (Warjiyo & Juhro, 2016, p. 543) . According to McAllister & Sauvant (2012), FDI also helps emerging market economies through its dominance in their private capital flows, which are commonly more stable forms of capital than portfolio investment or other forms of debt financing, such as loans and bonds.

The FTSE Group (2021) , an institution providing economic and financial data, classifies the market status of countries into three, namely frontier markets, emerging markets, and developed markets based on economic size, wealth, market quality, market depth, and market breadth. Based on a report from (FTSE Russell, 2021) as of March 2021, there are 30 countries including frontier markets , 24 countries including emerging markets, and 25 developed market countries . When compared to emerging market countries, frontier market countries are more risky to invest (Akseleran, 2020) . Emerging market countries are divided into two, namely secondary emerging and advanced emerging. Advanced emerging are countries with better liquidity and stability compared to secondary emerging.

Table 1: List of *Emerging Market Economies Countries,* March 2021

Advanced Emerging	Secondary Emerging
Brazil	Chile
China, Taiwan Province	China
Czech Republic	Colombia
Greece	Egypt
Hungary	India
Malaysia	Indonesia
Mexico	Kuwait
South Africa	Pakistan
Thailand	Philippines

Advanced Emerging	Secondary Emerging
Turkey	Qatar
	romania
	Russia
	Saudi Arabia
	United Arab Emirates

Source: (FTSE Russell, 2021)

Emerging market countries are major players in the global economy that are better in some aspects than developed markets. United Nations Conference on Trade and Development (2020) data described that in the period 2000 to 2019 new emerging market countries represented an average of 58.22 percent of global population and contributed an average of 29.67 percent of world GDP. This means that new emerging market countries have great potential as new investment fields with a strong structure and long-term profits.

In the international economy, FDI is essential, especially in emerging market countries. FDI creates stable, direct, and endurable economic relations between countries. In terms of the host country, FDI is able to contribute as an addition to foreign exchange for economic development in the country. Meanwhile, if viewed from the home country side, FDI is a strategy to make long-term investments in other countries in the form of greenfield, mergers & acquisitions, or joint ventures with the aim of expanding market share and market segmentation abroad.

The World Bank (2020) classifies the world economy into four groups, namely; high income (> $12,535), upper-middle income ($4,046 - $12,535), lower-middle income (1,036 - 4,045), and lower income (<1,036). Group calculations using the Atlas method. The method is assessed based on GNI (Gross National Income) per capita in US dollars. The economic classification of Emerging Market countries can be seen in table 2 below.

Table 2: Economic Classification of Emerging Market Economies

High Income	Upper-Middle Income	Lower Middle Income
Chile	Brazil	Egypt
China, Taiwan Province	China	India
Czech Republic	Colombia	Pakistan
Greece	Indonesia	Philippines
Hungary	Malaysia	
Kuwait	Mexico	
Qatar	romania	
Saudi Arabia	Russia	
UAE	South Africa	
	Thailand	
	Turkey	

Source: (World Bank, 2020)

Globalization has significantly impacted the economic openness of the world's countries. Economic openness leads to higher flows of foreign capital between countries. It can be seen from the economic recovery of developed countries after the global financial problem by easing monetary policy. It has an impact on significant liquidity and low global interest rates.

For the financing and economic growth of emerging market countries, the flow of foreign capital is very beneficial for them. But it really depends on the conditions in each country, especially the degree of openness, economic fundamentals and macroeconomic policies adopted (Warjiyo & Juhro, 2016, p. 543). Theoretically, FDI provides benefits for investors such as cost reduction and market expansion, while for beneficiary countries the benefits are in the form of technology transfer, human resource transfer and job creation. Thus, an ideal strategy for achieving higher production levels in developing and emerging countries is to provide incentives to attract and improve FDI (Alvarado et al., 2017).

Table 3: Development of FDI Inflows Emerging Market Economies 2000, 2010 and 2019 (in US$ Million)

Country	Year		
	2000	**2010**	**2019**
Brazil	32779.24	77686.85	71989.27
Chile	4860	15033.19	11437.4
China	40714.81	114734	141225
China, Taiwan Province of	4928	2492	8213
Colombia	2436.46	6430	14493.11
Czechia	4985,209	6140.583	7576,538
Egypt	1235.4	6385.6	9010
Greece	1108.163	329.9141	4631,221
Hungary	2764.062	2352.824	5204,531
India	3587.99	27417.08	50552.96
Indonesia	(4550.37)	13770.58	23429.03
Kuwait	16.29981	1304.626	104.4136
Malaysia	3787,632	9059,977	7650,475
Mexico	18249.33	27130.8	32921.24
Pakistan	309	2022	2218
Philippines	2240	1298,473	4996.392
Qatar	251.6	4670.33	(2812.64)
romania	1056,753	2997.172	5971,218
Russian Federation	2651.06	31667.97	31735.14
Saudi Arabia	183	29233	4562
South Africa	887.3416	3635.596	4624,447
Thailand	3410.119	14554.95	4145,672
Turkey	982	9085	8434
United Arab Emirates	(506.33)	8796.77	13787.47

Source: (United Nations Conference on Trade and Development, 2020)
Description: parentheses ( ) indicate a negative value f

Table 3 shows that, in general, the development of the importance of FDI inflows in emerging market economies in 2000, 2010, and 2019 experienced a significant increase. However, not all countries experienced the same thing. Several decades ago, FDI was seen by developing countries as a tool used by developed countries to set their economic dominance. Nevertheless, globalization promotes economic integration and eliminates the distances that can undermine trade between nations by bringing about structural changes and international regulations. So there is intense competition to attract FDI among developing countries. Direct

funding capital is obtained through FDI inflows to develop positive externalities, boost economic growth through technology transfers, ripple effects, increased productivity, and introduce new processes and managerial skills (Lee, 2013).

Apart from the above perception of FDI, empirical research seems to provide different facts. Micro-level empirical research conducted by Aitken & Harrison (1999) found that FDI does not stimulate economic growth and does not produce a positive spill-over effect from foreign companies becoming domestically owned. Sokhanvar (2019) explained that based on macro-based empirical research, FDI hurts economic growth. To estimate the effect of FDI on economic growth, 108 empirical studies have been carried out using data from around the world, and there are 880 regression results. From these results, it was found that 43 percent were positive and statistically significant, and 26 percent were positive and not statistically significant. Significant, 17 percent negative and statistically significant, and 14 percent negative and not statistically significant (Iamsiraroj & Ulubaşoğlu, 2015).

As a controversy, in Alvarado et al. (2017) and Sokhanvar (2019) research, FDI does not have a positive and significant effect on the economic growth of several sample countries. Three factors cause this; the first is the government's policy that limits FDI in the country. Countries with closed economic systems tend to limit the entry of foreign capital. As a result, the country becomes undeveloped and lags behind other countries. The second factor is the low absorption of technology due to low technological development and a lack of human resources. The level of technology absorption is only optimal if the level of human resources from the receiving country is high. The effect of FDI on output is positively or negatively influenced by absorption capacity.

These two things cause FDI inflows to have no significant impact on economic growth. In current years the determinants of economic growth have been very interesting to be studied further. It is because the development of a country's economic activity can be caught from the economic development in that country. Countries with high economic growth indicate that there has been an economic expansion in the country, where the total output of goods and services in a given year is greater than the previous year.

Figure 2 shows that emerging market economies accounted for about 33.37 percent of total world GDP in 2019, an increase of 3.47 percent from 29.9 percent in 2000, meaning that emerging market economies play a major role in influencing the world economy. (United Nations Conference on Trade and Development, 2020). Figure 2 also shows that China's contribution to the world economy is very large. China's economy is considered capable of rivaling the economic power of the United States. The industrial sector and the trade sector are sectors that support the Chinese economy.

From the description above, a study on the effect of FDI on economic growth in emerging market countries is very interesting to do. First, FDI has increased dramatically in the period from 2000 to 2019 FDI has almost tripled from 11.92 percent in 2000 to 30.27 percent in 2019. Second, several empirical studies that have been conducted have shown positive results. contrary to theory, FDI has an erratic and even negative impact on economic growth (Aitken & Harrison, 1999; Alvarado et al., 2017; Sokhanvar, 2019). Third, as explained in neo-classical theory, capital flows should go to developing countries and emerging markets that are growing fast and therefore have the highest investment attractiveness. It is very interesting to prove whether it is in line with or against the theory.
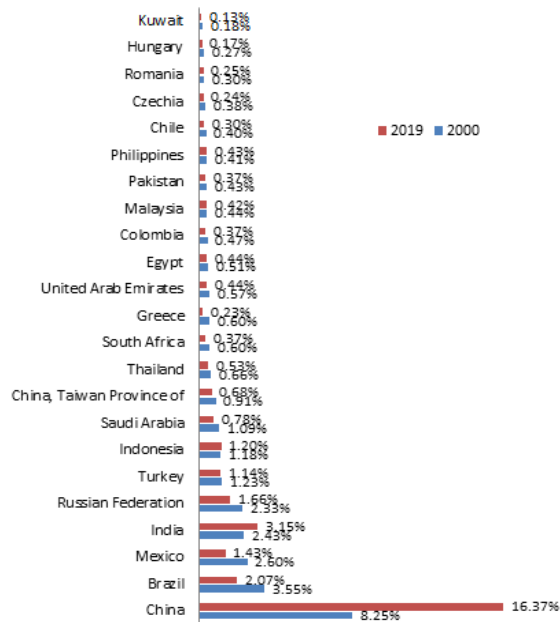
Figure 2 : Contribution of *Emerging Market Economies* to World GDP in 2000 & 2019 (In Percentage)

Source: (United Nations Conference on Trade and Development, 2020)

Although there are extensive empirical publications on the effect of FDI on economic development, no research focuses on emerging market countries. Most of the research on the influence of FDI on development economics is carried out in the context of European countries (Amin et al., 2020; Ciesielska & Kołtuniak, 2017; Sokhanvar, 2019), Asian countries (Das & Sethi, 2020; Goh et al., 2017; Nasir et al., 2019), African countries (Abdouli & Hammami, 2017; Asongu & Odhiambo, 2020; Malikane & Cblackbara, 2017; Owusu, 2020; Sunde, 2017), and developing countries (Lin & Benjamin, 2018; Makiela & Ouattara, 2018; Matsumoto, 2021; Saidi et al., 2020). This study illustrates that this is a new study and is different from previous research. In addition, this study also discusses the long-term and short-term cointegration relationship between FDI and economic growth which was rarely discussed in previous studies (Alvarado et al., 2017; Asongu & Odhiambo, 2020; Ausloos et al., 2019; Makiela & Ouattara, 2018; Malikane & Cblackbara, 2017; Matsumoto, 2021; Osei & Kim, 2020; Saidi et al., 2020; Sokhanvar, 2019). Although rare, there are several studies that discuss the long-term and short-term cointegration relationship of FDI with economic growth (Ciesielska & Kołtuniak, 2017; Lin & Benjamin, 2018; Makun, 2018; Owusu, 2020). This is very important to do because it can help the government in providing appropriate policy implications for the short and long term.

In this study, the dependent variable is economic growth, while the independent variable is FDI inflows. Apart from these two variables, the researcher also counts the variables of exports, labor, capital stock, gross value added of the manufacturing sector, gross value added of the service sector, gross value added of the agricultural sector, and the combined index of connectivity and penetration of ICT as control variables.

Literature Review

Foreign Direct Investment (FDI)

The study of FDI has been widely discussed in the theoretical literature, one of which is by Carbaugh (2019) in his 17th edition of International Economics . FDI is the flow of foreign capital in which an international company expands or establishes its company in another country. FDI occurs when a foreign firm finds production sites in the domestic economy or acquires a substantial ownership position in a domestic firm. FDI actively generates spillovers such as improved management and better technology where FDI is able to stimulate the transfer of technology and other capital goods (Carbaugh, 2019) .

In the short term, FDI can encourage economic growth by improving aggregate demand in the host country's economy. In the long run, capital stock raises labor productivity, leads to higher earnings, and increases total demand. In addition, other long-term impacts also come through the transfer of knowledge and technology from developed to developing countries. (Carbaugh, 2019) .

To collect physical capital and assign human capital to recipient countries, FDI can be the right system to boost economic growth. Technology transfer advances the factor's production efficiency while reducing the technology gap between national and international companies (Anwar & Nguyen, 2010). Similarly, the FDI mechanism in economic growth depends on diminishing returns in physical capital (Asongu & Odhiambo, 2020) . Along the same lines, Aghion & Howitt (1998) shows that innovation drives economic growth. They state that FDI and global trade function in entering technology into the economy. However, low human resources in receiving countries will impact less than optimal levels of technology absorption. As a result, FDI has a feeble role in resolving production levels (Forte & Moura, 2013) .

Makiela & Ouattara (2018) state that the impact of FDI on economic growth in general can be through two channels, namely: (i) directly through the accumulation of input factors (investment in capital, labor growth), and (ii) indirectly through TFP growth (increased labor productivity, new technology, knowledge, etc.). The direct impact of FDI on inputs, related to the formation of the capital stock, is described by Thompson (2008) that the dissimilarity in the ratio of capital to labor between recipient and source countries causes foreign investment flowsIt results in great demand in the receiving country and excess investment in the source country, thereby creating an inflow of FDI. The indirect relationship between FDI and economic development through TFP results from better knowledge, managerial skills, and increased human resources in the host country. So they can earn access to new technologies and improve their economic efficiency (Azman-Saini et al., 2010) .

Sollow's Neo-Classical Theory

Solow's Neo-Classical Theory describes the level of investment & savings, population growth, and technological development that can influence economic output and its growth over time (Mankiw, 2019). This theory considers technological improvement as an exogenous variable. The following functions explain the relationship between output, capital, and labor.

$$y = f(k) \tag{1}$$

From equation 2.1, the output per worker (y) is a function of the capital stock per worker. By the production function, which applies the law of "the law of deminishing returns," the capital stock per worker at the initial point will improve output per worker even more.

However, at a particular point, the addition of capital stock per worker will not increase output per worker and will even decrease output per worker. At the same time, the investment function is written as follows.

$$i = s\,f(k) \qquad (2)$$

In equation 2.2, the investment level per employee is a function of the capital stock per employee. The capital stock is affected by the quantity of investment and depreciation. The investment will increase the capital stock while depreciation will reduce it.

$$\Delta k = i - \gamma kt \qquad (3)$$

It is the devaluation amount of the capital stock. The increase in capital stock is influenced by high savings rates and will raise income, resulting in fast economic development. However, if it has reached a steady-state level of capital, economic growth will experience a slowdown for a certain period. The condition happens when investment equals the depreciation of capital accumulation.

Besides the savings rate, Population growth also influences development. Population growth can reasonably present sustainable economic development. Residents will increase the number of laborers and decrease the capital stock per worker. Population growth and depreciation rate influence the reduction in capital stock. Here is a formula for writing the effect of population growth.

$$\Delta k = sf(k) - (\gamma + n)\,kt \qquad (4)$$

Where n is the population growth rate. This theory indicates that countries with high population growth would have low GDP per capita (Mankiw, 2019) .

Technological progress in Solow's theory is considered an exogenous factor. In the next formulation the production function is

$$Y = f(K, L, E) \qquad (5)$$

Where E is labor efficiency. Next, y is Y/LE where LE indicates the number of effective workers. The effect of technological progress on changes in capital can be formulated as

$$\Delta k = sf(k) - (\gamma + n + g)\,kt \qquad (6)$$

Where g describes technological progress through labor efficiency. The effect of technological progress can lead to sustainable economic development because it optimizes a growing workforce efficiency.

Comparative Advantage Theory

David Ricardo's (1817) theory explained why countries commit to global trade even when employees in one country are more efficient at creating each good than employees in other countries. He said that if two countries can create the two entities in a free market, each country will improve its general consumption by exporting the good with a comparative advantage while importing other goods, provided they are available. Comparative advantage can give businesses the capability to sell goods and services at lower costs than their rivals and realize more substantial sales margins. Comparative advantage enables the economic system to deliver goods and services at a lower option price than trading partners.

The endogenous growth theory is related to David Ricardo's theory of comparative

advantage if a business actor can trade goods and services at a lower cost than his opponents, thereby increasing a country's national income. Economic growth can be achieved through increased income from exports and imports. Innovations in production systems and new trade media are created when business actors can trade goods and services at a lower cost than their opponents.

Data and Research Methods

This study examines the effect of FDI on economic development in 24 emerging market economies. Is there a connection between FDI and economic development in emerging market economies, and is there a difference in results when classified based on income? This study uses a quantitative approach with panel data types in the period 2000 to 2019 and covers 24 emerging market countries. This research analyzes the impact of FDI on economic development in emerging market countries and looks at the short - term and long-term relationship of FDI on economic growth in emerging market countries.

In this study, the estimation technique utilized to see FDI influence on economic development in emerging market countries is the Generalized Method-of-Moment (GMM) method. The choice of this method refers to the number of previous studies using this method. There are two reasons underlying the use of the GMM method in estimating parameters. First, the GMM method provides an efficient and consistent estimate of the presence of heteroscedasticity. Second, using the GMM method will be statistically stronger (robust) if the parameter estimates remain the same size and sign (Lubis, 2013) .

In estimating short-term coefficients, this research uses the Vector Error-Correction Model (VECM). Meanwhile, to estimate the long-term coefficient, this study uses the fully modified ordinary least squares (FMOLS) method to confirm that there is a long-term relationship between the variables. The use of this method refers to research conducted by Arvin et al., (2021) and Nasir et al. (2019) this paper attempts to shed light on the ecological consequences (CO2 emission. The FMOLS method was used to consider the problems of endogeneity, serial correlation, and cross-sectional heterogeneity. Therefore, the FMOLS method is appropriate because it considers issues related to regressor endogeneity and serial correlation (Arvin et al., 2021) .

In this study, the panel data regression model used is as follows:

$$LnGDP_{it} = \alpha_0 + \alpha_1 LnFDI_{it} + \alpha_2 LnExp_{it} + \alpha_3 LnCPS_{it} + \alpha_4 LnLbr_{it}$$
$$+ \alpha_5 LnMfk_{it} + \alpha_6 LnSrv_{it} + \alpha_7 LnAgr_{it} + \alpha_8 IID_{it} + \varepsilon_{it} \tag{7}$$

Information:

$LnGDP_{it}$	= Natural logarithm of base year 2010 real GDP of country i in year t
α_0	= intercept
$\alpha_1, \alpha_2, \alpha_3, \alpha_4$	= Coefficient of *independent variable*
$LnFDI_{it}$	= Natural logarithm of country i's real *FDI* in year t
$LnExp_{it}$	= Natural logarithm of country i's exports in year t
$LnCPS_{it}$	= Logarithm of natural *capital stock* of country I in year t
$LnLbr_{it}$	= Natural logarithm of country i's labor force in year t
$LnMfk_{it}$	= Natural logarithm of NTB manufacturing sector i in year t

$LnSrv_{it}$ = Natural logarithm of NTB service sector i in year t

$LnAgr_{it}$ = Natural logarithm of NTB agricultural sector i in year t

IID_{it} = Combined index of ICT connectivity and penetration of country i in year t

ε_{it} = Error term

$\cdots it$ = Subscript panel

Finding and Discussion

Identification result of estimation

Stationarity test is the first step that must be done before estimating the data. In the research, the researcher conducted a stationarity test using Augmented Dickey-Fuller (ADF) stationarity test. This root test starts at the level level, if the data at the level level is not stationary, it will be continued with a unit root test at the *first difference level.* The following are the results of the stationary test at the level and *first difference levels* in this study.

Table 4: Augmented Dickey Fuller (ADF) Test Results

Variable	EME's		HIC		UMIC		LMIC	
	Level	1 st Diff	Level	1 st Diff	Level	1 st Diff	Level	1 st Diff
GDP natural log	0.0006*	0.0000*	0.0743	0.0000*	0.2439	0.0000*	0.0000*	0.0348**
FDI natural logs	0.0038*	0.0000*	0.3249	0.0007*	0.0017*	0.0000*	0.1247	0.0252**
Export natural logs	0.0000*	0.0000*	0.0049*	0.0000*	0.0237**	0.0000*	0.0085*	0.0314**
Labor natural log	0.0000*	0.0000*	0.0000*	0.0000*	0.0001*	0.0000*	0.3725	0.0463**
Natural log of capital stock	0.0000*	0.0000*	0.0043*	0.0071*	0.0002*	0.0000*	0.0146**	0.0446**
NTB natural logs manufacture	0.1195	0.0000*	0.6634	0.0000*	0.2375	0.0000*	0.0369**	0.0117**
NTB natural log services	0.0030*	0.0000*	0.0341**	0.0001*	0.1028	0.0000*	0.0113**	0.0039*
Agricultural NTB natural logs	0.0002*	0.0000*	0.0287**	0.0000*	0.0481**	0.0000*	0.0054*	0.0039*
Combined index of ICT penetration & connectivity	0.0314**	0.0008*	0.0046*	0.0154**	0.0167**	0.0008*	0.9929	0.0323**

Source: Data processed by STATA13. Description: *Stationary level 1% ** Stationary level 5%

The results of the stationarity test above show that all variables are stationary at the first difference level. Thus, the GMM test will be carried out at the first difference level.

Table 5: GMM Panel Regression Results

Variable	EME's		HIC		UMIC		LMIC	
	Two-Step Diff. GMM		One-Step Sys. GMM		One-Step Diff. GMM		One-Step Diff. GMM	
	Coef.	P-Value	Coef.	P-Value	Coef.	P-Value	Coef.	P-Value
lngdp	0.0789	0.042**	0.1527	0.006*	-0.075	0.04**	-0.186	0.000*
lnfdi	0.0001	0.100***	0.0001	0.396	0.0001	0.002*	0.0003	0.000*
lnex	0.0158	0.002*	0.0271	0.04**	0.0169	0.003*	-0.012	0.190
lnlabor	0.0022	0.965	-0.0529	0.10***	0.1063	0.08***	0.087	0.001*
lnkpt	0.0241	0.391	0.0205	0.154	0.2464	0.193	0.5257	0.000*

| Variable | EME's | | HIC | | UMIC | | LMIC | |
| | Two-Step Diff. GMM | | One-Step Sys. GMM | | One-Step Diff. GMM | | One-Step Diff. GMM | |
	Coef.	P-Value	Coef.	P-Value	Coef.	P-Value	Coef.	P-Value
lnmfk	0.4105	0.000*	0.3729	0.001*	0.3852	0.000*	0.1895	0.006*
lnsrv	0.3642	0.158	0.0043	0.818	0.0478	0.000*	0.2231	0.000*
lnagr	0.0248	0.000*	0.3860	0.000*	0.3811	0.000*	0.2774	0.004*
iid	0.0003	0.869	0.0009	0.012**	0.0004	0.470	-0.127	0.033**
AR (1)	0.006		0.048		0.008		0.061	
AR (2)	0.667		0.480		0.250		0.237	
Sargan Test	0.053		0.131		0.306		0.198	
Hansen Test	0.206		1,000		1,000		1,000	
Hansen (iv)	0.535		-		-		-	
Hansen (diff iv)	0.102		-		-		-	

Source: Data processed by STATA13. Note: Estimated significant level *1% **5% ***10%

Some previous studies have already discussed FDI's influence on economic growth. However, the research specifically addresses the relationship between FDI and economic development in growing countries which has yet to be discussed. FDI can act as an appropriate system to stimulate economic growth in developing market countries. Based on the test results in table 4, FDI has a coefficient value of 0.0001943 with a probability value of 0.100. It can be interpreted that FDI has a positive and significant impact on the economic growth of developing countries. In other words, if there is an increase in FDI by 1 percent, it will increase economic growth by 0.0001943 percent, ceteris paribus. One of the other related studies is the research of Alvarado et al. (2017), who studied the influence of FDI on economic growth in 19 Latin American countries. It shows that FDI positively and significantly influences the economic development in these countries.

Interestingly, control variables such as labor, capital stock , gross value added of the service sector, and the combined index of connectivity and penetration of ICT have insignificant results on economic growth. This finding is different from the theory, especially on the labor variable. In the neoclassical theory, Solow said labor is one factor driving economic growth. This needs to be studied more deeply because the number of workers in emerging market countries should be very large. Emerging market countries have a percentage of 58.22 percent of the world's population. However, it should be noted that the unemployment rate in emerging market countries is also relatively large, so that this is the main factor that the labor variable is not significant to economic growth.

This research also classifies developing market economies based on their income into high-income countries, upper-middle-income countries, and lower-middle-income countries. The results of sampling the effect of FDI on the economic development of high-income developing countries can be seen in table 4. In this group, developing countries belonging to developing countries include Chile, Taiwan, the Czech Republic, Greece, Hungary, Kuwait, Qatar, Saudi Arabia, and the UAE. FDI has a coefficient value of 0.0001294 with a probability value of 0.396. It explains that FDI positively and insignificantly influences the economic development of high-income emerging market economies. The results contrast the study Alvarado et al. (2017) which examined the effect of FDI on the economic growth of high-income Latin American countries. The results reveal that FDI greatly affects the economic development of high-income Latin American countries. FDI does not greatly affect the economic development of developing countries because the factors driving growth in high-income developing market

economies tend to come from internal sources such as domestic investment, consumption, and government spending. In addition, this group of countries has large FDI outflows, so FDI inflows are not a driver of development in high-income emerging market economies. The main reason for the different results of FDI on development in high-income, upper-middle-income, and lower-middle-income countries is differences in socioeconomic conditions, technological progress, and institutions between the country groups.

Interestingly, in high-income emerging market countries, the combined index variable for ICT penetration and connectivity has a positive and significant impact on economic growth. In the group of developing countries with high repayment, developed countries have a high level of technology, so the ICT variable positively and significantly influences economic growth.

FFurthermore, the test results the effect of FDI on economic growth in middle- and upper-income emerging market economies. In this group, the emerging market economies that are members of include Brazil, China, Colombia, Indonesia, Malaysia, Mexico, Romania, Russia, South Africa, Thailand, and Turkey. FDI has a coefficient value of 0.0001291 with a probability value of 0.002. It indicates that FDI positively and significantly impacts the economic growth of emerging market economies with middle and upper-income. To rephrase it, a growth in FDI by 1 percent will increase economic growth by 0.0001291 percent, cateris paribus. The study are in sequence with the research conducted by Alvarado et al., (2017) which examines the effect of FDI on the economic growth of middle- and upper-income Latin American countries. The results reveal that FDI greatly affects the economic growth of Latin American countries with upper middle income so that FDI can act as an appropriate mechanism in stimulating the economic growth rate of emerging market economies with middle and upper income.

Furthermore, the test results FDI influence on economic growth in middle-low income emerging market economies. In this group, the emerging market economies that are members of include Egypt, India, Pakistan and the Philippines. FDI has a coefficient value of 0.0002986 with a probability value of 0.000. It can be interpreted that FDI positively and significantly impacts the economic growth of emerging market economies with lower middle income. When there is an increase in FDI by 1 percent, it will increase economic growth by 0.0002986 percent, cateris paribus. The study are not sequence with the research conducted by Alvarado et al., (2017) which examines the effect of FDI on the economic growth of lower-middle-income Latin American countries. The results are that FDI has no significant effect on Latin American countries with lower middle-income economic growth. If we compare emerging market countries with lower-middle income and Latin American countries with lower-middle income, there will be quite a basic difference. Lower-middle income countries in the group of emerging market economies, they are countries with a large workforce and stable economic growth. So that FDI is able to contribute positively and significantly to economic growth. A country is said to have succeeded in receiving the positive impact of FDI on its economic growth if the country is able to absorb incoming technology and balanced it with high quality human resources. Thus, in the case of low-middle income countries in the Latin American region, this study is irrelevant, because the technology absorption capacity and quality of human resources in these countries is lower than that of the lower middle-income group of emerging market economies.

The research results clearly explain the effect of FDI on the economic growth of emerging market economies. When the regression classifies emerging market economies based on

income level, FDI positively and significantly affects upper- and lower-income countries. In contrast, in high-income countries, the results are positive and insignificant. The findings in this study are justifiable because the growth promoters of growth in countries with high-income emerging market economies tend to come from internal sources such as domestic investment, consumption, and government expenditure. In addition, this group of countries has large FDI outflows so that FDI inflows are not growth promoters in high-income emerging market economies.

Identify Short-Term and Long-Term Estimates

This research also assesses the short-term and long-term connection between FDI and emerging market economic growth. In estimating the short-term model, this study uses the Panel Vector Error-Correction Model (PVECM) method because the variables are not stationary at the level level and are both statistically at the first difference level and when cointegration test is performed it is found that the dependent and independent variables have a cointegration relationship at the first difference level. Meanwhile, in estimating the long-term model, this study uses the Fully Modified Ordinary Least Square (FMOLS) method. Stationarity test is the first step that must be done before estimating the data. In this research, researchers used a stationarity test using the Im, Pesaran and Shin (IPS) stationarity test. This root test starts at the level. If the data at the level is not stationary, it will be continued with a unit root test at the first difference level. The table below is the stationary test results at the level and first difference level in this study.

Table 6: Results of Unit Root Im, Pesaran and Shin (IPS) Testing

Variable	Level	First Diff Level
GDP natural log	0.9447	0.0000*
FDI natural logs	0.9926	0.0030*
Export natural logs	0.0649	0.0000*
Natural log of capital stock	0.0000*	0.0000*
Labor natural log	0.0680	0.0000*
NTB natural log manufacturing sector	0.8757	0.0000*
NTB natural log service sector	0.9995	0.0000*
Natural logs of NTB agricultural sector	0.7552	0.0000*
Combined index of ICT connectivity and penetration	1.0000	0.0000*

Source: Data processed by STATA13 (attachment)
Remarks: *Stationary at 1% level

The results of the stationarity test above show that all variables except the natural logarithm of the capital stock are not stationary at the level of 1% or 5%. Therefore, it is necessary to test stationarity at the first difference level. The conclusion that can be drawn from this unit root test is that the dependent, independent, and control variables are stated to be stationary at the same degree, namely at the first difference level.

The following stage is to perform a cointegration test to decide whether there is a long-run equilibrium connection between the observed variables. If the variable is not stationary and integrated at the same grade, it is essential to perform a cointegration test. The lnGDP variable is not stationary in the initial data. It is stationary with the same level of integration, namely (1), so it is necessary to do a panel data cointegration test to find out whether there is cointegration between lnGDP and lnFDI. The panel data cointegration test used is the Pedroni test with the following hypothesis. 0: t-stats there is no cointegration between lnGDP and

lnFDI) A cointegration test between lnGDP and lnFDI variables was carried out in all countries. Table 7 below illustrates the results of the panel data cointegration test:

Table 7: Pedroni Cointegration Test Results

	lnFDI*	lnExp	lnKpt	lnLabor*	lnMkt*	lnSrv	lnAgr	id
	Test Stats.	Test Stats.	Test Stats.	Test Stats.	Test Stats.	Test Stats.	Test Stats.	Test Stats.
Alternative hypothesis: common AR coefficients. (within-dimension)								
v-stat panel	1.191	-0.5653	-1.904	1.376	0.7366	1.312	0.3396	0.5538
rho-stat panel	0.654	1,701	2.455	0.3911	1.095	-0.9092	-0.464	0.4014
t-stat panel	0.5593	1,709	2,671	0.5893	1.027	-1,965	-1.208	-0.22
adf-stat panel	2,306	4.155	5.152	2,472	3,705	4.484	2.134	1,933
Alternative hypothesis: individual AR coefficients. (between-dimension)								
group rho-stat	1,774	2,368	3,544	1,944	2,586	0.00012	1.214	1,895
Group t-stat	1.162	2.104	3,935	1.473	1,834	-2.032	-0.1301	0.6346
Group adf-stat	0.4599	-0.5158	1.222	0.06682	1.003	2,442	0.4122	-2,608

Source: Data processed by STATA13 (attachment)
Description: *Cointegrated

TTable 7 shows the practical results of the Pedroni panel cointegration test. The writer chose the Akaike Information Criterion (AIC) criteria, and the selected lag length was random. Pedroni test findings show an Alternative hypothesis: common AR coefficients within dimension and between-dimension. The natural logarithm of FDI, the natural logarithm of labor, and the natural logarithm of the gross.

Differentiation stage and there is cointegration at the level. PVECM test added value of the manufacturing sector rejects the null hypothesis, meaning there is cointegration. This finding shows long-term dynamics between economic development and FDI, economic development and employment, and economic growth and gross value added of the manufacturing sector in emerging market economies.

In estimating short-term coefficients, this research uses the Vector Error-Correction Model (VECM) to estimate short-term coefficients. It is a sequence with the study conducted by Arvin et al. (2021); Ciesielska & Kołtuniak (2017); Das & Sethi (2020); Fan & Hao (2020); and Lin & Benjamin (2018). The PVECM method is used because the data is stationary in the results can be seen in table 4.6.

Table 8: Short-Term Model Estimation Results Panel Vector Error Correction Model (PVECM)

Model	Variable	Coefficient	P-Value
_ect D.lngdp	dlnfdi	-.0311458	0.000*
SR lnfdi D1		-.0077412	0.015**
_ect D.lngdp	dlnlabor	-4.044309	0.000*
SR lnlabor D1		-1.077998	0.000*
_ect D.lngdp	dlnmkt	-3.138834	0.000*
SR lnmkt D1		-.4874987	0.005*

Source: Data processed by STATA13 (attachment)
Remarks: *Stationary at 1% level **Stationary at 5% level

In estimating the long-term coefficients, this study uses the *fully modified ordinary*

least squares (FMOLS*)* method to confirm that there is a long-term relationship between variables. The use of this method refers to research conducted by Arvin et al. (2021) and Nasir et al. (2019). this paper attempts to shed light on the ecological consequences (CO2 emissionThe *FMOLS* method was used to consider the problems of endogeneity, serial correlation, and *cross-sectional heterogeneity.* Therefore, the *FMOLS method is* appropriate because it considers issues related to regressor endogeneity and serial correlation (Arvin et al., 2021) . *FMOLS* estimation results can be seen in table 9.

Table 9: Fully Modified Ordinary Least Square (FMOLS) Long-Term Model

Variable	Coefficient	P-Value
lnfdi	0.2333444	0.000*
lnlabor	0.0340541	0.365
lnmkt	0.5577638	0.000*
linear	-1.72e-06	0.831
_cons	0.0103038	0.000*

Source: Data processed by STATA13 (attachment)
Remarks: *Stationary at 1% level

This study examines the short-term and long-term connection between FDI and economic development in emerging market economies. Although other researchers in the literature have extensively studied this research, the main distinguishing factor of this research is its focus on emerging market economies, a group of countries that has yet to receive much attention in other publications.

The practical proof is based on the PVECM and FMOLS test results. There is a solid endogenous connection between FDI and economic growth. PVECM regression results in table 4.10, FDI has a short-term relationship to GDP, which reflects economic growth. The PVECM regression result reveals that FDI has a substantial optimistic influence on the economic development of emerging market economies. In line with Makun (2018) conducted in the Republic of the Fiji Islands, which examined the effect of external factors on economic growth in that country. It resulted in the finding that FDI positively affects economic development in the short-term Fiji Islands.

LThe long-term results show a robust long-term cointegration connection between FDI and economic development. Through the FMOLS regression results, FDI has a substantial favorable influence on economic growth in emerging markets. This study's results align with Owusu (2020) regarding economic growth in Namibia, which examines the long-term relationship between FDI, private sector credit, trade openness, and gross national expenditure. There is a strong connection between FDI inflows and long-term economic development. It contrasts with the results of Goh et al. (2017) that there is no long-term relationship between FDI and exports to GDP. So the causal factors of economic development in several Asian countries are not only influenced by FDI.

FDI positively and significantly influences the connection in the short and long term. The reason is the significant economic openness in emerging market countries and the lack of entry barriers for foreign investors. Emerging market countries are major players in the global economy that are better in some aspects than developed markets. Statistical data from the United Nations Conference on Trade and Development (2020) shows that in the period 2000 to 2019 new emerging market countries represented an average of 58.22 percent of the global population and contributed an average of 29.67 percent of world GDP. This means that

new emerging market countries have potential as new investment fields with 0 strong, stable market structures and 0 short-term and long-term benefits.

Conclusion

Based on the research results discussed in the previous chapter, among others, FDI has a significant positive effect on the economic development of emerging markets. However, if emerging market countries are divided into groups based on income, then FDI has different effects. FDI has an insignificant positive effect on the economic development of high-income emerging markets. Meanwhile, in emerging market countries with upper middle income and lower middle income, FDI significantly positively affects economic growth. In addition, FDI and economic growth are proven to have a long-term and short-term cointegration connection in emerging market economies.

The policy significance of the results of this research is that if they want to direct their economy toward long-term economic development in the future, policymakers in develop-ing market economies must develop FDI. Emerging market economies must harmonize their business liberalization policy initiatives with their FDI, digitalization, and economic growth strategies. The authors suggest a sound and integrated approach to policy formulation. Be-cause, based on the results of this study, FDI inflows are related to economic growth, policy-makers in developing market economies should encourage FDI inflows. Among the essential policies to boost FDI are those that introduce business-friendly practices, competitive tax in-centive systems, and access to high-quality skills and talent. The policies will draw high-tech and value-generating industries to a country and promote substantial technology transfer. It will allow local firms to move up the global creation value chain. Every research certainly has limitations and shortcomings in it. This study only focuses on FDI variables as the independent variable. The shortcomings in this study are still the presence of insignificant results in one of the regression results.

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