

Foreign Direct Investment Inflows and Economic Growth: Evidence from Selected Islamic State Countries

M. Mowlaei^{1*}I. Aburaihan²

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Abstract

Foreign direct investment (FDI) as a growth accelerating component has received a great attention in developed countries even in developing and less developed countries during recent years. It has a matter of greater concern for the economists how FDI affects economic growth of the host country economy. In closed economy there is no access to the foreign instruments and savings, this type of economy solely based on the domestic savings and investment sources. But in open economy, the investment comes from both sources either from domestic savings or foreign capital inflows like FDI. FDI enables the host country to achieve the investment level beyond its capacity to improve GDP and economic growth. FDI encourages the process of economic growth by filling up the saving-investment gap; transferring advanced technology, new entrepreneurship. This study investigates the impact of Foreign Direct Investment on economic growth in 30 Islamic countries. The econometric model is estimated by using Pooled Mean Group (PMG) for dynamic heterogeneous panels over the period 1992-2018. The results of the study show that FDI inflows have positive and significant effects on economic growth. Of course, the impacts of interaction terms between FDI and human capital; FDI, and trade openness on economic growth are more than each of them separately in the long and short run. The study suggests that the Islamic governments should design and implement appropriate fiscal, monetary and trade policies to make and improve an enabling environment to attract foreign Capital inflows as a supplementary source of domestic investment. **Keywords:** Economic growth, Foreign Direct Investment, human capital, Islamic countries, Pooled Mean Group.

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1. Associate Professor, Department of Economics, Faculty of Economic and Social Sciences, Bu Ali Sina University, Hamadan, Iran

Email:
mowlaei.mohammad@gmail.com

2. M.A. in Economics, Department of Economics, Faculty of Economic and Social Sciences, Bu Ali Sina University, Hamadan, Iran

Email:
intezaraburairhan@gmail.com

1. Introduction

Some economists believe FDI may have a positive or negative impact on economic growth. Nevertheless, the exponents of the positive effect of FDI are more than its opponents. In other words, most of the economists believe FDI inflow is a necessary factor to economic growth in developing countries and it improves the productivity of production (Zhao and Zhang, 2010; Khan, 2007), increases the level of employment (Chaudhari et al., 2006), expands the domestic investment and transfers the modern technologies from abroad (Barrel and Pain, 1997), increases the competition on the host countries (Johnson, 2006) and improves the export values and foreign exchange incomes (Ram and Kevin, 2002). On the contrary, some other economists believe FDI may deteriorate if the imported technology is not suitable for the economic level of the host countries, the amount of royalty payments is too great, the indigenous industries cannot compete with foreign enterprises, and FDI inflow is not consistent with the social and cultural norms of the host countries (Ramirez, 2000, Zhang, 2003).

Nowadays, most of the developing countries face the low finance sources or old technology to support their industrial projects; and the domestic private investment is insufficient and unable to improve them. So, they have to provide the shortage of financial reserves from abroad. Attracting FDI is one way to solve the financial and technological problem of the host countries. Therefore, most of the developing countries have tried actively to attract FDI, especially from the 1980s.

There are 57 Islamic countries (members of OIC) in the world. All of them are developing countries and face the low finance sources or low technology for supporting their development projects and need the foreign capital inflow. So, they have to provide the shortage of fiscal reserves for investment from abroad. FDI is one of the important sources of foreign capital inflows which can both remove the shortage of fiscal investment reserves and also accelerate the speed of economic growth through the transfer of modern technology and innovations of industrialized countries to Islamic countries (Ozgur et al., 2004).

The FDI inflows in Islamic countries over the period 1992-2018 is shown in figure 1. According to the World Bank, FDI in Islamic countries trended upward over the last 27 years and reached 13400.3 and 97407.3 (in current price, Fig 1) and 20824.4 and 84586.5 (in constant price, 2010 =100) from 1992 to 2018 respectively.

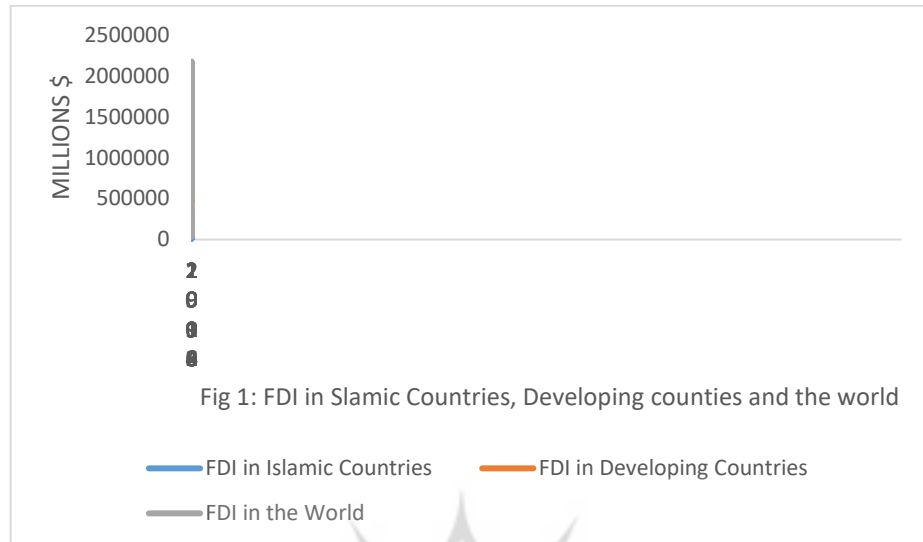


Fig 1: FDI in Slamic Countries, Developing counties and the world

Source: www.worldbank.org, (2018).

Unfortunately, the entire Muslim world consisting of 57 countries with a population of about 1.5 billion have been able to attract only \$97.4 billion FDI in 2018. This is about only 5.51 percent of the total \$ 1765.3billion in the world and 12.2 percent of the total 974.07 billion in the developing countries in the same year (world bank.2018). The business environment in the Islamic countries is not very friendly, and political instability in the Muslim world is a continuous problem that undermines investors' confidence. The low performance of the Muslim world economies in attracting FDI might be a high level of political instability. For attracting FDI, the Islamic countries should design and implement appropriate fiscal, monetary and trade policies to create a suitable and stable environment in their countries (Moniruzzaman, 2010).

The paper is organized as follows: after introduction, the next section reviews the relevant literature, section three deals with methodology and source data issues. Section four presents the empirical results and section five concludes the study with policy recommendations.

2. Empirical Studies

There are a few studies analyzing FDI and economic growth of all Islamic countries, but some studies about individual Islamic countries are as follows:

Table 1: Empirical Studies of impact of FDI and human capital on economic growth

Study	Time Period	Methodology	Findings
Kotrajaras (2010)	1990-2005	Panel-Co-integration	FDI has positive on economic growth on East Asian Countries
Adefabi (2011)	1970-2006	Panel	There is a weak effect of FDI and different measures of human capital on economic growth in Sub-Saharan African
Faruk (2013)	2001-2010	Panel	FDI has a positive and significant effect on GDP of Bangladesh
Inekwe (2013)	1990-2009	Johansen Co-integration	FDI in the manufacturing Sector has a positive relationship with employment rate
Agbola (2014)	1965-2010	Co-integration	FDI and human capital are important vehicle for achieving economic growth in Philippines
Su and Liu (2016)	1991-2010	PMG	FDI has a positive effect on the per capita GDP growth rate and this effect is intensified by human capita endowment in Chinese cities
Habibi and Karimi (2017)	1980-2014	Panel	FDI is one of the major stimuli of economic growth in Iran and Gulf Cooperation Council (GCC)
Dkhili and Dhiab (2018)	1995-2017	FMOLS and DOLS	FDI promotes economic growth. There is also a positive relation between FDI, economic growth and openness in the GCC countries

The most of previous studies have examined the impact of FDI on economic growth for the individual Islamic countries and using various models and econometric techniques. One of the key contributions of this paper is focused on the impacts of FDI on economic growth of top FDI recipient Islamic countries and using PMG model, which is studies less about it.

3. Methodology

3.1. The empirical Model

According to Theoretical empirical studies, FDI can apply to economic growth models directly (Mah, 2010) or through the spillover effects (Zhang, 2003 and Kotrajaras et al. 2011). In this study, it is postulated that FDI affects economic growth through the spillover impacts. The econometric model of this study is used by a Cobb-Douglas form given as follows:

$$Y_{it} = A_{it} L_{it}^{\alpha} K_{it}^{\beta} e^{\varepsilon_{it}} \quad (1)$$

Where (Y_{it}) denotes the real GDP, (A_{it}) is total factor productivity (TFP) as the proxy for the technology. (L_{it}) is represented the workforce (is proxied by population) and (K_{it}) denotes capital stock. Dividing (Y_{it}) by L_{it} , the per capita real GDP is used as a dependent variable ($y_{it} = \frac{Y_{it}}{L_{it}}$) in the studied model.

$$y_{it} = A_{it} K_{it}^{\beta} e^{\varepsilon_{it}} \quad (2)$$

It is assumed that FDI_{it} inflow positively influences productivity. Thus, the variable (A_{it}) has to be endogenized as a function of FDI.

Kandiero and Chitiga (2006), Kotrajaras et al. (2011), Emmanuel (2014), Inekwe (2013), Adhikar (2015), Shah and Khan (2016), showed that human capital (HC_{it}) could increase technology of production. They also found the countries with a high degree of trade openness ($Open_{it}$) tend to have more ability to absorb technology which comes from FDI. Therefore, the variable (A_{it}) is the function of FDI_{it} , HC_{it} and $Open_{it}$.

$$A_{it} = f(FDI_{it}, HC_{it}, Open_{it}) \quad (3)$$

After substitution the technology function (3) into the production (2) and taking the logarithm, the econometric function becomes:

$$\ln(y_{it}) = \beta_{0i} + \beta_1 \ln(K_{it}) + \beta_2 \ln(FDI_{it}) + \beta_3 \ln(HC_{it}) + \beta_4 \ln(Open_{it}) + \varepsilon_{it} \quad (4)$$

In addition to studying FDI and variable representing the initial threshold conditions on growth, we also investigate how the interaction between FDI and HC and open could affect economic growth.

Therefore, the final form of econometric model of this study is as follows:

$$\ln(y_{it}) = \beta_{0i} + \beta_1 \ln(K_{it}) + \beta_2 \ln(FDI_{it}) + \beta_3 \ln(HC_{it}) + \beta_4 \ln(Open_{it}) + \beta_5 \ln(FDI_{it}) \times \ln(HC_{it}) + \beta_6 \ln(FDI_{it}) \times \ln(Open_{it}) + \varepsilon_{it} \quad (5)$$

In equation (6), y_{it} denotes country's per capita real GDP (US \$ million), K_{it} denotes capital stock (US \$ million), FDI denotes values of net foreign direct investment made by non-resident investors in the reporting economy (US \$ million), HC_{it} (capital human: Gross enrolment ratio in secondary schools) and $Open_{it}$ represents trade openness: the sum of imports and exports in relation to the GDP (per cent).

Subscript i stands for country i ($i=1, \dots, 57$), subscript t stands for the period 1992-2018.

Regarding the prior expectations, the literature predicts a positive relationship between K_{it} , HC_{it} , $Open_{it}$ and real GDP; but the impacts of FDI_{it} , $FDI \times HC$ and $FDI \times Open$ on GDP, may be positive or negative.

3-3. Estimation Technique

To estimate a long-run equilibrium relationship between economic growth and the regressors, Pesaran and Shin (1999) suggested the Pooled Mean Group (PMG) estimator for dynamic heterogeneous panels. This is a panel version of Auto-

regressive distributed lag (ARDL) Bounds testing approach. The PMG is seen as an intermediate procedure between Mean Group (MG) estimator and Dynamic Fixed-effects (DFE) because it includes averaging (representing the MG estimator) and Pooling (representing the DFE). The PMG estimator allows the short-run coefficient and the error variance to differ across groups, but the long-run coefficient is constrained to be the same (Ndambendia and Njoupougnigni, 2010).

3-4. Data

In this paper, the annual time series data for 30 Islamic countries¹ over the period 1992-2018 are used. The countries are selected only based on the availability of data, especially based on the FDI. The data for GDP, L, K, FDI, and HC, and trade openness are sourced from the World Development Indicators by World Bank. All data are in real terms (constant 2010 \$US). The top FDI recipient Islamic countries in this research are; Algeria, Bangladesh, Chad, Djibouti, Egypt, Guinea, Cote d'Ivoire, Mauritania, Morocco, Mozambique, Nigeria, Senegal, Somalia, Tunisia, Azerbaijan, Bahrain, Indonesia, Iran, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Malaysia, Oman, Pakistan, Qatar, Saudi Arabia, Turkey, United Arab Emirates.

4. Empirical Results

4.1. Panel Unit Root Tests

Table 2 presents the results of the panel unit root tests. There are two types of panel unit root processes. When the persistence parameters are common across-section, then this type of processes is called a common unit root process. Levin-Lin Chu's (LLC), Breitung and Hardi employ this assumption. When the persistence parameters freely move across cross-section, then this type of unit root process is called an individual unit root process. Im-Pesaran and Shin (IPS) and ADF-Fisher test are based on this form.

The test results from table 1 show that except K and open, the other variables y, FDI, HC, (FDI) (HC), (FDI) (open) are not stationary. Stationary tests are then carried out at the difference for variables that were not stationary at levels with the results shown in table 3.

1 .The OIC members are 57 countries. In this paper just 30 top FDI recipient Islamic countries are studied. The rest of them have not absorbed considerable FDI, or their data are inaccessible.

Table 2: Result of panel unit root tests

Testing assuming a common unit root				Testing assuming individual unit root	
Series Name	LLC t-stat:	Breitung t-stat	Hardi z-stat	IPS w-t-bar stat:	ADF-Fisher X ²
Ln y	3.32873 (0.8432)	2.14395 (0.7352)	8.42179 (0.8253)	5.13954 (0.0962)	175.935 (0.0821)
Ln K	-3.12756 (0.0000)	4.62732 (0.0000)	9.28795 (0.0000)	-3.29713 (0.0000)	123.226 (0.0000)
Ln FDI	3.21721 (0.0726)	-6.8492 (0.1932)	8.72891 (0.7921)	-2.53621 (0.8521)	193.281 (0.0531)
Ln HC	2.13721 (0.2521)	0.31052 (0.8214)	15.32912 (0.8761)	8.13621 (0.4713)	62.12721 (0.8721)
Ln open	-2.21326 (0.0000)	3.16215 (0.0000)	11.56321 (0.0000)	21.23987 (0.0000)	31.8532 (0.0000)
Ln FDI Ln HC	2.13987 (0.2813)	0.41561 (0.1613)	12.431 (0.8162)	6.13472 (0.2172)	35.20631 (0.8123)
Ln FDILn OPEN	3.21921 (0.8135)	-1.92147 (0.1924)	8.65271 (0.5432)	-3.62121 (0.3295)	121.271 (0.0715)

Source: Author's estimations.

Table 3. Result of panel unit root tests (at first different)

Testing assuming a common unit root				Testing assuming individual unit root	
Series Name	LLC t-stat:	Breitung t-stat	Hardi z-stat	IPS w-t-bar stat:	ADF-Fisher X ²
Ln Y	8.2132 (0.0000)	5.3212 (0.0000)	10.6221 (0.0000)	6.39712 (0.0000)	231.121 (0.0000)
Ln FDI	9.21935 (0.0000)	-8.21392 (0.0000)	27.73091 (0.0000)	15.32914 (0.0000)	152.3092 (0.0000)
Ln HC	3.54976 (0.0000)	2.64035 (0.0000)	16.94024 (0.0000)	8.95389 (0.0000)	75.29850 (0.0000)
Ln FDILn HC	4.39751 (0.0000)	3.98502 (0.0000)	14.80122 (0.0000)	-5.13045 (0.0000)	39.01584 (0.0000)
Ln FDILn OPEN	5.12074 (0.0000)	3.01286 (0.0000)	9.51285 (0.0000)	2.17543 (0.0000)	142.1376 (0.0000)

Source: Author's estimations. Values in () are p-value.

4-2. Panel Co-integration Results

Table 4 presents the results of the null hypothesis of no co-integration. The results from the Pedroni's co-integration test show the rejection of the null hypothesis of no co-integration at 1% level significance of within (common auto-regression coefficients) and between (individual auto-regression coefficients) dimensions. The kao's test and Westerlund test (table 5) confirm the Pedroni's

test with the existence of co-integration using the assumption of between-dimensions.

Table 4: Results of Panel Co-integration Test

Pedroni's co-integration test				
^a Common AR coefficients (within dimension)				
	Statistic	Prob.	Weighted Statistic	Prob.
Panel v	3.91271	0.0021	-0.52921	0.0000
panel rho	0.53272	0.0041	0.28421	0.0001
Panel pp	-5.89271	0.0000	-3.14561	0.0000
Panel ADF	-3.5791	0.0000	4.39721	0.0000
^a Individual AR coefficient (between dimension)				
Group rho	0.92161	0.0002		
Group pp	-9.52135	0.0000		
Group ADF	-4.65312	0.0000		
^b Kao residual co-integration test				
Test statistic=-5.30521__				

Source: Author's estimations.

Table 5: Result of the Westerlund-based Panel Co-integration Test

Statistic	With constant but no trend				With constant and trend			
	value	z-value	p-value	Robust-p-value	value	z-value	p-value	Robust-p-value
G _t	-3.460	-5.780	0.000	0.000	-4.449	-8.0655	0.000	0.000
G _a	-17.158	-5.993	0.000	0.000	-25.956	-6.416	0.000	0.000
P _t	-9.995	-5.419	0.000	0.000	-12.365	-6.732	0.000	0.000
P _a	-14.352	-7.224	0.000	0.000	-20.342	-5.931	0.000	0.000

Source: Author's estimation.

4-3. The Results of Long-Run and Short-Run Estimations

Table 6 shows the long-run and short-run estimates based on PMG estimation. Six alternative models are presented in table 6. In models 1-5, the study includes only one variable at a time in addition to the control variable. All variables are included in the model 6.

4-3-1. Long-Run Results

In this study, all coefficients are interpreted as elasticity. Moreover, all coefficients of variables were consistent regarding the signs and statistically significance.

FDI inflow to selected Islamic countries has been increased over the last 27 years and reached from 20824.4 to 84586.5 million dollars in 1992 and 2018 respectively, indicating a 406.2 percent increase (in real terms). One percent increase in FDI, increased economic growth by 5.27 percent and 6.21 percent in

model 1 and model 6 respectively. The result is consistent with other studies from developing countries such as Ndambendia and Njoupouognigni (2010), Raza et al. (2011), Tiwari (2011), Famboo (2013), and Insah (2013).

One percent increase in human capital (HC), increase economic growth by 3.12 and 6.75 percent in models 2 and 6 respectively.

One present increase in trade openness (open), increases growth by 3.28 and 5.51 percent in model 3 and 6 respectively.

One percent of the increase in interaction term between FDI and HC increases economic growth by 5.23 and 7.48 percent in models 4 and 6 respectively.

One percent increase in interaction term between FDI and trade openness increases economic growth by 4.29 and 9.15 percent in model 5 and 6 respectively. Thus, the empirical results show the effects of interaction terms between FDI and HC, FDI and open on economic growth are more than each of them separately.

4-3-2. The Short-Run Estimation Results

Table 6 also shows the short-run impacts of the studied variables on economic growth are positive and statistically significant. The result indicates that all variables were found to be short-run drivers of economic growth in all the six models. The interaction terms between FDI and HC; EDI and open (trade openness) on economic growth are more than each of them (separately) in short-run too.

The result of model 6 also shows that when FDI inflows are used altogether, their effects on economic growth are more than using them separately.

The error correction terms (ECTs) are negative and significant in all the six models, and confirm the conclusion of co-integration among the variables. The ECTs of -0.0142 , -0.0864 -0.07623 , -0.6987 , -0.0845 and -0.07371 suggest that when economic growth of Islamic countries is above or below its equilibrium level, it adjusts by almost 1.42, 8.64, 6.98, 8.45, 7.37 and 9.88 percent in models 1 to 6 respectively.

The results of this paper are in consonance with other studies as Ayanwale (2007), Faruk (2013), Afolabi and Bakar (2016), Rehman and Ahmad (2016), Adusah-Poku (2016), Habibi (2017), Jawaid & Saleem (2017), and Ali & Mingque (2018).

Table 6: The PMG estimation results in Islamic countries

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Convergence coefficients	- 0.0142** (0.0051)	- 0.0864*** (0.0133)	- 0.06987** (0.0297)	- 0.0845*** (0.0245)	- 0.07371** (0.0347)	- 0.09887** * (0.0125)
Long-run co-efficient						
Ln K	0.08935* *	0.08221** *	0.06521** *	0.03142** (0.0123)	0.03554** *	0.09874** *

	(0.042)	(0.0147)	(0.0095)		(0.0014)	(0.0125)
Ln FDI	0.0527** * (0.0021)					0.0621*** (0.0118)
Ln HC		0.03125** * (0.0021)				0.0675*** (0.0215)
Ln open			0.03281* (0.0198)			0.0551*** (0.012)
Ln (FDI) Ln(HC)				0.05233** * (0.0047)		0.0748*** (0.012)
Ln (FDI) Ln (open)					0.0429** (0.0152)	0.0915*** (0.0177)
Short-run co-efficient						
Δ Ln K	0.0341** * (0.0091)	-0.0229** (0.0112)	0.02532** * (0.0067)	0.01299** (0.0054)	0.03322** (0.0147)	0.0653*** (0.0123)
Δ Ln FDI	0.02985* * (0.0052)					0.05241** * (0.0078)
Δ Ln HC		0.0361*** (0.0054)				0.06932** * (0.0221)
Δ Ln open			0.02135* (0.0119)			0.05215** (0.0221)
Δ Ln (FDI) Δ Ln (HC)				0.03918** (0.0187)		0.0682*** (0.0180)
Δ Ln (FDI) Δ Ln (open)					0.0593*** (0.0047)	0.06982** * (0.0078)
No. of Countries	30	30	30	30	30	30

Source: Author's estimation; *, **, *** indicates significance at 10%, 5% and 1% level of significance. Values in () are standard errors. All variables are in their natural logarithmic forms.

5. Conclusion

This study tries to investigate empirically the impacts of FDI and international terms between FDI and human capital; FDI and trade openness on economic growth of 30 host Islamic countries over the period 1992-2018 by Pooled Mean Group (PMG) estimator. All variables used in this study affect economic growth in selected Islamic countries positively and statistically significant in the long and short-run. However, the interaction terms between FDI and human capital; FDI and trade openness on economic growth are more than each of them separately in long-run and short-run.

FDI can be an enormous source of external capital for a developing country, which can lead to economic development. FDI inflows can help to transfer the advanced technologies from abroad, increase the export values and foreign exchange earnings. Of course, it is proved that the effect of FDI on economic growth is highly dependent upon the local conditions of the recipient economy. These conditions also seem to be a requirement for stimulating FDI as well as domestic investment. Therefore, ensuring the right economic environment should be a political demand in transition economies if they are seeking to modernize their physical capital stock. Thus, the developing countries (including Islamic countries) should obtain the benefits of FDI through domestic facilities such as infrastructure, financial system evolution, human capital development and macroeconomic stability.

Unfortunately, most of the Muslim countries are politically unstable, and many of them are categorized as high-risk countries. Lack of regulatory changes, bureaucratic official system, and political instability are among the major weakness of the Muslim economies. Our results confirm the hypothesis that FDI inflows can help to transfer the advanced technologies from abroad, increase the export values and foreign exchange earnings. If the Islamic countries improve the level of domestic investment, human capital and reduce or abolish all sorts of trade barriers, FDI inflows can increase the economic growth considerably. Openness has a positive impact on both human capital and economic growth in Islamic countries. Human capital can contribute to growth by facilitating the diffusion of technology embodied in FDI. Indeed, the study shows that human capital and technology-intensive strongly reinforce each other to contribute to growth of per capita income. However, the host Islamic countries should match the internal factors with external factors by making some initial conditions such as suitable fiscal and monetary policy, good governance and remove the legal obstacles of the entrance of FDI inflows. They also promote the level of internal factors (such as human capital, domestic savings, and economic openness) to create and improve a suitable environment to the positive effects of FDI on economic growth.

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(مقاله پژوهشی)

اثر سرمایه‌گذاری مستقیم خارجی و سرمایه‌انسانی بر رشد اقتصادی: شواهدی از کشورهای منتخب اسلامی

محمد مولایی^{*۱}

ابوریحان انتظار^۲

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چکیده

سرمایه‌گذاری مستقیم خارجی (FDI) یکی از عوامل شتاب‌دهنده رشد اقتصادی در کشورهای توسعه‌یافته و در حال توسعه طی سال‌های اخیر می‌باشد. موضوع مهم و مورد توجه اقتصاددانان چگونگی اثر FDI بر رشد اقتصادی کشورهای میزبان است. در اقتصاد بسته، هیچ‌گونه دسترسی به ابزارهای مالی خارجی و پس‌انداز وجود ندارد؛ زیرا چنین اقتصادی صرفاً متکی به پس‌اندازها و منابع سرمایه‌گذاری خارجی است. اما در اقتصاد باز، سرمایه‌گذاری یا از منابع پس‌اندازهای داخلی و یا از سرمایه‌گذاری خارجی تأمین می‌شود. در این مطالعه اثر سرمایه‌گذاری مستقیم خارجی بر رشد اقتصادی ۳۰ کشور منتخب اسلامی بررسی می‌شود. برای تخمین مدل از تکنیک PMG که برای پانل‌های نامتجانس پویا استفاده شده است و دوره زمانی مورد مطالعه ۱۹۹۲-۲۰۱۶ می‌باشد. نتایج تحقیق نشان داد که FDI دارای اثر مثبت و معنی‌داری بر رشد اقتصادی کشورهای مورد مطالعه است. البته اثر متقابل FDI و سرمایه‌انسانی، FDI و تجارت باز بر رشد اقتصادی بیشتر از اثرات انفرادی آن‌ها در کوتاه‌مدت و بلندمدت است. براساس نتایج تحقیق، پیشنهاد می‌شود که دولت‌ها باید سیاست‌های مالی، پولی و تجاری مناسب را برای مساعد نمودن محیط جهت جذب جریان سرمایه‌خارجی به‌عنوان مکملی برای سرمایه‌خارجی به‌کار برند.

کلید واژه‌ها: رشد اقتصادی، سرمایه‌گذاری مستقیم خارجی، سرمایه‌انسانی، کشورهای اسلامی، میانگین گروهی تلفیقی.

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Email:
mowlaei.mohammad@gmail.com

۱. استاد گروه اقتصاد، دانشکده علوم اقتصادی و اجتماعی، دانشگاه بوعلی‌سینا، همدان، ایران (*نویسنده مسئول)

Email: intezaraburairhan@gmail.com

۲. کارشناسی ارشد اقتصاد، گروه اقتصاد، دانشکده علوم اقتصادی و اجتماعی، دانشگاه بوعلی‌سینا، همدان، ایران