

The Impact of Foreign Capital Inflow on Economic Growth in Developing Countries

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Abstract This paper is an empirical research study examining the impact of foreign capital inflows which mainly consisting of foreign direct investment (FDI) and official development aid (ODA) on economic growth of developing countries. It is conducted to find out the one between the two forms of foreign capital inflows that has more effective and robust influence on the growth through the combination of the two catalysts into the same regression models. The study sample covers 77 developing countries from all regions classified by the World Bank from year 1997 to 2012. Ordinary Least Square (OLS) with time and entity fixed effects has been chosen as a method of running the regression, and robust function is used in regression in an attempt to control for the possible heteroscedasticity that often exists in panel data analysis. The results show that both FDI and ODA have positive and significant impacts on economic growth. Yet, FDI is seen to be more robust and statistically significant. Furthermore, the marginal impacts of FDI and ODA are not without constraint. The marginal impacts of both FDI and ODA on economic growth decrease given the rising level of initial income per head, treating other factors constant. Moreover, provided that its share of gross domestic saving increases the impact of ODA on growth would keep decreasing. The interaction term between FDI and gross domestic saving also has negative sign as portions of GDP, but the estimated coefficient is not statistically significant.

Keywords: foreign capital inflow (FCI), foreign direct investment (FDI), official development assistance (ODA)

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1. Introduction

One of the key components of the movement towards economic globalization or integration by the world economy is foreign capital flows. In the face of domestic resource deficiency in financing long-term development, most developing countries have still been in much reliance on external financial sources. The need for foreign capital to complement domestic resources has been welcomed as a catalyst of growth and development, since it is considered as the central element of the process of economic growth in developing countries.

Foreign direct investment (FDI) is an important source of finance which may facilitate the transfer of the modern technology, knowledge, skills, and innovations of economically advanced countries to developing countries, thus helping them to accelerate the speed of their economic growth and development [7,16], and [8]. As the report in OECD [18] states that not only FDI triggers technology spillovers, but also promote human capital formation, contributes to international trade integration, creates a more competitive business environment, and enhance enterprise development. Loads of other economists have proved that foreign direct investment really matters to economic growth in developing countries

and perhaps has stronger effects than domestic investment in host countries [6,13,15], and [2]. Given other pre-conditional factors constraint or unfavorable, FDI alone may not benefit recipient countries much. As having been found in literature reviews, some important favorable preconditions that can enable host countries to absorb more potential of FDI such as basic level of development and appropriate policies [21], minimum threshold stock of human capital [7] and [15], development of the financial system [13], boosting international trade, sound macroeconomic policies, and institutional stability [16] and [2], and economic freedom [6]. Another school of thought also concerns about some negative impacts of FDI to recipient countries. The report by [21] addresses concerns about potential drawbacks for host economies, economic as well as non-economic due to the shortcomings in domestic policies. Some potential drawbacks include a deterioration of the balance of payments as profits are repatriated to the home countries, a lack of positive linkages with local communities, the potentially harmful environmental impact of FDI, social disruptions of accelerated commercialization in less developed countries, the effects on competition in national markets, and loss of political sovereignty.

Foreign aid (FA) is often channeled to developing countries, either directly or indirectly through multilateral institutions or private voluntary organizations for the

purpose of supporting social and economic development. Aid can accelerate the attainment of a steady state potential growth rate by a country with limited capital. Moreover, it improves a country's ultimate steady growth rate as it brings about the transfer technological knowledge, encourages good governance and practices, and stimulates the investment in physical and human capital [19] and [1]. Easterly [9] believes that many developing countries has often been with harmful environment that discourages the inflow of foreign direct investment; thus, foreign aid plays crucially important role in contributing to economic growth and development in those developing countries. Hansen and Tarp [21] find that foreign aid has not only led to an increase in aggregate savings and investment, but has also had a positive impact on economic growth even in countries hampered by an unfavorable policy environment. Moreira [18], Karras [14], and Ndambendia [20] also empirically prove the positive relationship between foreign aid and economic growth in developing countries while Fambon [11] shows the case in Cameroon, stating that foreign direct investment (FDI) have positive and significant impacts on economic growth in the short and long terms. In addition, they find that foreign aid also was found to have a positive but insignificant impact on growth. Foreign aids may not only have positive effects on economic development and growth of developing countries as the host countries, but may also bring about some undesirable impacts on those countries, which include import inappropriate technology, distorts domestic income distribution, and encourages a bigger, inefficient and corrupt government in developing countries. Some authors have drawn our attention through their empirical studies that reveal the effectiveness of foreign aid conditional to other favorable factors. McGillivray et al. [17] note the existence of four alternative viewpoints on the effectiveness of foreign aid, as follows: (1) aid generates diminishing returns; (2) the effectiveness of aid is affected by external and climatic conditions; (3) the effectiveness of aid is influenced by political conditions; and (4) the effectiveness of aid depends on the quality of institutions in the host country. This research study has been designed to explore to what extend the developing countries, known as the host countries, have been impacted by the inflow foreign direct investment and foreign aid, and to find out the most potential determination—comparing the two determinants, on the economic growth of the studied developing countries.

2. Methodology

2.1. Model Specification

Fixed effect regression approach, a method for controlling for omitted variables that are constant over time but vary across entities (such as, cultural norms) while others are constant across states but vary over time (for example, national safety standards), is applied. Therefore, the combined entity and time fixed effects regression model consolidated with the model suggested by [2] is:

$$GGDP_{it} = \alpha_1 \left(\frac{ODA}{GDP} \right)_{it} + \alpha_2 \left(\frac{FDI}{GDP} \right)_{it} + \sum_j \beta_j X_{j,it} + \sum_k \beta_k X_{k,it} + \alpha_i + \alpha_t + u_{it} \quad (1)$$

Where α_i and p_t capture the entity fixed effect and the time fixed effect, respectively. This model [22] can equivalently be represented using $n-1$ entity binary indicators and $T-1$ time binary indicators, along with an intercept:

$$GGDP_{it} = \alpha_0 + \alpha_1 \left(\frac{ODA}{GDP} \right)_{it} + \alpha_2 \left(\frac{FDI}{GDP} \right)_{it} + \sum_j \beta_j X_{j,it} + \sum_k \beta_k Z_{k,it} + \gamma_2 D2_i + \dots + \gamma_n Dn_i + \delta_2 B2_t + \dots + \delta_T BT_t + u_{it}. \quad (2)$$

It is assumed $E(u_{it}) = 0$ for $i = 1, \dots, n$ and $t = 1, \dots, T$. Additionally, the errors for a given entity are uncorrelated over time that is $cov(u_{it}, u_{is}) = 0$ for $t \neq s$. The combined state and time fixed effects regression model eliminates omitted variables bias arising both from unobserved variables that are constant over time and from unobserved variables that are constant across countries.

Per-capita real GDP growth, denoted as GGDP, is a dependent variable; foreign capital inflow as a percentage of GDP, which comprised of ODA/GDP and FDI/GDP as the main explanatory variables. Following the previous literature review, i.e., [12] and [10], ODA is defined as net official development assistance received at the current USD, and FDI is defined as net inflows of foreign direct investment in current USD (i.e., [6] and [2]).

This model is further amplified with two groups of explanatory variables such as X as a set of control variables which includes different economic and socio-economic variables and Z as another set of control variables which are classified as institutional variables. Economic variables including debt service (using total value of debt service on external debt as percentage of GDP to proxy) and inflation rate (measured as the percentage change in the GDP deflator) are used to capture the impact of the external and internal macroeconomic instability. Furthermore, the impact of the macroeconomic and socio-economic factors are measured by initial GDP per capita (capturing the convergence effect), gross domestic savings (as percentage of GDP), the extent of trade openness (total value of export as percentage of GDP), real interest rate, human capital (using human development index or HDI as proxy), and physical labour (using population growth rate as proxy). HDI is chosen to proxy human capital in this study for two main reasons. First, it is due to lack of data availability of average schooling across developing countries, which are commonly used in previous scholars' empirical studies with smaller sampled country size. Second, HDI should be a good proxy for human capital since it is composite statistic of life expectancy, education, and income indices, meaning that it should measure more efficiently on the quality of human capital being utilized for economic

performance. Institutional variables expected to also impact on economic performance of developing countries are further included in the regression. In this study, these variables consist of democracy index and government effectiveness index to proxy the institutional quality.

2.2. Data Resource

The study sample covers data from 77 developing countries (from East Asia and Pacific, Europe and Central Asia, Latin America and Caribbean, Middle East and North America, South Asia, and Sub-Saharan Africa) from 1997 to 2012. The starting year of our study, 1997, is motivated by the dataset availability of FDI, ODA, and other included variables for the whole set of countries analyzed. These countries are selected to be the sample in light of the fact they have most data available needed in our analysis. Given that the analysis aims to go beyond the pure transitory cycle effects, low-frequency data method (non-overlapping 4-year periods) is applied. This provides 4 observations per country (for sub-average period on dataset from 1997 to 2000, 2001 to 2004, 2005 to 2008, and 2009 to 2012). Yet, in this study real GDP per capita in 1997 is used as an indicator of the initial level of economic development for the period of 1997 to 2000, 2001 for the period of 2001 to 2004, 2005 for the period of 2005 to 2008, and 2009 for the period of 2009 to 2012.

The following Table 1 presents the sources of dataset used in regression analysis. The most useful source to access to data necessary to run regression model analysis is World Bank website, World Development Indicators. Additionally, some dataset are taken from International Financial Statistics of International Monetary Fund, Organization for Economic Cooperation and Development (OECD), United Nations Development Programme, The Worldwide Governance Indicators, and Polity IV Project: Political Regime Characteristics and Transition.

Table 1. Data Sources of Variable

Variables	Scale	Source
GGPC	% (annually)	World Bank national accounts data, and OECD National Accounts data files
GPC/IGPC	US Dollar	
INF	US Dollar	
GDS	0 – 100	
TRADE	% (annually)	
DSED	US Dollar	World Bank, International Debt Statistics
FDI	US Dollar	International Monetary Fund, International Financial Statistics
REIR	% (annually)	
HDI	% (annually)	United Nations Development Programme
ODA	US Dollar	Organisation for Economic Co-operation and Development
GPOP	US Dollar	United Nations Population Division
GEI	0 - 5	The Worldwide Governance Indicators, 2013 Update, by World Bank
DI	0 - 20	Polity IV Project: Political Regime Characteristics and Transitions

Note that due to original small-scale measurement of human development index (0 - 1), It is multiplied by 100, so that this variable has the index from 0 to 100, making it more comfortable to interpret the regression result. Similar case also applies to democracy variable, which is originally indexed between -10 to 10, is added by 10 to make the scale of 0 to 20.

Table 2. Summary Statistics of Data of Variables

Variable	Obs.	Mean	Std. Dev	Min.	Max.
GGPC	308	2.96	3.04	-7.92	12.76
FDI/GDP	308	4.16	4.53	-2.36	34.51
ODA/GDP	308	5.44	6.04	-0.14	30.17
HDI	302	55.09	13.82	22.86	77.33
GPOP	308	1.81	1.02	-1.14	8.69
IGPC	308	1,823.35	1,819.52	134.98	8,312.77
GDS/GDP	307	15.71	16.04	-54.61	80.12
INF	308	9.15	9.11	-6.90	80.71
REIR	244	11.66	25.33	-22.09	364.01
DSED/GDP	308	3.94	3.25	0.13	23.44
TRADE	308	36.24	19.00	6.48	112.54
GEI	308	2.04	0.51	0.91	3.68
DI	308	12.44	5.72	1.00	20.00

3. Result and Discussion

Before making an in-depth empirical analysis and discussion, the relationship between capital inflows—particularly foreign aid and foreign direct investment and economic growth—is roughly examined through scatter diagrams and regressions between the ratio of capital inflows to nominal GDP and per-capita GDP growth rate. Provided that our analysis aims to go beyond the pure transitory cycle effects, we focus on low-frequency data (non-overlapping 4-year periods), meaning it provides 4 observations of each country.

Figure 1 presents estimation results on partial relation between foreign direct investment (FDI) and growth per capita putting aside all controlling variables for now.

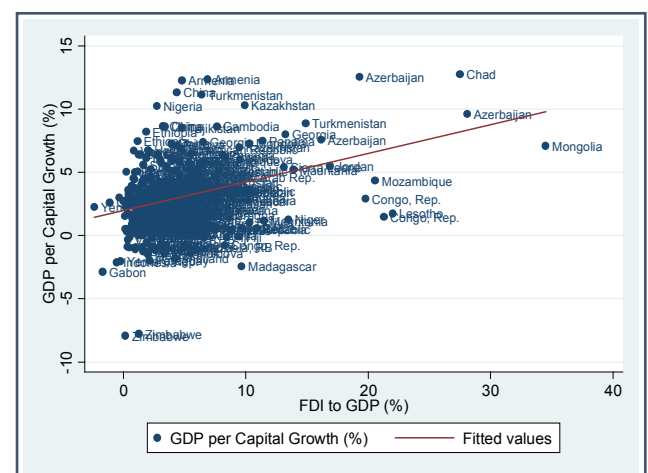


Figure 1. Scatter Diagram between GDP Growth and FDI share in GDP

Simple robust regression of GDP per capita growth on FDI to GDP shows the positive relation and statistically significant at 1 per cent between the two variables, which the estimated coefficient is 0.226 with standard error of 0.042. Then the same regression is run but with the application of time and entity fixed effects; the result still shows positive relationship and significant at 1 per cent, but at this time the estimated coefficient is 0.17 and the standard error is 0.051.

Similar to Figure 1 above, Figure 2 graphically shows estimation results on partial relation between official development assistance (ODA) and growth per capita putting aside all controlling variables temporarily. The simple robust regression shows the negative relationship between development aid and growth but not statistically significant.

The estimated coefficient is - 0.0013 with the robust standard error of 0.024. Yet, when incorporating the time and country fixed effects into the regression, it appears different coefficient and its sign but still not statistically significant. The estimated coefficient is 0.088 with the robust standard error of 0.088. Later, a number of necessary controlled variables are included to observe regression results on the marginal impacts of ODA and FDI on growth.

Model specification (3.1) in Table 3 reports the marginal

impact of FDI and ODA with the introduction of two control variables such as HDI and population growth rate. Both FDI and ODA are found to have positive and statistically significant impact on the growth rate of GDP per capita. The coefficients of FDI as percentage of GDP and ODA as percentage of GDP are estimated to be 0.163 and 0.156 with significant level of 1 percent and 10 percent, respectively.

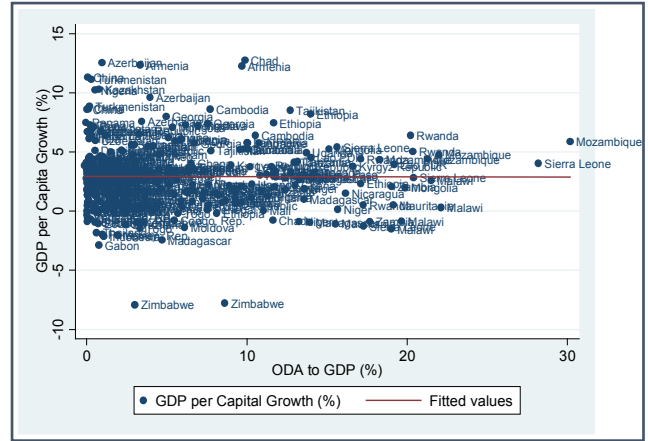


Figure 2. Scatter Diagram between GDP Growth and ODA share in GDP

Table 3. Regression Results of Economic Growth with Interaction Terms

Regression	Spec.(3.1)	Spec.(3.2)	Spec.(3.3)	Spec.(3.4)	Spec.(3.5)	Spec.(3.6)
Variables	GGPC	GGPC	GGPC	GGPC	GGPC	GGPC
FDI/GDP	0.163 (0.056)***	0.172 (0.055)***	0.179 (0.049)***	0.161 (0.056)***	0.186 (0.049)***	0.154 (0.065)**
ODA/GDP	0.156 (0.085)*	0.223 (0.077)***	0.149 (0.088)*	0.114 (0.074)	0.136 (0.087)	0.208 (0.080)**
HDI	0.204 (0.147)					0.113 (0.111)
GPOP	-0.144 (0.273)					-0.393 (0.179)**
IGPC		-0.002 (0.001)***				-0.002 (0.001)***
GDS/GDP		0.081 (0.021)***				0.067 (0.031)**
INFL			-0.016 (0.019)			-0.060 (0.028)**
DSED/GDP			-0.231 (0.078)***			-0.228 (0.073)***
TRADE				0.025 (0.019)		0.002 (0.023)
REIR				-0.023 (0.009)**		-0.025 (0.011)**
GEI					0.440 (1.042)	0.568 (0.842)
DI					0.196 (0.070)***	0.090 (0.059)
Constant	-9.936 (7.430)	2.095 (0.906)**	1.646 (0.810)**	-0.056 (0.950)	-2.803 (1.959)	-3.946 (6.144)
TimeFixedEffect	Yes	Yes	Yes	Yes	Yes	Yes
EntityFixedEffect	Yes	Yes	Yes	Yes	Yes	Yes
Robustness	Yes	Yes	Yes	Yes	Yes	Yes
Observations	302	307	308	244	308	240
F-Statistics	F(7, 218) 11.18	F(7, 223) 19.07	F(7, 224) 11.72	F(7, 173) 12.32	F(7, 224) 14.53	F(15, 161) 10.17
Prob > F	0.00	0.00	0.00	0.00	0.00	0.00
R-squared	0.63	0.69	0.66	0.67	0.65	0.75
Adj. R-squared	0.49	0.58	0.53	0.57	0.52	0.63

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Putting into simpler statistical translation, holding other factors constant a percentage point increase of FDI in GDP will stimulate the growth rate of GDP per capita by 0.163 percent. Similarly, one percent increase of ODA in GDP will increase GDP per capita by 0.156 percent, treating other variables unchanged. The next model specification (3.2) remains the same main focused variables, but with the inclusion of other two control variables such as initial real GDP per capita (INIGDP) and gross domestic savings (GDS) as percentage of GDP. Similar to specification (3.1), the two forms of foreign capital inflow are still seen to demonstrate positive sign on economic growth; for instance, the coefficients of FDI and ODA, both as percentages of GDP, are 0.172 and 0.223, respectively, with significant level of 1 percent of both variables. The two inserted control variables, denoted as INIGDP and GDS/GDP, reveal to have statistically significant negative and positive signs, respectively, as expected.

The next two further model specifications are added up to find out the impacts of the inflows of foreign capital on the growth with the inclusion of trade openness and real effective interest rate in specification (3.4) and government effectiveness index and democracy index as control variables in specification (3.5). In both regression specifications, FDI/GDP and ODA/GDP are, like previous models, positively associated with growth rate of GDP per capita. Yet, only FDI/GDP is found to be statistically significant (at 99 percent confident level), reported the coefficients of 0.161 and 0.186 in regression models (3.4) and (3.5), respectively. Trade openness, real effective interest rate, and government effectiveness index appear to have same signs as having been expected, but only real effective interest rate hold statistical significance (at 5 percent significant level). Democracy which was suspected of having ambiguous sign on economic growth appears to have statistically significant positive sign in model (3.5) at 99 percent confident level.

Model specification (3.6), in addition to the main two variables, includes the whole set control variables presented in the previous five regression specifications. FDI share of GDP does not change much compared to the previous regression models, standing at the estimated value of 0.154 with significant level of 5 percent while ODA share of GDP has shown quite fluctuated results among the six specifications. Regarding the rest of variables, all appears to have the same signs as in the previous model specifications, despite the fact that some variables that have changed their significant levels. HDI, GDS as percentage of GDP, trade openness, government effectiveness index, and democracy index all have positive signs; HDI, trade openness, and government effectiveness are still remained not statistically significant while democracy index changes from being statistically significant in specification (3.5) to being not statistically significant. Population growth rate, initial GDP per capita, inflation rate, external debt service as percentage of GDP, and real effective interest rate appear to have negative signs, which is consistent with the previous regression model specifications, putting aside the fact that population growth rate and inflation rate now become statistically significant at 5 percent, respectively.

In Table 4, the preceding analysis is extended to study the marginal effects of foreign capital inflows to developing countries conditional to the initial income per capita, gross domestic saving and among the two types of foreign capital inflows themselves. To do so, the interactions between the variables of interest are taken into the regression process. FCIs comprising of FDI and ODA still have not changed from being positively associated with economic growth given the interaction terms between both initial income and domestic saving and foreign capital variables, neither have the signs on the two coefficients of the main variables of interest changed after employing the interaction between FDI and ODA. The positive impacts of FDI and ODA on the growth rate of real GDP per capita are found in this study as to confirm the findings of a great number of previous studies (i.e., [6,8,16,13,15], and [2] for FDI-growth positive nexus and [1,9,14,18,19], and [20] for ODA-growth positive nexus.)

Recent literature on country case studies, in particular, Bangladesh and Pakistan by [25], [3] and [4], reveals the positive impact of FDI and FA on economic growth of those two countries. Developing countries like Bangladesh and Pakistan are normally characterized as having low level of income, saving, and investment. Thus, the imports of foreign capital have played important role in bridging saving and investment gap and have helped those countries escape such low-level equilibrium trap. Moreover, the FDI inflows have been believed to make possible the inflows and improvement of modern knowledge and skill, transfer of new and innovative technology, and employment creation and growth in these developing countries. Domestic labor force can upgrade their knowledge and skill by participating in training and working for those foreign firms operating domestically. Competition also puts pressure on the existing domestic firms to upgrade their efficiency and treat their employees better. Noted by Ali [3], the inflows of FDI stimulate domestic economy activity and make the domestic firms more profitable and competitive in the international market.

From Table 3 and Table 4, both FDI and ODA are found to have positive effects on economic growth, but these are not without bounds. Having been found in this research study, the productivities of FDI and ODA, in GDP percentage term, are conditional to the given initial GDP per head. In particular, provided that initial GDP per capita of the countries is higher, FDI and ODA would be less productive in impacting economic growth. In other words, the marginal impacts of FDI and ODA are decreasing given the rising level of initial income per head (Spec. 4.3 & Spec. 4.4).

The diminishing marginal effect of FDI on GDP growth may confirm a signal of the negative impact of FDI on economic benefit of the recipient country in the long run as found in Ali [5]. In his paper, he reveals that negative impact of FDI flows on economic growth shall be owed to the outflows of capital in the shape of earned profits. Crowding-out effect of FDI that drives down the number of domestic firms in the domestic market happens when those firms encounter fierce competition with relatively more efficient foreign firms. Also, it contributes to the existence of the bidding constraints for

the new entrance of domestic investors, which hampers the growth of the recipient country. This argument is totally contrasting to the finding of Seng [22] stating that there is no significant short run causal link between FDI and GDP found, but implies only unidirectional causality to run from FDI to GDP in the long run for Cambodia. This is meant to suggest the important role of FDI in stimulating Cambodia's long-run economic growth. The

positive FDI-growth nexus in the long run can be made possible particularly for Cambodia case since its economic growth in the last decade has been mainly driven by light and medium manufacturing sector which has been dominantly invested by foreign firms ever since the country started to implement outward-oriented strategy with no any experience of implementation on import substitution promotion policy before.

Table 4. Regression Results of Economic Growth with Interaction Terms

Regression	Spec(4.1)	Spec(4.2)	Spec(4.3)	Spec(4.4)	Spec(4.5)	Spec(4.6)
Variables			GGPC	GGPC	GGPC	GGPC
FDI/GDP	0.201 (0.071)***	0.131 (0.071)*	0.272 (0.068)***	0.262 (0.088)***	0.198 (0.062)**	0.178 (0.071)**
ODA/GDP	0.152 (0.091)*	0.195 (0.086)**	0.415 (0.115)***	0.384 (0.107)***	0.270 (0.085)**	0.281 (0.087)***
HDI		0.110 (0.111)		0.019 (0.113)		0.079 (0.111)
GPOP		-0.384 (0.181)**		-0.396 (0.158)**		-0.506 (0.171)***
IGPC		-0.002 (0.001)***	-0.002 (0.000)***	-0.001 (0.001)**	-0.002 (0.001)**	-0.002 (0.001)***
GDS/GDP		0.068 (0.031)**	0.087 (0.021)***	0.072 (0.030)**	0.124 (0.029)**	0.129 (0.040)***
INFL		-0.059 (0.028)**		-0.065 (0.028)**		-0.069 (0.027)**
DSED /GDP		-0.226 (0.073)***		-0.169 (0.077)**		-0.208 (0.072)***
TRADE		0.002 (0.023)		0.001 (0.022)		-0.001 (0.023)
REIR		-0.025 (0.011)**		-0.026 (0.010)**		-0.026 (0.010)**
GEI		0.585 (0.839)		1.193 (0.808)		0.632 (0.839)
DI		0.090 (0.059)		0.090 (0.054)*		0.100 (0.060)**
(FDI/GDP)x (OFA/GDP)	-0.002 (0.008)	0.003 (0.008)				
(FDI/GDP)x IGPC			-0.000092 (0.000)***	-0.00009 (0.000)**		
(ODA/GDP)x IGPC			-0.000394 (0.000)***	-0.00035 (0.000)**		
(FDI/GDP)x(GDS/GDP)					-0.001765 (0.001)	-0.001495 (0.001)
(ODA/GDP)x(GDS/GDP)					-0.006745 (0.004)*	-0.00855 (0.004)**
Constant	0.294 (0.666)	-3.851 (6.149)	1.584 (0.967)	-0.642 (5.937)	1.614 (0.968)*	-3.031 (6.193)
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Entity Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Robustness	Yes	Yes	Yes	Yes	Yes	Yes
Observations	308	240	307	240	307	240
F-Statistics	F(6, 225) 12.36	F(16, 160) 9.52	F(9, 221) 17.08	F(17, 159) 10.09	F(9, 221) 15.01	F(17, 159) 9.30
Prob > F	0.00	0.00	0.00	0.00	0.00	0.00
R-squared	0.64	0.74	0.71	0.77	0.70	0.76
Adj. R-squared	0.50	0.62	0.60	0.65	0.58	0.63
Robust standard errors in parentheses						
* significant at 10%; ** significant at 5%; *** significant at 1%						

In the alignment of the diminishing marginal effect of ODA, it can be rationalized that as developing countries move to higher income level, their tendency toward and the weight of dependence on official development assistance become less obvious and weaker. Aid is effective in promoting economic growth in the long run only if it is used for the purpose of investment rather than consumption and it may be used in other activities which are not necessarily beneficial for the recipient countries' economic growth given that they reach to higher income level or perhaps the higher income countries themselves start to realize slower growing rate due to diminishing marginal product of production factors.

It is also found that the potential of ODA in influencing economic growth is associated with gross domestic saving level; particularly, given that gross domestic saving in percentage of GDP is higher, the potential benefits of ODA to economic growth will be narrowed. The interaction term between the share of FDI in GDP and the share of GDS in GDP is also found to have negative sign, but it is failed to reject the null hypothesis that this coefficient equal to zero, meaning that the estimated coefficient is not statistically significant (Spec. 4.5 & Spec. 4.6).

Aside from the diminishing marginal effect of FDI and ODA on economic growth that have been aforementioned, there is no robust and significant relation between the interaction term of FDI and ODA and economic growth. Therefore, the conclusion whether FDI and ODA are complementary or substitutionary could not be reached, and that is why this subject matter is left for the future empirical research study.

Initial GDP per head and gross domestic saving may not necessarily exert direct influence to lower the productivity of FDI and ODA; perhaps the decreasing marginal effect of these foreign capital inflows on economic growth is on the line of a reason that countries having higher initial income and domestic saving become more self-sustained and are less reliant on external capital inflows since they already have sufficient internal capital to finance investment to enhance economic performance. Singh [23], and also most likely supported by Ali [25], claims that the development of financial infrastructure is one of the factors that has been catalytic to the increased preferences of households for financial assets. The financial sector facilitates the diversion of saving into productive investment.

4. Conclusion and Recommendation

The results of the econometric analysis of this study have shown that the foreign capital inflows which consisting of FDI and ODA have positive and significant impacts on economic growth. Yet, showing in the table of regression results given various model specifications, FDI seems to be more robust and statistically significant in explaining economic growth of developing countries. From model in column (3.6), one percent increase in FDI in GDP would raise up real GDP per capita by 0.154 percent while one percent increase in ODA in GDP would increase real GDP per capita by 0.21 percent, holding other factors constant.

The effectiveness of foreign capital flows on economic growth is not without constraint. It is found that the effect of FDI and ODA, as percentages of GDP, are sensitive to the given initial GDP per head, and that the potential of ODA, in GDP percentage term, in influencing economic growth is associated with gross domestic saving (GDS) as percentage of GDP. In particular, the marginal impacts of both FDI and ODA on economic growth is decreasing given the rising level of initial income per head, treating other factors constant. Likewise, the higher GDS in percentage of GDP will narrow down the potential benefits of ODA to the growth. The interaction term between the share of FDI in GDP and the share of GDS in GDP is also found to have negative sign, but it is failed to reject the null hypothesis that this coefficient equal to zero, meaning that the estimated coefficient is not statistically significant.

Yet, initial GDP per head and gross domestic saving might not necessarily exert direct influence that lowers the effects of FDI and ODA; perhaps the decreasing marginal effects of these forms of foreign capital flows on economic growth is on the line of a reason that countries having higher initial income and domestic saving become more self-sustained and are less reliant on external capital inflows since they already have sufficient internal capital to finance investment to enhance economic performance.

In sum, these results from this study support the idea that policies designed to implement incentives for foreign investors and to attract more foreign aid inflow are important for generating economic growth and development. Yet, they are not sufficient once the country has moved up close to the stage of having middle initial income and high proportion of gross domestic saving in GDP. Therefore, both monetary and fiscal policies should be well designed to encourage both public and private savings in local financial intermediaries, given reasonable real effective interest charged and stable macro-economic performance. The enhancement of domestic financial sources and domestic capital accumulation can help minimize the impact of external shocks from international economic relations through foreign direct investment and the burdens of the host country in repayment and other obligations to external debts and assistances.

References

- [1] Adamu, P. A. (2013). The impact of foreign aid on economic growth in ECOWAS countries: A simultaneous-equation model. WIDER Working Paper No. 2013/143.
- [2] Alguacil, M., Cuadros, A., & Orts, V. (2011). Inward FDI and growth: the role of macroeconomic and institutional environment. *Journal of Policy Modeling*, Vol. 33, Issue 3, 481-496.
- [3] Ali, S. (2013). External debt and domestic investment in Pakistan: a cointegration analysis. *SSRN Electronic Journal*, 179-191.
- [4] Ali, S., Waqas, H., Muhammad Asghar, R. A., Ayaz, M., & Khan, M. (2014). Foreign capital and investment in Pakistan: a cointegration and causality analysis. *Journal of Basic and Applied Scientific Research*, 218-226.
- [5] Ali, S. (2014). Foreign capital flows and economic growth in Pakistan: an empirical analysis. *World Applied Sciences Journal* 29 (2), 193-201.
- [6] Bengoa, M., & Sanchez-Robles, B. (2003). Foreign direct investment, economic freedom and growth: new evidence from Latin America. *European Journal of Political Economy* Volume 19, Issue 3, 529-545.

- [7] Borensztein, E., Gregorio, J. D., & Lee, J.-W. (1998). How does foreign direct investment affect economic growth? *Journal of International Economics* 45, 115-135.
- [8] Chowdhury, A. R., & Mavrotas, G. (2005). FDI and Growth: A Causal Relationship. WIDER Research Paper 2005/25. Helsinki: UNU-WIDER.
- [9] Easterly, W. (2003). Can Foreign Aid Buy Growth? *Journal of Economic Perspective*, 17(3), 23-48.
- [10] Ekanayake, E. M., & Chatrna, D. (2010). The effect of foreign aid on economic growth in developing countries. *Journal of International Business and Cultural Studies*, 3-11.
- [11] Fambon, S. (2013). Foreign capital inflow and economic growth in Cameroon. WIDER Working Paper No. 2013/124.
- [12] Hansen, H., & Tarp, F. (2000). Aid Effectiveness Disputed. *Journal of International Development*, 375-398.
- [13] Hermes, N., & Lensink, R. (2003). Foreign Direct Investment, Financial Development and Economic Growth. *Journal of Development Studies*, Vol.38, 2-22.
- [14] Karras, G. (2006). Foreign Aid and Long-Run Economic Growth: Empirical Evidence for a Panel of Developing Countries. *Journal of International Development*, Vol. 18(1), p. 15-28.
- [15] Li, X., & Liu, X. (2005). Foreign Direct Investment and Economic Growth: An Increasingly Endogenous Relationship. *World Development*, Vol. 33, Issue 3, 393-407.
- [16] Makki, S. S., & Somwaru, A. (2004). Impact of Foreign Direct Investment and Trade on Economic Growth. *American Journal of Agricultural Economics*, vol. 86, issue 3, 795-801.
- [17] McGillivray, M., Feeny, S., Hermes, N., & Lensink, R. (2006). Controversies over the impact of development aid: it works; it doesn't; it can, but that depends. *Journal of International Development*, vol. 18, no.7, 1031-1050.
- [18] Moreira, S. B. (2005). Evaluating the Impact of Foreign Aid on Economic Growth: A Cross-Country Study. *Journal of Economic Development Volume 30, Number 2*, 35-40.
- [19] Morrissey, O. (2001). Does Aid Increase Growth? *Progress in Development Studies* 1, 37-50.
- [20] Ndambendia, H. (2010). Foreign Aid, Foreign Direct Investment and Economic Growth in Sub-Saharan Africa: Evidence from Pooled Mean Group Estimator. *International Journal of Economic and Finance*, Vol. 2(3), 39-45.
- [21] OECD. (2002). *Foreign Direct Investment for Development. Maximising Benefits, Minimising Costs. Overview*. Paris: OECD Publications.
- [22] Seng, S. (2017, January). Causality between foreign direct investment and economic growth for Cambodia. *Cogent Economics & Finance*, 1-13.
- [23] Singh, T. (2010). Does domestic saving cause economic growth? A time-series evidence from India. *Journal of Policy Modeling*, Vol. 32, 231-253.
- [24] Stock, J. H., & Watson, M. W. (2011). *Introduction to Econometrics (2nd Edition)*. Boston: Addison-Wesley.
- [25] Sumon, K. K. (2014). Foreign direct investment and economic growth in Bangladesh. *International Journal of Economics, Finance and Management Sciences*, 339-346.