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Author(s)
Sana Ullah[1]
Ahmed Usman[2]
Muhammad Imran[3]

Affiliations
[1]Quiad-i-Azam University, Islamabad, Pakistan. Email: sana_ullah133@yahoo.com
[2]Government College University Faisalabad, Faisalabad, Pakistan.
[3]Federal Urdu University, arts, science and technology, Islamabad, Pakistan.

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The Past, Present, and Future of FDI: Towards a better Global Economics

Sana Ullah[1]
Ahmed Usman[2]
Muhammad Imran[3]

Abstract

We document past, present, and future of FDI trend in recent decades that goes substantially beyond the advanced economies. This rigorous study also examines the influence of FDI on economic growth using macro variables for a global perspective. Six macro variables namely, FDI, physical capital, trade, human capital, labor force, and infrastructure were used in this study. We did a panel analysis on data from 2002 to 2017 and used rigorous two-way fixed effect model. This study finds that both FDI and trade openness enhance economic growth. Open door policies are more beneficial for the entire world; capital also plays a significant role in this process. Further, FDI plays a role with human capital but vocational training, skilled labor force and education are the most important factors to attract FDI. In the last decade, overall sub-Saharan African, EU and Central Asia, Latin America and Caribbean regions have observed a significant economic growth through FDI. The future of FDI in a high populated area is very gleaming. The overall result indicates that FDI accelerates economic growth in the globe.

Keywords: FDI, human capital, panel data

JEL Classification Codes: C33, F21, J21

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[1] Quiad-i-Azam University, Islamabad, Pakistan. Email: sana_ullah133@yahoo.com

[2] Government College University Faisalabad, Faisalabad, Pakistan.

[3] Federal Urdu University, arts, science and technology, Islamabad, Pakistan.

1. Introduction

Economic growth which is defined as "the sustained rise in quality and quantity of the goods and services produced in an economy (Schutz, 2001)" provides foundation for the bright future of society and considered as the most influential driver of poverty reduction in the developing countries. It is widely acknowledged that economic growth is geared by capital formation through modern industrialization in developing countries. Growth models (Romer, 1986; Lucas, 1988; De long & Summers, 1991; Barro & Sala-I-Martin, 1997) suggest that the higher savings leading to enhanced capital formation can result in a sustained increase in economic growth. Although economic growth theories have not yet alienated from their fundamental concept of physical capital accumulation, this is probably because of the fact that the rate of saving determines an economy's investment which in turn motivates production resulting in economic growth.

To achieve economic growth, every country requires savings for investment and foreign exchange for purchasing capital machinery to be used in modern industries. However, developing countries face the problems of saving and foreign exchange base to finance their industrialization process. The domestic investment could enhance the economic growth but in the case of developing countries, financing of domestic investment has remained greatly constrained because of the scarcity of domestic resources. In this situation, Foreign Aid (FA) and Foreign Direct Investment (FDI) become valuable instruments for capital formation and thus for achieving economic growth. Existing literature suggests that inward flow of FDI plays a mammoth role in the process of economic growth in host countries. For example, Jyun-Yi & Chih-Chiang (2008) in a cross-sectional study of 62 Asian countries found that the FDI, GDP, and human capital have positive impacts on the host countries' economic growth. Similarly, Sattar (1999) observed that FDI is a fundamental and important component of long-term sustainable growth in Bangladesh.

Though many developing countries which successfully imported capital from abroad in form of FDI also showed faster economic growth (for example Brazil, China, Hong Kong, Malaysia, Singapore, and South Korea, etc.) in following years; the growth cannot be fully attributed to the inflow of FDI. According to the previous literature studies, it seems that FDI inflow has no single effect on the host country economic growth but it depends on country specific conditions and other determinants. Chee & Nair (2010) found that the

extent to which the FDI influences the host country's economic growth depends on the availability of new technology, improved education, training and development of the financial sector in the host country. Similarly, Balasubramanyam, Salisu, & Sapsford (1996) and Borensztein, De Gregorio, & Lee, (1998) observed that when extra macro variables such as trade, labor force, and government consumption are included in the regression, FDI coefficient becomes ambiguous.

The literature on the economic growth that relates to empirical and theoretical studies made in the country has the tendency to prove that FDI is draining the economy. The FDI is not a new term to the literature of economic growth. Any economic activity targeting economic growth requires capital which takes from saving but the saving rate in developing countries is very low. So for achieving the desired level of growth, the developing countries must promote FDI to bridge the gap between national saving and required domestic investment.

Smith (1776) identified capital accumulation as an engine of economic growth. Marx (1867) also recognized the importance of capital accumulation provides in moderns industrialization and so the process of economic growth. Therefore, ample literature on economic growth theory can be classified into three broad groups: early post-keynesian; neo-classical and endogenous growth models. The first school of economic thought emphasizes the function of savings and investment; second school of thought emphasizes on technical progress; and third school of thought emphasizes the human capital accumulation; research and development; provide support for FDI in host countries economic growth (Balasubramanyam, Salisu, & Sapsford, 1996; De Mello, 1999; Nair-Reichert & Weinhold, 2001; Sakyi & Egyir, 2017).

The theoretical literature of FDI generally expects a significant effect on host economic growth but empirical literature has drawn mixed results. Various studies (Basu, Chakraborty & Reagle, 2003; Ilhan & Huseyin, 2007; Mortaza & Narayan, 2007; Hoang & Goujon, 2018) found significant positive effects in Asia and developing countries; negative effects (Agrawal, 2000; Alfaro, 2003; Khan & Khan, 2011) and insignificant effect (Agosin & Mayer, 2000; Akinlo, 2004; Sylwester, 2005) on growth in past literature. The FDI-led economic growth empirical literature is clearly identified by the neoclassical, endogenous economic growth and new economic growth

models. FDI is examined to be good for economic growth through the diffusion of knowledge, technological spillovers, enhance imports-substitution strategy, and competitive advantage among some other benefits (Saidi, Mbarek, & Amamri, 2015; Sakyi & Egyir, 2017; Hoang & Goujon, 2018, Uddin, Chowdhury, Zafar, Shafique, & Liu, 2018). Lacks of these prior studies are not provided the nexus between FDI and economic growth in a global perspective. These studies are not determined the exert relationship between FDI and economic growth. The present study is dissimilar from the previous studies because this study provides an overview of FDI in the context of a global perspective. This study provides a new synthesis of FDI.

Based on the aforementioned gaps, the underlying work explores whether FDI serves as a specific factor in growth impact with the passage of time in the globe. This work is different from the past studies in various dimensions and provides a new look of empirical analysis on FDI. This study used the large dataset with rich econometric techniques. Therefore, with worldwide analysis, we also incorporated interaction terms that are used to capture the role of FDI with time-wise comparison based on a panel data set. These findings necessitate undertaking more and more empirical studies with well-defined macro variables. This study explains the motivation for the focus by reviewing the existing literature on economic growth and related issues. In this context, the objective of our study is to contribute to the growing literature on the effectiveness of FDI for economic growth after controlling for well-defined important macro variables.

The rest of this paper is organized as follows: Section 2 describes data that is used for analysis along with the econometric model's description. Section 3 explains the main methodology to estimate the fixed and random effect models and also briefly explain the results of these approaches followed by a brief conclusion and policy implications in section 4.

2. Methodology and Data

The present study focuses on the roles of FDI in economic growth after controlling for macro variables. For this purpose, this study employs the production function, including capital, labor, trade, human capital, and infrastructure as additional factors of production, Saidi, Mbarek, & Amamri (2015); Sakyi & Egyir (2017); and Combes, Kinda, Ouedraogo, & Plane (2019) among others, include FDI variable in their estimation model to observe influence on economic growth. Panel data is used to examine unobservable country effects and unobservable time

effect. There are basically two types of panel data models: i) panel model with one-way error component, ii) panel model with two-way error component. The econometric panel model for this study is identified as follows:

$$GDP_{it} = \beta_0 + \beta_1 \, (FDI_{it})$$
$$+ \beta_2 \, (Labor_{it}) + \beta_3 \, (capital_{it}) + \beta_4 \, (Trade_{it}) +$$
$$\beta_5 \, (Human\ capital_{it}) + \beta_6 \, (infrastructure_{it}) + \varepsilon_{it} \quad (2.1)$$

where i indicates the country, t indicates time period and remainder term ε_{it} is the error which is expected to be white noised and varies for every country within the time period. This is panel-data model based on the pooled OLS. However, Serrasqueiro & Nunes (2008) argued that developing countries fluctuate in terms of their political regimes, their colonial background, their geographical locations, and climatic conditions, their ideologies and religious affiliations, etc. And if country heterogeneity (μ_i) is not taken into the model it will certainly bias. Therefore, unobservable individual effects are included in the panel model. The new model can be written as:

$$GDP_{it} = \beta_0 + \beta_1 \, (FDI_{it})$$
$$+ \beta_2 \, (Labor_{it}) + \beta_3 \, (capital_{it}) + \beta_4 \, (Trade_{it}) +$$
$$\beta_5 \, (Human\ capital_{it}) + \beta_6 \, (infrastructure_{it}) + \mu_i + \varepsilon_{it} \quad (2.2)$$

Most of the previous studies suggest that panel data employ a one-way error component for the disturbances. A one-way error component model includes only one set of variables, for example, unobservable individual effects (μ_i), but a two-way error component model explores two sets of variables, for instance, unobservable individual effects (μ_i) and unobservable time effect (λ_t). In two-way panel data model, the error term is the total of three components: i) unobservable time effect (λ_t), ii) unobservable individual effects (μ_i), iii) idiosyncratic term.

This study uses the one way fixed effect approach. It will be needed to fully justify statistical inference and make some assumptions on ε_{it} , μ_i, and λ_t; for instance:

$$E\,(\varepsilon_{it}) = 0 \qquad E(\,\mu_i\,) = 0 \qquad E\,(\,\lambda_t\,) = 0$$
$$Var(\varepsilon_{it}) = \sigma_\varepsilon{}^2 \qquad Var(\mu_i) = \sigma_\mu{}^2 \qquad Var(\,\lambda_t\,) = \sigma_\lambda{}^2$$
$$E\,(\mu_i\ \varepsilon_{it}\,) = 0 \qquad E\,(\lambda_t\ \varepsilon_{it}\,) = 0 \qquad E\,(\mu_i\ \lambda_t\,) = 0$$

If there is relationship between unobservable countries effects (μ_i) and explanatory variables Cov (X_{it}, μ_i) $\neq$ 0 in panel model, random effects is inefficient than the most suitable way of carrying out

scrutiny is using fixed effects. On the conflicting, if there is no relationship between unobservable countries effects (μ_i) and explanatory variables Cov (X_{it}, μ_i) = 0, fixed effects is inefficient than the most suitable way of analysis is random effects estimator. The Hausman specification test justifies fixed effect and random effect models (Hausman, 1978). If unobservable individual effects are uncorrelated with the other explanatory variables (Ho is accepted), a fixed effect model gives biased estimators, and so otherwise, a random effect model is favored because violating one of the assumptions. When the panel data is balanced because the same time periods are available for all cross-section units; one might guess fixed effects to work well. Otherwise, the random effect estimator will be more suitable (Wooldridge, 2007). The new Least Square Dummy Variable (LSDV) model is

$$GDP_{it} = \beta_0 + \beta_1 (FDI_{it}) + \beta_2 (Labor_{it}) + \beta_3 (capital_{it}) + \beta_4 (Trade_{it}) + \beta_5 (Human\ capital_{it}) + \beta_6 (infrastructure_{it}) + \mu_i + \lambda_t + \varepsilon_{it} \qquad (2.3)$$

where μ_i indicates the unobservable countries effect, λ_t indicates the unobservable time effect and remainder ε_{it} is the error term in the last equation. The LSDV regression is OLS with dummy variables.

2.1. Description of Data and Sources

The connection between FDI and economic growth is studied using data from all world countries over a period of 16 years from 2002 to 2017. The list of countries and the relevant data in the latest decade for selected countries is presented in estimation tables. Secondary data is collected from the World Bank and UNDP. Data on capital, FDI, GDP per capita, trade openness, infrastructure, and the labor force is obtained from the World Bank while data on human capital is obtained from UNDP database. The capital, FDI, trade openness and labor force are taken as a percentage of GDP and GDP per capita variable are used in log form. The detail description of the variables and sources we have used in this panel study is given in Table 1.

Table 1: Descriptive Statistics and Data Sources

Variables	Definition	Data sources
GDP per capita	GDP per capita (constant 2010 US$).	World Bank
FDI	Foreign direct investment, net inflows (% of GDP)	World Bank
Labor	Labor force, total	World Bank
Capital	Gross fixed capital formation (% of GDP)	World Bank
Trade	Trade openness (% of GDP)	World Bank
Human capital	Proxy of the year of schooling	UNDP
Infrastructure	Access to electricity (% of population)	World Bank

3. Results and Discussion

This section presents the empirical results of panel data for all world regions. The results are categories in the subcontinent and income-wise two groups. Firstly, the empirical results are obtained from fixed effect model and secondly, empirical results of LSDV models are discussed. In Table 2, the results of fixed effect models are presented. In the econometric regressions, FDI has positive significant effects on the growth in South Asia, Latin America and Caribbean, EU and Central Asia, and sub-Saharan African. It is interesting to note that FDI is significant at 5% in South Asia; 10% in Latin America and Caribbean; 5% in EU and Central Asia, 1% in sub-Saharan African. The results indicate that most regions are attracting FDI inflows. This also implies that these regions have a feasible infrastructure for FDI. The important reason is the huge amount of FDI received by south Asia, EU and Central Asia, and sub-Saharan African, despite its have potential in GDP growth. These findings are consistent with the prior studies (Mele & Quarto, 2017; Sakyi & Egyir, 2017; Combes, Kinda, Ouedraogo, & Plane, 2019).

Similarly, labor and capital have a positive significant impact on growth except for one country, only labor variable is a negative sign in the Middle East and North Africa. Human capital is also significant at 1% in all cases. These results infer that FDI impels economic growth in a globe through the stock of human capital as well as labor and capital. When the required level of human capital is available, it enhances FDI into an economy. Therefore human capital is included in the econometric model. Our results are consistent with the empirical study given by Borensztein, De Gregorio, & Lee (1998) and Alvarado, Iniguezb, & Poncea (2017). Contradictory, trade is paying a significant negative role in the growth in all regions. However, the role of infrastructure is positive and significant implying that investment in infrastructure is critical to improving the growth rate of GDP in EU and Central Asia, and East Asia and pacific. The combined effect of FDI*Human capital is also positive and significant in all column.

Table 2: Dependent Variable GDP per Capita (Fixed Effect)

Variables	South Asia	Middle east and North Africa	Latin America and Caribbean	EU and central Asia	East Asia and pacific	sub-Saharan African
	(1)	(2)	(3)	(4)	(5)	(6)
FDI	0.022**	0.000	0.003*	0.0008**	0.001	0.0025***
	(0.011)	(0.000)	(0.002)	(0.000)	(0.002)	(0.001)
Labor	1.031***	-0.257***	0.361***	0.427***	0.263***	0.470***
	(0.164)	(0.039)	(0.039)	(0.081)	(0.074)	(0.044)
Capital	0.0068**	0.0098***	0.0098***	0.0026**	0.011***	0.0028***
	(0.002)	(0.002)	(0.001)	(0.001)	(0.003)	(0.001)
Trade	-0.001	-0.0013***	-0.0012***	0.000	0.001	-0.0014***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Human capital	0.138***	0.149***	0.0807***	0.101***	0.195***	0.0349***
	(0.038)	(0.014)	(0.007)	(0.011)	(0.020)	(0.013)
Infrastructure	0.668	0.608	0.268	0.848*	0.698*	0.469
	(0.539)	(0.599)	(0.759)	(0.409)	(0.351)	(0.738)
FDI*Human capital	0.451***	0.364**	0.573***	0.603***	0.403	0.593***
	((0.172)	(0.157)	(0.197)	(0.195)	(0.295)	(0.185)
Constant	-11.03***	11.64***	2.536***	1.859	2.601**	-0.144
	(2.606)	(0.541)	(0.572)	(1.230)	(1.155)	(0.652)
Observations	112	240	416	736	256	560
R-squared	0.727	0.447	0.507	0.61	0.47	0.39
Number of Country	7	15	26	46	16	35

Note: Standard errors (S.E) are described in parentheses. Levels of significance at the *10%; **5%; ***1%. We have applied Hausman's test to justify between fixed effect and random effect model. Hausman test is significant at 1% implying that fixed effects model gives more appropriate results. Therefore, results of random effect model are not reported.

Our LSDV model results are reported in Table 3. Although there are two modes to measure the LSDV one grouped variable and other variable create dummy, for instance, we used country as group variable and also create time dummy in two-way fixed effect models. Same as country observations are greater than time observations then we apply time dummy. According to Wooldridge (2007), LSDV model also captured unobservable individual and time effect. Further before regression, we check the unobservable individual effect and unobservable time effect on economic growth have a significant impact on economic growth then we used in LSDV model. The unobservable individual effect and unobservable time effect both are significant at different level and suggesting both are included in econometric model but country dummy is not mentioned in results because it has the number of observations. Another reason is we compared time to time changes in FDI in our study, that is why we run time periods dummy and country are group variable.

Our FDI variable is significant in most regions. This implies that FDI is best in all regions except one. The influence of FDI is noticeable in these regions. This finding is also in the line of Driffield & Jones (2013). The estimates for South Asia depend densely on their infrastructures like capital and human capital. Since South Asia is still labor-intensive and export-oriented manufacturing region. These are absolutely striking findings. Similarly, FDI is going more in the technological sector in this region. These differences in the consequences are based on the patterns of comparative advantage, and how some countries have attracted FDI in the different sector. In sum, the geographical patterns of FDI seem closely linked to infrastructural development as well high population.

Table 3: Dependent Variable GDP per Capita (LSDV Model)

Variables	South Asia	Middle east and North Africa	Latin America and Caribbean	EU and central Asia	East Asia and pacific	Sub-Saharan African
	(1)	(2)	(3)	(4)	(5)	(6)
FDI	0.0292**	0.000	0.0027*	0.0009***	0.0071***	0.0014*
	(0.012)	(0.000)	(0.002)	(0.000)	(0.002)	(0.001)
Labor	0.975***	-0.265***	0.575***	0.506***	1.566***	0.584***
	(0.168)	(0.041)	(0.047)	(0.101)	(0.162)	(0.046)
capital	0.0068**	0.0097***	0.0087***	0.0027**	0.0079***	0.0024***
	(0.003)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)
Trade	0.000	-0.0013***	-0.0014***	-3.990	0.0014***	-0.0012***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Human capital	0.127***	0.150***	0.0605***	0.0884***	0.026	0.008
	(0.038)	(0.014)	(0.006)	(0.011)	(0.024)	(0.012)
Infrastructure	0.678	0.648	0.368	0.878*	0.678*	0.569
	(0.529)	(0.599)	(0.779)	(0.419)	(0.339)	(0.632)
FDI*Human capital	0.472***	0.394**	0.593***	0.613***	0.413	0.583***
	((0.182)	(0.187)	(0.191)	(0.215)	(0.315)	(0.189)
FDI*2002	-0.014	-0.011	-0.0105***	-0.0166***	-0.006	-0.00931***
	(0.053)	(0.007)	(0.003)	(0.003)	(0.009)	(0.002)
FDI*2010	0.006	0.000	-0.002	0.001	-0.001	-0.001
	(0.022)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)
FDI*2015	0.0763**	0.000	0.000	0.0023*	0.0035*	0.001
	(0.034)	(0.004)	(0.003)	(0.001)	(0.002)	(0.002)
Constant	-10.07***	11.76***	-0.390	0.853	-16.59***	-1.743***
	(2.693)	(0.548)	(0.666)	(1.516)	(2.433)	(0.656)
Observations	112	240	416	736	256	560
R-squared	0.742	0.455	0.704	0.286	0.659	0.468
Number of Country	7	15	26	46	16	35
Country FE	YES	YES	YES	YES	YES	YES

Note: Standard errors (S.E) are described in parentheses. Levels of significance at the *10%; **5%; ***1%.

The regions with high population demand more goods and services so normally more FDI is moved to these regions. The magnitude of FDI in South Asia and Central Asia, which is even superior to the Middle East and North Africa, East Asia and Pacific, and even Sub-Saharan African economies. In short, labor and capital variables are significant in all cases except one. This implies that highly populated area is more helpful for growth rate and base on the labor-intensive economy. In findings, high populated regions are more growing, for instance, India and China. The interaction terms of FDI is significant in three cases in the latest period, implying that these economics have little bit suffered from the financial crisis of 2007. The growth impact of infrastructure remains positive and significant in Column (4) and (5). Other findings also remain intact as in previous Table 2.

We can get some awareness about the roots of these tendencies by looking at FDI patterns in the latest era in dissimilar country groups distinctly. The findings of low income, low middle income, upper middle income, and high income are reported in Table 4. The results indicate imperative regional differences. First, FDI is significant in low, middle, and upper-income groups. This implies that low, middle, and upper-middle countries have sophisticated more FDI. Some low-income regions have mature FDI that is helpful in the growth rate. The result also shows that labor effects are positive in three groups. They have done amazingly well in the labor force. These results also show that these regions attract FDI through the utilization of the labor force.

To be clear, skill labor can be well clarified by demographic trends through labor force and trade. The results for the high-income group are even more outstanding, the high-income group is the name of the region of good infrastructure, more exports, rich human capital is positive and statistically significant for growth rate. These results are consistent with empirics (Alvarado, Iniguezb, & Poncea, 2017; Mele & Quarto, 2017). Moreover, infrastructure increases GDP growth in only high-income countries. Moreover, the magnitude of the impact of FDI*Human capital is high and significant in all Columns compared to other variables.

Table 4: Dependent Variable GDP per Capita (Fixed Effect)

Variables	Low Middle income (1)	Low Income (2)	Upper middle income (3)	High income (4)
FDI	0.0035***	0.002*	0.009***	1.210***
	(0.002)	(0.001)	(0.001)	(0.001)
Labor	0.237***	0.318***	0.138***	-0.166***
	(0.041)	(0.044)	(0.033)	(0.026)
Capital	0.0086***	0.0045***	0.0052***	0.0061***
	(0.001)	(0.001)	(0.001)	(0.001)
Trade	-0.0011***	-0.0009***	-0.003***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)
Human capital	0.1471***	0.0265*	0.141***	0.0759***
	(0.013)	(0.014)	(0.011)	(0.006)
Infrastructure	0.498	0.398	0.568	0.758*
	(0.779)	(0.479)	(0.379)	(0.379)
FDI*Human capital	1.323***	1.312**	1.378***	1.732***
	(0.382)	(0.569)	(0.435)	(0.335)
Constant	2.695***	1.249*	5.460***	11.72***
	(0.610)	(0.652)	(0.498)	(0.382)
Observations	592	384	720	768
R-squared	0.451	0.512	0.542	0.572
Number of Country	37	24	45	48

Notes: Standard errors (S.E) are described in parentheses. Levels of significance at the ∗10%; ∗∗5%; ∗∗∗1%. We have applied Hausman's test to justify between fixed effect and random effect model. Hausman test is significant at 5% implying that fixed effects model gives more appropriate results. Therefore, results of random effect model are not reported.

We estimate our model with the LSDV in Table 5. To see how FDI, physical capital and human capital shape the size of the growth rate in low income, middle income, upper-middle and high-income group. The FDI coefficient is again significant at the 1% in low middle income and upper middle income, and 5% in low-income countries. The coefficient of other macro variables likes, capital formation is statistically significant at the level of 1% in all regions. Other two potential determinants, labor force, and human capital are important variables; they show significant impact on economic growth. These variables combine with FDI paying significant role in the all-region, low, middle and high-income group. Surprisingly human capital is insignificant in low income, where there is very low level of enrolment in school education. Similarly, in high income, countries are depressed and in miserable condition about labor force, because they show low level of fertility rate in these regions. These countries demand more labor force from highly populated area.

Compared to FDI interaction term with time in the low, low middle, upper middle, and high income countries, FDI interaction terms with time year 2015 are significant in all cases. Upper middle income and high income and the new emerging economies are significant at last era. The low and middle-income economies have experiences of two shocks. Labor is mostly unskilled and declines FDI due to high risk among regions. From this perspective, the attraction of FDI is good news for low and middle-income nations and also find that FDI has been moving in the right direction in upper middle and high income regions. In low and middle income, FDI has shrunk and even suffered. These consequences are already noticeable in the developing world.

Table 5: Dependent Variable GDP per Capita (LSDV Models)

	Low Middle income	Low Income	Upper middle income	High income
Variables	**(1)**	**(2)**	**(3)**	**(4)**
FDI	0.0017***	0.0019**	0.0068***	1.630
	(0.004)	(0.001)	(0.001)	(0.000)
Labor	0.836***	0.453***	0.472***	-0.260***
	(0.071)	(0.052)	(0.068)	(0.029)
Capital	0.0082***	0.0038***	0.0031***	0.0069***
	(0.001)	(0.001)	(0.001)	(0.001)
Trade	-0.0009**	-0.0008***	-0.0008**	0.0012***
	(0.001)	(0.001)	(0.001)	(0.001)
Human capital	0.0488***	0.015	0.113***	0.0754***
	(0.015)	(0.014)	(0.010)	(0.006)
Infrastructure	0.402	0.462	0.448	0.733*
	(0.559)	(0.439)	(0.479)	(0.369)
FDI*Human capital	1.423***	1.112	1.278***	1.702***
	(0.372)	(0.869)	(0.385)	(0.435)
FDI*Year$_{2002}$	-0.0169***	-0.0086***	-0.0219***	-0.0088***
	(0.006)	(0.0023	(0.00272	(0.00196
FDI*Year$_{2010}$	0.002	0.009***	0.00514*	7.2800***
	(0.003)	(0.002)	(0.003)	(0.001)
FDI*Year$_{2015}$	0.006**	0.004**	0.0125***	0.00179**
	(0.003)	(0.002)	(0.003)	(0.001)
Constant	-5.906***	-0.770	0.637	13.11***
	(1.039)	(0.778)	(1.007)	(0.421)
Observations	592	384	720	768
R-squared	0.558	0.416	0.516	0.338
Number of Country	37	24	45	48
Country FE	YES	YES	YES	YES

Note: Standard errors (S.E) are described in parentheses. Levels of significance at the *10%; **5%; ***1%.

The overall empirical results are reliable with the prior studies signifying that FDI is an important determinant of economic growth (Omri & Sassi-Tmar, 2013; Combes, Kinda, Ouedraogo, & Plane 2019). These results are consistent with the theory. The control variables results remain the same as in prior to Table 4. These findings imply that the bulk of FDI inflows have more in low and middle-income economies. Therefore, FDI plays an important role in economic growth in low and middle-income economies.

4. Conclusion and Policy Implications

The present study examines the impact of FDI on economic growth by using macro variables that include capital formation, trade, human capital, labor force, and infrastructure. A panel data of all world subcontinent countries covering the period 16 years and employs one way fixed effect; LSDV model for economic growth analysis. These findings are consistent with existing literature on roles of FDI on economic growth. The existing literature also suggests that developing countries have a capacity to achieve economic growth through FDI, because FDI is a combined bundle of foreign capital and technology development. According to Chee and Nair (2010), FDI, human capital, and trade openness have positive impacts on economic growth.

The FDI has promising impacts in the last decade for the two of the world sub-continent countries like sub-Saharan African, EU and Central Asia, and Latin America and Caribbean regions. India, Brazil, China, Hong Kong, Malaysia, Singapore, and South Korea are the most indulgent for FDI followed by other developing countries. The second major finding is that capital formation is an important factor of economic growth in world economics. Thus, policymakers, researchers and think tanks must inspire private national savings as they boost the interest rate. Moreover, there is a need for a favorable business environment and the advancement of the infrastructural base of the economy to increase capital formation. Thus for policies perspective; government must be addressed simultaneously by the private and public saving rate and national investment, lending rate, and Tariff & tax rate.

Although in the present study, human capital has significant influence on economic growth, human capital development is bossy for the development of the knowledge-based intensive economy. Both the public and private sectors play a vital role in hovering the level of skilled labor force in the region. Governments should offer fiscal and monetary incentives for human capital development, while the private

sector should inspire their staffs to engross advanced education and training. The private sector contribution can be enlarged if the suitable taxation system is in place to decrease the problem of training and developing the labor force. The future of FDI in a highly-populated area is very gleaming. This implies that moderate FDI is conceivable through upgraded fundamentals–better institutions and rising packages of human capital, technical skills, knowledge, and even good infrastructural development. The political upshot of FDI is more elusive but could be even more energetic. The future of FDI will be significantly impacted if macro issues are not addressed. This requires a re-think on FDI concept and practices.

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