

IMPACT OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH: EVIDENT FROM INDIAN ECONOMY

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Abstract

Foreign Direct Investment is considered to be one of the major contributors to the growth of economies thus attracting researcher's attention to this area. FDI is well known for driving economic growth thus this paper attempts to investigate the impact of Foreign Direct Investment on the Economic Growth of India. FDI is assumed to be a crucial driving force of the economic growth of the nation. However, empirical evidence shows mixed results. We aim to establish both the long and short-term impact of FDI on growth. Time series data for two decades ranging between the time period from 1991 to 2020 has been used and results reveal there is a significant influence of FDI on economic growth in the long run, also in the short run FDI directly as well as indirectly affects the growth via its integration with human capital.

Keywords: FDI, Economic Growth, Indian Economy, ARDL Model, human capital

Introduction

Foreign Direct Investment (FDI) has been identified as one of the major determinants of economic growth and has resultantly attracted the attention of policymakers, academicians, and government. FDI is used widely to fill the gap between savings and investment which in turn improves infrastructure, increases demand for labor generates employment, increases wages, production, competition among domestic players hence improving the quality of goods and services thus the standard of living. Most of the economic growth is due to capital inflow and the transfer of technology through foreign firms. FDI increases the export of the host country increasing inflow of foreign exchange.

FDI is crucial for developing countries as host countries benefit from FDI through funding, investment, infrastructure facilities thus creating jobs, providing higher wages, technology transfer, and increasing economic growth (Dritsaki & Stiakakis, 2014). Developed countries like the USA and the EU also rely on FDI. However, in such developed nations the source of FDI is mergers and Acquisitions. In developing nations like India usually, the source

of FDI is through MNC's. MNC's bring new and better technology, improve the profitability of the company through spillover of technology and managerial knowledge, raising productivity.

It has been believed by researchers that FDI is one of the major contributors to the growth of developing nations. Foreign Direct Investment is used to fill in the gap between the required investment by the nation and the domestic savings. It is a major source of external finance and capital formation and enhances the growth of the economy (Falki, 2009).

As per earlier research, Foreign Direct Investment affects economic Growth in majorly 2 ways:

1. The inflow of foreign funds for domestic investments creates jobs. Improves technology and knowledge thus increasing economic growth (Dritsaki & Stiakakis, 2014) and (Melnyk, Kubatko, & Pysarenko, 2014)
2. Inward FDI increases host countries productivity and hence improves competitiveness which might increase exports

thus leading to economic growth (Moudatsou, 2003)

Empirical studies reveal economic growth is a complex phenomenon that has bi-directional causality with factors affecting it. Also, a large number of factors that contribute to growth are themselves interrelated. Various studies reveal that factors affecting growth also are affected by growth in return. Various time series factors such as GDP, FDI, Trade Openness, and human capital are interlinked and they also have a bi-directional relationship with growth. It is difficult to say if the increase in capital is leading to economic growth or growth causes higher capital formation.

With the growth of globalization and openness of trade, the volume of FDI has increased. Although each country attempts to attain higher growth each country has different ways however FDI plays an important role in enhancing growth. FDI is a key to deriving economic growth bringing financial stability, contributing to economic integration, and improving the standard of living (Borensztein, Gregorio, & Lee, 1998).

FDI has opportunities as well as challenges associated with it. Thus, this paper attempts to analyze the short and long effect of FDI on the economic growth of the Indian economy from the period of 1991-2020. The results of the study will highlight what policies should be made to enhance the benefits occurring as a result of the inflow of FDI on the growth of the nation.

REVIEW OF LITERATURE

The linkage between Foreign direct investment and the growth of the economy has gathered a lot of interest of academicians and economists. There is a huge amount of theoretical and empirical research on this topic especially due to mixed results. Theoretically, FDI is likely to benefit the economy and lead to economic growth through transfer of technology, increasing employment, increasing exports thus improving balance of payment.

(Hymer, 1976) Suggested technology transfer benefits the firm by bringing in products, processes and technical knowledge and also benefits the economy through spillover effect. (Borensztein, Gregorio, & Lee, 1998) Through

his study of 23 Asian countries concluded FDI in the linking variable between technology and economic growth also he went to explain the role of Human Capital to absorb the benefit brought by FDI to the host country. (Sokang, 2018) in his research on effect of FDI on economic growth of Cambodia from 2006-2016 stated that FDI brings technology and benefit the host country through learning which results from spillover of human capital and technology. FDI in India has positive influence on Economic growth due to improvement of total factor productivity through spillover (Choi & Baek, 2017)

Similarly in a study conducted by (Lauzi & Abadi, 2011) stated FDI has a positive and significant impact on the growth of economy but they also stated that FDI is not the sole factor affecting economic growth such as flexible labor, trade policies, tariff structure, political stability, etc. Likewise results were revealed by (Singh et.al, 2012) who emphasized on favorable effect of FDI on growth of India achieving its goal through improved Balance of payment, reduced poverty and improved economic development. (Koojaroenprasit, 2012) stated FDI has a positive effect on economy but other factor such as human capital, employment and amount of exports are other crucial factors to be considered. In a study conducted by Rehman, A. and Chakraborty, S. (2015) on Bangladesh emphasized that FDI has positive effect on growth via managerial and technological progress. A study conducted by (Silajdzic & Mehic, 2015) showed technology and innovation brought through FDI plays an influential role in growth of the host country's economy. FDI along with development of human capital are essential for growth of the nation (Fadhil & Almsafir, 2015). (Raj & Pahwa, 2018) Stated FDI has a major role in economic growth and suggested ways to attract more FDI to maximize the benefit achieved through it.

(Omran & Ali, 2003) Indicated economic and political condition of the host country are equally important as FDI in bringing economic growth. (Balasubramanyam, Salisu, & Sapsford, 1996) stated greater the trade openness more a country is likely to benefit from FDI. Similarly (Weinhold & Nair-Reichert, 2001) using cross sectional data observed FDI leads to economic growth of various nations however the amount

of growth varies depending on the level of trade openness. (Basu, Chakraborty, & Reagle, 2007), went to say there is co-integration between FDI and economic growth and had a bi-directional causality between the variables. Also, (Liu, Burridge, & Sinclair, 2002) found bidirectional relationship between FDI, economic growth and exports provided there is trade openness. On the contrary (Alfero, Chanda, Kelimli-Ozcan, & Sayek, 2004), concluded on his study of OECD countries that effect of FDI on level of economic growth depends on the level of financial market.

Studies reveal FDI in one of the most used variable to analyze GDP. As per the study conducted by (Sayki, Commodore, & Opoku, 2015) in Ghana for 1997-2010 stated increased FDI has a favorable impact on the GDP in long run. In a study by (Chakraborty & Nunnenkamp, 2008), for Indian economy, it was found FDI and output are co-integrated in long run. Similar results were found by (Waqas, 2016) and found positive and significant impact of FDI on GDP where GDP was used to represent economic growth.

Borenstein, De Gregorio and Lee (1995) in their study of 69 developed countries from 1970-89 found FDI itself had marginal positive impact on economic growth but when FDI was interacted with education it had a strong and positive influence on the growth. Similar results were shown by a study conducted in China by (Mody & Wang, 1997) according to which interaction between school enrollment rate and FDI has significant and positive influence on growth. (Borenstein, Gregorio, & Lee, 1998) Noted that FDI alone is not significant contributor to the growth as technology transfer depends on the absorption capacity of the host country which was measured by interaction FDI and schooling. However as per a study conducted by (Moudatsou, Foreign Direct Investment and Economic growth In European Union, 2003) on countries of EU from 1980-1996 states economic growth is positively affected by FDI and trade openness but negatively by the level of education and the interaction term of FDI*education was not significant.

Another group that found results which were not in line with the above results were as there is negative affect of FDI on economy. (Saltz, 1992) found negative relation between FDI and economic growth due to reverse causation.

(Aitken & Harrison, 1999) And (Carkovic & Levine, 2002) concluded no significant impact of FDI on economic growth even when the relation is positive the affect is very weak indicating there are other factors responsible for economic growth other than FDI. A study conducted by (Konings, 2001) for a period of 1993-97 in Poland, concluded no positive influence of FDI on economic growth of Poland due to reverse transfer of managerial and technical knowhow and trade imbalance. (Yi & Chih-Chiang, 2008) for the period covering 1997-2008 indicated no relationship between FDI and economic growth. It was stated FDI can hinder the economic growth in short run while human capital, domestic investment and domestic credit have positive impact on economic growth in short run. However majority of literature says that FDI is a major factor influencing of economic growth.

Research Methodology

The empirical analysis considers time series data of India from period of 1991 to 2020. The data has been taken since 1991 as it was after 1991 that the policies were liberated and FDI welcomed.

ARDL (Auto Regressive Distributed Lag) model has been used in multivariate framework. ARDL model has certain advantages over other co-integration techniques given by Johansen (1988) and Granger (1987). Firstly, ARDL model considers previous lags of dependent variable and current and previous lags of independent variable. Secondly, unlike VECM it considers endogenous as well as exogenous variables. Thirdly, ARDL can be specified if variables are integrated at level one or are a combination of I(1) and I(0). Fourth, ARDL can specify both short and long term results simultaneously if the variables are co-integrated.

ARDL is widely used in small data set (Hye, Wizarat, & Lau, 2013).

ARDL consist of two steps first is to find the short term relationship between the variables and second is to find the co-integration using bound test. If co-integration exists between the variables then error correction term is determined. The model in such case will be:

$$\Delta GDPpc_t = a_1 + \sum_{i=1}^p \beta_i \Delta GDPpc_{t-i} + \sum_{j=1}^q \phi_j \Delta FDI_{t-1} + \sum_{m=1}^q \theta_m \Delta GE_{t-1} + \sum_{n=1}^q \pi_n DI_{t-1} + \sum_{n=1}^q \alpha_i FDI * H_{0-i} + \sum_{o=1}^q \alpha_i \Delta TRADE_{t-i} + \lambda ECT_{t-1} + e_t$$

where

a=constant

t=time period measured quarterly

P,q=p is lag of dependent variable and q is lag of independent variables

β, ϕ, θ, π =short run dynamic coefficients of the model's adjustment long run equilibrium

e_t =Error term

λ =speed of adjustment

ECT_{t-1} =the error correction term is the lagged value of the residual obtained from the co-integrating regression of the dependent variables on the repressors, containing long run information from long run co-integration equation.

GDPpc is the gross domestic product per capita, FDI denotes foreign direct investment, GE refers

to the government expenditure, DI is domestic investment made in a country trade is trade openness measured as sum of import plus export as a ratio of GDP, FDI*H is the interactive term of FDI and human capital where human capital is measured as those who have enrolled in secondary education.

Results

Unit root test

Stationary is most important property to be checked in case of time series data. It is essential to know the order at which the variables are integrated in order to determine which model is to be applied. In order to analyze the stationary property unit root test is used. In table below Augmented Dickey-Fuller Test was applied to determine the order of integration among the variables under the study. As shown in table 1 variables are integrated at level I(0) and first difference I(1) it is appropriate to apply ARDL model. Variance inflation factor has been used to check multi collinearity between the variables it was found that Human capital has very high centered VIF due to which Human capital was removed from the list of independent variable

Table 1: Unit root test

Variable	At Level T- stats (p-value)	At first difference T-stats (p-value)	Findings
Change in GDPpc	-2.8185 (0.9515)	-6.4340 (0.01)	I(1)
Trade openness	-4.01341 (0.2958)	-7.6782 (0.001)	I(1)
GE	-3.7030 (0.5629)	-8.0570 (0.01)	I(1)

DI	-5.6634 (0.01)	-	I(0)
FDI	-3.1152 (0.8748)	-7.0590 (0.01)	I(1)
FDI*H	-22.6690 (0.01)	-	I(0)

Co-integration and causality

The results of bound test reveal there is long run co-integration between growth and FDI, integrated variable FDI*h, domestic investment, government expenditure and trade openness. The best fit ARDL model is (1,2,0,0,1,0). The lag length for the model is selected on the basis of (AIC) Akaike Information Criteria.

Using bound test, null hypothesis which states that there is no co-integration among the variables has been rejected in favour of alternate hypothesis to estimate short and long term causality between the variables along with Error Correction Term (ECT). ECT defined as the speed with which dependent variable follows independent variables.

Long run coefficient		Short run coefficient	
Variables	coefficient	Variables	Coefficient
GE	0.0446 (0.000)**	Change inGDPpc(-1)	1.7392 (0.1788)
DI	0.1970 (0.0072)**	GE	0.01882 (0.9049)
FDI	0.0275 (0.001)**	GE(-1)	1.6119 (0.0502)**
FDI*H	4.0571 (0.036)**	GE(-2)	0.4906 (0.0718)**
TRADE	0.2539 (0.1855)	DI	0.0433 (0.0025)
		FDI	0.63310 (0.7049)
		FDI*H	0.3713 (0.0236)**
		FDI*H(-1)	2.4991 (0.1852)
		TRADE	0.1381 (0.7830)
		ECT	-0.1484 (0.000)**

The above results reveal FDI, Domestic investment, and FDI*h have a positive and significant effect on growth in the long run however the integrated variable of FDI with human capital has maximum influence on economic growth in the long run. The error

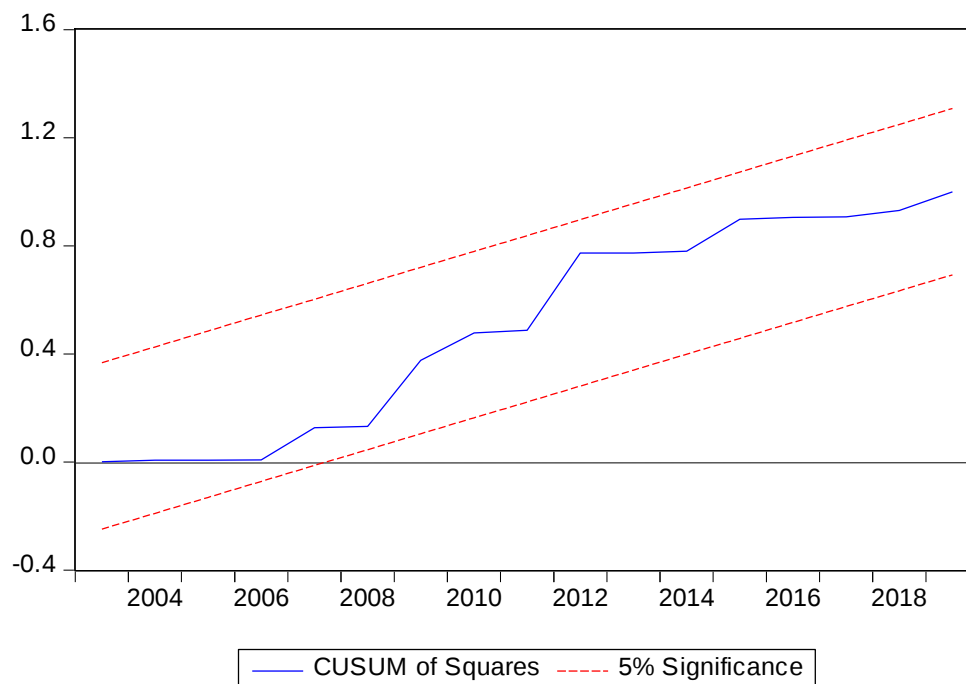
correction term is also significant at 5% and has a negative sign indicating long-run convergence to equilibrium at a rate of 14.8%. However, in the short run, FDI*H and lags of government expenditure has

Note; $R^2=0.48$; Adjusted $R^2=.44$; F-statistics=7.24(0.000); AIC=-2.616; DurbinWatson=1.97; probabilities are in () **at 5% level of significance

Impacted the economic growth while both of these variables have a marginal impact on growth of Indian economy

To check best fit of the model we used three tests .These also check the explanatory power of ARDL model used above. First test is CUSUM square test to check the stability of coefficients of the model. As the model line is found to be lying between the two bounds indicating stability of the model. Further results reveal absence of serial correlation and hetroskedasticity Indicating model is fit to be used.

Daignostic Testing



Conclusion and Implications

The purpose of the paper is to find the impact of Foreign Direct Investment on growth of Indian economy. The findings of the study suggest FDI, government expenditure and domestic investment all have influenced economic growth however the integrated variable of human capital and foreign direct investment has most prominent impact while trade openness seems to be insignificant factor. These results indicate that domestic funds as well as foreign finds in form of FDI brings in capital which accelerate the rate if economic growth. Moreover, the integrated variable has significant influence on improving economic growth explaining human capital helps in technology by transfer from home to host country which leads to economic growth and development.

Moreover, Thus government should aim at liberalising its policies to attract more and more FDI in the economy to bridge the gap of the

capital also efforts should be made to improve the level of education as human capital are able to benefit the economy by absorbing the knowledge and skills brought by FDI leading to economic growth and development.

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