Does Foreign Direct Investment Lead Economic Growth in India?

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Abstract

This paper investigates the causal relations between foreign direct investment and economic growth in a developing country like India. The analysis has been made under Johansen's Cointegration framework based on 21 years of data covering the post reform era of the country. The Cointegration analysis finds strong positive relation between FDI and economic growth in India. The study concludes with a suggestion that the policy makers in India should develop investor friendly environment conducive for attracting more amount of capital from the developed world.

Keywords: FDI, Economic Growth, Unit Root, Cointegration

1. Introduction

The casual link of Foreign Direct Investment (FDI) and economic growth has been long debated issue especially in the context of developing world. FDI in developing countries takes a vibrant part of GDP acceleration and rapid economic growth (Mottaleb, 2007). It has potential for making contribution to the development through the transfer of capital, technology, and knowhow and improvement in overall productivity.Non-debt and non-volatile nature of FDI flows preserve the long term interest of the investors, which make it most preferred form of external funds for countries in the present globalised world. Creation of employment, enhancement in competitiveness and entrepreneurship, increased foreign exchange reserves and eradication of poverty are the other economic rationale for them to open their doors to FDI. For deriving its benefits up to its optimum level the host countries are offering both fiscal and non-fiscal incentives to multinationals to take up new ventures.

Inward FDI to the low or middle-income countries has the evidence as a major stimulus to the economic growth. There is a possible range of factors which ensures that FDI promotes or hinders economic growth of a country (Karimi and Yusop, 2009). The rate of growth of these economies depends on the extent to which they adopt and implement advanced technologies developed in higher-income countries, which is possible only through technology transfers. It may promote growth by relaxing human-capital constraints in the host country and strengthening the competitiveness of its export sector. Conversely, many studies such as (Khawar, 2005) finding a clearly positive nexus between FDI and growth across host countries. Several studies qualify this optimistic view by identifying certain edges such as human-capital endowment, financial market development etc. that host countries would have to reach before they can reap favourable growth effects of FDI. In other words they assume that the potential of economic growth in developing countries causes their FDI inflows. Indeed, FDI inflow affects by some important determinants like GDP per capita, average growth rate of GDP, foreign reserves, gross capital formation, human capital, terms of trade and others, essential infrastructure. Thus FDI flows make diverse impact on the growth curve of the economy. However the impact of FDI on growth to be greater under an export promotion trade regime compared to an import substitution regime (Kohpaiboon, 2003). Greenfield FDI, in particular, may supplement local investments and add to the production capacity of the host country.

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India is a cost effective labour intensive economy, and has benefitted immensely from outsourcing of work from developed countries and has a strong manufacturing and export oriented industrial/service framework. The FDI stock in India was less than USD 2 billion only in 1991, the year of initiating economic reforms in the country, which went up to USD 25.6 billion in 2010 (DIPP). Almost all leading multinationals have their business in India and most of them have already started their production centres here. The dominant services sector led by information technologies and information technology enabled services has grown faster in India than all other countries in the last three decades (Walters et al. 2008).As an emerging economy India has witnessed unprecedented levels of economic expansion during the same period. FDI and exports are among the factors affecting its growth (Jayachandran and Seilan, 2010). In the backdrop of these discussions, this paper is aimed to investigate whether the FDI flows could be considered as a driver of economic growth in India.

The remaining part of the paper proceeds as follows: Section 2 provides the survey of literature; Section 3 gives some formalized facts as to FDI and economic growth in India; Section 4 discusses the data and empirical methodology; Section 5 reports the results of empirical investigation, followed by concluding remarks in Section 6.

2. Review of Literature

The relationship between FDI and growth is one of the most intensively researched issues in international economics. Empirical evidence between FDI and economic growth is often ambiguous (Jyun-Yi and Chih Chaing, 2008). Dissimilar results could be observed in terms of nature of causality and its direction in different country contexts (Ericsson and Irandoust, 2001). When studies like Borensztein et al. (1998), Hansen and Rand (2006) and Alam and Mian (2006) found causal relationships between FDI and long-term economic growth, studies like Chakraborty and Basu (2002) found causality in reverse direction. Kholdy and Sohrabrian (2005) have critically discussed such relationship.

The diverging impact of FDI on economic growth in different time period is also quite evident by literature. Moreover many studies relate different causes for such argumentative relationship between FDI and economic growth. Bengoa and Blanca (2003) showed significant positive impact of FDI on economic growth in the Latin American countries over the period 1970-1999. But Yaqub et al. (2013) failed to capture the structure of interrelationship between FDI and economic growth in Nigeria. Agarwal (2000) found negative impact of FDI in five South Asian countries - India, Pakistan, Bangladesh, Sri Lanka, and Nepal - during 1960s and 1970s. But later slightly positive linkage in 1980s and strong positive linkage in 1990s was observed. Reichert and Weinhold (2001) argued that the relationship between investment, both foreign and domestic, and economic growth in developing countries is highly heterogeneous and the usefulness of FDI in raising future growth rates is higher in more open economies. Krugman (1998) argued that the transfer of control from domestic to foreign firms may not always be beneficial to the host countries because of the adverse selection problem. FDI impacts growth of economies with sufficiently developed markets (Alfaro et al., 2003). Farkas (2012) showed that the impact of FDI depends on the country specific absorptive capacity and its contribution to economic growth is positive and significant depending on the level of human capital and the development of financial markets, but its presence in developing countries must complement rather than substitute a set of other growth determinants. Wijeweera et al. (2007), based on the data from 45 countries, captured positive linkage between FDI and economic growth, but which is only in the presence of a highly skilled labour. The study argued that trade openness increases economic growth by means of efficiency gains. Li and Liu (2005) found that FDI promotes economic growth through its interaction with human capital in developing countries and makes negative impact through its interaction with the technology gap.

In Indian scene Rajput et al. (2012) and Ray (2012) found positive relationship between FDI and GDP growth. Many studies like Agrawal (2005), Bhat et al. (2004) and Pradhan (2002) failed to find a robust and positive link between inward FDI and economic growth. Kamalakanthan and Laurenceson (2005) claim smaller contribution of FDI to gross fixed capital formation in India as the reason for not able to consider it as an important driver of economic growth of the country. In their study, Agrawal and Shahani (2005) substantiate that the quality of FDI is more important than its quantity for a country like India.

The divergent findings produced by these literatures suggest that the impact of FDI on economic growth remains highly controversial. This is mostly due to the different methodological issues related to sample selection or model application by authors. Unlike other studies of this kind in Indian context along with capturing causal relation between FDI and economic growth this paper intends to provide some insights to the readers about the change in contribution, trends and composition of FDI stocks to India during the period 2000-2012.

3. Data and Methodology

3.1 Data

The study has used published annual data series on Gross Domestic Production of India and Foreign Direct Inflows in to the country during the period from 1991-92 to 2010-11. The data were collected from Annual Reports of RBI and official publications of Ministry of Commerce and Industry of India.

3.2 Methodology

This part explains the empirical methodology pursued in the study to investigate the linkage of GDP of India with the FDI flow to the country.

3.2.1 Non-Stationary Time Series (Unit Root)

Time series analysis must fulfil the stationary property of data series for drawing useful inferences. So at first stationarity of the time series variables is tested by performing unit root test. This process intends to detect among the variables stationary causal relationships and to avoid the problem of spurious regressions. The most desirable case is when all the variables are integrated of the same order and then to proceed with Cointegration test. The study has followed the standard procedure of unit root testing by employing the Augmented Dickey-Fuller (ADF) test.

ADF is a parametric method for controlling higher order correlation by assuming that the series follows an AR (p) process. The Augmented Dickey-Fuller test requires running a regression of the first difference of the series against the series lagged once, lagged difference terms, and a constant with a time trend such as:

$$\Delta Y_t = a_0 + \beta_0 + \lambda Y_{t-1} + \gamma_i \sum_{i=1}^{m} \Delta Y_{t-1} + \varepsilon_0 \qquad (1)$$

Where Δ is the first difference operator, et is an error term, and m is the number of lagged first differenced term and is determined such that et is approaching white noise.

3.2.2 Setting Appropriate Lag Length of the Model

The issue of finding the appropriate (optimal) lag length is very important because the study wants to have Gaussian error terms. Setting the value of the lag length is affected by the omission of variables that might affect only the short run behaviour of the model (Asteriou and Hall, 2005). The most common procedure in choosing the optimal lag length is to estimate a VAR model including all the variables. The VAR model should be estimated for a large number of lags, then reducing down by re-estimating the model for one lag less until we reach zero lags. In each of the models one should inspect the values of the Akaike Information Criterion (AIC), Schwarz Bayesian Criterion (SBC) and Hannan-Quinn criterion (HQC). In general the model that minimises AIC and SBC is selected as the one with the optimal lag length.

3.2.3 Co-Integration

The study is also interested in capturing the long run or equilibrium relationship and this is mainly what the concept of cointegration allows. Johansen (1991) derived a maximum likelihood approach to estimation and testing the number of cointegrating relationships among components of a k vector of x variables by Trace test. The cointegration equation which has the presence of intercept and linear trend and expressing the long-run relationship between the FDI and economic growth can be written as

$$A(B'y_{t-1} + c_0 + d_0 t) + c_1 + d_1 t \qquad (2)$$

The expected sign of the coefficient β„ is positive and is the long run disturbance term.

4. FDI and Economic Growth in India: Some Stylised Facts

4.1 Government Initiatives

The policy framework of FDI in India developed in a phased manner, from the strategy import substitution soon after independence to progressive liberalisation that began in the early 1990s. The Government of India promotes FDI so as to stimulate its development plans with increased investment and gain spin-off benefits. FDI flows in the development of infrastructure, setting up of Special Economic Zones (SEZs), and technological up gradation of Indian industry through Greenfield operation investments in manufacturing and in projects with high employment potentials are encouraged. The Government has amended regulations on foreign capital investments and they proved prolific in attracting more amounts of capital flows in to the country even during the crisis times. Sectors like BFSI (Banking, Financial Services and Insurance), retail, telecommunication etc., which had more restrictions on foreign investment previously, are giving much focus in the new amendments. The FDI cap for the Indian telecommunications sector, for instance, is no longer 74 percent but a whopping 98 percent (Nataraj, 2009). No environmental clearances are required for projects with an investment of less than Rs. 1 billion. No cap on FDI is applicable to Indian companies using foreign capital for their investment operations in the country. New FDI cap in sectors like banking, media etc. are yet to be finalised. 100 percent FDI in retail (single brand) has already been allowed and FDI in multi-brand retail is almost under decision.

4.2 Trends and dimensions of FDI Flow in India

The economic reforms of 1991 and India's association with WTO made the country one of the prominent centres of capital investments for many of the foreign multinationals. The positive changes can be predominantly attributed to the judicious scheming of its policy framework by the government. The Government promotes private investment financed by foreign nationals/corporate in the country in order to enhance the competitiveness of the domestic economy through transferring technology, strengthening infrastructure, raising productivity and generating new employment opportunities (Joshi, 2010).

4.2.1 FDI to India: Major Contributors

Mauritius continues to be the preferred route for directing FDI into India (Table 1). About 39.20 $ billion FDI came via Mauritius during the last 10 years. This is mainly because most of the investors want to take advantage of the double taxation avoidance agreement between Mauritius and India and Mauritius-based investors do not have to pay capital gains tax in India. Singapore is the second largest contributor of FDI after Mauritius, with 10.40 $ billion during the same period. Japan comes in third with 7.53 $ billion followed by the Netherlands (6.43 $ billion) and the USA (5.79 $ billion), and then Cyprus with 3.85 $ billion.

Table 1: Top FDI Contributors to India

Rank	*Country*	*2000-2012 in $Billion*
1	Mauritius	39.20
2	Singapore	10.40
3	Japan	7.53
4	Netherlands	6.43
5	U.S.A	5.79
6	Cyprus	3.85
7	France	2.80
8	U.K	1.78
9	U.A.E	1.37
10	Germany	1.27

Source: DIPP

4.2.2 Trend in FDI Stocks to India

The trend in FDI inflows to India during the last 20 years is given in Table 2. India is gaining terrific growth in its FDI flows year by year. After the initiation of the financial market reforms in the country, especially after 2005, FDI flows to the country have been really incredible. Relatively better performance of the corporate sector and a positive economic growth at the rate of 6-7 percent give confidence the foreign investors to find Indian economy apposite for their portfolio diversification. Further relaxation in FDI measures for diverging sectors and continued investor interest may maintain the present trend in future also.

4.2.3 Sectoral Composition of FDI to India

Data, disseminated by many studies and published sources, on inward FDI stocks for specific sectors and industries reveal a tremendous shift from FDI in the primary and the manufacturing sectors to FDI in services since the mid-1990s. During the period of observation, that is from 2000-2012, about 20 percent FDI stocks to

India is constituted by service sector. FDI in this sector might have been profoundly concentrated in information and communication services. Investor preference in sectors like telecommunications, construction, real estate and IT hardware sectors has been almost at same scale.

Table 2: FDI Inflows to India (1991-2011)

Year	*FDI flows (crores)*	*Year*	*FDI flows (crores)*
1991-1992	408	2001-2002	18654
1992-1993	1,094	2002-2003	12871
1993-1994	2018	2003-2004	10064
1994-1995	4312	2004-2005	14653
1995-1996	6916	2005-2006	24584
1996-1997	9654	2006-2007	56390
1997-1998	13548	2007-2008	98642
1998-1999	12343	2008-2009	123025
1999-2000	10311	2009-2010	123120
2000-2001	10733	2010-2011	88520

Source: RBI Annual reports

Table 3: Sectors attracting Highest FDI equity inflows in India (2000-2012)

Rank.	*Sector*	*Percent*
1	Services	20
2	Telecommunications	8
3	Construction	7
4	Housing and real estate	7
5	IT and Hardware	7
6	Drugs and Pharmaceuticals	6
7	Power	4
8	Automobiles	4
9	Metallurgy	4
10	Petroleum and Natural Gas	2

Source : RBI Annual reports

4.3 Economic Growth of India

Indian economy showed robust growth during the last ten years of the study (Table 4). High growth rates in industry and service sectors, and a gentle world economic environment provided a backdrop conducive to the Indian economy.

Until the global financial crisis showed its head in mid-2007, the Indian economy was witnessing a break in its growth and had moved to a range of above 9 percent, supported by strong domestic consumption, investment and export demand. Then after a spell of long growth it has experienced a slump in 2008. It showed down turn to 6.8 percent in 2008-09, but achieved above 7 percent growth in 2009-10. The economy has expanded on an average 8.5 percent between 2003-04 and 2009-10.

Table 4: GDP growth in India

Year	*GDP growth (%)*
2001-2002	5.80
2002-2003	3.80
2003-2004	8.50
2004-2005	7.50
2005-2006	9.50
2006-2007	9.70
2007-2008	9.20
2008-2009	6.70
2009-2010	7.40
2010-2011	8.40

Source: Economic survey reports

5. Empirical Results and Discussions

This part of the paper is devoted to identify whether the change in Foreign Direct Investment stock of the country causes economic growth in India. The analysis is restricted to the bivariate relationship between FDI and growth. The bivariate approach has been used in several studies on the causal links between FDI and growth. The methodology pursued for the analysis has been detailed in the ongoing paragraphs.

5.1 Unit Root Results

Since causality tests assume stationary or the presence of random behaviour of the series, the study checked the order of integration at first with ADF estimates. Table 5 reports the results of unit root test, first for their logarithmic levels and then for their first differences.

The results indicate that each of the series is non-stationary when the variables are defined in levels. But first differencing the series removes the non-stationary

Table 5: Augmented Dickey Fuller Test results

Variable	Unit root at logarithmic level				Unit root at first difference			
	Without trend		With trend		Without trend		With trend	
	test statistic	P value	test statistic	P value	test statistic	P value	test statistic	P value
FDI	-2.3573	0.1665	-2.3738	0.3788	-4.2618	0.000*	-4.0809	0.0261*
GDP	-2.6676	0.0987	-2.6017	0.2833	-6.5324	0.000*	-6.4409	0.0001*

*denotes significance at five per cent level and the rejection of the null hypothesis of non-stationarity.

Table 6: Test Statistics and Choice Criteria for Selecting the Order of the VAR Model

Lags	LL	P(LR)	AIC	BIC	HQC
1	-3.89739		1.254071	1.362588	1.185666
2	-3.10027	0.20672	1.290958	1.435647	1.199752
3	-2.95572	0.59080	1.446495	1.627356	1.332487
4	-2.94561	0.88692	1.626475	1.843509	1.489665
5	1.14996	0.00421	1.063644	1.316850	0.904033
6	1.48053	0.41615	1.185357	1.474736	1.002945
7	7.18225	0.00073	0.330499	0.656050	0.125285
8	15.98260	0.00003	-1.087746	-0.726023	-1.315762

Note: AIC: Akaike Information Criterion, SBC: Schwarz Bayesian Criterion
HQC: Hannan-Quinn criterion

components in all cases and the null hypothesis of non-stationarity is clearly rejected at the five percent significant level, suggesting that all our variables are integrated of order one.

5.2 Johansen Cointegration Test Results

We want to test for the existence of cointegration relations among GDP and the FDI variable. The Johansen method is known to be sensitive to the lag length (Banerjee et al., 1993), and we therefore estimate the VAR system comprising FDI and GDP for various lag lengths and calculate the respective Akaike Information Criterion (AIC), Schwarz Bayesian Criterion (SBC) and Hannan-Quinn criterion (HQC) in order to determine the appropriate lag length for the cointegration test. Four alternative VAR (P), p= 1, 2, 3 and 4 models were estimated over the sample period and as expected the maximized values of the Log-Likelihood increase with p. All the criteria indicated that the optimal lag length is four (Table 6). So we test cointegration using four lags in the VAR system.

We also need to determine the appropriate restrictions on the intercept and trend in the short run and long run models. For this we use the Pantula principle, that is we estimate all three alternative models and move from the most restrictive models to least restrictive models, based on the trace or maximal Eigen value test statistics, stopping only when the null hypothesis is not rejected for the first time. The results from the three estimating models are presented in Table 7. The first time that the null hypothesis is rejected is for the second model (unrestricted intercept and no trend) and we can see that both the trace and maximal Eigen value test statistics suggest the existence of one cointegrating relationship.

The results for the cointegration tests are presented in Table 8. We observe one cointegration vector indicating a strong positive relationship between FDI and GDP. The results provide evidence in favour of the hypothesis that there is a link between Foreign Direct Investment flows and economic growth in India.

FDI reforms in every developing economy like India could be regarded as pro-economic development. The mechanism invites more investments from multinationals which compels domestic agents of production to improve their efficiency and productivity. The domestic players have to come up with new variety and high quality products and then start to develop innovative business

Table 7: The Pintula Principle for FDI Variable, K=1

Ho	r	Model 1 Restricted constant	Model 2 Unrestricted constant	Model 3 Restricted trend
λmax . test	0	10.170 (0.3302)	9.9844 (0.2172)	11.995 (0.4282)
	1	5.9880(0.1980)	*5.3678 (0.0205)	5.5269 (0.5333)
λtrace . test	0	16.158 (0.2386)	15.352 (0.0826)	17.522 (0.4970)
	1	5.9880 (0.2058)	*5.3678 (0.0364)	5.5269 (0.5465)

*Denotes the first time when the null hypothesis is rejected at five percent level.

Table 8: Cointegration Test Based on Johansen's Maximum Likelihood Method, K=1

Null hypothesis	Alternative Hypothesis	Rank value	P value
λmax . test H0: r=0 H0: r<=0	Ha: r>0 Ha: r>1	λ max rank value 9.9844 5.3678*	0.2172 0.0205
λtrace . test H0: r=0 H0: r<=0	 Ha: r>0 Ha: r>1	λt racer arkva lue 15.352 5.3678*	 0.0826 0.0349

practices. This definitely should have some effects on the income distribution in India. Foreign investment inflows bring in sophisticated technology and productivity spillovers which increases the capital stock of the country. However there should be some time lag before adjusting the impact of these measures on the overall growth of the economy. Two decades of liberalization program have already been passed and therefore the evidence on the linkage of foreign direct investment flows and economic growth in India seems to be persisting in nature.

6. Concluding Remarks

In India, inward FDI has boomed during the post-reform period. It also has induced changes in the structure and composition of FDI which is also relevant for its growth impact. Mauritius and Singapore are the major source countries for the flow of FDI stocks in to India. The services sector accounted for a significant share of FDI stocks in India for the last ten to fifteen years. There exists strong relation between economic growth and FDI stock inflow to India. Similarly, the output growth in India would also have been attracted FDI to India. There exists more potential for India to make extra efforts to attract the more amount of capital from advanced economies. This will definitely help the country to imbibe an unassailable position in the global map of coming days.

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