Inward Foreign Direct Investment Flows and GDP in India since 1991: A Connectivity Analysis

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ARTICLE INFO

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ABSTRACT

Foreign Direct Investment, being a paramount topic of importance and relevance to economies, both developed and developing, needs no introduction to the readers. The multitude of studies relating to FDI itself speaks of its preponderance in the present world experiencing wide augmentation of economic activity, in terms of International trade as well as capital flows across national boundaries. Foreign Direct Investment, in simple terminology is a foreign investors or firms interest of pooling their resources in a country other than theirs with an incitement of having a say in the management of the enterprise. The liberalisation process marked the beginning of the boom of FDI Inflows in India stimulated with the relaxation in the controls set by the regulating forces. Since then, the upsurge in FDI Inflows in distinct sectors as well as a one whole driving force for the economic development of the country has evolved into a matter of never ending discussions and debates. The paper discusses the manner in which FDI Inflows fortify or corrode the Gross Domestic Product of Indian economy and determines the relationship between the two variables. The study furnishes annual time series data pertaining for the period ranging 1991-2013 from UNCTAD Statistics. The study incorporates Ordinary Least Squares Regression analysis to ascertain the connection between FDI Inflows and Gross Domestic Product. The results of the econometric technique conclude that there exists a negative and significant relationship between FDII and GDP for the time frame 1991-2013. More precisely, the results demonstrate that Foreign Direct Investment Inflows inflicts the Gross Domestic Product of the Indian economy disparagingly.

Introduction:

Foreign Direct Investment is often acknowledged as a magic wand by developing countries, in terms of whatever good it delivers to the recipient countries. A country, be it developing or

Volume 1 Issue 5 2016
DOI: 10.18535/afmj/v1i5.09
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developed qualifies for a prosperous one if its level of investment shows a healthy trend. Developing economies many a times run a shortage in investment from domestic sources that pose a problem for the growth of the economy. To their help, foreign direct investment acts as a bright eyed source of capital from external sources, displaying a power of non-creation of debt to the investor's country. Economic growth of an economy is represented by its Gross Domestic Product which is the total value of all final goods and services produced in the economy. The Gross Domestic Product is affected by a variety of forces viz. domestic investment, the exports and imports, employment, savings to name a few. Thus, the inflow of foreign capital may or may not affect these forces in a said manner thus forcing the Gross Domestic Product to hover around as the capital transfer changes. The linkage effects that the inflow of Foreign Direct Investment has on the determinants of Gross Domestic Product motivates us to peep into the repercussions of Foreign Direct Investment on the GDP of India. The Indian economy, however was not subjected to huge flows of Foreign Direct Investment until the 1990s. The period prior to the 1990s witnessed great degree of restrictions in the policies governing foreign investment. The FERA (Foreign Exchange Regulation Act) which acted upon till 1974 managed the inflow of foreign capital into the national boundaries to serve the motive of the Indian Government to not let loose the country again into the hands of foreign powers. FERA, 1974 stipulated foreign firms to have equity holding only up to 40 percent, exemptions were at the government's discretion (Nagaraj, 2003). The policy measures and acts adopted by the government until 1980s reflected strict regulation and conservatism towards foreign investors. Such a restrictive policy is believed to have retarded domestic technical capability (as reflected in the poor quality of Indian goods); it also meant a loss of export opportunity of labour intensive manufacturers in contrast to many successful East Asian economies (Nagaraj, 2003). The revolution in the India's foreign investment environment came about around the middle of 1980s with the efforts of the government to open their doors to let foreign investment step inside the economy as it had already gone through the cons of not involving foreign capital for rapid industrialisation and increasing performance of domestic investment. Since then and majorly after 1991, the economy saw major upgradation in trade and foreign policies to lure foreign investors enough to pool their capital as well as transfer their technological expertise for enhancing the skills of the masses. The liberalisation process in literal language liberalised the economy towards foreign investments and international trade. This led to a high wave of inflows of Foreign as well as Portfolio investment in the country. The foreign Direct Investment showed a huge bump in its figures from 75 US$ Millions in 1991 to 2151 US$ Million in 1995 and went on increasing to 20,328 US$ Million in 2006. However, it showed a declining trend in the period 2010-2011but it again restored back to its blooming position.The uneven growth of FDI and the lack of consensus on the precise role of FDI in the global economy underscore the need to get a better handle on precisely how FDI affects economic welfare (Roy and Berg, 2006).

Literature Review:

A great deal of academicians and economists are credited with the zealous contribution of their studies in the area of Foreign Direct Investment. Many among them have concentrated their works on the particular relationship of Foreign Direct Investment with Gross Domestic Product or Economic Growth. Not all studies reach on to a unanimous conclusion but their findings certainly provide a way towards gauging the relationship among the two.

Borensztein et al. (1998) analysed the impact of Foreign Direct Investment by industrial countries on the economic growth of 69 developing countries. The study attempts to examine the effect of FDI Inflows on a group of 69 developing countries growth with involving human capital achievability by each country. The study

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DOI: 10.18535/afmj/v1i5.09
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concludes by stating that Foreign Direct Investment Inflows gives a positive push to the economic growth of the stated group of developing countries. Also, Foreign Direct Investment inflows create a crowding out effect for the domestic investment and thus displays FDI to be a better source of enhancing productivity and creativity than the domestic investment does. A similar relationship is shown by Abbas et al. (2011) in their study examining the impact of Foreign Direct Investment on Gross Domestic Product of SAARC member countries. Incorporating the multiple regression model on variables viz. FDI, Inflation and change in GDP for a period ranging 2001-2010. Overall results indicate a positive liaison between FDI and GDP of SAARC countries with some exceptional countries such as Maldives which showcases a negative effect of FDI on its growth, the reason being its inability to follow a consistency in receiving FDI Inflows. Roy and Berg (2006) analysed the bidirectional relation between FDI and Economic Growth for the US economy utilising time series data for the years 1970-2001 using the simultaneous equation model. They found that a major portion of FDI transfers among the developed economies of the world and that US has been the top most in grabbing a large proportion of FDI. The study proved a positive effect of FDI on economic growth of US. Gudaro et al. (2012) carried on a work to assess the influence that FDI imposes on the economic growth of Pakistan. The study took into consideration the duration of 1981-2010. The results of the empirical approach of multiple regression analysis demonstrates that Foreign Direct Investment affects Gross Domestic Product of Pakistan in the affirmative whereas the link between Gross Domestic Product and Inflation prove out to be negative. Koojaroenprasit (2012) in his study delve into the repercussions Foreign Direct Investment compel on to the economic growth of South Korea covering the period 1980-2009. Applying the multiple regression analysis and picking FDI, domestic investment, export, employment and human capital as the endogenous variables, the results exhibit a positive impact of human capital, export and employment on South Korean growth whereas domestic investment demonstrates no meaningful effect on economic growth of South Korea. However, the overall effect of FDI on Economic Growth of South Korea validates a significant and positive association. Antwi and Zhao (2013) did a co-integration analysis of the impact of Foreign Direct Investment on the economic growth of Ghana for the period beginning 1980 and stretching up to 2010. The study uses econometrical approaches of Vector Error Correction Modelling (VECM) for determining the short run link up between FDI and GDP and Johansen Multivariate Co-integration test for evaluating the long run association between the variables. In addition, Granger Causality is tested upon to judge the causality between FDI and GDP of the Ghana region. The results conclude that there exists a long run inverse relationship among Gross Domestic Product and Foreign Direct Investment as against the short run result showing only a fictitious effect of Gross Domestic Product and Gross National Income Volatility on Foreign Direct Investment. Also, the empirical proof suggest that Gross Domestic Product granger causes Foreign Direct Investment and no reverse causality is proved. GuechHeang and Moolio (2013) targets their study to the Cambodian region. The study proposes to valuate the connection between Foreign Direct Investment Inflows and Gross Domestic product of Cambodia for a time frame covering 1993 to 2011. The study incorporates both qualitative and quantitative means of arriving at the target. Under qualitative way it includes past studies executed on the association of the two variables. Under quantitative approach, the study involves the application of Ordinary least squares regression analysis for the attainment of the set goal. Cambodia demonstrated a tendency of steady economic growth over decades even when Foreign Investment inflows showed a rise with each year passing. The study however found the reason underlying this problem to be the impotence on

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DOI: 10.18535/afmj/v1i5.09
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the part of Cambodian economy to grasp the benefits spilled over by Foreign Direct Investment Inflows viz. technological advancement. The empirical results thereafter directs that in the long run, there is a positive connectivity between FDI and GDP in Cambodia also proved true by existing qualitative investigations. However, the study conducted by Herzer (2012) object to the belief set by a majority of studies that Foreign Direct Investment flows affect the Economic Growth in a positive manner. The study explore the effect of FDI on Economic Growth for a group of 44 developing countries over a period of 35 years ranging from 1970 to 2005 and it also determines the factors that lead to differential impact of FDI on economic growth from country to country. Employing the data on required variables and empirically testing the relationship through heterogeneous panel co-integration technique, the study concludes that Foreign Direct Investment has a negative influence over the economic growth of developing countries but this negative effect can be subdued by adopting improved policies and reforms viz. underrating the regulatory responsibility on business, enhancing resource allocation, reducing FDI volatility and removing primary export dependence.

Trends in India's Inward Foreign Direct Investment and Gross Domestic Product since 1991

Extracting figures from the period marking the implementation of New Economic Policy in 1991, a clear upswing can be seen in the inward Foreign Direct Investment as well as the Gross Domestic Product. The Indian Governments initiative in unleashing the economy from restrictive trade policies proved a strong agent in ameliorating Foreign Investment Inflows in the country with added benefits of upgradation of technology and skills(both managerial and technical), productivity improvements, increasing export competitiveness etc. provided by the investing country (Rahman, 2015). With a marginal figure of 75 US$ Millions in 1991 to a satisfactory position of 5630 US$ Millions in 2002 and stretching upto 28,199 US$ Million in the year 2013, Inward Foreign Direct Investment has shown a wave of happiness in the achievement of country's efforts to attract much FDI so as to elate the industrial condition of the country. Though there appeared a decline in FDI Inflows in some selective years, but on the whole the FDI Inflows have shown a good growth in terms of a CAGR of 27.91% for the last two decades.(Rahman, 2015).

Table 1*: Inward FDI Flows, GDP, GDP Rates, annual, 1991-2013*

Year	Inward FDI (US$ Million)	GDP (US$ Millions)	GDP Rate
1991	75	352566	0.42
1992	252	371676	5.42
1993	532	390092	4.95
1994	974	419207	7.46
1995	2151	451259	7.65
1996	2525	484628	7.39
1997	3619	506331	4.48
1998	2633	536646	5.99
1999	2168	574902	7.13
2000	3588	598073	4.03
2001	5478	629274	5.22
2002	5630	652977	3.77
2003	4321	707637	8.37
2004	5778	766345	8.30

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DOI: 10.18535/afmj/v1i5.09
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2005	7622	837499	9.28
2006	20328	915085	9.26
2007	25350	1004775	9.80
2008	47139	1043871	3.89
2009	36657	1132289	8.48
2010	27431	1251815	10.55
2011	36190	1331456	6.36
2012	24196	1394518	4.74
2013	28199	1464481	5.02

Source: UNCTAD Statistics

As is shown in the above table, the Gross Domestic Product at constant prices(2005) behold an upturn from 1991 uptil 2013 with absolutely no year witnessing a downfall in the GDP figures. However, the CAGR of the Gross Domestic Product at constant prices (2005) is 6.39% which in comparison to the 27.91% CAGR of FDI Inflows in the country is a knock over. Also, the annual GDP growth rates display a much more muddled economic situation of the country. Verily, the annual GDP growth rates have shown a hovering standpoint with the numerals fluctuating haphazardly. Though the years 1999 and 2000 saw good amount of inflow of FDI increasing from 2168 US$ Million to 3588 US$ Million, the same accretion was not seen in the growth rates which trickled down from 7.13 in 1999 to 4.03 in the year 2000. Equivalently, FDI Inflows expanded from a level of 27431 US$ Million in 2010 to 36190 US$ Million in the year 2011, but to its dismay it failed to expand the GDP rate in a likewise manner. The growth rate declined from a fruitful state of 10.55 in the year 2010 to a bleak state of 6.36 in the year 2011. This failure faced by the government in the form of lower growth rates even at times of avalanche in FDII can be accredited to the under performance of the country in absorbing the spill over effects of Foreign Direct Investment. The disadvantages posed by FDII overpowered the spill over benefits contained by the foreign flows thus undermining the GDP of India. The pattern adopted by FDII and GDP for 1991-2013 is shown in the figures 1 and 2.

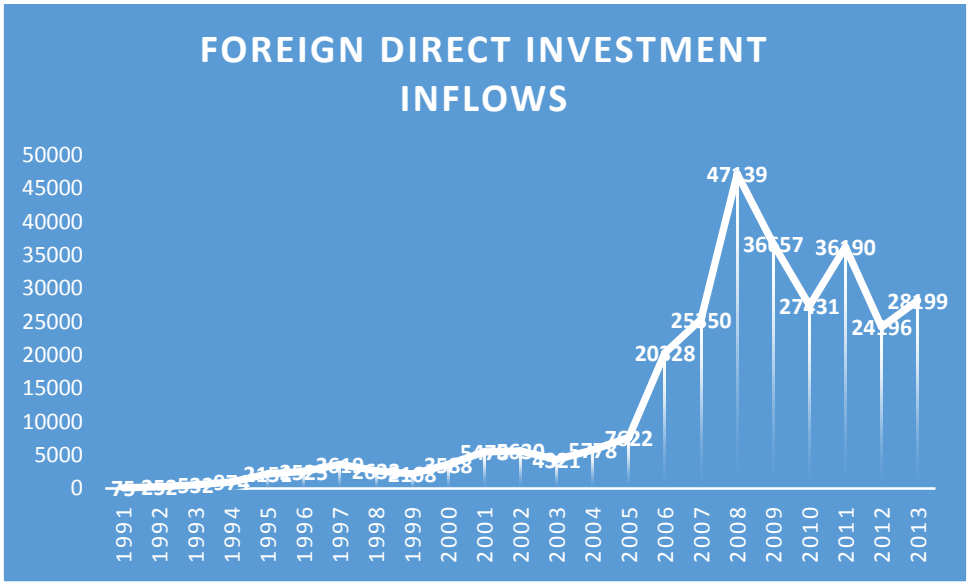

Figure 1. Foreign Direct Investment Inflows covering the period 1991-2013
Source: Prepared by the author

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DOI: 10.18535/afmj/v1i5.09
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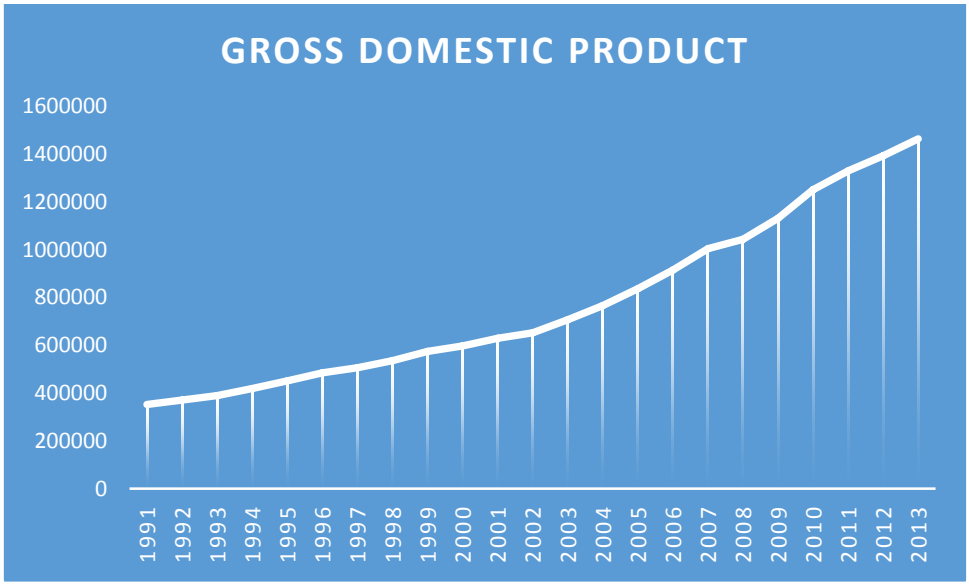

Figure 2. Gross Domestic Product at constant prices (2005) from 1991-2013
Source: Prepared by the author

Empirical Specification and Data

The study focuses on the analysis of the connectivity between Foreign Direct Investment Inflows and Gross Domestic Product for the period 1991-2013. The reason underlying selection of this time frame is the huge spur witnessed in the Foreign Direct Investment flows in the country in the backdrop of the New Economic Policy adopted in 1991 and thus the unleashing of the Indian economy to attract and welcome more and more foreign capital with ulterior motive of rapid industrialisation. For Inward Foreign Direct Investment and Gross Domestic Product, the annual time series data is collected from UNCTAD (United Nations Conference on Trade and Development) Statistics. The results are generated by using EVIEWS 9. Ordinary Least Squares (OLS) Regression Analysis was acted upon to evaluate the link ups between Foreign Direct Investment Inflows and Gross Domestic Product of India. Before applying the regression analysis, the time series data is checked for presence of a unit root. For this purpose, Augmented Dickey Fuller (ADF) test is conducted. The ADF test demonstrates both variables to be non-stationary and thus they are converted to stationary time series. The time series data pertaining to FDII is found to be integrated of order 1 whereas that of GDP is found to be integrated of order 2. Thus, at a lag differencing of 1, time series data of FDII becomes stationary and at a lag differencing of 2, the time series data of GDP becomes stationary. The results of Augmented Dickey Fuller test for Foreign Direct Investment Inflows and Gross Domestic Product is displayed in the table 2.

Table 2 *Results of ADF Unit Root Test*

Variable	t statistic	P value	Result
FDII (1)	-3.644963	0.0028	Stationary
GDP(2)	-3.673616	0.0034	Stationary

Source: Generated through eviews9

1: First order differencing
2: Second order differencing

All values at 5% level of significance

At level, both series are non-stationary. At a differencing of 1, FDII series become stationary. The Null hypothesis in both the series is rejected with the p values being less than 0.05.

The analysis is done with the help of two models:

1st Model

$FDII = \beta_0 + \beta_1 GDP + \varepsilon_t$

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H0:There is no significant impact of GDP on FDII

Where FDI is the dependent variable and GDP is the independent variable. This model will ascertain whether GDP impacts Foreign Direct Investment or not and if yes, whether the effect is positively directed or negatively directed. The Null hypothesis states that there is no significant impact-of-GDP-on-FDII

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Table 3: *Results of Regression*

Dependent Variable: FDIID				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1821.790	1303.346	1.397780	0.1783
GDPD2	-0.202753	0.059913	-3.384100	0.0031
R-squared	0.376070	Mean dependent var		1330.810
Adjusted R-squared	0.343232	S.D. dependent var		7324.122
S.E. of regression	5935.560	Akaike info criterion		20.30570
Sum squared resid	6.69E+08	Schwarz criterion		20.40518
Log likelihood	-211.2099	Hannan-Quinn criter.		20.32729
F-statistic	11.45213	Durbin-Watson stat		1.686629
Prob(F-statistic)	0.003114			

Source: Generated through eviews9

2nd Model

$GDP = \beta_0 + \beta_1 FDII + \varepsilon_t$

H0:There is no significant impact of FDII on GDP

In this model, Gross Domestic Product is the dependent variable whereas FDII (Foreign Direct Investment Inflows) is the independent variable. This model will conclude the position of association between the two and whether FDI determines GDP or not. The Null hypothesis is that there is no significant impact of FDI on GDP.

Table 4:*Results of Regression*

Dependent Variable: GDPD2				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4889.983	3984.919	1.227122	0.2348
FDIID	-1.854819	0.548098	-3.384100	0.0031
R-squared	0.376070	Mean dependent var		2421.571
Adjusted R-squared	0.343232	S.D. dependent var		22152.50
S.E. of regression	17952.67	Akaike info criterion		22.51926
Sum squared resid	6.12E+09	Schwarz criterion		22.61874
Log likelihood	-234.4522	Hannan-Quinn criter.		22.54085
F-statistic	11.45213	Durbin-Watson stat		1.851367
Prob(F-statistic)	0.003114			

Source: Generated through eviews9

Results

The results of the regression analysis indicate an inverse and significant connection between Foreign Direct Investment Inflows and Gross Domestic Product. The connectivity is two way round i.e both FDII and GDP affects each other inversely which is denoted by the negative sign of

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DOI: 10.18535/afmj/v1i5.09
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the coefficients in the two regression models. The first OLS regression model demonstrates a p value of 0.0031 which is less than 0.05 showing the presence of a significance in the model. The model is fit being its f value less than 0.05. Hence, there isa significant impact of GDP on Foreign Direct Investment Inflows (FDII). Therefore, in both models, the Null hypothesis is rejected. The second model of OLS regression technique displays p value to be less than 0.05 thus giving an evidence of a significant model. The Null hypothesis is rejected in this case. Therefore, FDII has a significant impact on Gross Domestic Product of the stipulated period in the Indian economy. Also in the first model, the R square is 0.37 which shows that 63% of the variation in the FDII is unexplained by GDP and in the second model also, the R square is 0.37 indicating that 37% of the changes in GDP is explained by FDII.

Conclusion

Our study focuses on the connectivity between Foreign Direct Investment Inflows and Gross Domestic Product of the Indian economy for the time frame 1991 to 2013. The results of the regression analysis indicate that there exists a negative and significant relationship between FDII and GDP for the said period. Foreign Direct Investment Inflows affects the Gross Domestic Product of the Indian economy inversely and in the dissenting. Moreover, the results also indicate a similar significant and a reverted connectivity between GDP and FDII. Since India saw a boom in the FDI inflows with the adoption of new policy reforms in 1991, the economic growth of the country has also testified an upswing but not in so harmonious numbers as the FDII has. With few years of exception, FDI Inflows have always declared an overwhelming position but its consistency with the economic growth rates is doubtful as the data clearly presents that in the period of low FDI Inflows, the GDP rates has also declined. As was the case in the years 2010 and 2011 when the FDI Inflows increased from US$ 27,431 Million to US$ 36,190 Million, the GDP rates declined from 10.55 to 6.36. The reasons to this phenomenon could be the disadvantages FDI Inflows poses to the host countries such as Repatriation of profits to the home countries, crowding out of domestic investment of the host country, adding to the deterioration of domestic industrial houses etc. However, besides bringing into light the negativity FDI Inflows transfers to the Gross Domestic Product of India, the study adds to the national interest by assessing the connectivity between foreign capital flow and economic growth thus helping the lawmakers in framing policies beneficial for the improvement of the economy domestically as well as globally. The study is a bivariate analysis assuming other related variables to be constant. Other variables may be included for better association between FDII and GDP for further investigation.

Acknowledgement

This is an original work of the authors and any references and work uplifted in part or in whole is genuinely stated. Productive ideas and suggestions from persons are welcomed and appreciated. Any errors and omissions are our own.

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DOI: 10.18535/afmj/v1i5.09
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