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Long-term Linkages Between Fdi Inflows And Macro-economic Variables- A Case For India

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Abstract: The increasingly significant role of Foreign Direct Investment in the growth dynamics of countries has created much research interest among scholars and quiet a few studies are focused on the determinants of Foreign Direct Investment. Literature studies have identified the following factors namely comparative labour costs, country size, economic openness, nature of exchange rate regime, return on investment and political factors as major determinants of FDI. Many press reports suggest that India has been perceived as one of popular destination by European and American investors, though initially due to rigid economic policies, high barriers, India had not managed to attract huge foreign investment. Studies have also pointed out potential benefits of Foreign Direct Investment in terms of job creation opportunities, technology transfers, growth and development. In wake of this our paper aims to study trend in foreign direct investment in India from 1985 to 2012. Our study hypothesises long term linkages between foreign direct investment and GDP, Inflation rate, external debt, exchange rate and trade openness. For the purpose of study cointegration approach have been used.

Key words: Foreign Direct Investment , dynamics , globalization , economic and political stability

1.INTRODUCTION :

In the era of globalization, Foreign Direct Investment flows have been expanding at a rapid rate. Statistical data available is a clear indicator of the fact that world's FDI flows are increasing at a faster rate compared to rate of growth in world GDP or trade flows between countries. FDI inflows are looked upon as an indicator of productive efficiency. As a country with higher rate of growth, fiscal discipline, economic and political stability etc. are found to attract higher level of FDI. Foreign Investments have become an integral and dominant part of ever expanding global economies. For developing economies FDI is a source and opportunity for higher and faster economic growth. Foreign Direct investment is also considered as a source of new knowledge along with being an additional source of capital from developed to developing and least developed countries. FDI is mutually beneficial to host and destination country.

In case of India, the foreign investment climate changed drastically since 1980 as a result of liberalization majors and reforms introduced by New Economic Policy of 1991.

This study is divided into four sections. Section I deals with detail literature review on determinants of Foreign Direct Investment across various nations. The studies have reflected that market size, trade openness, exchange rate, external debt, fiscal discipline are some of the factors that determine the size of inflows. In section II an attempt has been made to determine the factors that determine FDI inflows in India. The study is spread over a period of 27 years. With the help of VAR and Cointegration approach, the author tries to establish long run relationship between FDI inflows, market size, exchange rate volatility, burden of external debt, rising domestic prices and trade openness. The Methodology and Results are discussed in Section III and Conclusion with Policy implication is presented in Section IV

SECTION I: Literature Review

This section gives a clear insight into different research studies undertaken in the recent past to understand the factors that influence the Foreign Direct Investment inflows. Various researchers and experts suggests that FDI is influenced by size and growth of market, exchange rate fluctuations, size of external debt, infrastructure, trade openness, inflation etc. These studies have used different econometric tools like OLS estimates, panel data modeling, Co-integration approach, ARIMA models and Granger causality to arrive at above conclusion.

Asiedu (2002) concluded that openness of economy, return on investment and market size are statistically significant variables for fostering FDI whereas infrastructure and political risk are statistically insignificant variables. The study was conducted with the help of least square method. Quazi and Mahmud (2004) in their study on

south Asia aimed at exploring the economic or non-economic factors that drive the FDI in this region and concluded that economic freedom, openness, prosperity, human capital and size of FDI in previous years positively influence the growth of FDI whereas political instability negatively influences it. A study conducted by Naeem, Ijaz, and Azam (2005) on Pakistan using time series data from 1970-71 to 1999-2000 reflected that FDI is determined by economic factors such as market size, domestic investment, trade openness, indirect taxes, inflation, and external debt.

Moreira (2009) in the literature based study on the determinants of foreign direct investment in Africa concludes that along with the availability of natural and mineral resources, Africa has managed to lure foreign investment because of its trade openness policies, cost-effective labour, size of market etc. but factors like corruption, lengthy administrative procedures in setting up business have acted as obstacle in attracting more FDI in the region.

Bende-Nabende (2002) and (Krugell, 2005) in their study on Africa suggest market size and growth as one of the most important and long-run determinants of FDI. According to them a large domestic market size generates economies of scale, while a growing market improves the prospects of the market potential. Thus, an economy with a large market size attracts more FDI and countries that have high and sustained growth rates receive more FDI flows compared to unstable economies. Krugell along with Pigato (2001), Lemi and Asefa (2003) Yasin (2005) and Odenthal (2001), Fedderke and Romm (2006), Asiedu (2006), Schneider and Frey (1985), Culem (1988), Moore (1993), Love and Lage-Hidalgo (2000) explains that availability of cheap labour positively influence FDI inflows, but he is quick to add that along with cost of labour productivity of labour also matters. No doubt wage is an important criterion but along with it even an availability of skilled human capital is crucial

Kerr I. & Monsingh P.V (2001) examined the determinants of FDI flows into China over the period 1980 to 1998 by using the market imperfection framework and estimates an error correction model by ordinary least squares, based on cointegrating VAR(2). The study concluded that the wage level, exchange rate, level of interest rates, taxation regime and the degree of openness of the economy as determinants of the level of FDI.

Balasubramanyam et al. (1996) clearly shows that FDI is a major element of economic growth in developing countries, and that relatively open, export-promoting macroeconomic policy encourages FDI inflows. While Yang et al. (2000 in his study suggests that if a host country is relatively closed on the current account, incentives are created for FDI as a means of circumventing the barriers to trade. On the other hand, a relatively closed capital account may discourage FDI.

Sisili.T & Elango. (2013), the authors on their study of FDI determinants in India undertaken for the period of 1997 to 2008 with the help of OLS estimates concluded that FDI inflows are positively influenced by growth of marker and ratio of domestic investment to GDP but are negatively influenced by fluctuations in exchange rate and size of market.

Sahni P. (2012), attempted to empirically examine the determinants of FDI in India by taking time series data for the period 1992-93 to 2008-09. It applied Ordinary Least Square (OLS) method for this purpose. The empirical results indicated that GDP, inflation (WPI) and Trade Openness are important factors in attracting FDI inflows in India during post-reform period and have positive relation. Whereas Foreign Exchange Reserves was found to be statistically insignificant variable.

Sapna Hooda (2011) examined the impact of FDI on economic growth of Indian economy for the period 1991-92 to 2008-09with the help of OLS method. The empirical results indicates that foreign Direct Investment is a essential and Significant factor influencing the level of growth in Indian economy. She also estimated the determinants of FDI inflows and found that trade GDP, Research and Development GDP, Financial position, exchange rate, Reserves GDP are the important macroeconomic determinants of FDI Inflows in India.

Charkraborty and Basu (2002) explored the co-integration relationship between net inflows of FDI, real GDP, unit cost of labor and the proportion of import duties in tax revenue for India with the method developed by Johansen (1990). They find two long-run equilibrium relationships. The first relationship is between net inflow of FDI, real GDP and the proportion of import duties in tax revenue and the second is between real GDP and unit cost of labor. They find unidirectional Granger Causality from real GDP to net inflow of FDI.

Monica Singhania, Akshay Gupta (2011) examined with the help of best fit ARIMA model tries to investigate the determinants of foreign direct investment (FDI) in India. Variable selected for the purpose of study are GDP, inflation rate, interest rate, patents, money growth and foreign trade to explain variation in FDI inflows into India. The study concludes that only GDP, inflation rate and scientific research are statistically significant and that FDI Policy changes during years 1995-1997 have had a significant impact on FDI inflows into India. For future FDI policy planning and implementation, the authors recommend that the Government of India should allocate resources towards variables that have been classified as significant in this paper, namely GDP growth and inflation rate and should open the economy further. Sectors not yet open to FDI investments should be opened and although inflation rate should be controlled but some inflation is beneficial.

A study by C S Shylajan (2011), reviewed the major factors which have determined the inflow of FDI in India in the post liberalisation period from 1993 to 2006. Multiple regression analysis was used to find whether inflation, interest rate, previous period FDI real GDP, previous period GDP and trade openness influence FDI inflows in India. The study concluded that FDI is related positively with real GDP and previous period FDI inflow but inversely related with inflation. It showed that the macroeconomic instability in terms of inflation has been an important factor which influenced the inflow of FDI in India in the post reform period.

Saleem, F. et al (2013) investigated the impact on foreign direct investment in Pakistan due to the growth and inflation of a country for a time period of 1990 to 2011. The study was conducted with the help of regression analysis. The result suggested that there exists a positive relationship between foreign direct investment (FDI) and inflation and whereas FDI inflows are negatively influenced by growth of GDP.

Shumaila N. et al (2012) in their study on impact of capital inflows on domestic inflation of Pakistan made a case for positive relation between capital inflows (FDI, Export revenue, Remittances) and inflation. The study was based on time frame from 1980 to 2010. Study used Cointegration Test and Error Correction Mechanism (ECM) to check the long run and short run relationship of FDI, REM, EXP and inflation. Authors suggest that capital inflow interms of FDI and remittances should be redirected towards productive investment and should not be used for mere consumption. As productive investment would result in economic growth.

Section III: Research Methodology & Results

In this study an attempt has been made to analyse and introspect the factors that determine the Foreign Direct Investment Inflows in India. Variables used in the study are FDI Inflows, Gross Domestic Product (GDP), Exchange Rate (in terms of US $), Size of External Debt, Rate of Domestic Inflation, Trade Openness (Ratio of Total Trade to GDP). The study is spread over a period of 27 years ranging from 1985-86 to 2011-12. Data for the purpose of study has been collected from UNCTAD Stats. and World Bank database.

To analyse impact of macroeconomic variables on FDI inflows in India, the study uses the Johansen's multivariate cointegration analysis developed in Johansen (1988) and applied in Johansen and Juselius (1990). This paper has used Augmented Dickey-Fuller test for testing for unit roots in all the time series. The results of the same with constant as well as constant and trend are presented in Table 1. All the series contain unit root at levels while they are found to be stationary at first difference only external debt became stationary at second difference. The results of stationarity test are given in Table 1. Further an attempt is made to test the cointegration relationship between the FDI Inflows and set of selected macroeconomic variables using maximum likelihood procedure of Johansen (1988). The "Schwarz information criteria" - SIC suggested a lag order of 1 for testing cointegration relationship in a above given model. Johansen (1988, 1991) proposes two methods for estimating the number of cointegration vectors: the trace test and the maximal eigen-values test. The results of trace test and maximum Eigen value test for co integration are presented below in Table 2. Trace test indicates existence of four cointegrating vectors whereas maximum eigen-value suggests existence of only two cointegrating vectors in the model analyzing relationship between selected macroeconomic variables and FDI inflows. As there is difference in the outcome of two tests, the study prefers the results of trace test over maximum eigen-value test as suggested by Johansen and Juselius (1990).

The final vector of variables to be included is:

$X_t = (FDI_t \ \ Ex.RATEe_t \ \ EX.DEBT_{tt} \ \ INF_t \ \ T.OPEN_t \ \ GDP_t)$ eqn. I

for the model examining the co integration relationship between FDI inflows and other variables. Where: FDI = Foreign Direct Investment Inflows; Ex. RATE = Exchange Rate vis-à-vis US $; Ex.DEBT = Size of External Debt; INF = Rate of Domestic Inflation T.OPEN = Ratio of Trade Openness; GDP = Gross Domestic Product (proxy for Size of Market)

The normalized coefficients of cointegrating relation are given in table 3 and equation below. These values represent long-term relationship between Foreign Direct Investment in India and other selected variables. Thus the cointegrating relationship can be re-expressed as follows:

$FDI_t = -672.72\ ERATE_t - 8.12E\text{-}08\ EDEBT_t + 1058.45\ INF_t + 1922.09\ TOPEN_t + 1.04\ GDP_t$

The above equation reflects normalized cointegrating coefficients of FDI inflows. The results are on expected line. All the variables are statistically significant and except domestic inflation have expected values. The model indicates FDI inflows are positively influenced by GDP growth, Trade openness (Proxy for level of liberal and open economy) and domestic inflation whereas change in exchange rate and external debt negatively influence FDI inflows.

Section IV: Conclusion and Policy Implications

Foreign direct investment has been widely accepted as a means and additional source of finance, new knowledge, sophisticated and updated technology. It helps developing countries like India in generating additional employment, increasing capital formation etc. FDI inflows in India got a boost especially after 1991 New economic Policy, which liberalized our economy. Many restrictions imposed on FDI were relaxed after this policy. This study based on co-integration technique helped to conclude that there exist a long-term relationship between FDI inflows, GDP growth, Exchange Rate, External Debt, Domestic Inflation and Trade openness. Contrary to expected view domestic inflation was found to have positive relation with FDI inflows. The plausible reason for this is explained in the phenomenon of inflation itself. Inflation as we know is defined as a condition of economy wherein there is excess of demand over supply. A worm's eye view suggest that foreign investors are encouraged to invest during this stage to take advantage of rising demand. Rising foreign investment could also help economy to reduce inflation as supply in the economy would rise. But, a word of caution here is that FDI inflows need not necessarily reduce inflation as the investment may not happen in the sector which are having shortage of supply leading to inflation. More analytical and micro-level studies would help in gathering more clear evidence on this aspect. The policy makers need to understand it that in the long-run it is combination of factors which would together influence the inflow of Foreign Direct

Investment in India. Hence, if India intends to encourage foreign investment in lon-run then it will have to focus its attention on maintaining a growing and a stable economy.

REFERENCES

I.Asiedu, E., (2002), "On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different?", World Development, vol. 30 (1), pp. 107-119.

II.Asiedu, E., (2006), "Foreign Direct Investment in Africa: The Role of Natural Resources, Market Size, Government Policy, Institutions and Political Stability", World Economy, 29 (1), pp. 63-77.

III.Balasubramanyam, V.N., Salisu, M. and Sapsford, D., (1996) "Foreign Direct Investment and Growth in EP and IS Countries", Economic Journal, pp.92-105.

IV.Bende Nabende, A.,(2002), "Foreign Direct Investment Determinants in Sub-Saharan Africa: A Co-Integration Analysis", Economics Bulletin, 6 (4), pp. 1-19.

V.Chakraborty, C. and Basu, P., (2002): "Foreign Direct Investment and Economic Growth in India a Cointegration approach," Applied Economics, 34, pp.1061-73.

VI.Culem, C.G. (1998) "The Locational Determinants of Direct Foreign Investment Among Industrialised Countries", European Economic Review, pp.885-904.

VII.Fedderke, J. W. and Romm, A. T., (2006), "Growth Impact of Foreign Direct Investment into South Africa, 1956-2003", Economic Modelling, 23 (5), pp. 738-60.

VIII.Johansen S.,(1991), "Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models", Econometrica, Vol.59, No.6, pp.1551-1580

IX.Johansen, S. and Juselius, K.,(1990), "Maximum Likelihood Estimation And Inference On Cointegration With Application To The Demand For Money", Oxford Bulletin of Economics and Statistics, Vol.52, pp.169-210.

X.Krugell, W., (2005), "The Determinants of Foreign Direct Investment in Africa, in: Gilroy, B., Gries, T. and Naude, W. (eds), Multinational Enterprises, Foreign Direct Investment and Growth in Africa: South African Perspectives, Physica Verlag GmbH & Co, Berlin.

XI.Lemi, A. and Asefa. S., (2003), "Foreign Direct Investment and Uncertainty: Empirical Evidence from Africa", African Finance Journal, 5 (1), pp. 36-67.

XII.Love, J. H. and Lage-Hidalgo, F. (2000). "Analysing the Determinants of US Direct Investment in Mexico". Applied Economics 32: pp.1259-1267.

XIII.Moore, M.O. (1993) "Determinants of German Manufacturing Direct Investment: 1980-1988", Weltwirtschaftsliches Archiv, 129: 120-137

XIV.Moreira S.B. (Jan-June 2009), "Determinants of Foreign Direct Investment: what is eveidence for Africa?", UNISUL, Tubarão, v. 2, n. 1, p. 83 – 104.

XV.Naeem, K. Ijaz, and M. Azam., (2005), "Determinants of Foreign Direct Investment in Pakistan (1970- 2000): An Econometrics Approach", Sarhad Journal of Agriculture, vol 21 No 4, pp. 761-764

XVI.Odenthal, I., (2001), "Foreign Direct Investment in Sub-Saharan Africa", Working Paper No. 173, OECD Development Centre.

XVII.Quazi R., and M. Mahmud (2004), "Determinants of Foreign Direct Investment in South Asia" College of Business prairie View A &M University Prairie View, Texas.

XVIII. Pigato, M., (2001), "The Foreign Direct Investment Environment in Africa", Africa Region Working Paper Series No. 15, The World Bank.

XIX.Sahni P. (2012), "Trends And Determinants of Foreign Direct Investment In India: An Empirical Investigation", International Journal of Marketing and Technology, Volume 2, Issue 8 ISSN: 2249-1058.

XX.Saleem, F., Zahid, A., Shoaib B., Mahmood M., Nayab S., (Jan.2013) "Impact of Inflation and Economic Growth on Foreign Direct Investment: Evidence from Pakistan" Paper downloaded.

XXI.Sapna Hooda (2011), " A study of FDI and Indian Economy". PhD Thesis, National institute of Technology, Kurukshetra, Downloaded

XXII.Singhania M., & Gupta A., (2011) "Determinants of foreign direct investment in India", Journal of International Trade Law and Policy, Vol. 10 Iss: 1, pp.64 – 82, ISSN: 1477-0024.

XXIII.Sisili.T & Elango. (2013), "FDI and its Determinants of India", International Journal of Scientific & Engineering Research Volume 4, Issue 1, January-2013 1,ISSN 2229-5518, IJSER © 2013

XXIV.Shumaila N., Nadia S. and Sami U., (March 2012), "Impact of Capital Inflows on Domestic Inflation: A Case Study of Pakistan", Journal of Asian Development. Studies, Vol 1, Issue 1, ISSN 2304-375X

XXV.Shylajan C. S. (2011), FDI and its determinants in India, Paper downloaded.

XXVI.Yang, J. Y. Y., Groenewold, N. and Tcha, M. (2000). "The Determinants of Foreign Direct Investment in Australia." The Economic Record 76(232): pp.45-54.

XXVII.Yasin, M., (2005), "Official Development Assistance and Foreign Direct Investment Flows to Sub-Saharan Africa", African Development Review, 17 (1), pp. 23-40.

ANNEXURE

Table 1: Results of Stationarity Test Using Augmented Dickey-Fuller Test

Variable	Constant		Constant and Trend	
	t-Statistic	SIC	t-Statistic	SIC
FDI (1)	- 3.01	- 0.80	- 3.63	- 5.22
GDP (1)	- 2.99	- 1.51	- 3.60	- 3.81
EX.RATE (1)	- 2.99	- 4.44	- 3.60	- 4.80
EX.DEBT (2)	- 2.99	- 0.25	- 3.62	- 6.64
INF (1)	- 2.99	- 6.36	- 3.61	- 5.27
T.OPEN (1)	- 2.99	- 7.44	- 3.67	- 3.69

Note: All the variables except External debt are stationary at first difference
Asymptotic critical values are from MacKinnon (1996).

Table 2: Results of Trace Test for Co-integration Relationship between Macroeconomicvariables and FDI Inflows

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.966478	187.2209	95.75366	0.0000
At most 1 *	0.781472	98.93637	69.81889	0.0001
At most 2 *	0.614755	59.39444	47.85613	0.0029
At most 3 *	0.552787	34.59367	29.79707	0.0130
At most 4	0.341901	13.67094	15.49471	0.0924
At most 5	0.101839	2.792552	3.841466	0.0947

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level,
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.966478	88.28457	40.07757	0.0000
At most 1 *	0.781472	39.54192	33.87687	0.0095
At most 2	0.614755	24.80078	27.58434	0.1091
At most 3	0.552787	20.92273	21.13162	0.0534
At most 4	0.341901	10.87839	14.26460	0.1604
At most 5	0.101839	2.792552	3.841466	0.0947

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table 3: Normalized cointegrating coefficients for cointegrating equation of FDI Inflows

FDI	ERATE	EDEBT	INF	TOPEN	GDP
1.000000	672.72	8.12E-08	-1058.45	-1922.09	- 1.04
	(74.23)	(3.9E-08)	(224.73)	(204.66)	(0.32)
	[9.06]	[2.08]	[-4.71]	[-9.39]	[- 3.25]

Note : values of standard error are presented in ( ) and of t-statistics in [ ], Values are significant at 0.05% level