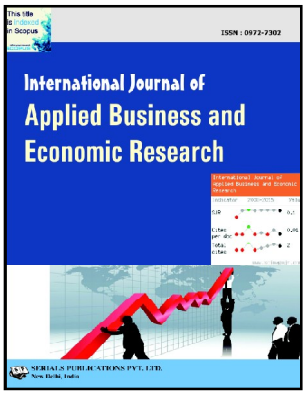

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Determinants of Foreign Direct Investment Inflows in India

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Abstract: The objective of the study is to identify the determinants of Foreign Direct Investment (FDI) inflows into India and to examine the effect of the global financial crisis on FDI inflows into India.Multiple linear regression has been applied to identify the best model and the most significant factors that lead to higher FDI inflow into the Indian economy. Various models have been examined and the best fit is found using the logarithmic transformation of the lagged values of the independent variables. The empirical results obtained as shown in the paper are accepted on the basis of the F Statistic and the Adjusted R squared value. On further examination, it is clear that the dependent variable can be best predicted by Real Gross Domestic Product (GDP) and the dummy variable Global Financial Crisis. This is the best model from the ones we examined as the adjusted R squared value is the highest at 0.905. The estimated regression model for economic determinants of FDI for India is also given. The model can be further improved upon by using quarterly data.

Keywords: Determinants, FDI, GDP, Global Financial Crisis, Multiple Linear Regression.

1. INTRODUCTION

In 2016 India ranks 10th among the recipients of FDI inflows[1]. India attracted $44 billion in 2015 and there was a 26% jump in the FDI compared to year 2014. In the MNE (Multinational Enterprise) executive survey 2016 India stands third in the list of top prospective host country economies for 2016-18 in FDI inflows. The current performance and the expected future potential of India in terms of attracting FDI inflows, make it interesting to investigate the factors determining FDI inflows to the country. There have been numerous studies done in the Indian context to identify the determinants of FDI inflows. But compared to the time period during which these studies were done, lot of changes have happened in the Indian economy, especially in the last two years. The first and most important change that Indian economy witnessed in the last two years is the improvement in the GDP (Gross Domestic Product) growth rate. The Indian

economy grew at 7.6% in the financial year 2016-17 and 7.3% in 2015-16. GDP growth rate is considered as one of the major factors affecting FDI inflows. Considering the slow growth rates in China, US and Eurozone, India's growth momentum gives it a comparative advantage as an investor destination. The second major change was the reform in the FDI framework of India through the Make in India campaign. The campaign aims at Making India a manufacturing hub and thereby increasing the share of manufacturing sector in GDP from the current 15% to 25% by 2020. While it is too early to state whether the "Make in India" campaign will have a positive and significant growth in attracting FDI, it could be studied at a later date.

This study is relevant in the current Indian context as it will help in understanding the major factors affecting FDI inflows and thereby helping the government in formulating additional policy reforms under the Make in India Campaign to enhance FDI flows into Indian economy. Multiple regression has been applied to identify the best model and the most significant factors that lead to higher FDI inflow into the Indian economy.

2. CONCEPT OF FDI

Foreign Direct Investment is the process whereby a resident of one country (the home country) acquires ownership of assets for the purpose of controlling production, distribution and other activities of a firm in another country (host country).

> "A direct investor is an entity or group of related entities that is able to exercise control or a significant degree of influence over another entity that is resident of a different economy"[2]. Control or influence may be achieved directly by owning equity that gives voting power in the enterprise, or indirectly by having voting power in another enterprise that has voting power in the enterprise. Direct investment relationships arise when a direct investor directly owns equity that entitles it to 10 percent or more of the voting power in the direct investment enterprise."

Existence of control and influence depends on the extent of voting power. Control exists if the direct investor owns more than 50 percent of the voting power in the direct investment enterprise and degree of influence exists if the direct investor owns from 10 to 50 percent of the voting power in the direct investment enterprise. Indirect direct investment relationships arise through the ownership of voting power in one direct investment enterprise that owns voting power in another enterprise or enterprises, that is, an entity is able to exercise indirect control or influence through a chain of direct investment relationships.

3. EVOLUTION OF FDI POLICY IN INDIA

In the immediate post-independence years, the Indian government recognized foreign capital as a source for supplementing domestic savings for faster economic development of the country and also for securing technical and industrial expertise. FDI regulations have undergone substantial changes from the "Cautious Welcome" policy of the initial two decades (1948 to 1968)to the liberalization phase (1991-2000) to the present radical liberalization phase associated with the "Make in India" campaign started in 2014 by the Modi government.The evolution of FDI Policy in India has been divided into 5 distinct phases which are given in Table 1.

Table 1
Evolution of FDI Policy in India

Phase	*Regulation*	*Description*
Phase 1 1948 to1968 Cautious Welcome	Industrial Policy 1948	• Foreign capital was allowed to promote rapid industrialization. • Careful regulation of the conditions of foreign capital inflow to protect national interests. • Majority interest in the ownership and effective control should always be in Indian hands.
Phase 1969-1991 Selective Opening Up	Monopolies and Restrictive Trade Practices (MRTP) Act 1969FERA (Foreign Exchange Regulation Act) 1973	• MRTP Act brought in restrictions on the size of operations, pricing of products and services of foreign companies. • FERA limited the extent of foreign equity to 40%, with the exception of 74% for technology-intensive, export-intensive, and core-sector industries.
Phase 3 Liberalization Phase 1991-2000	Industrial Policy 1991 FEMA (Foreign Exchange Management Act)1999	• In 1991 FDI up to 51% was allowed in the automatic route in 35 high priority industries requiring large investments and advanced technology. • In 1996 the automatic approval route for FDI was expanded, from 35 to 111 industries, under four distinct categories (Part A–*up to 50%,* Part B–*up to 51%,* Part *C–up to 74%,* and Part D-*up to 100%).* • FIPB (ForeignInvestment Promotional Board) was constituted for processing FDI proposals.
Phase 4 Globalization Phase 2000 to 2014	Consolidated documentation	• In 2000 except for a small negative list, all activities were placed under the automatic route. • Insurance and defense sectors were opened up with a cap of 26%. • Telecom cap was increased from 49% to 74% in 2005. • FDI up to 51% in single brand retail was allowed in 2006 • Consolidation of existing FDI regulations to a single document for ease of reference.
Phase 5 Radical Liberalization 2014 to till date	Make in India Consolidated FDI policy 2016	• FDI in Pharma sector up to 74% in automatic route and beyond that in the government route • In defense, foreign investment beyond 49 per cent and up to 100 per cent has been permitted through the government approval route. • 100 per cent FDI in existing airport projects has been allowed in automatic route.

4. THEORETICAL BACKGROUND

The theories of FDI were developed with the objective of identifying the factors which motivated the firms to go abroad. Theories of FDI are divided into two categories

(a) Theories based on the assumption of perfect competition

(b) Theories based on the assumption of imperfect competition.

The major theory of FDI based on perfect competition[3,4] in a two country framework with price of capital in both countries being equal, and one country being the investing country and the other being the host country, states that investment flows from a capital abundant country to capital scarce country until the marginal productivity of capital tends to equalize between countries.Some economists opposed the perfect competition based FDI theory because several observed characteristics of international investment were not consistent with the assumptions of perfect competitive markets.

The first theory[5] of FDI based on the assumption of imperfect markets focused on the *industrial organization approach*. According to this theory a firm which is operating in a foreign country has to compete with domestic firms which have comparative advantage in culture, language, legal system and consumer preferences. The investing firm also has to face an exchange rate risk. Some kind of market power in the form of superior technology, economies of scale and cheaper sources of finance, brand names, marketing and managerial skills has to be with the investing firm to offset the disadvantages which it faces in the host country. This was followed by a similar theory[6] based on the monopolistic power of the investing country being the major factor influencing FDI.

Subsequently the Product *Life Cycle theory*[7]was used to explain FDI flows.According to this there are three stages in the life cycle of a product in the context of FDI flows namely innovation stage, maturity stage and standardization stage. In the innovation stage a company in a developed country comes up with a new product by Research and Development and it manufactures the product mainly to meet the domestic demand. It also exports a part of the output to other developed countries. The demand tends to be price inelastic due to the unique nature of the product. In the maturity stage the demand in the home country turns elastic and in the host country rivals come up with similar products at a cheaper rate due to the lower distribution costs. Product of the innovator becomes costly due to transportation cost and tariffs imposed by the host country. This forces the innovator to set up a production facility in the host country to avoid higher transportation costs and tariffs. In the standardization stage the product price competitiveness become more important due to stiff competition. The innovator tries to keep the production costs lower by shifting production to low cost destinations, mainly to developing countries due to the availability of cheap labour.

The *currency based theory*[8] of FDI is based on the relative strength of the currencies of the investing country and the host country. According to this theory, the weaker home country currency compared to the investing country had a capacity to attract more FDI due to the advantage of differences in market capitalization rate.

Internalization theory[9] assumes imperfect competition due to the difference in transaction costs in intra firm and inter firm transfer of intermediate products such as knowledge and expertise. When a firm develops a new technology or process by R&D investment, it finds it difficult to transfer this technology or sell this input to other unrelated firms because for those firms the transaction cost will be high. To avoid this situation, a firm choose to internalize by using backward and forward integration *i.e.* transfer of technology or input to a subsidiary. This process becomes FDI when internalization involves operation in a different country.

Location specific theory[10]considers location specific advantages in the host country as reason for FDI inflows. Cheap labour and abundance of raw materials are the major location specific advantages. MNCs invest in countries where trade barriers are created to restrict imports, so that they can manufacture the product in the host country and thereby evade trade barriers.

Eclectic Paradigm (1977 and 1979) theory[11] combined earlier theories of industrial organization and internalization and added a third dimension of location specific advantages. This led to the OLI paradigm that suggested that a firm would go for FDI if it has ownership advantage over the other firms(O), locational advantages in a foreign country(L) and if it was beneficial to internalize(I) these advantages rather than to use the market to transfer this to foreign firms. The major advantage of this theory was that it combined several complementary theories existed before and provided a comprehensive approach to understand factors influencing FDI flows.

Political Economic theories[12]consider political stability as a major determinant of FDI flows and suggests that FDI flows will be more when there is political stability in the host country. It also postulates that when there is political instability in the home country, firms tend to shift their production to other countries.

5. REVIEW OF LITERATURE

A study[13] using Auto RegressiveDistributed Lag (ARDL) and Vector Auto Regression (VAR) concludes that GDP and Real Effective Exchange rate as the significant factors which influence FDI inflows to India.

Another study[14] conducted to identify study of the determinants of FDI inflows in the post liberalization period using annual data from 1991 to 2010 by employing an Ordinary Least Square Regression analysis identified market size, trade openness, infrastructure, interest rate and inflation as the major determinants of FDI inflows.

Factor analysis[15] of panel data on 12 potential determinants of inward FDI for the period 2000 to 2010 has also been used. The study identified that the major factors influencing FDI are import, export, trade balance and forex reserves.

A study[16] using multiple regression also has employed to study FDI determinants. As per their findings trade openness, inflation and forex reserves are the major determinants that affect FDI inflows. Inflation and exchange rate had negative impact on FDI and GDP, forex reserves, openness and external indebtness had positive impact on FDI.

A panel data model[17] has been used to examine the determinants of FDI inflows during the period 2001 to 2010.According to this study the major determinants of FDI inflow are occurrence of profit, availability of power and domestic investment.

An analysis[18] of the relationship between FDI and financial crisis in European countries came to the conclusion that the crisis had a major impact on the FDI inflows to these countries.

Another study[19] used a dummy variable to account for FDI policy changes along with tracing the impact of macroeconomic variables like GDP,inflation rate, foreign trade, money supply growth and patents on FDI inflows. It has been found that only GDP, inflation rate and scientific research had impact on FDI inflows. It was also found that the dummy variable for FDI policy changes done during (1995-97) also had a significant effect on the inflows.

It is proposed[20] that the recent financial crisis has a stronger impact on FDI flows compared to the earlier ones and further emphasized that FDI inflows are as unstable as any other capital flows and sensitive to global markets.

A comparative study[21] of three economies (India, Pakistan, Indonesia) with respect to the impact of various macroeconomic factors on FDI inflows to these countries revealed that GDP, domestic investment, trade openness and physical infrastructure are the major macroeconomic factors affecting FDI flows to these countries. Method of least square has been used to identify the determinants of FDI during the period 1975 to 2001.

An attempt[22] to analyse the impact of government policies and location characteristics on China's inward FDI using cross section and panel data during the period 1987to 1998 revealed that China's market size, liberalized FDI policies and good infrastructure were the major factors attracting FDI to China. Regional distribution of FDI was influenced by historical and cultural link with foreign investors and other location specific factors.

A careful review of the existing literature in the Indian context reveals that the major macroeconomic determinants of FDI are market size, exchange rate, inflation, openness and external debt. The studies which are mentioned above cover the time period up to the year 2011. But, according to data available on Bloomberg[23], FDI inflows to India almost doubled from Rs.76377 Crore in 2010 to Rs.156788 crores in 2015.Apart from that, the growth dynamics in India compared to the rest of the world has changed substantially during the period 2010 to 2015.Lot of policy changes with respect to FDI also have been initiated during this period. Since these radical changes in macroeconomic factors have happened in the recent past, we wanted to look at the determinants of FDI inflows to India in the changed macroeconomic scenario. Macroeconomic variables like FDI can be impacted by changes in the global business environment. In our paper we have also made an attempt to analyze the impact of global financial crisis on FDI flows to India.

6. METHODOLOGY

Annual data was collected for the period from 1994 to 2015. Data was collected from the RBI website as well as from Bloomberg. These variables have been identified through the literature review. The dependent variable is Foreign Direct Investment (FDI) and the independent variables are external debt, foreign exchange reserves, real GDP, exchange rate, real interest rate, global financial crisis and inflation rate. The variables used are defined as follows:

Foreign Direct Investment is an investment in a business by an investor from another country for which the foreign investor has control over the company purchased.

Market Size is measured in terms of Real GDP and it is expected to have a significant and positive relationship between FDI.

Forex Reserve: High level of foreign exchange reserve shows external sector stability by providing a high import cover. It is expected to have a positive relationship with FDI.

Inflation Rate: Moderate inflation is considered as a sign of macroeconomic stability and it is expected to have a negative impact on FDI. It is measured as Consumer Price Index Inflation.

Real Interest rate is nominal interest rate adjusted for inflation. It is expected to have a negative relationship with FDI.

Real Effective Exchange Rate: REER is the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator.It is expected to have a negative relationship with FDI.

Crisis: This is a dummy variable for the financial crisis which took place during 2007-08. The crisis periods have been coded as 1 and all other years as 0.

External Debt is the total debt a country owes to foreign creditors. It is expected to have a negative relationship with FDI

We had also included trade openness as a variable in our preliminary examination of the model. However, it was very strongly correlated with GDP and External Debt and we did not include it in our final model making.

7. ANALYSIS

The descriptives of the variables are as given in Table 2. There are 22 observations. The Skewness and Kurtosis figures are well within +3 and -3 which shows us that we can proceed with the analysis. However, most of the values are skewed towards the right. The descriptives for the variable "crisis" have not been calculated as it is a dummy variable where 1 is the crisis period and 0 is the non-crisis period.

7.1 Model Specification

We have used Ordinary Least Squares regression for our analysis. We have taken the natural log for the first set of models (models 1 and 2), examined for collinearity, dropped the collinear variables during regression and come to the final model in each case. Logs have not been taken for the rates and the dummy variable.

lFDI= β0+β1lExternal Debt +β2lForeign Exchange+β3lReal GDP+β4Exchange rate+β5interest rate+β6inflation+β7crisis+ut is the error term. As this is macroeconomic data, the effect on FDI can be determined after a lag. We have then run the OLS on the lagged values of the logged variables for the second set of data (models 3 to 7). lFDI= β0+β1lag(lExternal Debt)+β2lag(lForeign Exchange)+β3lag(lReal GDP)+β4lag(Exchange rate)+β5lag(interest rate)+β6lag(inflation)+β7*crisis+ut

The resulting models are as given in Table 3.

8. FINDINGS AND CONCLUSION

The empirical results obtained as shown in the table above are acceptable and significant on the basis of the F Statistic and the Adjusted R squared value. On further examination of the above table it is clear that

Table 2
Descriptive Statistics

	N	*Mean*	*Std. Deviation*	*Skewness*		*Kurtosis*	
	Statistic	*Statistic*	*Statistic*	*Statistic*	*Std. Error*	*Statistic*	*Std. Error*
FDI	22	87922.7354	86572.99944	.775	.491	–.455	.953
Real GDP	22	62702.5909	39286.91429	1.136	.491	.433	.953
Real Exch rate	22	92.0714	4.43748	.801	.491	.585	.953
Forex Res	22	7549432.95	6744552.936	.579	.491	–.862	.953
External debt	22	9156996.55	10036682.047	1.098	.491	.132	.953
Real Int rate	22	5.8579	2.31477	–.862	.491	1.453	.953
Inflation CPI	22	7.42773	2.995581	.306	.491	–1.184	.953
Valid N	22						

Table 3
Models for determinants of FDI

	Dependent variable:FDI						
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
ln Real GDP	1.517***	1.312***					
	(0.418)	(0.408)					
REER	0.032	0.040					
	(0.025)	(0.025)					
ln Forex Res	0.151	0.241					
	(0.154)	(0.146)					
Real Interest rate	–0.001	0.0005					
	(0.064)	(0.066)					
Inflation	0.021	0.055					
	(0.056)	(0.052)					
Crisis	0.497				0.562*	0.497	0.632*
	(0.340)				(0.309)	(0.340)	(0.311)
L (ln(Real GDP))			1.312***	1.281**	1.379***	1.517***	1.893***
			(0.408)	(0.458)	(0.432)	(0.418)	(0.165)
L (REER)			0.040	0.041	0.032	0.032	0.030
			(0.025)	(0.025)	(0.024)	(0.025)	(0.024)
L (ln(Forex Res))			0.241			0.151	
			(0.146)			(0.154)	
L(ln(External.debt))				0.261	0.209		
				(0.171)	(0.163)		
L (Real Interest rate)			0.0005	0.015	0.021	–0.001	–0.026
			(0.066)	(0.073)	(0.068)	(0.064)	(0.059)
L(Inflation)			0.055	0.039	0.014	0.021	–0.013
			(0.052)	(0.049)	(0.048)	(0.056)	(0.044)
Constant	–11.212***	–11.285***	–11.285***	–11.320***	–10.676***	–11.212***	–12.471***
	(3.132)	(3.241)	(3.241)	(3.323)	(3.127)	(3.132)	(2.853)
Observations	22	22	22	22	22	22	22
R^2	0.929	0.919	0.919	0.917	0.932	0.929	0.925
Adjusted R^2	0.901	0.894	0.894	0.891	0.905	0.901	0.901
Residual Std. Error	0.421	0.435	0.435	0.441	0.412	0.421	0.420
	(*df* = 15)	(*df* = 16)	(*df* = 16)	(*df* = 16)	(*df* = 15)	(*df* = 15)	(*df* = 16)
F Statistic	32.815***	36.357***	36.357***	35.436***	34.335***	32.815***	39.279***
	(*df* = 6; 15)	(*df* = 5; 16)	(*df* = 5; 16)	(*df* = 5; 16)	(*df* = 6; 15)	(*df* = 6; 15)	(*df* = 5; 16)

Note: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$

the dependent variable can be best predicted by Real GDP and the dummy variable crisis as is shown in Model 5. This is the best model from the ones we examined as the adjusted *R* squared value is the highest at 0.905. The estimated regression model for economic determinants of FDI for India is: FDI=-10.676+1.379lag (Real GDP)+0.562*crisis+ ut

The impact of GDP is positively significant at 1% level of significance and the impact of the dummy variable crisis is positively significant at 10%.

From all the models that we ran it is clear that FDI can be predicted by GDP which is a proxy for market size, and Crisis. Market size is a major determinant of FDI inflows because large markets can accommodate more firms, both domestic and foreign and the huge demand in this market helps the firms to achieve economies of scale and scope. India stands third in the world in terms of GDP PPP and in the post crisis period India has one of the highest GDP growth rate in the world. Hence, to attract more FDI, the government should adopt policies which lead to higher GDP. The finding that FDI inflows mainly depends on market size is well supported by the literature[13,14,19,21].

The finding that FDI inflows are impacted by the global financial crisis is well supported by the literature[18,20]. Theconclusions of this study are different from the literature review which says that FDI can be predicted by factors like inflation rate, foreign exchange rate, external debt etc., along with GDP. Our model proposes that FDI can be best predicted by Real GDP and stability in the global financial markets.

In the light of these findings the "Make in India" campaign is a step in the right direction as it is expected to transform India into a manufacturing hub and to generate employment in 25 sectors of the economy. The country specific and sector specific approach of this campaign is anticipated to attract capital and technology and thereby increase productivity and economic growth. After the launch of the "Make in India" campaign the average annual FDI inflows into the country have increased by more than 20% (DIPP)[24]. This initiative is expected to further increase the GDP and hence draw in more FDI.

9. LIMITATIONS

The major limitation of this study is that we have used annual data. Further studies can be conducted using quarterly data.

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