FDI Inflows in India: Trends and Determinants

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Abstract

The paper analyzed the sector and country wise trend of foreign direct investment (FDI) inflows in India from 1991-92 to 2012-13. The paper found negative trends in sectors such as electrical equipment, transportation, chemicals, food processing and positive trend in the metallurgical and service sector. The paper also investigated the determinants of FDI inflows in India since 1980-81. The study was conducted taking data from various secondary sources. The study used OLS method to estimate various parameters of the determinants of FDI inflows. The paper found that lagged FDI inflow (one period), inflation rate, share of manufacturing sector in GDP, interest rate, per capita income were significant determinants of FDI inflows in India (except occurrence of riots). The variables taken showed expected signs, including the occurrence of riots. The paper included one dummy variable since 1991 to examine the impact of liberalization policy on FDI inflows and found that the variable was significant. This means that liberalization of the economy has increased FDI inflows in India.

Keywords: FDI, trend, determinant, OLS

It is a well recognized fact that developing countries like India lack adequate capital formation for accelerating economic growth. In this case, Foreign Direct Investment (FDI) plays a pivotal role in filling the gap between domestic savings and investment. FDI is a non-debt creating source of external finance. Thus, it is theoretically expected to impose fewer burdens on the host country compared to other sources of external finance. Foreign Direct Investment (FDI) not only fills the gap between domestic savings and investment but also creates desirable effects in the host economy through the transfer of technology, know-how and other resources. This means FDI has positive spillover effects in the host economy which has been realized by Indian policy makers.

However, the inflow of FDI in Indian economy prior to liberalization period was not so significant due to restrictive policy of the government. However, with the adoption of reform measures since 1991 the inflow of FDI has increased. The amount of FDI inflow in 1991-92 was ₹ 351.43 crores which increased to ₹ 121907 crores in 2012-13. The Annual Growth Rate of FDI inflow also increased although there were fluctuations in the growth rate. FDI as a percentage of GDP also increased from 0.03% in 1991-92 to 1.11% in 1997-98 and then to 3.47 % in 2008-09 although it declined to 2.34% in 2012-13 (Secretariat of Industrial Assistance, 2012). Against this backdrop, the study aims to analyze both sector wise and country wise trend of FDI inflows in India from 1991-92 to 2012-13. The study also investigates the determinants of FDI inflows in India since 1980.

Literature Survey

There are a number of studies worldwide on the determinants of foreign direct investment (FDI). Among most of the studies market size and growth rate of the market are found to be the major determinants of FDI inflows to an

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economy (Jun & Singh, 1996 ; Shamsuddin, 1994, UNCTAD, 1993 ; WIR, 1998). There is a positive relationship between the size of market of the host economy and FDI inflows into that economy. Inflation (Schneider & Frey, 1985; Singhania & Gupta, 2011) and labour cost (Lucas, 1993; Shamsuddin, 1994) in the host economy negatively affect the inflow of FDI. Among other variables, degree of openness (Mottaleb & Kalirajan, 2010 ; Noorbakhsh, Paloni, & Youssef, 2001 ; Walsh & Yu, 2010) and adequate infrastructure in the host economy (Hymer, 1971 ; Krishna & Venugopal, 2003 ; Root & Ahmed, 1979) are found to positively affect the inflow of FDI. Socio-Political instability, corruption and bureaucratic hurdles in the host economy pose serious threats in the path of inflow of FDI. Ahoroni (1966) found that political instability as the most important variable, apart from market potential. Conversely, Bennett and Green (1972) found that U.S. direct investments are not affected by political instability in the recipient countries. Root and Ahmed (1979) by applying discriminant analysis of fifty eight developing countries found that "the number of regular (constitutional) changes in government leadership between 1956 and 1967" was significant. Schneider and Frey (1985) found a negative relationship between the number of political strikes and riots in host countries and the inflow of foreign direct investment.

There is a dearth of empirical studies in India on this aspect. Gopinath (1997) found that GDP and foreign exchange reserves are significant determinants of FDI inflow in India. However, the study is not comprehensive as it did not take other important variables such as trade openness, exchange rate, political instability etc. into consideration. Sahoo (2004) divided the determinants into two categories such as demand determinants of FDI and cost determinants of FDI. Demand determinants of FDI were GDP, growth rate of GDP, export, trade balance, degree of openness of the economy and domestic capital formation and cost determinants were inflation rate, interest rate and exchange rate. The period for the analysis was from 1979-80 to 2000-01. The study found GDP at factor cost, real effective exchange rate (REER), interest rate and WPI significant variables. One of the startling facts emanated from the study was that GDP negatively affects FDI inflows in India which goes against the market size hypothesis of the determinant of FDI.

Krishna and Venugopal (2003) made a study of the determinants of private foreign investment in post- reform India. The study used quarterly time series data over the period from September 1991 to June 2001. The variables included in the study are BSE index, corporate tax, exchange rate, exports, IIP, GDP at factor cost, imports, infrastructure, number of mandays lost due to labour disputes (monthly Indian labour journal), and openness of the economy. Share prices,index of industrial production, infrastructure, London interbank offered rate and man days lost are found influencing factors of inflows of direct foreign investment. Singhania and Gupta (2011) made a study on determinants of foreign direct investment in India. The study suffers from certain shortcomings. As mentioned by the authors, the model that used by them could explain 63 percent variation in FDI inflows in India and 37 percent still remains unexplained. This is partially due to the non-inclusion of certain fundamental variables such as exchange rate, infrastructure, human capital, urbanization, labour cost, GDP per capita, taxation etc. The study can also be enriched by including some non-economic variables such as political instability, corruption, economic integration, scientific development, bureaucratic control.

The above literature survey shows that there is a strong necessity of re-investigation of the determinants of FDI inflow in India and the present study is a time-bound addition to the existing literature. Moreover, the study can also be used to compare the status of FDI inflow in pre and post reform period as the study period is from 1980-81 to 2011-12.

Data and Methods

The study is based on the data collected from various secondary sources. The data of have been collected mainly from Handbook of Statistics of Indian Economy, Secretariat of Industrial Assistance (SIA), National Crime Records Bureau (NCRB) etc.

For the trend analysis at the sectoral level all together eleven (11) sectors have been identified based on the

amount of FDI inflows in these sectors. The identified sectors are fuels, electrical equipment, transportation, chemicals, food processing, metallurgical, industrial machinery, drugs and pharmaceuticals, textiles, service and telecommunications. These sectors have received major share of FDI inflows in India since 1991. The FDI data for all these sectors have been collected from Secretatriat of Industrial Assistance (SIA) archive.

For analyzing the trend of FDI inflows in India from different countries altogether ten (10) countries have been chosen. These are USA, Mauritious, UK, Japan, Germany, France, Netherlands, UAE, Singapore, and Cyprus. The data of country-wise FDI inflows in India have also been collected from SIA archive.

The following simple regression equation is applied to study the sector-wise and country-wise ternd in FDI inflows:

$$LYit = \alpha + \beta X + Ut \ ....(1)$$

where,
L represents values in logarithmic form, Yit is the percentage share of ith sector (or country) in total FDI inflows in period t, X stands for time trend, α and β are coefficients of the model and Ut is the error term which satisfies the white noise property.

A significant positive value of coefficient of time, β for a particular sector (or country) indicates a positive trend of FDI inflows in that sector (or from that country); while a significant negative value of the coefficient would mean a negative trend. Moreover, the coefficient β would also indicate the annual average growth rate of the share of a particular sector (or country) in total FDI during the study period because of the logarithmic transformation. The study has taken 11 sectors and 10 countries such that $i = 1,2,3,\ldots,11$ for sectors and $i = 1,2,3,\ldots,10$ for countries and 22 time periods from 1991-92 to 2012-13 such that $t = 1,2,3,\ldots,22$.

The following model is used for estimating the determinants affecting the inflow of FDI in India:

$$\text{Log } FDI = \beta_0 + \beta_1 \text{ Log } FDI_{t-1} + \beta_2 \text{ Log } Inf_t + \beta_3 \text{ Log } Manu_t + \beta_4 \text{ Log } PCI_t + \beta_5 \text{ Log } RR_t + \beta_6 \text{ Log } Interest_t + \beta_7 Dummy_{1991} + e_t \ ....(2)$$

where,
FDI = Foreign Direct Investment; Inf = Inflation rate; $Manu$ = Share of manufacturing sector in GDP ; PCI = Per Capita Income; RR = Incidence of Riots (proxy for social insecurity); $Interest$ = Nominal Interest Rate. Dummy Variable= 0 upto 1990 and 1 since 1991 and thus capturing the effect of policy shift in the inflow of FDI in India. e_t=Error term which satisfies the white noise property. The expected signs of the co-efficient are $\beta_1 > 0$, $\beta_2 < 0$, $\beta_3 > 0$, $\beta_4 > 0$, $\beta_5 < 0$, $\beta_6 > 0$ and $\beta_7 > 0$. The economic reasons for these expected signs are given in the Appendix.

The dummy variable since 1991 has been incorporated in the model to investigate the impact of liberalization policy of the government on the inflow of FDI in Indian economy. If the estimated parameter is significant it means that the policy shift has a positive impact on the inflow of FDI in India.

✤ **Hypothesis :** The major macro economic variables determine FDI inflows in India.

Analysis and Results

(1) Trend of FDI Inflows : There are mainly thirteen sectors (industries) which have been attracting lion's share of FDI in India since 1991. These sectors are fuels. Electrical equipment, transport, chemicals, food processing, metallurgical, industrial machinery, drugs and pharmaceuticals, textiles, services, telecommunications, computer software and hardware and construction and development projects. In this chapter, the sector wise FDI analysis has been done since 1991 mainly because of non-availability of annual data prior to that period. In the Table 1, the share of the above mentioned sectors has been divided into two periods. The first period is from

Table 1. Share of Important Sectors in FDI inflows in India (in %)

SL No.	Sectors	from Aug. 1991to Dec. 1999	From Apr. 2000 to June 2013
2	Electric Equip	8.05	1.62
3	Transportation	8.93	0.83
4	Chemicals	6.91	4.53
5	Food Processing	4.10	0.99
6	Metallurgical	1.09	3.84
7	Industrial machinery	0.63	1.2
8	Drugs and Pharma	1.43	5.7
9	Textiles	1.44	0.63
10	Service	7.01	19.22
11	Telecommunications	7.00	6.48
12	Miscellaneous industries	9.53	3.91

Source: Secretariat of Industrial Assistance (SIA), 2013.

August, 1991 to December, 1999 and the second period is from April 2000 to June 2013. The Table clearly shows that the share of fuels, electrical equipment, transportation, chemicals, food processing and textile drastically fall during these time periods. There was a marginal fall in the share telecommunication industry. There has been increase in the share of metallurgical, industrial machinery and the service sector. The increase in the service sector is from 7% to approximate 20% during these two periods.

The result of sector-wise trend in FDI inflows in India (as per equation 1) is presented in Table 2 and it is observed that the coefficient of time trend, that is β, is significant for six (6) sectors such as electrical equipment, transportation, chemicals, food processing, metallurgical and service sectors. Among these the coefficient of time are positive for metallurgical and services sectors and these are statistically highly significant. This implies that there is positive trend in these two sectors and negative trend in the rest four sectors. Apart from these the coefficients are also positive for telecommunications and industrial machinery, but the coefficients are not significant. The coefficients for service sector, metallurgical and chemicals are significant at the 1% level and the rest are significant at the 5% level. It is observed from the analysis that there has been a negative trend in FDI inflows in majority of the sectors chosen for the study. This may be due to the rise in the share of other sectors such as computer software and hardware industry, construction and development project etc. Moreover, there is considerable share of miscellaneous industries.

The Durbin-Watson [1] (DW) statistic has been used to detect the presence of autocorrelation in the models for each sector and found that the problem of autocorrelation was present in almost all models except fuels, food processing, metallurgical and drugs and pharmaceuticals. The problem of autocorrelation was solved by the Cochrane-Orcutt (CO) iteration method.

The share (in percent) of different countries in FDI inflows into India has been shown in three time periods in Table 3. It is seen from Table 3 that from 1991 to 1999 the share of Mauritius (22%) tops the list among 10 countries followed by USA (14%), Japan (5%), UK and Germany (4%), Singapore (2.15%), Netherlands (0.34 %), France (0.18%), Cyprus (0.17%) and UAE (0.06%). But for the period from 2000 to 2012 there has been a

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[1] We do not reject (accept) the null hypothesis of no autocorrelation if the estimated value of d lies between this range $d_u < d < 4 - d_u$; where, d_u is the tabulated value of upper limit of the Durbin –Watson (DW) statistic. In this case with 22 observations and one explanatory variable, the value of d_u is 1.429 so that the value of $4 - d_u$ is 2.571. The value of lower limit is 1.239.

Table 2. Sectoral Trend in FDI inflows

SL. No	Sectors	Intercept	Slope (β)	
1	Fuel	2.04	-0.005	(-0.142)
2	Electrical Equipment	3.55	-0.09**	(-2.268)
3	Transportation	3.04	-0.11**	(-2.334)
4	Chemicals	3.02	-0.08*	(-2.869)
5	Food Processing	2.13	-0.08**	(-2.617)
6	Metallurgical	-0.07	0.11*	(4.84)
7	Industrial Machinery	-0.11	0.02	(0.509)
8	Drugs and Pharma	1.25	-0.001	(-0.04)
9	Textiles	0.70	-0.02	(-0.283)
10	Services	1.66	0.09*	(3.016)
11	Telecommunications	0.72	0.06	(0.644)

Note: figures in the parentheses are *t* values; (*) and (**) indicate significant at 1% and 5% levels, respectively.

Table 3. Share of Top Countries in FDI Inflows in India (in %)

Country	From Aug.1991 to Sep. 2009	From Aug. 1991 to Dec. 1999	From Apr. 2000 to Dec. 2012
USA	8.12	14	6
Mauritius	39.07	22	38
UK	5.03	4	9
Japan	3.48	5	7
Germany	3.64	4	3
France	1.4	0.18	2
Netherlands	3.95	0.34	5
UAE	1.21	0.06	1
Singapore	7.74	2.15	10
Cyprus	2.65	0.17	4

Source: Secretariat of Industrial Assistance (SIA), 2012.

significant shift in the share of different countries. Again, it is observed that lion's share of FDI inflow was from Mauritius (38%) followed by Singapore (10%), UK (9%), Japan (7%), USA (6%), Netherlands (5%), Cyprus (4%), Germany (3%), France (2%) and UAE (1%).

Thus, it is clear that there has been a paradigm shift in the share of different countries in respect of FDI inflows since 2000. The most remarkable is the large share of Mauritius which is 39% for the period ranging from 1991 to 2009 (upto September) and the fall in the share of USA since 2000.

A question will naturally arise in mind that why or how is Mauritius investing such a huge amount in India surpassing other developed countries such as USA, UK, and Japan etc.? The actual fact is that the MNCs set up in Mauritius by the US firms are investing such a huge amount in India. This means that US companies have routed their investment in India via Mauritius. It is due to the different tax treaty for different countries to invest in India. For example, the tax treaty between Mauritius and India stipulates a dividend tax of 5%, while the treaty between Indian and the US stipulated a dividend tax of 15% (World Bank, 1999). The India-Mauritius Double Taxation Avoidance Agreement (DTAA) was signed in 1982 and has played an important role in facilitating foreign

Table 4. Country-Wise Trend in FDI Inflows

SL No	Country	Intercept	Slope (β)
1	USA	3.35	-0.12* (-4.63)
2	UK	2.10	-0.06 (-1.59)
3	Mauritius	0.86	0.14*** (1.92)
4	Japan	1.80	-0.04 (-1.15)
5	France	0.91	-0.05 (-1.49)
6	Germany	1.73	-0.07** (-2.43)
7	Netherlands	1.14	-0.002 (-0.06)
8	UAE	-2.50	0.13** (2.41)
9	Singapore	-0.53	0.14* (7.49)
10	Cyprus	-4.27	0.24* (2.85)

Note: Figures in the parentheses are *t* values; (*), (**), and (***) indicate significance at 1%, 5%, and 10%, respectively.

Table 5. Determinants of FDI Inflow in India, 1980-2011
Dependent Variable = log(FDI)

Explanatory Variable	Coefficient	*t*- statistics
Constant	-53.59	-3.95***
Log$(fdi)_{t-1}$	0.46	4.05***
Log$(inf)_t$	-0.77	-2.90***
Log$(manu)_t$	28.50	1.95**
Log$(PCI)_t$	13.97	5.31***
Log$(RR)_t$	-0.51	-0.76
Log$(intrest)_t$	1.69	2.96***
Dummy$_{1991}$	1.41	5.10***
Adj R^2 = 0.93	***F* = 58.17***	*B-G Stat* = 0.15**

Note: 1. **(***) indicates significance at 5% and 1% levels, respectively.
2. The heteroscedasticity bias of standard errors has been corrected before calculating *t*-statistics.

investment in India via Mauritius.

The result of country-wise trend of FDI inflows in India given in Table 4 reveals that the coefficient of time trend, that is β, is positive for six countries such as Mauritius, France, Netherlands, UAE, Singapore and Cyprus and negative for rest of the countries. But the coefficient is significant for five countries such as USA, Mauritius, UAE, Singapore and Cyprus. This implies that there is positive trend of FDI inflows from these countries except from USA because the coefficient is negative. No trend is observed for the countries such as UK, Japan, France, Germany and Netherlands in statistical sense. Durbin Watson (DW) test has also been used for the detection of the problem of autocorrelation and found that the problem is present for the models of the countries USA, UAE and Mauritius. The problem is again solved by the Cochrane-Orcutt (CO) method.

(2) Determinants of FDI Inflows : In order to identify the determinants of FDI inflow, we have estimated the equation (2) as specified in the Methodology section by OLS technique, and the result so obtained is given in Table 5. The estimated error term of the equation as specified in the Methodology section is found to be stationary

at level. The experiment conducted with the help of Engle-Granger [2] (EG)test indicates that the variables are co-integrated and therefore, the regression is not 'spurious'. It has been observed that all variables bear theoretically expected sign. The F statistic is significant at the 1% level, which means that the coefficients in the model are jointly significant. The value of adjusted R- squared is 0.93 which means the fit of the model is quite good. The value of the B-G statistic (0.15) shows that there is absence of autocorrelation in the model. Although the sign of riots (-0.51) is expected, but it is insignificant. This means that the occurrence of riots has no impact on the inflow of FDI in Indian economy.

The coefficients of FDI_{t-1}, inflation, Per capita income, interest rate, and dummy$_{1991}$ are statistically significant at the 1 percent level. The coefficient of share of the manufacturing sector in GDP is significant at the 5 percent level. The values of the coefficient of share of manufacturing GDP (28.50) and per capita income (13.97) are very high which means that the variance in FDI inflow in India is largely explained by these two variables. Since all the variables (dependent and independent) are expressed in logarithmic terms, the result can also be expressed in percentage terms.

As shown in Table 5 if last year's FDI increases by 1 percent, then next year's FDI will increase by 0 .46 %. Similarly, if inflation rate increases by 1 percent, then the inflow of FDI will fall by 0.77%. Moreover, the elasticity coefficients of share of manufacturing GDP, per capita income, interest rate and dummy variable are greater than 1 and the rest are less than 1. The dummy variable included in the model has shown that the inflow of FDI in Indian economy has experienced a positive shift. The coefficient of dummy variable is significant at the 1 percent level.

The standardized values of the coefficients suggest that share of manufacturing GDP and per capita income are the most important variables in determining FDI in India. So, it is imperative that the government should stress on strategies that will increase the magnitude of these variables which may bring more FDI in India. The result also reveals that the hypothesis that is set in section III has been broadly accepted. It is revealed that the major macro economic variables such as per capita income, share of manufacturing sector in GDP, inflation, interest rate determine FDI inflows in India.

Research and Policy Implications

The paper has two aspects, namely trend of FDI inflows and determinants of FDI inflows. Both sector-wise and country-wise trend have been analyzed using simple econometric technique. The paper urges for finding out the causes for negative trend in some important sectors like electrical equipment, chemicals, transportation, and food processing and taking necessary steps to increase FDI inflows in these sector. Those sectors should be identified which have more backward and forward linkages so that domestic economy can receive maximum benefit.

The result of the determinants suggests that government should undertake some stringent measures to attract more FDI in India. There is a need to open up the economy further along with the undertaking reform measures from time to time. It is recommended that Government of India gives special attention towards variables that have been identified as significant in this paper such as per capita income, inflation, interest rate etc. Sectors which have not been opened yet should be opened taking into account the positive benefits of FDI inflows.

[2] Since the estimated error term are based on the estimated co-integrating parameters of the equation in the Methodology section, the DF and ADF critical significance values are not quite appropriate. Engle and Granger (EG) have calculated these values. Therefore, the DF and ADF tests in the present context are known as EG and AEG tests. To keep things simple, I have not reported the E-G test results in the article. These results are, however, available from the author on demand.

Conclusion

The article statistically estimated the sector-wise and country-wise trend of FDI inflows in India since 1991. It has been explored that there has been positive trend in service sector, telecommunications, metallurgical etc. and negative in food processing, chemicals, transportation and electrical equipment.

The paper also empirically examined the determinants of FDI inflow in Indian economy using a time series econometric technique over the period 1980-81 to 2011-12. Our main objective is to study how changes in different policy variables such as inflation rate, share of manufacturing GDP, interest rate, per capita income, incidence of riots and liberalization policy (proxied by Dummy Variable 1991) can attract FDI in India. The study used multiple regression analysis to identify the variables explaining FDI inflow in Indian economy. The study found all the variables have shown expected signs and all are statistically significant except the incidence of riots (a measure of social insecurity). This means that the occurrence of riots in India does not explain FDI inflow. The findings of the study broadly match with earlier studies (reviewed in the Review of Literature section) in this area. The result supports the market size hypothesis since it is found that per capita income plays an important role in determining FDI inflows in India. The signs of the estimated coefficients are also expected thereby matching with earlier studies. However, the findings do not match with that of Sahoo (2004) because in that study it is found that GDP negatively affects FDI inflows in India but the present study has found that GDP per capita positively affects FDI inflows.

Another mismatch is that in the present study political instability (proxied by incidence of riots) has been found to be an insignificant variable. This might be due to vastness of the country where incidence of riots in some parts does not affect FDI inflows. But this result goes against the existing literature.

Limitations and Scope for Further Research

The paper investigated the trend and the determinants of FDI inflows in India. Both sector-wise and country-wise trend of FDI inflows have been investigated. The determinants of aggregate FDI inflows in India have been investigated which is one of the limitations of the study because FDI data have not been disaggregated. The paper contains some limitations which provide the scope for further research in this area.

The paper could not cover the sector-wise and state wise determinants of FDI inflows in India. So, further research can be undertaken on this aspect. The trend of state-wise FDI inflows can also be investigated. But the availability of adequate data on state-wise FDI inflows is major problem in this regard. More sophisticated and advanced econometric methods can also be applied in future research work. Moreover, the variables which are not included in the present study can be considered in future research work.

References

Aharoni, Y. (1966). *The foreign investment decision process.* Cambridge Mass : Harvard University Press.

Balasubramium, V.N., & Mahalbare, V. (2003). *Foreign direct investment in India (Working Paper No. 2003/001).* Lancaster, UK : Lancaster University Management School.

Bennett, P. D., & Green, R.T. (1972). Political instability as a determinant of direct foreign investment in marketing. *Journal of Marketing Research, 9* (2), 162- 186.

Gopinath,T.(1997). Foreign investment in India: Policy issues, trends and prospects. *Reserve Bank of India- Occasional Papers, 18* (2 & 3), 453 - 470.

Hymer, S. H. (1976). *The international operation of national firms: A study of direct foreign investment.* Cambridge : MIT Press.

Jun, K. W., & Singh, H. (1996). The determinants of foreign direct investment in developing countries. *Transnational Corporations, 5* (2), 67 - l05.

Krishna, M. J., & Venugopal, J. (2003). Determinants of private foreign investment in post-reform India. *Savings and Development, 27* (4), 441-461.

Lucas, R. E. B. (1993).On the determinants of direct foreign investment : Evidence from East and Southeast Asia. *World Development, 21* (3), 391 - 406.

Mottalab, K.A., & Kalirajan, K. (2010). Determinants of foreign direct investment in developing countries : A comparative analysis. *The Journal of Applied Economics Research, 4* (4), 369-404.

Noorbakhsh, F., Paloni, A., & Youssef, A. (2010). Human capital and FDI inflows to developing countries : New empirical evidence. *World Development, 29* (9), 1593-1610.

Root, F. R., & Ahmed, A. (1979). Empirical determinants of manufacturing direct foreign investment in developing countries. *Economic Development and Cultural Change, 27* (4), 751-767.

Sahoo, D. (2004). *An analysis of the impact of foreign direct investment on the Indian economy* (PhD Thesis). Bangalore : ISEC.

Schneider, F., & Frey, B. S. (1985). Economic and political determinants of foreign direct investment. *World Development, 13* (2), 161 - 175.

Secretariat of Industrial Assistance, Government of India. (2012). *News letters.* New Delhi : Department of Industrial Policy and Promotion, Government of India.

Shamsuddin, A. F. M. (1994). Economic determinants of foreign direct investment in less developed countries. *The Pakistan Development Review, 33* (1), 41-51.

Singhania, M., & Gupta, A. (2011). Determinants of foreign direct investment in India. *Journal of International Trade Law and Policy, 10* (1), 64-82.

The World Bank, (1999). *World Investment Report.* Washington, D. C. : World Bank.

The World Bank. (1998).*World Investment Report.* Washington, D. C. : World Bank.

United Nations Centre on Transnational Corporations (UNCTAD). (1993). *Explaining and forecasting regional flows of foreign direct investment.* New York : United Nations Publications.

Walsh, J. P., & Yu, J. (2010). *Determinants of foreign direct investment : A sectoral and institutional approach (Working Paper No. 10/187).* International Monetary Fund. Retrieved from https://www.imf.org/external/pubs/ft/wp/2010/wp10187.pdf

Appendix

There are a number of variables (determinants) as seen from section II which can influence the inflow of FDI in a country such as GDP, growth rate of GDP, natural resources, availability of infrastructure, human capital measured by secondary school enrollment ratio, interest rate, inflation rate, share of manufacturing sector in GDP, percentage of urban population, progress in research and development, political and social instability (measured by riots), corruption. However, the present study has taken seven independent variables including a dummy variable[2]. These are FDI with one period lag, inflation, share of manufacturing sector in GDP, per capita income, riots per capita, interest rate and a dummy variable from 1991. The data on the selected variables range are taken for the period of 1980 to 2011. The rationale of the variables is briefly discussed below :

(1) Inflation: Inflation in the host economy negatively affects the FDI inflow. This is because higher the inflation rate, higher will be the production cost at the subsidiaries and it will lower the competitiveness of the firms in the international market. So, the MNCs prefer those markets where inflation rate is lower so that more output can be produced and sold cheaply. Moreover, the wages have to be adjusted in upward direction if the inflation rate is higher which raises the production cost of the firms. Thus, $\delta FDI/\delta Inf < 0$.

(2) Per Capita Income: Per capita signifies the purchasing power of the economy. There is positive relationship between per capita income and FDI inflows. It gives an indication to the MNEs regarding the market condition in the host economy. Higher per capita income implies higher purchasing capacity which will, in turn, attract more FDI because in this case the MNCs can reap the benefits of the market. Thus, $\delta FDI/\delta PCI > 0$.

(3) Share of Manufacturing Sector in GDP: There is positive relationship between share of manufacturing sector in GDP and FDI inflow because if the former increases it implies there is structural shift and transition in the economy which gives an opportunity to the MNCs to reap the benefits. The same thing also took place in case of India at the beginning of the reform period. Initially, in India FDI inflow was higher in the manufacturing sector compared to other sectors. Thus, $\delta FDI/\delta man. > 0$.

(4) Social Instability : Social instability is proxied by the incidence of riots in India. The occurrence of riots and inflow of FDI are negatively correlated. This is because it gives a perception to the foreign investor that there is socio-political instability in the economy. Moreover, the frequent occurrence of riots, strikes negatively affects the production process in the economy for which the MNCs will have to incur losses. Thus, $\delta FDI/\delta RR < 0$.

(5) FDI$_{t-1}$: The inflow of foreign direct investment with one period lag is introduced in the model as an explanatory variable because it is expected that there is positive relationship between last year's FDI inflow and current year inflow of FDI. This means that is last year's FDI inflow is higher; it will have a positive impact on the current year's FDI inflow.

(6) Dummy Variable$_{1991}$: A dummy variable has been introduced in the model with values 0 up to 1990 and 1 thereafter. The year 1991 is selected because process of economic reforms in India was initiated in 1991 and the magnitude of FDI inflow in India started increasing with the adoption of liberalization policy. This is attempted to investigate whether the policy shift has any impact on the inflow of FDI in Indian economy.

(7) Nominal Interest Rate: There is positive correlation between FDI inflow and interest rate (Agarwal 1980, Lucas 1993) such that $\delta FDI/\delta IR > 0$. This means that if interest rate in the domestic economy increases the FDI