

SPATIAL AND SECTORAL DISTRIBUTION OF FDI IN INDIAN STATES AND ITS DETERMINANTS

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Abstract : India embarked on the path of liberalization in mid 1980s, and balance of payments crisis of 1991 forced India to liberalise Indian economy and allow Foreign Direct Investment (FDI). While India is attracting FDI increasingly over the years, the flows of FDI have been concentrated to only few states of India. Around 70% of FDI inflows go to five major states of Maharashtra, Delhi, Gujarat, Andhra Pradesh and Karnataka that is, western south India. This concentration of financial flows has grave implications for balanced regional growth and development of India. Given this, this paper throws light on the FDI inflows spatial and sectoral patterns and concentration. First it looks into the existing literature on the location choice of the FDI flows. Then it goes onto studying the spatial trends in FDI flows, that is, what all states are attracting maximum FDI flows over the years. After that, it sees the sectors which have attracted the FDI the most. And finally the paper includes a regression analysis on the factors that are affecting FDI flows concentration in the areas.

IndexTerms : FDI, Sectoral Distribution, Spatial Distribution.

I. INTRODUCTION

In this era of Globalised and liberalized world economy, countries are competing amongst themselves for Foreign Direct Investment (FDI) flows. World economy has seen international flows of FDI worth 2.111 trillion USD in 2015, up from 55.831 billion USD in 1985 (International Monetary Fund, IMF). This itself shows the extent to which financial flows have increased over a period of 20 years. Countries are competing to attract FDI given its numerous advantages. According to neoclassical theory, global flows from a capital rich country to a capital poor benefits both of them as capital rich countries earns a higher rate of return on its investment and capital poor country gets access to finance to carry out economic activities. Out of all financial flows, FDI is the most preferred source of finance both countries. This is because recipient country gets access to managerial skills and advanced technology along with FDI.

India embarked on the path of liberalization in mid 1980s, and balance of payments crisis of 1991 forced India to liberalise Indian economy and allow Foreign Direct Investment (FDI) inflows to invest in sectors which were earlier protected for domestic firms through licenses. Over the years India has emerged as one of the top FDI recipient countries. India is now one of the top 10 FDI recipient countries with total FDI flows equal to 44 billion USD in 2015. While India is attracting FDI increasingly over the years, the flows of FDI have been concentrated to only few states of India. Around 70% of FDI inflows go to five major states of Maharashtra, Delhi, Gujarat, Andhra Pradesh and Karnataka that is, western south India. This concentration of financial flows has grave implications for balanced regional growth and development of India.

Given this, this paper throws light on the FDI inflows spatial and sectoral patterns and concentration. First it looks into the existing literature on the location choice of the FDI flows. Then it goes onto studying the spatial trends in FDI flows, that is, what all states are attracting maximum FDI flows over the years. After that, it sees the sectors which have attracted the FDI the most. And finally the paper includes a regression analysis on the factors that are affecting FDI flows concentration in the areas.

II. LITERATURE SURVEY

Theoretical Literature

Locational choices of FDI and Multi National Enterprises have been studied by various economic geographers. The most popular and common of them all are studies by Dunning and Krugman. Dunning (1998) suggested that explanations of financial flows the 1970s and early 1980s need to be modified as firm-specific assets have become mobile across natural boundaries. In particular he focused on three points regarding this. In his own words, "firstly, the growing importance of intangible assets - and particularly intellectual

capital - in the wealth creating process, and of the need of companies to harness, as well as to exploit, these assets from a variety of locations. Secondly, we emphasized the changing role of location-bound assets, which mobile investors look for as complements to their own core competencies. In doing so, we again underscored the increasing significance of created assets (and particularly those which governments, in their macro-organizational policies, can and do influence), and, also, the benefits which spatial clusters offer whenever distance related transactions and coordination costs are high. Thirdly, we argued that, to adequately incorporate the activities of MNEs within existing trade-type theories of the international allocation of economic activity, more attention needs to be given both to the specific motives, determinants and consequences of the common governance of related cross-border activities, and to the conditions in which internalizing intermediate product markets might make for a more efficient (in the sense of the “next best” realistic alternative, assuming that all cross-border avoidable structural market imperfection have been removed) spatial configuration of economic activity in the contemporary global and innovatory economy.”

Another factor determining the flows of FDI to an economy is “agglomeration economies” given by Krugman in 1991. According to him, Agglomeration economies emerge when there are some positive externalities in collocating near other economic units due to the presence of knowledge spillovers, specialized labor markets and supplier network.

Therefore, these factors lead to concentration of FDI in specific areas. We now move on to empirical literature on factors determining the location choice of FDI. There are a lot of studies on determinants of FDI across countries, however, very few studies are there on determinants of location of FDI within India.

Empirical Literature

Nunnenkamp and Stracke (2007), empirically found out that in post liberalized India FDI is concentrated in few advanced regions. They also tested the link between FDI and economic growth and concluded that various categories of FDI are positively linked to per capita income growth across Indian states. However, this link between FDI and economic growth holds for only advanced states. Therefore, FDI is likely to increase inter regional disparity amongst states.

Jordaan (2011) estimated a conditional logit locational model to determine the FDI factors in Mexico city. He found out that regional demand, labor costs, labor quality, agglomeration economies and regional distance to Mexico City and the US are all important locational factors in determination of FDI.

Siddharthan investigated the patterns of regional differences in FDI inflows in China and India. He found out that in case of China, per capita trade, social security, per capita income of a province affect the per capita FDI flows significantly. And in case of India, Socio economic index, education enrolment, % of urban population, per capita industrial output, tele density and life expectancy affect FDI inflows to a state statistically significantly.

Chatterjee, Mishra, and Chatterjee (2013) used panel dataset of 16 states to find out the determinants that result in variations in FDI inflows across Indian states. They found profitability of existing firms in the state to be a significant factor and contrary to general proposition, infrastructure was found to be insignificant.

Atri Mukherjee (2011) analysis of determinants of FDI revealed that market size, agglomeration effects, size of manufacturing and services base in a state have significant positive impact on FDI in flows. Impact of taxation and cost of labour were found to be affecting FDI negatively. Given the agglomeration effects, she suggests conscious and coordinated effort at the national and the state government level to make the laggard states more attractive to FDI flows.

III. DATA

Trends in FDI: Spatial

Table 1 : FDI flows to the States (2015 and cumulative January 2000 to March 2016)

Source : SIA newsletter, April 2016

Regional Offices of RBI	States Covered	2015			
		Jan-Dec	FDI in Rs million	% Share	FDI in Rs million
MUMBAI	MAHARASHTRA, DADRA & NAGAR HAVELI, DAMAN & DIU	472,260.75	18.6988433	4,167,115.53	27.8033486

NEW DELHI	DELHI, PART OF UP AND HARYANA	891,399.05	35.29433931	3,328,466.40	22.2078104
CHENNAI	TAMIL NADU, PONDICHERRY	344,028.07	13.62155752	1,188,138.16	7.92735867
BANGALORE	KARNATAKA	309,520.21	12.25524227	1,090,609.92	7.27664198
AHMEDABAD	GUJARAT	146,053.85	5.782902886	684,708.57	4.56843371
HYDERABAD	ANDHRA PRADESH	62,119.55	2.459581346	595,947.24	3.97621058
KOLKATA	WEST BENGAL, SIKKIM, ANDAMAN & NICOBAR ISLANDS	60,248.83	2.38551146	208,617.52	1.3919138
CHANDIGARH	CHANDIGARH, PUNJAB, HARYANA, HIMACHAL PRADESH	2,778.74	0.110022321	71,263.05	0.47547312
JAIPUR	RAJASTHAN	12,487.27	0.494424965	67,492.87	0.45031816
KOCHI	KERALA, LAKSHADWEEP	3,651.93	0.144595685	66,142.48	0.44130824
BHOPAL	MADHYA PRADESH, CHATTISGARH	1,524.62	0.060366292	65,375.16	0.43618862
PANAJI	GOA	1,211.98	0.047987524	40,010.63	0.26695432
KANPUR	UTTAR PRADESH, UTTANCHAL	6,984.67	0.27655326	29,677.59	0.1980114
BHUBANESHWAR	ORISSA	380.07	0.015048613	19,971.48	0.13325141
GUWAHATI	ASSAM, ARUNACHAL PRADESH, MANIPUR, MEGHALAYA, MIZORAM, NAGALAND, TRIPURA	2,860.40	0.113255593	5,400.69	0.03603386
PATNA	BIHAR, JHARKHAND	626.26	0.024796339	4,472.90	0.02984357
JAMMU	JAMMU & KASHMIR	0	0	373.58	0.00249256
REGION NOT INDICATED		207,478.53	8.214971327	3,348,143.62	22.3390985
Sub Total		2,525,614.78	100	14,981,927.38	99.9606914
RBI's-NRI SCHEMES “*”		0	0	5,891.50	0.03930859
Grand Total		2,525,614.78	100	14,987,818.88	100

As it can be seen from the above table, Delhi and NCR got the highest share 35% of FDI flows in 2015 but overall total cumulative FDI since 2000 has been highest in Maharashtra with a share of 28%. Delhi with parts of Haryana and UP and Maharashtra account for almost 50% of the FDI in India. This itself shows the concentration of FDI inflows in India. Tamilnadu and Karnataka come 3rd and 4th respectively in FDI inflows both in cumulative flows and FDI inflows in 2015. The southern India including Maharashtra (28%), Tamilnadu (8%), Karnataka (7%) and Andhra Pradesh (4%) makes for almost half of the FDI stock that has come to India since 2000. In North India, only Delhi is the region with reasonably high cumulative FDI stock.

Therefore, we can conclude that only 6 states that is Maharashtra, Delhi, Tamilnadu, Karnataka, Gujarat and Andhra Pradesh account for over 75% of cumulative flows since 2000 and 85% of FDI flows in 2015.

Trends in FDI: Sectoral

As it can be seen from the table on the next page, there has been a shift in both quantum of FDI and sectors that FDI is going to. Till 1999, the FDI flows were the maximum in electric equipment sector. But 2000 onwards, Service sector is attracting most of the FDI. The top sectors during 2000 to 2014 have been Service sector, construction, telecommunications, computer software and drugs and pharmaceuticals. Till 1999, Electric equipments, Service sector, Telecommunications, chemicals and power were the sectors which attracted the most of the FDI. This shows a major shift in FDI inflows from manufacturing industries to service sectors over a decade. Automobile industry has also emerged as a major FDI receiving sector up from rank 22 in 1991 to 1999 to rank 6 in 2000 to 2014.

TABLE: NO: 1

Sector-Wise Foreign Direct Investment Inflows into India-1991 to 2014 (US Smillion)

S. No	Sectors	FDI Inflows	Sectors	FDI Inflows
		1991 -1999		2000-2014
1	Electrical equipment	1393.13	Service sector	41,111.80
2	Service sector	1213.66	Construction Development- Townships, housing, built-up infrastructure and construction-development projects	23,951.68
3	Telecommunications	1211.64	Telecommunications	16,634.00
4	Chemicals other than fertilizers	1196.17	Computer Software & Hardware	13,470.81
5	Power	1093.32	Drugs & Pharmaceuticals	12,715.38
6	Food processing industries	710.51	Automobile Industry	11,048.18
7	Paper & pulp	259.85	Chemicals (Other than Fertilizers)	10,120.09
8	Mechanical & engineering industry	255.41	Power	9,386.59
9	Textiles (including dyed & printed)	248.88	Miscellaneous Industries	8,577.55
10	Drug & Pharmaceuticals	246.71	Metallurgical Industries	8,280.50
11	Trading	201.48	Hotel & tourism	7,607.01
12	Metallurgical industry	190.05	Trading	6,854.90
13	Industrial machinery	108.88	Petroleum & Natural Gas	6,514.74
14	Hotel & Tourism	91.33	Food Processing Industries	6,089.51
15	Ceramics	51.6	Information Broadcasting (Including print media)	3,769.10
16	Cement & gypsum product	49.92	Electrical equipments)	3738.75
17	Fermentation industry	24.15	Non-conventional energy	3419.61
18	Consultancy services	6.61	Industrial Machinery	3214.79
19	Computer Software & Hardware	0	Cement and Gypsum Products	3008.12
20	Housing & real estate	0	Construction activities (Infrastructure)	2792.20
21	Construction activities	0	Consultancy services	2726.99
22	Automobiles industry	0	Miscellaneous Mechanical & Engineering Industries	2676.00
23	Petroleum & natural gas	0	Hospital & Diagnostic centers	2507.53
24	Information Broadcasting	0	Fermentation Industries	2110.67
25	Others	2401.36	Others	22601.45
26	Total	10954.66	Total	235012.95

IV. METHODOLOGY : FACTORS AFFECTING SPATIAL FDI FLOWS

This section studies the factors affecting the FDI inflows in different states of India. For the analysis, we take cross sectional data of 31 states and union territories namely, Andhra Pr., Arunachal Pr., Assam, Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Himachal Pr., J & K, Jharkhand, Karnataka, Kerala, Madhya Pr., Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand, West Bengal, A & N islands, Chandigarh, Delhi, Puducherry for the year 2011. We have taken 2011 as our year of analysis because of other census variables' decadal observations. The data has been taken from SIA newsletter, 2011 issue.

We test for the Market Size effect, Infrastructure effect, Labour force effect and Agglomeration effects on the location choice of FDI in Indian states. We take following variables as the proxies of these effects :

- 1) Per Capita GSDP of 2010–11 (2004–05 prices) : This variable is the proxy for market size of the states. The greater the purchasing power of individuals in the state, the greater be the FDI flows. The data is taken from CSO.
- 2) Population size 2011: This variable again is a proxy for market size. Greater the population, greater the market size. The data was available at Census website.
- 3) Road length (in kms) per 100 sq km of area: This variable is a proxy for infrastructure that is there in the state. The data has been taken from Ministry of road transport and highways.
- 4) Literacy rates (2011) : Literacy rates shows the literate labour force in the state. The data has been extracted from census 2011.
- 5) Cumulative FDI stock: This variable shows the agglomeration effect. Previous years's FDI tend to attract more FDI. The data has been taken from SIA newsletter.

We test the overall significance of the factors and test the factors individually as well. For the purpose of analysis, we have taken natural log of the variables. So the model is :

$$\text{LN(FDI)} = \beta_0 + \beta_1 \text{LN(PCGSDP)} + \beta_2 \text{LN(POP)} + \beta_3 \text{LN(RL)} + \beta_4 \text{LN(LR)} + \beta_5 \text{LN(FDIstock)} + \underline{U}$$

Empirical Results

The regression analysis was carried out in STATA 13. The following regression results were observed:

1) Overall Significance : Regression Results

Variable	Significance
LN(GSDP)	Insignificant
LN(POP)	Insignificant
LN(RL)	Insignificant
LN(LR)	Insignificant
LN(FDIstock)	Significant

2) Individual Significance : Regression Results

Variable	Significance
LN(GSDP)	Significant
LN(POP)	Significant
LN(RL)	Insignificant
LN(LR)	Insignificant
LN(FDIstock)	Significant

The above tables show that agglomeration effect is there when FDI make location choices as cumulative FDI stocks of the states are highly significant. The market size effect captured by per capita GSDP and Population of the individual states is significant in the individually. The infrastructure effect captured by road density and labour force effect captured by literacy rates has insignificant impacts on the FDI inflows of the state.

Therefore, we can say that FDI inflows at the state level in India are affected by agglomeration effect and market size effect. The infrastructure and labour force have insignificant impact of the location choice of the FDI inflows.

V. CONCLUSION

With this analysis we can conclude that 85% of FDI is going to top six states only and agglomeration effect is also highly significant which reinforces the fact that why only top six states continue to attract high FDI inflows and are preferred FDI locations. This has serious implications on the balanced regional development of the Indian states. Therefore, the policymakers should create conducive and enabling environment for FDI by promoting business friendly environments in the lagging states. Once the FDI picks up in laggard states, agglomeration effect dictates that FDI will keep coming to these regions.

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