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Regional Inequality in Foreign Direct Investment Flows to India: The Problem and the Prospects

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Following the liberalisation of the foreign direct investment (FDI) policy in India in the early 1990s, FDI to India has increased significantly in the last decade. However, the growth in FDI flows has been accompanied by strong regional concentration thereby depriving a large number of Indian states from the benefits of a liberalised FDI regime. In view of this, the paper examines what are the major determinants affecting regional distribution of FDI flows in India. The analysis reveals that market size, agglomeration effects and size of manufacturing and services base in a state have significant positive impact on FDI flows. The impact of taxation and cost of labour is negative. While the impact of quality of labour is ambiguous, infrastructure, however, has significant positive influence on FDI flows. With the presence of a strong agglomeration effect, it is essential to have a conscious and coordinated effort at the national and the state government level to make the laggard states more attractive to FDI flows. The efforts may include special thrust on the manufacturing, services and the infrastructure sectors, or direct policy efforts like in the case of China or a combination of both.

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Introduction

In the era of globalisation and financial integration, foreign direct investment (FDI) has emerged as one of the most important forms of capital flows to developing countries. FDI is often preferred over other forms of capital flows by the policy makers as it is considered to be of a more stable nature and also it does not form a part of the host country's external debt stock. Apart from constituting a mode of finance, FDI also tends to enhance economic growth through spill over

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of technology and knowledge in the host country. There is, however, large inequality in the distribution of FDI flows within the emerging market and developing economies. While some countries like China, India and Brazil have attracted bulk of the FDI flows, most of the others have failed to achieve the same.

FDI flows to India picked up in the 1990s, after the economic reforms and liberalisation of the FDI policies. As per the IMF's Global Financial Stability Report, April 2012, India has emerged as one of the major recipients of FDI flows among the emerging market economies in the last few years. Composition of FDI flows to India reveals that over the years automatic route has emerged as the most important channel of FDI flows to India, followed by reinvested earnings and acquisition of shares. FDI through government approval route, on the other hand, has declined over time, which is in line with the policy reforms. The sectoral composition of FDI to India has undergone significant changes since the 1990s. The bulk of the FDI flows in the pre-liberalisation period were directed towards the manufacturing sector. In the recent years, however, much of the FDI flows have moved into the services sector. Mauritius has emerged as the most important source of FDI to India over the last decade.

Destination wise, economically advanced states have attracted the lion's share of FDI flows to India. The top six Indian states, *viz*., Maharashtra, Delhi, Karnataka, Tamil Nadu, Gujarat and Andhra Pradesh together accounted for over 70 per cent of FDI equity flows to India during the period April 2000 to June 2012 reflecting distinct signs of FDI concentration at the state level. The FDI policy in India was liberalised in the early 1990s as a part of economic reforms to attract the foreign capital and also to take advantage of the spill over of technology and knowledge. It is, therefore, essential to derive maximum benefit from the FDI flows and ensure that the rising FDI flows do not lead to an increase in regional inequality. In view of this, an attempt has been made in this paper to examine the major determinants affecting regional distribution of FDI flows to India. In light of the findings, the paper also makes an attempt to list out the possible policy implications for the national and the state governments.

The paper has been organised as follows: Section I sets out a brief theoretical background relating to the reasons for inter-regional differences in FDI flows. Section II provides a survey of select empirical literature on the determinants of regional distribution of FDI flows in the international as well as in the Indian context. Section III presents some stylised facts on distribution of FDI flows in India. Section IV describes the rationale behind selection of variables. The methodology and the empirical results are furnished in Section V. The policy implications are drawn in Section VI.

Section I

The Theoretical Background

Traditionally, the FDI has moved from developed to other developed or developing countries preferably in sectors like mining, tea, coffee, rubber, cocoa plantation, oil extraction and refining, manufacturing for home production and exports, *etc.* Gradually their operations have also included services such as banking, insurance, shipping, hotels, *etc.* As regards location choice, the Multi National Enterprises (MNEs) tend to set up their plants in big cities in the developing countries, where infrastructure facilities are easily available. Therefore, in order to attract FDI flows, the recipients countries/regions were required to provide basic facilities like land, power and other public utilities, concessions in the form of tax holiday, development rebate, rebate on undistributed profits, additional depreciation allowance and subsidised inputs, *etc.*

Dunning (1998) indicated that the strategies and location choice of MNEs had undergone significant changes between the 1970s and the 1990s. He identified some major developments in the world economy which have been instrumental in changing location decision of MNEs during this period. The first major development is the growth of intellectual capital which was reflected in higher expenditure on information technology, increase in the knowledge component of the manufacturing goods and increase in the share of skilled workers in the labour force. The growing significance of these non-material knowledge-intensive assets was led by tremendous growth of the services sector, particularly knowledge and information oriented services. Secondly, the location of creation and use of these knowledge intensive assets

have been increasingly influenced by the presence of immobile clusters of complementary value-added activities. Spatial bunching of firms engaged in related activities have benefited from the presence of one another and of having access to localised support facilities, shared service centres, distribution networks, customised demand patterns and specialised factor inputs. This has given rise to "alliance capitalism", in which the main shareholders in the wealth sharing process need to collaborate more actively and purposefully with each other. Third, there is increasing evidence that except for some labour or resource oriented investment in developing countries, MNEs are increasingly seeking locations which offer the best economic and institutional facilities for core competence to be efficiently utilized. Fourth, the renaissance of market economy and the consequent changes in the macroeconomic policies and macro-organizational strategies of many national governments have also contributed significantly to the economic and political risk assessment of FDI by MNEs.

The "agglomeration" factor has emerged as one of the most important determinants of regional distribution of FDI flows within a country during the last two decades. Agglomeration economies emerge when there are some positive externalities in collocating near other economic units due to the presence of knowledge spillovers, specialised labor markets and supplier network (Krugman 1991). Statistical results from several studies focusing on developing economies strongly buttress the argument that foreign investors are inclined to favour such locations that could minimise information costs and offer a variety of agglomeration economies (He Canfei 2002). A common finding in recent studies is that regions with a relatively higher existing stock of foreign investment are more likely to attract further investments, which confirms the importance of positive agglomeration externalities.

Therefore, it emerges that while globalisation suggests that the location and ownership of production should become geographically more dispersed, other economic forces are working towards a more pronounced geographical concentration of such activity both within particular regions and countries. In the above theoretical backdrop, a survey of the empirical literature has been carried out highlighting select country experiences and the experiences in the Indian context.

Section II

Survey of Select Empirical Literature

Internationally, there is a host of literature analysing the inter-country differences in FDI flows. Those studies have identified a number of factors affecting the location choice of the foreign direct investors. However, many of those determinants are country-specific and would not apply to state/provincial level movement of FDI flows. The literature on regional distribution of FDI flows within a country, on the other hand, is relatively scarce. Most of the available studies relating to FDI flows at the state/ provincial level relate to the US, the European Union and China. There are few analytical studies on inter-state differences in FDI flows in India.

In the context of the United States, Coughlin, Terza and Aromdee (1989) found that the number of potential sites, state per capita income, manufacturing density within a state, better transportation infrastructure, higher unemployment rates and higher expenditures to attract FDI were positively linked to FDI flows. On the other hand, higher wages and higher tax rates had negative impact on FDI flows. Fisher and Peters (1998) found that incentives offered by various states had a positive impact on investment flows to the US. Incentives considered in their study include job credits, property tax abatements, sales tax exemptions, grants, loan guarantees, firm specific job training and infrastructure subsidies. Within the European Union member states, the long term trends point out the existence of a negative relationship between taxation and FDI inflows. Santis, Mercuri and Vicarelli (2001) found that FDI flows within the European Union member states were more influenced by the total fiscal wedge on labour than corporate tax rates. This suggests that multinationals, while making their location choices, focus their attention more to the overall tax burden than on single corporate tax rates, which provide only partial information. Apart from tax burden, bilateral degree of trade openness and infrastructure also play an important role to attract FDI. Wolff (2006) found that within the European Union, the different sub-components of FDI (equity, re-invested profits and other investments) react differently to taxes. Contrary to the public belief that high corporate tax rates act as the key

reasons for low investment rates from abroad, the author found that after controlling for unobserved country characteristics and common time effects, the top statutory corporate tax rate of both, source and host country, turned insignificant for total FDI and investment into equity. There were, however, definite indications that high source country taxes increased the probability of firms to reinvest profits abroad. However, overall experience revealed that global companies give more importance to the simplicity and stability of a country's tax system than generous tax rebates. Chidlow and Young (2008) found that Polish regions differed substantially in attracting foreign capital and the regional characteristics mattered in the selection of location. Using survey data from an online questionnaire and a multinomial logit model incorporating investor specific characteristics, they showed that knowledge-seeking factors alongside market and agglomeration factors, acted as the main drivers of FDI to Mazowieckie region (including Warsaw), while efficiency (low input cost, availability of labour and resources) and geographic factors encouraged FDI to the other areas of Poland.

In the Chinese context, based on panel data covering 98 hinterland cities of China for the years 1999 to 2005, Luo *et al* (2008) found that well established factors such as natural resources and low labour costs were not important in determining FDI flows to China's hinterland. Instead, policy incentives and industrial agglomerates were the most important determining factors for FDI flows. Using panel dataset of the areas at provincial level in China during the period of 1998-2007, Xu *et al* (2008) found that agglomeration economies influenced the location choices of FDI in China, and cumulative FDI in an area had crucial demonstration effect on the decision making of the new FDI entrants. The study also indicated that although labour costs continued to remain one crucial element for location choices of FDI, however, labour quality was playing an increasingly important role in attracting FDI from the US and the European countries. The analysis of core-periphery framework suggested that the two mega cities of Hong Kong and Shanghai as the cores of agglomeration had significant influence on location choices of FDI in China. For FDI from different sources, there exist country specific features. This implies that previous cumulative foreign investments led to concentration of new investments from

same source country. Boermans *et al* (2009) found that in line with the theoretical predictions, foreign investors preferred to invest more in provinces with better institutions, lower labour cost and larger market size. The effect of market size on FDI was larger in provinces with better institutions. Sub-sample study confirmed the existence of a large disparity between East and West. In the poorer large western provinces, FDI was strongly driven by the geographical factors, in contrast to the east of China, where institutions played a significant role to build up the 'factory of the world'. Robustness tests indicated that two sub-dimensions of institutions, *viz*., infrastructure and governance, were important to determine the location choice of FDI in China.

Siddharthan (2006) found that the determinants of regional distribution of FDI flows in China and India were very similar to the pattern influencing inter-country FDI flows. In those two countries, much of the FDI flowed to relatively developed regions, while regions that were poor in physical, institutional and social infrastructure received very little FDI. In China, Eastern zone provinces with high per capita income, better socio-economic indicators, better infrastructure facilities in terms of electricity, road and rail network and higher international orientation in terms of their per capita international trade, also attracted higher FDI flows. Similarly, in India, the states with high per capita income, high industrial output, and situated at the coasts attracted high levels of FDI. Moreover, the regions that received low FDI flows were also the regions that attracted lower domestic investment.

In the Indian context, Goldar (2007) found that by and large, the same set of factors influenced the location decision of plants of local companies as that of foreign companies. His econometric analysis of plant location across 100 largest cities in 17 states of India revealed that city-size was an important factor influencing location decisions of industrial plants. The presence of a metropolitan city in a state also had a favourable influence, which probably captured the advantage in 'headquartering' the country operations of the MNEs. The location decisions of plants of foreign companies were found to be influenced by the investment climate and availability of educated workers in the state, and the availability of civic amenities in the cities. Morris (2007) argued that in India, the regions with the metropolitan cities had the

advantage in 'headquartering' the country operations of MNEs and therefore, attracted bulk of the FDI flows. Nunnenkamp and Stracke (2007) found significant positive correlation of FDI with per capita income, population density, per capita bank deposits, telephone density, level of education and per capita net value added in manufacturing in India. FDI, on the other hand was negatively correlated with state population, and had insignificant relation in respect of availability of electricity and unemployment rate. Aggarwal (2005) found that rigid labour markets in Indian states discourage FDI. The effect of labour market rigidities and labour cost, however, was more pronounced for the export-oriented as compared to the domestic market seeking FDI. The study also pointed out that the presence of EPZ worked as a relevant pull factor for export oriented FDI. Econometric evidence found in the study suggested that infrastructure, regional development and human development were also key factors in attracting higher FDI both in the export and domestic market sectors. In a study on business environment, clustering and industry location in the Indian Cities, using firm level data collected in the 2003 round of the Investment Climate Survey (ICS) for India, Lall and Mengistae (2005) found that the local business environment had significant bearing on location decisions. Predatory enforcement of business regulations reduced the probability of a business locating in a city. In comparison, better access to finance and land and greater availability of infrastructure attracted firms to a city. However, firms were also attracted by agglomeration economies from clustering of firms in their own industry. This means that new firms will choose to locate production in areas that are already established centers in their line of business.

Ramachandran and Goebel (2002) pointed out that Tamil Nadu had emerged as one of the most favoured investment destination in India on account of a number of advantages *viz*., strong and stable government with pro-active government policies, investor-friendly and transparent decision making process, sound diversified industrial infrastructure, comfortable power situation, abundant availability of skilled manpower, harmonious industrial relations and absence of labour unrest, high quality of work culture and peaceful life, best incentives package in the country, highly cosmopolitan composition and high proportion of English speaking population. FDI in Tamil Nadu is dominated by investments in the IT sector.

Overall, the theory and the empirical literature suggest that the most important determinants of the regional distribution of FDI flows within a country include the size and growth of the local market, the level of industrial activity, the growth of the services sector, the availability and quality of physical infrastructure, labour market conditions and quality of labour, policy environment and tax incentives, business climate and the presence of agglomeration economies.

Section III

FDI Flows to India: Some Stylised Facts

FDI flows to India have picked up significantly in the recent years. India has emerged as the second largest recipient of FDI flows among the emerging market economies after China in 2009 and 2010 (Table 1).

Table 1: Emerging Market External Equity Financing

(in million US dollars)

	2008	2009	2010	2011
Sub-Saharan Africa	**884**	**1,237**	**2,841**	**1,476**
Central and Eastern Europe	**1,105**	**3,836**	**7,502**	**3,733**
Commonwealth of Independent States	**4,087**	**1,258**	**6,998**	**11,164**
Russia	2,850	956	5,454	10,794
Developing Asia	**21,441**	**61,078**	**86,923**	**38,013**
China	11,974	39,854	45,448	23,499
India	**6,008**	**16,223**	**26,179**	**7,016**
Indonesia	2,213	1,286	6,317	2,229
Malaysia	660	3,604	5,818	2,972
Pakistan	109	—	93	—
Philippines	125	0	960	596
Thailand	257	111	1,991	1,554
Middle East and North Africa	**3,832**	**917**	**1,695**	**182**
Latin America and the Caribbean	**12,719**	**15,416**	**27,139**	**18,983**
Argentina	—	—	73	3,576
Brazil	10,435	12,963	24,633	9,029
Chile	—	32	1,214	2,340
Colombia	—	619	296	3,598
Mexico	2,127	1,567	662	441
Total FDI Flows	**44,067**	**83,740**	**1,33,098**	**73,552**

Note: — indicates that the figure is zero or less than half of the final digit shown
Source: Global Financial Stability Report, April 2012, International Monetary Fund

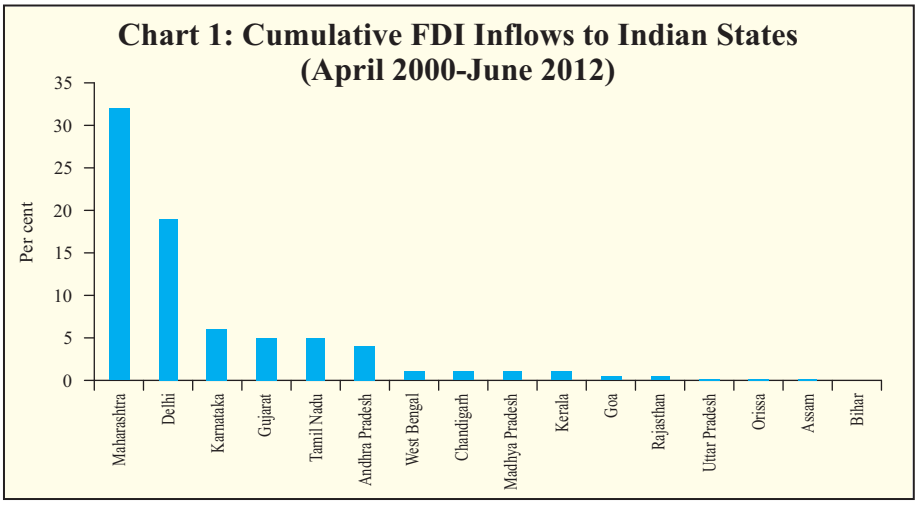
The rise in FDI flows to India has been accompanied by strong regional concentration (Table 2 and Chart 1). The top six states, *viz*., Maharashtra, New Delhi, Karnataka, Gujarat, Tamil Nadu and Andhra Pradesh accounted for over 70 per cent of the FDI equity flows to India

Table 2: FDI Equity Inflows to Indian States

	2008-09	2009-10	2010-11	2011-12	2008-09	2009-10	2010-11	2011-12
	(US $ million)				(Per cent to Total)			
Maharashtra	12,431	8,249	6,097	9,553	45.5	31.9	31.4	26.2
Delhi	1,868	9,695	2,677	7,983	6.8	37.5	13.8	21.9
Karnataka	2,026	1,029	1,332	1,533	7.4	4.0	6.9	4.2
Gujarat	2,826	807	724	1,001	10.3	3.1	3.7	2.7
Tamil Nadu	1,724	774	1,352	1,422	6.3	3.0	7.0	3.9
Andhra Pradesh	1,238	1,203	1,262	848	4.5	4.7	6.5	2.3
West Bengal	489	115	95	394	1.8	0.4	0.5	1.1
Chandigarh	0	224	416	130	0.0	0.9	2.1	0.4
Goa	29	169	302	38	0.1	0.7	1.6	0.1
Madhya Pradesh	44	54	451	123	0.2	0.2	2.3	0.3
Kerala	82	128	37	471	1.3	0.5	0.2	1.3
Rajasthan	343	31	51	33	0.3	0.1	0.3	0.1
Uttar Pradesh	0	48	112	140	0.0	0.2	0.6	0.4
Orissa	9	149	15	28	0.0	0.6	0.1	0.1
Assam	42	11	8	1	0.2	0.0	0.0	0.0
Bihar	0	0	5	24	0.0	0.0	0.0	0.1
Region not indicated	4,181	3,148	4,491	12,782	15.3	12.2	23.1	35.0
Total	27,332	25,834	19,427	36,504	100.0	100.0	100.0	100.0
Top 6 States	22,113	21,757	13,444	22,340	80.9	84.2	69.2	61.2
Top 2 States	14,299	17,944	8,774	17,536	52.3	69.5	45.2	48.0

Note: 1. FDI equity inflows include 'equity capital component' only.
2. Maharashtra includes Maharashtra, Dadra & Nagar Haveli and Daman & Diu.
3. Delhi includes New Delhi and part of UP and Haryana.
4. Tamil Nadu includes Tamil Nadu and Pondicherry.
5. West Bengal includes West Bengal, Sikkim, and Andaman & Nicobar Islands.
6. Chandigarh includes Chandigarh, Punjab, Haryana and Himachal Pradesh.
7. Madhya Pradesh includes Madhya Pradesh and Chhattisgarh.
8. Kerala includes Kerala and Lakshadweep.
9. Uttar Pradesh includes Uttar Pradesh and Uttaranchal.
10. Assam includes Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura.

Source: Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry, Government of India.



between 2008-09 and 2011-12. The top two states, i.e., Maharashtra and Delhi accounted for over 50 per cent of FDI flows during this period. Maharashtra alone accounted for over 30 per cent of FDI flows to India during the same period.

Despite impressive growth rates achieved by most of the Indian states as well as aggressive investment promotion policies pursued by various state governments, the concentration of FDI flows across a few Indian states continues to exist.

Section IV

Selection of Variables

Market Size

The theory as well as the empirical literature revealed that the size of the local market, generally represented by the scale and growth of a region, acts as one of the most important determinants of location choice of FDI as it provides an idea about the potential demand for a foreign firm's output. The attractiveness for large markets is related to larger potential for local sales. Local sales are generally more profitable than exports especially in large countries, where economies of scale may be eventually reaped. Despite significant changes in the location choice of MNEs in the recent period, large and growing domestic

market continues to remain a major determinant of market-seeking FDI flows. Empirical studies conducted in the context of the US, European Union, China and India have taken into account a number of variables to represent the market size, *viz*., GDP, growth rate of GDP, per capita income, personal income, population size, population density, population growth, consumption level, number of potential sites in a state, *etc*.

In view of this, in this study, an attempt has been made to test the hypothesis that size of the local market has important implications for regional distribution of FDI flows to India. In this paper, the 'size of the local market' is represented by two most commonly used indicators, *viz*., per capita net state domestic product (NSDP) and population density of each state.

Industrial Linkages

Dunning (1993) suggested that natural resource seeking FDI looks for foreign locations that possess natural resources and related transport and communication infrastructure, tax and other incentives. Natural resources include oil, mineral, raw materials and agricultural products. It is also often argued that regions with a more established industrial base are more attractive to foreign investment (Luo *et al* 2008). In the Indian context, Siddharthan (2006) found that the states with higher industrial output have attracted high levels of FDI. The location choice by MNEs in the 1990s, however, has been influenced to a large extent by the availability of non-material knowledge-intensive assets mainly driven by the tremendous growth of the services sector, particularly knowledge and information oriented services (Dunning, 1998). The sectoral break-up of FDI flows in India also reveals that the services sector has attracted a large share of FDI flows in the recent period (Table 3). It may be observed from Table 3 that financial and non-financial services alone accounted for 19 per cent of the cumulative FDI flows to India since April 2000. Taking into account telecommunication, computer hardware & software, construction and other services activities, overall, the services sector in India has attracted around 50 per cent of FDI flows during the same period.

Table 3: Sectoral Orientation of FDI Equity Flows to India

	2008-09	2009-10	2010-11	2011-12	Cumulative Inflows (April '00 –April '12)	Percentage of Total Inflows (April '00 -April'12)
	(US $ million)					
Services Sector (Financial & non-financial)	6,138	4,353	3,296	5,216	33,428	19
Construction Development			1,227	731	21,088	12
Telecommunications	2,558	2,554	1,665	1,997	12,560	7
Computer Software & Hardware	1,677	919	780	796	11,286	6
Drugs & Pharmaceuticals		213	209	3,232	9,659	6
Power	985	1,437	1,272	1,652	7,444	4
Automobile Industry	1,152	1,208	1,299	923	6,965	4
Metallurgical Industry	961	407	1,098	1,786	6,374	4
Total						62

Source: Department of Industrial Policy and Promotion (DIPP), Government of India.

In view of the above, in this paper, an attempt has been made to test the following three hypotheses:

- Indian states rich in natural resources are more attractive to FDI flows;
- Indian states with strong industrial base tend to attract more FDI flows;
- Indian states with higher services sector activity attract more FDI flows.

The explanatory variables considered in this context are the per capita mining output, per capita manufacturing output and per capita services output of each state.

Infrastructure

It is commonly argued in the economic literature that development and availability of superior infrastructural facilities have a positive effect on the location choice of FDI firms. As argued by Dunning (1998), that though much of the FDI in developing countries is prompted by traditional factors, such as market-size, lower input/labour cost and availability and prices of natural resources, yet even there, where the

firms have a choice, physical and human infrastructure, together with the macroeconomic environment and institutional framework of the host country tend to play a more decisive role. Availability of transportation facilities to reach the nearest port or output markets have historically been considered as an important determinant of setting a business in a particular place. Most commonly used variables to represent transport infrastructure includes the presence of major ports, close to the coast location, availability and quality of road and rail network. Apart from transport, physical infrastructure in the form of availability of power, telephone density, access to finance, availability of civic amenities and degree of urbanisation were also found to be important in the empirical studies.

In order to test the hypothesis that "states with better infrastructure attract higher FDI flows compared to others", two indicators for infrastructure, *viz*., road route density (road length per square kilo meter of state area) and railway route density (railway length per square kilo meter of state area) have been considered in this study.

Labour Conditions

The theory suggests that other things being equal, efficiency seeking foreign firms are expected to prefer lower wage locations to minimise their cost of production. Over time, however, foreign investors have started attaching importance to local labour quality. Dunning (1998) indicated that while labour cost was one of the major variables influencing the location of MNEs in the 1970s, it was the availability and the price of skilled and professional labour that influenced the decision making of the MNEs in the 1990s. Since higher wage levels reflect higher labour productivity or higher quality of human capital, therefore an investing firm which is looking for high quality and skilled labour may be attracted by the higher wage rate. It has been observed that higher the production technology level and technological content in the product, labour quality would assume higher importance.

In this paper, wages per worker in Indian states have been used as an indicator of labour cost. Quality of labour is generally judged in terms of educational qualification of the workforce. In order to assess the quality of labour, literacy rate and per capita number of educational institutions for higher studies (degree and above) in each state have been considered in the analysis.

Policy Environment

The local policy environment is mainly characterised by policies towards foreign direct investment, tax structure and investment incentives provided by the local government to attract FDI. Over the past few decades, many local governments all over the world have been actively involved in improving the policy environment for promoting their countries as attractive destination for foreign investors. Those governments have adopted a host of measures *viz*., liberalisation of laws and regulations for the admission and establishment of foreign investment projects, provision of guarantees for repatriation of investment and profits, establishing mechanism for the settlement of investment disputes and extending tax incentives to facilitate and attract foreign investment flows to their countries.

In India, as a part of economic reform, many of the states are simplifying the rules and procedures for setting up and operation of the industrial units. Single Window System is now in existence in most of the states. In addition, most of the states provide various kinds of incentives for attracting investment in the new industrial units as well as the existing ones. The incentives may be sector-specific or region-specific. While it is common among the Indian states to offer incentives to the IT/ITeS, biotechnology, tourism and the micro, small and medium enterprise (MSME) sectors, at times special incentives are also offered in industries such as textile, food, fisheries, film, healthcare, electricity generation, *etc.* Most of the sector-specific incentives in India take the form of exemption from stamp duty, registration fee, electricity duty and various types of taxes. Special Economic Zones (SEZ) also enjoy various incentives mainly in the form of various duty exemptions. The direct tax benefits include exemption from commercial tax, sales tax, value added tax (VAT), entry tax, special entry tax, luxury tax, entertainment tax, property tax, purchase tax, *etc.*, depending on the industry in concern. Exemption of entertainment taxes is common for the tourism sector.

Empirical evidence in the context of European Union revealed that multinationals, while making their location choices, focus their attention to the overall tax burden rather than on single corporate tax rates, which provide only partial information (Santis, Mercuri and

Vicarelli, 2001). In view of this, in this study, the state's own tax revenue as per cent of NSDP has been used to assess the impact of tax structure on FDI flows.

Agglomeration Economies

As countries begin to industrialise, there is a tendency for industries to concentrate initially in areas where physical infrastructure is readily available and subsequently, for related industries, to gravitate closer together, thereby taking advantage of inherent synergies. In the process, industry clusters are formed, with each geographical area specialising in certain activities, leading to spatial diffusion of industries. This clustering of firms, which is also known as the "agglomeration" factor has emerged as an important determinant of regional distribution of FDI flows within a country during the last two decades. The reduction in spatial transaction cost due to liberalisation of cross-border market and the changing characteristics of the economic activity has favoured the spatial bunching of firms engaged in related activities, so that each may benefit from the presence of the others, and of having access to localised support facilities, shared service centers, distribution networks, customised demand pattern and specialised factor inputs (Dunning 1998). Statistical results from several studies focusing on developing economies strongly buttress the argument that foreign investors are inclined to favor such locations that could minimise information costs and offer a variety of agglomeration economies (He Canfei 2002). The presence of agglomeration economies is reflected in terms of prior foreign investment presence, prior concentration of manufacturing plants, number of enterprise in a region, presence of various economic zones (SEZ, EPZ *etc.*), industrial parks, industrial clusters, *etc.*

In this study, one period lagged value of per capita stock of FDI in a state has been considered as independent variable to capture these agglomeration effects. A positive and significant coefficient of this variable means the presence of agglomeration economies.

Based on the above analysis, a list of explanatory variables selected for the study is presented in Table 4.

Table 4: List of Explanatory Variables Selected for the Study

Type of factor	Variables	Expected Sign
A. Market size	1. Per capita NSDP (PCY); 2. Population Density (PD):	+ +
B. Industrial Orientation	3. Per capita manufacturing output (MANP); 4. Per capita mining output (MINP); 5. Per capita services output (SERP);	+ + +
C. Infrastructure	6. Road route density (ROAD); 7. Railway route density (RAIL);	+ +
D. Labour Conditions	8. Wages per worker (WAGE); 9. Literacy rate (LIT); 10. Per capita number of higher educational institutes (EDUP);	- + +
E. Policy Environment	11. State's own tax revenue as per cent of NSDP (TAX)	-
F. Agglomeration Effects	12. Per capita FDI stock (STOCKP)	+

In addition to the above, there may be many other factors having an influence on foreign firms' investment decision. It has been observed that multiple factors, *viz*., pro-active government policies, transparent and investment friendly decision making process, political and legal environment, harmonious industrial relations and the quality of governance institutions together build the investment climate in a state (Globerman and Shapiro, 2003; Lall and Mengistae, 2005; Ansari and Ranga, 2010). The "Doing Business" Reports jointly published by the World Bank and International Financial Corporation consider seven parameters to determine the business environment in a state, *viz*., 'ease of starting business', 'ease of dealing with construction permit', 'ease of registering property', ' ease of paying taxes', 'ease of enforcing a contract', 'ease of trading across borders' and 'ease of closing a business'. In addition to these, the legal structure, security of property rights and level of corruption in a state, reflected in terms of the quality of justice mechanism may also have some impact on FDI flows. The regulation of labour and business is another factor, which is known to have significant influence on foreign investors' sentiments. The number of strikes and industrial disputes that take place in the economy portray the amount of control an entrepreneur has over his business. The prevalence of strong labour unions and large number of industrial disputes in the states of West Bengal and Kerala reflect the stringent

labour laws and pro-labour government policies in those states. Due to such industrial disputes, large number of mandays are lost, which seriously hampers the profitability of the manufacturer and, therefore, has adverse impact on foreign investment.

It has also been observed that the countries or regions that are politically risky with a history of expropriating FDI, endemic corruption, autocratic governments, poor law and order situation or ethnic tension tend to receive lower FDI flows. The Indian experience reveals that various political factors such as political stability of a state or the state government's political relation with the central government have also played an important role in attracting FDI flows. Political instability resulting from naxalite movements, various corruption and scandals has prevented FDI flows to certain states of India in the recent period. However, in the absence of consistent and uniform cross-sectional as well as time series data, these factors have been left out of the empirical analysis carried out in the study.

Section V
The Methodology and Empirical Results

The empirical analysis carried out in this paper is based on state-level panel dataset of India over the period 2000-01 to 2010-11 covering 31 states and Union territories, *viz*., Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Puducherry, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, Uttaranchal and West Bengal. The dependent variable in this study is the per capita annual flow of FDI to each of the 31 Indian states during the 10 years period of 2001-02 to 2010-11. The annual state-level FDI flows data released by the Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry, Government of India, however, has certain limitations. First, the state-level annual FDI flows data published by DIPP are available only from 2008-09 onwards. Second, as noted in Table 2, the data on FDI flows to certain states are not available at the disaggregated level. In view of this, in this study, the help of Centre for Monitoring Indian

Economy (CMIE) database has been taken to calculate disaggregated annual FDI flows data for each of the 31 Indian states which is important to ensure one-to-one correspondence in definition of a 'State' in the FDI statistics and the explanatory variables, while studying the regional determinants of FDI. The data on annual FDI flows to Indian states from 2008-09 onwards have been directly taken from the DIPP database with CMIE data used for disaggregation. Annual FDI flows to Indian states during the earlier years have been calculated based on the new and outstanding foreign investment database of the CMIE consistent with the cumulative FDI flows to those states as published by the DIPP. The sample period of 2001-02 to 2010-11 has been chosen mainly on account of the fact that FDI flow to India started picking up only in the 2000s and also DIPP has published region-wise data on FDI flows (cumulative) to Indian states only since April 2000. The annual data on population of each state have been worked out based on the Census data on state population and the average annual exponential growth rate of population.

Multiple sources have been used to obtain the data on the various explanatory variables used for the empirical analysis. Information on per capita income and variables relating to economic structure is obtained from the National Accounts Statistics (NAS) published by the Central Statistics Office (CSO) of the Government of India (GoI) and the Handbook of Statistics on the Indian Economy published by the Reserve Bank of India. The data on the infrastructural variables are obtained from the CMIE state-level database. The data on annual wages per worker have been taken from the Annual Survey of Industries (ASI) published by CSO, GoI. The data on literacy rates and population density are worked out from the Census of India. The data on number of higher educational institutes in a state has been compiled from various issues of the Economic Survey of the GoI and the Indian Brand Equity Foundation (IBEF) Reports. The data on tax revenue of the Indian states have been taken from various issues of the Report on 'State Finances: A Study of Budgets' published by the Reserve Bank of India. The sources for state-level data on FDI stocks, which are measured in terms of cumulative FDI flows, are the DIPP and CMIE state-level database.

Table 5: Regional Inequality among India States

States	Per Capita FDI Flows (Rs)	Area ('000 Sq Km)	Per Capita NSDP (Rs)	Population Density (Persons per sq. km)	Rail Route Density (Km per 1000 sq. km)	Literacy Rate (Per cent)	Annual Wages per Worker (Rs)	State's Own Tax Revenue as per cent to NSDP
	2010-11	2011	2010-11	2011	2008-09	2011	2009-10	2010-11
A & N Island	0.0	8.2	76,883	46	0.0	86.3	65,831	Na
Andhra Pradesh	679.5	275.0	62,912	308	18.9	67.7	61,007	8.9
Arunachal Pradesh	0.0	83.7	55,789	17	0.0	67.0	Na	2.6
Assam	11.9	78.4	30,569	397	29.1	73.2	49,332	6.3
Bihar	2.4	94.1	20,708	1,102	37.3	63.8	43,362	5.2
Chhattisgarh	0.0	135.1	41,167	189	8.8	71.0	82,983	8.0
Delhi	7,274.0	1.4	1,50,653	11,297	123.7	86.3	69,820	6.7
Goa	9,424.7	3.7	1,68,572	394	18.7	87.4	1,26,788	7.3
Gujarat	545.5	196.0	75,115	308	27.2	79.3	76,316	7.8
Haryana	655.6	44.2	94,680	573	35.1	76.6	90,347	7.2
Himachal Pradesh	0.0	55.6	65,535	123	5.1	83.8	65,255	7.6
Jammu & Kashmir	0.0	222.2	37,496	124	1.1	68.7	57,579	8.3
Jharkhand	0.0	79.7	29,786	414	24.7	67.6	1,49,847	6.4
Karnataka	1,003.3	191.7	60,946	319	15.7	75.6	83,219	10.5
Kerala	50.0	38.8	71,434	859	27.0	93.9	54,994	8.9
Madhya Pradesh	288.3	308.2	32,222	236	16.1	70.6	82,730	8.8
Maharashtra	2,462.3	307.6	83,471	365	18.2	82.9	1,03,406	7.8
Manipur	0.0	22.3	29,684	122	0.0	79.9	35,356	3.0
Meghalaya	0.0	22.4	50,427	132	16.0	75.5	72,652	3.5
Mizoram	0.0	21.0	48,591	52	0.1	91.6	Na	2.1
Nagaland	0.0	16.5	52,643	119	0.8	80.1	19,880	2.0
Orissa	16.2	155.7	40,412	269	15.3	73.5	91,921	6.3
Puducherry	0.0	0.2	98,719	2,598	22.9	86.6	73,191	9.9
Punjab	83.0	50.3	69,737	550	42.4	76.7	59,388	8.5
Rajasthan	33.5	342.2	42,434	201	17.1	67.1	65,995	6.7
Sikkim	0.0	7.1	81,159	86	30.9	82.2	58,900	4.6
Tamil Nadu	847.7	130.0	72,993	555	31.6	80.3	68,422	10.0
Tripura	0.0	10.4	44,965	350	14.4	87.8	22,267	3.8
Uttar Pradesh	25.8	240.9	26,355	828	36.1	69.7	68,048	7.7
Uttarakhand	0.0	53.4	66,368	189	6.5	79.6	78,353	6.6
West Bengal	46.6	88.7	48,536	1,029	43.8	77.1	71,626	4.9

Note: Na indicates not available.
Source: The Census of India 2011; the CSO, GoI; the DIPP, GoI; the Reserve Bank of India; the CMIE; and the author's own calculations.

Significant regional inequality across the Indian states may be observed in terms of per capita FDI flows and various geographic and socio-economic indicators considered in the study (Table 5). The land area across the states varies from 3,42,240 square km in the largest state of Rajasthan to only around 300 square km in the union territory of Puducherry. Population density in the national capital region of Delhi is as high as 11,297 persons per square km as compared to only 17 persons per square km in the north eastern hill state of Arunachal Pradesh. Per capita NSDP varies between Rs. 1,68,572 in Goa and Rs. 20,708 in Bihar reflecting wide regional disparity in income. Kerala has the highest literacy rate of 94 per cent, whereas Bihar has a literacy rate of only 64 per cent. While Delhi has the best rail connectivity in India followed by West Bengal, there is hardly any railway network in the north eastern hill states of India and the Andaman and Nicobar Island. Wage rates also vary substantially across the states with annual wages per worker being the highest in Jharkhand (Rs. 1,49,847) and the lowest in Nagaland (Rs. 19,880). There is also significant difference across the states in terms of taxation. The State's own tax revenue as a per cent of NSDP is the highest for Karnataka at 10.55 per cent and the lowest for Nagaland at 2.03 per cent.

The estimation method used in this study is fixed effect pooled least squares. Four model specifications have been considered in this study and the estimation results are reported in Table 6. In all the models, the dependent variable is per capita FDI flows to Indian states. All regional characteristics as explained in terms of explanatory variables are lagged by one year, given the reasoning that FDI flows in particular year is determined by the economic conditions prevailed in the previous year.

The estimation results indicate that the signs of estimated coefficients for most of the explanatory variables are in accordance with the *a priori* expectation with only a few exceptions. As regards the market size, the coefficient of state per capita NSDP is positive and significant at 1 per cent level in Model 1. Per capita NSDP has an explanatory power both as an indicator of regional purchasing power

and the level of economic development in a state. The coefficient of population density is positive and significant at 1 per cent level in Model 1, Model 2 and Model 3. This clearly indicates that the FDI flows to India are market seeking in nature. This is in confirmation with

Table 6: Regression Results

Explanatory Variables	Model Specification 1	Model Specification 2	Model Specification 3	Model Specification 4
C	-597.49 (-0.58)	-3249.58 ** (-1.98)	-510.27 (-0.13)	-5380.34 *** (-4.59)
PCY	0.05 *** (4.23)			
PD	4.02 *** (5.86)	3.83 *** (5.79)	4.98 *** (8.04)	
MANP			0.14 *** (2.69)	
MINP				0.09 (1.58)
SERP		0.11 *** (7.02)		
ROAD	0.01 (0.02)			
RAIL		128.86 ** (2.4)		260.86 *** (4.99)
WAGE	-0.03 ** (-2.54)	-0.04 *** (-3.97)		-0.01 -0.99
LIT			-21.11 (-0.41)	
EDUP			0.08 (0.05)	
TAX	-294.01 ** (-2.39)	-286.44 ** (-2.42)	-296.15 ** (-2.30)	
STOCKP				0.27 *** (17.83)
Total pool (balanced) observations	310	310	310	310
R-squared	0.56	0.60	0.55	0.73
Adjusted R–squared	0.50	0.55	0.49	0.70
Note: Figures in the parentheses represent the respective t values. ***, ** and * denote significance at 1%, 5% and 10% level, respectively.				

the results of earlier studies by Kumar (2002), Banga (2003), Goldar (2007), Nunnenkamp and Stracke (2007) and Dhingra and Sidhu (2011), where market size was found to be an important determinant of FDI flows to India.

The estimation results confirm the hypothesis that economic structure of a state reflected in terms of industrial orientation plays an important role in attracting FDI flows. For example, per capita manufacturing output, which is an indicator of the level of industrial activity in a state, has a strong positive influence on FDI flows (Model 3). This supports the view that new investments move to regions with strong industrial linkages. Similarly, the coefficient of per capita services output is positive and significant at 1 per cent level in Model 2 indicating states which have higher services sector activity attract higher FDI flows. This is in confirmation with the trend observed in the sectoral distribution of FDI flows to India. The impact of per capita mining output on FDI flows is, however, insignificant though its coefficient is positive in Model 4.

The impact of infrastructure on FDI flows to India is positive. The railway connectivity has a strong positive impact on FDI flows in Model 2 and Model 4. The positive contribution of road transportation, however, lacks statistical significance in Model 1. The level of infrastructure was found to play an important role by some of the earlier studies, *viz*., Kumar (2002), Mukim and Nunnenkamp (2010) and Dhingra and Sindhu (2011).

As regards labour conditions, wages seem to have a negative impact on FDI flows, the coefficient of annual wages per worker being significant in Model 1 and Model 2. This is in line with the theoretical expectation that FDI flows are attracted by lower cost of labour. In comparison to cost of labour, the impact of quality of labour on FDI flows seems to be less important. The variable representing per capita number of higher educational institutes in a state has a positive impact on FDI flows but lacks statistical significance (Model 3). In the same model, the coefficient of literacy rate is negative, indicating the level of basic education in a state has little role to play in attracting FDI flows. This reflects the fact that some of the states with very high literacy

rates *viz*., Andaman & Nicobar Islands, Himachal Pradesh, Mizoram, Puducherry, Sikkim and Tripura do not attract much FDI flows.

The coefficient of state's own tax revenue as per cent of NSDP is negative and significant in Model 1, Model 2 and Model 3, which supports the argument that FDI prefer states with lower tax rates. Earlier Kumar (2002) found that a country's ability to attract FDI is affected by policy factors such as tax rates, investment incentives, performance requirements, *etc.* Empirical evidence in the context of the US and the EU also revealed that the regions with higher tax rates attract lower FDI flows (Coughlin, Terza and Aromdee, 1989; Mercuri and Vicarelli, 2001).

One period lagged value of per capita FDI stock has a strong positive impact on FDI flows, indicating the importance of agglomeration effects (Model 4). This confirms the hypothesis that cumulative FDI flows in a state has important demonstration effect on decision making of new FDI entrants, i.e., new foreign investment tends to enter into areas with already high levels of FDI flows. There are, however, cases, where MNEs have shown investment interest in states with lower FDI penetration, such as, POSCO and Arcelor-Mittal in Orissa and Bhatinda refinery (a joint venture of Hindustan Petroleum Corp (HPCL) and Mittal Energy Investment Pte Ltd) in Punjab.

Section VI

Policy Implications

FDI to India has increased significantly in the last decade. However, the growth in FDI flows has been accompanied by strong regional concentration. The findings of the study reveal that market size, agglomeration effects and size of manufacturing and services base in a state have significant positive impact on the regional distribution of FDI flows in India. The impact of taxation and cost of labour is negative. While the impact of quality of labour is ambiguous, infrastructure, however, has a significant positive impact on FDI flows. Mining has a positive influence on FDI flows, but lacks statistical significance.

The presence of strong agglomeration effect indicates that the states already rich in FDI flows tend to receive more of them which make it more difficult for the other states to attract fresh investments. In

view of this difficulty, a conscious and coordinated effort at the national and the state government levels would be essential to make the laggard states more attractive to FDI flows. The direct method to achieve this objective may be to design the national FDI policy in such a way that a sizable portion of FDI flows to India move into the laggard states. The indirect way is to provide a boost to the overall economy of the less advanced states, with special thrust on the manufacturing, services and the infrastructure sectors so that they themselves become attractive to foreign investors.

First, as regards the direct method, it has been observed in the Chinese context, that after liberalising the FDI flows in the 1970s, China faced with somewhat similar sort of experience like India. Since the introduction of China's coastal preference open door policy in 1978, the regional disparity between the coastal belt and China's interior had increased (Luo *et al* 2008). This resulted into concentration of a few world class industrial clusters located in five coastal Chinese provinces at the expense of the Chinese hinterland. Subsequent FDI to China has favoured regions that were opened earlier over the hinterland. In view of this, one important policy changes enacted by the Chinese government was to raise the entry requirements for FDI into coastal belt designed to secure high value investments, while encouraging labour intensive investments in the interior. Accordingly, since the late 1990s, most MNEs in China have made fundamental changes to their business strategies and operational policies to adjust to changes in policy, market conditions and the regulatory environment. In view of the Chinese experience, similar set of policies may be considered in the Indian context to direct part of the FDI flows to the states, which are not receiving much of FDI flows at present.

Second, as regards the indirect method, it has been observed that size of the manufacturing sector has a significant positive impact on FDI flows. This implies foreign investors' preference for states with a strong industrial base. Therefore, it is essential for the less industrially developed states to catch up with the developed ones to attract larger share of FDI flows. The National Manufacturing Policy (NMP), recently announced by the Government of India is a welcome step and may help

in this direction if properly implemented. The equity and distributive justice would be best fulfilled if under the NMP, the Government gives top priority to the states with lower industrial base to give them a chance of catching up with the others.

Third, the services sector has attracted a large share of FDI flows to India in the recent period. The econometric analysis also reveals that services sector has a significant positive impact on FDI flows. In addition, growth of the services sector can create more employment for skilled, semi-skilled and unskilled people. It has been observed that in the recent period, it is the IT/BPO services which has created the largest job opportunity in India and not the manufacturing industries. Therefore, apart from providing a boost to the manufacturing sector, it is equally important to provide a boost to the services sector, which spans the value chain from low-end localised services to the most sophisticated globally-competitive intellectual property based services. Accordingly, the manufacturing policy in India needs to be complemented by a compatible services policy.

Fourth, the impact of the mining sector on FDI flows was found to be less important in the study. FDI in mining in the recent period has confronted with a number of socio-economic problems. The operations of two of the mega FDI steel projects - POSCO India and Arcelor Mittal have been delayed due to seemingly intractable problems, mostly surrounding socio-economic issues like acquisition of land, forest and environment clearances, rehabilitation and resettlement of the project-affected people, Naxalite movements in Chhattisgarh, Jharkhand, Orissa and West Bengal, non-allocation of adequate captive mines, and supply of raw materials. Given the large potential for FDI in mining due to the Central Government's thrust towards development of the infrastructure sector, and with a number of large FDI projects in mining in the pipeline (POSCO India steel projects in Orissa and Karnataka, Arcelor Mittal steel projects in Orissa, Jharkhand and Karnataka, BP-Reliance oil and gas project in Andhra Pradesh, Lafarage cement project in Himachal Pradesh *etc.*), it is essential for the central and the state governments to take coordinated policy efforts towards creating a more favourable policy environment by simplifying the land acquisition procedure and reducing the delay in the approval mechanism.

Finally, of late, there has been a lot of debate about the merits and demerits in liberalising FDI in retail, insurance, pension and aviation sectors in India. With the issue of FDI still hot, it is important for the government to take due care in formulating its FDI policies so as to reduce the regional disparity rather than aggravating it.

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