



Munich Personal RePEc Archive

Social determinants of intra-regional dispersion of FDI in India

Kayam, Saime Suna and Ecer, Sencer and Gupta, R

Istanbul Technical University Faculty of Management, Economic and Social Research Center

2011

Online at <https://mpra.ub.uni-muenchen.de/39153/>

MPRA Paper No. 39153, posted 31 May 2012 12:56 UTC

Social determinants of intra-regional dispersion of FDI in India

Sencer ECER^a, Ritija GUPTA and Saime SUNA KAYAM^{a, b}

^a *Faculty of Management, Istanbul Technical University*

^b *Economic and Social Research Centre, Istanbul Technical University*

ABSTRACT: The foreign direct investment (FDI) strategy has imbued India's once stagnant industrial sector with capital and job opportunity. However, as India's GDP grows ever larger, there is a concern that the growth within the country is not evenly distributed and may in fact exacerbate current economic disparities. This paper seeks to look at potential avenues poorer states can take to attract FDI if they choose to as a method to stay competitive within the country. Our hypothesis is that measures such as power rating (as a proxy for infrastructure), literacy, and minimum wage would be highly significant related to inward FDI.

Keywords: foreign direct investment, regional diversification, socioeconomic factors
JEL Classification: C23, F23, R12

1. INTRODUCTION

As economists around the world consider ways to alleviate poverty and raise the standard of living in many different countries, the issue of regional disparities and their effects on development has come up when looking at why some countries and even continents are not growing as fast economically as others (Kuznets, 1955). However, even looking at some of the faster growing countries, particularly emerging economies that are considered success stories, observing their growth holistically may obscure some of the problems either caused, or exacerbated by, their rapid growth. That is to say regional disparity, while a recognized concern at the level of nation-state in terms of economic growth, may also be an issue that requires careful understanding within a country as well.

This paper aims to look at regional disparities within India, to understand the relationship between the socioeconomic factors in the states of this particular country and the foreign direct investment (FDI) they attract.

India has become a model financial experiment in the world of developing nations, recently experiencing economic growth that, while initially surprising, has come to be expected by many in the global financial community. This new trend of increasing GDP growth has paralleled an unprecedented rise in the level of foreign direct investment in India that began in 1991. Prior to 1991, Indian policy-makers had imbued domestic economic policies with a sense of paranoia, preventing foreign companies from owning majority stock in companies, and in general, discouraging industrial growth and large corporations from growing domestically (Ahluwalia, 2002). The aim of the government as to staunch potential monopolistic bodies from gaining financial or political strongholds within the country, a response to a historical legacy of imperialism at the hands of merchants turned colonialists. Unfortunately, the side effects became unbearable as India's GDP grew too slowly to support a rapidly increasing population with either the jobs or infrastructure needed to sustain it. A major balance of payments crisis occurred in 1991 and threw India's government into turmoil as it attempted to deal with extreme debts and few options to pay them back (Ahluwalia, 2002). Following the collapse, India's approach to growth were revolutionized, policies became more liberal year after year to allow foreign companies to set up branches within India, either to reduce the cost of manufacturing goods and providing services abroad, or catering to the domestic markets. This approach proved to be a prescient move in a world that would soon see the dangers of uncertainty as the 1997 Asian Financial Crisis would claim the economies of the Asian Tigers after speculative bubbles set off a domino effect to unravel countries like Indonesia, Thailand, and Singapore (Ahluwalia, 2002). The liberalization policies allowed industrial growth in many sectors, focusing for the most part on technology to capitalize off of rapid advancements in the computer age as well as other industries like soft drinks, food franchises, and the service sector.

It is important to note that these policies were certainly not implemented in a

catch-all fashion that could apply to any country in need of outside capital as a catalyst for growth. In fact, it is speculated that the very policies that led to the macroeconomic crisis of 1991, perhaps most importantly those of import substitution, were the very policies that allowed domestic industries to stay strong in the midst of foreign competition (Kishore, 2002). For decades, many brands of products had gained consumer loyalty and were not easily defeated by even the most popular international brands of goods, a trend that reduced the fear that foreign market forces would quickly subsume India's hardworking domestic industrial sector. Also, by building a strong domestic industrial sector to support import substitution forced India to develop at least the framework for infrastructure that would be essential for attracting the investments of Multinational Enterprises (MNEs) (Ahluwalia, 2002).

Overall, as predicted, the time for India to fear the influences of external big business was over. India halved its debts year after year and began to see growth rates of up to 12% in some sectors, unheard of in that country, and though the growth has slowed down to the single digits, the trend was established: foreign investment could provide the capital and job opportunities needed to help jumpstart India's GDP, and would become a way of life (Ahluwalia, 2002). As India's GDP grows at rates previously unknown to it prior to its economic liberalization, it has been touted by many as a glowing example of how multinational companies, through outsourcing or setting up foreign branches of their enterprises, can help infuse an otherwise stagnant economy with capital and jumpstart its growth.

In the concept of this paper, our interests lie in examining the very diverse states within India to understand whether they are attracting different levels of FDI, and if that is the case, whether quantifiable reasons lie behind the situation. This paper seeks answers to understand some of the causes of some states' inability to attract foreign direct investment in an attempt to understand methods those states can adopt to "catch-up" to other, higher-performing states if they feel that FDI is the best method to achieve growth. The rest of the paper is designed to incorporate a section on the state of knowledge followed by a section on the model we use. Section 4 explains the data and the methodology. The result of empirical analysis is given in

section five and the paper concludes with an overall evaluation.

2. Literature Review

Agglomeration of FDI in some countries and in some regions within countries have promoted research focusing on the determinants of location choice by foreign investors. Studies that set forward to explain the regional distribution of FDI in a country usually concentrate on the most immediate factors such as the market size, presence/absence of natural resources, transportation and communication infrastructure, labour market regulations, etc. The quest to understand the impact of these factors on FDI inflows to a specific region has advanced our understanding of the regional diversion between different states/provinces in a country.

Works in the literature can be grouped as those that investigate the distribution between countries within a region (e.g. EU) or a set of countries (e.g. OECD) and those that focus on interregional distribution of FDI within a country. Studies by Altomonte (2002), Carstensen and Toubal (2004) Head and Mayer (2004) are among the first group. Altomonte (2002), analyzing location choice of FDI firms in Central and Eastern European (CEE) countries, suggests that the power of a country to attract FDI comes from the surrounding countries, i.e. its market potential. Carstensen and Toubal (2004) find that in addition to traditional factors that account for market potential, labour endowment and costs, the “transition-specific factors” such as the country risk and the interregional distances within the host country also affect the FDI, CEE countries receive. Head and Mayer (2004) estimate a location choice model for affiliates of Japanese firms established in 57 regions of 9 countries during the period 1984–1995¹. They look at determinants of agglomeration for foreign firms whereas Cieslik and Ryan (2004) consider the choice of host country for Japanese FDI in the enlarged EU and find that Japanese firms prefer countries with high economic potential to invest.

A study that examines the location choice of FDI in both dimensions, i.e.

¹ These 9 countries in their model are: Belgium, France, Germany, Ireland, Italy, the Netherlands, Spain, Portugal and the United Kingdom.

multi-country and multi-region levels (for the UK) is by Billington (1999). Similar to previous and later works, he finds that market size, unemployment and corporate tax are significant determinants at multicountry level and population density, unit labour cost and unemployment are effective factors in determining the attractiveness of regions for FDI .

An earlier attempt to examine local characteristics as the determinants of FDI is by Coughin et al. (1991) who find that states with more developed transport infrastructure attracted more FDI in the US. Following Coughin et al. (1991), Head et al. (1995) looks at the agglomeration of Japanese FDI in the United States and concludes that 'industry-level agglomeration benefits' are significant in determining the location choice.

There are a number of works that analyse the determinants of regional FDI in China and in Russia, largest countries in the world. Broadman and Sun (1997) consider the regional dispersion of FDI within China. Bradshaw (1997) and Broadman and Recanatini (2001) explain the regional FDI in Russia for the 1995-99 period. Manaenkov (2000), analysing the factors determining investment of foreign firms established in each region for the 1992-97 period, have used data from firms' balance sheets. In these studies market size, education level, climate, local investments, economic reforms have come up as the most important factors. Broadman and Recanatini (2001) use cost of labour, transportation infrastructure and investment rating score of the 'Expert Magazine' as other explanatory variables.

In addition to the usual suspects, such as the GRP (gross regional product), population, indicators for infrastructure and factors that affect costs of production, most of the relatively recent studies include variables to reflect the institutional environment, such as corruption, governance, political risks and ease of doing business indicators.

One of the earlier studies that use spatial econometrics to analyse the factors that influence the geographical distribution of FDI is by Coughlin and Segev (2000). Iwasaki and Sugauma (2005) consider a number of socio-economic indicators that cover for most of the relevant factors that foreign investors might deem important.

These are ratio of industrial production to GRP, ratio of urban population to total population, university enrollment rate, infrastructure development rating, kilometres of paved road, kilometres of railway and number of telephone units. The last four measures account for the infrastructure of the region, the first two for industrialization and urbanization of the regions. Although Iwasaki and Suganuma (2005) obtained data for university enrollment rates, in the absence of such an indicator Broadman and Sun (1997) uses adult literacy to represent the education level of workers in each province.

In an attempt to explain the location choice of foreign investors in India, Nunnenkamp and Stracke (2008) find that relatively advanced locations are preferred for FDI in terms of income per capita and infrastructure. They also find that per capita income of the states of India is highly correlated with the literacy rates.

3. Model

Because of the fascinating turn in India's economy, the country as a whole has come under scrutiny as economists the world over are eager to see the interplay between foreign investment, advances within the country in terms of infrastructure and social development, and improvements in health and education indicators. The analysis gets very specific at times, looking at particular industries and even companies within India. These types of analysis of course are not limited to studying only India, but as India is one of the most populous countries in the world with some of the world's most notable extremes of poverty, it tends to be singled out as a country that can benefit greatly from FDI.

The need to understand the effects of Foreign Direct Investment at the state level in India is becoming more important day by day, however. As with many countries that are large both in terms of territory and population, India's states are teeming with diversity. While some states are quite notable for their ability to attract the attention of overseas investors, there are four states that are considered "backwards" by the Indian government. The so-called "Bimaru" states (the term plays off the Hindi word "Beemar", meaning "ill") of Bihar, Madhya Pradesh, Rajasthan,

and Uttar Pradesh, tend to have poorer social and economic indicators than those of other states, particularly those of Andhra Pradesh, Karnataka, Tamil Nadu, and to a lesser extent, Gujarat and others (Sachs et al., 2002). Higher population growth and lower literacy rates are only a few of issues the “Bimaru” states must contend with (see Table 1).

Table 1. BIMARU vs. Non-BIMARU (e.g. Karnataka and Andhra Pradesh) states

Indicator	Bihar	Madhya Pradesh	Rajasthan	Uttar Pradesh	Karnataka	Andhra Pradesh
Overall Literacy (%)	47.53	64.11	61.03	57.36	67.04	61.11
Power Rating Score	10.63	24.75	41.83	41.85	51.25	56.75
FDI Stock (11/01) (Re)	739,528	9,160,636	2,646,991	4,288,822	21,060,078	1,259,154
FDI Stock (09/04) (Re)	739,705	9,271,408	2,911,204	4,826,692	24,163,689*	13,808,045*

Note: *Last data point available for this measure.

Morris (2004) argues that metropolitan cities help to anchor FDI in certain regions (unless FDI is “strictly confined to locations due to their requirements of ... natural resources or the need to be very close to markets”). However, this argument does not explain why Kolkata, India’s most populous city has been somewhat overlooked in the charge of FDI into the country despite its proximity to waterways and other important modes of transportation. Additionally, we believe the analysis could go further by examining the incentivization of state development in attracting FDI throughout the country in a way that is not regionally specific. Moreover, taking a perspective that diverges from previous views that seem to focus on urbanization as the main anchors of FDI and look at other measures that imply policy perspectives on internal state development in, for example, such areas as investment in education, infrastructure, and healthcare could advance our understanding of the impact of socioeconomic factors on FDI .

In order to determine the socioeconomic factors that cause a state to become attractive for FDI, in stead of the direct measures of market size, infrastructure and education level (so called the usual suspects), we prefer to use some proxy variables. For example, the total population is employed to account for both the market size and the labour abundance in a state, or the power rating as an evidence of infrastructure and female literacy to show education in the states of India.

Nunnenkamp and Stracke (2008) emphasize that the per capita income of the states are highly correlated with the literacy rates in their sample covering the period of 1993-2005. We face a similar problem in this paper and thus prefer to use the socioeconomic variables rather than the widely used measures of regional incomes.

Inherent in the **total population** of a state is the ability to provide labor force for a multinational enterprise (MNE) that may desire to invest a venture in the country. In that sense population is a good measure for mainly two reasons. Firstly, one might make an assumption that higher populated states may have larger and more abundant urban centers. Secondly, it is not wrong to expect that a state with a higher population might have more diversity in its people in terms of skill sets so that it might be easier to find people with the appropriate skill level for a variety of projects (since, of course, FDI comes in many different types of enterprises) than in states with lower populations. Thus, a state with a higher population attracts higher levels of FDI.

Literacy rate defined as the number of adult persons within a particular state who are deemed literate by national standards divided by the total number of adult persons within the state, is essentially a proxy both for overall state education level and state current situation regarding education. **Female literacy rate**, in particular, incorporates another important issue that is relevant in India and will be for years, namely that of the gender gap. The gender gap, especially in education, seems to be indicative of issues relating to social infrastructure. Evidence of such a gap in a state would reveal the general attitudes throughout the state regarding women, their position in the family, and their position in society. A foreign investor's attitude towards the gender gap would be negative if especially, the firm supplies goods targeting mainly women, i.e. a higher gender gap would be associated with a lower level of investment in that state.

The **consumer price index** (CPI) mainly addresses the extra demand for goods and services or the cost of living. On the other hand, increase in the cost of living, i.e. inflation also shows the erosion of capital. Therefore, depending on the relative incomes, MNEs may prefer states with high or low CPI to invest and settle in, i.e. CPI

may have a positive or a negative effect on foreign investments, respectively.

Examining the urban population in particular seems to be a given necessity in this model not only because of conventional wisdom in the form of other state-level studies that have proclaimed the association of levels of urbanization with higher FDI levels, but also in conjunction with other characteristics, may help to point out why, despite its high level of urbanization, Kolkata (West Bengal) remains somewhat behind other states in terms of attracting FDI. Similar to the measurement for urban population, **slum population** is also self-reported by states from the 2001 census in India. While we exclude the urban population from regression analysis to prevent multicollinearity, as it is hard to imagine a significant number of slum dwellers removed from an urban landscape, the slum measurement incorporates an additional aspect: social infrastructure. While the urbanization variable allows for an understanding of the size of an area that is presumed to be somewhat consolidated in terms of labor and resources (and thus desirable for MNEs to settle near), slums incorporate a social infrastructure measure -and the expectation would be that as much as MNEs may want to settle near urban areas, they may be repelled by slum areas that are associated with high crime rates, low quality of life, etc. Accordingly, the sign for the slum coefficient is expected to be negative. Additionally, the access to skilled and unskilled labour is another significant factor determining the choice of location for FDI firms. Although, literacy rates are a proxy for skilled labour, slum population can be used as a proxy for the availability of unskilled labour.

Though the urbanization variable is a proxy for infrastructure and resources available for an MNE to use within a state, the proxy doesn't capture a systemic view of infrastructure in terms of public investment, or its rating compared to that of other states. However, the **power rating** can be used to compare each state's relative abilities to generate, transmit, and distribute power. The rating is measured such that a higher score represents a better power sector so that our expectation is that the coefficients associated with this variable will have a positive sign.

Partially as a proxy for cost of production, we look at labor costs in the form of minimum wages. Because of the diversity of industry in India, each state has a

“**minimum minimum wage**” and a “maximum minimum wage” depending on the industry that the wage applies to because minimum wage varies across industries. Based on the type of work a person does, they may be entitled to either at least the “minimum minimum wage” or “maximum minimum wage”. We use the lowest wage, i.e. the minimum minimum wage, to represent the labour cost. Our expectation here is that as minimum wage goes up, FDI investment goes down because MNEs are likely interested in keeping their input costs as low as possible. However, this variable can also account for the per capita income. In that case, it will have a positive effect on FDI inflows.

Associated with the issue of wage and input costs is the actual availability of labor. Despite India’s massive population, that population is not necessarily evenly distributed throughout the country, a prospect we should account for. As a result, two additional population variables are used as different proxies to understand current and projected labor availability: **population of people who are currently not working** and the **population of people between the ages of zero and six** (a proxy for measuring the younger population for now and in the future). FDI is expected to decrease with increased under six and with nonworking population because the both of these groups have no incomes of their own and needs to be looked after, decreasing the income per capita in the state.

The percentage of total FDI attributed to a state in a given month named as the **State’s share in FDI stock** is included to measure the impact of agglomeration, i.e. the favourable environment for FDI exploited by previous investors. As the share of FDI in a state (*relative to the whole*) increases, the overall FDI inflow is expected to increase causing agglomeration of MNEs.

Finally, we incorporate a measure that addresses a significant cultural issue in India, namely the overall **gender ratio**. Because of the pervasive sexism that still exists in many communities, issues such as female infanticide and lower emphasis on health care directed at females have contributed to an environment where the gender ratio is quite unbalanced (Sen, 1990). This issue, often written about and examined, is rarely linked quantitatively to economic issues. In the context of this paper, because a higher ratio indicates that there is a lower

prevalence of such gender biased practices as female infanticide, our expectation is that MNEs will be attracted to areas with more “socially forward” thinking. Essentially, this means that as our gender ratio variable increases in size, we would expect FDI to increase as well.

4. Data and Empirical Results

The data used comes from the Secretariat of Industrial Assistance (SIA), the Census of India, and India's Ministry of Labor (see Table 2). SIA puts out a monthly newsletter going back to the year 1998 that incorporates a number of statistical facts that amount to understanding investment flows into the country, which countries are responsible, what industries are funded, to name a few issues. The main concern here is to understand the data at the state level and over time. The preference for monthly data stems from an interest to look at a time period where changes could conceivably occur, and an interest in creating a data set that was not unnecessarily unwieldy.

The data examined in this study comprises the information on thirty four states² in thirty four waves³. The FDI data reported is a stock data, i.e. calculated cumulatively from August 1991 to August 2004. Monthly FDI inflow to each region is obtained by taking the logarithm of the monthly *FDI stock*, which is used as the dependent variable. FDI Share is the percentage of a state's monetary amount of FDI relative to the country's total at period t . The descriptive statistics for the data and the expected signs for the variables as explained above are given in Table 2.

Most widely used estimation techniques in investigating the locational determinants of FDI are the panel data fixed-effects models. In recent years application of spatial econometrics to the issue has increased (see Coughin and Segev, 2000; Chakrabarti, 2003; Baltagi et al., 2007; Blonigen et al., 2007; Ledyeva, 2009). However, the time horizon of our data restricts use of both of these specifications. In explaining the FDI inflows to the states of India, we

² The state of Sikkim is excluded from the SIA source without any explicit explanation either in the newsletter or on the SIA website, but is consistent throughout the entirety of the dataset.

³ From November 2001 to August 2004.

utilize a pooled regression model with Newey-West standard errors (Newey and West, 1987), which are robust to autocorrelation and heteroskedasticity⁴. The empirical results are presented in Table 3. Here, the random-effects model estimates in column 1 are reported purely for comparison purposes. On the other hand, the pooled regression with Newey-West standard errors reveal better results than both the OLS and random-effects specifications⁵.

Table 2. Descriptive statistics and expected signs for the variables

Variable	Obs	Mean	Std. Dev.	Min	Max	Sign
FDI stock ^a	1116	57,186.3	107,898.0	5	516,601	--
State's share in FDI stock ^a	1156	2.2	3.9	0	18	+
Female literacy rate ^b	1156	60.5	13.6	33.57	88	+
Minimum of Minimum Wage ^b	918	70.1	21.6	28.5	122	+/-
CPI ^b	816	487.4	49.9	405.4708	619	+/-
Total population ^c	1156	30,200,000	37,100,000	60595	166,000,000	+
Slum population ^c	1156	667,565.2	1,192,413	0	6,137,624	-
Gender ratio ^c	1156	932.7	44.3	798	979	+
Population not working ^c	1156	18,400,000	23,600,000	45296	112,000,000	-
Population between 0-6 ^c	1156	4,815,924	6,502,139	9091	31,600,000	-
Power rating score ^d	952	31.1	16.9	3	57	+

Sources: ^a Secretariat of Industrial Assistance (SIA)
^b Government of India, Labour Bureau
^c Government of India, Census of India 2001
^d Government of India, Ministry of Power

However, the data reveals autocorrelation that we have accounted for using an AR(1) structure when estimating the random effects model, which is given in column 1 of Table 2. The second column in the table shows the heteroskedasticity and autocorrelation corrected estimates obtained using Newey-West standard errors in pooled regression.

The random-effects estimate of the model is quite similar to that of the pooled regression with Newey-West estimator in terms of the significance of most variables. However, correcting for heteroskedasticity improves the explanatory power of the model and some variables that were insignificant in the first

⁴ Newey-West estimator with no lags gives the White estimator (Hoechle, 2007).

⁵ State fixed-effects model reveals insignificant coefficients.

specification becomes significant in the latter (Table 3). These are population between zero and six, power rating score and CPI. On the other hand, gender ratio has become insignificant. In both of the specifications female literacy rate has no explanatory power. The population related variables and the power rating score report statistically significant coefficients with expected signs. Two variables, i.e minimum of minimum wage and CPI, were evaluated in terms of two different meanings above and thus could have revealed to different signs.

Table 3. Socioeconomic Determinants of State Level FDI Flows in India

Determinants	MODEL	
	1 ^a	2
State's share in FDI stock	0.380*** (0.059)	0.219*** (0.026)
Female literacy rate	0.067 (0.041)	0.009 (0.011)
Minimum of Minimum Wage	1.148*** (0.270)	4.105*** (0.375)
Slum population	-1.20x 10* (7.15 x10 ⁻⁷)	-1.48 x 10 ⁻⁶ *** (1.80x 10 ⁻⁷)
Population not working	-4.13 x10 ⁻⁷ ** (1.68 x10 ⁻⁷)	-3.34 x 10 ⁻⁷ *** (3.09 x10 ⁻⁸)
Total population	4.00 x10 ⁻⁷ *** (9.59 x10 ⁻⁸)	4.14 x 10 ⁻⁷ *** (2.36 x10 ⁻⁸)
Population between 0-6	-3.70x10 ⁻⁷ (3.46 x10 ⁻⁷)	-7.39 x 10 ⁻⁷ *** (1.09 x10 ⁻⁷)
Power rating score	-0.025 (0.030)	0.026*** (0.008)
Gender ratio	-0.017** (0.006)	0.002 (0.002)
CPI	0.002 (0.001)	-0.009*** (0.002)
constant	11.772** (5.940)	-2.141 (2.202)
# observations	580	580
Adj. R ²	0.7957	0.8325***
Wald Chi2	129.33***	

Notes: ^a Coefficients in this column are heteroskedasticity uncorrected estimates.

As expected the total population variable is positive and highly significant revealing that MNE desire to invest in higher populated states with larger markets and easier access to diverse skill sets. As noted in the literature infrastructure plays an important role in the location choice of foreign investors among the states of India. They prefer states with a higher score in generating, transmitting, and distributing power. A positive and significant share variable indicates that, as

expected, the overall FDI inflow to a state increases with agglomeration of MNEs.

The minimum wage variables which could have been representing the labor cost of production seems to measure the minimum income level rather than the cost with the positive and significant coefficient estimate the regression result reveals. This result is logically consistent with the idea that MNEs may be more interested in going to states where there is a higher quality of life and perhaps more purchasing power on the part of their constituents (and employees) as represented by minimum wages. On the other hand, CPI that we include as a proxy for the erosion of capital has a negative effect on foreign investments, i.e. MNEs prefer states with low CPI -less pressure on capital- to settle in.

The slum population, as mentioned earlier, incorporates the social infrastructure of states into our analysis. The results support the idea that MNEs would be repelled by slum areas that are associated with high crime rates and thus the slum coefficient has a negative effect on FDI inflows. Similarly, population of people who are currently not working and the population of people between the ages of zero and six have negative effects on foreign investments. Actually, both of these groups no matter what age group they represent are not in the labour force. As the population that needs to be looked after increases the per capita income decreases and thus the consumption expenditure. Our results show that MNEs prefer states with higher working population, i.e. higher per capita incomes.

Conclusion

Through the empirical analysis, ultimately our interests lie in the implications this study has on states that are interested in increasing their access to FDI inflows. Whatever controversies may lie in FDI and its unintended consequences, the issue is really in empowering a state and its public to evolve as it wishes in democratic tradition. Mainly it seems that there is a strong relationship between the total population, state's share in overall FDI, minimum wage levels, population and power infrastructure that fulfilled the expectations, namely that with their increase, levels of FDI inflows would also increase.

Despite some surprising results in terms of the impact of population and gender related factors on FDI, the magnitudes of the coefficients we found show that a one million increase in total population increases FDI stock of a state by more than one-and-a-half million dollars whereas and similar increases in the slum population and population of children younger than 6 and population not working decreases the FDI stock by 0.23, 0.48 and 0.72 million dollars, respectively. In other words, states that feel the need to increase FDI inflows should target population not working and try to increase labour market participation by creating jobs.

On the other hand, a one point increase in the state's share in total FDI stock of the country generates an extra FDI inflow worth 1.25 million dollars. Although the power infrastructure has a smaller impact, new investments on the power generation and distribution capacity of a state that increases the power rating score by one point attracts FDI in excess of one million dollars. Therefore, the relatively less developed states of India should concentrate on power infrastructure to ensure more FDI inflows.

In the short-term, the data is essential and must be collected carefully and methodically so that more studies of this nature can be conducted. Also, it is essential to look at more state-level data in different areas (for example, health indicators, migration patterns) on a monthly basis if possible to understand if there are short-term effects on FDI.

In the long-term, levels of slum population and thus urbanization seem to be a significant anchor and it would behoove states that do not currently have large urban centers to build them carefully, with an emphasis on public investment on the part of the state on education and healthcare and other policies that would indicate that that particular state values a higher standard of living. Such a maneuver would also be consistent with a higher minimum wage, as we saw in our regressions, and demonstrate to MNEs and potential investors that a particular state is interested in intelligent growth and perhaps an "up and coming" area.

REFERENCES

- Ahluwalia, M. (2002), Economic reforms in India since 1991: Has Gradualism Worked?, *Journal of Economic Perspectives*, 16, pp.67-88.
- Altomonte, C. (2002) Transition bursts: Market potential and the location choices of multinational enterprises. 29th EARIE Annual Conference of the European Association for Research in Industrial Economics, 5-8 September, Madrid.
- Baltagi, B.H., P. Egger and M. Pfaffermayr (2007) Estimating models of complex FDI: Are there third-country effects? *Journal of Econometrics*, 140, pp. 260-281.
- Billington, N. (1999) The location of foreign direct investment: An empirical analysis, *Applied Economics*, 31, pp. 65-76.
- Blonigen, B.A., R.B. Davies, G.R.Waddell and H.T. Naughton (2007) FDI in space: Spatial autoregressive relationships in foreign direct investment. *European Economic Review*, 51, pp.1303-1325.
- Bradshaw, M.J. (1997) The geography of foreign investment in Russia, 1993-1995, *Tijdschrift voor Economische en Sociale Geografie*, 88 (1): 77-84.
- Broadman, H. and F. Recanatini (2001) "Where has all the foreign investment gone in Russia?" *World Bank Policy and Research Working Paper* No. 2640, Washington DC: The World Bank.
- Broadman, H. G. and X. Sun (1997) The Distribution of Foreign Direct Investment in China, *The World Economy*, 20, pp. 339-361.
- Carstensen K. and F.Toubal (2004) Foreign direct investment in Central and Eastern European Countries: A dynamic panel analysis. *Journal of Comparative Economics*, 32, pp. 3-22.
- Chakrabarti, A. (2003) A theory of the spatial distribution of foreign direct investment, *International Review of Economics and Finance*, 12, pp. 149-169.
- Cieslik A. and M. Ryan (2004) Explaining Japanese direct investment flows into an enlarged Europe: A comparison of gravity and economic potential approaches. *Journal of the Japanese and International Economies*, 18, pp.12-37.

- Coughlin, C. C. and E. Segev (2000) Foreign Direct Investment in China: a Spatial Econometric Study, *World Economy*, 23 (1), pp.1-23.
- Coughlin, C. C., J. V. Terza, and V. Arromdee (1991) State Characteristics and the Location of Foreign Direct Investment within the United States, *Review of Economics and Statistics*, 73, pp. 675-683
- Government of India, Labour Bureau website.
- Government of India, Ministry of Home Affairs, Census of India 2001.
- Government of India, Ministry of Power website.
- Head K. and T. Mayer (2004) Market potential and the location of Japanese investment in the European Union. *Review of Economics and Statistics*, 86, pp.959-972.
- Head K., J. Ries and D. Swenson (1995) Agglomeration benefits and location choice: Evidence from Japanese manufacturing investments in the United States, *Journal of International Economics*, 38, pp.223-247.
- Hoechle, D. (2007) Robust Standard Errors for Panel Regressions with Cross-Sectional Dependence, *Stata Journal*, 7, pp. 1–31.
- Iwasaki, I and K. Suganuma (2005) Regional Distribution of Foreign Direct Investment in Russia, *Post-Communist Economies*, 17, pp. 153-172.
- Kishore, A. (2002) Towards an Indian Approach to Globalisation, in D. Gruen, T. O'Brien and J. Lawson (eds.) *Globalisation, Living Standards and Inequality: Recent Progress and Continuing Challenges*, Reserve Bank of Australia.
- Kuznets, S., 1955. Economic growth and income inequality. *American Economic Review*, 1, pp. 1-28.
- Ledyaeva, S. (2009) Spatial Econometric Analysis of Foreign Direct Investment Determinants in Russian Regions, *World Economy*, 32, pp. 643–666.
- Manaenkov, D. (2000) What determines the region of location of an FDI project? An empirical assessment, *Working Paper BSP/36 E*, Moscow: New Economic School.

- Morris, S. (2004) A Study of the Regional Determinants of Foreign Direct Investments in India, and the Case of Gujarat, Indian Institute of Management, Ahmedabad Working Paper No. 2004/03/07.
- Newey, W. K. and K. D. West (1987) Hypothesis Testing with Efficient Method of Moments Estimation, *International Economic Review*, 28, pp. 777-787.
- Nunnenkamp, P. and R. Stracke (2008) Foreign Direct Investment in Post-Reform India: Likely To Work Wonders For Regional Development? *Journal Of Economic Development*, 33 (2),55-84.
- Sachs, J. D., Bajpai, N., and Ramiah, A. (2002) Understanding Regional Economic Growth in India, CID Working Paper No. 88. Center for International Development at Harvard University, Cambridge.
- Sen, A. 1990. More than 100 Million Women are Missing. *New York Review of Books*, 20, pp. 61-66.

