

Commentary on India's Economy and Society Series

5

Industrial Investment Intention and Implementation in India: Broad Trends and Patterns at the State-Level

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India's Economy and indeed its society has been undergoing a major change since the onset of economic reforms in 1991. Overall growth rate of the economy has increased, the economy is getting increasingly integrated with the rest of the world and public policies are now becoming very specific compared over arching framework policies of the pre-reform period. Over the past few years, a number of important policies have been enunciated, like for instance the policy on moving towards a cashless economy to evolving a common market in the country through the introduction of a Goods and Services Tax. Issues are becoming complex and the empirical basis difficult to decipher. For instance the use of payroll data to understand growth in employment, origin-destination passenger data from railways to understand internal migration, Goods and Services Tax Network data to understand interstate trade. Further, new technologies such as Artificial Intelligence, Robotics and Block Chain are likely to change how manufacturing and services are going to be organised. The series under the "Commentary on India's Economy and Society" is expected to demystify the debates that are currently taking place in the country so that it contributes to an informed conversation on these topics. The topics for discussion are chosen by individual members of the faculty, but they are all on issues that are current but continuing in nature. The pieces are well researched, engages itself sufficiently with the literature on the issue discussed and has been publicly presented in the form of a seminar at the Centre. In this way, the series complements our "Working Paper Series".

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COMMENTARY ON INDIA'S ECONOMY AND SOCIETY SERIES - 5

**INDUSTRIAL INVESTMENT INTENTION AND
IMPLEMENTATION IN INDIA:
BROAD TRENDS AND PATTERNS AT THE STATE-LEVEL**

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ABSTRACT

With liberalisation in India, there has been a rise in competition in the industrial sector. But a question that remains to be explored is if this rise in competition has led to a surge in industrial activity outburst or not. This short commentary focuses on the broad trends and patterns exhibited by industrial entrepreneurship in India at the state level for the period 2006-2017. The study measures industrial investment/ entrepreneurship by focusing on both intention and implementation using three sets of variables- proposals filed, implemented and the rate implementation level and captures both incidence and volume of investments. The study finds that industrial investment intention has fallen and continues to remain concentrated in certain states. As a next step, the study attempts to examine possible explanation for this by focusing on a set of factors that affect industrial activity- land, labour, bureaucratic complexities, institutional constraints and infrastructure capacities. The results indicate association between these variables and industrial activity. Further, bureaucratic complexities and infrastructure capacities are more relevant variables in shaping the industrial investment intention across states.

Keywords : industrial investment outburst, industrial entrepreneurship memorandum, ease of doing business, infrastructure

JEL Classification: D29, M13, D73

Industrial Investment Intention and Implementation in India: Broad Trends and Patterns at the State-level

1. Introduction

With economic liberalisation in India in 1991, the industrial sector has witnessed an increase in competition (Mani, 2011). However, a question that remains unanswered is how this rise in competition has influenced industrial investment activity. The current study is an attempt to examine industrial investment in India using broad trends over time and suggestive patterns across various states. The study confines industrial investment to the intention (and consequently implementation) of an entrepreneur to establish an industrial unit in a particular state.

The study relies on industrial investment intention measured in terms of the industrial entrepreneur memorandums (IEMs) reported by the Secretariat of Industrial Assistance (SIA) under the Ministry of Industry and Commerce. Economic liberalisation marked a shift from mandated industrial license to filing IEMs for establishing an industrial undertaking, if the investment exceeds Rs. 10 crore in manufacturing (and Rs. 5 crore in services).¹ Thus, the IEM data by SIA focuses only on large establishments. An analogous database for MSME sector is maintained by the Development Commissioner MSME which is not covered by the current study. The data on IEM spans year-wise from 2006 onwards and is disaggregated at the state level. The data prior to 2006 is reported as a cumulative figure for 1991-2005. This data covers the number and value of IEMs proposed and implemented. There are two parts of IEM- Part A that reports data on the number and value of proposed IEMs statewise and Part B that reports the same information for implemented IEMs. Nagaraj (2002) points out that the implemented IEMs may be possibly under-reported by establishments leading to a lower implementation rate. However, the data has been used by past studies such as Mani (2014) to examine the industrial investments in Kerala using the same database.

Against this background, the current study focuses on various dimensions of IEMs in Indian states for a period from 2006-2017. The study starts with presenting broad trends industrial investments

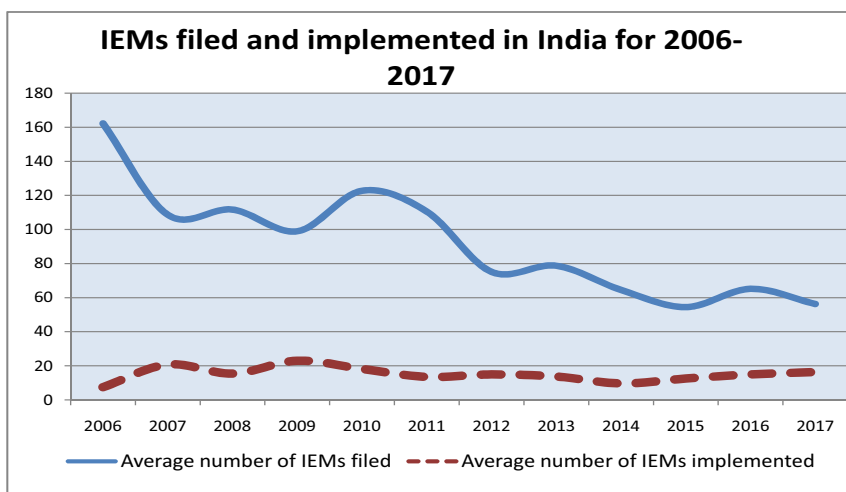
1 There is an explicit mention of the reason for IEM is statistical and to conduct a post-facto analysis for testing the requirement of industrial licenses.

in India- by focusing on the average IEMs filed, implemented and the real investment amount. The study also examines how implementation rate (proportion of implemented IEMs) and realisation investment rate (share of real actual investment value) has changed over time. However, given the huge diversity in India, the study builds on the state level differences by using relevant measures. As an important part, the study examines some important state level factors that may explain the disparity of industrial investment intention and implementation across different states. These variables include land availability, labour constraints, institutional factors, infrastructure availability and some labour market rigidities that are instrumental in shaping the industrial environment in a state.

2. Trends and Patterns of Industrial Investment Intention in India

The current study focuses on the period since which annual data is available. A short discussion on the industrial investment intention and implementation before 2006 is presented in Appendix A. Figure 1 presents the average number of IEMs filed and implemented in all states in India between 2006 and 2017. It is observed that the average number of IEMs filed has declined over time while the average number of IEMs implemented has remained stagnant.

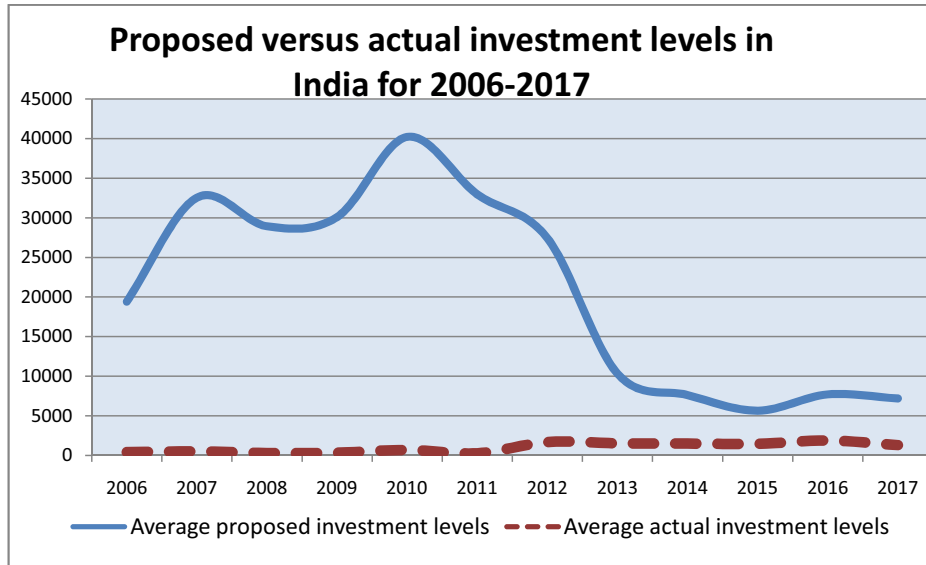
Figure 1: Trends in the Average Number of IEMs Filed and Implemented in India



Source: Computed from Department of Industrial Policy and Performance

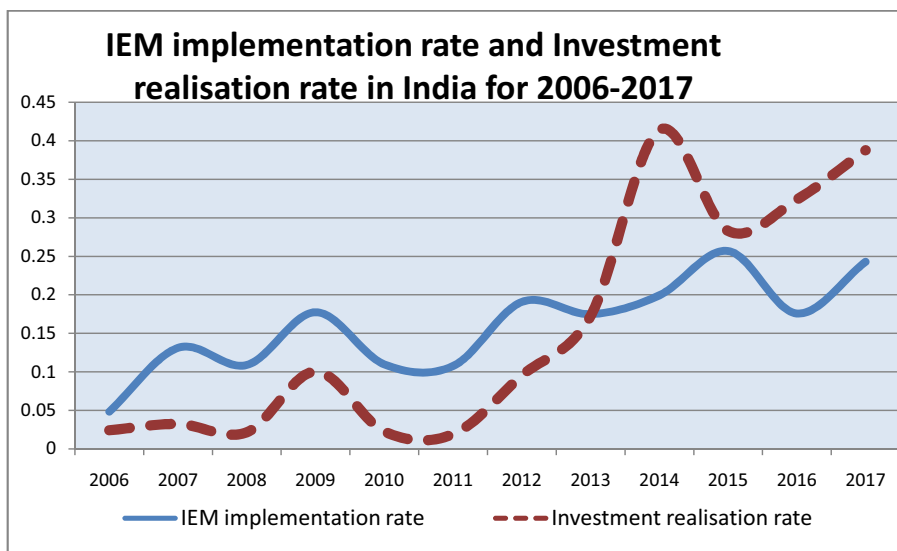
In Figure 2, the average levels of real investment proposed and implemented in India is plotted for the same time period. The average proposed investment levels have been declining over time, the average implemented investment levels are flat. Thus, both Figure 1 and Figure 2 indicate that absolute levels of intention and implementation of industrial investment in India has not improved. While implementation levels show a stagnant trend or modest rise, intention levels have been plunging.

Figure 2: Trends in the Average Real Value of Investments Proposed and Implemented in India (in Rs. Crore)



Source: Computed from Department of Industrial Policy and Performance

The decline in both proposed IEM numbers and proposed real investment levels eventually transform into low investment in the manufacturing sector. Gross fixed capital formation, which measures creation and growth of assets and hence indicates investment, has been declining since 2006 (refer to Appendix B). An important dimension to this is to do away from the absolute levels and examine the trends of implementation rate (number of IEMs implemented as a ratio of no. of IEMs filed) and the investment realisation rate (actual investment as a ratio of proposed investment) which is presented in Figure 3. It is observed that both implementation rate of IEMs and investment realisation ratio have increased over time. But the rates still remain below 40% suggesting that a lot of these investment proposals do not realise into actual operative units. Secondly, while the two curves are moving parallel to each other, after 2013 the two curves become very volatile. This may be due to a host of policy changes at the Centre level such as Make in India step which focused on FDI liberalisation or the emphasis on ease of doing business. However, the possibility of a subset of state-specific institutional factors driving the result may also be a driving factor. Hence, this requires a careful examination focusing on the industrial investment intention and implementation interstate patterns.

Figure 3: Trends in the Implementation Rate and Investment Realisation Rate in India

Source: Computed from Department of Industrial Policy and Performance

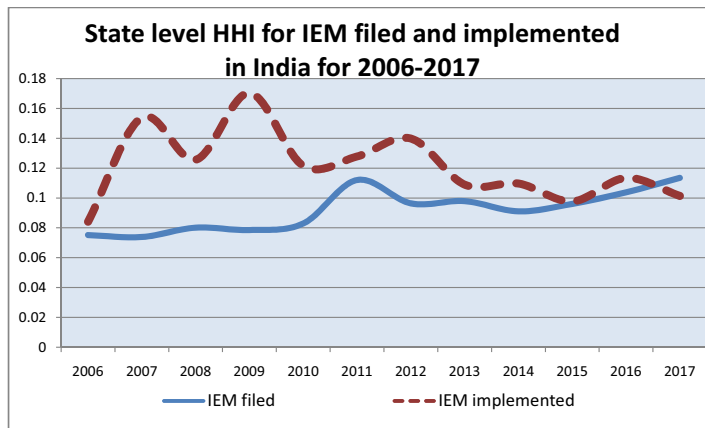
To examine the pattern of industrial investment across states, it is important to investigate if proposal rates are spatially correlated with implementation rates. To examine that, the IEM and real investment variables are averaged over the 12 year period. The top five states according to the investment intention variables have been presented in Table 1. A detailed explanation of within state trend is discussed in Appendix C. A striking point for states in Table 1 is that they have not witnessed the same decline in industrial investment intention as observed by the overall India trend (Figures 11-14). This suggests that there may be huge state-level heterogeneity. Further, it is observed that the correlation coefficient between IEMs filed and implemented is as high as 0.94. This suggests that states which have a high number of filed IEMs also have a high number of implemented IEMs. However, the correlation coefficient between proposed and actual investment reduces to 0.56.

Table 1: Top Five States in Average Investment in India for the Period 2006-2017

| Rank | Filed IEMs | Implemented IEMs | Proposed investment | Actual investment |
|------|----------------|------------------|---------------------|-------------------|
| 1 | Maharashtra | Maharashtra | Orissa | Gujarat |
| 2 | Gujarat | Gujarat | Chhattisgarh | Maharashtra |
| 3 | Andhra Pradesh | Andhra Pradesh | Gujarat | Andhra Pradesh |
| 4 | Tamil Nadu | West Bengal | Karnataka | Madhya Pradesh |
| 5 | Karnataka | Uttarakhand | Andhra Pradesh | Karnataka |

Also, the state-wise correlation between the implementation rate and the investment realisation rate is 0.86 suggesting a spatial pattern in the degree of investment behaviour. All these points reiterate the state wise concentration of industrial investment intention and implementation. To account for the regional imbalances, it would be imperative to examine the trend of concentration of industrial investment intention and investment over time. The Herfindahl Hirshman index, which measures the level of concentration, is computed for each of the measures of industrial investment. This has been presented in Figure 4.

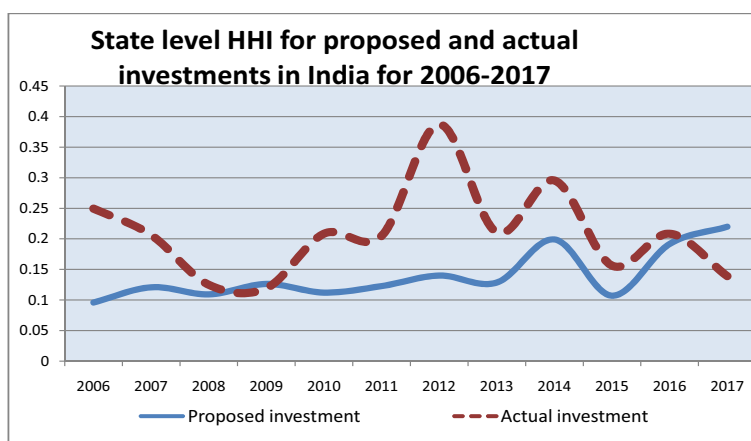
Figure 4: Trends in the State-level HHI in India- IEM Filed and Implemented



Source: Computed from Department of Industrial Policy and Performance

Figure 4 denotes that the concentration of filed IEMs has increased over time indicating that fewer states account for a bigger share of IEMs filed over time. However, the concentration of implemented HHI has a modest declining trend at least from 2009 onwards suggesting that even if fewer states get the highest shares of IEM proposals the concentration at the implementation level has gone down. The analogous graph for HHI at the investment level has been presented in Figure 5.

Figure 5 also indicates that the concentration levels have not been declining overtime suggesting that not all states get a similar level of proposed or actual investment. Hence, this implies that this regional disparity needs a closer examination. To substantiate the regional disparity argument, if states are grouped in above or below all-India average of implementation rate and realised investment rate for each year, a 2*2 matrix denotes if there is a mapping between states being below or above average for both the variables. The results have been presented in Table 2.

Figure 5: Trends in the State-level HHI in India- Proposed and Actual Investment

Source: Computed from Department of Industrial Policy and Performance

Table 2: Implementation Rate versus Investment Realisation Rate

| Number (Proportion) of observations | | IEM Implementation rate | |
|-------------------------------------|----------------------|-------------------------|----------------------|
| | | <i>Above average</i> | <i>Below average</i> |
| Investment realisation rate | <i>Above average</i> | 75 (0.21) | 24 (0.06) |
| | <i>Below average</i> | 61 (0.18) | 201 (0.55) |

Note: This table does not consider observations with zero number of filed IEMs. The total number of observations is 363.

Table 2 indicates that 55% of the times if a state is below yearly average in IEM implementation rate it is also below average in investment realisation rates. This suggests that there is a strong pattern between both implementation rate and investment realisation rates. These tables and figures present a situation where the investment penetration in India remains abysmally low, and even within that, there seems to be a large regional disparity. Hence, as the next step, the current study examines different possible factors that may affect the investment climate across states and over time. Mani (2014) identifies four sets of constraints that affect industrial production and hence may slow down industrial outburst- land, labour, quality of bureaucracy and the institutional quality at the state level. It is imperative to evaluate who each of these factors have changed over time and across states to evaluate it against the evolution of industrial investment intention and implementation.

Land- population Density

In a populous country such as India, land becomes an important constraining factor when it comes to starting industrial activity. Scarcity leads to soaring prices which becomes a major concern for beginning entrepreneurship. This suggests that states which have a high population density, will

have a high opportunity cost for land and hence will probably not have a high investment. Data on population is collected for both 2001, and 2011 Census and land area at the state level is collected from the data portal website of Indian government (www.data.gov.in). The state-level average of all industrial investment variables are negatively related to population density measures. This has been presented in Table 3.

Table 3: State-wise Correlation of Population Density with Industrial Investments

| Population density | IEMs | | Investment | | Implementation rate | Realised investment rate |
|--------------------|-------|-------------|------------|-------------|---------------------|--------------------------|
| | Filed | Implemented | Proposed | Implemented | | |
| 2001 Census | -0.18 | -0.16 | -0.18 | -0.15 | -0.27 | -0.20 |
| 2011 Census | -0.18 | -0.16 | -0.19 | -0.15 | -0.26 | -0.20 |

Table 3 presents that although weak, there is a negative correlation between population density and in the proposed and implemented IEM and investment levels. In fact, the rate of implementation and realisation has a stronger negative association with population density. This suggests that low availability of land may be one of the deterring factors in the inception of investment activity. This aligns with many state governments taking the initiative of “banking” lands since the 1990s so that land can be offered to private investors right away rather than waiting for the lengthy process of land acquisition. However, despite the policy being in place, the implementation of setting land aside for land “banks” is complex. For instance, conflict arises when land that is proposed is inhabited, provides employment for and is owned by communities. There are over 674 land conflicts so far, affecting more than seven and a half million people directly or indirectly (according to Land Conflict Watch, a Delhi-based journalism initiative)². Thus, land continues to be a hard-pressed constraint in a populous country like India.

Labour

The other necessary factor of production, labour and particularly the labour environment may be instrumental in shaping the environment in which industry operates. Industrial disputes, comprising of strikes and lockouts, constitute an important source of disruption in industrial activity. As the labour laws vary across states, labour market rigidities also show a huge disparity across different states in India. This may have strong ramifications on the birth of new industrial activity. The study examines labour issues from four angles- labour market rigidity, wages and its relation with productivity, share of wages in value added and absenteeism from work.

² Source: <https://www.landconflictwatch.org/> , https://www.business-standard.com/article/economy-policy/conflicts-across-india-as-states-create-land-banks-for-industry-investment-117091900140_1.html

Labour market rigidities is measured by the number of mandays lost due to strikes and lockouts which is available in the Labor Bureau Report published by the Ministry of Labor and Employment. Since data is available for a very small number of states, constructing a panel dataset is not possible. Instead, the study uses the latest year of available data (2014) and evaluates the direction of association between mandays lost and the industrial investment variables. This has been presented in Table 4.

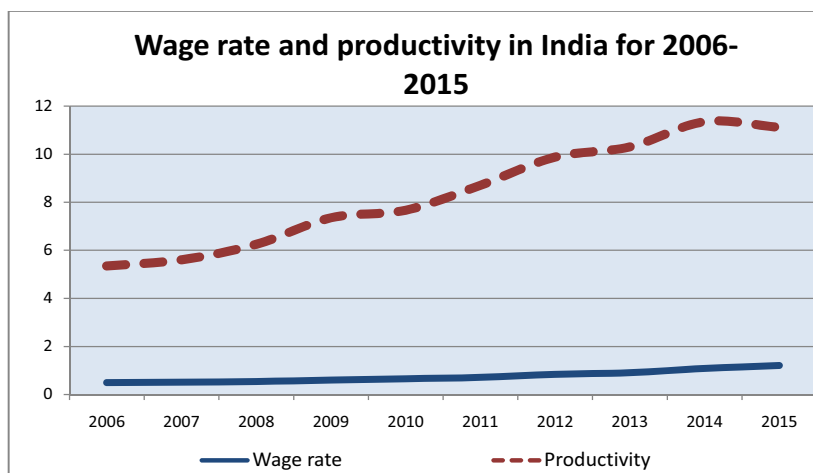
Table 4: State-wise correlation of Mandays Lost with Industrial Investments

| Mandays lost | IEMs | | Investment | | Implementation rate | Realised investment rate |
|--------------|-------|-------------|------------|-------------|---------------------|--------------------------|
| | Filed | Implemented | Proposed | Implemented | | |
| 2014 | -0.14 | -0.14 | -0.26 | -0.18 | -0.07 | -0.30 |

Table 4 validates a negative association between mandays lost and investment activity. Specifically, states which have a more flexible labour market also attract higher industrial entrepreneurship proposals and implementation. Additionally, labour market rigidities have a stronger association with investment amount as compared to the incidence of activity.

Next, data on wage rates (wages to workers as a ratio of total number of workers) and productivity of workers (gross value added as a ratio of total number of workers) is collected from Economic and Political Weekly Research Foundation database. The correlation between these two variables over time is as high as 0.95. Figure 6 presents the trend exhibited by the two variables over time in India. This implies that increases in wages have been accompanied by a simultaneous rise in productivity but productivity has risen at a faster pace as compared to wages.

Figure 6: Trends in the State-level Wage Rate and Productivity Levels in India



Source: Computed from EPWRF

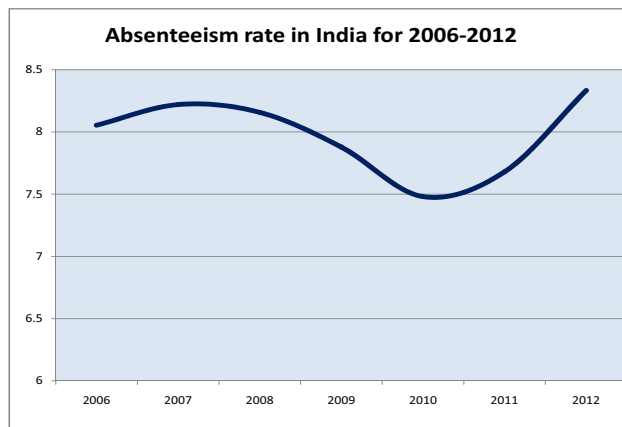
Thus, it is expected that states which have a high wage rate (and hence high productivity) must also have a higher incidence of industrial activity. This has been presented in Table 5.

Table 5: State-wise Correlation of Wage Rate and Labour Productivity with Industrial Investments

| Labour variables | IEMs | | Investment | | Implementation rate | Realised investment rate |
|---------------------|-------|-------------|------------|-------------|---------------------|--------------------------|
| | Filed | Implemented | Proposed | Implemented | | |
| Wage rate | 0.31 | 0.25 | 0.44 | 0.24 | 0.07 | 0.04 |
| Labour productivity | 0.01 | 0.02 | 0.03 | 0.04 | 0.45 | 0.45 |

Table 5 presents a positive association between productivity variables with investment activity outburst confirming the requirement of a flexible and high-quality labour market. As a third dimension, the study also examines absenteeism which is defined as the number of mandays lost due to personal reasons such as sickness and similar engagements. It does not consider absence due to strikes, lockouts or any other dispute which may act as a collective labour market hindrance. Thus, high absenteeism may be viewed as an indicator of sick or poor morale of the workforce is. The current study uses absenteeism rate as the percentage of mandays lost due to absence from work to the total mandays allotted for work. The data has been collected from selected issues of Labour Bureau Report published by the Ministry of Labor and Employment. The trend in absenteeism rate in India is presented in Figure 7.

Figure 7: Trends in the State-level Absenteeism Rate in India



Source: Computed from Labor Bureau Reports

It is observed that absenteeism in India seems to be more or less stagnant. However, it has on the rise since 2010. As a next step, the study examines the pattern across these states for the specific years (Table 6).

Table 6: State-wise Correlation of Absenteeism with Industrial Investments

| Absenteeism | IEMs | | Investment | | Implementation rate | Realised investment rate |
|------------------|-------|-------------|------------|-------------|---------------------|--------------------------|
| | Filed | Implemented | Proposed | Implemented | | |
| 2006-2012 | -0.19 | -0.12 | -0.30 | 0.14 | 0.04 | 0.15 |
| 2010-2012 | -0.12 | -0.16 | -0.16 | -0.16 | -0.15 | -0.23 |

Table 6 denotes that states with a higher absenteeism rate have a lower number of IEMs filed, implemented, proposed investment levels and lower implementation levels. Further, when the correlation coefficients is recalculated for the last three years when the absenteeism rate was very high in India, implementation and realised investment rates also are negatively associated with absenteeism.

Finally, the study focuses on wage costs as the share of wages in value added since entrepreneurs focus on labour costs. The trend in wage costs is presented in Figure 7.

Figure 8: Trend in the State-level Wage Costs in India

Source: Computed from EPWRF

Figure 8 denotes that wage costs have been plummeting in the country since 2006 to 2015. Thus, with wage rates and labour productivity rising overtime, a declining wage cost curve indicates that this must raise the entrepreneurship confidence and hence may contribute to flourishing investment activity. Table 7 denotes the association between wage costs and investment activity.

Table 7: State-wise Correlation of Wage Costs with Industrial Investments

| Wage costs | IEMs | | Investment | | Implementation rate | Realised investment rate |
|------------------|-------|-------------|------------|-------------|---------------------|--------------------------|
| | Filed | Implemented | Proposed | Implemented | | |
| 2006-2017 | -0.24 | -0.20 | -0.24 | -0.19 | -0.27 | -0.16 |

Table 7 denotes that high wage shares have a strong inverse relationship with investment intention and implementation activity at the state level. Thus, labour factors such as industrial disputes, wage rates, labour productivity, absenteeism and wage costs are possibly important drivers for entrepreneurs for choosing to invest in certain states.

Bureaucracy Complexities and Red Tape

Entrepreneurship investments will be driven by bureaucratic complexities and excessive regulations that hinder setting up a business or operations. Ease of doing business measure focuses on the assessment of different regulations that are to be met for a business to start operations at the state level. As part of the “Make in India” plan, a 98- point Action Plan was decided for each of the states to undertake and an assessment on these points was used for ranking states according to the ease of doing business index. The study uses data on ease of doing business index which has been collected from <http://eodb.dipp.gov.in/>. The data spans over two years (2015 and 2016). The association of bureaucracy with investment is presented in Table 8.

Table 8: State-wise Correlation of Bureaucracy with Industrial Investments

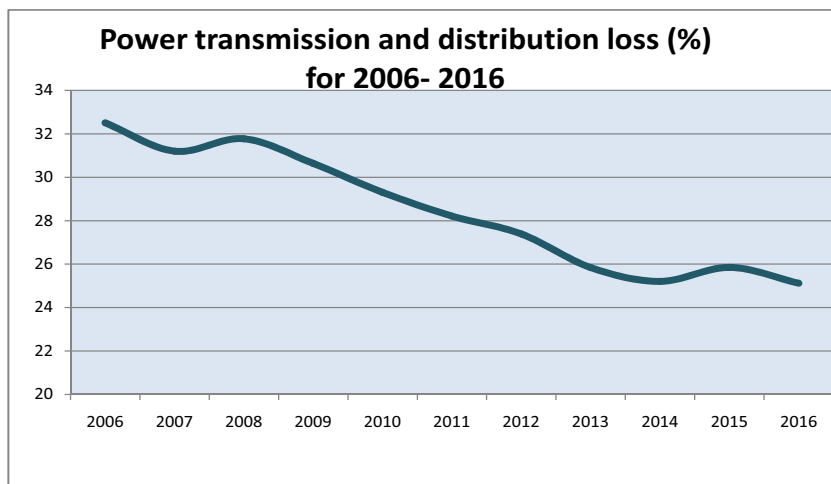
| Ease of doing business | IEMs | | Investment | | Implementation rate | Realised investment rate |
|------------------------|-------|-------------|------------|-------------|---------------------|--------------------------|
| | Filed | Implemented | Proposed | Implemented | | |
| 2015-16 | 0.64 | 0.62 | 0.57 | 0.49 | 0.10 | -0.13 |

Table 8 shows that the association between bureaucracy and policy on industrial investment is strong. It is observed that at the initial stages of proposal filings and announced investments, states with lower levels of bureaucratic complexities account for higher filings. Similarly, even implementation levels and actual investments is higher in states with lower red tape. Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry (MoC&I), Government of India (GoI) maintains a website <http://eodb.dipp.gov.in/AboutUs.aspx> which provides the real-time tracking and ranking of states and union territories and provides information on the different policies adopted by different states to reduce regulation. This may assist potential and new entrants to decide upon establishing a new business by comparing policies from the same website.

Infrastructure Quality

The fourth factor that may affect industrial investment intention and implementation includes infrastructural and institutional quality. The current study uses two variables that capture it- electricity quality and road connectivity. The study uses electricity transmission and distribution loss percentage from the Handbook of Statistics on Indian States published by the Reserve Bank of India website. The trend followed by power sector inefficiency is given in Figure 9.

Figure 9: Trend in the State-level Electricity Quality in India



Source: Computed from Handbook of statistics on Indian states

Figure 9 denotes that power transmission and distribution loss percentages have been reducing overtime. However, since it is aggregated across various states, the study compares the correlation between the industrial investment outburst and electricity quality (Table 9).

Table 9: State-wise Correlation of Power Losses with Industrial Investments

| Electricity quality | IEMs | | Investment | | Implementation rate | Realised investment rate |
|---------------------|-------|-------------|------------|-------------|---------------------|--------------------------|
| | Filed | Implemented | Proposed | Implemented | | |
| 2006-16 | -0.24 | -0.21 | -0.08 | -0.16 | -0.06 | 0.04 |

Table 9 shows that the number of IEMs filed and implemented is higher in states with lower power losses. However, the correlation between investment amount and implementation rates are very weak. As a next step, the study tests if road availability makes a difference. Since the length of the roads do not change a lot, the study examines the degree of association between road availability and industrial investment variables for 2016. This has been presented in Table 10.

Table 10: State-wise Correlation of Road Availability with Industrial Investments

| Road availability | IEMs | | Investment | | Implementation rate | Realised investment rate |
|-------------------|-------|-------------|------------|-------------|---------------------|--------------------------|
| | Filed | Implemented | Proposed | Implemented | | |
| 2016 | 0.65 | 0.45 | 0.83 | 0.76 | 0.20 | 0.15 |

Table 10 denotes that road availability affects industrial investment positively. Thus, infrastructure capacity seems to be an important determining factor for deciding on whether to set up a new business or not. Policies such as the New Electricity Act, 2004 which focuses on reducing cross-subsidies and allowing independent power production by big industrial players may help in fostering industrial investment intention and levels.

Summary and Conclusion

The study examines the industrial investment intention and implementation in India for a period of 2006-2016. The study emphasizes the meagre situation of industrial activity in India. In fact, the broad trends suggest that inception of industrial activity has slumped overtime. The number of implemented projects has marked an increase but only in the recent years. This suggests that India has not been able to attract large investment activities even after three decades of liberalisation. This stands in stark contrast to the host of policies being formulated both by the Centre and the state governments to boost industry. Along with the overall pessimistic trend, the pattern of industrial activity has also become more concentrated over time. With a few states attracting higher number of projects demand close attention of the government and effective policy tools for encouraging industrial activity. This problem eventually transforms into low and declining gross fixed capital formation as well. As a next step, the study identifies four important set of factors that are crucial in shaping the industrial investment inception in any state- land, labour, bureaucracy and infrastructural availability. The study finds that there is a suggestive association between each of these variables and industrial activity. Of the four sets of categories, the results suggest that bureaucracy complexities are probably more relevant in shaping industrial activity across different states.

The study pushes for a more proactive policy initiative and strong political will to tackle the four sets of constraints mentioned above. This may be a step towards encouraging investment initiative at the inception level. This may be instrumental in expanding the industrial sector and hence provide employment opportunities. There are some limitations of the data. It is not necessary that the number of proposals in a particular year will be implemented in the same year. But due to unavailability of data on the date of filing and implementation does not allow one to control for that. Nagaraj (2014) mentions that filing an IEM is not mandatory. Therefore, reportedly, while Part I of the IEM are filed in large numbers, very few care to file Part II, as it is of little value for conducting business. The study focuses only on large investment initiatives and not the MSME counterparts which is an equally

important aspect to investigate. Finally, the study limits the analysis to the state level investments and does not consider sector-specific investment due to readily unavailable data.

(I am thankful to Prof. Sunil Mani for insightful suggestions and comments. I also thank the seminar participants for useful discussion.)

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APPENDIX A

Table 11 presents the average industrial investment intention variables for the two cumulative periods- 1991 to 2006 and 2007 to 2016

Table 11: Average Investment Levels for the Two Periods

| | Filed IEMs | Implemented IEMs | Proposed investment (in Rs. Crores) | Realised investment (in Rs. Crores) |
|---------|-------------------|-------------------------|--|--|
| 1991-05 | 2085 | 175 | 71062 | 6134 |
| 2006-17 | 1109 | 180 | 250104 | 11859 |

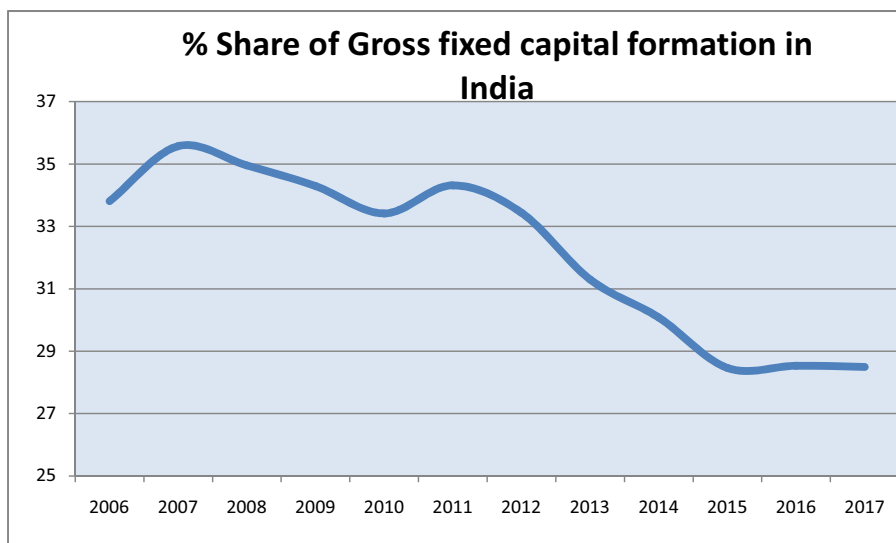
Note: Investment values for 1991-05 is in nominal terms.

There is a huge drop in the filing of IEMs and simultaneously a meagre rise in the number of IEMs implemented in the later period. This suggests that the investment intention has been in a plunge since 1991 despite attempts for revival by the government.

APPENDIX B

Gross fixed capital formation as a share of GDP has been declining in India since 2006. This suggests that the decline in investment intention leads to a declining investment level in the manufacturing sector as a whole (Figure 10).

Figure 10: Share of Gross Fixed Capital Formation in Indian GDP

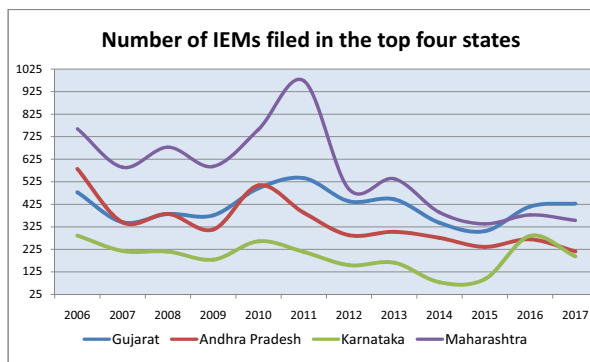


Source: Reserve Bank of India

APPENDIX C

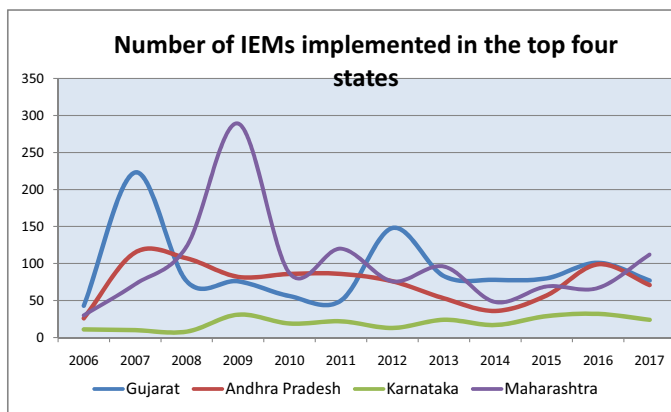
Since Maharashtra, Gujarat, Karnataka and Andhra Pradesh rank high in most of the investment intention state wise ranking, the following figures (Figures 10-13) presents the trends followed by each of these states. These figures provide evidence that the trend followed by the investment intention variables in these states is very different from the general pattern observed in the country. While proposed levels of investment and IEM numbers have declined drastically for India, for these four states, IEM has reduced but not drastically (Figure 10). Further, the proposed investment levels do not decline at all (Figure 12). Number of IEMs implemented and actual investment levels are also more volatile as compared to the overall trend. This hints towards the state level heterogeneity that exists when focusing on industrial activity.

Figure 11: Trends in Number of Filed IEMs for the Top Four States



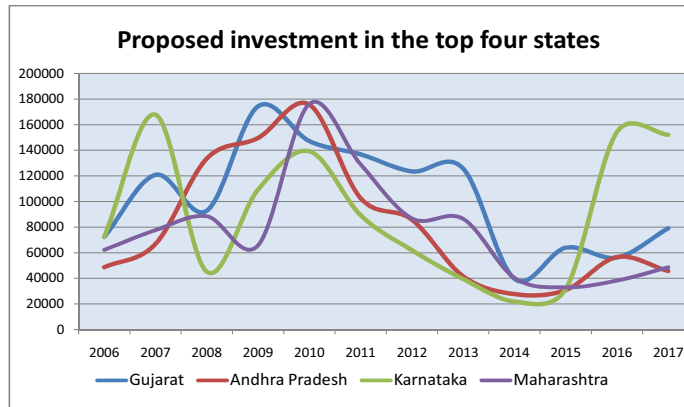
Source: Computed from Department of Industrial Policy and Performance

Figure 12: Trends in Number of Implemented IEMs for the Top Four States



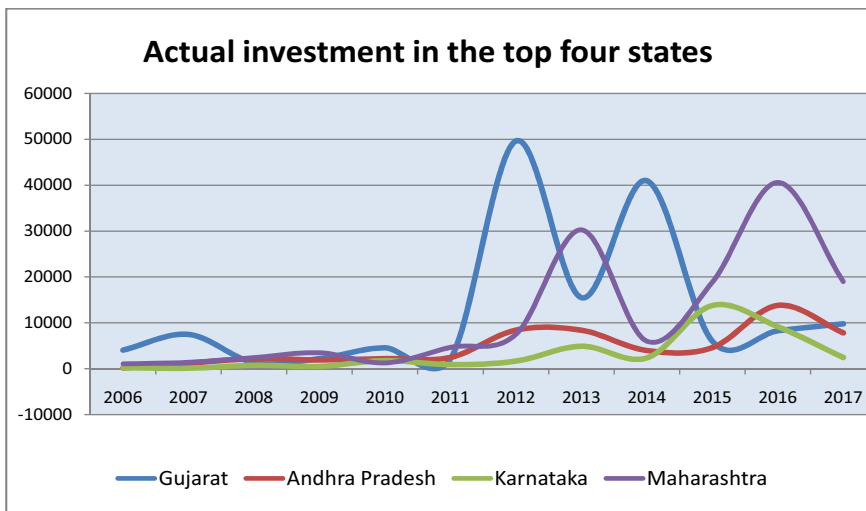
Source: Computed from Department of Industrial Policy and Performance

Figure 13: Trends in Proposed Investment Levels for the Top Four States



Source: Computed from Department of Industrial Policy and Performance

Figure 14: Trends in Actual Investment Levels for the Top Four States



Source: Computed from Department of Industrial Policy and Performance

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