

# MEASURING INTER-STATE DIFFERENCES IN INVESTMENT CLIMATE

*Conducted for:*

**THE TWELFTH FINANCE COMMISSION**

Report, May 2004

*Abstract*

---

This study seeks to measure the investment climate prevalent in 1996 and 2001 in 28 states of India. The objective is to ascertain the investment climate or attractiveness of the states of India as investment destinations, how this has changed over time and how each state compares with the other. This comparative aspect involves the creation of indices that (i) allow us to compare states, (ii) capture changes over time, and (iii) enable a discussion on the strengths and weaknesses of different states. Another aspect deserves mention. A large range of factors affects investment decisions. Many of these factors can be measured using secondary data, but for many secondary data are not available. Some examples of such qualitative factors include responsiveness of the government functionaries to business, ease and simplicity of procedures, etc. For such aspects a primary survey was also conducted in key states.

---

**INDICUS ANALYTICS**

B - 17 GREATER KAILASH ENCLAVE 2

NEW DELHI 110048, INDIA

[HTTP://WWW.INDICUS.NET](http://www.indicus.net)

[MAIL@INDICUS.NET](mailto:MAIL@INDICUS.NET)

(91-11) 29222838/63

INDICUS ANALYTICS

**Project Director:** Laveesh Bhandari

## **The Team**

Peeyush Bajpai  
Mandira Jain  
Amol Agarwal

## **With Inputs From**

*Indicus Analytics:*  
Meghgeet Solanki  
Vipin Chandra Pal Singh Panwar

Amaresh Dubey, *North Eastern Hill University*  
R.K Thukral, *Datanet India*  
Tapan Chaudhary, *Consultant*  
Ashok Pattnaik, *Karrtabya*  
Pratul Kalita, *Consultant*  
Rakesh Shrivastav, *NCAER*

# Table of Contents

<b>Chapter 1: Background and Introduction</b> .....	<b>1</b>
<b>Chapter 2: Data</b> .....	<b>3</b>
2.1 Secondary Data for Investment Attractiveness Index .....	3
2.2 Primary Data for Investment Climate (Perception) Index .....	5
<b>Chapter 3: Methodology</b> .....	<b>8</b>
3.1 Investment Attractiveness Index Using Secondary Data.....	8
3.2 Investment Climate (Perception) Index Using Primary Data .....	10
<b>Chapter 4: Results</b> .....	<b>12</b>
4.1 Investment Attractiveness Ranking Using Secondary Data .....	12
4.2 Investment Climate (Perceptions) .....	17
4.3 Comparison of Ratings and Rankings .....	23
<b>Chapter 5: Conclusions</b> .....	<b>27</b>
<b>Appendix</b> .....	<b>28</b>
Methodology .....	29
Data Sources .....	33
Responses of the Survey .....	34
Sample Survey .....	36

# Chapter 1: Background and Introduction

This study has been conducted by Indicus Analytics for The Twelfth Finance Commission of India. It seeks to measure the investment climate prevalent in 1996 and 2001 in 28 states of India. The States are listed as follows:

1. Andhra Pradesh	2. Arunachal Pradesh	3. Assam	4. Bihar
5. Chhattisgarh	6. Goa	7. Gujarat	8. Haryana
9. Himachal Pradesh	10. Jammu & Kashmir	11. Jharkhand	12. Karnataka
13. Kerala	14. Madhya Pradesh	15. Maharastra	16. Manipur
17. Meghalaya	18. Mizoram	19. Nagaland	20. Orissa
21. Punjab	22. Rajasthan	23. Sikkim	24. Tamil Nadu
25. Tripura	26. Uttaranchal	27. Uttar Pradesh	28. West Bengal

The objective is to ascertain the investment climate or attractiveness of the states of India as investment destinations, how this has changed over time and how each state compares with the other.

As mentioned, the objective is to capture how the states of India are on their overall investment climate and attractiveness vis-à-vis each other and how this has been changing over time. This comparative aspect involves the creation of indices that (i) allow us to compare states, (ii) capture changes over time, and (iii) enable a discussion on the strengths and weaknesses of different states. Another aspect deserves mention. A large range of factors affect investment decisions many of these factors can be measured using secondary data, but for many secondary data are not available. Some examples of such qualitative factors include responsiveness of the government functionaries to business, ease and simplicity of procedures, etc. For such aspects a primary survey was also conducted in key states

Why are both primary and secondary sources of data important? For one, investment is affected by many factors ranging from good labour relations to good quality of infrastructure. For some of these aspects (such as quality of roads for instance) secondary data is not available, neither are good proxies available. A primary survey of entrepreneurs and managers is thus resorted to. On the other hand, secondary data from credible sources can provide good economy-wide estimates of certain important factors such as overall economic environment, etc.

## The Indices

- The investment climate index seeks to capture the climate and ‘attractiveness’ of the state as a destination for investment. This can be achieved by studying current or proposed investment levels, labour availability and costs, the general production environment, current levels of industrial sickness, the overall economic environment

in the state. In addition, the fiscal health of the State also impacts the long-term attractiveness of the State. This study therefore includes capital expenditure outlays as a share of total deficit as one of the measures in the secondary data ratings that affect long-term investment attractiveness of the state. Under each of these sub-categories different measures are used and are detailed later. The data used are from two periods of time: 1996/97 and 2001/02. Using principal components analysis (PCA) weights were generated to create an index that is henceforth referred to as *Investment Attractiveness Index*

- Moreover, there are some aspects that affect investment climate that are not possible to capture using secondary data. Aspects such as openness of functionaries in their dealings with entrepreneurs, corruption levels, efficiency of administration, etc. These can be gauged with the help of a primary opinion survey conducted in each of the states from entrepreneurs and senior managers in the country. The survey is dynamic in the sense that it asks respondents how and whether conditions have improved in the relevant years (1996/97 and 2001/02) in their respective states. The survey accounts for the following aspects: Investment Climate (inputs and infrastructure), Simplicity of Rules and Procedures, Orientation of the Government, Responsiveness of the Government, Corruption, Property rights and ease in transactions. The mean responses from this survey for each state were used to generate the *Investment Climate Index* using the PCA to generate appropriate weights.

In all, therefore two ratings are done:

- Investment attractiveness as reflected by secondary indicators
- Investment climate as perceived by business people within the State

## **This Report**

This report is divided into five chapters. This is the first chapter. The second chapter discusses the methodology used to calculate the two rankings on investment attractiveness and climate. The third chapter discusses the variables used to calculate the ratings. The fourth chapter depicts the results obtained. Finally, the last chapter contains the conclusion, which is followed by the appendices.

## Chapter 2: Data

### 2.1 Secondary Data for Investment Attractiveness Index

The objective of this exercise is to develop an investment attractiveness index for different states that is different from indices such as human and infrastructure development. The index to be developed should not only capture the critical elements of investment attractiveness for different states for 2001 but also for about 5 years back in time for 1996. In other words, it should be comparable across time and space.

This limits to some extent the kind of variables that can be included in the index, as definitions and availability have changed over time. But more importantly, the number and size of states have also changed. Six states now were three states in 1996. Moreover for many states such as those in the northeast data are not available.

The study included initially 20 states, to these other states such as North-eastern states were added. Finally as has been mentioned, the following states are included:

1. Andhra Pradesh	2. Arunachal Pradesh	3. Assam	4. Bihar
5. Chhattisgarh	6. Goa	7. Gujarat	8. Haryana
9. Himachal Pradesh	10. Jammu & Kashmir	11. Jharkhand	12. Karnataka
13. Kerala	14. Madhya Pradesh	15. Maharastra	16. Manipur
17. Meghalaya	18. Mizoram	19. Nagaland	20. Orissa
21. Punjab	22. Rajasthan	23. Sikkim	24. Tamil Nadu
25. Tripura	26. Uttaranchal	27. Uttar Pradesh	28. West Bengal

Note that these 28 states were only 25 states in 1996. For historical data, in some cases data were available for the area of what are now the new states, but mostly the data for combined state has been used. For some of the north-eastern states there was some data that was missing. This was updated by using imputations/all-India averages for the missing data. These are not reported and were included only so as to ensure that very few missing values did not lead to missing rankings for a state.

The following variables were included in creating the index of investment attractiveness. The sources for this data vary from raw data from surveys conducted by organizations such as the NSSO, to publications of various institutions, organizations and ministries. Normalized values of these variables in terms of ratios were used as individual variables within a category. A note on data sources has been provided in the appendix.

- *Amount of proposed investment as per the Industrial Entrepreneurs Memorandum and Letter of Intent per person in the state*

This variable seeks to capture the intention to invest in the state. Note that this includes both FDI as well as domestic investment. We do not differentiate between foreign and domestic investment, as there is some indication that international direct investors prefer metropolitan locations.

Though actual investment data are not available, manufacturing investment in the organized sector is available from the Annual Survey of Industries by way of:

- *Gross capital formation in manufacturing sector normalized by the population of the state.* The normalization is done to correct for differing sizes of the state. The states GSDP could also have been used, but per capita normalization gives better results. Moreover, manufacturing GSDP is not available for some of the states. Most important, normalization by manufacturing GSDP *punishes* those states that have a strong manufacturing sector, and ‘rewards’ those that don’t in terms of the index values.
- *Commercial bank credit per capita* is another variable that reflects the extent of investment as it is primarily reflecting working capital requirements of the organized sector, which is a close enough proxy to the manufacturing productive base of the state. The data is available from the Reserve Bank of India.
- *Capital expenditure outlay as a ratio of fiscal deficit* reflects the expenditure for the development of the State and its people, which is available from the State Finance Accounts.

One of the important aspects of sustained development is related to keeping the states fiscal debt within control. As is well known most states have high levels of debt and many have argued that this makes good fiscal health of the states unsustainable. Since **high current debt** also affects the states ability to borrow for investment in important elements such as infrastructure, education etc., it **also affects the investment attractiveness in the long run**. However if the current fiscal deficit is used to finance investments that will in the long run improve overall productivity, higher fiscal deficits (and as a result debt) need not have negative long-term consequences.

This study therefore includes capital expenditure outlays as a share of total deficit as one of the measures that reflect and affect long-term investment attractiveness of the state. That is, the greater the investment as a share of deficit, the better would be the states’ investment attractiveness. Moreover, greater investment outlays (as mentioned) by increasing productivity also would improve the long-term fiscal health of the state. In that sense, we consider **greater capital outlays as a good reflector of corrective measure of long-term progress as well as fiscal health**.

Labour issue is the next important aspect of manufacturing and investment attractiveness. In this day where employees move from different sectors from services to manufacturing and the other way round, we do not concentrate on manufacturing work-force but the *total* work force, this is captured by:

- *The work participation rate.* However the labour climate is an important aspect of manufacturing investment attractiveness. This is captured by two variables discussed below.
- *Number of strikes and lockouts as a share of total factories*
- *Number of labour involved in strikes and lockouts as a share of total manufacturing workforce*

These two variables between them capture different aspects of the labour-unrest ruling in different parts of India. States that have better industrial labour climate are relatively better locations for manufacturing. The study also incorporates manufacturing sickness. The share of SSIs that are sick is the key variable included. Other variables for larger firms such as firms referred to BIFR could have been included, however, there is too much subjectivity in that process, moreover this process will soon change and it is not clear whether the same variable could be included in the future.

- *Share of SSIs that are sick.* Last we put in a measure of manufacturing sector output per manufacturing sector employee that essentially indicates output per employee.
- *Net value added per worker*
- *Manufacturing GSDP per manufacturing sector employee.*

The above two variables reflect two different aspects. Productivity as well as value generated per person employed. Both these are important aspects of attractiveness of a state for potential investors.

The above variables were first normalized as indicated above by dividing by a measure of the size of the state. Different normalization variables can be used, but the ones used should not unnecessarily bias the results. Next, the variables were used such that a higher value reflects a good outcome. For instance, in the case of strikes and lockouts, the data were inverted such that a higher value of the resultant indicated *fewer* strikes and lockouts.

Many other variables could have been used but were not for the following reasons:

1. One class of variables that are important from the point of view of investment attractive-ness is that related to spread of roads, power availability, etc. This set of variables has been included in the primary survey and have not been included with the above data as good quality and credible data on these are not available for the two points in time considered and for different states such that they are comparable.
2. Some data were available for the year 2001 but not for earlier year such as 1996 and therefore could not be included due to the requirement of comparability across time. Some data were only available for only a few states and therefore could not be included due to lack of comparability across states.

## 2.2 Primary Data for Investment Climate (Perception) Index

In this exercise, a perception-based index on investment climate and government efficiency for different states is to be developed. The index to be developed should not only capture the critical elements of investment attractiveness and government efficiency for different

states for 2001 but also for 1996. More than 2100 responses of entrepreneurs and managers across different functions and handling different tasks were surveyed in these states. Care was taken that both larger and smaller cities in these states, larger businesses as well as smaller businesses were represented. The Appendix provides different types of distribution and sample characteristics. The sample was random among individuals involved in businesses of different types. The Appendix also contains the questionnaire.

The index was generated for 19 states.

1. Andhra Pradesh	2. Assam	3. Bihar	4. Chhattisgarh
5. Gujarat	6. Haryana	7. Himachal Pradesh	8. Jharkhand
9. Karnataka	10. Kerala	11. Madhya Pradesh	12. Maharashtra
13. Orissa	14. Punjab	15. Rajasthan	16. Orissa
17. Uttaranchal	18. Uttar Pradesh	19. West Bengal	

The following variables were included in creating the investment climate (perception) index:

#### **Quality of Infrastructure**

- Quality of roads
- Quality of electric supply

#### **Property Rights and Ease in Transaction:**

- Protection of intellectual property rights
- Protection of immovable property from encroachments and illegal occupation
- Safety in movement after dark in city of residence
- Likelihood of loss of goods during transport
- Impartiality and efficiency of judiciary in the state
- Impartiality and efficiency of government functionaries in the state

#### **Responsiveness of the Government for commercial/business needs**

- Ease of meeting relevant government functionaries
- Getting a patient hearing from relevant government functionaries
- Speed of decision making in state government
- Likelihood of fair resolutions of differences with the government

#### **Simplicity of Rules and Procedures:**

- Simplicity of rules and procedures related to accessing land to set up a new manufacturing facility
- Simplicity of rules and procedures related to accessing water to set up a new manufacturing facility
- Simplicity of rules and procedures related to accessing electricity to set up a new manufacturing facility
- Simplicity of rules and procedures related to working conditions for labour
- Simplicity of rules and procedures related to other employee welfare regulations
- Simplicity of rules and procedures related to environment regulations in your state
- Simplicity of rules and procedures related to transport regulations in your state

- Simplicity of rules and procedures related to dealing with various inspectors in your state
- Simplicity of rules and procedures related to sales tax
- Simplicity of rules and procedures related to state excise
- Simplicity of rules and procedures related to other state level taxes

**Corruption:**

- Frequency of providing money/gifts to state government or semi government functionaries for general good relations
- Frequency of providing money/gifts to state government or semi government functionaries in lieu of work to be done
- Frequency of getting employment to favorites of politicians, bureaucrats, etc
- Frequency of providing other benefits to the household members of politicians, bureaucrats, etc
- Frequency of paying juniors to meet senior government functionaries

**Orientation of the Government:**

- Whether the political leadership is oriented towards reform
- Whether the senior bureaucracy is oriented towards reform
- Whether the middle/lower bureaucracy is oriented towards reform

The above variables were first aggregated by taking mean of each variable across each State. Then a category index was generated by applying PCA. The composite index was calculated by using the category indices and then applying PCA. Rankings were calculated based on: (i) ratings of 2001 and (ii) percentage change in ratings of 1996 and 2001. Many other variables could have been used but were not because we have concentrated on the issues where the *state* government plays the strongest role. This is further detailed in the next chapter.

## Chapter 3: Methodology

This chapter details the methodology for the two sets of ratings used: Investment Attractiveness Index (using secondary data) and Investment Climate Index (using primary data). Note that two sets of ratings are conducted.

### 3.1 Investment Attractiveness Index Using Secondary Data

The rating exercise necessarily involves combining a wide range of disparate information (data) to form a single index. At the same time it is essential that the author's subjectivity be minimized. It is therefore necessary to form an aggregate or composite index that incorporates the diverse variables into a single or summary measure. The problem in developing such an index is related to the process of integrating various variables into a single measure. The identification of weights to be assigned to different variables is one such issue in the creation of an aggregate index. There are different methods available to form an aggregate index. One way to do this is to use subjective preferences to identify the magnitude of weights to be assigned to each factor or variable.

Another method that minimizes subjectivity is a type of Factor Analytic Model called Principal Components Analysis (henceforth PCA). PCA is one of the better methods of computing composite indices where the analysis involves relatively low levels of subjectivity on the part of the researcher. This well used statistical tool assigns weights to variables based on relationships among them and therefore minimizes subjectivity. This is the main departure with similar exercises conducted to rank States or even Countries. There is therefore no perceptual element in this exercise. The following steps were followed:

1. *Identification of appropriate variables.* The variables were chosen to reflect the overall attractiveness of a State as a destination for investment. The end result – the index - therefore is a combination of many factors, work participation rates, value added by industrial workers, etc.
2. *Normalizing of the data.* Some States are much larger than others; they have larger area, population, and economies. Depending upon the variable and what it intends to measure, each variable has been appropriately 'normalized'.
3. *Comparability of Data.* As mentioned before, it is essential that data for different States be comparable. This requires that it has the same definition, and be for the same time period. Moreover, since the rating and ranking exercise implies that higher values be reflecting better performance, appropriate ratios have to be developed. Take for instance, number of strikes and lockouts. Higher strikes & lockouts rates imply poorer performance. Therefore we have taken the inverse of strikes & lockouts rates, where higher values do reflect better performance.

4. *Creating a rating.* This involved conducting PCA analysis, the details of which are laid out in the appendix. It should however be noted that conducting a PCA exercise involves re-standardizing the data so that it is made free of the units. This involves subtracting the mean and dividing by the standard deviation of the particular variable series. This is followed by taking a weighted average of these unit free renormalized variables to generate the index.

*The PCA exercise (as outlined in point above) involved the following steps.*

- First, the analysis involves putting together data of different states at different periods of time (1996 and 2001) such that the data are comparable. For some of the states data might not be available (as is true to some extent for north-eastern states, the newly formed states such as Jharkhand Uttaranchal etc.). Moreover, the underlying data are such that they do not give any undue advantage to larger states and therefore are normalized. Relevant estimates and imputations were done or all India averages added and are detailed in the next section.
- Next the analysis involves standardization of data in question. Standardization (that involves subtraction of the mean value and division by the standard deviation) eliminates unnecessary weights given to some measures on account of their high unit values.
- Following the standardization, PCA involves finding that relationship between the variables that explains the maximum possible variation in the total data. This is done by generating various factors.
- Each factor is nothing but a linear weighted combination of the various variables used. The factors are ranked according to their ability to explain the maximum possible variation among all the variables. That is, the factors are ranked according to their ability to explain the total variance. In all the indices calculated, we used the first factor only. The first factor, explained more than 70 per cent of the variation.
- Such analysis sometimes involves negative weights being assigned to some variables. However, no negative weights are observed in any of the indices generated by our exercise.

5. Note that data for about 20 odd larger states tends to be of better quality and more readily available. The weights/loadings were generated using only these larger 20 states (mentioned later). That is, the above steps were applied for the 20 major States. This is because of the lack of accurate data for the other 8 States (mainly North-Eastern States). The weights of the 20 States were assigned to the actual or imputed data for the other 8 (north-eastern states and Sikkim) States.

6. Once the weights for each measure are obtained (also sometimes referred to as factor loadings), then the index was calculated as the weighted average. These are given in the table below.

<b>Variable</b>	<b>Loadings</b>
1. IEM/LOI per person	0.47055
2. Credit per person	0.50411
3. Gross capital formation per person	0.18707

Variable	Loadings
4. Capital expenditure as share of fiscal deficit	0.21548
5. Work participation rates	0.39237
6. Disputes per worker	0.60010
7. Labor involved in disputes per worker	0.57210
8. Sick SSI as share of SSI	0.45823
9. Net value added per worker	0.60620
10. Manufacturing GSDP per worker	0.74067

7. For the ratings, a constant, 3, was added to the index values. This was done to scale the index values so that they are all positive, and easier to discuss. This index is termed as *Index of Investment Attractiveness*. This was calculated for both 1996 and 2001.

8. The rankings for each state were done on (i) the index value in 2001, and (ii) percentage growth in the index value between 1996 and 2001.

In sum, the problem in developing any composite index is that related to the process of integrating various variables into a single measure. Obtaining a single summary measure requires identification of weights to be assigned to different variables. While subjective weights can be used for this purpose we use the more objective method of Principal Components Analysis. PCA assigns weights to variables based on relationships among them, thereby minimizing subjectivity.

### 3.2 Investment Climate (Perception) Index Using Primary Data

A questionnaire is by far the most common instrument used to collect primary data. Questionnaires need to be carefully developed, tested and debugged. Keeping this in mind we created a questionnaire to collect information on the investment climate, corruption and efficiency of the government in a particular state. The questionnaire related to two periods in time: 1996-1998 and 2001-2003. The categories that were formed in the questionnaire have been discussed before and are listed below as well:

1. *Investment Climate*: The quality of inputs and infrastructure (such as smooth roads, stable electricity supply, well trained work force) that was available for the business of the respondents during the two time periods.
2. *Simplicity of Rules and Procedures*: The simplicity of setting up new manufacturing facilities and simplicity of rules relating to labour and taxes.
3. *Orientation of the Government*: Whether the central and state governments were/ are oriented towards political leadership and bureaucracy.
4. *Responsiveness of the Government*: Whether the central and state governments were/ are responsive towards the respondents' commercial/business needs.
5. *Corruption*: How often does one have to provide benefits to both central and state governments.
6. *Property rights and ease in transactions*: The nature of intellectual property rights, encroachment and the judiciary, etc.

The questions asked were close-ended. This implied pre-specifying the answers and respondents making a choice among them. Hence, for each question a rating scale from 1 to 5 was given. The respondent had to fill out the option they chose as befitting the situation at the relevant period of time. The questionnaire has also been enclosed in the appendix.

In this case, the method of Multi-Stage Principal Component Analysis has been used. The Multi-Stage Principal Component Analysis involves dividing the selected variables into well-defined subgroups or categories depending on the nature of the indicators i.e. the six categories above. Within a category, there is a high degree of inter-correlation. The Principal Component Analysis has then been applied to each of the sub-groups of variables within each category. The first Principal Components obtained from different categories have been treated as a set of new variables and combined at a second stage to obtain the final composite index.

*Creation of Index*

This exercise involved the following steps:

- Identification of queries to be included under each of the six categories. Under each of these categories approximately the specific queries were included and have been discussed in the previous chapter.
- For every query the respondent was provided 5 pre-specified options ranging from 1 to 5 (e.g. 1 = don't know, 2 = poor conditions, ...5= good conditions) The mean value for each query for each state was first calculated.
- *Creating a rating for each category.* This involved conducting PCA analysis using the mean value for each query detailed above. The details of which are laid out in the appendix and have also been mentioned before. Thus six indices were obtained for each of the categories.
- *Calculating a composite/overall rating across all categories.* This is the final step that involves putting together the different ratings in the 6 categories to come up with a final or composite rating. This was also done using PCA. The factor loadings are reported below.

<b>Variable</b>	<b>Loadings</b>
Infrastructure Index	0.80797
Simplicity of Rules and Procedures Index	0.74987
Reform Attitude Index	0.97937
Responsiveness Index	0.95485
Corruption Index	0.74530
Property Rights Index	0.88527

- For the ratings, a constant, 3, was added to the index values. This was done to scale the index values so that they are all positive, and easier to discuss.
- The rankings for each state were done on (i) the index value in 2001, and (ii) percentage growth in the index value between 1996 and 2001.

## Chapter 4: Results

This chapter reports the results in the form of rankings of different states. The results are reported hereafter.

### 4.1 Investment Attractiveness Ranking Using Secondary Data

Investment attractiveness is a combination of many factors that differ across industry, location, and type of activity envisaged. Two major factors that are common across all are capital and labour. We use gross capital formation in the manufacturing sector and commercial bank credit, normalized by population of the state as a measure of capital available. While the labour involved in strikes and lockouts to total manufacturing workforce is one of the variables used as a measure of labour.

Many qualitative factors about the attractiveness of a location cannot be captured by explicit variables. To incorporate those we also include the interest shown by prospective investors – this can be gauged through average annual Industrial Entrepreneur’s Memorandum (IEM) and Letters of Intent (LOI) normalized by population of the state. Industrial sickness and restructuring are also an important aspect of the Indian economic environment, which was shown through share of SSIs that are sick. The data was mainly compiled through publications of ministries and various organizations.

The composite rating is based on ten variables that represent investment attractiveness. Two rankings are calculated: (i) from the percentage change in the ratings depicted in Table 4.1b and (ii) from 2001 ratings depicted in Table 4.1a. To understand a state’s performance on the composite ranking, one has to examine where the state stands in each of these variables. Having done this, we now present results from the overall rankings of investment attractiveness.

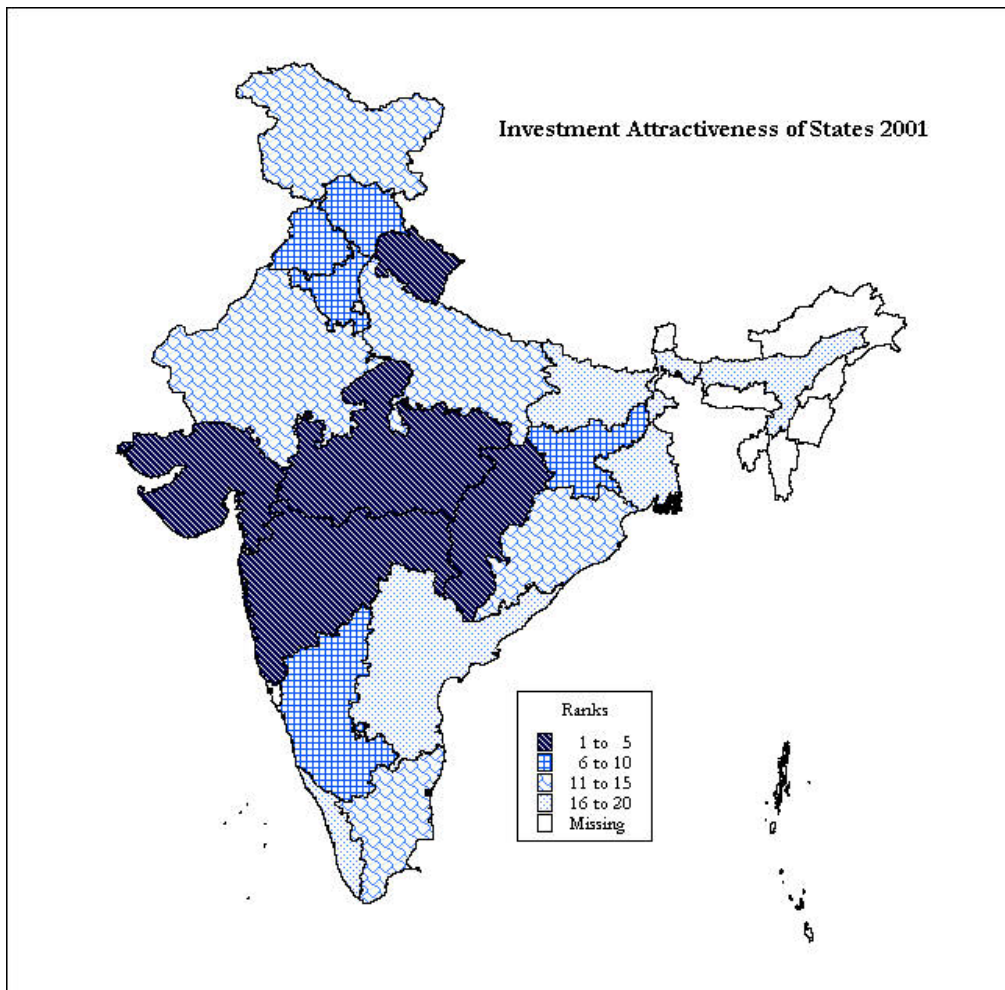
**Table 4.1a: Rating and Ranking of Investment Attractiveness 2001: Across larger States**

State	Rating of Investment Attractiveness	Ranking of Investment Attractiveness
	2001	2001
Maharashtra	5.40	1
Chhattisgarh	4.80	2
Gujarat	4.41	3
Madhya Pradesh	4.21	4
Uttaranchal	4.01	5
Punjab	3.99	6
Haryana	3.87	7
Karnataka	3.81	8
Jharkhand	3.71	9
Himachal Pradesh	3.63	10
Tamil Nadu	3.53	11
Rajasthan	3.53	12

State	Rating of Investment Attractiveness	Ranking of Investment Attractiveness
	2001	2001
Uttar Pradesh	3.30	13
Orissa	3.15	14
Jammu & Kashmir	3.04	15
Andhra Pradesh	2.88	16
Bihar	2.82	17
Assam	2.80	18
Kerala	2.51	19
West Bengal	1.63	20

\* In descending order of ratings of investment attractiveness 2001

Mostly better performing States in 2001 are distributed across the northern and western parts of India. And the eastern States bring up the rear. This is seen in the also depicted in the map below.



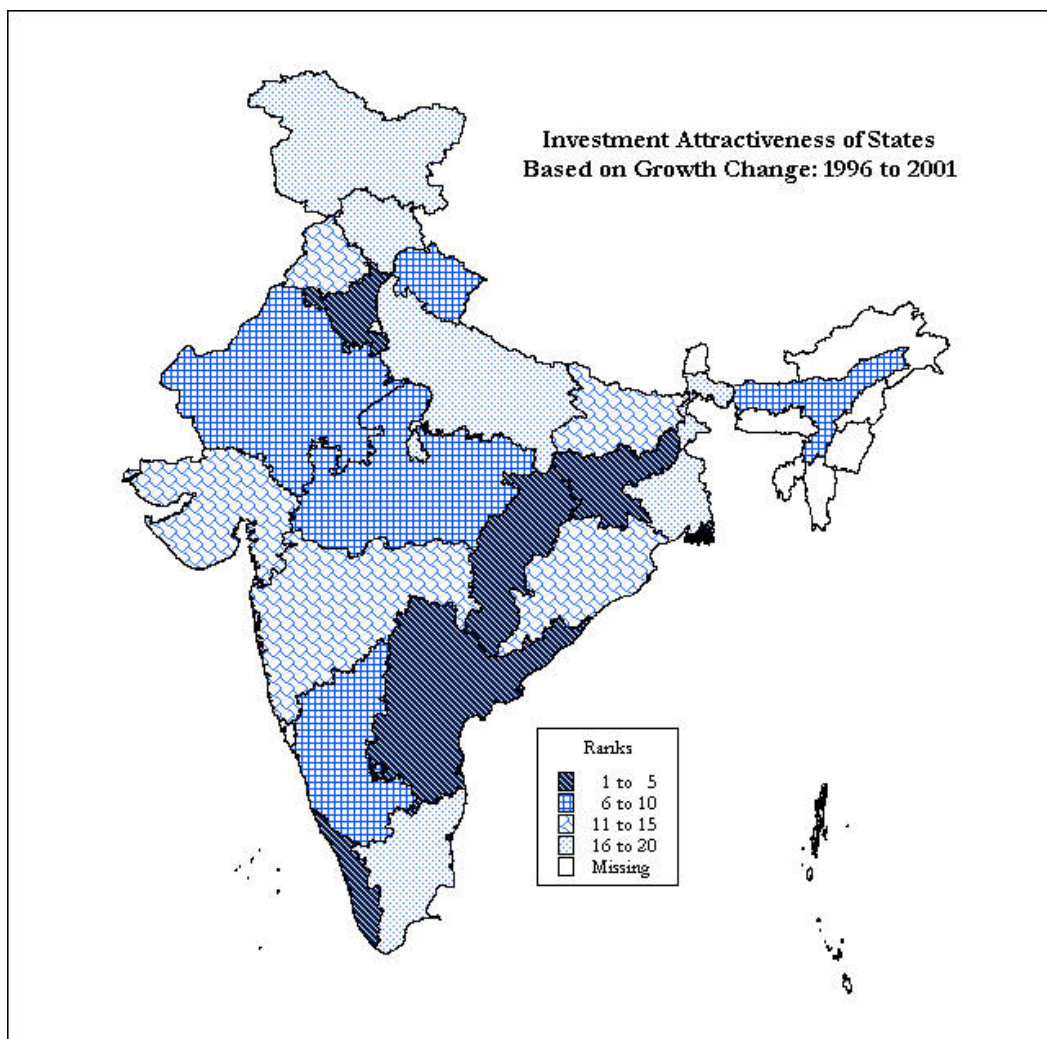
Maharashtra tops the rankings due to its high manufacturing GSDP with respect to manufacturing work force and also its higher productivity levels and low disputes. But it has not improved much since 1996 as can be seen in the Table 4.1b. Gujarat too ranks high but improvement since 1996 has not been significantly high. It should also be noted that the index values of all the states have improved through the five year period, but some states have improved more than others, which is what has affected their growth rankings.

**Table 4.1b: Ranking of Investment Attractiveness: Across larger States**

<b>State</b>	<b>Ranking of Investment Attractiveness</b> (Based on percentage change of ratings between 1996 and 2001)
Andhra Pradesh	1
Jharkhand	2
Chhattisgarh	3
Kerala	4
Haryana	5
Assam	6
Uttaranchal	7
Madhya Pradesh	8
Karnataka	9
Rajasthan	10
Orissa	11
Gujarat	12
Punjab	13
Maharashtra	14
Bihar	15
Uttar Pradesh	16
Tamil Nadu	17
Himachal Pradesh	18
West Bengal	19
Jammu & Kashmir	20

\* In descending order of percentage change of ratings of investment attractiveness

The above rankings are depicted in the following map. It is seen that southern States have been showing considerable improvement. Even more importantly, the newly created states show significantly improved rankings than in their past.



The attractiveness in Andhra Pradesh and Kerala has improved considerably even though 2001 ratings show that the investment attractiveness is low in these States. These States have improved considerably in all sectors from 1996. But the manufacturing GSDP and net value added still are comparatively lower than other states in 2001.

The smaller States are rated and ranked separately as (i) Smaller states are not exactly comparable with smaller states and (ii) the data on these states is missing many times and has involved some imputations. The growth rankings follow in Table 4.1d.

**Table 4.1c: Rating and Ranking of Investment Attractiveness 2001: Across smaller States**

State	Rating of Investment Attractiveness	Ranking of Investment Attractiveness
	2001	2001
Goa	6.13	1
Meghalaya	4.34	2
Mizoram	4.03	3
Arunachal Pradesh	3.35	4

State	Rating of Investment Attractiveness	Ranking of Investment Attractiveness
	2001	2001
Sikkim	3.33	5
Nagaland	3.14	6
Tripura	2.54	7
Manipur	1.97	8

\* In descending order of ratings of investment attractiveness 2001

Goa rates better among the smaller States. The State has a high manufacturing GSDP and net value added compared to the other States. Goa does not show as much improvement as some of the other states since 1996 as is seen in the growth rankings given below.

**Table 4.1d: Ranking of Investment Attractiveness: Across smaller States**

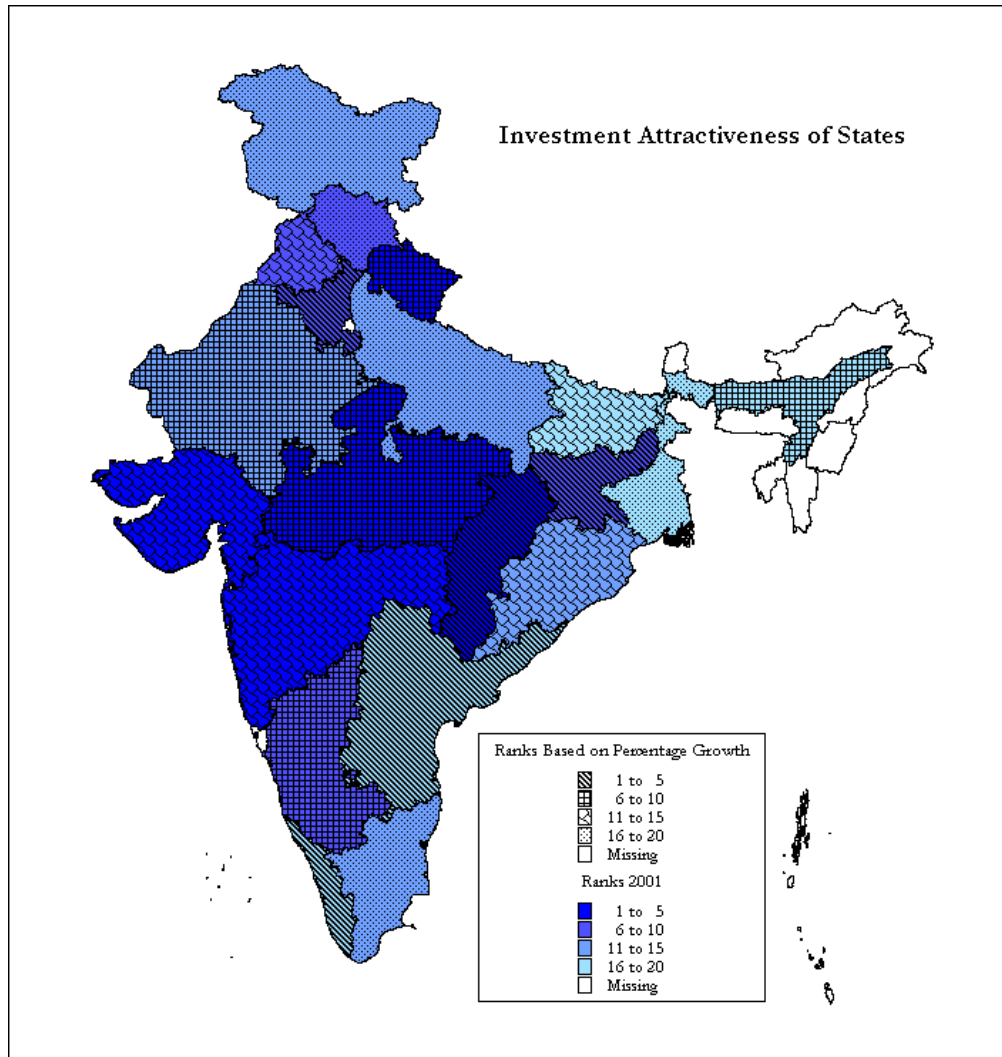
State	Ranking of Investment Attractiveness (Based on percentage change of ratings)
Mizoram	1
Arunachal Pradesh	2
Sikkim	3
Tripura	4
Goa	5
Meghalaya	6
Nagaland	7
Manipur	8

\* In descending order of percentage change of ratings of investment attractiveness

Mizoram shows a considerable improvement since 1996. It also ranks high on investment attractiveness of the State. On the other hand, Meghalaya does not show much improvement but is ranked high on investment attractiveness.

#### *A Discussion*

From Table 4.1b, it is seen that Tamil Nadu shows a significant fall since 1996. There is a fall in the IEM-LOI investment along with an increase in sickness. Assam too shows a relative decrease in investment attractiveness but an improvement since 1996. Even though there is a high increase in the gross capital formation, the work participation rates show a decline. A map comprising the 2001 rankings and the rankings based on percentage changes is depicted here forth.



Among the BIMARU states, Bihar sees a substantial increase in disputes and labour involved in disputes. There is a fall in its gross capital formation too giving it a low ranking. Madhya Pradesh remains in the top ten even though the climate has deteriorated there, after the formation of Chhattisgarh. The labour involved in disputes sees a significant rise in MP. Chhattisgarh and Jharkhand also show an improvement in attractiveness after being separated from parent States. Among this category of States, only Rajasthan does not show much change overall.

#### 4.2 Investment Climate (Perceptions)

This section indicates the investment climate of States from the viewpoint of the residents of that particular State. The data was collected through surveys of business professionals, managers and entrepreneurs. The questions asked related to how and whether investment and business conditions have improved in their States.

The variables were broadly classified under six categories. *Corruption* and *Responsiveness of the government* accounted for the behavior of the government officials. *Reform attitude* dealt with whether the government was changing or reforming for the better while *Property Rights* included encroachments and safety of people and goods. In order to know about the investment climate of a State, it is very important to know about rules and condition of infrastructure. *Infrastructure* and *Simplicity of Rules and Procedures* are the last two categories, which deal with this.

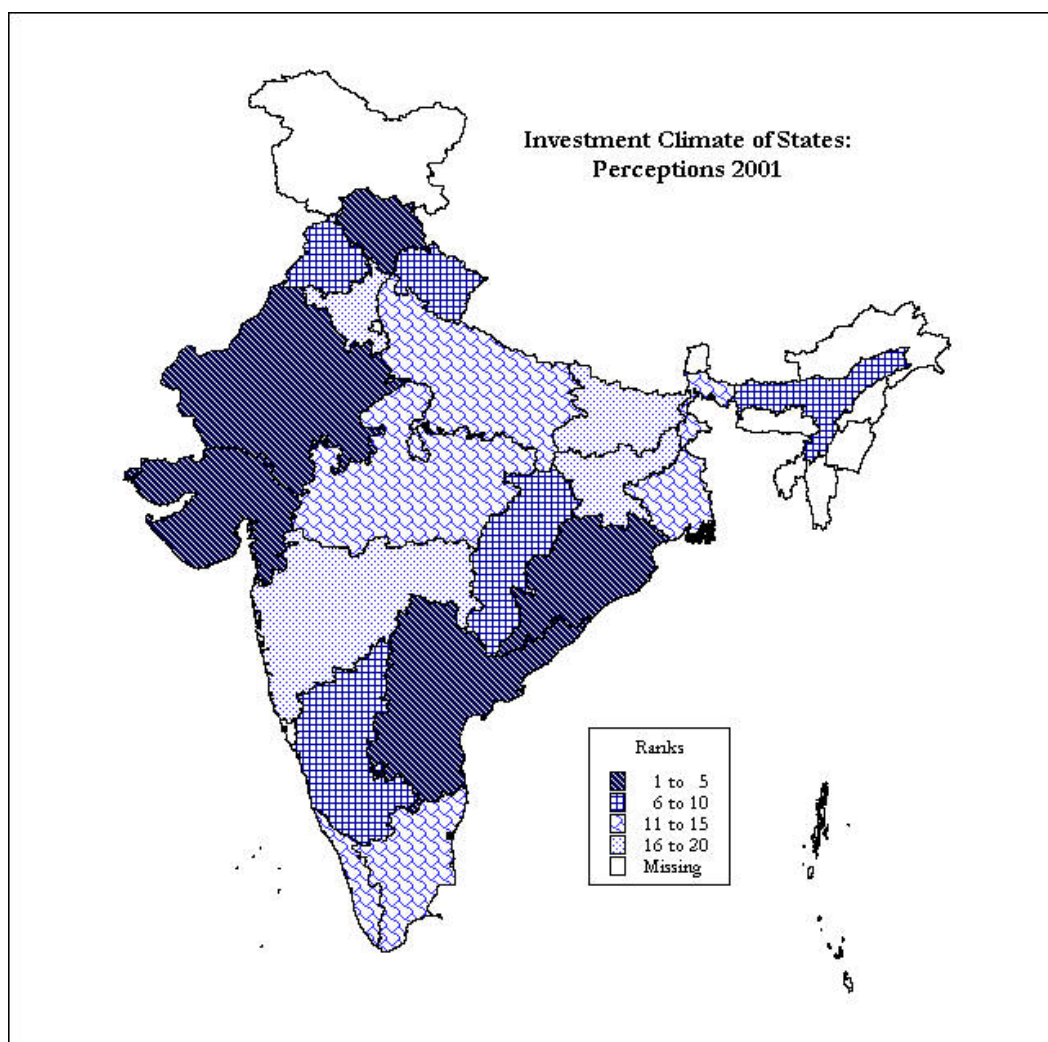
The States were first rated based on each of these categories and then a composite rating was calculated. The composite rating is given in Table 4.2b. Two rankings are calculated: (i) from the percentage change in the ratings depicted in Table 4.2c and (ii) from 2001 ratings depicted in Table 4.2a.

**Table 4.2a: Ranking of Investment Attractiveness (Perceptions) 2001: Across States and Categories**

State	Corruption Ranking 2001	Infrastructure Ranking 2001	Reform Attitude Ranking 2001	Property Rights Ranking 2001	Responsiveness Ranking 2001	Simplicity of Rules and Procedures Ranking 2001	Overall Ranking 2001
Himachal Pradesh	1	9	1	1	3	4	1
Andhra Pradesh	6	3	2	8	1	8	2
Gujarat	11	2	5	3	2	6	3
Orissa	10	5	4	5	5	1	4
Rajasthan	3	1	6	6	4	2	5
Karnataka	15	12	3	13	6	12	6
Uttaranchal	2	6	8	4	9	5	7
Punjab	9	11	7	10	12	10	8
Chhatisgarh	5	4	11	9	8	7	9
Assam	8	17	12	2	7	18	10
Tamil Nadu	7	10	10	14	11	3	11
Kerala	13	16	9	16	15	13	12
Uttar Pradesh	.	15	14	15	13	9	13
Madhya Pradesh	4	18	16	11	10	16	14
West Bengal	18	13	13	17	14	14	15
Maharashtra	14	7	15	12	16	15	16
Jharkhand	16	8	17	7	18	17	17
Haryana	12	14	18	18	17	11	18
Bihar	17	19	19	19	19	.	19

\* In descending order of overall rating 2001, Note: Jharkhand has a low sample size. Missing and unusable responses account for the other missing rankings.

As seen in Section 4.1, the better performing States are relatively distributed across the southern parts of India. An exception is Himachal Pradesh, which tops the rankings. It ranks high in all the categories. Andhra Pradesh too is at the top, seeing significant improvement in infrastructure and responsiveness of the government. The following map depicts these results.



In perception-based rankings, Assam too ranks high among other Eastern States. Assam ranks high on property rights and responsiveness of the government. It is also low on corruption unlike other eastern States. Gujarat ranks high in both the rankings. This is the case, even though it is considerably high on corruption. It performs well in all the other sectors.

**Table 4.2b: Rating of Investment Attractiveness (Perceptions) 2001: Across States and Categories**

State	Corruption Ranking	Infrastructure Ranking	Reform Attitude Ranking	Property Rights Ranking	Responsiveness Ranking	Simplicity of Rules and Procedures Ranking	Overall Ranking
	2001	2001	2001	2001	2001	2001	2001
Himachal Pradesh	5.53	3.87	4.79	5.26	4.41	4.10	4.81
Andhra Pradesh	3.53	4.19	4.44	3.73	4.97	3.88	4.50
Gujarat	3.20	4.29	4.13	4.18	4.60	4.00	4.28

State	Corruption Ranking	Infrastructure Ranking	Reform Attitude Ranking	Property Rights Ranking	Responsiveness Ranking	Simplicity of Rules and Procedures Ranking	Overall Ranking
	2001	2001	2001	2001	2001	2001	2001
Orissa	3.35	4.08	4.15	4.13	4.15	4.53	4.18
Rajasthan	3.92	4.30	4.03	3.98	4.20	4.22	4.13
Karnataka	2.90	3.81	4.24	3.34	4.08	3.56	4.05
Uttaranchal	4.11	4.05	3.89	4.13	3.82	4.07	3.96
Punjab	3.45	3.85	3.93	3.51	3.76	3.64	3.84
Chhatisgarh	3.63	4.16	3.72	3.54	3.96	3.96	3.81
Assam	3.45	2.79	3.66	4.22	3.96	3.02	3.80
Tamil Nadu	3.51	3.86	3.76	3.31	3.80	4.13	3.75
Kerala	2.99	3.39	3.82	3.25	3.52	3.52	3.65
Uttar Pradesh	.	3.50	3.47	3.30	3.66	3.77	3.57
Madhya Pradesh	3.64	1.92	3.35	3.47	3.81	3.18	3.47
West Bengal	1.44	3.79	3.52	2.79	3.60	3.39	3.39
Maharashtra	2.95	3.95	3.36	3.36	3.17	3.36	3.33
Jharkhand	2.88	3.90	3.28	3.96	2.78	3.06	3.25
Haryana	3.04	3.74	3.08	2.77	3.14	3.64	3.09
Bihar	2.29	1.27	2.76	1.46	2.49	.	2.51

\* In descending order of overall rating 2001, Note: Jharkhand has a low sample size.

The above ratings are comparable across States and time. It is not essential that States showing a low ranking in 2001 are not well performing States. The ratings and rankings show us that even though in some States there is improvement; the rankings have gone down just because other States have performed better. Assam, being an example, improves considerably but in relative terms stays the same, ranking tenth. This is depicted by the growth rankings given in Table 4.2c.

**Table 4.2c: Ranking of Investment Climate (Perceptions): Across States**

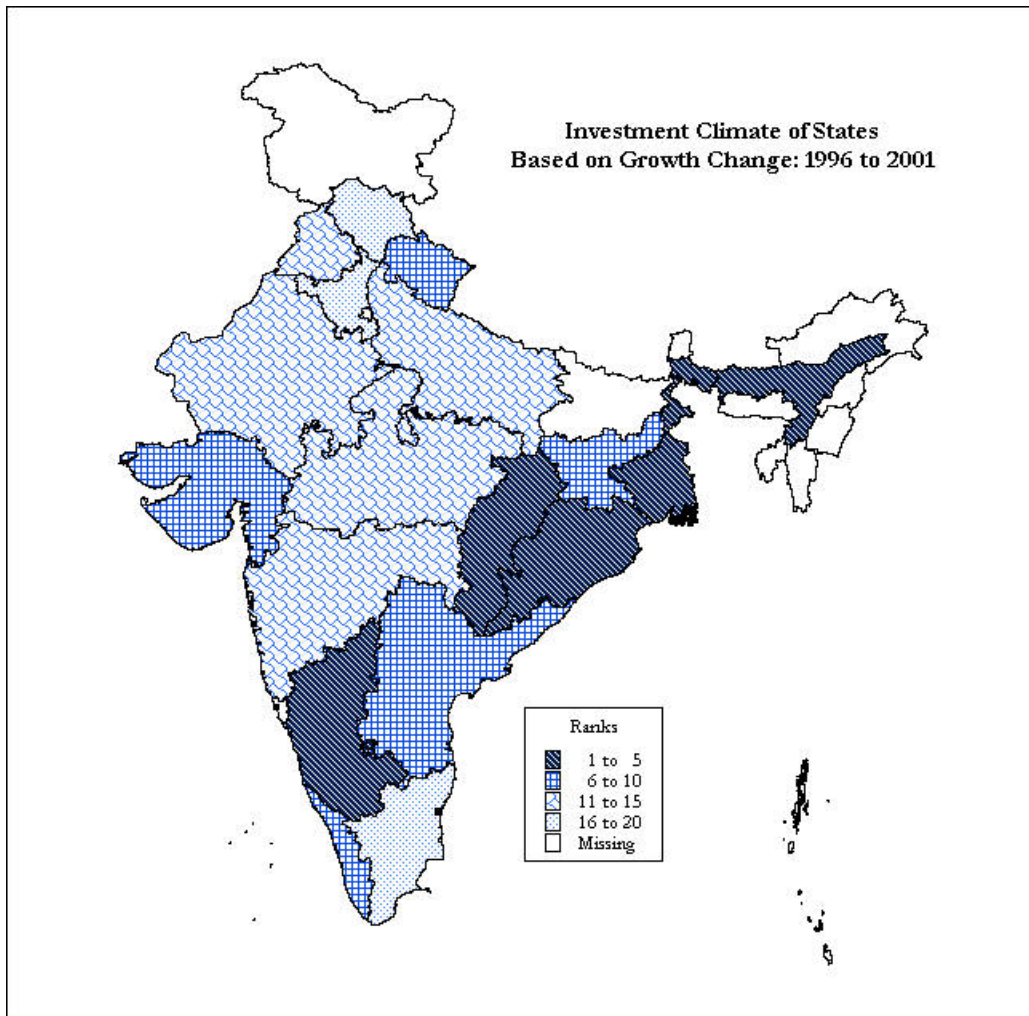
State	Ranking of Investment Climate (Based on percentage change of ratings)
Orissa	1
Karnataka	2
Assam	3
Chhatisgarh	4
West Bengal	5
Gujarat	6
Uttaranchal	7
Jharkhand	8
Andhra Pradesh	9
Kerala	10
Maharashtra	11

<b>State</b>	<b>Ranking of Investment Climate</b> (Based on percentage change of ratings)
Rajasthan	12
Punjab	13
Madhya Pradesh	14
Uttar Pradesh	15
Haryana	16
Tamil Nadu	17
Himachal Pradesh	18
Bihar	.

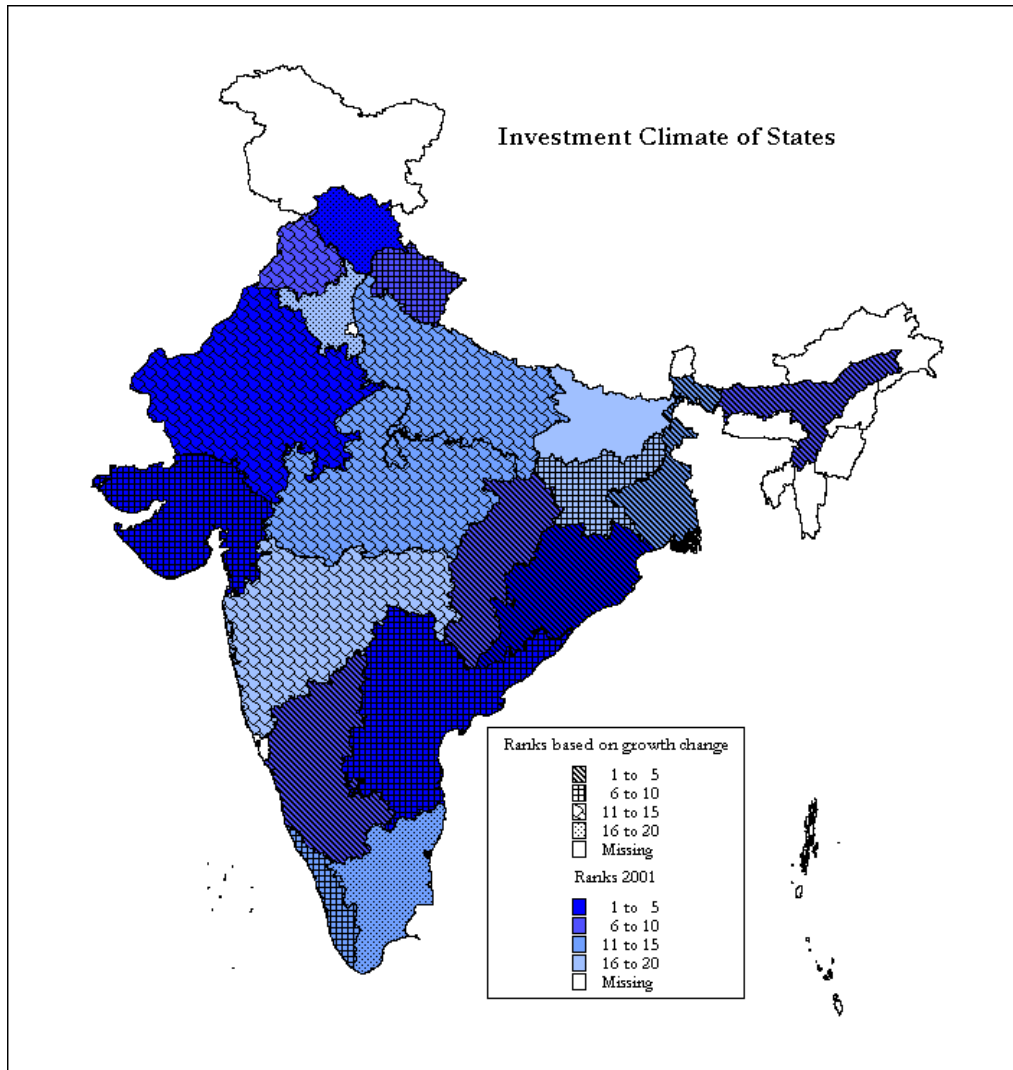
\* In descending order of percentage change of ratings of investment attractiveness

Even Tamil Nadu does not show much improvement, which is also the case in investment attractiveness rankings. It has not significantly improved in any sector, whereas some States have shown noteworthy improvement. Maharashtra too shows a fall in all the sectors in relative terms, especially in reform attitudes and property rights. The rankings based on percentage change are depicted in the map below.

Bihar shows missing information in the growth ranking for the following reason. It has shown some improvement, however since it is among the lowest ranked states in percentage change terms the improvement shows *maximum* improvement. This improvement in other words, is due to the exceptionally small base for Bihar in 1996.



Among the BIMARU States, Rajasthan sees slight improvement. Uttar Pradesh declines in almost all categories compared to other States and hence overall ranking goes down. The newly formed States of Chhattisgarh, Uttaranchal and Jharkhand develop significantly. It shows improvement in all the sectors. Bihar remains low in investment climate. A comparison of the investment climate based on 2001 rankings and percentage change rankings is depicted below.



It is seen from the map that even though some states have ranked high in 2001, it is not necessary that they have shown improvement. An example, being, Rajasthan. This state ranks high on perceptual investment climate in 2001 but does not show much improvement since 1996.

### 4.3 Comparison of Ratings and Rankings

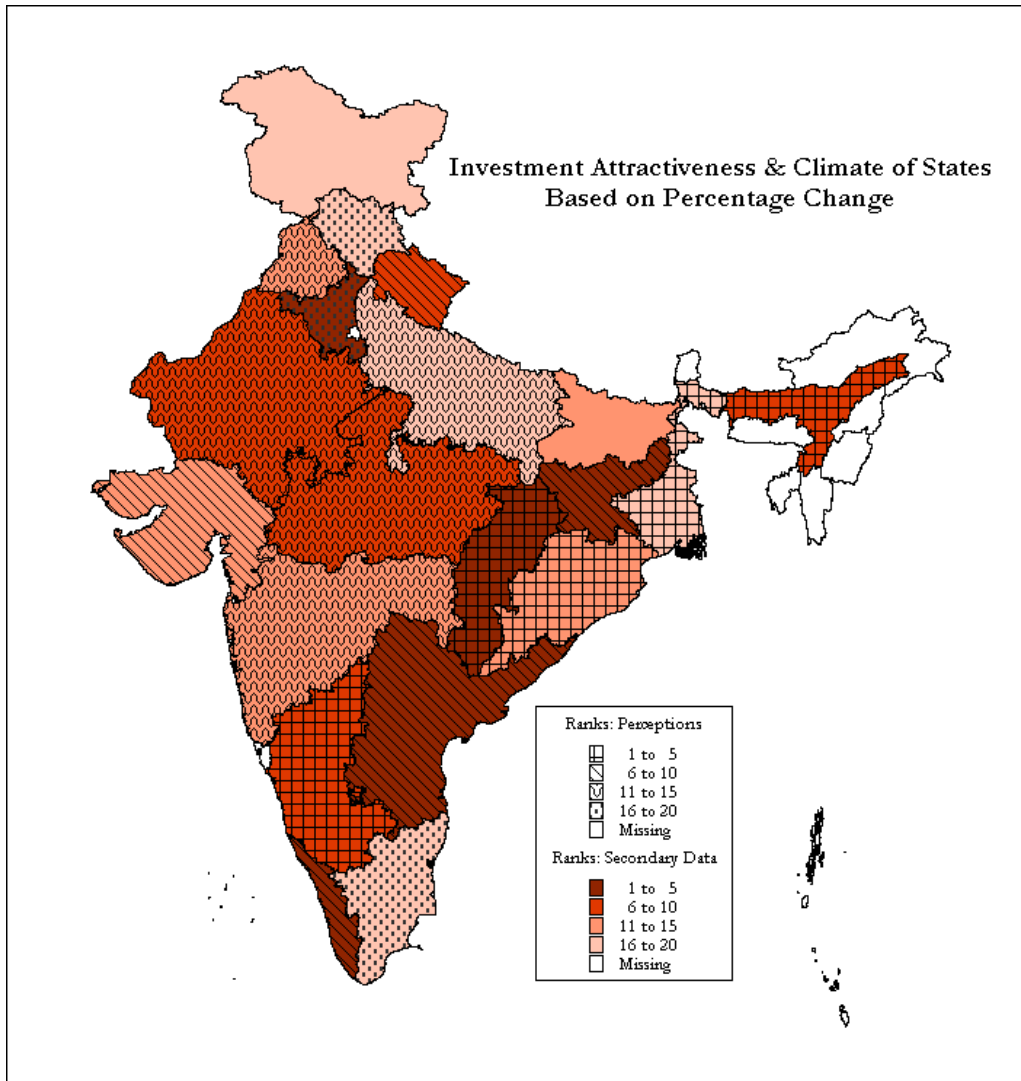
Two different ratings and ranking exercises are done- each giving somewhat different results: Investment attractiveness based on secondary data and investment attractiveness based on perceptions of business people of the State. The comparison of these ratings and rankings follows.

**Table 4.4: Comparison of Ratings and Rankings: Across larger States**

State	Investment Attractiveness Rating (Secondary Data)	Investment Climate Rating (Perception)	Investment Attractiveness Ranking (Secondary Data)	Investment Climate Ranking (Perception)	Investment Attractiveness Ranking (Secondary Data)	Investment Climate Ranking (Perception)
	2001	2001	2001	2001	Based on Percentage change 1996-2001	Based on Percentage change 1996-2001
Andhra Pradesh	2.88	4.50	16	2	1	9
Jharkhand	3.71	3.25	9	17	2	8
Chhattisgarh	4.80	3.81	2	9	3	4
Kerala	2.51	3.65	19	12	4	10
Haryana	3.87	3.09	7	18	5	16
Assam	2.80	3.80	18	10	6	3
Uttaranchal	4.01	3.96	5	7	7	7
Madhya Pradesh	4.21	3.47	4	14	8	14
Karnataka	3.81	4.05	8	6	9	2
Rajasthan	3.53	4.13	12	5	10	12
Orissa	3.15	4.18	14	4	11	1
Gujarat	4.41	4.28	3	3	12	6
Punjab	3.99	3.84	6	8	13	13
Maharashtra	5.40	3.33	1	16	14	11
Bihar	2.82	2.51	17	19	15	.
Uttar Pradesh	3.30	3.57	13	13	16	15
Tamil Nadu	3.53	3.75	11	11	17	17
Himachal Pradesh	3.63	4.81	10	1	18	18
West Bengal	1.63	3.39	20	15	19	5
Jammu & Kashmir	3.04	.	15	.	20	.

\* In ascending order of investment attractiveness (secondary data) ranking based on percentage change

Generally southern and eastern States show improvement in the investment attractiveness and investment climate. Assam, as stated in the sections above, shows significant improvement but still ranks low in 2001. The map below indicates the ranks based on percentage change both for primary and secondary data.

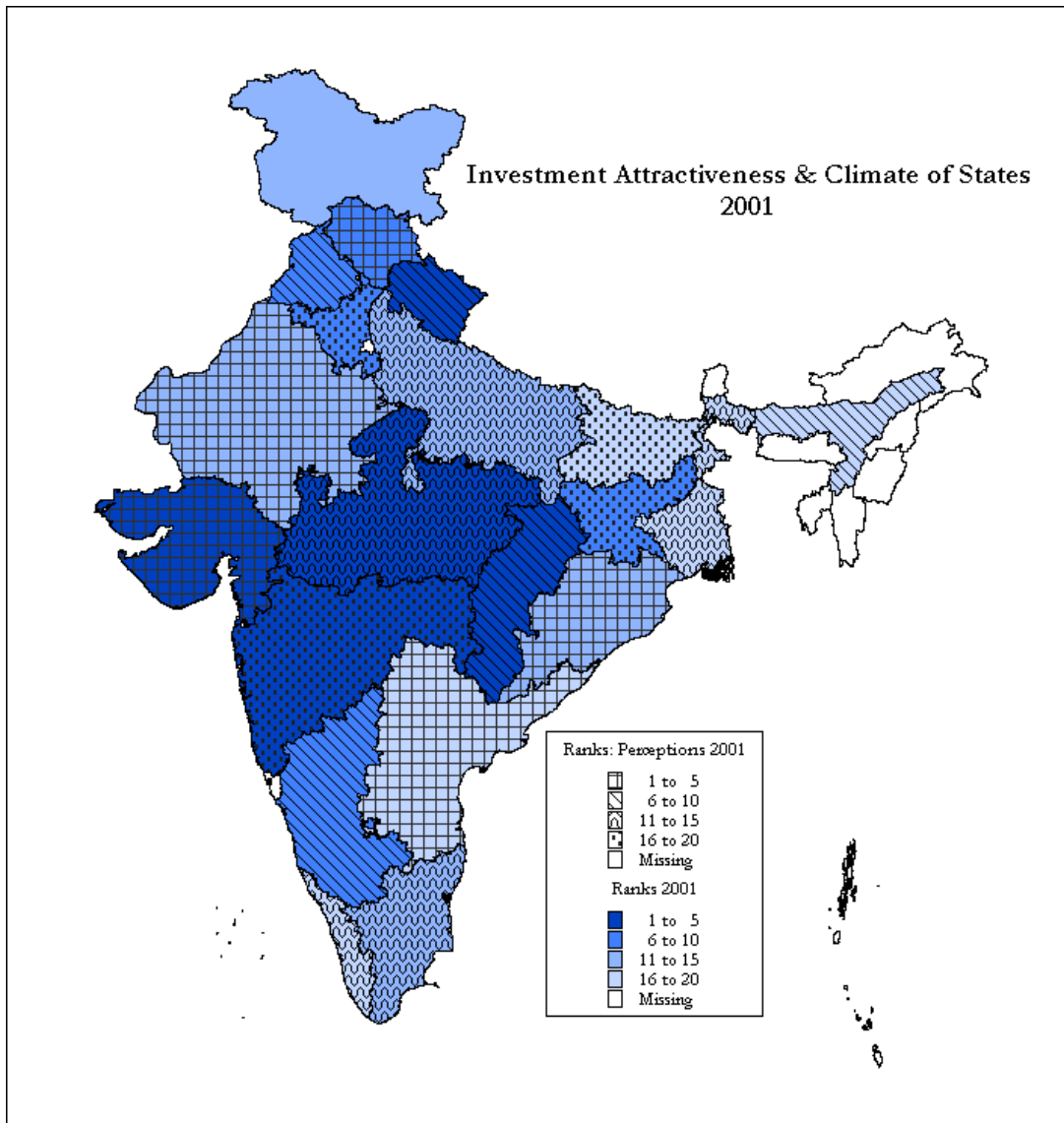


There are certain States in India, which rank high on perceptual-based ranking but not so in the secondary data. But this does not mean that the States are not performing well. Taking Andhra Pradesh as an example. Andhra Pradesh tops the ranking in the perception-based ranks. But this is not the case with the investment attractiveness (secondary data) ranking. If one looks at the growth based rankings, it is seen that Andhra Pradesh shows an improvement in both the ratings. Since both the indices shown have values lesser than other States, Andhra Pradesh has a low ranking.

This divergence therefore we believe is due to the fact that indicators derived from secondary data take some time to show filed level improvements/changes. Perceptions however are quicker to react to changes. Similarly states such as Maharashtra show better secondary data indicators but average perception based ones. This might indicate poor performance in the future. However, this is an aspect that needs to be studied in greater detail before unambiguous insights can be derived.

Gujarat and Karnataka have an overall high ranking in all sectors. This makes them attractive States investment wise. These show considerable improvement in all sectors.

Among the BIMARU States, the newly formed States show an improvement in all sectors. Bihar does not show much improvement and rankings also remain low (though in percentage terms it shows up as high improvement). Madhya Pradesh however shows improvement in investment attractiveness. But the investment climate depicts a different picture all together. The following map depicts the ranks of 2001 of both primary and secondary data.



In 2001, States such as Gujarat and Karnataka do well in terms of investment attractiveness and climate. Whereas, States such as Maharashtra perform well in investment attractiveness but not so in investment climate. Similarly, Assam does well in investment climate but not in investment attractiveness.

## Chapter 5: Conclusions

There is a high degree of heterogeneity across the states of India. However there is a pattern that emerges. We find that the western states of India perform much better in 2001 than the eastern states. Assam, Bihar, and Orissa constitute the worse off states, thereby making the east west divide highly conspicuous.

However all states that perform well in the overall index of investment attractiveness are not necessarily good performers in every aspect. States that are among the high rankers are not free of weaknesses and those that are among the bottom do perform well in certain categories. Many of the eastern States even though rank lower, have improved considerably over time.

Maharashtra and Punjab do not show much improvement but remain on top with regards to investment attractiveness. West Bengal, though improved in investment climate in the view of a business-oriented person, has shown no improvement with respect to investment attractiveness. Uttaranchal depicts an improvement in all sectors. Assam does not rank high but at the same time shows a large improvement in all sectors.

Andhra Pradesh performs well in infrastructure. In investment attractiveness this State has improved more than half. Chhattisgarh has shown vast improvements in all sectors since 1996. It is ranked high on the perception-based index also. Tamil Nadu does not show much improvement in any sector and also ranks low. Most importantly, this ratings exercise shows that larger manufacturing base need not imply a better investment climate (as in the case of TN and even West Bengal).

The results indicate that if these ratings were to be replicated, another set of issues need to be taken into consideration. The *Investment Climate* ratings are likely to change more frequently as they reflect factors that change more rapidly over time. The *Investment Attractiveness* ratings on the other hand tend to be more stable and change slowly over time. A study on the link between perceptions and reality as reflected in secondary data needs to be conducted.

## Appendix

## Methodology

PCA develops a composite index by defining a real valued function over the relevant variables which would permit defining the performance of States objectively. A set of assumptions behind our method of construction of a composite index is given below:

1. The condition of *weak Pareto rule* demands that when a State registers values of indicators uniformly higher than those of the other States - the former should have a higher ranking than the latter ones;
2. The condition of *non-dictatorship* implies that no single indicator should be considered so significant as to determine the final ordering all by itself;
3. The condition of *unrestricted domain* implies that the method should be capable of giving the final ranking for all possible data matrices;
4. The final condition is that of *independence from irrelevant alternatives*, which demands that while ranking two States, the decision must be guided by the values of the indicators for these units under study alone and not by any other irrelevant phenomenon.

With these general assumptions, the composite index is defined as,

$$C_i = W_1x_{i1} + W_2x_{i2} + W_3x_{i3} + \dots + W_nx_{in}$$

or,  $C_i = \sum W_j x_{ij}$ , where  $C_i$  is the composite index for the  $i$ th observation,  $W_j$  is the weight assigned to the  $j$ th indicator and  $x_{ij}$  is the observation value after elimination of the scale bias.

From the above stated formula of the composite index, it is evident that to compute the composite index two major components need to be known, that is, the weights assigned to the indicators and the observation values after elimination of the scale bias for available indicators. These two issues are now discussed.

Variables chosen for any analysis are usually measured in different units and are generally not additive. Hence, it is necessary to convert them into some standard comparable units such that the initial scales chosen for measuring them do not bias the results. The method that was adopted to achieve this is by standardizing the variables in the following way:

$$x_{ij} = (X_{ij} - X_m) / \sigma$$

where  $x_{ij}$  is the scale free observation,  $X_{ij}$  is the original observation and  $X_m$  is the mean of the series and  $\sigma$  is the standard deviation.

The transformed series now will be scale free and will have a mean of zero and a standard deviation of unity.

Once the bias of measurements is removed from the observations, the crucial problem that remains is that of assigning appropriate weights to the selected indicators or variables. If one has sufficient insight into the nature and magnitude of interrelationships among the variables and their implications, one might choose to determine the weights on the basis of independent judgment. This way of constructing an index stands exposed to subjectivity. Assigning equal weight (or no weight) would imply assumption of equal correlation of each indicator with the composite index of performance, which would hardly be a realistic approach in this case. Therefore, in this analysis, the weights for individual variables or indicators have been assigned on the basis of the factor analytic model.

Factor analysis is a tool used to construct a composite index in such a way that the weights given maximize the sum of the squares of correlation (of the indicators with the composite index). The application of Factor Analysis or Principal Component Analysis in this specific case has been accepted as an 'objective ranking' of States. This method enables one to determine a vector known as the first Principal Component or Factor, which is linearly dependent on the variables, and also has the maximum sum of squared correlation with the variables.

The weights to the indicators are chosen in a way such that the Principal Components satisfy two conditions:

- a) The number of principal components are equal to the number of indicators and are uncorrelated or orthogonal in nature.
- b). The first principal component or  $P_1$  absorbs or accounts for the maximum possible proportion of variation in the set of indicators. This is the reason why it serves as the ideal measure for constructing a composite index.

Accordingly, here are the steps followed.

**Step 1** We start by taking the simple correlation coefficients of the k numbers of indicators. These correlation coefficients may be arranged in a table which is called the correlation table. The elements of the diagonal would be unity as they are the self-correlation, that is, the correlation of each  $X_i$  with itself ( $r_{xi\ xi} = 1$  for all the i's). The correlation matrix is symmetrical, that is, the elements of each row are identical to the elements of the corresponding columns, since  $r_{xi\ xj} = r_{xj\ xi}$

### Correlation Table of the set of k Variables

	$X_1$	$X_2$	$X_3$	$X_k$	$\sum_i^k r_{xi xj}$
$X_1$	$r_{x1 x1}$	$r_{x1 x2}$	..	$r_{x1 xk}$	$\sum_i^k r_{x1 xi}$
$X_2$	$r_{x2 x1}$	$r_{x2 x2}$	..	$r_{x2 xk}$	
“	..	..	..	..	
“	..	..	..	..	
$X_k$	..	..	..	..	
“	$r_{xk x1}$	..	..	$r_{xk xk}$	
$\sum_i^k r_{x1 xj}$	$\sum_i^k r_{xi x1}$	$\sum_i^k r_{xi x2}$	$\sum_i^k r_{xi x3}$	$\sum_i^k r_{xi xk}$	$\sum_i^k \sum_i^k r_{xi xj}$

**Step 2** Sum of each column (or row) of the correlation table is computed, obtaining k number of sums of simple correlation coefficients.

$$\sum_i^k r_{xi xj} = \sum_i^k r_{xi xj}$$

**Step 3** We compute the sum total of the column (or row) sums

$$\sum_i^k \sum_j^k r_{xi xj}$$

and we take its square root.

**Step 4** Finally, we obtain the factor loadings for the first Principal Component P1 by dividing each column (or row) sum by the square root of the grand total.

$$a_{ij} = (\sum_i^k r_{xi xj}) / (\sqrt{\sum_i^k \sum_i^k r_{xi xj}})$$

It should be clear that the loadings thus obtained are the correlation coefficients of the respective indicator with the composite index.

**Step 5** The P1 or the first Principal Component is constructed in the following way.

$$P_1 = a_{11} x_1 + a_{12} x_2 + \dots + a_{1k} x_k$$

**Step 6** The sum of the squares of the loading of the Principal Component is called the latent root (or eigen value) of this component and is denoted by the Greek letter l with the subscript of the Principal Component to which it refers. For example, the latent root of the first Principal Component P1 is

$$\begin{aligned} l_1 &= [\text{latent root of } P_1] \\ &= \sum_i^k l_i^2 \\ &= l_1^2 + l_2^2 + \dots + l_k^2 \end{aligned}$$

The sum of the latent roots of all the Principal Components will be equal to the number of indicators -

$$\sum_i^k l_i = k$$

The importance of the latent root or the eigen value lies in the fact that it expresses the percentage of variation in the set of indicators that the Principal Component explains. If for example,  $l_1 = 2.797$  and the number of variables are 8, then P1 expresses –

$$l_1 / k = (2.797/8)*100 = 35 \% \text{ of the variation in the set of 8 variables.}$$

Tests of significance of the loadings: the loadings in our study have been tested based on the levels of significance of Pearson Correlation coefficients.

In this particular exercise, we have attempted a method of normal or single stage Principal Component Analysis. For performing the single stage Principal Component Analysis, all the indicators are taken together and the earlier discussed procedure is followed.

## Data Sources

1. Annual Survey of Industries, 2000-2001 and 1995-1996
2. Central Statistical Organization, Ministry of Statistics and Programme Implementation, Government of India, 1993-1994 to 2000-2001
3. Economic & Political Weekly Research Foundation, 1993-1994 to 2000-2001
4. Government of India, Combined Finance and Revenue Accounts of Union & State Governments in India, 1995-1996
5. Labour Bureau of India, Indian Labour Journal, March 2003
6. Ministry of Small Scale Industries, 1995-1996 to 2000-2001
7. Office of the Comptroller & Auditor General of India, State Finances- A Critical Appraisal, 1997-1998 to 2001-2002. (All figures of deficits are as per audited accounts)
8. RBI, Basic Statistical Returns of Scheduled Commercial Banks in India -March 2001
9. RBI, State Finances: A Study of Budgets, 2002-2003
10. Secretariat for Industrial Assistance, 1998-2001
11. State Labour Departments and Regional Labour Commissioners (Central), 1996
12. The Census of India, 2001
13. Various State Finance Accounts, Twelfth Finance Commission, 1980-2003

## Responses of the Survey

**Table A1: Responses of the Survey: Across Gender**

Gender	Number of Responses	Percentages
Male	1,709	83.86
Female	283	13.89
Missing	46	2.26
<b>Total</b>	<b>2,038</b>	<b>100.00</b>

**Table A2: Responses of the Survey: Across Age Categories**

Age Categories	Number of Responses	Percentages
0 to 20	66	3.24
20 to 30	532	26.10
30 to 40	775	38.03
40 to 50	352	17.27
50 to 60	112	5.50
> 60	201	9.86
<b>Total</b>	<b>2,038</b>	<b>100.00</b>

**Table A3: Responses of the Survey: Across Type of Education**

Education	Number of Responses	Percentages
High School	49	2.40
Graduate	679	33.32
Post Graduate	503	24.68
Professional	640	31.40
Doctorate	42	2.06
Others	77	3.78
Missing	48	2.36
<b>Total</b>	<b>2,038</b>	<b>100.00</b>

**Table A4: Responses of the Survey: Across Type of Occupation**

Occupation	Number of Responses	Percentages
Junior Manager	289	14.18
Middle Manager	372	18.25
Senior Manager	260	12.76
L4 employees	206	10.11
G10 employees	206	10.11
Professionals & Oth. At all levels	664	32.58
Retired	37	1.82
Missing	4	0.20
<b>Total</b>	<b>2,038</b>	<b>100.00</b>

**Table A5: Responses of the Survey: Across Type of Function**

Function	Number of Responses	Percentages
Entrepreneur/General Manager	214	10.50
Finance	230	11.29
Marketing/Sales	385	18.89
Operations	314	15.41
Others	715	35.08
Personnel	126	6.18
Missing	54	2.65
<b>Total</b>	<b>2,038</b>	<b>100.00</b>

**Table A6: Responses of the Survey: Across State**

State	Number of Responses	Percentages
Andhra Pradesh	102	5.00
Assam	91	4.47
Bihar	106	5.20
Chhattisgarh	47	2.31
Delhi	135	6.62
Gujarat	77	3.78
Haryana	108	5.30
Himachal Pradesh	34	1.67
Jharkhand	16	0.79
Karnataka	125	6.13
Kerala	172	8.44
Madhya Pradesh	52	2.55
Maharashtra	271	13.30
Orissa	107	5.25
Punjab	83	4.07
Rajasthan	129	6.33
Tamil Nadu	125	6.13
Uttar Pradesh	164	8.05
Uttaranchal	31	1.52
West Bengal	63	3.09
<b>Total</b>	<b>2,038</b>	<b>100.00</b>

# Sample Survey

## Your Particulars

<b>*E-mail</b>	<b>* State</b>	
<b>Education</b>	<b>City</b>	
<b>*Occupation</b>	<b>Age in years</b>	<b>Sex</b>
<b>*Function</b>		

### A. Investment Climate

I. How good was the quality of inputs and infrastructure that was available for your business during the two time periods?	1996-1998	2001-2003	
Smooth roads			1- Don't Know 2- Very Poor 3- Poor 4- Fair 5- Good
Stable electric supply			
Availability of banking facilities			
Adequate water availability			
Well-trained work force			
Telephone connections			
Internet connection			
Disciplined work force			

### B. Simplicity of Rules and Procedures

I. How simple do you find the rules and procedures related to setting up a new manufacturing facility?	1996-1998	2001-2003	
Accessing Land			1- Don't Know 2- Very Complex 3- Complex 4- Simple 5- Very Simple
Accessing Water			
Accessing Electricity			
Telephone (land line) connection			
Drainage/sewerage			
Getting other permissions			
II. How simple do/did you find the rules and procedures related to labour and employees?	1996-1998	2001-2003	
Work conditions for labour			1- Don't Know 2- Very Complex 3- Complex
Employee provident fund			

Other employee welfare regulations			4- Simple
Hiring new employees			5- Very Simple
Firing non-performing employees			
<b>III. In your state, how simple do you find the rules and procedures related to:</b>	<b>1996-1998</b>	<b>2001-2003</b>	1- Don't Know
Environmental regulations			2- Very Complex
Transport regulations			3- Complex
Dealing with other regulations			4- Simple
Dealing with various inspectors			5- Very Simple
<b>IV. How simple do/did you find the rules and procedures related to the payment of taxes:</b>	<b>1996-1998</b>	<b>2001-2003</b>	1- Don't Know
Income tax			2- Very Complex
Central excise			3- Complex
Sales tax			4- Simple
State excise			5- Very Simple
Other state-level taxes			

### C. Orientation of the Government

<b>I. Do you think the <u>Central Government</u> and its constituents are oriented towards:</b>	<b>1996-1998</b>	<b>2001-2003</b>	1- Cannot Answer
Changing/reforming for a better future?			2- Doesn't want change
Overall government			3- Doesn't care
Political leadership			4- Somewhat reform minded
Senior bureaucracy			5- Highly reform minded
Middle/Lower bureaucracy			
<b>II. Do you think the <u>State Government</u> and its constituents are oriented towards:</b>	<b>1996-1998</b>	<b>2001-2003</b>	1- Cannot Answer
Changing/reforming for a better future?			2- Doesn't want change
Overall government			3- Doesn't care
Political leadership			4- Somewhat reform minded
Senior bureaucracy			5- Highly reform minded
Middle/Lower bureaucracy			

### D. Responsiveness of the government

<b>I. How responsive is the <u>Central Government</u> to your commercial/business needs:</b>	<b>1996-1998</b>	<b>2001-2003</b>	1- Don't Know 2- Non Responsive 3- Somewhat Responsive 4- Fairly Responsive 5- Highly Responsive
Ease of meeting relevant government functionaries			
Getting a patient hearing			
Speed of decision-making			
Fair resolution of differences with the government			
<b>II. How responsive is the <u>State Government</u> to your commercial/business needs:</b>	<b>1996-1998</b>	<b>2001-2003</b>	1- Don't Know 2- Non Responsive 3- Somewhat Responsive 4- Fairly Responsive 5- Highly Responsive
Ease of meeting relevant government functionaries			
Getting a patient hearing			
Speed of decision-making			
Fair resolution of differences with the government			

### E. Corruption

<b>I. Approximately how often are you involved in providing any of the following benefits to <u>Central Government</u> or semi-government functionaries?</b>	<b>1996-1998</b>	<b>2001-2003</b>	1- Don't Know 2- Once a week or even less 3- Once a month 4- Once every 3 months 5- Once a year or even rarer
Giving money/gifts for general good relations			
Giving money/gifts in lieu of work to be done			
Getting employment to favorites of politicians, bureaucrats etc.			
Providing other benefits to their household members			
Paying juniors to meet senior government functionaries			
<b>II. Approximately how often are you involved in providing any of the following benefits to <u>State Government</u> or semi-government functionaries?</b>	<b>1996-1998</b>	<b>2001-2003</b>	1- Don't Know 2- Once a week or even less 3- Once a month 4- Once every 3 months 5- Once a year or even rarer
Giving money/gifts for general good relations			
Giving money/gifts in lieu of work to be done			
Getting employment to favorites of politicians, bureaucrats etc.			
Providing other benefits to their household members			
Paying juniors to meet senior government functionaries			

### F. Property rights and ease in transactions

I. Please rate in terms of how true you consider the statement to be:	1996-1998	2001-2003	
Intellectual property rights are protected highly in my State			1- Don't Know
Immovable property is safe from encroachments & illegal occupation			2- Very untrue
People can move about safely after dark in my city			3- Somewhat untrue
The judiciary is impartial and efficient in my state			4- True
The government functionaries are impartial and efficient in my state			5- Very true
Loss of goods during transport is completely absent in my state			