INFRASTRUCTURE DEVELOPMENT AND REGIONAL INEQUALITY IN INDIA: A SPATIAL ANALYSIS 1990-2008

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DECLARATION

This is to certify that the dissertation entitled **"Infrastructure Development and Regional Inequality in India: A Spatial Analysis 1990-2008"** is my bonafide work for the Degree of Master of Philosophy and may be placed before the examiners for evaluation.

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FORWARDED BY

I recommend that the dissertation be placed before the examiners for evaluation.

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TO

My Dad and Mom

Acknowledgement

Every research work involves certain amount of sweat, toil, anguish and of course sleepless nights. This dissertation definitely had an ideal mix of all the previous four ingredients necessary for a research work. But the completion of the work owes its contribution to various people.

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Nilotpal Bal

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Abbreviations

Rails : Rail length per sq. km.

Roads: Road length per sq. km.

PCE: Per Capita consumption of Electricity.

GIA: Gross Irrigated Area.

GCA: Gross Cropped Area.

TD: Tele-Density.

HSD: Total Number of Hospital per sq. kms.

PSD: Total Number of Primary Schools per sq. kms.

IMR: Infant Mortality Rate.

CD: Credit Deposit ratio of Nationalized Banks

BC: Banking Centres per sq. kms

TR: Tax Revenue as a proportion of NSDP.

NSDP: Net State Domestic Product

PCNSDP: Per Capita Net State Domestic Product

CHAPTER 1

Introduction:

In recent years the economic debate on growth strategy of India has greatly revolved around on the supply-side constraints. These supply-side constraints have been the major impediments on the path of economic growth[1]. Economists in India have viewed that the lack of adequate infrastructure as perhaps the most important supply-side constraint which has been responsible for the country's growth below its productive capacity. But perhaps the most significant impact of these infrastructural facilities has centered on worsening of regional inequalities within the country. This is a matter of great concern and the focal point of our analysis. The debate concerning the impact of infrastructural facilities on the economic development of a region is an old one but viewed in the contemporary context adds dimensions like infrastructure financing and Public-Private-Partnerships (PPPs) to it. Before proceeding any further in our discussion on infrastructure it would be prudent to define infrastructure and make oneself knowledgeable about its various constituents and its role in the Indian economy.

Infrastructure has been derived from two words 'infra' and 'structure'. The former refers to something which lies beneath or comes before while the latter means a well planned or organized thing comprising of several other parts that are linked together. In economics parlance the economy is built upon infrastructure. The term originated during World War II for usage in the military establishment but subsequently was adopted in the early stages of Marshall Plan and thereafter has been widely used with various connotations. The concept of infrastructure is essentially a flow of service out of a certain stock of infrastructural facilities created over a length of time.

Infrastructure can be broadly divided into two types depending on the nature of input services i.e. physical and social. The former consists of transport (roads, railways, aviation, waterways and ports), electricity irrigation, telecommunication, housing and water supply .The latter consists of education, health, nutrition, sanitation, child care, recreation and banking and other forms of financial facilities.

There are various reasons as to why physical infrastructure is very important in an economy. Firstly, they work as direct intermediate inputs to production, and improvement in these inputs in any geographical location attracts flows of additional resources. Secondly, these physical infrastructural facilities also raises the productivity of other factors of production (labour and capital) and profitability of the producing units thereby permitting

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[1] India Infrastructure Report 2008 acknowledges that severe supply-side bottlenecks can retard the economy's potential rate of growth.

higher levels of output, income and employment. The positive contribution of physical infrastructure to economic growth and development comes through increases in investment, employment, output, and income in a chain of 'cumulative causation'. Thus 'economies of agglomeration' develop over time leading to further concentration of economic activities in a particular location or region. On the other hand the contribution of social overhead capital to productive activities is also no less important. Its contribution to productive activities although indirect in some occasions is highly significant but with a larger lag than the Physical infrastructural set-up.

Both the physical and social infrastructure exert the 'crowding out' effects in the long run which may exert the negative impacts on further development of any given region. But given the phenomenon of 'historical accident' and 'cumulative causation hypothesis' [Myrdal 1958], the play of market forces normally tends to increase rather than to decrease the inequalities between the competing regions. These favoured localities and regions, if happen to coincide with natural geographic scopes for port, road and good soil condition and proximity to raw materials, may gain a competitive advantage. Even the movements of labour, capital, goods and other services generate ever-increasing internal and external economies in the preferred regions which have strong 'backwash effects' on other regions.

In sharp contrast to the above reasoning, under the neoclassical framework, with perfect mobility of factors and decreasing returns to capital convergence is the general outcome. But under either paradigm the role of SOC may become decisive in explaining the geographical bias of economic development within a single country.

Post-1993 with the advent of globalisation in the country and implementation of neo-liberal economic policies the country finds itself with larger regional inequalities. Between 1961 and 1991, five of the lagging regions remained among the poorest and backward regions with the average per capita incomes remained below the All-India average [Cashin and Sahay 1996]. Other studies highlighting regional disparities in India include Bhat et al (1995), Nair (1993), Pal(1995), Tewari (1985), Tendulkar and Jain (1995), Das (1993), and IIPO (1993).

In view of the above the crucial and pivotal role played by the infrastructural facilities cannot be overlooked while planning and formulating specific regional policies. The present study will be an endeavour in this direction.

Research Question of the Study:

The major research question of this study will try to establish the relationship between widening regional inequalities and asymmetric distribution of infrastructural facilities across the entire country for a time period of 18 years from 1990 to 2008.

Objectives of the Study:

In view of the above research question the following are the major objectives of the study:

1. To look at the levels and variation in infrastructural availability and regional inequality across states with the help of indices prepared for a span of 18 years from 1990-2008.
2. To look at the levels and change in the pattern of infrastructural availability at district level for Gujarat and Orissa at two points of time i.e. at 1991 and 2004.

Hypothesis of the Study:

In accordance with the above research objectives the following are the hypothesis which will be empirically tested during this study. They are as follows:

(1). There exists considerable variation across states in terms of availability of infrastructural facilities.

(2). There exists considerable variation across districts of 2 states- Gujarat and Orissa in terms of infrastructural facilities.

Scheme of Chapters:

The study is divided into six chapters. The first chapter deals with introduction, research question under study, hypotheses under consideration, Scheme of Chapters, and research methodology and data sources which will be used for the validation of the study. The second chapter provides an exhaustive insight and findings of the existing literature with precise and brief reviews. The third chapter presents findings in terms of physical, social and financial infrastructure State-wise for a period of 18 years from 1990-2008. The fourth chapter deals with the findings related with district level analysis of Gujarat and Orissa at two points of time i.e. in 1991 and 2004. The fifth chapter deals with the compilation of various major findings in the study and thereby drawing relevant conclusions for policy suggestions.

Research Methodology and Data Sources of the Study:

The empirical analysis of the study begins from Chapter 3 to 5. The details of methodological tools and data-sources are as follows:

(1). Chapter 3:

Methodological tools to be used:

The State-wise analysis of various infrastructural facilities will be done in the following way:

(a). Firstly we will be measuring the changes and patterns of individual infrastructural facilities by taking into account the annual growth rates and compound annual growth rates of these physical, social, and financial indicators for the time period from 1990-2008.

(b) Secondly, we will be constructing infrastructure indices for 3 different dimensions i.e. Physical Infrastructure Development Indices (PIDIs) for physical infrastructure, Social Infrastructure Development Indices (SIDIs) for social infrastructure and Financial Infrastructure Development Indices (FIDIs) for financial infrastructure with the help of Principal Component analysis (PCA).

(c) The indicators we will be using for physical infrastructure development indices are:

> ➤ Transport Facilities (TF) – consisting of both road and rail route per square km of area.
> ➤ Gross Irrigated Area (GIA) – as a proportion of gross cropped area.
> ➤ Per Capita Consumption of Electricity (PCE).
> ➤ Tele-density

(d) The indicators we will be using for social infrastructure development indices are:

> ➤ Total number of primary schools per square km of area.
> ➤ Infant Mortality Rate (IMR).
> ➤ Total number of Govt. allopathic hospitals per square km of area.

(e) The indicators we will be using for financial infrastructure development indices are:

> ➤ Credit –Deposit Ratio (CD) in nationalized banks.
> ➤ State's own tax effort as proxied by its tax revenue as a proportion of NSDP.
> ➤ Total number of bank offices per 100,000 persons.

(f) After the construction of these indices we will be running a regression analysis with Physical Infrastructure Development Index (PIDI), Social Infrastructure Development Index (SIDI), and Financial Infrastructure Development Index (FIDI) with a lag of one year as independent variables and Per Capita National State Domestic Product (PCNSDP) as dependent variable to ascertain the relationship between availability of infrastructural facilities and regional inequalities. Also we will be using a dummy variable representing absence or presence of sea port in a State. The equation we will be testing is as follows:

$PCNSDP_{t+1} = f(PIDI_t, SIDI_t, FIDI_t, \text{Port Dummy})$

The model we will be testing for this equation is as follows:

$Y_{t+1} = \beta_1 + \beta_2 X_{1t} + \beta_3 X_{2t} + \beta_4 X_{3t} + \beta_5 PD + U_t$

where

Y_{t+1} = refers to Per Capita NSDP for the year t+1.

X_{1t} = refers to Physical Infrastructure Development Index for the year t.

X_{2t} = refers to Social Infrastructure Development Index for the year t.

X_{3t} = refers to Financial Infrastructure Development Index for the year t.

PD = represents absence (PD=0) or existence (PD=1) of Sea Ports.

U_t = refers to the error term.

Data sources to be used:

In this chapter various different data sources will be used which are as follows:

(i). The figures for road per square had been obtained from "Basic Road Statistics".

(ii). The figures for rail length per square km had been quoted from Infrastructure Statistics 2010, and Railway Year Book.

(iii). The figures of Per Capita consumption of electricity had been quoted from various publications of General Review being produced by Central Electricity Authority.

(iv). The figures of teledensity had been quoted from Infrastructure Statistics 2010, being produced by Ministry of Statistics and Programme Implementation.

(v) The Gross Irrigated Area and Gross Cropped Area had been obtained from various publications of Fertiliser Statistics, Ministry of Agriculture, Govt. of India

(vi) The figures of Number of Govt. Allopathic hospitals had been quoted from Health Information of India.

(vii) The figures of Infant Mortality Rate had been obtained from documents of Sample Registration System, from Census Survey of India.

(viii) The figures on Primary Schools had been quoted from Education in India; Planning, Monitoring and Statistics Division; Ministry of HRD, and Selected Educational Statistics:

(ix) The tax revenue figures have been quoted from Handbook of Statistics on State Govt. Finances, Department of Economic Analysis and Planning, RBI.

(x) The Credit-Deposit ratio and the number of Banking Centres had been quoted from Basic Statistical Returns of Scheduled Commercial Banks in India, produced by Reserve Bank of India.

(xi) The figures of PCNSDP and NSDP had been obtained from National Income Accounts, Ministry of Statistics and Programme Implementation.

(2). Chapter 4:

Methodological tools to be used:

(i). Firstly the district level indices for 3 different dimensions of infrastructure have to be constructed for different districts of Gujarat and Orissa.

(ii) The indicators we will be using for PIDI are Road length per sq. kms (RL), Rail length per sq. km (Rail) (if it is available), Villages Electrified (VE) as a proportion of total inhabited villages, and Teledensity (TD) (if the figures are available).

(iii) The indicators for social infrastructure are literacy rate of different districts, hospitals per 10,000 persons and General Colleges per 10,000 persons in a district.

(iv) The financial infrastructure includes Credit-Deposit ratio (CD) of Scheduled Commercial Banks, Bank Offices per 100,000 persons, and Post Offices per 100,000 persons.

(v) Then we will be running a regression analysis to find out which infrastructure dimension is significant. This regression analysis will be for 2 points of time namely 1991 and 2004. Also we will be using a dummy variable representing absence or presence of major sea port in a district.. The equation we will be testing is as follows:

$$ER_{t+1} = f(PIDI_t, SIDI_t, FIDI_t; Port\ Dummy)$$

The model we will be testing for this equation is as follows:

$$Y_{t+1} = \beta_1 + \beta_2 X_{1t} + \beta_3 X_{2t} + \beta_4 X_{3t} + \beta_5 PD + U_t$$

Where

Y_{t+1} = refers to Percentage of Employment Rate in the Organized Manufacturing sector for the year t+1.

X_{1t} = refers to Physical Infrastructure Development Index for the year t.

X_{2t} = refers to Social Infrastructure Development Index for the year t.

X_{3t} = refers to Financial Infrastructure Development Index for the year t.

PD = represents absence (PD=0) or existence (PD=1) of Sea Ports.

U_t = refers to the error term.

Data sources to be used:

The data sources we will be using for various figures will be quoted from various publications of Statistical abstracts of Orissa and Gujarat.

Limitations of the Data:

Though we have largely used secondary sources for our data sets but one of the few major limitations of this data has been that the time series data for any specific variable of infrastructure is not available for a continuous time span of 20 years for various States in India. The study had used collected data from various sources as listed above but certain years of data sets have been largely missing from the study.

Chapter 2

Literature Review

The literature review of this study assumes a lot of importance not only for the reason that existing literature on a specific issue paves the way for a definite direction but also because of the fact that though there have been a lot of studies underlying the relationship between regional inequality and infrastructure abroad; but the same cannot be said for the Indian scenario. In spite of regional inequalities in India being one of the most debated topics in academia there have been very few studies on India on this issue. The details of important studies both on regions of foreign countries and India are as follows:

One of the earliest discussions on the seminal topic of infrastructure and economic development was put forward by Hirschman (1958) while he was discussing about development strategies. According to him "investment in SOC is advocated not because of its direct effect on final output, but because it permits, and in fact invites, DPA (investment) to come in." These ideas were further propagated by Rostow (1960), Paul Rosenstein-Rodan (1943) and R. Nurkse (1953) in their theories.

In contrast Hansen (1965) was more interested in the differential effect that such investments would have on different socio-economic regions. According to him, regions can be classified into three types- (a) Congested (b) Lagging and (c) Intermediate. In Congested areas, the marginal social cost of expanding Public Capital (or Infrastructure) would outweigh the marginal social benefit. In Lagging regions, the dominant activity is agriculture and declining industry and according to Hansen, the economic impact of infrastructure would be negligible in such areas. The benefits accruing from increased availability of infrastructure would be negligible in such areas. The benefits accruing from increased availability of infrastructural facilities would be highest in the Intermediate regions that do not suffer from congestion (associated pollution, shortages etc.) but have access to quality raw materials, efficient labour and wide markets.

Biehl[1] tried to determine the factors responsible for regional disparities within different European countries. In particular, he conducted comprehensive tests regarding the role of public infrastructure for German economy in order to explain regional disparities within Germany. His results indicated that when infrastructure inputs were used as explanatory variable in explaining variations in regional Per Capita Income (PCI), then the adjusted Coefficient of Determination (R^2) varied between 0.4 to 0.5 and were significant at 5 per cent levels. This indicated that regional disparities in development levels measured by PCI could be explained by variation in levels of Public Infrastructure.

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[1] Biehl, Dieter (1980)

Looney and Fredricksen[2] tried to examine whether infrastructure has important effect on GDP and whether different regions (advanced or backward) show different responses towards Economic Infrastructure and Social Infrastructure. They divided Mexico into Intermediate Regions and Lagging Regions and used data for 1970. It was found that in the Intermediate Regions, the Economic Overhead Capital like Public Telephone, Electrical Generating Capacity, and Surfaced Road Length had significantly positive parameters when GDP was expressed as dependent on those variables along with Population, Capital invested in agriculture and Number of large firms in the area. For the Lagging Regions the Social Overhead Capital like Medical emergency facilities, Hospitals, Primary Schools and Kindergartens had significantly positive parameters. This reinforces the general view that infrastructure does help in economic development. It also supports the Hansen Thesis that different economic regions respond differently to the two types of Overhead Capital- economic and social.

Aschauer[3] examined the behaviour of productivity in the private U.S. economy and the extent up to which it could be explained by behavior of Public Sector Accumulation and Government Expenditure on goods and services, using 1949 -1985 data. He found that elasticity of GDP with respect to core infrastructure (Highway, Mass Transit Services, Airports, Electricity and Gas, Water Supply and Sewerage) was 0.24 and highly significant. Breaking the time span into 3 parts - 1950-1970, 1971-1980, and 1981-1985; he found that there was a fall in the growth rate of Public Capital Accumulation followed by a fall in the growth rate of productivity over time. He concluded that public capital is a major factor in determination of Productivity of the economy.

Munnell[4] argues that public policies are often formulated without reliance on economic reasoning. He finds large impact of aggregate public capital on private sector output and productivity. He however accepts the criticisms that are put forward regarding the role of public spending on economic development, and advances few suggestions. He proposes that researchers should check for non-stationarity, long-run convergence and co-integration among time trends of output, productivity and public capital; and that the effects should be disentangled for different sectors of public capital. Furthermore, while he accepts existence of a feedback effect from national output to public capital, his viewpoint is that this does not 'taint' the primary effect from public capital to output.

Easterly and Rebelo[5] investigated the empirical relationship between Transport and Communication facilities and GDP for various developing countries. They found that the elasticity of GDP with respect to Transport and Communication was 0.16 and investment in these services offered an implied rate of return of 63% (Rate of return = Ratio of discounted

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[2] Looney, R. and P. Fredricksen (1981)
[3] Aschauer, D. A. (1989)
[4] Munnell, A.H. (1992)
[5] Easterly, w. and S. Rebelo (1993)

value of rise in GDP and discounted value of investment in infrastructure). Canning and Fay (1993) investigated on similar lines using only Transportation facilities as the explanatory variable. They found an elasticity of 0.07 but an Implied Rate of Return of 95%.

Canning and Fay[6] conducted similar exercise using transportation facilities as the explanatory variable. They found the elasticity of GDP with respect to Transportation facilities as 0.07 but an implied rate of return of 95 percent.

Bergman and Marom[7] had studied the impact of physical infrastructure on GDP growth for Israel. They found the elasticity to be between 0.31 and 0.44 when Transport, Power, Water supply and Sanitation were taken as independent variables. The rate of return varied from 54 percent to 70 percent.

Dalenberg and Partridge[8] used data for 28 metropolitan areas for U.S. over a 15 year period to determine the impacts of government spending, taxes and public infrastructure on total employment and disaggregated employment. Their results suggest that taxes are negatively related and educational expenditure is positively related to total employment. They were of the view that infrastructure and employment are complements at lower infrastructure levels but are substitutes at higher level of infrastructure. They confirmed this notion by finding a positive coefficient of initial infrastructure level while regressing the employment growth. In addition they also remarked that a substantial part of the spill-over effects of infrastructure impacts the neighbouring areas and is not strictly contained within the well defined boundaries of metros and hence the actual contribution of infrastructure cannot be easily measured.

Cain[9] examines the link between infrastructure investment and US economic development. He concluded that infrastructure investments produce both direct and indirect effects, and his research suggested that investments in infrastructure are profitable. In addition his results show that public infrastructure investment has potentially strong effects on private economic activity.

Mikelbank and Jackson[10] used data sets of Ohio in US to conclude that investment in infrastructure has been highest in areas of greatest distress and that the pattern suggestsan equity-driven investment decision whereby infrastructure policy is used to erase development disparity across space.

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[6] Canning, D. and M. Fay (1993)

[7] Bergman, A. and A. Marom (1993)

[8] Dalenberg, D.R. and M.D. Partridge (1995)

[9] Cain, L.P. (1997)

[10] Mikelbank, B.A. and R.W. Jackson (1999)

Dutta[11] had tried to analyse the causal relationship between improvement in telecommunications infrastructure and economic growth by using Granger test for causality. He had used time series data for levels of telecommunications infrastructure and economic activity from thirty countries. His empirical results suggest that the evidence for causality from levels of telecommunication infrastructure to economic activity is stronger than that for causality in the opposite direction. In addition this pattern appears to hold for both industrialized and developing economies, even though the former has strong service sectors that are heavily dependent on telecommunications.

Zhang and Fan[12] had used the GMM method to test for causality for infrastructural capital and productivity in rural India. They had used a panel data set for India to verify the causal relationship between the two variables. The results show that that infrastructure development in the country is productive and highly significant. In addition they suggest reversing the trend of declining investment in rural infrastructure.

Dutta[13] had tried to study the historical trends and the impact of privatization in case of telecommunications for electronic commerce for a 23 year period from 1972-94 by taking data sets for 23 countries. The results indicate that the impact of privatization i9s highly quantified and how these reforms can be sequenced and targeted to improve electronic commerce infrastructure in developing countries.

Mitra, Varoudakis and Varoudakis[14] tried to examine the effects of infrastructure on manufacturing industries' total factor productivity and technical efficiency in case of Indian States. They had used panel data regression methods to examine the effects of infrastructure. The results indicate that differences in infrastructure endowments across Indian states explain in a significant way their differences in industrial performances. In addition they were able to identify the industries where total factor productivity and technical efficiency, competitiveness and export capacity depend particularly on infrastructure. They also suggested that enhancing equipment infrastructure can constitute a powerful engine of industrial takeoff.

Limao and Venables[15] had used different datasets to investigate the dependence of transport costs on geography and infrastructure. Infrastructure was found to be an important determinant of transport costs, especially for land locked countries. Their analysis of bilateral trade data confirms the importance of infrastructure and gives an estimate of the elasticity of trade flows with respect to trade cost factor of around (-) 3. The results show that a deterioration of infrastructure from the median to the 75th percentile raises transport costs by

[11] Dutta, A. (2001)
[12] Zhang, X. and S. Fan (2004)
[13] Dutta, A. (1997)
[14] Mitra, A.; Varoudakis, A. and M.A. Veganzones-Varoudakis (2002)
[15] Limao, N. and A. J. Venables

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12 percentage points and reduces trade volumes by 28 per cent. In addition their analysis of African trade flows indicates that their relatively low level is largely due to poor infrastructure.

Ogun[16] in his paper tried to measure the impact of infrastructural development on poverty reduction in Nigeria by using secondary data for the period 1970 to 2005. He had used structural vector autoregressive (SVAR) in his study. The results suggest that infrastructure development leads to poverty reduction but moreover social infrastructure explain as a higher proportion of the forecast error in poverty indicators relative to physical infrastructure.

These are some of the important studies which gives us a bird's eye view of infrastructural impact in the foreign countries. Some of the Indian context studies are as follows:

Shah[17] studied the pattern and level of infrastructural facilities inherited by India on her independence and the trends during the first 15 or so years of planning. He also attempted to relate the level of Per Capita Income of Indian states with their level of infrastructural development and suggested that a strong correlation exists between them.

Shri Prakash[18] examined the extent of inequalities in the availability of infrastructural facilities in India. According to his findings inequalities are low or decreasing in the fields of installed power capacity, buses, good vehicles, road lengths, post office and bank offices. High or increasing trends of inequality are exhibited by agricultural implements, per capita consumption of power, power consumption by industries, population served per bank office and per capita credit and deposit ratios. He also pointed out that different states different rankings with different indicators and suggested that instead of labeling states as developed or underdeveloped in blanket terms, it is better to look at individual areas of deficiency and propose appropriate policies.

Gulati[19] used 32 variables to construct composite indices of development for 336 districts of India. He identified nine principal components that emerge as factors responsible for inter-district variations in development. Among them were 'Social Development' factor, which had high positive loadings on surfaced road length and establishments run on electricity; and 'Irrigation Intensity' factor.

Tewari[20] looked at inter-regional disparities in levels of development in Indian context and commented that there existed a perpetual gap between the developed group of states and developing states. According to him inadequacy of existing infrastructural facilities seems to

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[16] Ogun, T.P. (2010)
[17] Shah, N. (1977)
[18] Shri Prakash (1977)
[19] Gulati, S.C. (1977)
[20] Tewari, R.T. (1983)

be the major obstacle in the path of progress of the developing states. In his study he examines the inter-relationship between economic infrastructure and development and tries to identify the role of the former in the later through analysis of state level data at two time points – 1970-71 and 1980-81. The results indicate a significantly positive direct relationship between infrastructure and development.

Binswanger, Khandkur, and Rosenzweig[21] (1989) by using cross-district Indian data have shown that the major effect of roads in rural India does not work through their impact on private investment but rather on marketing and distribution opportunities, and also on reduced transaction costs relating to agricultural activities. Elhance and Lakshmanan (1988), on the other hand, using physical as well as social infrastructural indicators have shown that production cost reductions in manufacturing result from infrastructure investments.

Ghosh and De[22] (1998) has tested the relationship between physical infrastructure and regional economic development in the context of Indian states using OLS Regression Method using data for the 1961-62 to 1994-95 as time period. They formulated a Physical Infrastructure Development Index using Principal Component Method and found that a major part of the rising trend in regional disparity in development can be attributed to regional imbalance in physical infrastructure.

On the basis of these existing studies we might summarise by stating the following points:

(A) Firstly, there is no unanimous opinion or school of thinking emphasizing the role of Infrastructural facilities in determining economic growth and development as far as empirical results are concerned.

(B) Secondly, and most importantly it emerges from the review that studies citing western countries examples cannot be used to explain the regional inequalities in India. This coupled with the fact that very few studies have been conducted in the Indian context makes it all the more important for us to undertake the present study.

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[21] Binswanger, H.P. ; S.R. Khandkur; and M. R. Rosenzweig (1989)
[22] Ghosh, B. and P. De (2004)

Chapter 3

State Level Analysis of Infrastructural Facilities and Its linkage with Regional Inequalities

3.1 Introduction:

One of the key challenges before Indian policy makers has been the increasing trend of regional inequalities and the measures to counter act this phenomenon. Between 1961 and 1991, five of the lagging regions remained among the poorest and most backward regions with above average per capita incomes remaining above the average per capita of these regions [Cashin and Sahay 1996]. One of the key determinants to this phenomenon has been the existence of infrastructural facilities i.e. in brief certain states have better infrastructure facilities while certain states have bottlenecks in terms of their infrastructure and hence are lagging behind others in this aspect. This "lagging effect" has played a major part in the advent of regional inequalities in recent years [Ghosh and De 1998]. This chapter tries to substantiate whether the levels and variation in infrastructural availability have an impact upon regional inequality across 28 states in India for a period of 18 years i.e. from 1990 to 2008.

This chapter will take into account three dimensions of infrastructure in the economy. The chapter will try to determine the broader trends of physical, social and financial infrastructure. Physical infrastructure is defined to include four key infrastructural facilities on which depend the economic activities of all the three sectors. These are transport facilities consisting of both rail and road route per square km of area; gross irrigated area (GIA) as a proportion of gross cropped area (GCA); per capita consumption of electricity (PCE), and tele -density(TD). Social infrastructure is composed of infant mortality rate (IMR), percentage of government owned allopathic hospital per square km, and proportion of primary schools per square km in a state. Financial infrastructure is represented by credit/deposit (CD) ratio in nationalized banks, the state's own tax effort as proxied by its tax revenue as a proportion of NSDP and total number of banking centres per square km in a state.

This chapter is divided into four parts. The first section deals with the analysis of individual infrastructural facilities on the basis available time series data. The second section represents a correlation framework between different infrastructural facilities and PCNSDP and NSDP on an All-India basis for the above mentioned time period. The third section deals with the formation of infrastructure indices and their rankings state-wise while the fourth section deals with calculation of coefficient of variation based on PCNSDP and a regression analysis between PCNSDP and various infrastructure indices.

3.2 Analysis of Infrastructural Facilities:

In order to analyse individual infrastructural facilities we will be using compound annual growth rate (CAGR) and annual growth rates so as to find out which states are mainly lagging behind and which have gained ground in recent years.

3.2 (A) Physical Infrastructure:

In this section we will be mainly analyzing four facilities rail and road route; gross irrigated area (GIA) as a proportion of gross cropped area (GCA); per capita consumption of electricity (PCE), and tele –density (TD) of 28 different states.

(I) Road Length of Different States in India:

India has one of the largest road networks in the world which presently stands at about 3.62 milllion kms in 2011. In India about 60 percent of freight and 87.4 percent passenger traffic is carried by the roads.[1] For our analysis in this chapter we will be using total road length as an indicator in this section.

Table 3.1 (A) - State-wise Annual Growth Rates of Total Road Length (1991-2000):

S.NO	STATE	1991	1992	1993	1994	1995
1	Andhra Pradesh	1.7	6.8	2.2	3.6	0.5
2	Arunachal Pradesh	2.6	2.7	2.3	2.9	-13.7
3	Assam	0.1	1.9	0.8	1.0	0.5
4	Bihar	0.1	3.8	-1.1	0.1	-2.6
5	Chhattisgarh	NA	NA	NA	NA	NA
6	Goa	0.8	-1.9	0.1	0.2	2.1
7	Gujarat	1.5	2.2	1.9	0.3	1.3
8	Haryana	0.4	1.3	-0.3	1.3	929.8
9	Himachal Pradesh	1.6	9.6	3.2	3.6	-1.1
10	Jammu And Kashmir	-5.4	0.3	0.8	0.4	68.2
11	Jharkhand	NA	NA	NA	NA	NA
12	Karnataka	2.3	3.6	0.2	0.1	2.1
13	Kerela	2.2	-2.6	2.4	0.9	1.8
14	Madhya Pradesh	1.5	45.0	0.8	1.5	-5.7
15	Maharashtra	1.2	-0.1	0.4	0.0	59.7

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[1] This is the figure quoted in the latest publication of India Year Book 2011, Govt. of India.

CONTD.

S.NO	STATE	1991	1992	1993	1994	1995
16	Manipur	5.1	0.2	0.2	49.7	2.2
17	Meghalaya	0.6	12.9	1.8	3.0	1.5
18	Mizoram	1.1	49.8	10.5	5.3	5.1
19	Nagaland	1.2	-14.2	0.3	0.2	6.6
20	Orissa	0.1	8.4	0.4	-1.7	1.1
21	Punjab	0.1	4.7	0.3	0.1	1.9
22	Rajasthan	1.3	1.3	1.3	2.1	3.5
23	Sikkim	1.3	5.9	4.1	2.4	0.5
24	Tamil Nadu	0.7	0.7	1.7	0.8	0.6
25	Tripura	0.0	4.2	0.1	0.2	0.1
26	Uttar Pradesh	1.4	-5.3	2.0	1.6	18.7
27	Uttarakhand	NA	NA	NA	NA	NA
28	West Bengal	0.7	-5.7	5.1	11.0	13.6
29	All-INDIA	0.9	1.0	4.6	1.3	1.4

S.NO	STATE	1996	1997	1998	1999	2000
1	Andhra Pradesh	3.1	-0.1	0.3	0.5	6.6
2	Arunachal Pradesh	37.6	0.0	26.6	2.4	0.3
3	Assam	0.0	0.0	0.2	25.2	17.1
4	Bihar	3.3	0.2	0.4	0.6	-14.1
5	Chhattisgarh	NA	NA	NA	NA	NA
6	Goa	14.8	0.0	13.6	0.3	-2.6
7	Gujarat	4.6	-0.7	2.0	1.4	47.1
8	Haryana	-89.9	-0.2	1.1	1.6	-2.7
9	Himachal Pradesh	2.0	-7.1	3.6	1.0	0.2
10	Jammu And Kashmir	1.3	0.0	9.0	2.2	-2.9
11	Jharkhand	NA	NA	NA	NA	NA
12	Karnataka	0.9	0.0	2.7	2.7	0.1
13	Kerela	2.7	0.1	1.1	0.6	-0.1
14	Madhya Pradesh	0.6	0.0	0.8	1.0	-20.4
15	Maharashtra	0.7	0.0	1.1	4.4	-32.2
16	Manipur	1.7	0.0	-0.3	4.8	0.0
17	Meghalaya	8.2	-0.3	3.5	4.3	2.6
18	Mizoram	-30.1	-8.3	1.3	8.1	-2.4
19	Nagaland	33.7	0.0	7.0	3.6	3.3
20	Orissa	23.8	0.1	-0.3	0.1	-10.1

CONTD.

S.No	STATE	1996	1997	1998	1999	2000
21	Punjab	10.7	0.0	-0.1	0.4	-5.1
22	Rajasthan	-3.7	-0.1	5.2	3.3	0.1
23	Sikkim	0.0	0.0	0.9	0.0	3.2
24	Tamil Nadu	0.4	-31.1	2.0	5.5	4.3
25	Tripura	0.0	-0.6	-5.7	12.8	-4.9
26	Uttar Pradesh	7.6	0.0	8.9	2.3	-15.5
27	Uttarakhand	NA	NA	NA	NA	NA
28	West Bengal	-2.8	-0.1	4.9	0.3	12.1
29	All-INDIA	8.9	4.2	-5.6	2.9	1.2

Source: *Based on Writer's own calculation from Table 3.A.1 in Annexure Chapter 3.*

Note:- *The States like Uttar Pradesh includes Uttarakhand, Bihar includes Jharkhand, and Madhya Pradesh includes Chhattisgarh.*

The table 3.1 (A) shows that in the year 2000-01 the All-India growth rate of road length in all States was 1.2 while in 1991 it was 0.9. It shows a gain of mere 0.3 points in a span of nine years.

In the year 1991 the top states in terms of annual growth were Manipur (5.09), Arunachal Pradesh (2.57), Karnataka(2.29), Kerela (2.24), Andhra Pradesh (1.72), Himachal Pradesh(1.61), Madhya Pradesh(1.55), Gujarat(1.49), Uttar Pradesh(1.41), Sikkim(1.32), Rajasthan(1.30), Maharashtra(1.24), Nagaland(1.23), Mizoram(1.10). These States had realized growth rates which was larger than the All-India growth rate. The bottom ranked 5 States are Bihar (0.11), Assam (0.08), Punjab(0.08), Tripura(0.01), Jammu and Kashmir(-5.38).

In the year 2000-01 the top performing States in terms annual growth were Gujarat (47.07), Assam (17.06), West Bengal (12.07), Andhra Pradesh (6.55), Tamil Nadu (4.32), Nagaland (3.33), Sikkim (3.24) Meghalaya (2.56). These figures suggest that Assam, West Bengal, and Tamil Nadu have improved their road infrastructure within a span of 9 years while the other states have maintained their position in the top bracket with some differences in their ranks. The worst performers have been surprisingly Punjab (-5.07), Orissa (-10.07), Bihar (-14.05), Uttar Pradesh (-15.49), Madhya Pradesh (-20.36), Maharashtra (-32.19). The figures indicate that Uttar Pradesh , Madhya Pradesh, and Maharashtra had performed very poorly during this period.

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Table 3.1 (B) - State-wise Annual Growth Rates of Total Road Length (2001-2008):

S.No.	STATE	2001	2002	2003	2004	2005	2006	2007	2008
1	Andhra Pradesh	0.5	2.4	2.7	2.1	59.8	2.3	0.6	1.8
2	Arunachal Pradesh	0.2	-14.7	0.0	0.3	13.0	-3.0	1.2	-5.4
3	Assam	13.6	27.0	10.8	20.3	8.2	3.4	3.5	3.1
4	Bihar	0.8	-1.8	3.5	-6.2	62.5	0.1	0.0	0.0
5	Chhattisgarh	0.0	54.1	39.4	1.7	-2.3	2.2	-0.3	1.0
6	Goa	0.6	1.1	5.8	0.1	0.9	0.9	1.0	0.4
7	Gujarat	0.1	0.8	3.1	0.6	-0.2	0.9	0.6	0.7
8	Haryana	0.2	0.2	1.1	0.6	-0.1	1.4	1.2	1.1
9	Himachal Pradesh	0.4	0.4	8.2	1.7	-28.0	0.7	48.0	3.8
10	Jammu And Kashmir	0.4	0.5	-13.5	4.1	3.4	1.1	0.1	1.2
11	Jharkhand	0.0	14.1	-0.8	3.4	53.1	0.1	0.1	-3.0
12	Karnataka	0.3	20.0	9.2	0.2	5.1	1.8	18.5	0.6
13	Kerela	1.6	-10.3	3.4	2.6	18.3	10.4	5.5	3.7
14	Madhya Pradesh	0.0	-0.9	2.4	0.3	-0.9	0.5	0.4	0.2
15	Maharashtra	1.1	3.3	0.4	0.5	-19.0	-0.2	1.2	0.1
16	Manipur	0.0	9.9	0.3	0.0	31.0	0.0	0.0	0.0
17	Meghalaya	1.5	0.7	0.0	1.4	-0.4	0.3	0.6	0.9
18	Mizoram	5.1	2.1	-3.2	-0.3	10.8	10.1	2.8	0.2
19	Nagaland	0.0	0.0	-2.4	0.6	27.1	-15.8	-0.6	1.6
20	Orissa	0.4	-10.7	0.6	0.4	0.6	0.0	0.0	0.0
21	Punjab	0.4	0.0	-35.0	14.4	1.6	-2.9	-0.1	0.1
22	Rajasthan	0.7	-8.8	8.2	3.4	3.4	1.8	4.9	7.2
23	Sikkim	4.2	-1.8	3.4	2.0	0.6	2.0	-11.6	0.0
24	Tamil Nadu	2.1	1.8	0.8	2.0	3.2	1.8	0.8	0.2
25	Tripura	-5.2	16.1	36.8	7.0	32.9	0.0	0.0	0.0
26	Uttar Pradesh	2.7	0.5	4.6	-6.0	5.0	2.7	3.3	4.5
27	Uttarakhand	0.0	-32.3	60.7	67.2	-38.6	1.1	8.6	4.8
28	West Bengal	1.6	-4.0	2.2	1.4	118.2	1.7	4.7	1.6
29	All-INDIA	1.80	1.23	4.08	2.61	10.95	1.74	3.51	1.75

Source: *Based on Writer's own calculation from Table 3.A.1 in Annexure Chapter 3.*

The Table 3.1 (B) shows that in the year 2001-02 the All-India growth rate in terms of Road length was 1.80 while in the year 2008 it was 1.75. This clearly shows a loss of 0.05 points within a span of 7 years.

In the year 2001-02 the best performing States were Assam(13.6), Mizoram(5.1), Sikkim(4.2), Uttar Pradesh (2.7), Tamil Nadu(2.1) while the worst performing State has been

Tripura(-5.2). In the year 2008-09 the best performing States have been Rajasthan(7.2), Uttarakhand(4.8), Uttar Pradesh(4.5), Himachal Pradesh(3.8), Kerela(3.7), Assam(3.1), Andhra Pradesh(1.8) while the worst performing States have been Jharkhand (-3.0) and Arunachal Pradesh(-5.4). Hence within a span of 18 years from 1990 to 2008 Rajasthan, Himachal Pradesh, Uttar Pradesh, Kerela have relatively maintained their position in the top positions while the State of Arunachal Pradesh have performed miserably from 2nd position to the last position in the year 2008. Now in the next section we will discuss level indicators of road length per 1000 sq. km.

Table 3.2- showing level indicators of Road length per 000' sq. km (State-wise):

S.No.	States	LI 1990	LI 2000	LI 2008	Average of Annual Growth Rates
1	Andhra Pradesh	543.23	694.48	1254.27	5.41
2	Arunachal Pradesh	127.68	218.79	196.96	3.08
3	Assam	835.69	1280.17	2936.51	7.58
4	Bihar	907.04	816.32	1275.73	2.75
5	Chhattisgarh	NA	248.65	547.17	13.70
6	Goa	1988.11	2567.26	2854.94	2.13
7	Gujarat	412.62	700.33	748.02	3.79
8	Haryana	598.50	635.42	672.35	47.12
9	Himachal Pradesh	451.30	528.05	651.99	2.88
10	Jammu And Kashmir	58.95	104.39	100.45	3.96
11	Jharkhand	NA	8.78	219.92	9.57
12	Karnataka	685.68	792.88	1331.94	3.91
13	Kerela	3488.38	3812.13	5268.69	2.46
14	Madhya Pradesh	454.63	526.98	538.12	1.52
15	Maharashtra	720.67	841.23	725.75	1.25
16	Manipur	298.47	512.12	739.11	5.82
17	Meghalaya	288.96	417.32	438.67	2.40
18	Mizoram	177.03	224.42	292.11	3.77
19	Nagaland	889.80	1267.57	1345.32	2.90
20	Orissa	1258.41	1516.19	1383.39	0.75
21	Punjab	1077.42	1216.69	897.07	-0.47
22	Rajasthan	358.04	412.15	501.05	1.95
23	Sikkim	224.63	269.31	263.95	0.97
24	Tamil Nadu	1512.28	1227.96	1393.32	-0.09
25	Tripura	1341.06	1410.74	3024.58	5.22
26	Uttar Pradesh	833.48	998.83	1181.57	2.18
27	Uttarakhand	NA	604.03	767.35	10.24
28	West Bengal	695.04	1000.74	2386.09	9.24

Note: *LI indicates Level Indicator of the respective year.*

According to Table 3.2 the best performing States in terms of level indicators for the year 1990 were Kerela, Goa, Tamil Nadu, Tripura and Orissa and the bottom tier States consisted of Meghalaya, Sikkim, Mizoram, Arunachal Pradesh and Jammu & Kashmir. In the year 2000 the best States in terms of Road length per 1000 sq. kms were Kerela, Goa, Orissa, Tripura and Assam while the worst performers were Chhattisgarh, Mizoram, Arunachal Pradesh, Jammu & Kashmir and Jharkhand. In the year 2008 the best performing States were Kerela, Tripura, Assam, Goa, and West Bengal while the worst performing States were Mizoram, Sikkim, Jharkhand, Arunachal Pradesh, and Jammu & Kashmir.

In terms of average of annual growth rates the top 5 States were Haryana (47.12), Chhattisgarh (13.7), Uttarakhand (10.24), Jharkhand (9.57), and West Bengal (9.24) and the least performing States were Maharashtra (1.25), Sikkim (0.97), Orissa (0.75), Tamil Nadu (-0.09) and Punjab   (-0.47).

These figures indicate that there has not been a great deal of change in the top bracket of States being dominated by Kerela, Goa, Assam and Tripura with a significant absence of Orissa while a new addition to the top category State was West Bengal. The category of bottom tier has also not changed drastically with the least development of roadways in Mizoram, Sikkim, Arunachal Pradesh, and Jammu and Kashmir. One of the interesting observation to be made at this point is that all the bottom tier States are hilly states with tough and rugged terrain where construction of roadways is often difficult. The annual growth rates have indicated that the newly formed States like Uttarakhand, Jharkhand, and Chhattisgarh had good growth rates which could be attributed to their base effect of starting recently.

(II)   Rail Length of Different States in India:

The Railways in India provide the principal mode of transportation for freight and passengers. The Indian Railway network runs multi-gauge operations extending over 64,015 route kilometers. For our analysis in this section we will be using total rail length in various states as an indicator.

Table 3.3 (A) - State-wise Annual Growth Rates of Total Rail Length (1991-2000):

S.No	States	1991	1992	1993	1994	1995
1	Andhra Pradesh	0.18	0.08	0.12	0.20	-0.32
2	Arunachal Pradesh	0.00	0.00	0.00	0.00	0.00
3	Assam	0.34	0.69	-0.51	1.11	3.34
4	Bihar	0.11	0.04	0.04	0.06	-0.15
5	Chhattisgarh	NA	NA	NA	NA	NA
6	Goa	0.00	0.00	0.00	0.00	0.00
7	Gujarat	0.23	0.23	0.13	0.76	-0.02
8	Haryana	-0.07	0.34	0.47	-3.14	0.00
9	Himachal Pradesh	0.00	0.00	0.00	0.00	0.00
10	Jammu And Kashmir	0.00	0.00	0.00	0.00	0.00
11	Jharkhand	NA	NA	NA	NA	NA
12	Karnataka	0.87	44.59	1.52	1.49	0.00
13	Kerela	0.00	0.00	0.00	0.00	0.00
14	Madhya Pradesh	0.03	0.05	0.00	-0.10	0.32
15	Maharashtra	0.09	0.09	0.13	0.05	0.00
16	Manipur	0.00	0.00	0.00	0.00	0.00
17	Meghalaya	NA	NA	NA	NA	NA
18	Mizoram	0.00	0.00	0.00	0.00	0.00
19	Nagaland	0.00	0.00	0.00	0.00	44.44
20	Orissa	0.05	0.00	0.00	0.35	9.06
21	Punjab	0.09	0.00	0.09	0.00	0.00
22	Rajasthan	1.61	1.85	1.49	2.19	-0.19
23	Sikkim	NA	NA	NA	NA	NA
24	Tamil Nadu	0.15	-0.20	0.30	-0.40	0.00
25	Tripura	0.00	0.00	0.00	0.00	0.00
26	Uttar Pradesh	-0.08	0.15	0.02	-0.17	0.06
27	Uttarakhand	NA	NA	NA	NA	NA
28	West Bengal	0.21	-0.08	0.16	-0.26	0.05
29	All-INDIA	0.26	1.78	0.61	0.32	0.41

CONTD.

S.No	States	1996	1997	1998	1999	2000
1	Andhra Pradesh	0.00	0.02	-0.02	0.44	1.10
2	Arunachal Pradesh	0.00	0.00	0.00	0.00	0.00
3	Assam	-0.25	-2.51	0.76	0.00	5.18
4	Bihar	-0.55	-1.26	-0.19	1.24	-34.34
5	Chhattisgarh	NA	NA	NA	NA	NA
6	Goa	0.00	-12.66	0.00	0.00	0.00
7	Gujarat	0.04	-0.19	0.00	0.00	0.00
8	Haryana	4.20	2.51	-0.19	0.00	0.00
9	Himachal Pradesh	1.13	0.00	0.00	0.00	0.00
10	Jammu And Kashmir	-4.55	0.00	0.00	0.00	14.29
11	Jharkhand	NA	NA	NA	NA	NA
12	Karnataka	-2.08	-2.78	0.00	0.00	0.00
13	Kerela	-0.28	0.00	0.00	0.00	0.00
14	Madhya Pradesh	-1.78	0.44	0.05	-0.17	-19.06
15	Maharashtra	1.68	-1.60	-0.33	-0.94	1.17
16	Manipur	0.00	0.00	0.00	0.00	0.00
17	Meghalaya	NA	NA	NA	NA	NA
18	Mizoram	0.00	0.00	0.00	0.00	0.00
19	Nagaland	46.15	-31.58	0.00	0.00	0.00
20	Orissa	-0.05	-0.18	7.04	-0.98	-0.35
21	Punjab	0.90	-1.96	0.19	0.00	0.00
22	Rajasthan	-0.57	0.34	0.12	0.05	0.10
23	Sikkim	NA	NA	NA	NA	NA
24	Tamil Nadu	-0.15	1.33	3.36	0.00	0.00
25	Tripura	0.00	0.00	0.00	0.00	0.00
26	Uttar Pradesh	-0.26	-0.28	0.08	0.12	-3.73
27	Uttarakhand	NA	NA	NA	NA	NA
28	West Bengal	-1.28	0.03	0.45	-1.74	-1.56
29	All-INDIA	-0.30	-0.37	0.50	0.35	0.18

Source: *Based on Writer's own calculation from Table 3.A.2 in Annexure Chapter 3.*

Note: - *The States like Uttar Pradesh includes Uttarakhand, Bihar includes Jharkhand, and Madhya Pradesh includes Chhattisgarh.*

According to Table 3.3 (A) the All-India annual growth of rail length in 1991-92 was 0.26 while in 2000-01 it was 0.18. This shows a decrease of 0.08 points within a span of 9 years.

In the year 1991-92 the top performing states in terms of rail length are Rajasthan(1.61), Karnataka(0.87), and Assam(0.34) while the worst performers are

Haryana(-0.07) and Uttar Pradesh(-0.08). In the year 2000-01 the best performers are Jammu and Kashmir (14.29), Assam(5.18), Maharashtra(1.17) and Andhra Pradesh(1.1) while the worst performers are Orissa (-0.35), West Bengal (-1.56), Uttar Pradesh (-3.73), Madhya Pradesh (-19.06), Bihar (-34.34). The figures are clearly suggestive of the fact that there have been significant amount of railway development have taken place in the State of Jammu and Kashmir while in the north eastern region of the country there have not been any significant development barring Assam which has remained in the top category in terms of rail length development.

Table 3.3 (B) - State-wise Annual Growth Rates of Total Rail Length (2001-2009):

States	2001	2002	2003	2004	2005	2006	2007	2008	2009
Andhra Pradesh	1.21	0.00	0.00	-0.03	0.18	-0.38	-0.26	-0.02	1.37
Arunachal Pradesh	0.00	0.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00
Assam	0.00	0.00	0.05	0.00	-0.45	-8.84	-0.03	0.00	6.54
Bihar	-0.38	-2.99	-3.09	4.76	0.08	-1.46	2.42	-0.13	4.74
Chhattisgarh	0.00	0.01	0.01	-1.80	0.00	2.34	-0.05	0.03	0.02
Goa	0.00	0.22	0.22	-0.43	0.00	0.00	0.00	0.00	0.00
Gujarat	-0.04	-0.24	-0.24	-0.04	0.03	-0.03	0.49	0.37	-6.18
Haryana	0.00	0.21	0.21	4.42	-1.62	-0.12	-3.42	-4.76	5.86
Himachal Pradesh	0.00	-0.06	-0.06	0.11	5.95	0.00	0.00	0.00	3.86
Jammu And Kashmir	0.00	0.05	0.05	0.00	43.39	0.00	0.00	18.14	57.25
Jharkhand	0.00	0.04	0.04	8.05	-0.09	0.70	-0.69	1.23	1.82
Karnataka	0.00	0.00	0.00	0.20	0.07	0.68	0.12	-0.01	2.25
Kerela	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Madhya Pradesh	1.25	-0.21	-0.21	0.51	1.15	-0.04	-0.39	0.01	1.31
Maharashtra	0.00	-0.08	-0.08	0.86	0.55	0.02	-0.16	0.30	1.20
Manipur	0.00	20.00	16.67	0.00	0.00	0.00	0.00	0.00	0.00
Meghalaya	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mizoram	0.00	-12.50	-14.29	0.00	0.00	0.00	0.00	0.00	33.33
Nagaland	0.00	-0.38	-0.39	0.00	0.00	0.00	0.00	0.00	0.78
Orissa	0.48	0.08	0.08	-1.72	-0.17	0.08	-1.52	6.23	0.00
Punjab	0.00	-0.02	-0.02	-0.17	0.00	1.70	0.00	0.00	0.00
Rajasthan	-0.54	0.05	0.05	-1.11	0.05	0.01	1.25	-3.86	1.71
Sikkim	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tamil Nadu	0.02	-0.06	-0.06	0.40	-0.71	0.00	-1.19	0.23	-1.69
Tripura	0.00	21.56	17.73	0.00	0.00	0.00	0.00	0.00	134.47
Uttar Pradesh	0.07	1.29	1.27	-2.64	-0.24	0.01	0.33	-0.25	2.02
Uttarakhand	0.00	-1.56	-1.58	0.00	0.00	0.00	0.00	0.00	0.03
West Bengal	0.52	-0.01	-0.01	0.70	4.05	1.42	0.00	1.03	-1.54
All-INDIA	-0.35	-0.02	0.33	0.16	0.39	-0.21	-0.01	-0.08	1.11

According to Table 3.3 (B) the all-India growth rate of 2001-02 is -0.35 while the All-India growth rate in 2009 is 0.11. This indicates an increase of 0.77 points within a span of 8 years.

In 2001-02 the best performing States have been Madhya Pradesh(1.25), Andhra Pradesh(1.21), West Bengal(0.52), Orissa(0.48), Uttar Pradesh(0.07) while the worst performing States have been Bihar (-0.38) and Rajasthan (-0.54). In the year 2009-10 the best performing States were Tripura (134.47), Jammu and Kashmir (57.25), Mizoram (33.33), Assam (6.54), Haryana (5.86), and Bihar (4.74). These figures indicate Madhya Pradesh, Andhra Pradesh and Uttar Pradesh have remained the top bracket although their rankings have suffered while West Bengal and Tamil Nadu have performed poorly in this regard. In addition one has to point out that 2 States namely Jammu and Kashmir and Assam have performed quite well during this time period.

Table 3.4- showing level indicators of Rail length per 000' sq. km (State-wise):

S.No.	States	Li1990	Li2000	Li2009	Avg. of Annual Growth rates
1	Andhra Pradesh	18.34	18.67	19.05	0.20
2	Arunachal Pradesh	0.01	0.01	0.02	1.58
3	Assam	29.63	32.08	31.02	0.29
4	Bihar	56.05	36.55	37.89	-1.63
5	Chhattisgarh	NA	8.67	8.72	0.06
6	Goa	21.34	18.64	18.64	-0.67
7	Gujarat	26.78	27.10	25.50	-0.25
8	Haryana	33.66	35.01	35.13	0.26
9	Himachal Pradesh	4.78	4.83	5.32	0.58
10	Jammu And Kashmir	0.40	0.43	1.15	6.77
11	Jharkhand	NA	22.54	25.10	1.23
12	Karnataka	10.84	15.51	16.02	2.47
13	Kerela	27.10	27.02	27.02	-0.01
14	Madhya Pradesh	19.42	15.54	16.06	-0.89
15	Maharashtra	17.69	17.74	18.21	0.16
16	Manipur	0.04	0.04	0.06	1.93
17	Meghalaya	0.00	0.00	0.00	0.00
18	Mizoram	0.09	0.09	0.09	0.34
19	Nagaland	0.54	0.78	0.78	3.11
20	Orissa	12.85	14.83	15.33	0.97
21	Punjab	42.04	41.74	42.36	0.04
22	Rajasthan	16.16	17.32	16.89	0.24

23	Sikkim	0.00	0.00	0.00	0.00
24	Tamil Nadu	30.84	32.20	31.22	0.07
25	Tripura	4.29	4.29	14.39	9.15
26	Uttar Pradesh	37.09	35.58	36.22	-0.12
27	Uttarakhand	NA	6.66	6.45	-0.35
28	West Bengal	42.97	41.26	43.83	0.11

Source : (a) *Based on Writer's own calculation from Table 3.A.2 in Annexure Chapter 3 for LI1990, LI2000, LI2008 and Average of Annual growth rates have been calculated from Table 3.3(A) and Table 3.3 (B).*

Note: *LI indicates Level Indicator of the respective year.*

According to Table 3.4 the best performing States in 1990 in terms of rail length per 1000 sq. km were Bihar, West Bengal, Punjab, Uttar Pradesh and Haryana while the worst performing States were Nagaland, Jammu & Kashmir, Mizoram, Manipur and Arunachal Pradesh. In the year 2000 the best performing States were Punjab, West Bengal, Bihar, Uttar Pradesh, and Haryana while the bottom rung belong to Nagaland, Jammu & Kashmir, Mizoram, Manipur, and Arunachal Pradesh. In 2008 the best performing States were West Bengal, Punjab, Bihar, Uttar Pradesh, and Haryana while the least performing States were Jammu & Kashmir, Nagaland, Mizoram, Manipur, and Arunachal Pradesh.

In terms of average of annual growth rates the best States were Tripura (9.15), Jammu and Kashmir (6.77), Nagaland (3.11), Karnataka (2.47), and Manipur (1.93) while the worst performing States were Gujarat (-0.25), Uttarakhand (-0.35), Goa (-0.67), Madhya Pradesh (-0.89) and Bihar (-1.63).

These figures suggest that the highest density of rail length is in the plains of north India particularly in states like Punjab, Haryana, Uttar Pradesh, and Bihar while in eastern India it is in West Bengal. The States with very low density of Railways are all in the hilly regions in particular Jammu & Kashmir, Nagaland, Mizoram, Manipur, and Arunachal Pradesh. The average of annual growth rates suggest that certain improvements in rail infrastructure have already begun in recent times in Jammu& Kashmir, Nagaland and Manipur but still the States like Arunachal Pradesh and Sikkim are missing from this group.

(III) Per Capita Consumption of Electricity of Different States in India:

The power sector in India is one of the major infrastructural industry in the economy. For our analysis in this section we will be using per capita consumption of electricity (PCE) as an indicator.

Table 3.5 (A): State-wise figures of PCE (1990-2000)

S.No.	States	1990	1991	1992	1993	1994	1995
1	Andhra Pradesh	245	191	312	345	374	368
2	Arunachal Pradesh	68	58	54	67	66	78
3	Assam	94	90	97	95	98	98
4	Bihar	110	108	117	126	134	138
5	Chhattisgarh	NA	NA	NA	NA	NA	NA
6	Goa	452	495	541	588	602	707
7	Gujarat	469	504	538	587	608	671
8	Haryana	400	455	507	491	467	503
9	Himachal Pradesh	209	210	208	219	254	288
10	Jammu And Kashmir	193	189	188	195	196	201
11	Jharkhand	NA	NA	NA	NA	NA	NA
12	Karnataka	296	296	303	328	364	363
13	Kerela	188	196	200	215	237	249
14	Madhya Pradesh	247	267	281	311	335	367
15	Maharashtra	411	434	439	459	500	545
16	Manipur	97	107	104	111	107	118
17	Meghalaya	115	125	129	110	140	143
18	Mizoram	69	69	91	101	112	128
19	Nagaland	75	78	73	68	59	79
20	Orissa	271	295	297	313	333	370
21	Punjab	606	616	684	703	759	760
22	Rajasthan	201	231	246	256	270	297
23	Sikkim	119	120	114	123	143	173
24	Tamil Nadu	323	335	369	386	430	459
25	Tripura	47	53	59	60	66	73
26	Uttar Pradesh	166	174	179	186	204	207
27	Uttarakhand	NA	NA	NA	NA	NA	NA
28	West Bengal	148	151	158	171	175	186
29	All India	253	268	283	299	320	336

Contd.

S.No.	States	1996	1997	1998	1999	2000
1	Andhra Pradesh	346	391	404.27	391	433.14
2	Arunachal Pradesh	81	101.2	87.39	68.61	84.59
3	Assam	104	99.81	122.51	95.46	103.91
4	Bihar	138	141.79	152.33	140.77	144.73
5	Chhattisgarh	NA	NA	NA	NA	NA
6	Goa	724	739.45	740.04	712.45	809.72
7	Gujarat	694	704.61	723.53	834.66	853.97
8	Haryana	504	488.02	503.06	530.82	544.31
9	Himachal Pradesh	306	322.62	333.52	339.07	342.67
10	Jammu and Kashmir	218	270.23	291.59	267.86	286.19
11	Jharkhand	NA	NA	NA	NA	NA
12	Karnataka	340	387.09	349.24	387.09	411.74
13	Kerela	241	261.8	305.09	261.8	328.88
14	Madhya Pradesh	367	377.51	397.93	351.73	294.82
15	Maharashtra	556	577.37	593.79	520.49	551.5
16	Manipur	128	138.87	74.66	69.5	69.39
17	Meghalaya	135	143.47	150.29	160.27	169.59
18	Mizoram	128	95.14	113.59	120.73	142.5
19	Nagaland	88	86.57	81.35	84.74	96.76
20	Orissa	309	308.18	312.52	354.6	342.89
21	Punjab	792	798.22	860.81	921.14	841.54
22	Rajasthan	301	314.34	329.35	334.5	349.54
23	Sikkim	172	177.83	184.91	192.38	184.2
24	Tamil Nadu	468	484.11	497.59	484.11	599.01
25	Tripura	80	90.15	109.93	95.48	79.11
26	Uttar Pradesh	197	199.53	195.58	175.8	191.08
27	Uttarakhand	NA	NA	NA	NA	NA
28	West Bengal	194	202.41	210.57	204.41	207.65
29	All India	334	348.5	359.57	354.75	366.12

Source: *Based on Writer's own calculation from Table 3.A.3 in Annexure Chapter 3*

According to Table 3.5 (A) the All-India annual growth rate of PCE for the year 1991 was 5.93 while the All- India annual growth rate of PCE for the year 2000 was 3.21. It clearly indicates a decrease of more than 2 points within a span of 9 years. It shows that the power sector has not been performing well during the time period.

In the year 1991 the best performing States have been Rajasthan (14.93), Haryana(13.75), Tripura(12.77), Manipur(10.31), Goa(9.51), and Orissa(8.86) while the worst performing States have been Bihar (-1.82), Jammu and Kashmir(-2.07), Assam(-4.26), Arunachal Pradesh(-14.71), Andhra Pradesh(-22.04).

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In the year 2000 the best performing States have been Kerela(25.62), Tamil Nadu(23.73), Arunachal Pradesh(23.29), Mizoram(18.03) and Nagaland(14.18) while the lagging states are Orissa(-3.30), Sikkim(-4.25), Punjab(-8.64), Madhya Pradesh(-16.18), and Tripura(-17.14).

These figures broadly indicate that Andhra Pradesh, Assam, Arunachal Pradesh and Jammu and Kashmir have improved during the time period while Orissa, Manipur and Madhya Pradesh have been relegated from the top to the bottom rung. In addition one might point out that Goa has consistently maintained its place among the top category States.

Table 3.5 (B) : State-wise figures of PCE (2001-2007)

S.No.	States	2001	2002	2003	2004	2005	2006	2007
1	Andhra Pradesh	494.13	403.86	495.3	543.14	553.61	615.5	650.5
2	Arunachal Pradesh	68.33	70.75	110.33	144.78	139.19	117.7	142.3
3	Assam	99.42	71.89	105.34	85.27	107.57	120.9	124.4
4	Bihar	36.29	42.13	44.85	44.56	44.6	41.8	49.1
5	Chhattisgarh	394.51	296.33	404.51	535.15	486.71	729.3	621
6	Goa	1067.89	1008.6	1067.35	1318.34	1497.32	1613.2	1651.1
7	Gujarat	817.78	662.17	917.96	908.12	919.66	1001.7	1116.4
8	Haryana	532.9	537.77	618.98	658	715.16	753.4	809.8
9	Himachal Pradesh	397.66	408.2	445.45	484.04	569.19	674	775.2
10	Jammu And Kashmir	292.82	320.32	327.04	348.74	366.12	366	360.9
11	Jharkhand	363.67	249.98	394.87	402.14	396.43	499.2	500.3
12	Karnataka	427.76	402.56	481.73	504.69	516.67	596.5	660.5
13	Kerela	280.8	272.12	291.11	296.07	317.38	351.8	360.2
14	Madhya Pradesh	273.04	244.03	283.54	308.4	344.1	352.2	395.2
15	Maharashtra	507.9	503.28	559.35	585.35	608.74	631.4	679.6
16.	Manipur	69.43	80.83	70.55	70.47	73.73	93.6	84
17	Meghalaya	235.35	301.6	332.37	352.21	296.63	347.3	388.9
18	Mizoram	147.09	162.97	140.28	133.69	141.59	152.5	186.1
19	Nagaland	57.19	62.36	65.47	87.23	68.3	73.4	84.7
20	Orissa	324.55	181.57	373.45	394.89	430.68	465.4	520.3
21	Punjab	835.69	848.95	902.76	907.3	983.58	1036.5	1155.4
22	Rajasthan	284.71	250.14	294.08	328.09	333.68	369.2	443.7
23	Sikkim	224.22	132.86	323.69	397.72	359.78	365.7	443.4
24	Tamil Nadu	623.25	584.19	677.37	713.26	760.02	835	896.4
25	Tripura	108.75	111.27	125.34	113.1	109.03	115.1	114.6
26	Uttar Pradesh	189.02	147.07	188.83	202.03	208.65	222.9	240.9
27	Uttarakhand	284.05	282.99	342.05	393.47	422.44	465	548.6
28	West Bengal	218.1	204.94	237.47	247.54	266.2	284.7	321.4
29	All India	360.97	322.21	390.03	411.04	428.57	469.2	508.5

In the year 2001 the All-India annual growth rate of PCE was -1.41 while in 2007 the annual All-India growth rate of PCE was 8.38. This is indicative of the fact that power sector reforms have led to positive growth in this sector by more than 6 points within a span of 6 years.

In the year 2001 the best performing States were Meghalaya (38.78), Tripura(37.47), Goa(31.88), Sikkim(21.73), Himachal Pradesh(16.05) while the bottom rung States were Kerela(-14.62), Rajasthan(-18.55), Arunachal Pradesh(-19.22), Nagaland(-40.89) and Bihar (-74.93).

In the year 2007 the best performing States were Mizoram(22.03), Sikkim(21.25), Arunachal Pradesh(20.9), Rajasthan(20.18), Uttarakhand (17.98) while the lagging States were Jharkhand(0.22), Tripura(-0.43), Jammu and Kashmir (-1.39), Manipur(-10.26) and Chhattisgarh(-14.85).

Summing up one might say that Tripura, Goa and Jammu and Kashmir have not seen much development during this time period while Rajasthan, Arunachal Pradesh and Bihar have performed very well to rise from the bottom level to reach the top category. In addition it is to be noted that Sikkim have not only maintained its position in the top category but also consolidated it well enough to rise to the second position in the performance ladder.

Table 3.6 - showing level indicators of Per Capita Consumption of Electricity (State-wise):

S.No.	States	1990	2000	2007	Average Of PCE
1	Andhra Pradesh	245	433.14	650.5	419.80
2	Arunachal Pradesh	68	84.59	142.3	89.29
3	Assam	94	103.91	124.4	100.69
4	Bihar	110	144.73	49.1	97.44
5	Chhattisgarh			621	495.36
6	Goa	452	809.72	1651.1	907.47
7	Gujarat	469	853.97	1116.4	751.75
8	Haryana	400	544.31	809.8	556.62
9	Himachal Pradesh	209	342.67	775.2	376.98
10	Jammu And Kashmir	193	286.19	360.9	270.99
11	Jharkhand			500.3	400.94
12	Karnataka	296	411.74	660.5	411.98
13	Kerela	188	328.88	360.2	269.61
14	Madhya Pradesh	247	294.82	395.2	322.08
15	Maharashtra	411	551.5	679.6	536.82

S.No.	States	1990	2000	2007	Average Of PCE
16	Manipur	97	69.39	84	92.61
17	Meghalaya	115	169.59	388.9	209.72
18	Mizoram	69	142.5	186.1	124.12
19	Nagaland	75	96.76	84.7	76.00
20	Orissa	271	342.89	520.3	344.28
21	Punjab	606	841.54	1155.4	833.99
22	Rajasthan	201	349.54	443.7	301.85
23	Sikkim	119	184.2	443.4	219.48
24	Tamil Nadu	323	599.01	896.4	551.35
25	Tripura	47	79.11	114.6	89.44
26	Uttar Pradesh	166	191.08	240.9	193.02
27	Uttarakhand			548.6	391.23
28	West Bengal	148	207.65	321.4	210.47

Source : (a) *Based on Writer's own calculation from Table 3.A.3 in Annexure Chapter 3 for LI1990, LI2000, LI2008 and Average of Annual growth rates have been calculated from Table 3.3 (A) and Table 3.3 (B).*

Note: *LI indicates Level Indicator of the respective year.*

According to Table 3.6 the best performing States in terms of PCE in 1990 were Punjab, Gujarat, Goa, Maharashtra, and Haryana while the least consuming States in terms of PCE were Assam, Nagaland, Mizoram, Arunachal Pradesh, and Tripura. In the year 2000 the top category States in terms PCE consisted of Gujarat, Punjab, Goa, Tamil Nadu, and Maharashtra whereas the bottom rung belong to Assam, Nagaland, Arunachal Pradesh, Tripura and Manipur. In the year 2007 the best performing States in terms of PCE were Goa, Punjab, Gujarat, Tamil Nadu, and Haryana and the worst performing States were Arunachal Pradesh, Assam, Tripura Nagaland, Manipur and Bihar. In terms of average of PCE the best States were Goa (907.47), Punjab (833.99), Gujarat (751.75), Haryana (556.62), Tamil Nadu (551.35) and the low performers were Assam (100.69), Bihar (97.44), Manipur (92.61), Tripura (89.44), Arunachal Pradesh (89.29) and Nagaland (76.00).

These figures suggest that PCE is very high in those States which have got larger Multi-purpose valley projects. For instance Punjab and Haryana have an abundance of electricity because of Bhakra and Nangal Multi-purpose River Valley Project. Though the north eastern States mentioned above have huge hydro potential but they lack in large scale power set up and in particularly on Multi-purpose dams. This could be one of the reasons attributed to the deficit power infrastructure in case of north eastern States like Assam, Manipur, Tripura Arunachal Pradesh and Nagaland.

(IV) Tele-density of Different States in India :

Telecommunications in recent years have acquired more importance than its counterparts among infrastructural industries. Teledensity is an important indicator to show the extent of telecom penetration in India. The overall teledensity stood at 64.34 percent in November 2010.[2] In our analysis we will be using teledensity as an indicator to analyze the performance of Telecommunication industry.

Table 3.7 (A) - State-wise Annual growth rates of Tele-density (1991-2000):

S.No	States	1991	1992	1993	1994	1995
1	ANDHRA PRADESH	11.0	9.5	14.3	12.5	23.6
1	ASSAM	9.8	15.8	23.8	19.2	16.1
2	BIHAR	14.6	19.1	20.0	22.2	18.2
3	CHHATTISGARH	0	0	0	0	0
4	GUJARAT	7.5	7.8	13.7	12.8	16.0
5	HARYANA	27.9	11.3	15.6	23.6	21.8
6	HIMACHAL PRADESH	15.3	18.4	15.6	20.2	34.6
7	JAMMU & KASHMIR	7.7	7.2	5.0	16.7	10.2
8	JHARKHAND	0	0	0	0	0
9	KARNATAKA	12.9	11.0	13.4	15.1	1.9
10	KERALA	13.6	15.4	22.3	14.3	45.1
11	MADHYA PRADESH	25.9	29.3	24.4	25.5	15.6
12	MAHARASHTRA	9.4	12.2	12.1	15.0	19.3
13	NORTH-EAST- I	22.7	15.5	26.5	16.3	14.0
14	NORTH-EAST- II	0	0	0	0	0
15	ORISSA	19.7	19.0	13.8	20.7	14.3
16	PUNJAB	7.7	10.5	11.8	19.5	28.6
17	RAJASTHAN	15.0	16.5	24.4	27.5	24.6
18	TAMIL NADU	7.7	7.0	10.3	15.6	20.7
19	UTTARANCHAL	0	0	0	0	0
20	UTTAR PRADESH - [E&W]	15.9	14.1	22.2	9.1	19.4
21	WEST BENGAL	6.6	3.8	8.2	9.4	13.8
22	ALL- INDIA	10.3	12.2	14.7	15.8	18.6

Contd.

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[2] This figure has been quoted from Economic Survey 2010-11, Ministry of Finance, Govt. of India.

S.No.	States	1996	1997	1998	1999	2000
1	ANDHRA PRADESH	21.3	16.7	23.8	41.5	41.8
1	ASSAM	19.4	14.0	28.6	32.9	26.6
2	BIHAR	11.5	17.2	20.6	29.7	22.3
3	CHHATTISGARH	0	0	0	0	0
4	GUJARAT	14.9	16.0	21.1	21.2	25.1
5	HARYANA	18.7	18.9	20.1	23.0	20.4
6	HIMACHAL PRADESH	34.7	26.8	26.8	14.2	21.2
7	JAMMU & KASHMIR	9.3	27.1	26.7	19.5	15.1
8	JHARKHAND	0	0	0	0	0
9	KARNATAKA	45.0	22.2	28.0	21.7	25.1
10	KERALA	4.8	23.3	27.8	27.1	27.7
11	MADHYA PRADESH	13.5	9.5	13.0	20.0	23.4
12	MAHARASHTRA	18.3	20.3	20.2	18.0	16.7
13	NORTH-EAST- I	24.6	19.7	21.2	36.8	10.4
14	NORTH-EAST- II	0	0	0	0	0
15	ORISSA	20.0	16.7	33.9	29.6	24.5
16	PUNJAB	31.2	24.6	22.7	25.1	19.6
17	RAJASTHAN	22.2	20.2	23.5	22.3	17.4
18	TAMIL NADU	23.9	30.1	27.3	29.4	27.1
19	UTTARANCHAL	0	0	0	0	0
20	UTTAR PRADESH - [E&W]	20.9	23.1	34.4	26.1	22.6
21	WEST BENGAL	19.7	27.8	28.7	29.0	24.7
22	ALL- INDIA	19.8	22.0	22.6	22.7	22.7

Source: *Based on Writer's own calculation from Table 3.A.4 in Annexure Chapter 3*

The All-India annual growth rate in Teledensity for the year 1991 was 10.3 percent while the All-India annual growth rate in Teledensity for the year 2000 was 22.7. It clearly indicates a gain of nearly 13 points within a span of 9 years. One might observe that this is one of the largest annual growth rate figure we have come across which suggests that the growth in telecommunications has been a very vibrant one during this period.

In the year 1991 the best performing States have been Haryana(27.9), Madhya Pradesh (25.9), North-East- I(22.7), Orissa(19.7) and Uttar Pradesh(15.9) while the worst performing States have been Punjab (7.7), Tamil Nadu(7.7), Jammu and Kashmir(7.7), Gujarat(7.5), and West Bengal(6.6).

In the year 2000 the best performing States have been Andhra Pradesh (41.8), Kerela(27.7), Tamil Nadu(27.1), Assam(26.6), and Gujarat(25.1) while the lagging states are Punjab(19.6), Rajasthan(17.4), Maharashtra(16.7) and Jammu and Kashmir(15.1).

The above figures indicate that the top performing states have been Kerala, Karnataka and Andhra Pradesh which have improved their rankings while Orissa and Madhya Pradesh have remained in the top category but with a significant loss in their individual rankings. The performances of Jammu and Kashmir and north-eastern States have been a major cause of concern.

Table 3.7 (B) - State-wise Annual growth rates of Tele-density (2001-2009):

S.No	States	2001	2002	2003	2004	2005	2006	2007	2008	2009
1	ANDHRA PRADESH	30.9	20.4	14.8	38.7	20.7	41.8	45.9	44.0	40.2
1	ASSAM	25.1	26.0	16.4	9.8	30.7	103.4	71.7	51.3	40.4
2	BIHAR	76.9	-5.9	21.9	26.3	41.7	126.2	37.1	72.6	75.7
3	CHHATTISGARH	0	0	16.9	11.4	10.2	16.3	54.6	35.3	18.8
4	GUJARAT	26.0	18.6	22.0	30.5	25.5	33.4	42.2	39.3	34.4
5	HARYANA	26.4	19.1	22.8	35.0	29.2	33.6	59.7	31.5	44.1
6	HIMACHAL PRADESH	22.9	40.8	13.7	19.2	29.4	43.1	52.1	44.1	34.8
7	JAMMU & KASHMIR	31.8	24.8	15.5	21.3	69.1	139.3	32.0	35.8	50.2
8	JHARKHAND	0	0	21.3	18.9	14.8	30.0	14.6	5.0	14.0
9	KARNATAKA	24.9	18.8	19.6	41.9	28.8	40.0	46.9	37.8	30.9
10	KERALA	34.1	26.6	19.1	31.3	26.2	36.0	31.4	35.2	-33.6
11	MADHYA PRADESH	17.2	37.8	21.4	32.2	30.5	36.7	71.6	66.0	188.4
12	MAHARASHTRA	22.2	-22.2	18.4	31.5	25.1	30.9	43.4	46.0	38.2
13	NORTH-EAST- I	23.7	25.4	24.3	11.6	29.4	87.4	104.1	67.1	60.8
14	NORTH-EAST- II	0	0	0	15.2	34.9	42.4	42.1	23.3	0.7
15	ORISSA	25.7	23.9	21.4	29.0	34.2	91.2	25.6	57.8	55.3
16	PUNJAB	22.6	31.6	28.6	47.3	26.6	25.9	34.2	29.2	21.7
17	RAJASTHAN	21.9	17.3	15.2	29.6	36.0	57.7	60.5	53.2	56.7
18	TAMIL NADU	30.8	-9.2	15.9	37.2	33.2	29.3	53.4	55.6	43.9
19	UTTARANCHAL	0	0	16.6	20.1	12.6	29.9	27.4	11.7	9.4
20	UTTAR PRADESH - [E&W]	24.4	12.2	15.9	37.6	37.1	69.1	56.9	50.4	53.8
21	WEST BENGAL	27.7	-43.1	21.7	17.9	37.7	84.2	56.2	66.4	0.0
22	ALL- INDIA	23.4	21.5	19.2	38.6	26.4	42.3	43.1	43.9	41.1

Source: *Based on Writer's own calculation from Table 3.A.4 in Annexure Chapter 3*

The All-India annual growth rate in Teledensity for the year 2001 was 23.4 percent while the All-India annual growth rate in Teledensity for the year 2009 was 41.1. It clearly indicates a gain of nearly 18 points within a span of 8 years. This is a larger growth figure than the previous period which clearly reinforces the fact that the growth in telecommunication industry in general and teledensity in particular has been impressive in the last decade.

In the year 2001 the best performing States have been Bihar (76.9), Kerela(34.1), Jammu and Kashmir(31.8), Andhra Pradesh(30.9), and Tamil Nadu(30.8) while the worst performing States have been Himachal Pradesh(22.9), Punjab(22.6), Maharashtra(22.2), Rajasthan(21.9), and Madhya Pradesh(17.2) .

In the year 2009 the best performing States have been Madhya Pradesh(188.4), Bihar(75.7), North-East-I(60.8), Rajasthan(56.7), Orissa(55.3), and Uttar Pradesh(53.8) while the lagging states are Jharkhand(14.0), Uttaranchal (9.4), North-East-II(0.7) , and Kerela(-33.6)

The above figures indicate that the top performing states have been Orissa, Rajasthan, Uttar Pradesh, and North-East-I which have improved their rankings while Bihar, Jammu and Kashmir and Tamil Nadu have remained in the top category but with a significant loss in their individual rankings. The performances of Kerela and Andhra Pradesh have nose-dived significantly for worse.

Table 3.8 - showing level indicators of Tele-density (State-wise):

Sr. No.	States	1990	2000	2009	Average of Annual Growth Rates
1	ANDHRA PRADESH	0.46	3.13	39.60	27.0
1	ASSAM	0.17	1.06	20.70	30.6
2	BIHAR	0.11	0.65	22.20	35.2
3	CHHATTISGARH	NA	NA	5.20	23.4
4	GUJARAT	1.01	4.26	45.20	22.5
5	HARYANA	0.54	3.36	43.80	26.4
6	HIMACHAL PRADESH	0.56	4.32	55.50	27.8
7	JAMMU & KASHMIR	0.35	1.31	32.80	29.7
8	JHARKHAND	NA	NA	4.10	6.2
9	KARNATAKA	0.65	3.76	45.20	25.6
10	KERALA	0.79	5.60	30.10	22.5
11	MADHYA PRADESH	0.25	1.54	58.50	36.9
12	MAHARASHTRA	1.21	5.40	37.90	20.8
13	NORTH-EAST- I	0.24	1.56	44.50	33.8
14	NORTH-EAST- II	NA	NA	9.20	26.4
15	ORISSA	0.18	1.21	23.30	30.3
16	PUNJAB	0.92	5.67	58.30	24.7
17	RAJASTHAN	0.31	2.11	37.20	29.6
18	TAMIL NADU	0.76	4.52	50.50	25.7
19	UTTARANCHAL	NA	NA	11.60	18.2
20	UTTAR PRADESH - [E&W]	0.20	1.33	24.90	29.7
21	WEST BENGAL	0.44	2.09	0.00	23.2
22	ALL- INDIA	0.54	2.86	37.00	25.3

Note: *LI indicates Level Indicator of the respective year.*

According to Table 3.8 the best performing States in terms of teledensity in 1990 were Maharashtra, Gujarat, Punjab, Kerela and Tamil Nadu and the worst performing States were Uttar Pradesh, Orissa, Assam and Bihar. In the year 2000 the top category States were Punjab, Kerela, Maharashtra, Tamil Nadu and Himachal Pradesh and the bottom Category belong to Uttar Pradesh, Jammu and Kashmir, Orissa, Assam and Bihar. In the year 2009 the best category consisted of Madhya Pradesh, Punjab, Himachal Pradesh, Tamil Nadu, and Gujarat while the worst States were Assam, Uttaranchal, Chhattisgarh, Jharkhand, and West Bengal. In terms of average of annual growth rates the best performing States were Madhya Pradesh (36.9), Bihar (35.2), Assam (30.6), Orissa (30.3) and Uttar Pradesh (29.7) while the least performing States were Gujarat (22.5), Kerela (22.50, Maharashtra (20.8), Uttaranchal (18.2), and Jharkhand (6.2).

These figures indicate that the worst performing States like Assam, Orissa and Uttar Pradesh have had on an average better growth rates but their teledensity is low for the year 1990, 2000 and 2009. This could be attributed to their being a more agrarian state economy than a service based economy.

(V)   Gross Irrigated Area of Different States in India:

Agriculture is the backbone of the Indian economy. Agriculture and allied activities contribute nearly 15.7 percent of GDP while about 59.70 population is dependent on agriculture for their livelihood. In this section we will be using Gross Irrigated area (GIA) as a proportion of Gross cropped area (GCA) as an indicator to analyze the agricultural infrastructure.

Table 3.9 (A) - State-Wise Annual Growth Rates of GIA/GCA (1991-2000):

S.No	States	1991	1992	1993	1994	1995
1	Andhra Pradesh	0.17	-2.20	145.30	-58.53	2.25
2	Arunachal Pradesh	-1.98	11.18	687.50	-86.79	-10.05
3	Assam	-1.63	0.60	574.83	-85.13	-0.60
4	Bihar	2.47	5.40	144.09	-57.68	-5.13
5	Chhattisgarh	0	0	0	0	0
6	Goa	10.70	-4.35	340.00	-76.91	4.55
7	Gujarat	-2.16	6.95	264.65	-69.45	-6.50
8	Haryana	8.82	-1.90	28.37	-21.50	1.94

S.No	States	1991	1992	1993	1994	1995
9	Himachal Pradesh	5.11	0.25	460.57	-82.43	-0.25
10	Jammu And Kashmir	0.65	-1.16	142.92	-58.80	1.17
11	Jharkhand	0	0	0	0	0
12	Karnataka	3.47	-1.25	337.45	-75.36	1.26
13	Kerela	1.01	-3.67	680.62	-82.77	3.81
14	Madhya Pradesh	11.04	0.27	385.37	-75.48	-0.27
15	Maharashtra	23.13	9.76	613.47	-86.60	-8.89
16	Manipur	-6.25	2.67	156.00	-73.05	-2.60
17	Meghalaya	-3.06	0.42	433.33	-81.17	-0.42
18	Mizoram	-23.71	-4.90	1112.50	-92.49	5.15
19	Nagaland	-2.33	-2.56	258.33	-69.82	2.63
20	Orissa	6.84	1.84	288.06	-74.65	-1.80
21	Punjab	0.58	-0.02	5.72	-4.85	0.02
22	Rajasthan	21.20	-6.50	243.71	-69.48	6.95
23	Sikkim	13.43	7.20	737.50	-88.25	-6.72
24	Tamil Nadu	6.98	2.61	114.22	-50.23	-2.54
25	Tripura	20.60	1.58	800.00	-87.13	-1.56
26	Uttar Pradesh	-1.34	8.90	74.84	-39.98	-8.17
27	Uttarakhand	0	0	0	0	0
28	West Bengal	-0.05	1.48	353.48	-71.84	-1.45
29	All-INDIA	5.14	1.83	185.55	-63.13	-1.79

Contd.

S.No.	States	1996	1997	1998	1999	2000
1	Andhra Pradesh	3.96	-1.42	5.19	-1.32	-1.01
2	Arunachal Pradesh	13.58	-4.00	0.00	-5.30	19.90
3	Assam	-3.34	-0.33	1.34	-3.71	-60.22
4	Bihar	8.68	1.29	1.47	1.93	-0.69
5	Chhattisgarh	0	0	0	0	0
6	Goa	-5.51	-2.37	-6.66	0.00	5.88
7	Gujarat	8.41	3.69	2.83	7.12	-10.33
8	Haryana	0.35	-0.21	1.49	6.53	0.50
9	Himachal Pradesh	5.79	-2.57	4.19	-0.86	2.08
10	Jammu And Kashmir	0.75	-0.78	0.41	-1.74	-0.89
11	Jharkhand	0	0	0	0	0
12	Karnataka	-5.21	6.60	1.72	3.21	1.87
13	Kerela	-10.46	-8.98	2.76	8.71	-3.40
14	Madhya Pradesh	5.20	-2.95	4.63	3.29	-11.38

S.No.	States	1996	1997	1998	1999	2000
15	Maharashtra	8.22	-0.08	6.63	9.17	2.98
16	Manipur	37.07	-1.93	-4.17	8.54	-4.78
17	Meghalaya	-2.05	16.65	-3.89	0.00	8.25
18	Mizoram	9.93	7.18	-2.59	40.22	14.41
19	Nagaland	-1.69	-9.27	-5.19	-3.05	0.38
20	Orissa	8.67	-2.65	4.38	5.29	-8.43
21	Punjab	-1.14	-2.49	0.55	-1.49	5.63
22	Rajasthan	6.75	-8.20	6.40	13.00	-11.27
23	Sikkim	-4.12	0.00	11.81	4.96	8.04
24	Tamil Nadu	4.15	3.52	2.22	0.26	0.13
25	Tripura	1.80	0.44	2.70	5.71	-3.50
26	Uttar Pradesh	11.38	-1.48	0.87	-0.12	1.46
27	Uttarakhand	0	0	0	0	0
28	West Bengal	-2.34	-1.62	-0.88	-2.67	41.60
29	All-INDIA	4.85	-1.30	2.79	2.58	-0.13

Source: *Based on Writer's own calculation from Table 3.A.5 in Annexure Chapter 3*

According to Table 3.9 (A) the All-India annual growth rate for GIA/GCA in the year 1991 was 5.14 and the All-India annual growth rate for GIA/GCA in the year 2000 was -0.13. These figures left us without any doubt that the proportion of GIA has come down considerably and one may consider it as one of the contributing factors in the abysmal performance of agriculture sector in recent years.

In the year 1991 the best performing States have been Maharashtra (23.13), Rajasthan (21.2), Tripura (20.6), Madhya Pradesh (11.04), and Goa (10.7), while the worst performing States have been Gujarat(-2.16), Nagaland (-2.33), Meghalaya (-3.06), Manipur (-6.25), and Mizoram (-23.71).

In the year 2000 the best performing States have been West Bengal (41.6), Arunachal Pradesh (19.9), Mizoram (14.41), Meghalaya (8.25), Sikkim (8.04), and Goa (5.88) while the lagging states are Orissa (-8.43), Gujarat(-10.33), Rajasthan (-11.27), Madhya Pradesh (-11.38), and Assam (-60.22).

The above figures show that Maharashtra, Sikkim and Goa have maintained their position in the top category though their relative rankings have gone down while the Tripura, Madhya Pradesh and Orissa have performed miserably. In addition there have been impressive performances in this regard from States like West Bengal, Arunachal Pradesh and Mizoram which head the table in the year 2000.

Table 3.9 (B) - State-Wise Annual Growth Rates of GIA/GCA (2001-2007):

S.No.	States	2001	2002	2003	2004	2005	2006	2007
1	Andhra Pradesh	-0.40	-5.48	-5.97	3.03	12.65	5.59	-2.23
2	Arunachal Pradesh	-1.87	0.94	0.95	0.00	3.08	12.19	4.99
3	Assam	-1.82	-0.29	-0.29	-1.37	-16.37	19.47	-6.48
4	Bihar	-8.38	16.07	13.87	1.03	-2.62	2.43	3.71
5	Chhattisgarh	12.01	-2.93	-2.96	11.11	4.25	8.34	2.14
6	Goa	7.44	2.33	2.26	0.00	-5.56	-1.16	-6.81
7	Gujarat	-1.89	5.58	5.01	0.43	2.47	3.97	5.52
8	Haryana	-1.58	-0.25	-0.25	1.12	-1.00	2.00	0.68
9	Himachal Pradesh	-0.84	2.20	2.16	-5.41	0.70	2.06	-0.33
10	Jammu And Kashmir	0.81	-0.15	-0.15	1.57	1.32	-2.13	0.16
11	Jharkhand	0	-1.66	-1.58	-0.38	-2.73	-0.59	1.68
12	Karnataka	-0.60	-5.37	-5.79	10.12	7.29	3.90	1.45
13	Kerela	-4.73	-0.06	-0.06	5.31	1.44	9.00	-1.86
14	Madhya Pradesh	7.28	6.86	6.18	5.02	-2.21	8.52	-1.12
15	Maharashtra	1.32	-0.94	-0.95	-1.39	-3.36	19.70	-0.64
16	Manipur	-3.24	-23.51	-30.60	23.09	0.80	-0.45	-4.68
17	Meghalaya	22.58	4.89	4.75	-7.37	-11.17	9.53	-5.06
18	Mizoram	4.17	12.47	13.35	7.75	-1.03	-0.11	-46.76
19	Nagaland	-14.80	16.23	14.27	-2.63	0.08	-4.68	11.08
20	Orissa	7.22	0.37	0.38	5.88	-0.13	0.23	18.75
21	Punjab	0.60	0.02	0.02	-0.02	0.07	0.56	0.52
22	Rajasthan	1.64	-4.59	-4.62	14.12	6.99	2.57	-1.45
23	Sikkim	-4.55	-4.35	-4.96	-1.63	-33.33	20.00	-13.14
24	Tamil Nadu	-0.48	-6.87	-8.63	12.41	7.42	0.58	-1.25
25	Tripura	1.18	5.27	6.36	-1.48	126.09	4.63	-3.08
26	Uttar Pradesh	1.92	0.68	0.67	3.13	1.89	1.42	1.81
27	Uttarakhand	0	-0.82	-0.78	-1.45	2.74	3.66	-0.37
28	West Bengal	1.31	18.00	15.37	2.92	9.65	-2.03	0.97
29	All-INDIA	-0.02	0.15	0.15	3.35	2.91	3.32	0.62

Source: *Based on Writer's own calculation from Table 3.A.5 in Annexure Chapter 3*

According to Table 3.9 (B) the All-India annual growth rate for GIA/GCA in the year 2001 was -0.02 and the All-India annual growth rate for GIA/GCA in the year 2007 was 0.62. These figures show a growth of less than 2 percentage point during the span of 6 years which again reinforces the fact that agricultural infrastructure is a major area of concern.

In the year 2001 the best performing States have been Meghalaya (22.58), Chhattisgarh (12.01), Goa (7.44), Madhya Pradesh (7.28) and Orissa (7.22) while the worst

performing States have been Manipur (-3.24), Sikki9m(-4.55), Keṛela (-4.73), Bihar (-8.38) and Nagaland (-14.8).

In the year 2007 the best performing States have been Orissa (18.75), Nagaland (11.08), Gujarat (5.52), Arunachal Pradesh(4.99) and Bihar (3.71) while the lagging states are Meghalaya (-5.06), Assam (-6.48), Goa (-6.81), Sikkim(-13.14) and Mizoram (-46.76).

The above figures show that Orissa, Uttar Pradesh, and Chhattisgarh have maintained their position in the top category though their relative rankings have gone down while the States of Goa, Sikkim, and Mizoram have been relegated to the bottom tier. In addition there have been impressive performances in this regard from States like Nagaland, Arunachal Pradesh and Gujarat which head the table in the year 2007.

Table 3.10 - showing level indicators of GIA/GCA (State-wise):

S.No.	States	1990	2000	2007	Average of Annual Growth Rates
1	Andhra Pradesh	0.41	0.44	0.46	0.46
2	Arunachal Pradesh	0.13	0.16	0.20	0.21
3	Assam	0.15	0.06	0.05	0.15
4	Bihar	0.40	0.48	0.61	0.52
5	Chhattisgarh	0.00	0.20	0.26	0.23
6	Goa	0.21	0.21	0.21	0.26
7	Gujarat	0.28	0.34	0.42	0.38
8	Haryana	0.72	0.85	0.86	0.82
9	Himachal Pradesh	0.17	0.19	0.19	0.23
10	Jammu And Kashmir	0.41	0.40	0.41	0.44
11	Jharkhand	0.00	0.00	0.10	0.10
12	Karnataka	0.22	0.27	0.29	0.29
13	Kerela	0.13	0.15	0.16	0.19
14	Madhya Pradesh	0.19	0.24	0.32	0.30
15	Maharashtra	0.11	0.17	0.20	0.21
16	Manipur	0.42	0.36	0.22	0.35
17	Meghalaya	0.19	0.22	0.26	0.27
18	Mizoram	0.11	0.14	0.10	0.17
19	Nagaland	0.29	0.25	0.29	0.31
20	Orissa	0.24	0.27	0.37	0.32
21	Punjab	0.94	0.96	0.98	0.95
22	Rajasthan	0.24	0.32	0.36	0.35
23	Sikkim	0.11	0.14	0.08	0.17
24	Tamil Nadu	0.44	0.55	0.56	0.55
25	Tripura	0.09	0.14	0.35	0.22

S.No.	States	1990	2000	2007	Average of Annual Growth Rates
26	Uttar Pradesh	0.58	0.67	0.75	0.69
27	Uttarakhand	0.00	0.00	0.46	0.44
28	West Bengal	0.22	0.37	0.57	0.40

Source : (a) *Based on Writer's own calculation from Table 3.A.3 in Annexure Chapter 3 for LI1990, LI2000, LI2008 and Average of Annual growth rates have been calculated from Table 3.5(A) and Table 3.5 (B).*

Note: *LI indicates Level Indicator of the respective year.*

According to Table 3.10 the best performing States in 1990 in terms of GIA/GCA were and Punjab, Haryana, Uttar Pradesh and Tamil Nadu the worst performing States were Maharashtra, Mizoram, Sikkim, and Tripura. In the year 2000 the best performing States were Punjab, Haryana, Uttar Pradesh,Tamil Nadu and Bihar while the bottom States consisted of Sikkim, Mizoram, Tripura and Assam. In the year 2007 the best performing States were Punjab, Haryana, Uttar Pradesh, and Bihar and the worst performing States were Mizoram, Jharkhand, Sikkim, and Assam. In terms of average of annual growth rates the top category consisted of Punjab (0.95), Haryana (0.82), Uttar Pradesh (0.69), Tamil Nadu (90.55) and Bihar (0.52) while the bottom category States were Sikkim (0.17), Mizoram (0.17), Assam (0.15) and Jharkhand (0.1).

There is a clearly evident pattern which shows that the States with good irrigation facilities have largest irrigated areas than other States.

Now let us observe the different coefficient of variation for various physical infrastructural facilities which has been presented in the next table.

Table 3.11: showing CVs of Different Physical infrastructural facilities for various years:

Year	Roads	Rail	PCE	TD	GIA/GCA
1990	2.66	2.66	0.76	0.83	0.80
1991	2.66	2.66	0.78	0.82	0.79
1992	2.61	2.66	0.79	0.82	0.35
1993	2.65	2.67	0.79	0.71	0.77
1994	2.65	2.67	0.78	0.82	0.78
1995	2.43	2.67	0.78	0.88	0.79
1996	2.62	2.67	0.79	0.89	0.77
1997	2.71	2.67	0.78	0.92	0.77
1998	2.61	2.67	0.78	0.93	0.76

Year	Roads	Rail	PCE	TD	GIA/GCA
1999	2.61	2.67	0.83	0.93	0.75
2000	2.66	2.66	0.81	0.94	0.73
2001	2.66	2.65	0.72	0.94	0.65
2002	2.66	2.65	0.75	0.87	0.65
2003	2.66	2.66	0.69	0.85	0.66
2004	2.66	2.65	0.71	0.91	0.64
2005	2.65	2.66	0.74	0.90	0.63
2006	2.65	2.66	0.74	0.82	0.61
2007	2.65	2.66	0.72	0.79	0.63
2008	2.65	2.65	NA	0.78	NA
2009	NA	2.55	NA	0.81	NA

Source : *Based on Writer's own calculation from Table 3.A.1, Table 3.A.2 Table 3.A.3,Table 3.A.4, Table 3.A.5 in Annexure Chapter 3.*

According to Table 3.11 the CVs of various physical infrastructural facilities have declined from their 1990 levels. The CV of Road length per sq. km in 1990 was 2.66, in 2000 it was 2.66, and in 2008 it declined to 2.65. The CV of rail length per sq. km in 1990 was 2.66; in 2000 again it was 2.66 while in 2009 it declined to 2.55. The CV of PCE in 1990 was 0.76; in 2000 it was 0.81 while in 2007 it was 0.72. The CV of TD in 1990 was 0.83, in 2000 it was 0.94 and in 2009 it was 0.81. The CV of GIA/GCA in 1990 was 0.8, in 2000 it was 0.73 and in 2007 it decreased to 0.63. These figures clearly suggest that in the initial years of 1990s with the development of physical infrastructure the inequalities in terms of infrastructure increased till 2000 after which it had started declining gradually over the years to come down. This is quite similar to the shape of Kuznet's inverted U curve.

3.2 (B) Social Infrastructure :

In this section we will be analyzing 3 infrastructural indicators so as to draw a picture of social infrastructure in India. These indicators are Government owned Allopathic Hospitals, IMR, and Primary schools in a State.

(I) Government –owned Allopathic Hospitals of Different States in India:

Public health is one of the key areas of developmental strategy being targeted by the public authorities and para-statal agencies in India. In order to measure the contribution of health infrastructure we will be mainly analyzing the number of government owned hospitals in India.

Table 3.12 - State-Wise Annual Growth Rates of Govt. Allopathic Hospitals (1991-2005):

S.No	States	1991	1992	1993	1994	1995	1996	1997
1	Andhra Pradesh	0.32	0.00	-55.52	4.96	0.00	0.00	114.19
2	Arunachal Pradesh	1.40	0.00	20.18	0.00	0.00	0.00	0.00
3	Assam	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Bihar	0.00	-0.82	-2.07	0.00	0.00	0.00	0.00
5	Chhattisgarh	NA	NA	NA	NA	NA	NA	NA
6	Goa	0.00	-5.88	-6.25	0.00	0.00	0.00	-6.67
7	Gujarat	#DIV/0!	-0.83	10.04	0.00	18.63	0.00	0.00
8	Haryana	0.00	0.00	-1.69	1.72	0.00	0.00	0.00
9	Himachal Pradesh	-1.82	-1.85	-13.21	0.00	0.00	0.00	4.35
10	Jammu And Kashmir	15.38	0.00	333.33	0.00	0.00	0.00	0.00
11	Jharkhand	NA	NA	NA	NA	NA	NA	NA
12	Karnataka	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Kerela	0.00	-1.43	2.17	0.00	0.00	0.00	6.38
14	Madhya Pradesh	0.00	0.00	-9.70	0.00	0.00	0.00	0.00
15	Maharashtra	0.00	0.00	-35.79	0.00	0.00	0.00	0.00
16	Manipur	0.00	0.00	19.05	0.00	0.00	8.00	-59.26
17	Meghalaya	0.00	0.00	25.00	0.00	0.00	0.00	-20.00
18	Mizoram	25.00	10.00	18.18	0.00	0.00	0.00	-46.15
19	Nagaland	0.00	0.00	0.00	0.00	0.00	0.00	-6.45
20	Orissa	0.00	-0.40	1.21	40.80	0.00	16.76	-38.20
21	Punjab	-1.55	-1.58	-6.95	0.00	1.72	0.00	0.00
22	Rajasthan	0.47	0.00	1.87	0.00	0.00	0.00	0.46
23	Sikkim	0.00	0.00	0.00	0.00	0.00	0.00	-80.00
24	Tamil Nadu	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	Tripura	9.52	0.00	8.70	0.00	0.00	4.00	11.54
26	Uttar Pradesh	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	Uttarakhand	NA	NA	NA	NA	NA	NA	NA
28	West Bengal	0.00	0.00	-7.98	0.00	0.00	0.41	0.00
29	All India	5.73	-3.58	-3.99	2.60	1.50	1.43	0.02

Contd.

S.No.	States	1998	1999	2000	2001	2002	2003	2004	2005
1	Andhra Pradesh	4.42	0.00	0.00	0.00	0.00	5.14	5.17	42.35
2	Arunachal Pradesh	0.00	0.00	0.00	0.00	-94.66	75.00	42.86	88.57
3	Assam	0.00	0.00	0.00	0.00	0.00	-14.54	-17.01	0.00

4	Bihar	0.00	0.00	0.00	0.00	0.00	-18.78	-23.12	-31.76
5	Chhattisgarh	NA	NA	NA	NA	NA	NA	100.00	0.00
6	Goa	0.00	0.00	0.00	-14.29	0.00	29.17	22.58	5.26
7	Gujarat	0.00	0.00	0.00	0.00	0.00	-11.22	-12.64	107.85
8	Haryana	1.69	0.00	0.00	0.00	1.67	52.46	34.41	6.40
9	Himachal Pradesh	2.08	10.20	9.26	0.00	3.39	65.57	39.60	0.00
10	Jammu And Kashmir	0.00	-36.92	-58.54	0.00	0.00	173.53	63.44	0.00
11	Jharkhand	NA	NA	NA	NA	NA	NA	NA	NA
12	Karnataka	0.00	0.00	0.00	0.00	0.00	27.75	21.72	122.46
13	Kerela	-0.67	-2.01	-2.05	-1.40	0.00	18.44	15.57	-2.07
14	Madhya Pradesh	0.00	0.00	0.00	-73.83	0.00	120.53	54.65	0.00
15	Maharashtra	0.00	-25.84	-34.85	0.00	0.00	214.19	68.17	2.99
16	Manipur	0.00	9.09	8.33	7.69	0.00	50.00	33.33	0.00
17	Meghalaya	25.00	20.00	16.67	0.00	0.00	157.14	61.11	3.45
18	Mizoram	0.00	-7.14	-7.69	16.67	0.00	100.00	50.00	-4.76
19	Nagaland	0.00	-20.69	-26.09	0.00	0.00	55.88	35.85	33.33
20	Orissa	0.00	0.00	0.00	0.00	0.00	29.33	22.68	0.74
21	Punjab	0.00	0.00	0.00	0.00	0.00	-4.80	-5.04	0.00
22	Rajasthan	0.00	-24.20	-31.93	0.00	0.00	114.60	53.40	37.10
23	Sikkim	0.00	0.00	0.00	0.00	0.00	300.00	75.00	0.00
24	Tamil Nadu	0.00	0.00	0.00	0.00	0.00	10.64	9.62	23.98
25	Tripura	0.00	0.00	0.00	-41.38	0.00	29.41	22.73	-3.70
26	Uttar Pradesh	0.00	0.00	0.00	0.00	0.00	-20.97	-26.54	-5.16
27	Uttarakhand	NA	NA	NA	NA	NA	NA	NA	NA
28	West Bengal	0.41	0.00	0.41	3.27	0.40	-4.92	-5.18	180.35
29	All India	0.38	-4.23	-4.42	-6.69	-6.33	26.25	20.79	28.29

Source: *Based on Writer's own calculation from Table 3.36 in Annexure Chapter 3*

The All-India annual growth rate of government allopathic hospitals in 1991 was 5.73 while the All-India annual growth rate of government allopathic hospitals in 2005 was 28.29. This represents a clear increase of 23 percentage points in a span of 15 years which for a country like India with a burgeoning population is quite disappointing.

In 1991 there are only 3 States that have a state annual growth rate larger than All-India growth rate. They are Mizoram (25), Jammu and Kashmir (15.38), and Tripura (9.52) while in 2005 there are only 7 States namely west Bengal (180.35), Karnataka (122.46), Gujarat (107.85), Arunachal Pradesh (88.57), Andhra Pradesh (42.35), Rajasthan (37.1) and Nagaland (33.33).

Table 3.13 - showing level indicators of Govt. Allopathic Hospitals per sq. km (State-wise):

S.No.	States	1990	2000	2005	Average of annual growth rates
1	Andhra Pradesh	0.11	0.12	0.19	296
2	Arunachal Pradesh	0.26	0.31	0.08	197
3	Assam	0.18	0.18	0.13	135
4.	Bihar	0.26	0.25	0.11	221
5	Chhattisgarh	0.00	0.00	0.10	86
6	Goa	0.46	0.38	0.54	15
7	Gujarat	0.00	0.16	0.26	302
8	Haryana	0.13	0.14	0.30	70
9	Himachal Pradesh	0.10	0.11	0.25	66
10	Jammu And Kashmir	0.01	0.01	0.03	45
11	Jharkhand	0.00	0.00	0.06	16
12	Karnataka	0.11	0.11	0.38	252
13	Kerela	0.36	0.37	0.49	150
14	Madhya Pradesh	0.13	0.12	0.11	322
15	Maharashtra	0.23	0.07	0.38	544
16	Manipur	0.09	0.06	0.13	20
17	Meghalaya	0.02	0.03	0.13	9
18	Mizoram	0.04	0.03	0.09	11
19	Nagaland	0.19	0.10	0.29	29
20	Orissa	0.16	0.16	0.26	298
21	Punjab	0.38	0.35	0.32	176
22	Rajasthan	0.06	0.03	0.15	224
23	Sikkim	0.07	0.01	0.10	4
24	Tamil Nadu	0.22	0.22	0.33	297
25	Tripura	0.20	0.28	0.25	25
26	Uttar Pradesh	0.22	0.22	0.12	498
27	Uttarakhand	0.00	0.00	0.07	12
28	West Bengal	0.30	0.28	0.72	272

(a) *Based on Writer's own calculation from Table 3.A.6 in Annexure Chapter 3 for LI1990, LI2000, LI2008 and Average of Annual growth rates have been calculated from Table 3.10.*

Note: *LI indicates Level Indicator of the respective year.*

According to Table 3.13 the best performing States in terms of Hospitals per sq. km in 1990 were Goa, Punjab, Kerela, West Bengal, and Bihar and the worst performing States were Sikkim, Rajasthan, Mizoram, Meghalaya, and Jammu & Kashmir. In the year 2000 the best performing States were Goa, Kerela, Punjab, Arunachal Pradesh, and Tripura and the

worst performing States were Rajasthan, Meghalaya, Mizoram, Sikkim, and Jammu & Kashmir. In 2005 the best performing States were West Bengal, Goa, Kerela, Maharashtra, and Karnataka while the worst performing States were Mizoram, Arunachal Pradesh, Uttarakhand, Jharkhand, Jammu & Kashmir.

In terms of average of annual growth rates of total number of Hospitals the best performing States were Maharashtra, Uttar Pradesh, Madhya Pradesh, and Gujarat while the worst performing States were Uttarakhand, Mizoram, Meghalaya and Sikkim.

These figures suggest that there is a serious lack of hospital facilities in the north-eastern regions particularly in States like Arunachal Pradesh, Meghalaya, Mizoram, and Sikkim. The same is the case with Jammu and Kashmir. This shows that the States with inaccessible terrain and low connectivity suffer from huge deficit of health infrastructure.

(II) IMR of Different States in India:

Infant mortality rates are one of the most important vital rates which are indicative of level of public health in a country. In this section we will be using it as one of the components to analyse health infrastructure of various states.

Table 3.14- State-Wise Annual Growth Rates of IMR (1991-2009):

S.No.	States	1991	1992	1993	1994	1995	1996	1997	1998
1	Andhra Pradesh	0	-4.11	-2.86	-4.41	3.08	-2.99	-3.08	4.76
2	Arunachal Pradesh	N.A.	N.A.	N.A.	N.A.	N.A.	-11.48	-9.26	-6.12
3	Assam	-2.41	-2.47	0.00	-1.27	-1.28	-3.90	2.70	0.00
4	Bihar	-2.82	-1.45	-1.47	0.00	8.96	-2.74	0.00	-5.63
5	Chhattisgarh	NA	NA	NA	NA	NA	NA	NA	NA
6	Goa	NA	NA	NA	NA	-79.69	15.38	26.67	21.05
7	Gujarat	-4.17	-2.90	4.48	0.00	-11.43	-1.61	13.11	2.90
8	Haryana	-2.86	-4.41	-4.62	-4.84	16.95	-1.45	2.94	2.86
9	Himachal Pradesh	-2.60	-6.67	-2.86	-4.41	-6.15	1.64	1.61	1.59
10	Jammu And Kashmir	NA	NA	NA	NA	NA	NA	NA	NA
11	Jharkhand	NA	NA	NA	NA	NA	NA	NA	NA
12	Karnataka	-6.10	-6.49	-4.17	-2.90	-7.46	-14.52	0.00	9.43
13	Kerela	0.00	0.00	0.00	0.00	-6.25	-6.67	-14.29	33.33
14	Madhya Pradesh	-2.50	-7.69	-5.56	-3.92	1.02	-2.02	-3.09	4.26
15	Maharashtra	0.00	-8.33	0.00	0.00	0.00	-12.73	-2.08	4.26
16	Manipur	NA	NA	-3.45	-3.57	0.00	3.70	7.14	-16.67
17	Meghalaya	NA	NA	2.22	6.52	-8.16	6.67	12.50	-3.70
18	Mizoram	NA	NA	NA	NA	NA	NA	-24	21.05
19	Nagaland	NA	NA	NA	NA	NA	NA	NA	NA

20	Orissa	NA	NA	-6.96	-3.74	0.00	-6.80	0.00	2.08
21	Punjab	-1.85	0.00	1.89	-1.85	1.89	-5.56	0.00	5.88
22	Rajasthan	1.28	3.80	2.44	0.00	2.38	-1.16	0.00	-2.35
23	Sikkim	NA	NA	0	0	0	0	8.51	1.96
24	Tamil Nadu	-1.72	0.00	3.51	0	-8.47	-1.85	0.00	0.00
25	Tripura	NA	NA	-2.22	0	-48.86	8.89	4.08	-3.92
26	Uttar Pradesh	-1.02	-6.19	-2.20	-1.1236	-2.27	-1.16	0.00	0.00
27	Uttarakhand	NA	NA	NA	NA	NA	NA	NA	NA
28	West Bengal	-2.74	-5.63	-4.48	-3.13	-6.45	-5.17	0.00	-3.64
29	All-India	0.00	-1.25	-6.33	0.00	0.00	-2.70	-1.39	1.41

Contd.

S.No.	States	1999	2000	2001	2002	2003	2004
1	Andhra Pradesh	0.00	-1.52	1.54	-5.30	-5.60	0.00
2	Arunachal Pradesh	-2.17	-2.22	-11.36	-6.41	-6.85	11.76
3	Assam	0.00	-1.32	-2.67	-4.11	-4.29	-1.49
4	Bihar	-5.97	-1.59	0.00	-1.61	-1.64	1.67
5	Chhattisgarh	NA	1.28	-3.80	-3.95	-4.11	-14.29
6	Goa	-8.70	9.52	-17.39	-7.89	-8.57	6.25
7	Gujarat	-1.41	-11.43	-3.23	-2.50	-2.56	-7.02
8	Haryana	-2.78	-4.29	-2.99	-4.62	-4.84	3.39
9	Himachal Pradesh	-3.13	12.90	-22.86	-4.63	-4.85	4.08
10	Jammu And Kashmir	15.56	-3.85	-4.00	-4.17	-4.35	11.36
11	Jharkhand	NA	-15.49	3.33	-8.87	-9.73	-3.92
12	Karnataka	0.00	-1.72	1.75	-5.17	-5.45	-5.77
13	Kerela	-12.50	0.00	-21.43	0.00	0.00	9.09
14	Madhya Pradesh	-8.16	-2.22	-2.27	-2.33	-2.38	-3.66
15	Maharashtra	-2.04	0.00	-6.25	-3.33	-3.45	-14.29
16	Manipur	0.00	-8.00	-13.04	-10.00	-11.11	-12.50
17	Meghalaya	7.69	3.57	-3.45	0.89	0.88	-5.26
18	Mizoram	-17.39	10.53	-9.52	-7.89	-8.57	18.75
19	Nagaland	NA	NA	NA	NA	NA	NA
20	Orissa	-1.02	-1.03	-6.25	-3.89	-4.05	-7.23
21	Punjab	-1.85	-1.89	-1.92	-1.96	-2.00	-8.16
22	Rajasthan	-2.41	-2.47	0.00	-2.53	-2.60	-10.67
23	Sikkim	-5.77	0.00	-14.29	-10.71	-12.00	-3.03
24	Tamil Nadu	-1.89	-1.92	-3.92	-6.12	-6.52	-4.65
25	Tripura	-14.29	-2.38	-4.88	-8.97	-9.86	0.00

26	Uttar Pradesh	-1.18	-1.19	-1.20	-3.66	-3.80	-5.26
27	Uttarakhand	NA	-3.85	-4.00	-7.29	-7.87	2.44
28	West Bengal	-1.89	-1.92	0.00	-4.90	-5.15	-13.04
29	All-India	-2.78	-2.86	-2.94	-4.55	-4.76	-3.33

Contd.

S.No.	States	2005	2006	2007	2008	2009
1	Andhra Pradesh	-3.39	-1.75	-3.57	-3.70	-5.77
2	Arunachal Pradesh	-2.63	8.11	-7.50	-13.51	0.00
3	Assam	3.03	-1.47	-1.49	-3.03	-4.69
4	Bihar	0.00	-1.64	-3.33	-3.45	-7.14
5	Chhattisgarh	5.00	-3.17	-3.28	-3.39	-5.26
6	Goa	-5.88	-6.25	-13.33	-23.08	10.00
7	Gujarat	1.89	-1.85	-1.89	-3.85	-4.00
8	Haryana	-1.64	-5.00	-3.51	-1.82	-5.56
9	Himachal Pradesh	-3.92	2.04	-6.00	-6.38	2.27
10	Jammu And Kashmir	2.04	4.00	-1.92	-3.92	-8.16
11	Jharkhand	2.04	-2.00	-2.04	-4.17	-4.35
12	Karnataka	2.04	-4.00	-2.08	-4.26	-8.89
13	Kerela	16.67	7.14	-13.33	-7.69	0.00
14	Madhya Pradesh	-3.80	-2.63	-2.70	-2.78	-4.29
15	Maharashtra	0.00	-2.78	-2.86	-2.94	-6.06
16	Manipur	-7.14	-15.38	9.09	16.67	14.29
17	Meghalaya	-9.26	8.16	5.66	3.57	1.72
18	Mizoram	5.26	25.00	-8.00	60.87	-2.70
19	Nagaland	5.88	11.11	5.00	23.81	0.00
20	Orissa	-2.60	-2.67	-2.74	-2.82	-5.80
21	Punjab	-2.22	0.00	-2.27	-4.65	-7.32
22	Rajasthan	1.49	-1.47	-2.99	-3.08	-6.35
23	Sikkim	-6.25	10.00	3.03	-2.94	3.03
24	Tamil Nadu	-9.76	0.00	-5.41	-11.43	-9.68
25	Tripura	-3.13	16.13	8.33	-12.82	-8.82
26	Uttar Pradesh	1.39	-2.74	-2.82	-2.90	-5.97
27	Uttarakhand	0.00	2.38	11.63	-8.33	-6.82
28	West Bengal	-5.00	0.00	-2.63	-5.41	-5.71
29	All-India	0.00	-1.72	-3.51	-3.64	-5.66

Source: *Based on Writer's own calculation from Table 3.A.7 in Annexure Chapter 3*

According to Table 3.14 All-India annual growth rate of IMR for India in 1991 was 0.0 and the All-India annual growth rate of IMR for India in 2009 was -5.66 this indicates a decrease of more than 5 percentage points within a span of 20 years. This is indicative of better performance on the public health front by the public authorities.

In the year 1991 the best performers with reduced IMR were West Bengal (-2.74), Bihar (-2.82), Haryana (-2.86), Gujarat (-4.16), and Karnataka (-6.09) while Rajasthan (1.28) had a disappointing record to consider for its public health policy.

In the year 2009 the best performing States were Punjab (-7.32), Jammu and Kashmir (-8.16), Tripura (-8.82), Karnataka (-8.89), and Tamil Nadu (-9.68) while the worst performing States were Manipur (14.29), Goa (10.0), Sikkim (3.03), Himachal Pradesh (2.27), and Meghalaya (1.72).

The above figures suggest that Karnataka, Bihar and West Bengal have maintained their positions in the top category with some changes to their relative rankings while the performance of Rajasthan is laudable in reducing IMR but the performance of Manipur is a cause a grave concern.

Table 3.15- showing level indicators of Infant Mortality Rate (State-wise):

Sr. No.	States	1990	2000	2009	Average of IMR
1	Andhra Pradesh	73	65	49	63
2	Arunachal Pradesh	NA	44	32	42
3	Assam	83	75	61	73
4	Bihar	71	62	52	64
5	Chhattisgarh		79	54	66
6	Goa	NA	23	11	20
7	Gujarat	72	62	48	61
8	Haryana	70	67	51	63
9	Himachal Pradesh	77	70	45	59
10	Jammu And Kashmir		50	45	48
11	Jharkhand		60	44	53
12	Karnataka	82	57	41	58
13	Kerela	16	14	12	14
14	Madhya Pradesh	120	88	67	90
15	Maharashtra	60	48	31	46
16	Manipur	30	23	16	21
17	Meghalaya	52	58	59	53
18	Mizoram		21	36	23
19	Nagaland		NA	26	21
20	Orissa	129	96	65	93

21	Punjab	54	52	38	49
22	Rajasthan	78	79	59	76
23	Sikkim	50	49	34	42
24	Tamil Nadu	58	51	28	48
25	Tripura	92	41	31	50
26	Uttar Pradesh	98	83	63	81
27	Uttarakhand		50	41	45
28	West Bengal	73	51	33	51

Source: (a) *Based on Writer's own calculation from Table 3.A.7 in Annexure Chapter 3 for LI1990, LI2000, LI2008 and Average of IMR have been calculated from Table 3.12.*

Note: *LI indicates Level Indicator of the respective year.*

According to Table 3.15 the best performing States in terms of lowest IMR in 1990 were Punjab (54), Meghalaya (52), Sikkim (50), Manipur (30), and Kerela (16) and the worst performing States in terms of highest IMR were Orissa (129), Madhya Pradesh (120), Uttar Pradesh (98), Tripura (92) and Assam (83). The best performing States in terms of lowest IMR in 1990 were Tripura (41), Goa (23), Manipur (23), Mizoram (21) and Kerela (14) and the worst performing States in terms of highest IMR were Orissa (96), Madhya Pradesh (88), Uttar Pradesh (83), Chhattisgarh (79) and Rajasthan (79). The best performing States in terms of lowest IMR in 1990 were Tamil Nadu (28), Nagaland (26), Manipur (16), Kerela (12) and Goa (11) and the worst performing States in terms of highest IMR were Madhya Pradesh (67), Orissa (65), Uttar Pradesh (63), Assam (61) and Meghalaya (59). In terms of average of IMR the best performing States were Mizoram (23), Nagaland (21), Manipur (21), Goa (20), and Kerela (14) while the worst performing States were Orissa (93), Madhya Pradesh (90), Uttar Pradesh (81), Rajasthan (76) and Assam (73).

One of the most important things to be noted in this table is that except for Kerela and Goa the best States with lowest IMR are the north eastern states like Tripura, Manipur and Mizoram. This suggests that the public health awareness for infant children is better among these States.

(III) Government –owned Primary Schools of Different States in India:

Education like health is a social as well as economic capital and unlike physical infrastructure it not only takes a larger lag period in affecting the social and economic development of a nation but also leaves a greater impact on every milieu of life. Here in this section we will be analyzing the distribution of primary schools in various States.

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Table 3.16 (A) - State-Wise Annual Growth Rates of Primary Schools (1991-1999):

S.No.	States	1991	1992	1993	1994	1995	1996	1997	1998	1999
1	Andhra Pradesh	0.67	-50.00	100.34	0.02	0.49	0.48	0.58	3.84	6.87
2	Arunachal Pradesh	1.96	-50.00	100.35	4.28	2.76	1.22	1.69	1.03	0.94
3	Assam	2.20	-50.00	104.00	0.98	1.77	1.06	0.45	10.27	0.00
4	Bihar	0.22	-50.00	99.16	0.44	0.52	0.34	0.34	0.01	0.00
5	Chhattisgarh	NA	NA	NA	NA	NA	NA	NA	NA	NA
6	Goa	1.68	-50.00	99.42	-0.68	0.59	0.39	0.48	0.58	0.38
7	Gujarat	1.17	-50.00	95.69	5.57	0.70	0.44	0.63	1.34	0.00
8	Haryana	1.15	-50.00	101.28	8.70	38.88	14.68	12.44	1.33	2.83
9	Himachal Pradesh	2.93	-50.00	100.81	-1.42	0.84	0.23	0.51	0.00	35.44
10	Jammu And Kashmir	3.72	-50.00	82.41	11.91	2.15	2.19	2.64	0.00	0.00
11	Jharkhand	NA	NA	NA	NA	NA	NA	NA	NA	NA
12	Karnataka	0.49	-50.00	84.43	3.70	0.64	1.21	0.56	1.58	0.00
13	Kerela	0.24	-50.00	74.52	13.09	0.21	0.09	0.04	0.57	-0.10
14	Madhya Pradesh	1.18	-50.00	109.43	0.35	5.96	2.59	3.06	6.97	5.61
15	Maharashtra	0.73	-50.00	102.95	1.70	0.88	0.87	0.91	0.20	0.73
16	Manipur	-3.54	-50.00	97.07	-0.13	-0.50	-4.42	-11.53	0.90	0.08
17	Meghalaya	0.07	-50.00	93.58	1.90	2.18	1.03	0.56	7.91	0.13
18	Mizoram	0.81	-50.00	68.69	21.85	5.57	5.36	3.13	-5.61	-1.45
19	Nagaland	0.93	-50.00	88.61	14.20	2.07	0.98	1.87	0.00	0.00
20	Orissa	2.93	-50.00	76.23	15.97	0.00	0.00	0.00	0.00	0.00
21	Punjab	0.52	-50.00	104.41	-1.81	0.00	0.00	0.65	0.34	2.87
22	Rajasthan	0.78	-50.00	118.66	3.66	-0.10	-0.01	-0.01	1.59	-0.37
23	Sikkim	0.00	-50.00	105.49	0.95	0.00	-3.21	-1.56	-0.60	0.00
24	Tamil Nadu	0.08	-50.00	100.54	0.88	0.50	0.66	0.30	0.16	0.67
25	Tripura	-0.05	-50.00	93.61	1.28	0.15	0.34	0.00	0.00	0.15
26	Uttar Pradesh	0.83	-50.00	120.09	-5.22	3.25	5.08	4.01	2.08	2.63
27	Uttarakhand	NA	NA	NA	NA	NA	NA	NA	NA	NA
28	West Bengal	1.25	-50.00	90.34	5.07	0.00	0.00	0.00	2.16	0.50
29	All India	1.04	1.02	-0.36	1.90	1.48	1.58	1.93	2.62	2.39

Source: *Based on Writer's own calculation from Table 3.40 in Annexure Chapter 3*

According to Table 3.16 (A) the All-India annual growth of primary schools in 1991-92 was 1.04 while in 1999-00 it was 2.39. This shows an increase of more than 1 percentage point within a span of 8 years. In the year 1991-92 the top performing states in terms of primary schools were Jammu and Kashmir(3.72), Himachal Pradesh (2.93), Orissa (2.93), Assam(2.2) and Arunachal Pradesh (1.96) while the worst performers are Tripura (-0.05) and Manipur (-3.54). In the year 1999 the best performers were Himachal Pradesh (35.44), Andhra

Pradesh(6.87), Madhya Pradesh (5.61), Punjab (2.87) and Haryana (2.83) while the worst performers were Kerela (-0.1), Rajasthan (-0.37), Mizoram(-1.45).

According to these figures Haryana and Himachal Pradesh have maintained their position in the top category although their relative rankings are not the same while Jammu and Kashmir, Orissa, Assam, Arunachal Pradesh and Goa have lost their prominence among the top states and have been relegated to bottom tier. In addition the performance of Andhra Pradesh has been really impressive.

Table 3.16 (B) - State-Wise Annual Growth Rates of Primary Schools (2000-07):

S.No.	States	2000	2001	2002	2003	2004	2005	2006	2007
1	Andhra Pradesh	0.91	4.20	5.01	4.46	-3.47	0.78	0.00	0.49
2	Arunachal Pradesh	1.09	0.92	1.67	2.02	0.51	0.66	4.20	8.55
3	Assam	0.00	0.00	-9.60	0.08	0.00	1.43	-1.33	3.15
4	Bihar	-0.64	-26.34	3.08	-0.43	-2.45	-3.01	5.59	14.11
5	Chhattisgarh	NA	NA	-22.80	35.93	3.19	-5.73	3.35	3.98
6	Goa	0.00	-1.24	0.39	-2.70	-0.59	-0.20	21.78	2.79
7	Gujarat	5.50	-0.37	-53.39	-0.17	126.53	0.18	0.17	6.08
8	Haryana	4.29	1.77	-13.91	19.18	2.61	2.98	-43.69	98.77
9	Himachal Pradesh	0.34	3.51	-0.08	1.33	1.50	0.74	2.34	-0.07
10	Jammu And Kashmir	3.60	0.61	-4.01	0.00	14.88	10.96	0.00	0.00
11	Jharkhand	NA	NA	2.50	-3.76	0.94	-2.33	17.02	4.63
12	Karnataka	-5.81	0.40	17.18	-0.35	1.84	1.40	5.49	1.31
13	Kerela	0.15	-0.06	-0.84	0.30	1.64	-0.15	0.00	-0.22
14	Madhya Pradesh	-5.11	-28.17	-13.27	22.89	45.15	-1.91	3.64	0.12
15	Maharashtra	0.14	9.02	-11.14	1.00	1.00	1.44	0.47	0.00
16	Manipur	0.00	0.04	-0.82	0.00	0.00	0.00	0.43	0.00
17	Meghalaya	0.00	20.51	2.85	0.76	0.00	0.00	8.55	4.20
18	Mizoram	-0.16	12.50	-9.01	20.03	-1.53	13.98	0.71	3.06
19	Nagaland	1.50	0.54	-9.81	10.58	1.67	0.00	0.00	9.34
20	Orissa	0.00	0.00	-12.89	14.80	8.54	1.47	0.76	6.51
21	Punjab	0.62	-0.02	2.03	-0.56	0.66	-0.46	0.00	-0.40
22	Rajasthan	0.00	9.71	-14.06	69.20	0.33	1.13	1.91	-3.98
23	Sikkim	0.00	0.00	-0.80	0.00	37.63	7.16	3.82	1.45
24	Tamil Nadu	0.29	1.11	6.05	-3.45	3.81	2.20	2.74	-16.45
25	Tripura	0.63	0.67	-1.96	1.02	-14.41	4.90	14.98	0.42
26	Uttar Pradesh	0.95	-9.15	27.68	5.16	8.85	3.45	2.17	-7.37
27	Uttarakhand	NA	NA	0.78	2.89	2.51	1.25	1.42	1.98
28	West Bengal	0.00	0.08	-4.91	0.03	1.07	-0.82	0.00	-0.15
29	All India	-0.46	3.96	-1.91	9.07	8.03	0.66	1.59	0.38

According to Table 3.16(B) the All-India annual growth of primary schools in 2000 was -0.46 while in 2007 it was 0.38. This shows an increase of a mere 1 percentage point within a span of 6 years.

In the year 2000 the top performing states in terms of primary schools were Gujarat (5.5), Haryana (4.29), Jammu and Kashmir (3.6), Nagaland (1.50) and Arunachal Pradesh (1.09) while the worst performers were Bihar(-0.64), Madhya Pradesh (-5.11), and Karnataka (5.81). In the year 2007 the best performers were Haryana (98.77), Bihar (14.11), Nagaland (9.34), Arunachal Pradesh (8.55), and Orissa (6.51) while the worst performers were Punjab (-0.4), Rajasthan (-3.98), Uttar Pradesh (-7.37) and Tamil Nadu (-16.45).

According to these figures Haryana, Nagaland and Arunachal Pradesh have maintained their position in the top category although their relative rankings are not the same while Gujarat, Jammu and Kashmir, and Uttar Pradesh have lost their prominence among the top states and have been relegated to bottom tier. In addition the performance of Bihar has been really impressive during this time period.

Table 3.17-level indicators of Primary Schools per sq. km (State-wise):

S.No.	States	1990	2000	2007	Average of Annual growth Rates
1	Andhra Pradesh	0.18	0.20	0.23	4.45
2	Arunachal Pradesh	0.01	0.02	0.02	4.93
3	Assam	0.35	0.42	0.40	3.79
4	Bihar	0.30	0.31	0.49	2.41
5	Chhattisgarh	NA	NA	0.25	2.99
6	Goa	0.27	0.28	0.34	4.30
7	Gujarat	0.07	0.08	0.09	8.24
8	Haryana	0.12	0.25	0.31	11.96
9	Himachal Pradesh	0.13	0.19	0.21	5.82
10	Jammu And Kashmir	0.04	0.05	0.06	4.77
11	Jharkhand	NA	NA	0.25	3.17
12	Karnataka	0.12	0.12	0.15	3.77
13	Kerela	0.17	0.17	0.18	2.32
14	Madhya Pradesh	0.15	0.20	0.32	6.38
15	Maharashtra	0.13	0.14	0.14	3.58
16	Manipur	0.14	0.12	0.11	1.62
17	Meghalaya	0.19	0.21	0.30	5.54
18	Mizoram	0.05	0.06	0.08	. 5.17
19	Nagaland	0.08	0.09	0.10	4.26
20	Orissa	0.26	0.27	0.32	3.78

21	Punjab	0.25	0.26	0.26	3.46
22	Rajasthan	0.09	0.10	0.16	8.14
23	Sikkim	0.07	0.07	0.11	5.90
24	Tamil Nadu	0.23	0.24	0.23	2.95
25	Tripura	0.20	0.20	0.21	3.04
26	Uttar Pradesh	0.26	0.33	0.53	6.73
27	Uttarakhand	NA	NA	0.29	1.81
28	West Bengal	0.57	0.59	0.56	2.63

Source: (a) *Based on Writer's own calculation from Table 3.A.7 in Annexure Chapter 3 for LI1990, LI2000, LI2008 and Average of IMR have been calculated from Table 3.14 (A) and 3.14 (B).*

Note: *LI indicates Level Indicator of the respective year.*

According to Table 3.17 the best performing States in terms of Primary Schools per sq. km in 1990 were West Bengal, Assam, Bihar, Goa, Uttar Pradesh and Orissa while the worst performers were Sikkim, Gujarat, Mizoram, Jammu & Kashmir and Arunachal Pradesh. In the year 2000 the best performing States in terms of Primary Schools per sq. km were West Bengal, Assam, Uttar Pradesh, Bihar, and Goa, while the worst performers were Gujarat, Sikkim, Mizoram, Jammu & Kashmir and Arunachal Pradesh. The best performing States in 2007 were West Bengal, Uttar Pradesh, Bihar, Assam, and Goa, while the worst performers were Gujarat, Mizoram, Jammu & Kashmir and Arunachal Pradesh. In terms of Average of annual growth rates the best performing States were Haryana, Gujarat, Rajasthan, Uttar Pradesh, and Madhya Pradesh while the worst performing States were West Bengal, Bihar, Uttarakhand and Manipur.

These figures indicate that the top category of States in terms of Primary Schools have remained the same during the time period as West Bengal, Assam, Bihar, Goa, and Uttar Pradesh. In addition the hilly States like, Mizoram, Jammu & Kashmir and Arunachal Pradesh suffer from an acute deficiency of Primary School facilities.

Now let us observe the CVs of various social infrastructural facilities to find out whether it follows the same pattern as physical infrastructure.

Table 3.18: showing the CV of Different Social Infrastructure Indicators for various years:

Year	Hospitals	PS	IMR
1990	2.66	2.67	0.75
1991	2.65	2.67	0.89
1992	2.61	3.57	0.75
1993	2.66	2.67	0.74
1994	2.66	2.67	0.68
1995	2.66	2.66	0.66
1996	2.66	2.66	0.63
1997	2.66	2.67	0.63
1998	2.66	2.67	0.57
1999	2.66	2.67	0.42
2000	2.67	2.67	0.41
2001	2.67	2.65	0.43
2002	2.68	2.66	0.44
2003	2.68	2.66	0.45
2004	2.70	2.66	0.40
2005	2.69	2.67	0.41
2006	NA	2.67	0.38
2007	NA	2.66	0.38
2008	NA	NA	0.37
2009	NA	NA	0.36

Source: *Based on Writer's own calculation from Table 3.A.6, Table 3.A.7, Table 3.A.8, in Annexure Chapter 3.*

According to Table 3.18 the CV of various social infrastructure indicators have shown a similar trend to their counterparts in Physical Infrastructure. In 1990 the CV of hospitals per sq. km was 2.66, in 2000 its CV was 2.67 and in 2005 its CV was 2.69. The CV of primary schools per sq. km in 1990 was 2.67; in 2000 it was again 2.67 while in 2007 it decreased to 2.66. The CV of IMR in 1990 was 0.75; in 2000 the CV was 0.41, while in 2009 it decreased to 0.36.These figures suggest that except for hospital facilities whose CV has increased the other two variables have shown a decrease in infrastructural inequalities after 2000; but in the initial years of 1990s they had shown an alarming trend to increase. The best performance in terms social infrastructure has been accorded by reduction of IMR by various States. In fact the reduction of CV in case of IMR had shown a declining trend from early 1994 itself. This shows an increase in health awareness and better implementation of Childcare schemes by the government and other para-statal agencies.

3.2(C) Financial Infrastructure:

In recent years, financial infrastructure have gained in prominence primarily due to the opening of economy and unshackling of regressive controls. In this section we will be taking into account 3 indicators to analyze the framework of financial infrastructure. They are tax revenue as a proportion of NSDP, Credit-Deposit ratio of Nationalized banks, and the total number of Banking Centres in a State.

(I)   Tax revenue (as a Proportion of NSDP) of Different States in India:

In this section we will be using tax revenue as a proportion of NSDP as a proxy to measure the tax effort of various states.

Table 3.19 (A) - State-Wise Annual Growth Rates of Tax- Revenue/NSDP (1991-2000):

S.No.	States	1991	1992	1993	1994	1995
1	Andhra Pradesh	15.41	10.93	13.10	10.28	-2.53
2	Arunachal Pradesh	33.33	0.00	0.00	50.00	33.33
3	Assam	21.90	1.17	18.34	3.10	11.08
4	Bihar	14.71	19.39	11.76	5.03	7.46
5	Chhattisgarh	NA	NA	NA	NA	NA
6	Goa	34.12	26.32	30.56	20.21	20.35
7	Gujarat	20.54	19.50	14.03	20.32	12.23
8	Haryana	21.50	11.31	9.81	18.82	14.88
9	Himachal Pradesh	19.88	15.03	15.32	16.80	14.38
10	Jammu And Kashmir	1.23	25.45	8.70	8.44	16.80
11	Jharkhand	NA	NA	NA	NA	NA
12	Karnataka	24.36	6.83	23.05	12.51	22.97
13	Kerela	24.93	12.72	24.27	19.36	20.86
14	Madhya Pradesh	20.63	10.25	14.70	7.25	22.54
15	Maharashtra	16.29	10.19	17.30	22.86	15.64
16	Manipur	-17.65	7.14	26.67	26.32	16.67
17	Meghalaya	19.44	2.33	9.09	16.67	17.86
18	Mizoram	0.00	66.67	0.00	0.00	20.00
19	Nagaland	0.00	-5.56	5.88	5.56	10.53
20	Orissa	0.75	13.06	12.86	7.33	22.10
21	Punjab	19.52	14.00	22.23	20.88	2.00
22	Rajasthan	27.28	11.94	12.46	18.31	18.38
23	Sikkim	0.00	9.09	16.67	0.00	50.00
24	Tamil Nadu	19.53	11.46	15.35	21.52	22.57

25	Tripura	11.54	17.24	8.82	18.92	9.09
26	Uttar Pradesh	10.59	11.12	6.33	18.05	12.12
27	Uttarakhand	NA	NA	NA	NA	NA
28	West Bengal	14.81	6.49	11.65	28.05	10.80
29	All-India	14.99	13.36	13.96	15.86	16.88

Contd.

S.No.	States	1996	1997	1998	1999	2000
1	Andhra Pradesh	18.50	45.72	11.91	13.16	17.13
2	Arunachal Pradesh	12.50	11.11	10.00	27.27	50.00
3	Assam	9.26	14.99	11.45	24.62	15.35
4	Bihar	14.09	6.18	11.80	36.15	-19.32
5	Chhattisgarh	NA	NA	NA	NA	NA
6	Goa	11.40	20.46	-2.19	28.57	12.20
7	Gujarat	13.96	8.65	15.55	7.17	10.84
8	Haryana	-1.20	10.55	31.70	12.76	22.57
9	Himachal Pradesh	20.47	15.53	20.17	8.39	17.42
10	Jammu And Kashmir	1.40	26.99	19.07	32.27	29.41
11	Jharkhand	NA	NA	NA	NA	NA
12	Karnataka	9.37	11.17	8.28	11.54	16.77
13	Kerela	15.25	15.44	3.31	11.70	13.02
14	Madhya Pradesh	16.66	11.21	11.94	13.43	-2.67
15	Maharashtra	7.14	17.11	3.52	21.57	14.24
16	Manipur	-50.00	157.14	-13.89	29.03	22.50
17	Meghalaya	16.67	-3.90	18.92	17.05	15.53
18	Mizoram	16.67	14.29	12.50	22.22	27.27
19	Nagaland	47.62	9.68	2.94	22.86	30.23
20	Orissa	19.08	5.96	4.57	14.59	28.17
21	Punjab	3.17	11.33	7.13	21.03	23.99
22	Rajasthan	14.39	15.59	9.08	15.03	16.97
23	Sikkim	4.76	22.73	7.41	6.90	112.90
24	Tamil Nadu	11.65	8.79	10.81	13.44	12.48
25	Tripura	25.00	20.00	16.67	21.43	23.53
26	Uttar Pradesh	15.30	10.97	13.03	18.85	16.80
27	Uttarakhand	NA	NA	NA	NA	NA
28	West Bengal	3.05	6.06	5.71	6.83	16.02
29	All-India	11.05	19.75	10.06	18.31	21.73

According to Table 3.19 (A) the All-India annual average growth rate of Tax Revenue/NSDP for the year 1991 was 14.99 while the All-India annual average growth rate of Tax Revenue/NSDP for the year 2000 was 21.73. This shows an increase of nearly 7 percentage points within a span of 9 years.

In the year 1991 the top performing states in terms of Tax Revenue/NSDP were Goa (34.12), Arunachal Pradesh (33.33), Rajasthan (27.28), Kerela (24.93), and Karnataka(24.36) while the worst performers were Orissa (0.75) and Manipur (-17.65). In the year 2000 the best performers were Sikkim (112.9), Arunachal Pradesh (50), Nagaland (30.23), Jammu and Kashmir (29.41), and Orissa (28.17) while the worst performers were Goa (12.20), Gujarat (10.84), Madhya Pradesh (-2.67), and Bihar (19.32).

The figures above suggest that Goa, Rajasthan, Karnataka, Kerela, and Assam have realized low yield of tax revenue while Arunachal Pradesh consistently occupies the 2nd position in the top bracket. In addition the performances of Sikkim and Manipur have been very impressive during this time period.

Table 3.19 (B) - State-Wise Annual Growth Rates of Tax- Revenue/NSDP (2001-08):

S.No.	States	2001	2002	2003	2004	2005	2006	2007	2008
1	Andhra Pradesh	19.07	0.43	9.42	17.73	18.17	24.57	20.35	24.12
2	Arunachal Pradesh	61.90	8.82	16.22	13.95	26.53	25.81	25.64	1.02
3	Assam	10.83	23.56	6.98	31.06	19.13	7.77	-3.53	20.21
4	Bihar	-16.80	13.23	21.56	-0.57	6.55	13.25	26.11	24.97
5	Chhattisgarh	165.73	16.76	11.22	24.73	25.53	24.53	11.34	12.64
6	Goa	10.49	5.80	17.94	20.70	27.89	17.88	5.19	27.89
7	Gujarat	2.21	2.95	17.36	15.98	21.15	17.63	18.53	10.55
8	Haryana	15.31	11.63	14.38	17.20	22.03	20.37	6.31	23.09
9	Himachal Pradesh	25.82	-3.06	10.81	27.24	19.57	10.62	18.24	17.52
10	Jammu And Kashmir	14.71	13.75	18.03	21.53	20.64	12.67	20.81	17.14
11	Jharkhand		9.73	0.00	5.44	20.23	8.31	13.49	43.21
12	Karnataka	8.96	5.96	20.40	27.86	15.93	25.06	11.53	10.69
13	Kerela	0.90	23.30	10.76	10.82	9.09	22.12	14.46	16.57
14	Madhya Pradesh	-16.63	31.22	10.03	14.49	17.26	14.90	14.75	16.51
15	Maharashtra	7.93	7.15	10.31	21.64	9.59	19.56	18.53	5.39
16	Manipur	6.12	25.00	6.15	17.39	17.28	28.42	20.49	8.84
17	Meghalaya	14.29	6.62	22.76	16.85	21.63	20.55	4.59	20.69
18	Mizoram	35.71	47.37	21.43	17.65	37.50	23.64	14.71	21.79
19	Nagaland	-7.14	19.23	11.29	13.04	35.90	12.26	10.08	13.74
20	Orissa	12.96	16.42	14.97	26.50	19.75	21.25	13.04	11.90

21	Punjab	-1.53	18.49	7.62	13.00	29.43	0.31	9.78	16.65
22	Rajasthan	7.00	10.26	15.88	16.13	17.41	17.49	14.36	14.00
23	Sikkim	21.21	32.50	1.89	8.33	25.64	17.69	14.45	-18.18
24	Tamil Nadu	5.93	10.24	11.18	21.40	20.50	19.06	6.65	16.55
25	Tripura	26.19	15.09	20.77	8.60	23.33	15.54	8.48	21.56
26	Uttar Pradesh	-5.92	23.59	6.53	15.38	20.17	21.95	8.53	16.96
27	Uttarakhand	203.39	14.19	19.96	17.78	23.61	40.84	8.95	11.50
28	West Bengal	9.92	8.32	24.44	13.18	4.68	12.58	12.24	23.59
29	All-India	22.81	14.95	13.58	16.97	20.58	18.45	13.15	16.11

Source: *Based on Writer's own calculation from Table 3.A.9 in Annexure Chapter 3*

According to Table 3.19 (B) the All-India annual average growth rate of Tax Revenue/NSDP for the year 2001 was 22.81 while the All-India annual average growth rate of Tax Revenue/NSDP for the year 2008 was 16.11. This shows a decrease of nearly 7 percentage points within a span of 8 years.

In the year 2001 the top performing states in terms of Tax Revenue/NSDP were Uttarakhand (203.39), Chhattisgarh (165.73), Arunachal Pradesh (61.9), Mizoram (35.71), Tripura (26.19), and Himachal Pradesh (25.82) while the worst performers were Punjab (-1.53), Uttar Pradesh (-5.92), Nagaland (-7.14), Madhya Pradesh (-16.63) and Bihar (-16.8). In the year 2008 the best performers were Jharkhand (43.21), Goa (27.89), Bihar (24.97), Andhra Pradesh (24.12), West Bengal (23.59) while the worst performers were Gujarat (10.55), Manipur (8.84), Maharashtra (5.39), Arunachal Pradesh (1.02) and Sikkim (-18.18).

The figures above suggest that Arunachal Pradesh, Chhattisgarh, and Uttarakhand have realized low yield of tax revenue while Tripura and Himachal Pradesh continues to occupy top spots with a loss in their relative rankings. In addition the performances of Jharkhand, Bihar and Goa have been very impressive during this time period.

Table 3.20- showing Level indicators of Tax Revenue (State-wise):

Sr. No.	States	1990	2000	2007	Average of Annual Growth rates
1	Andhra Pradesh	0.036	0.084	0.134	15.97
2	Arunachal Pradesh	0.003	0.013	0.038	22.64
3	Assam	0.016	0.043	0.074	13.74
4	Bihar	0.034	0.055	0.062	10.86
5	Chhattisgarh	0.000	0.034	0.127	36.56
6	Goa	0.030	0.097	0.144	18.65
7	Gujarat	0.047	0.105	0.122	13.84
8	Haryana	0.034	0.084	0.123	15.72
9	Himachal Pradesh	0.022	0.055	0.093	16.12

10	Jammu And Kashmir	0.018	0.054	0.117	17.17
11	Jharkhand	0.000	0.000	0.077	14.35
12	Karnataka	0.049	0.099	0.172	15.18
13	Kerela	0.036	0.093	0.122	14.94
14	Madhya Pradesh	0.038	0.084	0.132	12.69
15	Maharashtra	0.042	0.094	0.133	13.66
16	Manipur	0.009	0.018	0.036	18.54
17	Meghalaya	0.018	0.035	0.059	14.31
18	Mizoram	0.000	0.010	0.038	22.19
19	Nagaland	0.011	0.018	NA	13.23
20	Orissa	0.026	0.058	0.100	14.74
21	Punjab	0.048	0.077	0.114	13.28
22	Rajasthan	0.026	0.074	0.110	15.11
23	Sikkim	0.000	0.081	0.142	18.55
24	Tamil Nadu	0.044	0.094	0.110	14.40
25	Tripura	0.011	0.026	0.047	17.32
26	Uttar Pradesh	0.027	0.069	0.111	13.35
27	Uttarakhand	0.000	0.023	0.123	42.53
28	West Bengal	0.031	0.046	0.065	12.13

Source: (a) *Based on Writer's own calculation from Table 3.A.9 in Annexure Chapter 3 for LI1990, LI2000, LI2008 and Average of IMR have been calculated from Table 3.17 (A) and 3.17 (B).*

Note: *LI indicates Level Indicator of the respective year.*

According to table 3.20 the best performing States in 1990 in terms of tax revenue were Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, and Goa while the worst States were Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, and West Bengal. In the year 2000 the best performing States were Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, and Goa and the worst performing States were Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, and West Bengal. In 2007 the top category States consisted of Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, and Goa while the bottom rung consisted of Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, and West Bengal. In terms of average of annual growth rates the best States were Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, and Goa while the worst States were Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, and West Bengal.

These figures suggest that the top category of States in Case of tax effort as well as the bottom category had remained same over the years. This indicates that the tax revenue proportion of various states have not changed drastically.

(II) Credit-Deposit ratio of Nationalized Banks of Different States in India:

In this section we will be analyzing Credit- Deposit ratio (CD) of Nationalised Banks among various States.

Table 3.21 (A) - State-Wise Annual Growth Rates of Credit-Deposit Ratio (1991-2000):

S.No	States	1991	1992	1993	1994	1995
1	Andhra Pradesh	0.28	-0.54	0.69	-9.77	8.74
2	Arunachal Pradesh	-7.19	15.49	17.44	-37.65	-38.33
3	Assam	1.46	-2.70	2.53	-12.10	-10.90
4	Bihar	-1.77	3.44	-3.91	-5.83	2.18
5	Chhattisgarh	NA	NA	NA	NA	NA
6	Goa	6.07	-10.73	1.55	-21.11	10.44
7	Gujarat	5.16	-9.04	0.41	-7.62	10.93
8	Haryana	4.57	-8.29	0.62	-12.12	0.50
9	Himachal Pradesh	4.59	-8.28	-7.78	-15.61	-7.07
10	Jammu And Kashmir	0.39	-0.76	-4.32	-8.62	6.38
11	Jharkhand	NA	NA	NA	NA	NA
12	Karnataka	4.41	-7.85	-5.84	-3.04	4.29
13	Kerela	6.99	-11.91	-6.91	-14.59	19.02
14	Madhya Pradesh	1.03	-1.93	0.87	-11.92	-0.89
15	Maharashtra	9.17	-15.28	-1.56	-1.32	8.41
16	Manipur	-2.34	4.49	23.36	-15.62	-28.15
17	Meghalaya	1.92	-3.50	-18.55	-2.56	1.23
18	Mizoram	-4.70	9.53	-7.91	-17.03	-3.87
19	Nagaland	1.08	-2.00	10.56	-1.28	7.68
20	Orissa	1.89	-3.45	-8.05	-5.46	-4.06
21	Punjab	2.34	-4.31	3.33	-4.75	6.34
22	Rajasthan	0.85	-1.58	-0.46	-10.08	-10.12
23	Sikkim	35.63	-64.34	6.99	25.05	18.85
24	Tamil Nadu	3.66	-6.56	0.88	-7.47	15.12
25	Tripura	1.35	-2.49	-14.23	-11.93	-1.66
26	Uttar Pradesh	3.30	-6.09	-1.86	-12.51	0.01
27	Uttarakhand	NA	NA	NA	NA	NA
28	West Bengal	-1.69	3.32	0.80	-12.26	19.51
29	All India	3.47	-6.29	0.25	-8.62	10.99

Contd.

S.No.	States	1996	1997	1998	1999	2000
1	Andhra Pradesh	2.71	-6.69	-5.63	-0.59	-4.60
2	Arunachal Pradesh	26.43	-12.58	-9.25	16.72	26.99
3	Assam	7.06	-5.67	-9.65	-2.03	6.03
4	Bihar	-10.94	-2.48	-5.07	-5.83	-12.94
5	Chhattisgarh	NA	NA	NA	NA	NA
6	Goa	-3.66	-2.35	3.48	0.60	-1.34
7	Gujarat	1.06	-12.80	-3.08	1.57	-2.48
8	Haryana	-8.75	-7.08	-0.10	3.24	-1.66
9	Himachal Pradesh	0.01	-20.11	9.17	2.89	5.05
10	Jammu And Kashmir	-15.11	-1.80	-2.13	10.32	0.40
11	Jharkhand	NA	NA	NA	NA	NA
12	Karnataka	-7.08	3.39	-1.49	0.72	3.73
13	Kerela	-11.20	-2.40	0.66	-4.15	2.06
14	Madhya Pradesh	-1.13	-4.59	-3.90	-2.68	0.33
15	Maharashtra	12.73	-12.67	2.00	2.54	16.75
16	Manipur	24.22	16.85	-11.93	-9.23	-26.97
17	Meghalaya	-25.61	-0.03	3.75	40.27	-8.30
18	Mizoram	10.00	-13.16	20.47	-31.71	1.16
19	Nagaland	-33.28	-18.23	-21.21	21.16	-24.11
20	Orissa	-5.18	-16.21	-1.41	-3.14	0.57
21	Punjab ·	-5.52	-8.67	-4.74	7.75	3.07
22	Rajasthan	5.17	-2.97	2.67	-3.63	4.93
23	Sikkim	-30.70	-19.99	73.59	-5.66	-42.99
24	Tamil Nadu	-0.69	-3.73	-4.37	-3.66	0.25
25	Tripura	-7.57	-20.10	-11.27	-7.44	-15.35
26	Uttar Pradesh	-7.47	-7.45	-7.06	-5.40	0.96
27	Uttarakhand	NA	NA	NA	NA	NA
28	West Bengal	-12.94	-10.76	-4.17	-2.25	-3.28
29	All India	-2.25	-7.53	-1.99	-0.03	2.86

Source: *Based on Writer's own calculation from Table 3.A.10 in Annexure Chapter 3*

According to Table 3.21 (A) the All-India annual average growth rate for the year 1991 was 3.47 while the All-India annual average growth rate for the year 2000 was 2.86. It shows a decrease of mere 0.5 percentage points within a span of 9 years. In the year 1991 the best performing States in terms of C-D ratio were Sikkim(35.63), Maharashtra(9.17), Kerela (6.99), Goa(6.07), Gujarat(5.16), and Himachal Pradesh(4.59) while the worst performing States were West Bengal (-1.69), Bihar (-1.77), Manipur (-2.34), Mizoram(-4.7), and Arunachal Pradesh(-7.19). In the year 2000 the best performing States in terms of C-D ratio

were Arunachal Pradesh (26.99), Maharashtra (16.75), Assam (6.03), Himachal Pradesh (5.05), and Rajasthan (4.93) while the worst performing States were Bihar (-12.94), Tripura (-15.35), Nagaland(-24.11), Manipur (-26.97), and Sikkim(-42.99).

These figures suggest that Maharashtra has been the most consistent State in keeping the second position among the top category states while Kerela, Sikkim and Goa have been relegated to the bottom tier due to their poor performance. Also West Bengal , Manipur and Bihar have stagnated while Arunachal Pradesh have finished as the top state in 2000.

Table 3.21 (B) - State-Wise Annual Growth Rates of Credit-Deposit Ratio (2001-08):

S.No.	States	2001	2002	2003	2004	2005	2006	2007	2008
1	Andhra Pradesh	1.50	-2.52	0.69	14.92	12.31	11.05	1.05	3.73
2	Arunachal Pradesh	-9.57	-5.65	5.29	0.65	74.82	30.10	-9.52	-33.92
3	Assam	-5.82	-8.05	-7.77	15.48	7.04	23.71	-12.83	-2.10
4	Bihar	-18.50	19.23	8.20	8.59	15.13	2.97	4.47	-9.68
5	Chhattisgarh	NA	NA	-20.17	11.72	12.09	-4.49	20.86	-10.63
6	Goa	-2.27	8.46	-4.34	-8.43	12.68	-17.29	18.03	18.16
7	Gujarat	0.71	11.13	1.59	-14.97	9.62	20.52	8.33	5.69
8	Haryana	2.29	9.18	0.60	8.37	10.71	13.31	1018.09	-90.57
9	Himachal Pradesh	-10.12	6.37	5.89	35.54	24.12	3.76	3.85	-4.85
10	Jammu And Kashmir	-1.32	44.31	-0.79	-27.45	16.51	24.22	4.11	8.76
11	Jharkhand	NA	NA	0.14	-8.37	23.19	10.07	4.14	2.95
12	Karnataka	-7.21	2.12	1.09	13.40	9.95	10.71	-4.67	0.26
13	Kerela	1.94	11.06	-1.18	13.76	21.60	13.41	-3.24	-1.24
14	Madhya Pradesh	-4.67	11.41	-0.08	-5.35	25.97	6.32	0.56	-8.05
15	Maharashtra	-0.16	10.59	1.54	-22.86	26.01	15.11	-4.65	9.09
16	Manipur	-6.04	-42.98	12.74	20.65	0.45	17.59	6.46	-17.78
17	Meghalaya	-2.37	11.20	58.14	89.51	-8.76	21.68	-45.21	-11.35
18	Mizoram	1.29	98.56	4.30	-22.42	81.31	-20.17	-3.19	0.16
19	Nagaland	-13.09	-1.25	3.15	37.02	6.32	6.16	7.04	11.92
20	Orissa	-5.24	12.94	8.22	8.75	19.73	6.30	-9.15	-12.36
21	Punjab	7.98	2.47	-0.68	-2.55	17.25	8.06	21.47	-0.54
22	Rajasthan	2.46	-6.39	4.99	27.35	28.12	10.93	6.66	-1.92
23	Sikkim	-3.97	33.55	6.90	8.90	52.86	60.59	5.42	5.70
24	Tamil Nadu	-1.51	13.35	6.23	-13.73	12.72	7.08	5.68	-0.74
25	Tripura	-18.01	7.60	21.39	-7.05	10.88	20.86	-3.05	-1.80
26	Uttar Pradesh	-3.65	16.24	2.32	5.77	15.59	7.84	6.50	0.84
27	Uttarakhand	NA	NA	-18.30	24.94	14.03	22.59	2.76	7.88
28	West Bengal	4.39	15.54	4.73	3.27	9.69	5.82	8.31	-1.77
29	All India	1.53	13.50	1.44	-8.44	16.64	12.91	3.02	2.65

According to Table 3.21 (B) the All-India annual average growth rate for the year 2001 was 1.53 while the All-India annual average growth rate for the year 2000 was 2.65. It shows an increase of just more than 1 percentage point within a span of 8 years.

In the year 2001 the best performing States in terms of C-D ratio were Punjab (7.98), West Bengal (4.39), Rajasthan (2.46), Haryana (2.29) and Kerela (1.94), while the worst performing States were Arunachal Pradesh(-9.57), Himachal Pradesh (-10.12), Nagaland (-13.09), Tripura (-18.01) and Bihar (-18.5).

In the year 2008 the best performing States in terms of C-D ratio were Goa (18.16), Nagaland (11.92), Maharashtra (9.09), Jammu and Kashmir (8.76), Uttarakhand (7.88), and Sikkim (5.7) while the worst performing States were Meghalaya (-11.35), Orissa (-12.36), Manipur (-17.78), Arunachal Pradesh(-33.92) and Haryana (-90.57).

These figures suggest that Punjab, West Bengal, Rajasthan, Haryana and Kerela have failed to sustain their excellent performance of 2001 to finish among the bottom tier. In addition Maharashtra and Goa have finished strongly securing positions among top 3 States.

Table 3.22- showing Level indicators of Credit-Deposit Ratio (State-wise):

S.No.	States	1990	2000	2008	Average of Annual Growth Rates
1	Andhra Pradesh	0.74	0.63	0.94	1.52
2	Arunachal Pradesh	0.26	0.18	0.23	2.79
3	Assam	0.49	0.37	0.38	-0.91
4	Bihar	0.35	0.22	0.28	-0.71
5	Chhattisgarh	0.00	0.00	0.45	1.56
6	Goa	0.29	0.24	0.29	0.44
7	Gujarat	0.47	0.39	0.58	1.49
8	Haryana	0.53	0.39	0.63	52.38
9	Himachal Pradesh	0.37	0.24	0.43	1.52
10	Jammu & Kashmir	0.31	0.26	0.43	2.95
11	Jharkhand	0.00	0.00	0.33	5.35
12	Karnataka	0.72	0.65	0.82	0.94
13	Kerela	0.50	0.38	0.64	1.87
14	Madhya Pradesh	0.57	0.44	0.55	0.07
15	Maharashtra	0.71	0.84	1.09	3.08
16	Manipur	0.76	0.49	0.37	-1.90
17	Meghalaya	0.22	0.17	0.30	5.64
18	Mizoram	0.22	0.13	0.30	5.70
19	Nagaland	0.33	0.15	0.25	-0.13

20	Orissa	0.66	0.42	0.53	-0.85
21	Punjab	0.40	0.38	0.62	2.68
22	Rajasthan	0.60	0.50	0.96	3.17
23	Sikkim	0.31	0.12	0.51	9.25
24	Tamil Nadu	0.83	0.76	0.99	1.25
25	Tripura	0.65	0.24	0.31	-3.33
26	Uttar Pradesh	0.42	0.27	0.43	0.44
27	Uttarakhand	0.00	0.00	0.38	10.00
28	West Bengal	0.50	0.38	0.61	1.46

Source: (a) *Based on Writer's own calculation from Table 3.A.10 in Annexure Chapter 3 for LI1990, LI2000, LI2008 and Average of IMR have been calculated from Table 3.19 (A) and 3.19 (B).*

Note: *LI indicates Level Indicator of the respective year.*

According to Table 3.22 the best performing States in 1990 were Tamil Nadu, Manipur, Andhra Pradesh, Karnataka, and Maharashtra and the worst performing States were Sikkim, Jammu & Kashmir, Goa, Arunachal Pradesh, and Meghalaya. In 2000 the best performing States were Maharashtra, Tamil Nadu, Karnataka, Andhra Pradesh and Rajasthan and the worst performing States were Arunachal Pradesh, Meghalaya, Nagaland, Mizoram, and Sikkim. In the year 2008 the best performing States were Maharashtra, Tamil Nadu, Rajasthan, Andhra Pradesh, and Karnataka and the worst performing States were Meghalaya, Goa, Bihar, Nagaland and Arunachal Pradesh. In terms of average of annual growth rates the best performing States were Haryana, Uttarakhand, Sikkim, Mizoram, and Meghalaya while the worst performing States were Bihar, Orissa, Assam, Manipur, and Tripura.

These figures suggest that the Western State of Maharashtra and Southern States like Karnataka, Tamil Nadu and Andhra Pradesh have done very well in terms of credit-deposit ratio over the year. It also shows that the north-eastern States clearly exhibit lack of financial facilities.

(III) Number of Banking Centers of Different States in India:

The total number of banking centers in a state is an indication of banking penetration within a region. In the present section we will be analyzing the number of banking centres among various states in the country.

Table 3.23 (A) - State-Wise Annual Growth Rates of Banking Centres (1991-2000):

S.No.	States	1991	1992	1993	1994	1995
1	Andhra Pradesh	0.31	0.03	0.34	-0.34	-1.65
2	Arunachal Pradesh	0.00	1.69	0.00	1.67	0.00

3	Assam	0.33	0.55	-0.11	0.11	-3.61
4	Bihar	0.13	0.15	0.15	-0.51	-3.50
5	Chhattisgarh	NA	NA	NA	NA	NA
6	Goa	0.00	0.00	-0.66	0.00	0.00
7	Gujarat	0.11	-0.05	0.60	-0.49	-2.03
8	Haryana	0.00	-0.13	1.19	0.13	-1.17
9	Himachal Pradesh	0.17	0.33	1.82	0.00	0.32
10	Jammu And Kashmir	0.97	1.54	0.38	0.00	-0.57
11	Jharkhand	NA	NA	NA	NA	NA
12	Karnataka	0.16	0.20	-0.12	-0.44	-1.29
13	Kerela	0.15	-0.07	0.15	0.00	0.07
14	Madhya Pradesh	0.13	0.25	0.22	-1.07	-8.29
15	Maharashtra	0.11	-0.07	0.07	-0.47	-2.48
16	Manipur	0.00	1.61	0.00	0.00	-3.17
17	Meghalaya	3.33	8.06	1.49	0.00	-2.94
18	Mizoram	1.56	3.08	1.49	0.00	0.00
19	Nagaland	0.00	0.00	0.00	0.00	-2.17
20	Orissa	0.37	0.43	0.42	0.30	-0.66
21	Punjab	0.26	-0.09	-0.09	-0.43	-1.64
22	Rajasthan	0.19	0.05	0.51	-1.20	-3.45
23	Sikkim	0.00	4.17	28.00	0.00	3.13
24	Tamil Nadu	0.09	0.13	0.26	0.66	-2.23
25	Tripura	0.00	0.78	0.00	0.00	0.00
26	Uttar Pradesh	0.02	0.05	0.05	-1.28	-1.66
27	Uttarakhand	NA	NA	NA	NA	NA
28	West Bengal	0.20	0.24	-0.04	0.00	-0.76
29	All India	0.12	0.16	0.24	-0.48	-2.40

Contd.

S.No.	States	1996	1997	1998	1999	2000
1.	Andhra Pradesh	-0.38	-0.63	-0.42	0.07	-0.50
2	Arunachal Pradesh	0.00	0.00	0.00	-3.28	0.00
3	Assam	-1.25	-0.46	-0.35	-0.46	-3.03
4	Bihar	-0.48	-0.03	-0.03	-0.08	-0.96
5	Chhattisgarh	NA	NA	NA	NA	NA
6	Goa	0.00	0.67	1.32	0.00	0.00
7	Gujarat	-1.85	-0.40	-0.29	-0.69	-0.12
8	Haryana	-1.19	-0.27	0.00	0.00	0.13
9	Himachal Pradesh	-0.16	0.16	0.00	0.00	0.00

10	Jammu And Kashmir	-2.28	-0.19	-1.56	0.20	-0.99
11	Jharkhand	NA	NA	NA	NA	NA
12	Karnataka	-0.61	-0.94	-0.54	-0.50	-0.13
13	Kerela	-0.07	0.07	0.07	0.07	0.00
14	Madhya Pradesh	-3.60	-0.93	-1.20	-0.62	-0.96
15	Maharashtra	-0.86	-0.08	0.04	-0.23	-0.30
16	Manipur	0.00	0.00	0.00	0.00	0.00
17	Meghalaya	0.00	0.00	0.00	0.00	-1.52
18	Mizoram	-2.94	0.00	0.00	0.00	0.00
19	Nagaland	0.00	-4.44	0.00	0.00	-2.33
20	Orissa	-0.12	-0.42	0.06	0.06	0.00
21	Punjab	0.00	0.00	-0.18	0.00	0.09
22	Rajasthan	-0.77	-0.29	-0.68	-0.44	-0.40
23	Sikkim	0.00	0.00	0.00	0.00	0.00
24	Tamil Nadu	-0.40	0.04	0.00	-0.45	-0.45
25	Tripura	-1.54	-0.78	0.00	-1.57	-2.40
26	Uttar Pradesh	-0.58	-0.39	-0.09	-0.14	-0.25
27	Uttarakhand	NA	NA	NA	NA	NA
28	West Bengal	-0.24	-0.04	0.00	0.00	-0.04
29	All India	-0.84	-0.33	-0.25	-0.22	-0.44

Source: *Based on Writer's own calculation from Table 3.A.11 in Annexure Chapter 3*

According to Table 3.23 (A) the All-India annual average growth rate for banking centres in 1991 was 0.12 while All-India annual average growth rate for banking centres in 2000 was -0.44. This shows a decrease of nearly 1 percentage points which is clearly not a healthy sign for banking penetration.

In the year 1991 the best performing States were Meghalaya (3.33), Mizoram (1.56), Jammu and Kashmir (0.97), Orissa (0.37) and Assam (0.33) while the worst performing states were Arunachal Pradesh, Goa, Haryana, Manipur, Nagaland, Sikkim and Tripura. The latter category states had virtually no growth from the previous year.

In the year 2000 the best performing States were Haryana (0.13) and Punjab(0.09) while the bottom rung States were Jammu and Kashmir (-0.98), Meghalaya (-1.51), Nagaland (-2.32), Tripura (-2.4) and Assam (-3.02).

A brief look at the figures will suggest that the banking penetration into most of the States in India have been least or negligible. In addition most of the north-eastern States had virtually no growth in terms of Banking Centres during this time period.

Table 3.23 (B) - State-Wise Annual Growth Rates of Banking Centres (2001-2008):

S.No.	States	2001	2002	2003	2004	2005	2006	2007	2008
1	Andhra Pradesh	-0.89	-0.14	-1.26	-0.36	-1.02	-0.22	-0.15	0.78
2	Arunachal Pradesh	0.00	0.00	-1.69	-3.45	1.79	0.00	0.00	0.00
3	Assam	-0.84	-1.57	-1.72	0.00	-1.25	-0.38	-1.65	0.00
4	Bihar	-27.71	0.00	-1.12	0.00	-0.30	-0.04	-0.57	0.23
5	Chhattisgarh	NA	-1.42	-1.15	-0.15	-3.93	-0.91	-1.68	0.78
6	Goa	-0.65	0.00	-0.66	-1.32	-0.67	0.00	0.68	0.67
7	Gujarat	-0.29	-0.41	-2.45	-0.12	-2.51	-1.53	0.00	0.75
8	Haryana	0.13	0.00	-0.40	0.00	-1.07	0.27	1.08	1.07
9	Himachal Pradesh	0.00	0.00	-0.48	0.16	0.00	0.16	-0.16	0.81
10	Jammu And Kashmir	-0.20	0.00	-0.20	-0.20	-2.40	-0.62	0.00	0.41
11	Jharkhand	NA	-0.20	-1.00	0.00	-0.10	0.00	-0.91	0.20
12	Karnataka	-1.26	-0.30	-0.89	-0.39	-1.21	-0.31	-0.70	0.53
13	Kerela	-0.15	-0.07	-0.59	-0.15	-3.59	0.39	-0.85	0.86
14	Madhya Pradesh	-27.61	-0.93	-1.56	-0.69	-1.28	-0.92	-1.52	0.06
15	Maharashtra	-0.53	-0.11	-2.75	-0.55	-0.91	-0.96	-0.64	0.24
16	Manipur	-14.75	-1.92	1.96	-1.92	-1.96	0.00	-4.00	-2.08
17	Meghalaya	0.00	0.00	0.00	0.00	0.77	0.00	-1.53	-0.78
18	Mizoram	0.00	0.00	0.00	0.00	0.00	0.00	-1.52	-6.15
19	Nagaland	0.00	0.00	2.38	0.00	0.00	0.00	-2.33	2.38
20	Orissa	-0.79	-0.06	-0.92	-0.25	-0.19	-0.06	-0.50	0.44
21	Punjab	-0.35	0.09	0.09	-0.18	-0.18	-0.53	-0.44	0.71
22	Rajasthan	-1.19	-0.15	-1.81	-0.41	-1.29	-0.31	-0.37	0.31
23	Sikkim	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	Tamil Nadu	-1.45	-1.43	-1.73	-0.95	-0.43	-0.14	0.19	1.06
25	Tripura	0.00	0.00	-0.82	0.00	0.00	0.00	0.83	0.82
26	Uttar Pradesh	-9.86	-0.18	-0.32	-0.14	-0.52	-0.24	-0.28	0.46
27	Uttarakhand	NA	0.00	-0.19	0.00	-1.31	0.00	-2.28	1.36
28	West Bengal	-0.32	-0.16	-0.20	-0.08	-0.49	0.04	-0.12	0.16
29	All India	-0.70	-0.33	-1.09	-0.28	-0.98	-0.32	-0.47	0.48

Source: *Based on Writer's own calculation from Table 3.A.11 in Annexure Chapter 3*

According to Table 3.23 (B) the All-India annual average growth rate for banking centres in 2001 was -0.7 while All-India annual average growth rate for banking centres in 2008 was 0.48. This shows an increase of nearly 1 percentage point during this time period.

In the year 2001 there was only one state which had a positive annual growth rate i.e. Haryana (0.13) while the worst performing states were Tamil Nadu (-1.45), Uttar Pradesh

(-9.86), Manipur (-14.75), Madhya Pradesh(-27.61) and Bihar (-27.71). In the year 2008 the best performing States were Nagaland (2.38), Uttarakhand (1.36), Haryana (1.07), Tamil Nadu (1.06), and Kerela (0.86) while the bottom ranked States consisted of Meghalaya(-0.78), Manipur (-2.08), and Mizoram (-6.15).

Summing up, one might point out that growth in banking centers have not been very impressive in particular only Haryana has been consistent in its performance.

Table 3.24 – showing level indicators of Banking Centres (State-wise):

States	1990	2000	2008	Average of Annual Growth Rates
Andhra Pradesh	0.011	0.010	0.010	-0.36
Arunachal Pradesh	0.001	0.001	0.001	-0.18
Assam	0.012	0.011	0.010	-0.87
Bihar	0.022	0.021	0.028	-1.93
Chhattisgarh	NA	NA	0.005	-1.21
Goa	0.041	0.041	0.041	-0.04
Gujarat	0.001	0.009	0.008	49.40
Haryana	0.017	0.017	0.017	-0.01
Himachal Pradesh	0.011	0.011	0.011	0.17
Jammu And Kashmir	0.002	0.002	0.002	-0.32
Jharkhand	NA	NA	0.012	-0.29
Karnataka	0.013	0.012	0.012	-0.48
Kerela	0.035	0.035	0.033	-0.21
Madhya Pradesh	0.007	0.006	0.006	-2.81
Maharashtra	0.009	0.009	0.008	-0.58
Manipur	0.003	0.003	0.002	-1.46
Meghalaya	0.005	0.006	0.006	0.38
Mizoram	0.003	0.003	0.003	-0.25
Nagaland	0.003	0.003	0.003	-0.36
Orissa	0.011	0.011	0.010	-0.11
Punjab	0.023	0.023	0.022	-0.16
Rajasthan	0.006	0.006	0.006	-0.65
Sikkim	0.003	0.005	0.005	1.96
Tamil Nadu	0.017	0.017	0.016	-0.40
Tripura	0.012	0.012	0.012	-0.26
Uttar Pradesh	0.020	0.105	0.021	-0.85
Uttarakhand	NA	NA	0.010	-0.35
West Bengal	0.028	0.028	0.028	-0.10

Note: *LI indicates Level Indicator of the respective year.*

According to Table 3.24 the best performing States in terms of Banking Centres per sq. kmsfor 1990 were Goa, Kerela, West Bengal, Punjab and Bihar and the worst States were Manipur, Nagaland, Jammu and Kashmir, Gujarat, and Arunachal Pradesh. In the year 2000 the best performing States in terms of Banking Centres were Uttar Pradesh, Goa, Kerela, West Bengal, and Punjab and the worst States were Mizoram, Manipur, Nagaland, Jammu and Kashmir, and Arunachal Pradesh. In the year 2008 the best performing States were Goa, Kerela, Bihar, West Bengal, and Punjab while the worst States were Mizoram, Nagaland, Jammu and Kashmir, Manipur and Arunachal Pradesh. In terms of average of annual growth rates the best performing States were Gujarat, Sikkim, Meghalaya, Himachal Pradesh, and Haryana and the worst performing States were Assam, Chhattisgarh, Manipur, Bihar, and Madhya Pradesh.

These figures indicate that the top bracketed States in terms of Banking centres have not changed over a period of time. Also the bottom rung States consist of hilly States like Mizoram, Nagaland, Jammu and Kashmir, Manipur and Arunachal Pradesh. Hence one has to say that these hilly States suffer from an acute deficit of Banking Offices.

Table 3.25 - showing CV of Financial Infrastructural indicators for various years (State-wise):

Year	TaxRevenue/NSDP	Credit Deposit Ratio	Banking Centres
1990	0.70	0.52	2.73
1991	0.73	0.52	2.66
1992	0.72	0.53	2.66
1993	0.69	0.55	2.66
1994	0.69	0.56	2.66
1995	0.69	0.56	2.66
1996	0.68	0.61	2.66
1997	0.67	0.65	2.66
1998	0.66	0.62	2.66
1999	0.63	0.61	2.66
2000	0.55	0.64	2.66
2001	0.44	0.62	2.65
2002	0.43	0.51	2.65
2003	0.41	0.51	2.65
2004	0.42	0.45	2.65
2005	0.40	0.43	2.65
2006	0.41	0.43	2.65
2007	0.42	1.57	2.65
2008	NA	0.46	2.65

Source: *Based on Writer's own calculation from Table 3.A.9, Table 3.A.10, Table 3.A.11, in Annexure Chapter 3.*

According to Table 3.25 the financial infrastructure indicators also follow the same trend as their counterparts in case of physical and social infrastructural indicators. The CV of Tax Revenue/NSDP in 1990 was 0.7; in 2000 it was 0.55 while in 2007 it was 0.42. The CV of Credit-deposit ratio in 1990 was 0.52, in 2000 it was 0.64 and in 2008 it was 0.46. The CV of Banking Centres per sq. km in 1990 was 2.73, in 2000 it was 2.66 and in 2008 it decreased to 2.65. These figures suggest that there has been a convergence among States in terms of financial infrastructure after the year of 2000. Though some indicators have shown a trend towards static CV like Banking Centres from 2001 onwards.

3.3 (A) Correlation Analysis:

In this section we try to ascertain whether the individual infrastructural indicators which we analysed in the previous sections are inter related with each other as well as how strongly they are correlated with PCNSDP and NSDP. In this case we will be using All-India figures for growth rates in PCNSDP and NSDP for a time period of 1991 -2008. The infrastructural indicators which have been analyzed in this correlation exercise are road

Length, rail Length, per capita consumption of electricity (PCE), Gross Irrigated Area (GIA) as a proportion of Gross Cropped Area (GCA), Tele- density, Infant Mortality Rate, Govt, allopathic hospitals, primary schools, tax revenue as a proportion of NSDP, credit-deposit ratio of nationalized banks, and number of banking centres in a state. We will be using annual All-India growth rates of these indicators.

Table 3.26- Correlation Matrix Table showing Infrastructural Indicators and PCNSDP and NSDP

(1991-2008)

	Road	Rail	PCE	GIA/GCA	TD	IMR	Hospital	PS	TR	BC	CD	NSDP	PCNSDP
Road	1	-0.202	0.056	0.164	0.04	-0.266	0.446	-0.02	0.186	-0.224	0.218	0.391	0.389
Rail	-0.202	1	0.195	0.167	-0.454	0.178	0.009	-0.066	-0.038	0.131	-0.175	-0.082	-0.112
PCE	0.056	0.195	1	0.012	0.106	0.008	.609	.556	0.33	-0.138	-0.161	0.408	0.398
GIA/GCA	0.164	0.167	0.012	1	-0.146	-.562	-0.153	-0.2	-0.011	0.305	0.061	-0.052	-0.091
TD	0.04	-0.454	0.106	-0.146	1	-0.201	0.397	0.175	0.259	0.13	0.197	.523	.585
IMR	-0.266	0.178	0.008	-.562	-0.201	1	0.074	-0.099	0.122	-0.253	0.005	-0.035	-0.059
Hospital	0.446	0.009	.609	-0.153	0.397	0.074	1	.602	0.42	-0.277	0.156	.564	.610
PS	-0.02	-0.066	.556	-0.2	0.175	-0.099	.602	1	0.032	-0.188	-0.385	0.325	0.325
TR	0.186	-0.038	0.33	-0.011	0.259	0.122	0.42	0.032	1	0.127	0.091	0.088	0.094
BC	-0.224	0.131	-0.138	0.305	0.13	-0.253	-0.277	-0.188	0.127	1	-0.354	-0.388	-0.36
CD	0.218	-0.175	-0.161	0.061	0.197	0.005	0.156	-0.385	0.091	-0.354	1	0.199	0.24
NSDP	0.391	-0.082	0.408	-0.052	.523	-0.035	.564	0.325	0.088	-0.388	0.199	1	.992
PCNSDP	0.389	-0.112	0.398	-0.091	.585	-0.059	.610	0.325	0.094	-0.36	0.24	.992	1

Source: *This table has been quoted from Table 3.A.12 Annexure Chapter 3.*

Note:- The variables Road refers to road length growth rate, Rail refers to rail length growth rate, PCE refers to growth rate of per capita consumption of electricity, GIA/ GCA refers to growth rate in GIA/GCA, TD refers to growth rate in Tele density, IMR refers to growth rate in IMR, Hospitals refers to growth rate in Govt. allopathic hospitals, PS refers to growth rate in primary schools, TR refers to growth rate in Tax revenue, BC refers to growth rate in Banking Centres, CD refers to growth rate in Credit-Deposit ratio, NSDP refers to growth rate in NSDP, and PCNSDP refers to growth rate in PCNSDP.

According to Table 3.26 NSDP is moderately correlated with tele-density (r = 0.523) and hospitals (r =0.564) while it is negatively correlated with rail (r = -0.08) and banking centres (r = -0.38) while PCNSDP also follows a similar pattern and is moderately correlated with tele-density(r =.585), roads (r = 0.38) and PCE (r = 0.39).

These figures suggest that the only significant physical infrastructural indicators have been road, PCE and tele-density while among social infrastructure indicators IMR shows a negative sign which theoretically is correct indicating better state of public health. Both primary schools and hospitals are also positively correlated indicating positive externalities with a lag. In addition one might point out that though the variable rail has negative correlation with majority variables but it has positive correlation with PCE and GIA/GCA. The variable roads have theoretically correct signs with all the variables while IMR has spurious correlation with govt. allopathic hospitals with appositive sign. Another spurious case of correlation under consideration is that of banking centre and credit deposit ratio. Summing up one might say that physical infrastructural indicators are more correlated than the social infrastructure with the exception of hospitals and financial infrastructure.

It would be better for us to study the same correlation trend with respect to State figures for the year 1990 and 2008 in the next two sections.

3.3 (B) Correlation Analysis for the year 1990:

Table 3.27- Correlation Matrix Table showing Infrastructural Indicators State-wise for the year 1990:

	Rail	Roads	GIA/GCA	PCE	TD	HSD	IMR	PSD	CD	BC	TR
Rail	1	0.348	.499*	.409*	0.228	.515**	0.355	.660**	0.148	.646**	.648**
Roads	0.348	1	-0.033	0.196	0.163	.693**	-0.071	0.317	0.175	.768**	0.333
GIA/GCA	.499*	-0.033	1	.513**	0.203	0.167	0.072	0.124	0.089	0.207	.403*
PCE	.409*	0.196	.513**	1	.630**	0.28	0.135	0.036	0.215	0.341	.768**
TD	0.228	0.163	0.203	.630**	1	0.043	0.055	-0.126	0.369	0.037	.649**
HSD	.515**	.693**	0.167	0.28	0.043	1	-0.154	.519**	-0.026	.826**	0.273
IMR	0.355	-0.071	0.072	0.135	0.055	-0.154	1	0.377	.505**	0.002	.399*
PSD	.660**	0.317	0.124	0.036	-0.126	.519**	0.377	1	0.154	.643**	0.276
CD	0.148	0.175	0.089	0.215	0.369	-0.026	.505**	0.154	1	0.027	.470*
BC	.646**	.768**	0.207	0.341	0.037	.826**	0.002	.643**	0.027	1	.443*
TR	.648**	0.333	.403*	.768**	.649**	0.273	.399*	0.276	.470*	.443*	1

Source: *This table has been quoted from Table 3.A.13 Annexure Chapter 3.*

Note:- *The variables Roads refers to road length per sq. km, Rail refers to rail length per sq. km, PCE refers to per capita consumption of electricity, GIA/ GCA refers to proportion of GIA/GCA, TD refers to Tele density, IMR refers to Infant Mortality Rate, HSD refers to Govt. allopathic hospitals per sq. km, PSD refers to primary schools per sq. kms, TR refers to Tax revenue, BC refers to Banking Centres per sq. kms, CD refers to growth rate in Credit-Deposit ratio.*

According to Table 3.27 Rail length per sq. km has high degree of correlation with GIA/ GCA (r = .49), PCE (r =0.41), HSD (r =0.51), PSD (r=0.66), BC(r=0.64) and TR (r=0.64). Roads has high degree of correlation with HSD (r = 0.69) and BC (r=0.76). GIA/ GCA has high degree of correlation with Rail (r=0.49), PCE (r=0.51), and TR (r =0.40). TD has high degree of correlation with PCE (r=0.63), and TR (r=0.69). PCE has high degree of correlation with TD(r=0.63), TR (r=0.4), and GIA/GCA (r=0.51). These figures indicate that infrastructural indicators also have a significant impact upon each other besides affecting the economic development. The figures suggest that transport facilities like rail and road affect social indicators like HSD and BC. Hence the physical infrastructural indicators have a significant impact upon both social and financial infrastructural dimensions.

3.3 (C) Correlation Analysis for the year 2008:

Table 3.28- Correlation Matrix Table showing Infrastructural Indicators State-wise for the year 2008:

	Rail	Roads	GIA/GCA	PCE	TD	HSD	IMR	PSD	CD	BC	TR
Rail	1	.388*	.629**	0.251	-0.033	.468*	0.14	.681**	.687**	0.232	0.328
Roads	.388*	1	-0.082	0.004	-0.274	.610**	-.402*	0.296	.663**	0.02	0.02
GIA/GCA	.629**	-0.082	1	0.243	0.2	0.18	0.218	.433*	0.342	0.164	0.226
PCE	0.251	0.004	0.243	1	0.186	.416*	-0.161	-0.004	.408*	.634**	0.334
TD	-0.033	-0.274	0.2	0.186	1	-0.07	0.237	-0.283	-0.245	0.239	.407*
HSD	.468*	.610**	0.18	.416*	-0.07	1	-.482**	0.262	.668**	0.172	0.344
IMR	0.14	-.402*	0.218	-0.161	0.237	-.482**	1	0.369	-0.307	0.153	0.044
PSD	.681**	0.296	.433*	-0.004	-0.283	0.262	0.369	1	.609**	0.061	-0.081
CD	.687**	.663**	0.342	.408*	-0.245	.668**	-0.307	.609**	1	0.254	0.036
BC	0.232	0.02	0.164	.634**	0.239	0.172	0.153	0.061	0.254	1	.585**
TR	0.328	0.02	0.226	0.334	.407*	0.344	0.044	-0.081	0.036	.585**	1

Source: *This table has been quoted from Table 3.A.14 Annexure Chapter 3.*

Note:- *The variables Roads refers to road length per sq. km, Rail refers to rail length per sq. km, PCE refers to per capita consumption of electricity, GIA/ GCA refers to proportion of GIA/GCA, TD refers to Tele density, IMR refers to Infant Mortality Rate, HSD refers to Govt. allopathic hospitals per sq. km, PSD refers to primary schools per sq. kms, TR refers to Tax revenue, BC refers to Banking Centres per sq. kms, CD refers to growth rate in Credit-Deposit ratio.*

According to Table 3.28 there is high degree of correlation between Rail length per sq. km and Roads (r = 0.388), GIA/ GCA (r = 0.629), HSD(r =0.468), PSD(r=0.681) and CD (r=0.687). This again reinforces the proposition that transport facilities do have a strong correlation with social and financial infrastructure. In case of roads also it has fairly high degree of correlation with Rail (r=0.388) , HSD (r=0.61)and CD (r=0.66). This again shows that there is a closely associated relation between different dimensions of infrastructure.

3.4 Infrastructure Indices:

Now we will be constructing composite indices of infrastructural indicators viz. Physical Infrastructural development Index (PIDI), Social Infrastructural Development Index (SIDI), and Financial Infrastructural development Index (SIDI) with the help of Principal Component Analysis (PCA). In the PCA approach, the first principal component is the linear combination of weighted facilities which explains the maximum of variance across the observation at a point in time. The rationale behind using PCA is that it helps one to reach an aggregate representation from various individual indicators.

Before looking at the different rankings of PIDI, SIDI and FIDI it would be judicious from our point of view to take a brief look at the weights of infrastructure variables.

Table 3.29- Weights of Infrastructure Variables: PCA

Infrastructure Variables	1990	1995	1999	2004	2007
Physical Infrastructure					
Road	0.03	0.651	-0.052	0.171	-0.08
Rail	0.583	0.695	0.7	0.806	0.664
PCE	0.858	0.776	0.822	0.597	0.632
TD	0.658	0.588	0.479	0.684	0.59
GIA/GCA	0.799	0.776	0.895	0.811	0.825
Eigen Value	2.317	2.456	2.47	2.175	2.024
Var expl (percent)	46	49	49	43	40
Social Infrastructure					
IMR	0.661	0.721	-0.005	0.748	0.671
PSD	0.726	0.89	0.855	0.922	0.94
HSD	0.924	0.735	0.878	0.058	0.181
Eigen Value	1.817	1.851	1.504	1.514	1.46
Var expl (percent)	60	61	50	50	48
Financial Infrastructure					
TR	0.878	0.938	0.945	0.878	0.727
BC	0.701	0.814	0.744	0.645	0.668
CD	0.834	0.737	0.759	0.76	0.654
Eigen Value	1.958	2.086	2.024	1.765	1.403
Var expl (percent)	65	69	67	58	46

Source: *Quoted from various results of SPSS Indices Results of Annexure in Chapter3*

Note- *The variables Road indicates road length per sq. kms, Rail indicates rail length per sq. kms, PCE indicates per capita consumption of electricity, TD indicates tele-density, GIA/GCA*

indicates gross irrigated area as a proportion of gross cropped area, IMR indicates infant mortality rate, PSD indicates the proportion of primary schools per sq.kms, HSD indicates the percentage of number of hospitals per sq. kms, TR refers to tax revenue as a proportion of NSDP, BC refers to number of banking centers per sq. kms, and CD refers to Credit-Deposit ratio.

According to the Table 3.29 there are certain important trends which come to our attention by analyzing the respective weights of corresponding facilities. Firstly, in terms of Physical facilities irrigation as proxied by gross irrigated area has emerged as the most dominant facility. As a matter of surprise in spite of not huge scale development in railway network; it has emerged as the second most important component of physical infrastructure. In addition one has to point out that per capita consumption of electricity (PCE) and tele-density (TD) have fallen drastically from 0.858 in 1990 to 0.632 in 2007 and 0.658 in 1990 to 0.59 in 2007.

The results of social infrastructure show that primary school has emerged as the most dominant of all facility while the infant mortality rate has emerged more significant than hospitals.

In terms of financial infrastructure tax revenue has emerged as the most important indicator closely followed by banking centres in a state with the exception being in 1999 and 2004. The credit- deposit ratio has fallen in comparison with the other two variables from 0.83 in 1990 to 0.65 in 2007.

Now we will be analyzing the rankings of different states in terms of PIDI, SIDI and FIDI in the subsequent sections.

3.4 (A) Physical Infrastructure Development Index (PIDI):

These indices have been constructed with the aid of Principal Component Analysis (PCA).

Table 3.30– Physical Infrastructure Development Indices (PIDIs) for 1990, 1995, 1999, 2004, and 2007.

States	1990		States	1995		States	1999	
	PIDI	Rank		PIDI	Rank		PIDI	Rank
Punjab	3.06	1	Haryana	2.44	1	Punjab	2.70	1
Haryana	1.66	2	Punjab	2.41	2	Haryana	1.95	2
Gujarat	1.42	3	Tamil Nadu	0.98	3	Gujarat	1.34	3
Maharashtra	0.91	4	Gujarat	0.95	4	Tamil Nadu	0.98	4
Tamil Nadu	0.89	5	Kerela	0.88	5	Uttar Pradesh	0.70	5
Uttar Pradesh	0.48	6	Maharashtra	0.69	6	Bihar	0.62	6
Andhra Pradesh	0.41	7	Uttar Pradesh	0.42	7	Andhra Pradesh	0.44	7
Karnataka	0.18	8	Goa	0.34	8	Rajasthan	0.21	8
Bihar	0.10	9	Bihar	0.30	9	Maharashtra	0.12	9
Jammu And Kashmir	0.02	10	Andhra Pradesh	0.16	10	Karnataka	0.08	10
West Bengal	-0.06	11	Karnataka	0.02	11	West Bengal	0.01	11
Rajasthan	-0.17	12	West Bengal	-0.02	12	Madhya Pradesh	-0.07	12
Goa	-0.19	13	Madhya Pradesh	-0.13	13	Jammu And Kashmir	-0.12	13
Madhya Pradesh	-0.22	14	Rajasthan	-0.18	14	Himachal Pradesh	-0.39	14
Himachal Pradesh	-0.32	15	Orissa	-0.29	15	Orissa	-0.48	15
Manipur	-0.38	16	Himachal Pradesh	-0.44	16	Manipur	-0.58	16
Orissa	-0.42	17	Assam	-0.64	17	Assam	-0.72	17
Kerela	-0.51	18	Jammu And Kashmir	-0.67	18	Meghalaya	-0.78	18
Assam	-0.76	19	Nagaland	-0.86	19	Kerela	-0.81	19
Meghalaya	-0.81	20	Sikkim	-0.91	20	Sikkim	-0.86	20
Nagaland	-0.83	21	Manipur	-0.92	21	Mizoram	-0.99	21
Sikkim	-0.95	22	Tripura	-1.01	22	Nagaland	-1.02	22
Arunachal Pradesh	-1.02	23	Meghalaya	-1.03	23	Arunachal Pradesh	-1.02	23
Mizoram	-1.07	24	Mizoram	-1.22	24	Tripura	-1.30	24
Tripura	-1.42	25	Arunachal Pradesh	-1.26	25	Chhattisgarh		25
Chhattisgarh	NA	NA	Chhattisgarh	NA	NA	Goa	NA	NA
Jharkhand	NA	NA	Jharkhand	NA	NA	Jharkhand	NA	NA
Uttarakhand	NA	NA	Uttarakhand	NA	NA	Uttarakhand	NA	NA

Contd.

States	2004		States	2007	
	PIDI	Rank		PIDI	Rank
Punjab	3.01	1	Punjab	3.11	1
Haryana	1.90	2	Haryana	1.89	2
Gujarat	1.16	3	Gujarat	1.34	3
Tamil Nadu	1.15	4	Tamil Nadu	1.24	4
Uttar Pradesh	0.87	5	Uttar Pradesh	0.81	5
Kerela	0.67	6	Andhra Pradesh	0.52	6
West Bengal	0.50	7	Karnataka	0.37	7
Andhra Pradesh	0.46	8	Himachal Pradesh	0.32	8
Bihar	0.39	9	West Bengal	0.26	9
Goa	0.38	10	Bihar	0.20	10
Karnataka	0.30	11	Rajasthan	0.11	11
Maharashtra	0.10	12	Maharashtra	0.09	12
Uttarakhand	-0.06	13	Goa	0.04	13
Rajasthan	-0.10	14	Uttarakhand	-0.05	14
Madhya Pradesh	-0.21	15	Madhya Pradesh	-0.15	15
Himachal Pradesh	-0.31	16	Jammu And Kashmir	-0.20	16
Orissa	-0.43	17	Kerela	-0.30	17
Chhattisgarh	-0.57	18	Orissa	-0.36	18
Jammu And Kashmir	-0.58	19	Chhattisgarh	-0.56	19
Jharkhand	-0.66	20	Jharkhand	-0.73	20
Assam	-0.69	21	Sikkim	-0.78	21
Meghalaya	-0.82	22	Meghalaya	-0.83	22
Tripura	-0.95	23	Nagaland	-0.89	23
Nagaland	-1.00	24	Manipur	-0.93	24
Sikkim	-1.02	25	Mizoram	-1.00	25
Manipur	-1.12	26	Tripura	-1.14	26
Mizoram	-1.12	27	Arunachal Pradesh	-1.15	27
Arunachal Pradesh	-1.23	28	Assam	-1.21	28

Source: *Based on Writer's own calculation from Table 3.A.15 in Annexure Chapter 3*

According to Table 3.30 it is quite evident that the top categories of States have remained same over a span of 18 years from 1990 to 2007. The top states in terms of physical infrastructure are Punjab, Haryana, Gujarat, Tamil Nadu and Uttar Pradesh while the north-eastern states continue to languish at the bottom in particular Assam, Meghalaya, Tripura, Nagaland, Sikkim, Manipur, Mizoram, and Arunachal Pradesh. All the newly formed States namely Uttarakhand, Jharkhand and Chhattisgarh have negative scores in terms of physical infrastructure. Among the top States only Maharashtra has stagnated over the years and consequently has a lower ranking in 2007. Among the Specially Empowered States Bihar and Rajasthan have positive score while Orissa and Madhya Pradesh have realized negative scores.

3.4 (B) Social Infrastructure Development Indices (SIDI):

These social infrastructure development indices have been calculated on the basis of PCA.

Table 3.31 – Social Infrastructure Development Indices (SIDIs) of various States for 1990, 1995, 1999, 2004, and 2007:

STATE	1990		STATE	1995		STATE	1999	
	SIDI	Rank		SIDI	Rank		SIDI	Rank
West Bengal	2.04	1	Bihar	1.88	1	West Bengal	2.05	1
Bihar	1.85	2	West Bengal	1.76	2	Bihar	1.82	2
Uttar Pradesh	1.14	3	Uttar Pradesh	1.23	3	Goa	1.47	3
Punjab	1.02	4	Orissa	1.22	4	Punjab	1.22	4
Orissa	1.02	5	Assam	1.08	5	Uttar Pradesh	1.09	5
Assam	0.98	6	Punjab	0.96	6	Kerela	1.04	6
Goa	0.86	7	Goa	0.77	7	Assam	0.94	7
Madhya Pradesh	0.70	8	Madhya Pradesh	0.73	8	Tripura	0.68	8
Tripura	0.61	9	Tamil Nadu	0.46	9	Tamil Nadu	0.53	9
Tamil Nadu	0.47	10	Tripura	0.32	10	Orissa	0.30	10
Kerela	0.33	11	Kerela	0.27	11	Arunachal Pradesh	0.19	11
Maharashtra	0.17	12	Haryana	0.18	12	Haryana	0.16	12
Andhra Pradesh	0.07	13	Arunachal Pradesh	0.15	13	Madhya Pradesh	0.15	13
Karnataka	-0.06	14	Rajasthan	-0.11	14	Andhra Pradesh	-0.11	14
Himachal Pradesh	-0.10	15	Maharashtra	-0.12	15	Himachal Pradesh	-0.20	15
Haryana	-0.10	16	Andhra Pradesh	-0.12	16	Gujarat	-0.34	16
Gujarat	-0.29	17	Gujarat	-0.16	17	Karnataka	-0.43	17
Rajasthan	-0.36	18	Karnataka	-0.17	18	Meghalaya	-0.51	18
Meghalaya	-0.38	19	Himachal Pradesh	-0.22	19	Nagaland	-0.53	19
Manipur	-0.53	20	Meghalaya	-0.46	20	Maharashtra	-0.55	20
Sikkim	-0.65	21	Manipur	-0.56	21	Manipur	-0.64	21
Nagaland	-0.68	22	Sikkim	-0.65	22	Rajasthan	-0.91	22
Arunachal Pradesh	-0.69	23	Nagaland	-0.67	23	Mizoram	-1.00	23
Mizoram	-1.28	24	Mizoram	-1.28	24	Sikkim	-1.09	24
Jammu And Kashmir	-1.41	25	Jammu And Kashmir	-1.45	25	Jammu And Kashmir	-1.16	25
Chhattisgarh	NA	NA	Chhattisgarh	NA	NA	Uttarakhand	NA	NA
Jharkhand	NA	NA	Jharkhand	NA	NA	Jharkhand	NA	NA
Uttarakhand	NA	NA	Uttarakhand	NA	NA	Chhattisgarh	NA	NA

Contd.

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STATE	2004		STATE	2007	
	SIDI	Rank		SIDI	Rank
Kerela	2.46	1	Uttar Pradesh	1.97	1
Uttar Pradesh	2.20	2	West Bengal	1.97	2
West Bengal	1.66	3	Kerela	1.87	3
Bihar	1.34	4	Bihar	1.47	4
Assam	1.24	5	Assam	1.25	5
Madhya Pradesh	1.19	6	Orissa	1.12	6
Orissa	1.19	7	Madhya Pradesh	0.98	7
Haryana	0.70	8	Haryana	0.70	8
Chhattisgarh	0.40	9	Meghalaya	0.48	9
Punjab	0.33	10	Chhattisgarh	0.28	10
Meghalaya	0.32	11	Punjab	0.16	11
Andhra Pradesh	0.25	12	Uttarakhand	0.16	12
Rajasthan	0.13	13	Andhra Pradesh	0.15	13
Tamil Nadu	0.12	14	Rajasthan	0.03	14
Himachal Pradesh	0.06	15	Goa	0.03	15
Uttarakhand	-0.06	16	Jharkhand	-0.06	16
Jharkhand	-0.19	17	Himachal Pradesh	-0.07	17
Goa	-0.19	18	Tamil Nadu	-0.19	18
Karnataka	-0.37	19	Karnataka	-0.23	19
Maharashtra	-0.50	20	Tripura	-0.28	20
Tripura	-0.56	21	Gujarat	-0.53	21
Gujarat	-0.62	22	Maharashtra	-0.61	22
Jammu And Kashmir	-0.96	23	Jammu And Kashmir	-0.97	23
Sikkim	-1.08	24	Sikkim	-1.08	24
Arunachal Pradesh	-1.39	25	Nagaland	-1.26	25
Nagaland	-1.39	26	Arunachal Pradesh	-1.48	26
Manipur	-1.46	27	Mizoram	-1.53	27
Mizoram	-1.56	28	Manipur	-1.62	28

Source: *Based on Writer's own calculation from Table 3.A.16 in Annexure Chapter 3*

The figures of Table 3.31 suggest that West Bengal, Uttar Pradesh, Bihar and Assam have consistently remained in the top category of states while the excellent performances of Kerela on the social development scale have catapulted it into one of the top 3 States in recent years. The states with poor rankings continue to be dominated by north-eastern states like Sikkim, Nagaland, Arunachal Pradesh, Mizoram and Manipur and Jammu and Kashmir. Among the newly formed States only Jharkhand have realized negative score in comparison with Uttarakhand and Chhattisgarh. Rajasthan has improved its score while Orissa has been consistent in its performance among the Specially Empowered States.

3.4 (C) Financial Infrastructure Development Indices (FIDI):

These indices have been calculated with the help of PCA.

Table 3.32 – Financial Infrastructure Development Indices (FIDIs) of various States for 1990, 1995, 1999, 2004, and 2007:

STATE	1990		STATE	1995		STATE	1999	
	FIDI	Rank		FIDI	Rank		FIDI	Rank
Andhra Pradesh	2.52	1	Tamil Nadu	1.57	1	Tamil Nadu	1.64	1
Tamil Nadu	1.23	2	Bihar	1.38	2	Bihar	1.20	2
Karnataka	1.14	3	Goa	1.25	3	Goa	1.18	3
Maharashtra	0.85	4	Kerela	1.24	4	Maharashtra	1.10	4
Kerela	0.79	5	Karnataka	1.09	5	Kerela	1.10	5
Punjab	0.71	6	West Bengal	0.87	6	Karnataka	1.09	6
Madhya Pradesh	0.59	7	Punjab	0.85	7	Andhra Pradesh	1.00	7
West Bengal	0.52	8	Maharashtra	0.81	8	Haryana	0.69	8
Gujarat	0.51	9	Haryana	0.75	9	Gujarat	0.69	9
Orissa	0.49	10	Gujarat	0.61	10	Madhya Pradesh	0.61	10
Haryana	0.42	11	Andhra Pradesh	0.51	11	West Bengal	0.53	11
Bihar	0.41	12	Madhya Pradesh	0.49	12	Punjab	0.49	12
Rajasthan	0.38	13	Rajasthan	0.29	13	Rajasthan	0.37	13
Goa	0.30	14	Uttar Pradesh	0.24	14	Uttar Pradesh	0.29	14
Uttar Pradesh	0.21	15	Orissa	0.05	15	Orissa	-0.05	15
Manipur	-0.02	16	Tripura	-0.23	16	Assam	-0.16	16
Tripura	-0.06	17	Himachal Pradesh	-0.23	17	Himachal Pradesh	-0.22	17
Assam	-0.09	18	Assam	-0.37	18	Manipur	-0.33	18
Himachal Pradesh	-0.31	19	Meghalaya	-0.55	19	Tripura	-0.57	19
Jammu And Kashmir	-0.58	20	Manipur	-0.57	20	Meghalaya	-0.61	20
Meghalaya	-0.58	21	Jammu And Kashmir	-0.69	21	Jammu And Kashmir	-0.63	21
Nagaland	-0.81	22	Sikkim	-0.77	22	Sikkim	-0.70	22
Sikkim	-1.11	23	Nagaland	-0.89	23	Nagaland	-1.04	23
Arunachal Pradesh	-1.20	24	Arunachal Pradesh	-1.30	24	Arunachal Pradesh	-1.28	24
Mizoram	-1.28	25	Mizoram	-1.41	25	Mizoram	-1.31	25
Chhattisgarh	-1.68	26	Chhattisgarh	-1.66	26	Chhattisgarh	-1.69	26
Jharkhand	-1.68	27	Jharkhand	-1.66	27	Jharkhand	-1.69	27
Uttarakhand	-1.68	28	Uttarakhand	-1.66	28	Uttarakhand	-1.69	28

Contd.

STATE	2004		STATE	2007	
	FIDI	Rank		FIDI	Rank
Karnataka	1.66	1	Haryana	2.99	1
Tamil Nadu	1.59	2	Goa	1.61	2
Kerela	1.26	3	Kerela	1.07	3
Goa	1.13	4	Karnataka	0.89	4
Maharashtra	1.10	5	Tamil Nadu	0.63	5
Andhra Pradesh	0.95	6	Punjab	0.48	6
Haryana·	0.89	7	Maharashtra	0.44	7
Rajasthan	0.64	8	Uttar Pradesh	0.40	8
Punjab	0.56	9	Andhra Pradesh	0.40	9
West Bengal	0.53	10	Madhya Pradesh	0.28	10
Madhya Pradesh	0.30	11	West Bengal	0.28	11
Orissa	0.19	12	Rajasthan	0.17	12
Chhattisgarh	0.18	13	Bihar	0.15	13
Gujarat	0.16	14	Gujarat	0.13	14
Uttar Pradesh	0.08	15	Uttarakhand	0.05	15
Bihar	-0.03	16	Sikkim	-0.08	16
Meghalaya	-0.18	17	Orissa	-0.10	17
Assam	-0.38	18	Chhattisgarh	-0.20	18
Himachal Pradesh	-0.38	19	Himachal Pradesh	-0.29	19
Uttarakhand	-0.46	20	Jammu And Kashmir	-0.37	20
Sikkim	-0.49	21	Jharkhand	-0.48	21
Jharkhand	-0.63	22	Assam	-0.58	22
Jammu And Kashmir	-0.74	23	Meghalaya	-0.73	23
Tripura	-1.05	24	Tripura	-0.86	24
Manipur	-1.41	25	Manipur	-1.39	25
Mizoram	-1.76	26	Arunachal Pradesh	-1.43	26
Nagaland	-1.83	27	Mizoram	-1.45	27
Arunachal Pradesh	-1.86	28	Nagaland	-2.00	28

Source: *Based on Writer's own calculation from Table 3.59 in Annexure Chapter 3*

According to Table 3.32 the top performing States have been Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra and Kerela although their relative rankings have changed but they continue to belong to top echelons of financial infrastructure. These names suggest that the hub of financial infrastructure seems to be concentrated in the southern part of the country with the exception being Punjab and Haryana which belong to northern part of the country. The bottom category States seems to be dominated by Special Category States (SCSs) like Jammu and Kashmir, Himachal Pradesh, Assam, Meghalaya, Tripura, Manipur, Arunachal Pradesh,

Mizoram, and Nagaland. The only exception to this has been Sikkim which has realized a positive score. Also among the newly formed States only Uttarakhand has a positive score while Chhattisgarh and Jharkhand have negative scores.

3.5 Regional Inequalities in India:

In this section we will be trying to measure whether regional inequalities have widened at the All-India level by taking into account PCNSDP for various from 1993-2007 for a span of 15 years. In order to do so we have carried out a simple non-parametric tests of convergence of estimating the coefficient of variation of PCNSDP (CV) which do not directly relate to the growth of the States.

Table 3.33 – Non-Parametric Test on Regional Disparity:

Years	SD	Mean	CV of PCNSDP	No.Of States
1993	5067.4640	12684.1200	0.3995	25
1994	5247.4640	13113.4600	0.4002	25
1995	5542.1240	13509.4000	0.4102	25
1996	6219.7880	14185.3300	0.4385	25
1997	6143.1560	14617.2700	0.4203	25
1998	7255.2600	15332.6000	0.4732	25
1999	7390.9670	15757.6100	0.4690	25
2000	6378.2160	16339.3900	0.3904	25
2001	6408.1950	16939.0000	0.3783	28
2002	6753.9070	17319.0000	0.3900	28
2003	7005.1410	18409.3900	0.3805	28
2004	7546.0370	19546.9300	0.3860	28
2005	8763.3290	20759.3900	0.4221	28
2006	9454.3790	22331.5400	0.4234	28
2007	10392.1500	24129.3700	0.4307	28

Source: *Based on Writer's own calculation from Table 3.61 in Annexure Chapter 3*

The standard convergence literature states that although differences in technology, preferences and institutions do exist across regions within countries, these differences are likely to be smaller than those across countries. Moreover a common central government and legal system are more likely to lead to absolute convergence across regions within countries than across countries. According to Barro and Sala-i-Martin (1995), dispersion of per capita personal income for 48 States in US declined from 0.24 in 1950 to 0.19 in 1988. In sharp contrast to this, from the above Table- 3.33 the dispersion of per capita income for Indian States rose steadily from 0.39 in 1993 to o.43 in 2007. By any benchmark this represents a

very high level of disparity among constituent regions of any country. Hence any popular convergence view of Indian States can hardly be justified from the above evidence.

3.6 Linkage between Infrastructure Indices and Regional Inequalities:

Now since we have established evidence of growing regional inequalities the next step will be to find out which dimension of infrastructure has contributed to such ever widening regional inequalities. In this section we will be running a regression analysis to find out which infrastructure dimension is significant. This regression analysis will be for 5 points of time namely 1991, 1996, 2000, 2005, and 2008. Also we will be using a dummy variable representing absence or presence of sea port in a State. The equation we will be testing is as follows:

$PCNSDP_{t+1} = f(PIDI_t, SIDI_t, FIDI_t, Port\ Dummy)$

The model we will be testing for this equation is as follows:

$Y_{t+1} = \beta_1 + \beta_2 X_{1t} + \beta_3 X_{2t} + \beta_4 X_{3t} + \beta_5 PD + U_t$

Where

Y_{t+1} = refers to Per Capita NSDP for the year t+1.

X_{1t} = refers to Physical Infrastructure Development Index for the year t.

X_{2t} = refers to Social Infrastructure Development Index for the year t.

X_{3t} = refers to Financial Infrastructure Development Index for the year t.

PD = represents absence (PD=0) or existence (PD=1) of Sea Ports.

U_t = refers to the Stochastic term

The estimated equations are shown below (t-ratios in parentheses):

Regression analysis for the year 1991:

$PCNSDP_{1991} = \beta_1 + \beta_2 PIDI_{1990} + \beta_3 SIDI_{1990} + \beta_4 FIDI_{1990} + U_t$

$PCNSDP_{1991} = 12668.97 + 2511.92\ PIDI_{1990} + (-)\ 617.41\ SIDI_{1990} + (-)1183.368\ FIDI_{1990}$

$\qquad\qquad\quad (18.32)\qquad (3.27)\qquad\qquad (-0.645)\qquad\qquad (-1.245)$

$\qquad\qquad\quad N= 24\qquad\qquad R^2 = 0.35\qquad\qquad d = 3.289$

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In the first part for this time period we are using a simple regression without any dummy variable. The results show that the explanatory variables account for 35 percent of the variation in the explained variable. The results show that PIDI is highly significant in explaining the variation in PCNSDP while the other two components i.e. SIDI and FIDI are not significant. Now let us compare the results with a regression model with a sea port dummy variable.

$$PCNSDP_{1991} = \beta_1 + \beta_2 PIDI_{1990} + \beta_3 SIDI_{1990} + \beta_4 FIDI_{1990} + \beta_5 PD$$

$$PCNSDP_{1991} = 12127.935 + 2703.985\ PIDI_{1990} + (-)\ 681.814\ SIDI_{1990} + (-)2107.399\ FIDI_{1990} + 2115.864\ PD$$

$$(14.962)\ (3.497)\ (-.721)\ (-1.757)\ (1.237)$$

$$N = 24 \qquad R^2 = 0.398 \qquad d = 3.308$$

The regression model incorporated with sea port dummy variable shows that the explanatory variables account for nearly 40 percent of the variation in explained variable. Here again the component PIDI is significant.

Regression analysis for the year 1996:

$$PCNSDP_{1996} = \beta_1 + \beta_2 PIDI_{1995} + \beta_3 SIDI_{1995} + \beta_4 FIDI_{1995}$$

$$PCNSDP_{1996} = 14804.243 + 2964.918 PIDI_{1995} + -2136.413 SIDI_{1995} + 39.640\ FIDI_{1995}$$

$$(15.590)\quad (2.150)\qquad (-1.632)\qquad (.022)$$

$$N = 25 \qquad R^2 = 0.32 \qquad d = 2.831$$

The above model shows that the explanatory variables explain about 32 percent of the explained variation in the explained variables. Here again PIDI turns out to be significant variable in explaining the variation in PCNSDP. Perhaps a look at modified model will improve the results.

Modified Model:

$$PCNSDP_{1996} = \beta_1 + \beta_2 PIDI_{1995} + \beta_3 SIDI_{1995} + \beta_4 FIDI_{1995} + \beta_5 PD$$

$$PCNSDP_{1996} = 13754.487 + 3649.105 PIDI_{1995} + (-)1584.756 SIDI_{1995} + (-)2217.830 FIDI_{1995} + 3857.941\ PD$$

$$(12.127)\qquad (2.603)\qquad (-1.207)\qquad (-.977)\qquad (1.575)$$

$$N = 25 \qquad R^2 = 0.39 \qquad d = 2.809$$

The modified model shows that the explanatory variable explains about 39 percent of the variation in the explained variable. It again reinforces the fact that PIDI has been significant in explaining the variation in PCNSDP.

Regression Analysis for the year 2000:

$$PCNSDP_{2000} = \beta_1 + \beta_2 PIDI_{1999} + \beta_3 SIDI_{1999} + \beta_4 FIDI_{1999}$$

$$PCNSDP_{2000} = 16338.442 + 939.148 PIDI_{1999} + 218.152 SIDI_{1999} + 1940.033\ FIDI_{1999}$$

(13.999)   (.638)   (.145)   (1.160)

N= 28 $R^2 = 0.16$ d = 2.282

The above results show that the explanatory variables explain about 16 percent of the variation in the explained variable. In this case none of the explanatory variables have been significant.

Modified Model:

$$PCNSDP_{2000} = \beta_1 + \beta_2 PIDI_{1999} + \beta_3 SIDI_{1999} + \beta_4 FIDI_{1999} + \beta_5 PD$$

$$PCNSDP_{2000} = 15046.038 + 1413.663 PIDI_{1999} + 524.866 SIDI1999 + 307.277\ FIDI_{1999} + 4022.442\ PD$$

(9.455)   (.934)   (.345)   (.142)   (1.183)

N= 28 $R^2 = 0.21$ d = 2.38

The results of the modified model shows that the explanatory variables explain about 21 percent of the variation in the explained variable. Here again none of the infrastructure indices are significant.

Regression Analysis for the year 2005:

$$PCNSDP_{2005} = \beta_1 + \beta_2 PIDI_{2004} + \beta_3 SIDI_{2004} + \beta_4 FIDI_{2004}$$

$$PCNSDP_{2005} = 20756.189 + 2905.163 PIDI_{2004} + (-)4861.108 SIDI_{2004} + 4010.362 FIDI_{2004}$$

(16.063)   (1.598)   (-3.272)   (2.171)

N= 28 $R^2 = 0.459$ d = 2.059

The above results show that the explanatory variables explain about 45 percent of the variation in the explained variable. In this case both the SIDI and FIDI are significant but the SIDI has wrong sign.

Modified Model:

$$PCNSDP_{2005} = \beta_1 + \beta_2 PIDI_{2004} + \beta_3 SIDI_{2004} + \beta_4 FIDI_{2004} + \beta_5 PD$$

$$PCNSDP_{2005} = 19803.018 + 3138.504 PIDI_{2004} + -4481.149 SIDI_{2004} + 2742.337 FIDI_{2004} + 2967.299 PD$$

(10.722)   (1.684)   (-2.822)   (1.075)   (.729)

N= 28 $R^2 = 0.471$ d = 2.157

The above results indicate that the explanatory variables explain about 47 percent of the variation in the explained variable. In this case only SIDI is significant in explaining the variation in the explained variable.

Regression Analysis for the year 2008:

$$PCNSDP_{2008} = \beta_1 + \beta_2 PIDI_{2007} + \beta_3 SIDI_{2007} + \beta_4 FIDI_{2007}$$

$$PCNSDP_{2008} = 24773.800 + 253.052 PIDI_{2007} + -5098.328 SIDI_{2007} + 8450.874 FIDI_{2007}$$

(18.614)   (.140)   (-3.418)   (4.474)

N= 28 $R^2 = 0.59$ d = 2.128

The above results indicate that the explanatory variables explain about 59 percent of the variation in the explained variable. In this case both SIDI and FIDI have been found to be significant in explaining the variation in the explained variable. Also that SIDI has got the wrong sign.

Modified Model:

$$PCNSDP_{2008} = \beta_1 + \beta_2 PIDI_{2007} + \beta_3 SIDI_{2007} + \beta_4 FIDI_{2007} + \beta_5 PD$$

$$PCNSDP_{2008} = 23181.185 + 346.406 PIDI_{2007} + -4805.342 SIDI_{2007} + 7288.125 FIDI_{2007} + 4955.563 PD$$

(14.306)   (.199)   (-3.303)   (3.711)   (1.620)

$$N = 28 \qquad R^2 = 0.63 \qquad d = 2.167$$

The above results indicate that the explanatory variables explain about 63 percent of the variation in the explained variable. In this case both SIDI and FIDI have been found to be significant in explaining the variation in the explained variable. Also that SIDI has got the wrong sign.

The above results at different points of time indicate that during the initial phase of time period 1990-2008 the PIDI were significant while in the last decade both the SIDI and FIDI have become highly significant.

3.6 Major Findings of the Chapter:

The major findings of this chapter revolve around the linkage between widening regional inequalities and availability of infrastructural facilities. Firstly it is quite evident that after 1990 with the adoption of neo-liberal policies the regional inequalities between States have widened and with the passing of years it has led to concentration of infrastructural facilities in a few States leading to the formation of cores and periphery initially in the early years of 1990s.

In case of Physical infrastructure the CV of Road length per sq. km in 1990 was 2.66, in 2000 it was 2.66, and in 2008 it declined to 2.65. The CV of rail length per sq. km in 1990 was 2.66; in 2000 again it was 2.66 while in 2009 it declined to 2.55. The CV of PCE in 1990 was 0.76; in 2000 it was 0.81 while in 2007 it was 0.72. The CV of TD in 1990 was 0.83, in 2000 it was 0.94 and in 2009 it was 0.81. The CV of GIA/GCA in 1990 was 0.8, in 2000 it was 0.73 and in 2007 it decreased to 0.63. These figures clearly suggest that in the initial years of 1990s with the development of physical infrastructure the inequalities in terms of infrastructure increased till 2000 after which it had started declining gradually over the years to come down. This is quite similar to the shape of Kuznet's inverted U curve.

In case of Social infrastructure in 1990 the CV of hospitals per sq. km was 2.66, in 2000 its CV was 2.67 and in 2005 its CV was 2.69. The CV of primary schools per sq. km in 1990 was 2.67; in 2000 it was again 2.67 while in 2007 it decreased to 2.66. The CV of IMR in 1990 was 0.75; in 2000 the CV was 0.41, while in 2009 it decreased to 0.36.These figures suggest that except for hospital facilities whose CV has increased the other two variables have shown a decrease in infrastructural inequalities after 2000; but in the initial years of 1990s they had shown an alarming trend to increase.

In terms of financial infrastructure the CV of Tax Revenue/NSDP in 1990 was 0.7; in 2000 it was 0.55 while in 2007 it was 0.42. The CV of Credit-deposit ratio in 1990 was 0.52, in

2000 it was 0.64 and in 2008 it was 0.46. The CV of Banking Centres per sq. km in 1990 was 2.73, in 2000 it was 2.66 and in 2008 it decreased to 2.65.

Secondly the regression analysis of the chapter shows that with the passage of time physical infrastructure have lost its prominence to social and financial infrastructure. . The t-value of PIDI in 1990 was 3.27 while in 2007 the t-value of PIDI was 0.14. The t-values of SIDI and FIDI in 1990 were -0.645 and -1.245 while in 2007 these t-values were (-) 3.418 for SIDI and 4.474 for FIDI.

In terms of Physical infrastructure Punjab, Haryana, Gujarat, Tamil Nadu and Uttar Pradesh have remained as premier Sates while Jammu and Kashmir and north-eastern States like Assam, Meghalaya, Tripura, Nagaland, Sikkim, Manipur, Mizoram, and Arunachal Pradesh have deficit physical infrastructural set-up with various loop holes in between. For instance there has been an acute lack of rail network in these States while large scale improvement in railway infrastructure have already taken place in Jammu and Kashmir. Among physical infrastructural facilities there are 3 facilities- power, roadways, and telecommunications which have significant relation with growth of NSDP and PCNSDP of States.

In terms of social infrastructure West Bengal, Uttar Pradesh, Bihar and Assam have remained in the top category. Kerela has remained like a beacon for other States to follow with its impressive performances in social sector by remaining among the top 3 States for the last decade or so. The languishing States are again dominated by north-eastern States like Sikkim, Nagaland, Arunachal Pradesh, Mizoram, Manipur; and Jammu and Kashmir. In terms of infrastructural facilities Hospitals and Primary Schools are significant with a larger lag effect.

In terms of financial infrastructure it is evident that the core is concentrated in the southern part of the country with the top 5 being dominated by Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra and Kerela. The entire northern part of the country do not have adequate financial infrastructure with the exception of Punjab and Haryana. The bottom ranked States again consist of Jammu and Kashmir, Himachal Pradesh, Assam, Meghalaya, Tripura, Manipur, Arunachal Pradesh, Mizoram, and Nagaland. These States have a larger deficit in terms of infrastructural development particularly in case of banking penetration. All the three financial infrastructure indicators have been found to be significant.

The newly formed States like Uttarakhand, Jharkhand and Chhattisgarh also suffer from deficit in infrastructure with the latter two being worse off than Uttarakhand.

This brings us to the conclusion that in terms of overall infrastructural development there are certain cores which have developed. In the Northern part this concentration is more in developed States like Punjab and Haryana, while in the Western region it is largely dominated by Gujarat and Maharashtra to some extent. The Southern region is more blessed with better

infrastructure than anywhere in the country but the Eastern and North-Eastern region in particular needs special attention for the development of adequate infrastructure.

Chapter 4

District level analysis of infrastructural facilities in Orissa and Gujarat

4.1 Introduction:

In the previous chapter we try to ascertain whether concentration of infrastructural development in certain regions have led to the widening of regional inequalities or alternatively whether the States which have lacked in infrastructural set up and framework have also been the ones with low PCNSDP. This chapter tries to find out whether the concentration of infrastructural facilities on certain districts has led to convergence or divergence of growth within a State. We will also try to find out whether there is a pattern to this concentration of infrastructural set-up and how different it is in case of Gujarat as well as Orissa. We have chosen these two States because both present two different planes of steady state where Orissa has been less progressive in terms of economic development whereas Gujarat has been one of the front runners of India's well documented economic progress. One of the major problems facing an investigator while studying the infrastructural set-up is the lack of continuous data sets at a disaggregated level. Hence we will be analyzing the physical, social and financial dimensions of infrastructure of these two States on a district basis at two points of time i.e. in 1991 and 2004. In course of our analysis we will be constructing infrastructure indices by the help of Principal component Analysis (PCA).

This chapter is divided into four parts. The first part discusses about the various infrastructure indices and their relative rankings in case of Orissa at two different points of time in 1990 and 2004. The second part presents a regression analysis between different infrastructural indices i.e. PIDI, SIDI, and FIDI and employment rate in the organized manufacturing sector in case of Orissa. The third part discusses about the various infrastructure indices and their relative rankings in case of Gujarat at two different points of time in 1990 and 2004. The fourth part presents a regression analysis between different infrastructural indices i.e. PIDI, SIDI, and FIDI and employment rate in the organized manufacturing sector in case of Gujarat.

4.2- Infrastructure Indices of Orissa:

In this section we will be constructing 3 indices of infrastructural set up i.e. Physical Infrastructure Development Index (PIDI), Social Infrastructure Development Index (SIDI), and Financial Infrastructure Development Index (FIDI). The variables we will be taking into account for construction of PIDI are Road length per sq. kms (RL), Rail length per sq. km (Rail) (if it is available), Villages Electrified (VE) as a proportion of total inhabited villages, and Teledensity (TD) (if the figures are available). The social infrastructure is defined into

literacy rate of different districts, hospitals per 10,000 persons and General Colleges per 10,000 persons in a district. The financial infrastructure includes Credit-Deposit ratio (CD) of Scheduled Commercial Banks, Bank Offices per 100,000 persons, and Post Offices per 100,000 persons.

In case of Orissa we will be analyzing 13 districts as according to the administrative division of 1990 instead of the present set up of 30 districts. In order to avoid confusion and unnecessary ambiguity the clubbing of various new districts are as follows:

(1). The newly formed Ganjam and Gajapati districts have been clubbed into Old Ganjam district of 1990.

(2) The newly formed districts of Koraput, Malkangiri, Nabrangpur and Rayagada have been clubbed into the Koraput district.

(3). The districts of Balashore, and Bhadrak have been clubbed into as a whole in Balashore district.

(4) The districts of Cuttack, Jajpur, Kendrapara and Jagatsinghpur have been classified into the district of Cuttack.

(5) The districts of Baudh and Kandhamal make the old district of Baudh-Phulbani.

(6). The newly formed districts of Puri, Khurdha, and Nayagarh have been clubbed into district of Puri.

(7). The districts of Dhenkanal and Angul have been collated into the district of Dhenkanal.

(8) The districts of Sambalpur, Bargarh, Deogarh, and Jharsuguda have been clubbed into Sambalpur district.

(9) The newly formed district of Sonepur and Bolangir have been clubbed into the district of Bolangir.

(10) The districts of Kalahandi and Nuapada have been clubbed into the district of Kalahandi.

There have been only 3 undivided districts in Orissa. These districts are- Mayurbhanj, Kendujhar, and Sundargarh.

Before proceeding any further it would be judicious from our point of view to take a brief look at the weights of infrastructure variables as derived from PCA.

Table 4.1 Weights of Infrastructure Variables: PCA

Infrastructure Variables	1991	2004
Physical Infrastructure		
Road	0.989	0.698
VE	-0.258	0.963
TD*	0.435	0.644
Eigen Value	1.695	1.968
Var Expl (per cent)	56.509	65.585
Social Infrastructure		
Hospitals	-0.051	-0.869
LR	0.938	0.817
GC	0.939	0.612
Eigen Value	1.764	1.796
Var Expl (per cent)	58.794	59.87
Financial Infrastructure		
PO	0.431	-0.789
CD	-0.736	0.542
BO	0.785	0.729
Eigen Value	1.343	1.449
Var Expl (per cent)	44.77	48.29

Source: *Quoted from various results of SPSS Indices Results of Annexure in Chapter 4.*

Note- *The variables Road indicate road length per sq.kms, VE indicates villages electrified as a proportion of total inhabited villages, TD indicates teledensity, Hospitals indicate hospitals per 10000 persons, LR indicates literacy rate, GC indicates the total number of general colleges per 10,000 persons, PO indicates the number of post offices per 100,000 persons; CD indicates credit-deposit ratio of Scheduled Commercial Banks; and BO indicates the number of banking offices per 100,000 persons.*

According to Table 4.1 there are certain important trends which have come to our notice by analyzing the respective weights of infrastructural facilities. In terms of physical infrastructure in 1991 the roads were the most significant indicator carrying highest weight of 0.989 but it lost its place to villages electrified as the most important variable in 2004. Therefore one has to say that road development have given away to power development during the time period.

In terms of social infrastructure Literacy Rate and General Colleges were important in 1991 but their weights have fallen from 0.938 to 0.817 in case of LR and 0.939 to 0.612 in case of GC in 2004. The hospitals have emerged as the most significant variable in recent years.

In terms of financial infrastructure Banking Offices were the most significant of all variables in 1990 but in 2004 it has become the second most important variable other than post offices.

Now we will take a look at different relative rankings of PIDI, SIDI, and FIDI and try to find out how their rankings have changed at different points of time.

4.2 (A) Physical Infrastructure Development Indices in 1991 and 2004:

We have constructed physical infrastructure indices with the help of PCA. The indices for 1991 and 2004 are as follows:

Table 4.2- Physical Infrastructure Development Indices (PIDI) of Districts of Orissa in 1991

Districts	1990	
	PIDI	Rank
Sundargarh	2.90	1
Sambalpur	0.58	2
Puri	0.53	3
Koraput	0.20	4
Cuttack	0.14	5
Keonjhar	-0.17	6
Ganjam	-0.28	7
Dhenkanal	-0.28	8
Balasore	-0.48	9
Bolangir	-0.68	10
Mayurbhanj	-0.78	11
Baudh-Phulbani	-0.80	12
Kalahandi	-0.87	13

Source: *Based on Writer's own calculation from Table 4.A.1 in Annexure Chapter 4.*

The Table 4.2 clearly shows that the top districts in 1990 in terms of PIDIs are Sundargarh (2.9), Sambalpur (0.58), Puri (0.53), Koraput (0.2) and Cuttack (0.14) while the bottom ranked districts are Bolangir (-0.68), Mayurbhanj (-0.78), Baudh-Phulbani (-0.8), and

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Kalahandi (-0.87). The top districts seems to be concentrated either in mining rich areas like northern and southern Orissa or in the coastal belt.

Table 4.3- Physical Infrastructure Development Indices (PIDI) of Districts of Orissa in 2004

Districts	2004	
	PIDI	Rank
Cuttack	1.59	1
Balasore	1.13	2
Sundargarh	0.71	3
Keonjhar	0.69	4
Bolangir	0.62	5
Puri	0.60	6
Dhenkanal	-0.05	7
Ganjam	-0.24	8
Sambalpur	-0.47	9
Mayurbhanj	-0.50	10
Koraput	-0.97	11
Kalahandi	-1.26	12
Baudh-Phulbani	-1.85	13

Source: *Based on Writer's own calculation from Table 4.A.2 in Annexure Chapter 4.*

According to Table 4.3 above the top category districts in terms of PIDI in 2004 belong to Cuttack (1.59), Balashore (1.13), Sundargarh (0.71), Keonjhar (0.69), and Bolangir (0.62) while the bottom rung districts are Sambalpur (-0.47), Mayurbhanj (-0.5), Koraput (-0.97), Kalahandi (-1.26) and Baudh-Phulbani (-1.85). The above ranks indicate that the physical infrastructure in the northern and southern districts of Orissa has degraded over the years and the coastal districts of Orissa seem to have impressive physical infrastructure development than in comparison with other districts in Orissa.

The above two tables indicate that there have been a concentration of physical infrastructure facilities in coastal districts of Cuttack and Puri as well as in the northern districts of Sundargarh and Keonjhar. In addition the districts like Kalahandi, Baudh-Phulbani and Mayurbhanj have been consistently ranked among the worst districts while the Physical infrastructural set up of Koraput has decreased during this phase.

4.2 (B) Social Infrastructure Development Indices in 1991 and 2004:

The social infrastructure indices for the year 1991 and 2004 have been constructed with the help of PCA. The indices for 1991 and 2004 are as follows:

Table 4.4- Social Infrastructure Development Indices (SIDI) of Districts of Orissa in 1991

Districts	1991	
	SIDI	Ranks
Cuttack	1.40	1
Puri	1.19	2
Balashore	1.04	3
Sundargarh	0.57	4
Dhenkanal	0.46	5
Sambalpur	0.45	6
Keonjhar	0.13	7
Ganjam	0.00	8
Mayurbhanj	-0.53	9
Bolangir	-0.59	10
Kalahandi	-0.81	11
Baudh-Phulbani	-1.64	12
Koraput	-1.68	13

Source: *Based on Writer's own calculation from Table 4.A.3 in Annexure Chapter 4.*

According to Table 4.4 the top districts in terms of SIDI for the year 1991 were Cuttack (1.4), Puri (1.19), Balashore (1.04), Sundargarh (0.57) and Dhenkanal (0.46) while the bottom ranked districts were Bolangir (-0.59), Kalahandi(-0.81), Baudh-Phulbani (-1.64) and Koraput (-1.68). These figures indicate that there have been substantial developments in terms of health and education in case of coastal districts like Cuttack, Puri and Balashore while the interior districts like Baudh-Phulbani, Koraput and Kalahandi have not seen much improvement in these social indicators.

Table 4.5- Social Infrastructure Development Indices (SIDI) of Districts of Orissa in 2004

Districts	2004	
	SIDI	Ranks
Cuttack	1.43	1
Baleshwar	0.91	2
Dhenkanal	0.82	3
Sambalpur	0.52	4
Bolangir	0.45	5
Sundargarh	0.39	6
Puri	-0.03	7
Keonjhar	-0.04	8
Ganjam	-0.06	9
Mayurbhanja	-0.12	10
Kalahandi	-0.49	11
Baudh-Phulbani	-1.38	12
Koraput	-2.38	13

Source: *Based on Writer's own calculation from Table 4.A.4 in Annexure Chapter 4.*

According to Table 4.5 the top districts in terms of SIDI for the year 1991 were Cuttack (1.43), Balashore (0.91), Dhenkanal (0.82), Sambalpur (0.52), and Bolangir (0.45) while the bottom ranked districts were Mayurbhanj(-0.12), Kalahandi(-0.49), Baudh-Phulbani (-1.38) and Koraput (-2.38).

These figures from the above two tables indicate that the coastal district of Cuttack seems to have been the number one district for both the years while Koraput has seen least improvement in health and educational facilities to be ranked among the last of all districts. In addition among the interior districts only Bolangir has improved its rank while the districts like Mayurbhanj, Kalahandi, Baudh-Phulbani and Koraput have been consistently ranked among the last.

4.2 (C) Financial Infrastructure Development Indices in 1990 and 2004:

The financial indices of districts are as follows:

Table 4.6- Financial Infrastructure Development Indices (FIDI) of Districts of Orissa in 1990

Districts	1990	
	FIDI	Ranks
Baudh-Phulbani	0.97	1
Mayurbhanj	0.97	2
Puri	0.96	3
Ganjam	0.81	4
Sundargarh	0.80	5
Dhenkanal	0.47	6
Sambalpur	0.44	7
Cuttack	-0.03	8
Keonjhar	-0.15	9
Balasore	-0.70	10
Bolangir	-1.32	11
Kalahandi	-1.53	12
Koraput	-1.70	13

Source: *Based on Writer's own calculation from Table 4.A.5 in Annexure Chapter 4.*

According to Table 4.6 the top districts in terms of FIDI for the year 1991 were Baudh-Phulbani (0.97), Mayurbhanj (0.97), Puri (0.96), Ganjam (0.81), and Sundargarh(0.8) while the bottom ranked districts were Balashore (-0.7), Bolangir (-1.32), Kalahandi(-1.53), and Koraput (-1.7). It seems from the above figure that the interior districts like Ganjam and Baudh-Phulbani seems to have better financial infrastructure than many coastal districts.

Table 4.7- Financial Infrastructure Development Indices (FIDI) of Districts of Orissa in 2004

Districts	2004	
	FIDI	Ranks
Puri	2.25	1
Sambalpur	1.11	2
Sundargarh	0.67	3
Kalahandi	0.33	4
Cuttack	0.12	5
Balasore	0.10	6
Dhenkanal	0.04	7
Bolangir	0.02	8
Koraput	-0.46	9
Ganjam	-0.64	10
Keonjhar	-0.93	11
Mayurbhanj	-0.95	12
Baudh-Phulbani	-1.66	13

Source: *Based on Writer's own calculation from Table 4.A.6 in Annexure Chapter 4.*

According to table 4.7 the top districts in terms of FIDI for the year 2004 were Puri (2.25), Sambalpur (1.11), Sundargarh (0.67), Kalahandi (0.33), and Cuttack (0.12), while the bottom ranked districts were Koraput (-0.46), Ganjam (-0.64), Keonjhar(-0.93), Mayurbhanj(-0.95), and Baudh-Phulbani(-1.66).

The above two tables suggest that the interior districts of Orissa are much better of in terms of financial infrastructure during 1991 but in 2004 it seems the coastal districts have caught up with the interior districts in terms of financial infrastructure. In addition one has to point out that Kalahandi seems to have improved its ranking in terms of financial infrastructure in comparison with Mayurbhanj and Baudh-Phulbani.

In the next section we will try to find out which dimension of infrastructure have been more significant for the growth of organized manufacturing sector.

4. 3 Regression analysis:

In this section we will be running a regression analysis to find out which infrastructure dimension is significant. This regression analysis will be for 2 points of time namely 1991 and 2004. Also we will be using a dummy variable representing absence or presence of major sea port in a district.. The equation we will be testing is as follows:

$ER_{t+1} = f(PIDI_t, SIDI_t, FIDI_t, Port Dummy)$

The model we will be testing for this equation is as follows:

$$Y_{t+1} = \beta_1 + \beta_2 X_{1t} + \beta_3 X_{2t} + \beta_4 X_{3t} + \beta_5 PD$$

Where

Y_{t+1} = refers to Percentage of Employment Rate in the Organized Manufacturing sector for the year t+1.

X_{1t} = refers to Physical Infrastructure Development Index for the year t.

X_{2t} = refers to Social Infrastructure Development Index for the year t.

X_{3t} = refers to Financial Infrastructure Development Index for the year t.

PD = represents absence (PD=0) or existence (PD=1) of Sea Ports.

The estimated equations are shown below (t-ratios in parentheses):

Regression analysis for the year 1991:

$$ER_{1992} = \beta_1 + \beta_2 PIDI_{1991} + \beta_3 SIDI_{1991} + \beta_4 FIDI_{1991}$$

$$ER_{1992} = 1.204 + 1.355\ PIDI_{1991} + 0.241\ SIDI_{1991} + 0.162\ FIDI_{1991}$$

$$\qquad (6.041) \qquad (5.925) \qquad\qquad (1.04) \qquad\qquad (.723)$$

$$N= 13 \qquad\qquad R^2 = 0.857 \qquad\qquad d = 2.728$$

In the first part for this time period we are using a simple regression without any dummy variable. The results show that the explanatory variables account for 85 percent of the variation in the explained variable. The results show that physical infrastructure is the most significant variable of all infrastructural dimensions.. Now let us compare the results with a regression model with a sea port dummy variable.

$$ER_{1992} = \beta_1 + \beta_2 PIDI_{1991} + \beta_3 SIDI_{1991} + \beta_4 FIDI_{1991} + \beta_5 PD$$

$$ER_{1992} = 1.262 + 1.331\ PIDI_{1991} + 0.348\ SIDI_{1991} + 0.131\ FIDI_{1991} + (-)\ 0.751\ PD$$

$$\qquad (5.944) \qquad (5.712) \qquad\qquad (1.316) \qquad\quad (0.571) \qquad\qquad (-0.88)$$

$$N= 13 \qquad\qquad R^2 = 0.869 \qquad\qquad d = 2.637$$

The regression model incorporated with sea port dummy variable shows that the explanatory variables account for nearly 87 percent of the variation in explained variable. Here again the component PIDI is highly significant.

Regression analysis for the year 2004:

$$ER_{2005} = \beta_1 + \beta_2 PIDI_{2004} + \beta_3 SIDI_{2004} + \beta_4 FIDI_{2004}$$

$$ER_{2005} = 0.661 + 0.336 \, PIDI_{2004} + -0.137 \, SIDI_{2004} + 0.177 \, FIDI_{2004}$$

$$(2.642) \qquad (0.831) \qquad (-0.341) \qquad (0.622)$$

$$N = 13 \qquad R^2 = .167 \qquad d = 1.078$$

The above model for the year 2004 shows that the explanatory variables account for about 16 per cent of the explained variables. In this case none of the dimensions of infrastructure have been significant. Now let us see if the results of the modified model with port dummy are anyway different.

$$ER_{2005} = \beta_1 + \beta_2 PIDI_{2004} + \beta_3 SIDI_{2004} + \beta_4 FIDI_{2004} + \beta_5 PD$$

$$ER_{2005} = 0.716 + 0.417 PIDI_{2004} + (-) 0.098 \, SIDI_{2004} + 0.138 FIDI_{2004} + (-) 0.715 \, PD$$

$$(2.618) \qquad (0.952) \qquad (-0.234) \qquad (0.459) \qquad (-0.628)$$

$$N = 13 \qquad R^2 = .206 \qquad d = 1.172$$

The modified model with port dummy shows that the explanatory variables account for about 20 percent of the explained variables. Again we see that none of the dimensions of infrastructure have been significant.

Summing up from the above two regressions one has to say that in the initial period of 1991 physical infrastructure was more important in comparison with the social and financial infrastructure in case of the districts of Orissa while in the year 2004 there has not been any significant role for infrastructure which can be attributed to depletion of stocks of infrastructure or least development of infrastructure in all the districts of Orissa.

4.4- Infrastructure Indices of Gujarat:

In case of Gujarat we will be taking into account 19 districts as according to the administrative division of 1991 instead of the present set up of 25 districts. The new districts which have been clubbed into the old districts are as follows:

(1) The district of Patan has been added to the districts of Banaskantha and Mahesana.

(2) The district of Porbandar has been added to the district of Junagadh.

(3) The newly formed district of Anand has been added to the district of Kheda.

(4) The newly formed district of Narmada has been added to the old districts of Vadodara and Bharuch.

(5) The newly formed district of Navsari has been added to the old district of Surat.

(6) The district of Dahod has been added to the old district of Panchmahal.

Before proceeding any further it would prudent from a reader's perspective to have a bird's eye-view of the weights of different infrastructural variables as given in the table below.

Table 4.8 Weights of Infrastructure Variables: PCA

Infrastructure Variables	1991	2004
Physical Infrastructure		
Road	0.941	0.753
GIA	0.805	0.92
VE	0.039	0.628
Eigen Value	1.697	1.808
Var Expl (per cent)	56.552	60.253
Social Infrastructure		
LR	0.956	0.881
Hospitals	0.793	-0.715
GC	0.822	0.875
Eigen Value	2.217	2.053
Var Expl (per cent)	73.916	68.421
Financial Infrastructure		
CD	-0.79	0.765
BO	0.79	0.765
Eigen Value	1.247	1.171
Var Expl (per cent)	62.37	58.563

Source: *Quoted from various results of SPSS Indices Results of Annexure in Chapter 4.*

Note- *The variables Road indicate road length per sq.kms, GIA indicates gross irrigated area as a proportion of gross cropped area, VE indicates villages electrified as a proportion of*

total inhabited villages, Hospitals indicate hospitals per 10000 persons, LR indicates literacy rate, GC indicates the total number of general colleges per 10,000 persons, CD indicates credit-deposit ratio of Scheduled Commercial Banks; and BO indicates the number of banking offices per 100,000 persons.

According to Table 4.8 the distribution of weights of different infrastructural facilities reveal their importance in the overall infrastructural set-up for the districts of Gujarat. In terms of Physical infrastructure in 1991 the variable Road (0.941) was the most significant of all variables with the second most important variable being GIA (0.805). But in 2004 the variable Road (road per sq. km) lost its prominence to GIA (0.92) which had an increased factor loading.

In terms of Social infrastructure LR i.e. literacy rate is the most significant of all variables with its weight being 0.95 in 1991 and 0.886 in 2004. The second most important variable in a social infrastructural framework during this period is the number of general colleges per 10,000 persons (GC).

In terms of financial infrastructure both the variables CD i.e. Credit-Deposit ratio of Scheduled Commercial Banks and BO i.e. Bank Offices per 100,000 persons had got identical weights (0.765) in 2004. This indicates that both have been significant variables for infrastructural framework in general and financial infrastructure in particular of districts in Gujarat.

In the subsequent sections we will be analyzing different relative rankings of PIDI, SIDI, and FIDI for all the districts of Gujarat.

4.4 (A) Physical Infrastructure Development Indices in 1991 and 2004:

These indices have been constructed with the aid of Principal Component Analysis (PCA). The Physical Infrastructure Development Indices of all the districts of Gujarat are as follows:

Table 4.9- Physical Infrastructure Development Indices (PIDI) of Districts of Gujarat in 1991

Districts	1991	
	PIDI	Ranks
Gandhinagar	3.06	1
Kheda	1.10	2
Ahmedabad	0.84	3
Valsad	0.74	4
Surat	0.52	5
Mahesana	0.31	6
Sabarkantha	0.21	7
Vadodara	0.13	8
Dangs	-0.09	9
Panchmahals	-0.21	10
Banaskantha	-0.31	11
Junagadh	-0.52	12
Amreli	-0.54	13
Bhavnagar	-0.57	14
Rajkot	-0.60	15
Bharuch	-0.64	16
Surendranagar	-0.97	17
Jamnagar	-1.08	18
Kachchh	-1.37	19

Source: *Based on Writer's own calculation from Table 4.A.7 in Annexure Chapter 4.*

According to Table 4.9 the top districts in terms of PIDI are Gandhinagar (3.06), Kheda (1.1), Ahmedabad (0.84), Valsad (0.74), and Surat (0.52) and the bottom ranked districts are Rajkot (-0.6), Bharuch (-0.64), Surendranagar (-0.97), Jamnagar (-1.08), and Kachchh (-1.37). It suggests that the concentration of infrastructural facilities were around the State-capital of Gandhinagar and Ahmedabad with the nodes of concentration extending from these two centres.

A brief look at table 4.18 will give us some changes in the pattern during 2004.

Table 4.10 - Physical Infrastructure Development Indices (PIDI) of Districts of Gujarat in 2004

Districts	2004	
	PIDI	Ranks
Kheda	2.10	1
Surat	1.81	2
Gandhinagar	1.23	3
Panchmahals	0.29	4
Mahesana	0.21	5
Vadodara	0.17	6
Valsad	0.07	7
Sabarkantha	0.06	8
Junagadh	0.04	9
Ahmedabad	-0.06	10
Banaskantha	-0.06	11
Bhavnagar	-0.12	12
Bharuch	-0.22	13
Rajkot	-0.28	14
Amreli	-0.52	15
Kachchh	-0.65	16
Surendranagar	-0.74	17
Jamnagar	-0.75	18
Dangs	-2.58	19

Source: *Based on Writer's own calculation from Table 4.A.8 in Annexure Chapter 4.*

According to Table 4.10 the top ranked districts in 2004 were Kheda (2.1), Surat (1.81), Gandhinagar (1.23), Panchmahals (0.29) and Mahesana (0.21) and the bottom ranked districts were Amreli (-0.52), Kachchh (-0.65), Surendranagar (-0.74), Jamnagar (-0.75) and Dangs (-2.58).

The above figures suggest that the old centres of concentration like Ahmedabad and Gandhinagar inspite of belonging to top category have lost their relative rankings while some new centres have emerged in the form of Kheda and Surat. In addition, it is to be noted that Jamnagar and Dangs continue to languish at the bottom among all the districts.

4.4 (B) Social Infrastructure Development Indices in 1991 and 2004:

The Social Infrastructure Development Indices (SIDIs) of all districts of Gujarat is as follows:

Table 4.11- Social Infrastructure Development Indices (SIDI) of Districts of Gujarat in 1991

Districts	1991	
	SIDI	Ranks
Gandhinagar	2.49	1
Ahmedabad	1.09	2
Rajkot	1.03	3
Surat	0.78	4
Valsad	0.45	5
Kheda	0.42	6
Sabarkantha	0.38	7
Junagadh	0.07	8
Mahesana	-0.07	9
Bharuch	-0.10	10
Vadodara	-0.11	11
Surendranagar	-0.16	12
Bhavnagar	-0.20	13
Jamnagar	-0.21	14
Amreli	-0.44	15
Dangs	-0.96	16
Kachchh	-1.01	17
Panchmahals	-1.47	18
Banaskantha	-2.00	19

Source: *Based on Writer's own calculation from Table 4.A.9 in Annexure Chapter 4.*

According to Table 4.11 the top ranked districts in 1991 were Gandhinagar (2.49), Ahmedabad (1.09), Rajkot (1.03), Surat (0.78) and Valsad (0.45) while the bottom ranked districts were Amreli (-0.44), Dangs (-0.96), Kachchh (-1.01), Panchmahals (-1.47) and Banaskantha (-2.00). These figures again indicate the fact that the concentration of social infrastructure has been mainly around Ahmedabad and Gandhinagar with the nodes of concentration extending towards Valsad and Surat. This pattern of concentration is quite similar with the pattern suggested by PIDI of 1991.

Now let us observe whether there has been a change in this pattern in the year 2004.

Table 4.12 - Social Infrastructure Development Indices (SIDI) of Districts of Gujarat in 2004

Districts	2004	
	SIDI	Ranks
Ahmedabad	1.98	1
Rajkot	1.75	2
Surat	0.84	3
Junagadh	0.83	4
Kheda	0.63	5
Mahesana	0.47	6
Gandhinagar	0.30	7
Jamnagar	0.21	8
Bhavnagar	0.08	9
Amreli	0.01	10
Sabarkantha	0.01	11
Valsad	-0.10	12
Surendranagar	-0.52	13
Vadodara	-0.53	14
Bharuch	-0.54	15
Banaskantha	-0.87	16
Kachchh	-1.03	17
Dangs	-1.71	18
Panchmahals	-1.81	19

Source: *Based on Writer's own calculation from Table 4.A.10 in Annexure Chapter 4.*

According to Table 4.12 the top ranked districts in terms SIDIs in 2004 were Ahmedabad (1.98), Rajkot (1.75), Surat (0.84), Junagadh (0.83), and Kheda (0.63) while the bottom ranked districts were Bharuch (-0.54), Banaskantha (-0.87), Kachchh (-1.03), Dangs (-1.71) and Panchmahal (-1.81).

These figures again reinforce the fact that there has been concentration of health and educational facilities in and around Ahmedabad with the nodes of concentration extending towards Surat and Rajkot. In addition the capital city of Gandhinagar is still in the top bracket but with a significant loss in the relative rankings.

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4.4 (C) Financial Infrastructure Development Indices in 1991 and 2004:

The Financial Infrastructure Development Indices of all districts of Gujarat are as follows:

Table 4.13 - Financial Infrastructure Development Indices (FIDI) of Districts of Gujarat in 1991

Districts	1991	
	FIDI	Ranks
Kachchh	2.52	1
Valsad	1.07	2
Jamnagar	0.81	3
Rajkot	0.63	4
Gandhinagar	0.51	5
Ahmadabad	0.49	6
Junagadh	0.22	7
Dangs	0.19	8
Surat	0.18	9
Amreli	0.08	10
Kheda	0.06	11
Surendranagar	-0.11	12
Vadodara	-0.44	13
Mahesana	-0.45	14
Sabarkantha	-0.47	15
Bhavnagar	-0.48	16
Panch Mahals	-1.24	17
Bharuch	-1.47	18
Banas Kantha	-2.07	19

Source: *Based on Writer's own calculation from Table 4.A.11 in Annexure Chapter 4.*

According to Table 4.13 the top ranked districts of Gujarat in terms of FIDI are Kachchh (2.52), Valsad (1.07), Jamnagar (0.81), Rajkot (0.63), Gandhinagar (0.51) and Ahmadabad (0.49) while the bottom ranked districts were Sabarkantha (-0.47), Bhavnagar (-0.48), Panch Mahals (-1.24), Bharuch (-1.47) and Banaskantha (-2.07). These figures suggest that the financial infrastructure seems to be concentrated in the coastal districts like Kachchh or in the proximity of coastal districts like Rajkot.

Table 4.14 - Financial Infrastructure Development Indices (FIDI) of Districts of Gujarat in 2004

Districts	2004	
	FIDI	Ranks
Ahmedabad	2.44	1
Vadodara	2.24	2
Bharuch	0.41	3
Surendranagar	0.40	4
Rajkot	0.30	5
Gandhinagar	0.28	6
Kachchh	0.25	7
Valsad	0.05	8
Jamnagar	-0.02	9
Sabarkantha	-0.03	10
Surat	-0.10	11
Amreli	-0.32	12
Bhavnagar	-0.36	13
Junagadh	-0.53	14
Kheda	-0.56	15
Mahesana	-0.61	16
Banaskantha	-0.80	17
Panchmahals	-1.50	18
Dangs	-1.52	19

Source: *Based on Writer's own calculation from Table 4.A.12 in Annexure Chapter 4.*

According to Table 4.14 the top category districts in terms of FIDI in 2004 were Ahmedabad (2.44), Vadodara (2.24), Bharuch (0.41), Surendranagar (0.40) and Rajkot (0.30) while the bottom ranked districts were Kheda (-0.56), Mahesana (-0.61), Banaskantha (-0.8), Panchmahals (-1.50), and Dangs (-1.52).

The above figures are suggestive of the fact that the core of the financial infrastructure seems to have shifted towards the capital city of Gandhinagar and Ahmadabad from the coastal districts of Gujarat. This again reinforces the fact that certain districts like Ahmadabad, Gandhinagar, Surat, Valsad and Rajkot have abundance in infrastructure in comparison with certain districts like Dangs, Panch Mahals, Junagadh and Banaskantha which have deficit in infrastructure.

In the next section a regression analysis will be more insightful in revealing to us as to which dimension of infrastructure more significant for the growth of employment rate in organized manufacturing sector.

4.5 Regression analysis:

In this section similar to the exercise before, we will be running a regression analysis to find out which infrastructure dimension is significant. This regression analysis will be for 2 points of time namely 1991 and 2004. Also we will be using a dummy variable representing absence or presence of major sea port in a district.. The equation we will be testing is as follows:

$$ER_{t+1} = f(PIDI_t, SIDI_t, FIDI_t, Port\ Dummy)$$

The model we will be testing for this equation is as follows:

$$Y_{t+1} = \beta_1 + \beta_2 X_{1t} + \beta_3 X_{2t} + \beta_4\ X_{3t} + \beta_5\ PD + U_t$$

Where

Y_{t+1} = refers to Percentage of Employment Rate in the Organized Manufacturing sector for the year t+1.

X_{1t} = refers to Physical Infrastructure Development Index for the year t.

X_{2t} = refers to Social Infrastructure Development Index for the year t.

X_{3t} = refers to Financial Infrastructure Development Index for the year t.

PD = represents absence (PD=0) or existence (PD=1) of Sea Ports.

U_t = Error Term.

The estimated equations are shown below (t-ratios in parentheses):

Regression analysis for the year 1991:

$$ER_{1992} = \beta_1 + \beta_2 PIDI_{1991} + \beta_3 SIDI_{1991} + \beta_4\ FIDI_{1991} + U_t$$

$$ER_{1992} = 4.098 + .046\ PIDI_{1991} + 2.199\ SIDI_{1991} + .077\ FIDI_{1991}$$

$$\quad\ (5.506)\qquad (0.043)\qquad\qquad (1.925)\qquad\qquad (.092)$$

$$\quad N = 17 \qquad\qquad R^2 = 0.425 \qquad\qquad d = 2.751$$

The above results show that the explanatory variables account for about 42 percent of the variation in the explained variables. Among the different variables of infrastructure none have been found to be significant. The SIDI has the largest coefficient but it is also found to be insignificant. The results of the modified models are as follows:

$$ER_{1992} = \beta_1 + \beta_2 PIDI_{1991} + \beta_3 SIDI_{1991} + \beta_4 FIDI_{1991} + \beta_5 PD + U_t$$

$$ER_{1992} = 4.012 + 0.026\ PIDI_{1991} + 2.415\ SIDI_{1991} + (-)0.225 FIDI_{1991} + 1.589\ PD$$

$$(4.860) \qquad (0.023) \qquad\qquad (1.733) \qquad\qquad (-0.167) \qquad\qquad (0.294)$$

$$N = 17 \qquad\qquad R^2 = 0.429 \qquad\qquad d = 2.804$$

The regression model incorporated with sea port dummy variable shows that the explanatory variables account for nearly 43 percent of the variation in explained variable. Here again none of the components are significant.

Regression analysis for the year 2004:

$$ER_{2005} = \beta_1 + \beta_2 PIDI_{2004} + \beta_3 SIDI_{2004} + \beta_4 FIDI_{2004} + U_t$$

$$ER_{2005} = 4.049 + .305\ PIDI_{2004} + .397\ SIDI_{2004} + 2.083\ FIDI_{2004}$$

$$(6.842) \qquad (.453) \qquad\qquad (.526) \qquad\qquad (3.015)$$

$$N = 19 \qquad\qquad R^2 = .503 \qquad\qquad d = 1.84$$

The above model for the year 2004 shows that the explanatory variables account for about 50 per cent of the explained variables. In this case the FIDI have been found to be highly significant. Now let us see if the results of the modified model with port dummy are anyway different.

$$ER_{2005} = \beta_1 + \beta_2 PIDI_{2004} + \beta_3 SIDI_{2004} + \beta_4 FIDI_{2004} + \beta_5 PD + U_t$$

$$ER_{2005} = 4.128 + .290\ PIDI_{2004} + .282\ SIDI_{2004} + 2.160\ FIDI_{2004} + (-)1.510\ PD$$

$$(6.605) \qquad (.420) \qquad\qquad (.350) \qquad\qquad (2.987) \qquad\qquad (-.526)$$

$$N = 19 \qquad\qquad R^2 = .512 \qquad\qquad d = 1.941$$

The modified model with port dummy shows that the explanatory variables account for about 51 percent of the explained variables. Again we see that the financial dimension of infrastructure have been found to be highly significant.

Summing up from the above two regressions one has to say that in the initial period of 1991 none of the dimensions of infrastructure have been found to be significant while in the year 2004 the financial infrastructure have been found to be highly significant. This is also an

indication that Gujarat has a more industrialized and service-based economy where in financial infrastructure plays a pivotal role.

4.6 Major Findings of the Chapter:

The major findings of this chapter revolves around two things; first the specific dimension of infrastructure which is important for the concentration of infrastructural activities in Orissa and Gujarat and secondly the specific pattern of concentration of these infrastructural facilities. On both accounts the case of Orissa and Gujarat presents a different scenario.

In case of Orissa in 1991 the physical infrastructure has been found to be more significant than social and financial infrastructure in explaining the rate of growth in employment in the organized manufacturing-sector. Later on for the same districts in 2004 we found that none of the dimensions of infrastructure were significant in explaining the rate of growth in employment in case of organized manufacturing sector. This could be because of the fact that Orissa has a more agro-based economy than an industralised one where the physical infrastructure plays a very important role. Moreover the figures reveal there are 2 centres of concentration with one located in the coastal districts of Cuttack and Puri while the other is located in the northern district of Sundargarh. The districts like Mayurbhanj, Kalahandi and Koraput suffer from acute deficit of necessary infrastructure.

In case of Gujarat in 1991 none of the infrastructural variables were found to be significant in explaining the rate of growth in employment in organized manufacturing sector. Subsequently for the year 2004 we found the financial infrastructure to be highly significant. This suggests that Gujarat has a more industrialized and service based economy than Orissa where in the financial infrastructure plays a very important role in facilitating trade exchanges. In case of Gujarat the centres of concentration is primarily located in 2 cities i.e. in Ahmadabad and Gandhinagar with the nodes of concentration linking Valsad, Surat and Rajkot to them. The districts like Dang, Banaskantha and Panch Mahals are very far away from this network and hence suffers from lack of adequate infrastructure.

Hence the pattern of concentration in both the States are different and it requires different mode of spatial and regional policy to develop the lagging districts of Orissa which has experienced cluster level of concentration and Gujarat which has experienced linear level of concentration.

Chapter 5

Conclusion and Policy Suggestions

5.1 Major Findings of the Study:

The major findings of this study pertain to the relationship between widening regional inequalities and asymmetric distribution of infrastructural facilities across the entire country for a time period of 18 years from 1990 to 2008. In this chapter we will be highlighting these findings and try to suggest certain policy measures to tackle the problem of growing regional disparities.

The major findings of 3rd chapter revolve around the linkage between widening regional inequalities and availability of infrastructural facilities in general and in particularly among different States in India. Firstly it is quite evident that after 1990 with the adoption of neo-liberal policies the regional inequalities between States have widened and with the passing of years it has led to concentration of infrastructural facilities in a few States leading to the formation of cores and periphery. Moreover one has to admit of the fact that in recent years the lagging states have shown some convergence trend which is evident by the CV figures of individual infrastructural facilities (the brief details of which have been mentioned below).

In case of Physical infrastructure the CV of Road length per sq. km in 1990 was 2.66, in 2000 it was 2.66, and in 2008 it declined to 2.65. The CV of rail length per sq. km in 1990 was 2.66; in 2000 again it was 2.66 while in 2009 it declined to 2.55. The CV of PCE in 1990 was 0.76; in 2000 it was 0.81 while in 2007 it was 0.72. The CV of TD in 1990 was 0.83, in 2000 it was 0.94 and in 2009 it was 0.81. The CV of GIA/GCA in 1990 was 0.8, in 2000 it was 0.73 and in 2007 it decreased to 0.63. These figures clearly suggest that in the initial years of 1990s with the development of physical infrastructure the inequalities in terms of infrastructure increased till 2000 after which it had started declining gradually over the years to come down. This is quite similar to the shape of Kuznet's inverted U curve.

In case of Social infrastructure in 1990 the CV of hospitals per sq. km was 2.66, in 2000 its CV was 2.67 and in 2005 its CV was 2.69. The CV of primary schools per sq. km in 1990 was 2.67; in 2000 it was again 2.67 while in 2007 it decreased to 2.66. The CV of IMR in 1990 was 0.75; in 2000 the CV was 0.41, while in 2009 it decreased to 0.36. These figures suggest that except for hospital facilities whose CV has increased the other two variables have shown a decrease in infrastructural inequalities after 2000; but in the initial years of 1990s they had shown an alarming trend to increase.

In terms of financial infrastructure the CV of Tax Revenue/NSDP in 1990 was 0.7; in 2000 it was 0.55 while in 2007 it was 0.42. The CV of Credit-deposit ratio in 1990 was 0.52, in

2000 it was 0.64 and in 2008 it was 0.46. The CV of Banking Centres per sq. km in 1990 was 2.73, in 2000 it was 2.66 and in 2008 it decreased to 2.65.

Secondly the regression analysis of the chapter shows that with the passage of time physical infrastructure have lost its prominence to social and financial infrastructure. . The t-value of PIDI in 1990 was 3.27 while in 2007 the t-value of PIDI was 0.14. The t-values of SIDI and FIDI in 1990 were -0.645 and -1.245 while in 2007 these t-values were (-) 3.418 for SIDI and   4.474 for FIDI.

In terms of Physical infrastructure Punjab, Haryana, Gujarat, Tamil Nadu and Uttar Pradesh have remained as premier Sates while Jammu and Kashmir and north-eastern States like Assam, Meghalaya, Tripura, Nagaland, Sikkim, Manipur, Mizoram, and Arunachal Pradesh have deficit physical infrastructural set-up with various loop holes in between. For instance there has been an acute lack of rail network in these States while large scale improvement in railway infrastructure have already taken place in Jammu and Kashmir. Among physical infrastructural facilities there are 3 facilities- power, roadways, and telecommunications which have significant relation with growth of NSDP and PCNSDP of States.

In terms of social infrastructure West Bengal, Uttar Pradesh, Bihar and Assam have remained in the top category. Kerela has remained like a beacon for other States to follow with its impressive performances in social sector by remaining among the top 3 States for the last decade or so. The languishing States are again dominated by north-eastern States like Sikkim, Nagaland, Arunachal Pradesh, Mizoram, Manipur; and Jammu and Kashmir. In terms of infrastructural facilities Hospitals and Primary Schools are significant with a larger lag effect.

In terms of financial infrastructure it is evident that the core is concentrated in the southern part of the country with the top 5 being dominated by Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra and Kerela. The entire northern part of the country do not have adequate financial infrastructure with the exception of Punjab and Haryana. The bottom ranked States again consist of Jammu and Kashmir, Himachal Pradesh, Assam, Meghalaya, Tripura, Manipur, Arunachal Pradesh, Mizoram, and Nagaland. These States have a larger deficit in terms of infrastructural development particularly in case of banking penetration. All the three financial infrastructure indicators have been found to be significant.

The newly formed States like Uttarakhand, Jharkhand and Chhattisgarh also suffer from deficit in infrastructure with the latter two being worse off than Uttarakhand.

This brings us to the conclusion that in terms of overall infrastructural development there are certain cores which have developed. In the Northern part this concentration is more in developed States like Punjab and Haryana, while in the Western region it is largely dominated by Gujarat and Maharashtra to some extent. The Southern region is more blessed with better

infrastructure than anywhere in the country but the Eastern and North-Eastern region in particular needs special attention for the development of adequate infrastructure.

The major findings of 4th **chapter** revolves around two things; first the specific dimension of infrastructure which is important for the concentration of infrastructural activities in Orissa and Gujarat and secondly the and more importantly whether the intra State disparities have increased within the States. On both accounts the case of Orissa and Gujarat presents a different scenario.

In case of Orissa in 1991 the physical infrastructure has been found to be more significant than social and financial infrastructure in explaining the rate of growth in employment in the organized manufacturing-sector. The t-value of PIDI was 5.925 in 1991 and the t-value for the same in 2007 was 0.831. In addition the inclusion of Sea port does improve the results in 1991 from R^2= 0.85 to R^2= 0.87 in 1991 but in 2004 the R^2 = 0.17 increases to only R^2 = 0.21 with the inclusion of sea port dummy variable in the regression analysis. Later on for the same districts in 2004 we found that none of the dimensions of infrastructure were significant in explaining the rate of growth in employment in case of organized manufacturing sector. This could be because of the fact that Orissa has a more agro-based economy than an industralised one where the physical infrastructure plays a very important role. Moreover the figures reveal there are 2 centres of concentration with one located in the coastal districts of Cuttack and Puri while the other is located in the northern district of Sundargarh. The districts like Mayurbhanj, Kalahandi and Koraput suffer from acute deficit of necessary infrastructure. This shows that the pattern of development in these districts has remained the same over these years and it shows a cluster concentration of infrastructural facilities.

In case of Gujarat in 1991 none of the infrastructural variables were found to be significant in explaining the rate of growth in employment in organized manufacturing sector. Subsequently for the year 2004 we found the financial infrastructure to be highly significant. This suggests that Gujarat has a more industrialized and service based economy than Orissa where in the financial infrastructure plays a very important role in facilitating trade exchanges. In case of Gujarat the centres of concentration is primarily located in 2 cities i.e. in Ahmadabad and Gandhinagar with the nodes of concentration linking Valsad, Surat and Rajkot to them. The districts like Dang, Banaskantha and Panch Mahals are very far away from this network and hence suffer from lack of adequate infrastructure. The State of Gujarat shows a more dynamic picture than the State of Orissa by presenting a more linear concentration of infrastructural facilities with the central core remaining in Gandhinagar and Ahmadabad.

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Hence the pattern of concentration in both the States are different and it requires different mode of spatial and regional policy to develop the lagging districts.

Taking both the chapters under consideration one must remark on few things which might have escaped the reader's attention. Firstly in the initial few years the regional inequalities have increased and a significant degree of these inequalities can be attributed to concentration of physical infrastructure in a few States. The CV of infrastructural facilities for Physical Infrastructure shows that infrastructural inequalities have also increased but it gradually came down as a result of development of social and financial infrastructure. Hence the thrust should be on these two dimensions for further improvement in the economy. In the present context since the lagged states do not have adequate infrastructure; one of the policies which could be adopted for their regional convergence is the development of financial infrastructure. Moreover we have seen that financial infrastructure as well as social infrastructure can be relatively easily formed than the physical infrastructure which involves a long gestation period.

Policy Suggestions:

Since these findings suggest that the impact of infrastructure upon the economy definitely operates with a lag as the building of physical, social and financial overhead capital involves longer gestation period. This makes it all the more important for us to devise key policy mechanisms in this regard.

Firstly, the concentration of infrastructural facilities is in the northern, western and southern region while the eastern and north-eastern region is bereft of any substantial infrastructure which makes it very important for us to develop vital railway and road networks in these States in order to achieve the objective of more inclusive growth. These will lead to Spill-over effects for the overall development of this region.

Secondly, in the last few years a lot of effort and resources have been spent to improve the physical infrastructure without the same attention being given to social infrastructure like public health and education. This could seriously undermine our recent successes on the economic front because of the fact that population dividend is going to be manifested in 2025 for which we will need a larger social infrastructural set up than the existing one. It is imperative from the above that more investments should be forthcoming in case social infrastructure.

Thirdly, it seems the financial infrastructure seems to be concentrated on the southern shores of the country, which makes it very inequitable for the country as a whole and any region in particular. At present this very dimension of infrastructure is key to unlocking of further economic growth. Hence more development of financial infrastructure particularly in the less developed regions of the country like north-eastern region will encourage the foot-loose

industries to base themselves in the area. This will have significant impact upon the employment and regional development of the State.

Fourthly, the pattern of financing the infrastructure even if by means of Public-Private-Partnership should not be skewed only towards the most developed States like Gujarat and Maharashtra but rather towards the lagging states like Arunachal Pradesh. This brings us to the fore of regulatory mechanism by the government which should be proactive in this direction.

Summing up, one can say that this study adds to the literature by analyzing the various dimensions of infrastructural facilities on a time-series basis which assumes significance since the availability of infrastructural data is not easily forthcoming. Also, it negates the argument of importance of Sea ports for the development of a region by analyzing the districts of Orissa and Gujarat. Future researches on this issue should take into account the pattern of infrastructure financing to bring along new trends.

Table 3.A.1: Total Length of Roads in India (State-wise) in Kilometers

S.No	States	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
1	Andhra Pradesh	149425	151991	162251	165757	171785	172669	178012	177831	178315	179287
2	Arunachal Pradesh	10692	10967	11264	11526	11860	10240	14092	14092	17843	18272
3	Assam	65550	65605	66877	67424	68090	68430	68418	68387	68523	85778
4	Bihar	85410	85500	88722	87768	87854	85565	88352	88572	88901	89436
5	Chhattisgarh										
6	Goa	7360	7419	7276	7286	7303	7457	8563	8563	9728	9753
7	Gujarat	80884	82093	83881	85482	85768	86858	90896	90243	92043	93344
8	Haryana	26461	26556	26912	26839	27180	279907	28164	28119	28416	28871
9	Himachal Pradesh	25125	25529	27989	28879	29926	29610	30193	28038	29041	29337
10	Jammu And Kashmir	13101	12396	12435	12534	12590	21172	21446	21446	23369	23884
11	Jharkhand										
12	Karnataka	131507	134514	139403	139640	139768	142754	144012	144044	147957	151936
13	Kerela	135569	138611	134942	138116	139320	141856	145704	145835	147450	148341
14	Madhya Pradesh	140027	142193	206213	207833	211025	198936	200137	200137	201757	203807
15	Maharashtra	221758	224514	224181	225007	224973	359262	361893	361854	365679	381753
16	Manipur	6664	7003	7019	7036	10530	10760	10941	10941	10911	11434
17	Meghalaya	6481	6523	7365	7499	7721	7840	8480	8457	8751	9126
18	Mizoram	3732	3773	5653	6246	6577	6910	4829	4427	4484	4846
19	Nagaland	14752	14933	12806	12850	12880	13732	18356	18356	19637	20337
20	Orissa	195943	196189	212689	213457	209888	212168	262703	262948	262272	262513
21	Punjab	54261	54305	56832	56989	57039	58151	64352	64352	64308	64549
22	Rajasthan	122535	124133	125797	127445	130085	134632	129674	129608	136412	140856
23	Sikkim	1594	1615	1711	1782	1824	1834	1834	1834	1851	1851
24	Tamil Nadu	196684	198104	199420	202859	204475	205706	206503	142267	145062	153087
25	Tripura	14070	14071	14656	14676	14706	14726	14729	14634	13802	15565

26	Uttar Pradesh	200809	203646	192845	196798	200010	237358	255467	255467	278289	284765
27	Uttarakhand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
28	West Bengal	61686	62113	58554	61525	68316	77579	75435	75354	79030	79255
29	ALL-INDIA	1983867	2001944	2021441	2114498	2142791	2173241	2367062	2465877	2328356	2396650

Contd.

S.No	States	2000	2001	2002	2003	2004	2005	2006	2007	2008
1	Andhra Pradesh	191031	192057	196649	201895	206125	329407	336982	339002	345012
2	Arunachal Pradesh	18322	18362	15660	15661	15712	17751	17216	17430	16494
3	Assam	100414	114026	144795	160380	192980	208788	215819	223450	230334
4	Bihar	76867	77478	76065	78750	73834	119958	120127	120127	120127
5	Chhattisgarh	33825	33858	52179	72729	73993	72322	73892	73705	74434
6	Goa	9504	9563	9672	10231	10240	10331	10420	10523	10569
7	Gujarat	137281	137384	138506	142755	143660	143419	144777	145631	146630
8	Haryana	28093	28158	28203	28511	28673	28657	29055	29397	29726
9	Himachal Pradesh	29398	29510	29617	32039	32582	23452	23614	34954	36298
10	Jammu And Kashmir	23200	23301	23429	20272	21095	21811	22043	22058	22323
11	Jharkhand	700	10069	11486	11391	11783	18038	18055	18071	17531
12	Karnataka	152068	152453	182906	199711	200112	210415	214211	253901	255454
13	Kerela	148151	150495	134947	139590	143276	169516	187147	197454	204757
14	Madhya Pradesh	162309	162370	160968	164803	165340	163920	164801	165407	165740
15	Maharashtra	258858	261783	270301	271369	272684	220937	220447	223142	223322
16	Manipur	11434	11434	12561	12594	12599	16502	16502	16502	16502

17	Meghalaya	9360	9497	9565	9564	9701	9662	9691	9752	9839
18	Mizoram	4731	4970	5075	4913	4898	5426	5974	6144	6158
19	Nagaland	21015	21021	21021	20523	20647	26241	22085	21947	22304
20	Orissa	236082	236993	211692	213049	213820	215141	215214	215300	215404
21	Punjab	61275	61525	61530	40023	45767	46490	45165	45135	45178
22	Rajasthan	141055	142010	129557	140160	144898	149753	152435	159902	171479
23	Sikkim	1911	1992	1957	2023	2063	2076	2118	1873	1873
24	Tamil Nadu	159706	163111	166116	167450	170823	176209	179348	180823	181213
25	Tripura	14801	14031	16296	22295	23856	31716	31731	31731	31733
26	Uttar Pradesh	240646	247248	248482	259928	244442	256683	263555	272362	284673
27	Uttarakhand	32306	31881	21597	34716	58054	35659	36061	39167	41041
28	West Bengal	88818	90245	86599	88500	89699	195679	199052	208415	211770
29	ALL-INDIA	2425765	2469524	2499906	2601957	2669996	2962463	3014063	3119924	3174620

Source: *Basic Road Statistics, Govt. Of India Publication*

Table 3.A.2: Total Length of Rail Route in India (State-wise) in Kilometers:

S.No	States	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1	Andhra Pradesh	5044	5053	5057	5063	5073	5057	5057	5058	5057	5079	5135
2	Arunachal Pradesh	1	1	1	1	1	1	1	1	1	1	1
3	Assam	2324	2332	2348	2336	2362	2441	2435	2374	2392	2392	2516
4	Bihar	5278	5284	5286	5288	5291	5283	5254	5188	5178	5242	3442
5	Chhattisgarh	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1180
6	Goa	79	79	79	79	79	79	79	69	69	69	69
7	Gujarat	5250	5262	5274	5281	5321	5320	5322	5312	5312	5312	5312
8	Haryana	1488	1487	1492	1499	1452	1452	1513	1551	1548	1548	1548
9	Himachal Pradesh	266	266	266	266	266	266	269	269	269	269	269
10	Jammu And Kashmir	88	88	88	88	88	88	84	84	84	84	96
11	Jharkhand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1797
12	Karnataka	2079	2097	3032	3078	3124	3124	3059	2974	2974	2974	2974
13	Kerela	1053	1053	1053	1053	1053	1053	1050	1050	1050	1050	1050
14	Madhya Pradesh	5982	5984	5987	5987	5981	6000	5893	5919	5922	5912	4785
15	Maharashtra	5442	5447	5452	5459	5462	5462	5554	5465	5447	5396	5459
16	Manipur	1	1	1	1	1	1	1	1	1	1	1
17	Meghalaya	0	0	0	0	0	0	0	0	0	0	0
18	Mizoram	2	2	2	2	2	2	2	2	2	2	2
19	Nagaland	9	9	9	9	9	13	19	13	13	13	13
20	Orissa	2001	2002	2002	2002	2009	2191	2190	2186	2340	2317	2309
21	Punjab	2117	2119	2119	2121	2121	2121	2140	2098	2102	2102	2102
22	Rajasthan	5530	5619	5723	5808	5935	5924	5890	5910	5917	5920	5926
23	Sikkim	0	0	0	0	0	0	0	0	0	0	0
24	Tamil Nadu	4011	4017	4009	4021	4005	4005	3999	4052	4188	4188	4188

25	Tripura	45	45	45	45	45	45	45	45	45	45	45
26	Uttar Pradesh	8936	8929	8942	8944	8929	8934	8911	8886	8893	8904	8572
27	Uttarakhand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	356
28	West Bengal	3814	3822	3819	3825	3815	3817	3768	3769	3786	3720	3662
29	All-India	60840	60998	62086	62462	62660	62915	62725	62495	62809	63028	63140

Contd.

S.No	States	2001	2002	2003	2004	2005	2006	2007	2008	2009
1	Andhra Pradesh	5197	5197	5197.1	5195.8	5205.1	5185.1	5171.6	5170.4	5241
2	Arunachal Pradesh	1	1	1.3	1.3	1.3	1.3	1.3	1.3	1.3
3	Assam	2516	2516	2517.2	2517.2	2505.8	2284.3	2283.7	2283.7	2433
4	Bihar	3429	3326.35	3223.7	3377.1	3379.7	3330.4	3411	3406.5	3568
5	Chhattisgarh	1180	1180.15	1180.3	1159	1159	1186.1	1185.5	1185.8	1186
6	Goa	69	69.15	69.3	69	69	69	69	69	69
7	Gujarat	5310	5297.4	5284.8	5282.8	5284.4	5282.9	5308.6	5328.2	4999
8	Haryana	1548	1551.25	1554.5	1623.2	1596.9	1595	1540.4	1467.1	1553
9	Himachal Pradesh	269	268.85	268.7	269	285	285	285	285	296
10	Jammu And Kashmir	96	96.05	96.1	96.1	137.8	137.8	137.8	162.8	256
11	Jharkhand	1797	1797.65	1798.3	1943.1	1941.3	1954.8	1941.3	1965.2	2001
12	Karnataka	2974	2974.05	2974.1	2979.9	2982	3002.3	3005.8	3005.4	3073
13	Kerela	1050	1050.1	1050.2	1050.2	1050.2	1050.2	1050.2	1050.2	1050.2
14	Madhya Pradesh	4845	4834.85	4824.7	4849.3	4905.2	4903.2	4883.9	4884.2	4948
15	Maharashtra	5459	5454.5	5450	5496.7	5527	5528	5519.3	5535.8	5602
16	Manipur	1	1.2	1.4	1.4	1.4	1.4	1.4	1.4	1.4
17	Meghalaya	0	0	0	0	0	0	0	0	0

18	Mizoram	2	1.75	1.5	1.5	1.5	1.5	1.5	1.5	2
19	Nagaland	13	12.95	12.9	12.9	12.9	12.9	12.9	12.9	13
20	Orissa	2320	2321.8	2323.6	2283.6	2279.7	2281.5	2246.9	2386.8	2386.8
21	Punjab	2102	2101.65	2101.3	2097.7	2097.7	2133.4	2133.4	2133.4	2133.4
22	Rajasthan	5894	5896.9	5899.8	5834.5	5837.7	5838	5911.1	5683	5780
23	Sikkim	0	0	0	0	0	0	0	0	
24	Tamil Nadu	4189	4186.65	4184.3	4200.9	4170.9	4170.9	4121.1	4130.7	4061
25	Tripura	45	54.7	64.4	64.4	64.4	64.4	64.4	64.4	151
26	Uttar Pradesh	8578	8688.4	8798.8	8566.3	8545.5	8546.4	8574.8	8553.5	8726
27	Uttarakhand	356	350.45	344.9	344.9	344.9	344.9	344.9	344.9	345
28	West Bengal	3681	3680.7	3680.4	3706.1	3856.1	3910.7	3910.7	3950.8	3890
29	All-India	62921	62911.5	63121.9	63220.5	63465.3	63332.1	63326.7	63273.1	63974

Source : *India Infrastructure Database;*

Infrastructure Statistics 2010, Ministry of Statistics and Programme Implementation, Govt. Of India;

Railway Year Book , Annual Publication, Ministry of Railways, Govt. of India.

Table 3.A.3: Per Capita Consumption of Electricity (State-Wise) in KWh:

S.No.	States	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1	Andhra Pradesh	245	191	312	345	374	368	346	391	404.27	391	433.14
2	Arunachal Pradesh	68	58	54	67	66	78	81	101.2	87.39	68.61	84.59
3	Assam	94	90	97	95	98	98	104	99.81	122.51	95.46	103.91
4	Bihar	110	108	117	126	134	138	138	141.79	152.33	140.77	144.73
5	Chhattisgarh											
6	Goa	452	495	541	588	602	707	724	739.45	740.04	712.45	809.72
7	Gujarat	469	504	538	587	608	671	694	704.61	723.53	834.66	853.97
8	Haryana	400	455	507	491	467	503	504	488.02	503.06	530.82	544.31
9	Himachal Pradesh	209	210	208	219	254	288	306	322.62	333.52	339.07	342.67
10	Jammu And Kashmir	193	189	188	195	196	201	218	270.23	291.59	267.86	286.19
11	Jharkhand											
12	Karnataka	296	296	303	328	364	363	340	387.09	349.24	387.09	411.74
13	Kerela	188	196	200	215	237	249	241	261.8	305.09	261.8	328.88
14	Madhya Pradesh	247	267	281	311	335	367	367	377.51	397.93	351.73	294.82
15	Maharashtra	411	434	439	459	500	545	556	577.37	593.79	520.49	551.5
16	Manipur	97	107	104	111	107	118	128	138.87	74.66	69.5	69.39
17	Meghalaya	115	125	129	110	140	143	135	143.47	150.29	160.27	169.59
18	Mizoram	69	69	91	101	112	128	128	95.14	113.59	120.73	142.5
19	Nagaland	75	78	73	68	59	79	88	86.57	81.35	84.74	96.76
20	Orissa	271	295	297	313	333	370	309	308.18	312.52	354.6	342.89
21	Punjab	606	616	684	703	759	760	792	798.22	860.81	921.14	841.54
22	Rajasthan	201	231	246	256	270	297	301	314.34	329.35	334.5	349.54
23	Sikkim	119	120	114	123	143	173	172	177.83	184.91	192.38	184.2
24	Tamil Nadu	323	335	369	386	430	459	468	484.11	497.59	484.11	599.01

25	Tripura	47	53	59	60	66	73	80	90.15	109.93	95.48	79.11
26	Uttar Pradesh	166	174	179	186	204	207	197	199.53	195.58	175.8	191.08
27	Uttarakhand											
28	West Bengal	148	151	158	171	175	186	194	202.41	210.57	204.41	207.65
29	All India	253	268	283	299	320	336	334	348.5	359.57	354.75	366.12

Contd.

S.No.	States	2001	2002	2003	2004	2005	2006	2007
1	Andhra Pradesh	494.13	403.86	495.3	543.14	553.61	615.5	650.5
2	Arunachal Pradesh	68.33	70.75	110.33	144.78	139.19	117.7	142.3
3	Assam	99.42	71.89	105.34	85.27	107.57	120.9	124.4
4	Bihar	36.29	42.13	44.85	44.56	44.6	41.8	49.1
5	Chhattisgarh	394.51	296.33	404.51	535.15	486.71	729.3	621
6	Goa	1067.89	1008.6	1067.35	1318.34	1497.32	1613.2	1651.1
7	Gujarat	817.78	662.17	917.96	908.12	919.66	1001.7	1116.4
8	Haryana	532.9	537.77	618.98	658	715.16	753.4	809.8
9	Himachal Pradesh	397.66	408.2	445.45	484.04	569.19	674	775.2
10	Jammu And Kashmir	292.82	320.32	327.04	348.74	366.12	366	360.9
11	Jharkhand	363.67	249.98	394.87	402.14	396.43	499.2	500.3
12	Karnataka	427.76	402.56	481.73	504.69	516.67	596.5	660.5
13	Kerela	280.8	272.12	291.11	296.07	317.38	351.8	360.2
14	Madhya Pradesh	273.04	244.03	283.54	308.4	344.1	352.2	395.2
15	Maharashtra	507.9	503.28	559.35	585.35	608.74	631.4	679.6
16	Manipur	69.43	80.83	70.55	70.47	73.73	93.6	84
17	Meghalaya	235.35	301.6	332.37	352.21	296.63	347.3	388.9
18	Mizoram	147.09	162.97	140.28	133.69	141.59	152.5	186.1
19	Nagaland	57.19	62.36	65.47	87.23	68.3	73.4	84.7

20	Orissa	324.55	181.57	373.45	394.89	430.68	465.4	520.3
21	Punjab	835.69	848.95	902.76	907.3	983.58	1036.5	1155.4
22	Rajasthan	284.71	250.14	294.08	328.09	333.68	369.2	443.7
23	Sikkim	224.22	132.86	323.69	397.72	359.78	365.7	443.4
24	Tamil Nadu	623.25	584.19	677.37	713.26	760.02	835	896.4
25	Tripura	108.75	111.27	125.34	113.1	109.03	115.1	114.6
26	Uttar Pradesh	189.02	147.07	188.83	202.03	208.65	222.9	240.9
27	Uttarakhand	284.05	282.99	342.05	393.47	422.44	465	548.6
28	West Bengal	218.1	204.94	237.47	247.54	266.2	284.7	321.4
29	All India	360.97	322.21	390.03	411.04	428.57	469.2	508.5

Source: *Various publications of General Review, Central Electricity Authority, Govt. of India*

Table 3.A.4: Tele-Density of various States in India:

S.No.	States	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1	ANDHRA PRADESH	0.46	0.51	0.56	0.64	0.72	0.89	1.08	1.26	1.56	2.21	3.13
1	ASSAM	0.17	0.18	0.21	0.26	0.31	0.36	0.43	0.49	0.63	0.84	1.06
2	BIHAR	0.11	0.13	0.15	0.18	0.22	0.26	0.29	0.34	0.41	0.53	0.65
3	CHHATTISGARH	*	*	*	*	*	*	*	*	*	*	*
4	GUJARAT	1.01	1.08	1.17	1.33	1.50	1.74	2.00	2.32	2.81	3.41	4.26
5	HARYANA	0.54	0.69	0.77	0.89	1.10	1.34	1.59	1.89	2.27	2.79	3.36
6	HIMACHAL PRADESH	0.56	0.65	0.77	0.89	1.07	1.44	1.94	2.46	3.12	3.56	4.32
7	JAMMU & KASHMIR	0.35	0.37	0.40	0.42	0.49	0.54	0.59	0.75	0.95	1.14	1.31
8	JHARKHAND	*	*	*	*	*	*	*	*	*	*	*
9	KARNATAKA	0.65	0.74	0.82	0.93	1.07	1.09	1.58	1.93	2.47	3.01	3.76
10	KERALA	0.79	0.89	1.03	1.26	1.44	2.09	2.19	2.70	3.45	4.38	5.60
11	MADHYA PRADESH	0.25	0.32	0.41	0.51	0.64	0.74	0.84	0.92	1.04	1.25	1.54
12	MAHARASHTRA	1.21	1.33	1.49	1.67	1.92	2.29	2.71	3.26	3.92	4.63	5.40
13	NORTH-EAST- I	0.24	0.29	0.34	0.43	0.50	0.57	0.71	0.85	1.03	1.41	1.56
14	NORTH-EAST- II	*	*	*	*	*	*	*	*	*	*	*
15	ORISSA	0.18	0.21	0.25	0.29	0.35	0.40	0.48	0.56	0.75	0.97	1.21
16	PUNJAB	0.92	1.00	1.10	1.23	1.47	1.89	2.48	3.09	3.79	4.74	5.67
17	RAJASTHAN	0.31	0.35	0.41	0.51	0.65	0.81	0.99	1.19	1.47	1.80	2.11
18	TAMIL NADU	0.76	0.81	0.87	0.96	1.11	1.34	1.66	2.16	2.75	3.56	4.52
19	UTTARANCHAL	*	*	*	*	*	*	*	*	*	*	*
20	UTTAR PRADESH - [E&W]	0.20	0.24	0.27	0.33	0.36	0.43	0.52	0.64	0.86	1.08	1.33
21	WEST BENGAL	0.44	0.47	0.49	0.53	0.58	0.66	0.79	1.01	1.30	1.68	2.09
22	ALL- INDIA	0.54	0.60	0.67	0.77	0.89	1.06	1.27	1.55	1.90	2.33	2.86

S.No.	States	2001	2002	2003	2004	2005	2006	2007	2008	2009
1	ANDHRA PRADESH	4.10	4.93	5.66	7.85	9.48	13.45	19.62	28.25	39.60
1	ASSAM	1.33	1.67	1.94	2.13	2.79	5.67	9.74	14.74	20.70
2	BIHAR	1.15	1.08	1.32	1.67	2.36	5.34	7.32	12.64	22.20
3	CHHATTISGARH	*	1.25	1.47	1.63	1.80	2.09	3.24	4.38	5.20
4	GUJARAT	5.37	6.37	7.77	10.14	12.73	16.98	24.14	33.63	45.20
5	HARYANA	4.25	5.06	6.21	8.38	10.83	14.47	23.11	30.39	43.80
6	HIMACHAL PRADESH	5.31	7.48	8.50	10.14	13.12	18.78	28.57	41.16	55.50
7	JAMMU & KASHMIR	1.72	2.15	2.48	3.01	5.09	12:18	16.08	21.84	32.80
8	JHARKHAND	*	1.39	1.68	2.00	2.30	2.99	3.43	3.60	4.10
9	KARNATAKA	4.70	5.58	6.67	9.46	12.19	17.06	25.05	34.53	45.20
10	KERALA	7.51	9.51	11.33	14.87	18.77	25.54	33.54	45.34	30.10
11	MADHYA PRADESH	1.81	2.49	3.02	3.99	5.21	7.12	12.22	20.29	58.50
12	MAHARASHTRA	6.60	5.14	6.08	8.00	10.01	13.10	18.78	27.42	37.90
13	NORTH-EAST- I	1.92	2.41	3.00	3.35	4.33	8.11	16.56	27.67	44.50
14	NORTH-EAST- II	*	*	2.35	2.71	3.66	5.21	7.41	9.14	9.20
15	ORISSA	1.52	1.88	2.29	2.95	3.96	7.57	9.51	15.00	23.30
16	PUNJAB	6.95	9.15	11.76	17.33	21.94	27.61	37.05	47.89	58.30
17	RAJASTHAN	2.57	3.02	3.47	4.50	6.12	9.65	15.49	23.74	37.20
18	TAMIL NADU	5.91	5.37	6.22	8.54	11.37	14.70	22.55	35.09	50.50
19	UTTARANCHAL	*	3.64	4.25	5.10	5.74	7.46	9.50	10.61	11.60
20	UTTAR PRADESH - [E&W]	1.66	1.86	2.15	2.96	4.06	6.87	10.77	16.19	24.90
21	WEST BENGAL	2.67	1.52	1.85	2.18	3.00	5.53	8.63	14.36	0.00
22	ALL- INDIA	3.53	4.29	5.11	7.08	8.95	12.74	18.22	26.22	37.00

Source: *Infrastructure Statistics 2010, Ministry of Statistics and Programme Implementation, Govt. Of India.*

Table 3.A.5: GIA/GCA of various States in India:

S.No.	States	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	Andhra Pradesh	0.41	0.41	0.40	0.98	0.41	0.41	0.43	0.43	0.45
2	Arunachal Pradesh	0.13	0.13	0.14	1.11	0.15	0.13	0.15	0.14	0.14
3	Assam	0.15	0.15	0.15	1.01	0.15	0.15	0.14	0.14	0.15
4	Bihar	0.40	0.41	0.43	1.05	0.45	0.42	0.46	0.47	0.47
5	Chhattisgarh	0.00								
6	Goa	0.21	0.23	0.22	0.96	0.22	0.23	0.22	0.21	0.20
7	Gujarat	0.28	0.27	0.29	1.07	0.33	0.31	0.33	0.34	0.35
8	Haryana	0.72	0.78	0.76	0.98	0.77	0.79	0.79	0.79	0.80
9	Himachal Pradesh	0.17	0.18	0.18	1.00	0.18	0.18	0.19	0.18	0.19
10	Jammu And Kashmir	0.41	0.41	0.41	0.99	0.41	0.41	0.42	0.41	0.41
11	Jharkhand	0.00								
12	Karnataka	0.22	0.23	0.23	0.99	0.24	0.25	0.23	0.25	0.25
13	Kerela	0.13	0.13	0.12	0.96	0.17	0.17	0.15	0.14	0.14
14	Madhya Pradesh	0.19	0.21	0.21	1.00	0.25	0.25	0.26	0.25	0.26
15	Maharashtra	0.11	0.14	0.15	1.10	0.15	0.13	0.14	0.14	0.15
16	Manipur	0.42	0.39	0.40	1.03	0.28	0.27	0.37	0.36	0.35
17	Meghalaya	0.19	0.19	0.19	1.00	0.19	0.19	0.18	0.22	0.21
18	Mizoram	0.11	0.08	0.08	0.95	0.07	0.08	0.08	0.09	0.09
19	Nagaland	0.29	0.28	0.27	0.97	0.29	0.30	0.30	0.27	0.26
20	Orissa	0.24	0.26	0.26	1.02	0.26	0.25	0.28	0.27	0.28
21	Punjab	0.94	0.95	0.95	1.00	0.95	0.95	0.94	0.92	0.92
22	Rajasthan	0.24	0.29	0.27	0.93	0.29	0.31	0.33	0.30	0.32
23	Sikkim	0.11	0.12	0.13	1.07	0.13	0.12	0.11	0.11	0.13
24	Tamil Nadu	0.44	0.47	0.48	1.03	0.51	0.50	0.52	0.54	0.55

25	Tripura	0.09	0.11	0.11	1.02	0.13	0.13	0.13	0.13	0.14
26	Uttar Pradesh	0.58	0.57	0.62	1.09	0.65	0.60	0.67	0.66	0.66
27	Uttarakhand	0.00								
28	West Bengal	0.22	0.22	0.22	1.01	0.29	0.28	0.27	0.27	0.27
29	All-India	0.33	0.35	0.36	1.02	0.38	0.37	0.39	0.38	0.39

Contd.

	States	1999	2000	2001	2002	2003	2004	2005	2006	2007
1	Andhra Pradesh	0.44	0.44	0.44	0.41	0.39	0.40	0.45	0.47	0.46
2	Arunachal Pradesh	0.14	0.16	0.16	0.16	0.16	0.16	0.17	0.19	0.20
3	Assam	0.14	0.06	0.05	0.05	0.05	0.05	0.04	0.05	0.05
4	Bihar	0.48	0.48	0.44	0.51	0.58	0.59	0.57	0.58	0.61
5	Chhattisgarh	0.00	0.20	0.22	0.21	0.21	0.23	0.24	0.26	0.26
6	Goa	0.20	0.21	0.23	0.23	0.24	0.24	0.22	0.22	0.21
7	Gujarat	0.38	0.34	0.33	0.35	0.37	0.37	0.38	0.39	0.42
8	Haryana	0.85	0.85	0.84	0.84	0.84	0.85	0.84	0.85	0.86
9	Himachal Pradesh	0.19	0.19	0.19	0.19	0.20	0.19	0.19	0.19	0.19
10	Jammu And Kashmir	0.41	0.40	0.41	0.41	0.40	0.41	0.42	0.41	0.41
11	Jharkhand	0.00	0.00	0.11	0.10	0.10	0.10	0.10	0.10	0.10
12	Karnataka	0.26	0.27	0.26	0.25	0.24	0.26	0.28	0.29	0.29
13	Kerela	0.16	0.15	0.14	0.14	0.14	0.15	0.15	0.17	0.16
14	Madhya Pradesh	0.27	0.24	0.26	0.27	0.29	0.31	0.30	0.33	0.32
15	Maharashtra	0.17	0.17	0.18	0.17	0.17	0.17	0.16	0.20	0.20
16	Manipur	0.38	0.36	0.35	0.27	0.18	0.23	0.23	0.23	0.22
17	Meghalaya	0.21	0.22	0.27	0.29	0.30	0.28	0.25	0.27	0.26
18	Mizoram	0.12	0.14	0.14	0.16	0.18	0.20	0.20	0.20	0.10
19	Nagaland	0.25	0.25	0.21	0.25	0.28	0.27	0.27	0.26	0.29

20	Orissa	0.29	0.27	0.29	0.29	0.29	0.31	0.31	0.31	0.37
21	Punjab	0.91	0.96	0.97	0.97	0.97	0.97	0.97	0.97	0.98
22	Rajasthan	0.36	0.32	0.32	0.31	0.30	0.34	0.36	0.37	0.36
23	Sikkim	0.13	0.14	0.14	0.13	0.12	0.12	0.08	0.10	0.08
24	Tamil Nadu	0.55	0.55	0.55	0.51	0.47	0.52	0.56	0.57	0.56
25	Tripura	0.14	0.14	0.14	0.15	0.16	0.15	0.35	0.36	0.35
26	Uttar Pradesh	0.66	0.67	0.69	0.69	0.70	0.72	0.73	0.74	0.75
27	Uttarakhand	0.00	0.00	0.44	0.44	0.44	0.43	0.44	0.46	0.46
28	West Bengal	0.26	0.37	0.37	0.44	0.51	0.52	0.58	0.56	0.57
29	All-India	0.40	0.40	0.40	0.40	0.40	0.42	0.43	0.44	0.45

Source: *Table A as calculated by the Author.*

Table A: Gross Irrigated Area and Gross Cropped Area (State-Wise):

	States	1990		1991		1992		1993		1994		1995	
		GCA	GIA	GCA	GIA	GCA	GIA	GCA	GIA	GCA	GIA	GCA	GIA
1	Andhra Pradesh	13192	5369	13192	5378	12754	5085	12688	5020	12783	5185	13043	5304
2	Arunachal Pradesh	247	32	252	32	255	36	258	36	252	37	244	36
3	Assam	3797	572	3860	572	3837	572	3817	572	3825	572	3938	572
4	Bihar	10485	4192	10147	4157	9356	4040	9748	4212	9871	4403	10019	4581
5	Chhattisgarh												
6	Goa	151	31	154	35	161	35	162	35	163	36	165	36
7	Gujarat	10361	2904	10502	2880	11003	3227	10672	3087	11188	3655	10082	3655
8	Haryana	5919	4237	5570	4339	5852	4472	5815	4515	5963	4592	5974	4673
9	Himachal Pradesh	984	167	981	175	973	174	975	171	971	171	972	178
10	Jammu And Kashmir	1066	436	1081	445	1074	437	1080	444	1056	430	1073	440
11	Jharkhand												
12	Karnataka	11759	2598	12393	2833	12412	2802	12432	2971	12013	2923	11958	2845
13	Kerela	3020	383	3021	387	3047	376	3042	413	3048	506	3066	466
14	Madhya Pradesh	23880	4431	23089	4757	23807	4918	24829	5529	24689	6071	25040	6178
15	Maharashtra	21866	2489	20077	2814	21029	3235	21361	3262	21418	3149	21327	3149
16	Manipur	180	75	192	75	187	75	199	75	271	75	182	75
17	Meghalaya	243	47	240	45	239	45	239	45	238	45	247	45
18	Mizoram	74	8	97	8	102	8	107	8	112	8	109	9
19	Nagaland	210	60	215	60	228	62	217	63	221	65	228	72
20	Orissa	9594	2314	9814	2529	9416	2471	9747	2510	9724	2510	9668	2629
21	Punjab	7502	7055	7518	7111	7552	7142	7623	7238	7693	7319	7752	7377
22	Rajasthan	19380	4652	18093	5264	20167	5486	19254	5595	20380	5815	19672	6361

23	Sikkim	152	16	134	16	125	16	127	16	127	16	142	16
24	Tamil Nadu	6632	2894	6977	3257	7067	3385	7158	3544	7026	3588	6267	3183
25	Tripura	445	41	450	50	443	50	460	60	459	60	426	60
26	Uttar Pradesh	25480	14771	25825	14771	25681	15996	25545	15996	25738	16823	25793	16972
27	Uttarakhand												
28	West Bengal	8662	1911	8666	1911	8540	1911	8680	2491	8718	2491	8972	2491
29	All-India	185477	61776	182728	63991	185487	66144	186420	67999	188147	70639	186561	71510

Contd.

S.No.	States	1996		1997		1998		1999		2000	
		GCA	GIA	GCA	GIA	GCA	GIA	GCA	GIA	GCA	GIA
1	Andhra Pradesh	13410	5782	12135	5158	13625	6092	13023	5746	13545	5916
2	Arunachal Pradesh	240	36	250	36	250	36	264	36	263	43
3	Assam	3981	572	3994	572	3941	572	4093	572	4065	226
4	Bihar	10141	4664	10012	4664	10053	4752	9979	4808	10048	4808
5	Chhattisgarh									5327	1043
6	Goa	165	36	169	36	171	34	171	34	171	36
7	Gujarat	11001	3643	10609	3643	10702	3779	10152	3840	10690	3626
8	Haryana	6074	4785	6143	4829	6320	5042	6029	5124	6115	5223
9	Himachal Pradesh	947	176	972	176	970	183	957	179	948	181
10	Jammu And Kashmir	1077	447	1083	446	1081	447	1078	438	1115	449
11	Jharkhand										
12	Karnataka	12335	2881	11696	2912	12312	3118	12097	3162	12284	3271
13	Kerela	3020	466	2969	417	2917	421	3002	471	3022	458
14	Madhya Pradesh	25451	6566	26070	6527	26011	6814	26207	7091	17870	4285
15	Maharashtra	21722	3149	21740	3149	22155	3422	22351	3769	21911	3805
16	Manipur	203	75	207	75	216	75	199	75	209	75

17	Meghalaya	244	45	251	54	266	55	266	55	277	62
18	Mizoram	109	9	113	10	116	10	91	11	94	13
19	Nagaland	246	73	260	70	286	73	295	73	314	78
20	Orissa	8216	2263	8645	2318	8425	2358	8524	2512	7878	2126
21	Punjab	7842	7377	8042	7377	8117	7487	8240	7487	8384	8047
22	Rajasthan	20693	6741	22325	6676	21401	6809	19286	6934	19230	6135
23	Sikkim	142	16	142	16	127	16	121	16	126	18
24	Tamil Nadu	6457	3347	6558	3519	6627	3635	6519	3585	6338	3490
25	Tripura	458	60	456	60	444	60	420	60	428	59
26	Uttar Pradesh	26129	17467	26522	17467	26609	17676	26640	17676	27057	18214
27	Uttarakhand										
28	West Bengal	9059	2491	9208	2491	9290	2491	9545	2491	9117	3369
29	All-India	189543	73275	190762	72784	192619	75546	189740	76336	187009	75142

Contd.

	States	2001		2002		2003		2004	
		GCA	GIA	GCA	GIA	GCA	GIA	GCA	GIA
1	Andhra Pradesh	12756	5549	2390.5	6259.5	12366	4781	12519	4987
2	Arunachal Pradesh	268	43	2979.5	6509.5	263	43	263	43
3	Assam	3957	216	129	2021	3962	215	3774	202
4	Bihar	7897	3462	2396.5	5879.5	7882	4567	7802	4567
5	Chhattisgarh	5595	1227	2993.5	6806.5	5707	1179	5716	1312
6	Goa	168	38	541.5	2882	169	40	169	40
7	Gujarat	10734	3572	2104.5	5623.5	11311	4173	11079	4105
8	Haryana	6318	5311	4484.5	8579.5	6388	5343	6425	5434
9	Himachal Pradesh	956	181	2705.5	3651	951	188	984	184

10	Jammu And Kashmir	1106	449	313.5	1029	1102	446	1102	453
11	Jharkhand	2088	222	339.5	1587	2235	230	2068	212
12	Karnataka	11670	3089	1351	7447.5	11450	2702	12807	3328
13	Kerela	2992	432	1848.5	7333	2954	426	2996	455
14	Madhya Pradesh	19044	4899	3117	11597.5	19788	5776	20203	6193
15	Maharashtra	22381	3938	4058	20706	22190	3831	22368	3808
16	Manipur	216	75	1922.5	11309.5	217	40	238	54
17	Meghalaya	277	76	78.5	240.5	272	82	265	74
18	Mizoram	118	17	40	186.5	98	18	96	19
19	Nagaland	378	80	58.5	249	370	104	380	104
20	Orissa	8799	2546	1298	4548	8637	2518	8718	2691
21	Punjab	7985	7710	4893.5	8434	7931	7661	8069	7793
22	Rajasthan	20798	6744	7220	14523.5	21664	6393	21062	7093
23	Sikkim	132	18	3075	10460.5	121	15	123	15
24	Tamil Nadu	6226	3412	1248.5	3010.5	5316	2479	5889	3087
25	Tripura	423	59	1771	3282	333	52	338	52
26	Uttar Pradesh	25816	17713	8995	12511.5	25785	17931	24600	17643
27	Uttarakhand	1223	542	9392	13552.5	1307	570	1289	554
28	West Bengal	9779	3661	2473.5	5312	9707	4947	9401	4931
29	All-India	190278	76441	40094.5	100345	190644	76820	190911	79506

Contd.

	States	2005		2006		2007	
		GCA	GIA	GCA	GIA	GCA	GIA
1	Andhra Pradesh	13362	5996	12811	6070	13567	6285
2	Arunachal Pradesh	267	45	275	52	272	54
3	Assam	3731	167	3553	190	3839	192
4	Bihar	7405	4221	7582	4427	7910	4790
5	Chhattisgarh	5746	1375	5732	1486	5748	1522
6	Goa	170	38	172	38	170	35
7	Gujarat	11304	4292	12202	4817	12224	5092
8	Haryana	6504	5446	6394	5461	6458	5553
9	Himachal Pradesh	940	177	947	182	971	186
10	Jammu And Kashmir	1090	454	1126	459	1134	463
11	Jharkhand	2116	211	2643	262	2391	241
12	Karnataka	13027	3632	12438	3603	12893	3789
13	Kerela	2986	460	2918	490	2761	455
14	Madhya Pradesh	19608	5878	20113	6543	20416	6567
15	Maharashtra	22556	3711	22571	4445	22655	4433
16	Manipur	223	51	224	51	235	51
17	Meghalaya	258	64	265	72	283	73
18	Mizoram	97	19	92	18	96	10
19	Nagaland	387	106	406	106	400	116
20	Orissa	8716	2687	8677	2681	9016	3308
21	Punjab	8085	7814	7983	7759	7870	7689
22	Rajasthan	21699	7818	21534	7958	22208	8088
23	Sikkim	123	10	123	12	118	10
24	Tamil Nadu	6033	3397	5843	3309	5815	3252
25	Tripura	299	104	294	107	292	103
26	Uttar Pradesh	25105	18345	25800	19120	24927	18808

27	Uttarakhand	1266	559	1241	568	1261	575
28	West Bengal	9533	5483	9635	5429	9752	5548
29	All-India	192796	82626	193723	85783	195835	87259

Source: *Various publications of Fertiliser Statistics, Ministry of Agriculture, Govt. of India*

Table 3.A.6- Total Number of Govt. allopathic Hospitals:

	States	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
1	Andhra Pradesh	316	317	317	141	148	148	148	317	331	331
2	Arunachal Pradesh	215	218	218	262	262	262	262	262	262	262
3	Assam	141	141	141	141	141	141	141	141	141	141
4	Bihar	244	244	242	237	237	237	237	237	237	237
5	Chhattisgarh										0
6	Goa	17	17	16	15	15	15	15	14	14	14
7	Gujarat		241	239	263	263	312	312	312	312	312
8	Haryana	59	59	59	58	59	59	59	59	60	60
9	Himachal Pradesh	55	54	53	46	46	46	46	48	49	54
10	Jammu And Kashmir	13	15	15	65	65	65	65	65	65	41
11	Jharkhand										0
12	Karnataka	209	209	209	209	209	209	209	209	209	209
13	Kerela	140	140	138	141	141	141	141	150	149	146
14	Madhya Pradesh	402	402	402	363	363	363	363	363	363	363
15	Maharashtra	693	693	693	445	445	445	445	445	445	330
16	Manipur	21	21	21	25	25	25	27	11	11	12
17	Meghalaya	4	4	4	5	5	5	5	4	5	6
18	Mizoram	8	10	11	13	13	13	13	7	7	6.5
19	Nagaland	31	31	31	31	31	31	31	29	29	23
20	Orissa	248	248	247	250	352	352	411	254	254	254
21	Punjab	193	190	187	174	174	177	177	177	177	177
22	Rajasthan	213	214	214	218	218	218	218	219	219	166
23	Sikkim	5	5	5	5	5	5	5	1	1	1
24	Tamil Nadu	282	282	282	282	282	282	282	282	282	282

25	Tripura	21	23	23	25	25	25	26	29	29	29
26	Uttar Pradesh	534	534	534	534	534	534	534	534	534	534
27	Uttarakhand										0
28	West Bengal	263	263	263	242	242	242	243	243	244	244
29	All India	4327	4575	4411	4235	4345	4410	4473	4474	4491	4301

Contd.

S.No.	States	2000	2001	2002	2003	2004	2005
1	Andhra Pradesh	331	331	331	348	366	521
2	Arunachal Pradesh	262	262	14	25	35	66
3	Assam	141	141	141	121	100	100
4	Bihar	237	237	237	193	148	101
5	Chhattisgarh				69	138	138
6	Goa	14	12	12	16	19	20
7	Gujarat	312	312	312	277	242	503
8	Haryana	60	60	61	93	125	133
9	Himachal Pradesh	59	59	61	101	141	141
10	Jammu And Kashmir	17	17	17	47	76	76
11	Jharkhand				0		47
12	Karnataka	209	209	209	267	325	723
13	Kerela	143	141	141	167	193	189
14	Madhya Pradesh	363	95	95	210	324	324
15	Maharashtra	215	215	215	676	1136	1170
16	Manipur	13	14	14	21	28	28
17	Meghalaya	7	7	7	18	29	30
18	Mizoram	6	7	7	14	21	20
19	Nagaland	17	17	17	27	36	48

20	Orissa	254	254	254	329	403	406
21	Punjab	177	177	177	169	160	160
22	Rajasthan	113	113	113	243	372	510
23	Sikkim	1	1	1	4	7	7
24	Tamil Nadu	282	282	282	312	342	424
25	Tripura	29	17	17	22	27	26
26	Uttar Pradesh	534	534	534	422	310	294
27	Uttarakhand					0	36
28	West Bengal	245	253	254	242	229	642
29	All India	4111	3836	3593	4536	5479	7029

Source: *Health Information of India, Govt. of India.*

Table 3.A.7- Infant Mortality Rate in various States:

S.No.	States	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
1	Andhra Pradesh	73	73	70	68	65	67	65	63	66	66
2	Arunachal Pradesh	NA	NA	NA	NA	NA	61	54	49	46	45
3	Assam	83	81	79	79	78	77	74	76	76	76
4	Bihar	71	69	68	67	67	73	71	71	67	63
5	Chhattisgarh										78
6	Goa	NA	NA	NA	NA	64	13	15	19	23	21
7	Gujarat	72	69	67	70	70	62	61	69	71	70
8	Haryana	70	68	65	62	59	69	68	70	72	70
9	Himachal Pradesh	77	75	70	68	65	61	62	63	64	62
10	Jammu And Kashmir		70	NA	NA	NA	NA	NA	NA	45	52
11	Jharkhand										71

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12	Karnataka	82	77	72	69	67	62	53	53	58	58
13	Kerela	16	16	16	16	16	15	14	12	16	14
14	Madhya Pradesh	120	117	108	102	98	99	97	94	98	90
15	Maharashtra	60	60	55	55	55	55	48	47	49	48
16	Manipur	30	NA	29	28	27	27	28	30	25	25
17	Meghalaya	52	NA	45	46	49	45	48	54	52	56
18	Mizoram		NA			NA	NA	25	19	23	19
19	Nagaland		NA	NA	NA	NA	6	NA	NA	NA	NA
20	Orissa	129	124	115	107	103	103	96	96	98	97
21	Punjab	54	53	53	54	53	54	51	51	54	53
22	Rajasthan	78	79	82	84	84	86	85	85	83	81
23	Sikkim	50	NA	47	47	47	47	47	51	52	49
24	Tamil Nadu	58	57	57	59	59	54	53	53	53	52
25	Tripura	92	NA	90	88	88	45	49	51	49	42
26	Uttar Pradesh	98	97	91	89	88	86	85	85	85	84
27	Uttarakhand		NA								52
28	West Bengal	73	71	67	64	62	58	55	55	53	52
29	All-India	80	80	79	74	74	74	72	71	72	70

contd.

S.No.	States	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1	Andhra Pradesh	65	66	63	59	59	57	56	54	52	49
2	Arunachal Pradesh	44	39	37	34	38	37	40	37	32	32
3	Assam	75	73	70	67	66	68	67	66	64	61
4	Bihar	62	62	61	60	61	61	60	58	56	52
5	Chhattisgarh	79	76	73	70	60	63	61	59	57	54
6	Goa	23	19	18	16	17	16	15	13	10	11
7	Gujarat	62	60	59	57	53	54	53	52	50	48
8	Haryana	67	65	62	59	61	60	57	55	54	51

9	Himachal Pradesh	70	54	52	49	51	49	50	47	44	45
10	Jammu And Kashmir	50	48	46	44	49	50	52	51	49	45
11	Jharkhand	60	62	57	51	49	50	49	48	46	44
12	Karnataka	57	58	55	52	49	50	48	47	45	41
13	Kerela	14	11	11	11	12	14	15	13	12	12
14	Madhya Pradesh	88	86	84	82	79	76	74	72	70	67
15	Maharashtra	48	45	44	42	36	36	35	34	33	31
16	Manipur	23	20	18	16	14	13	11	12	14	16
17	Meghalaya	58	56	57	57	54	49	53	56	58	59
18	Mizoram	21	19	18	16	19	20	25	23	37	36
19	Nagaland	NA	NA	NA	NA	17	18	20	21	26	26
20	Orissa	96	90	87	83	77	75	73	71	69	65
21	Punjab	52	51	50	49	45	44	44	43	41	38
22	Rajasthan	79	79	77	75	67	68	67	65	63	59
23	Sikkim	49	42	38	33	32	30	33	34	33	34
24	Tamil Nadu	51	49	46	43	41	37	37	35	31	28
25	Tripura	41	39	36	32	32	31	36	39	34	31
26	Uttar Pradesh	83	82	79	76	72	73	71	69	67	63
27	Uttarakhand	50	48	45	41	42	42	43	48	44	41
28	West Bengal	51	51	49	46	40	38	38	37	35	33
29	All-India	68	66	63	60	58	58	57	55	53	50

Source- *Sample Registration System, Census Survey of India, Govt. of India.*

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Table 3.A.8- Primary Schools in various States:

	States	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
1	Andhra Pradesh	48731	49057	24529	49141	49153	49395	49630	49919	51836	55398
2	Arunachal Pradesh	1122	1144	572	1146	1195	1228	1243	1264	1277	1289
3	Assam	27712	28323	14162	28890	29173	29689	30004	30140	33236	33236
4	Bihar	52932	53046	26523	52823	53053	53329	53512	53692	53697	53697
5	Chhattisgarh			0							
6	Goa	1014	1031	516	1028	1021	1027	1031	1036	1042	1046
7	Gujarat	13720	13881	6941	13582	14338	14438	14501	14593	14789	14789
8	Haryana	5114	5173	2587	5206	5659	7859	9013	10134	10269	10560
9	Himachal Pradesh	7471	7690	3845	7721	7611	7675	7693	7732	7732	10472
10	Jammu And Kashmir	9242	9586	4793	8743	9784	9994	10213	10483	10483	10483
11	Jharkhand			0							
12	Karnataka	23695	23810	11905	21956	22768	22914	23191	23321	23690	23690
13	Kerela	6767	6783	3392	5919	6694	6708	6714	6717	6755	6748
14	Madhya Pradesh	68167	68973	34487	72225	72478	76800	78790	81198	86858	91733
15	Maharashtra	39084	39369	19685	39949	40628	40987	41345	41722	41804	42108
16	Manipur	3189	3076	1538	3031	3027	3012	2879	2547	2570	2572
17	Meghalaya	4232	4235	2118	4099	4177	4268	4312	4336	4679	4685
18	Mizoram	1109	1118	559	943	1149	1213	1278	1318	1244	1226
19	Nagaland	1287	1299	650	1225	1399	1428	1442	1469	1469	1469
20	Orissa	40033	41204	20602	36306	42104	42104	42104	42104	42104	42104
21	Punjab	12400	12464	6232	12739	12509	12509	12509	12590	12633	12996
22	Rajasthan	30268	30503	15252	33349	34569	34534	34532	34527	35077	34948
23	Sikkim	510	510	255	524	529	529	512	504	501	501
24	Tamil Nadu	29979	30004	15002	30085	30351	30502	30703	30796	30844	31052
25	Tripura	2097	2096	1048	2029	2055	2058	2065	2065	2065	2068

26	Uttar Pradesh	77995	78640	39320	86539	82023	84687	88985	92554	94476	96964
27	Uttarakhand			0							
28	West Bengal	50389	51021	25511	48557	51021	51021	51021	51021	52123	52385
29	All India	560935	566744	572541	570455	581305	589908	599222	610763	626737	641695

Contd.

S.No.	States	2000	2001	2002	2003	2004	2005	2006	2007
1	Andhra Pradesh	55901	58249	61167	63897	61680	62159	62162	62464
2	Arunachal Pradesh	1303	1315	1337	1364	1371	1380	1438	1561
3	Assam	33236	33236	30045	30068	30068	30499	30094	31042
4	Bihar	53351	39299	40511	40337	39347	38161	40294	45980
5	Chhattisgarh		31023	23951	32556	33595	31670	32731	34034
6	Goa	1046	1033	1037	1009	1003	1001	1219	1253
7	Gujarat	15602	15545	7245	7233	16385	16415	16443	17443
8	Haryana	11013	11208	9649	11500	11800	12152	6843	13602
9	Himachal Pradesh	10508	10877	10868	11013	11178	11261	11525	11517
10	Jammu And Kashmir	10860	10926	10488	10488	12049	13369	13369	13369
11	Jharkhand		16643	17059	16417	16572	16186	18941	19818
12	Karnataka	22314	22404	26254	26163	26645	27017	28499	28871
13	Kerela	6758	6754	6697	6717	6827	6817	6817	6802
14	Madhya Pradesh	87049	62530	54233	66648	96737	94890	98345	98463
15	Maharashtra	42167	45971	40850	41258	41669	42267	42467	42467
16	Manipur	2572	2573	2552	2552	2552	2552	2563	2563
17	Meghalaya	4685	5646	5807	5851	5851	5851	6351	6618
18	Mizoram	1224	1377	1253	1504	1481	1688	1700	1752
19	Nagaland	1491	1499	1352	1495	1520	1520	1520	1662
20	Orissa	42104	42104	36677	42104	45700	46370	46722	49765
21	Punjab	13076	13074	13340	13265	13352	13291	13291	13238

22	Rajasthan	34948	38342	32953	55757	55942	56573	57656	55361
23	Sikkim	501	501	497	497	684	733	761	772
24	Tamil Nadu	31142	31488	33394	32242	33470	34208	35146	29364
25	Tripura	2081	2095	2054	2075	1776	1863	2142	2151
26	Uttar Pradesh	97886	88927	113546	119404	129976	134455	137366	127247
27	Uttarakhand		13795	13902	14304	14663	14847	15058	15356
28	West Bengal	52385	52426	49851	49865	50397	49986	49986	49913
29	All India	638738	664041	651382	710471	767520	772568	784852	787827

Source: *Education in India; Planning,Monitoring and Statistics Division; Ministry of HRD, Govt.of India.*

Selected Educational Statistics:Education department ; Ministry of HRD, Govt.of India.

Table 3.A.9- Own Tax Revenue of various States in India:

S.No.	States	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
1	Andhra Pradesh	2,647	3,055	3,389	3,833	4,227	4,120	4,882	7,114	7,961	9,009
2	Arunachal Pradesh	3	4	4	4	6	8	9	10	11	14
3	Assam	420	512	518	613	632	702	767	882	983	1,225
4	Bihar	1,142	1,310	1,564	1,748	1,836	1,973	2,251	2,390	2,672	3,638
5	Chhattisgarh										
6	Goa	85	114	144	188	226	272	303	365	357	459
7	Gujarat	2,400	2,893	3,457	3,942	4,743	5,323	6,066	6,591	7,616	8,162
8	Haryana	1,070	1,300	1,447	1,589	1,888	2,169	2,143	2,369	3,120	3,518
9	Himachal Pradesh	161	193	222	256	299	342	412	476	572	620
10	Jammu And Kashmir	163	165	207	225	244	285	289	367	437	578
11	Jharkhand										

12	Karnataka	2,332	2,900	3,098	3,812	4,289	5,274	5,768	6,412	6,943	7,744
13	Kerela	1,340	1,674	1,887	2,345	2,799	3,383	3,899	4,501	4,650	5,194
14	Madhya Pradesh	1,755	2,117	2,334	2,677	2,871	3,518	4,104	4,564	5,109	5,795
15	Maharashtra	5,120	5,954	6,561	7,696	9,455	10,934	11,715	13,719	14,202	17,265
9	Manipur	17	14	15	19	24	28	14	36	31	40
17	Meghalaya	36	43	44	48	56	66	77	74	88	103
18	Mizoram	3	3	5	5	5	6	7	8	9	11
19	Nagaland	18	18	17	18	19	21	31	34	35	43
20	Orissa	669	674	762	860	923	1,127	1,342	1,422	1,487	1,704
21	Punjab	1,291	1,543	1,759	2,150	2,599	2,651	2,735	3,045	3,262	3,948
22	Rajasthan	1,217	1,549	1,734	1,950	2,307	2,731	3,124	3,611	3,939	4,531
23	Sikkim	11	11	12	14	14	21	22	27	29	31
24	Tamil Nadu	3,124	3,734	4,162	4,801	5,834	7,151	7,984	8,686	9,625	10,919
25	Tripura	26	29	34	37	44	48	60	72	84	102
26	Uttar Pradesh	3,162	3,497	3,886	4,132	4,878	5,469	6,306	6,998	7,910	9,401
27	Uttarakhand										
28	West Bengal	2,134	2,450	2,609	2,913	3,730	4,133	4,259	4,517	4,775	5,101

Contd.

S.No.	States	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1	Andhra Pradesh	10,552	12,564	12,618	13,806	16,254	19,207	23,926	28,794	35,740	40,664
2	Arunachal Pradesh	21	34	37	43	49	62	78	98	99	109
3	Assam	1,413	1,566	1,935	2,070	2,713	3,232	3,483	3,360	4,039	4,028
4	Bihar	2,935	2,442	2,765	3,361	3,342	3,561	4,033	5,086	6,356	7,336
5	Chhattisgarh	750	1,993	2,327	2,588	3,228	4,052	5,046	5,618	6,328	7,030
6	Goa	515	569	602	710	857	1,096	1,292	1,359	1,738	1,861
7	Gujarat	9,047	9,247	9,520	11,173	12,958	15,698	18,465	21,886	24,194	25,450
8	Haryana	4,312	4,972	5,550	6,348	7,440	9,079	10,928	11,618	14,301	14,647

9	Himachal Pradesh	728	916	888	984	1,252	1,497	1,656	1,958	2,301	2,700
10	Jammu And Kashmir	748	858	976	1,152	1,400	1,689	1,903	2,299	2,693	3,011
11	Jharkhand		2,076	2,278	2,278	2,402	2,888	3,128	3,550	5,084	6,052
12	Karnataka	9,043	9,853	10,440	12,570	16,072	18,632	23,301	25,987	28,765	32,721
13	Kerela	5,870	5,923	7,303	8,089	8,964	9,779	11,942	13,669	15,934	18,228
14	Madhya Pradesh	5,640	4,702	6,170	6,789	7,773	9,115	10,473	12,018	14,002	16,075
15	Maharashtra	19,724	21,288	22,811	25,162	30,606	33,540	40,099	47,528	50,088	50,986
9	Manipur	49	52	65	69	81	95	122	147	160	182
17	Meghalaya	119	136	145	178	208	253	305	319	385	404
18	Mizoram	14	19	28	34	40	55	68	78	95	116
19	Nagaland	56	52	62	69	78	106	119	131	149	156
20	Orissa	2,184	2,467	2,872	3,302	4,177	5,002	6,065	6,856	7,672	8,200
21	Punjab	4,895	4,820	5,711	6,146	6,945	8,989	9,017	9,899	11,547	14,062
22	Rajasthan	5,300	5,671	6,253	7,246	8,415	9,880	11,608	13,275	15,134	16,742
23	Sikkim	66	80	106	108	117	147	173	198	162	177
24	Tamil Nadu	12,282	13,010	14,342	15,945	19,357	23,326	27,771	29,619	34,521	38,578
25	Tripura	126	159	183	221	240	296	342	371	451	546
26	Uttar Pradesh	10,980	10,330	12,767	13,601	15,693	18,858	22,998	24,959	29,191	33,456
27	Uttarakhand	295	895	1,022	1,226	1,444	1,785	2,514	2,739	3,054	3,529
28	West Bengal	5,918	6,505	7,046	8,768	9,924	10,388	11,695	13,126	16,223	19,476

Source: *Handbook of Statistics on State Govt. Finances, Department of Economic Analysis and Planning, RBI.*

Table 3.A.10-Credit Deposit Ratio for various States:

S.No.	States	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1	Andhra Pradesh	0.74	0.74	0.74	0.74	0.67	0.73	0.75	0.70	0.66	0.66	0.63
2	Arunachal Pradesh	0.26	0.24	0.28	0.32	0.20	0.12	0.16	0.14	0.12	0.15	0.18
3	Assam	0.49	0.50	0.48	0.49	0.43	0.39	0.41	0.39	0.35	0.35	0.37
4	Bihar	0.35	0.34	0.35	0.34	0.32	0.33	0.29	0.28	0.27	0.25	0.22
5	Chhattisgarh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Goa	0.29	0.31	0.28	0.28	0.22	0.25	0.24	0.23	0.24	0.24	0.24
7	Gujarat	0.47	0.50	0.45	0.45	0.42	0.47	0.47	0.41	0.40	0.40	0.39
8	Haryana	0.53	0.56	0.51	0.52	0.45	0.46	0.42	0.39	0.39	0.40	0.39
9	Himachal Pradesh	0.37	0.39	0.36	0.33	0.28	0.26	0.26	0.21	0.23	0.23	0.24
10	Jammu And Kashmir	0.31	0.31	0.31	0.29	0.27	0.29	0.24	0.24	0.23	0.26	0.26
11	Jharkhand	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Karnataka	0.72	0.75	0.69	0.65	0.63	0.66	0.61	0.63	0.62	0.63	0.65
13	Kerela	0.50	0.54	0.47	0.44	0.38	0.45	0.40	0.39	0.39	0.37	0.38
14	Madhya Pradesh	0.57	0.57	0.56	0.57	0.50	0.50	0.49	0.47	0.45	0.44	0.44
15	Maharashtra	0.71	0.78	0.66	0.65	0.64	0.70	0.78	0.68	0.70	0.72	0.84
16	Manipur	0.76	0.74	0.78	0.96	0.81	0.58	0.72	0.84	0.74	0.68	0.49
17	Meghalaya	0.22	0.22	0.21	0.17	0.17	0.17	0.13	0.13	0.13	0.18	0.17
18	Mizoram	0.22	0.20	0.22	0.21	0.17	0.16	0.18	0.16	0.19	0.13	0.13
19	Nagaland	0.33	0.33	0.32	0.36	0.35	0.38	0.25	0.21	0.16	0.20	0.15
20	Orissa	0.66	0.68	0.65	0.60	0.57	0.55	0.52	0.43	0.43	0.41	0.42
21	Punjab	0.40	0.41	0.40	0.41	0.39	0.41	0.39	0.36	0.34	0.37	0.38
22	Rajasthan	0.60	0.60	0.59	0.59	0.53	0.48	0.50	0.49	0.50	0.48	0.50
23	Sikkim	0.31	0.42	0.15	0.16	0.20	0.24	0.17	0.13	0.23	0.22	0.12
24	Tamil Nadu	0.83	0.86	0.81	0.81	0.75	0.87	0.86	0.83	0.79	0.76	0.76

S.No.	States										
25	Tripura	0.65	0.66	0.64	0.55	0.48	0.48	0.44	0.35	0.31	0.29	0.24
26	Uttar Pradesh	0.42	0.44	0.41	0.40	0.35	0.35	0.32	0.30	0.28	0.26	0.27
27	Uttarakhand	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	West Bengal	0.50	0.49	0.51	0.51	0.45	0.54	0.47	0.42	0.40	0.39	0.38
29	All India	0.56	0.58	0.55	0.55	0.50	0.56	0.54	0.50	0.49	0.49	0.51

Contd.

S.No.	States	2001	2002	2003	2004	2005	2006	2007	2008
1	Andhra Pradesh	0.64	0.62	0.62	0.72	0.80	0.89	0.90	0.94
2	Arunachal Pradesh	0.17	0.16	0.17	0.17	0.29	0.38	0.34	0.23
3	Assam	0.35	0.32	0.29	0.34	0.36	0.45	0.39	0.38
4	Bihar	0.18	0.21	0.23	0.25	0.29	0.30	0.31	0.28
5	Chhattisgarh	0.00	0.44	0.35	0.39	0.44	0.42	0.51	0.45
6	Goa	0.23	0.25	0.24	0.22	0.25	0.21	0.24	0.29
7	Gujarat	0.40	0.44	0.45	0.38	0.42	0.50	0.55	0.58
8	Haryana	0.40	0.44	0.44	0.48	0.53	0.60	6.69	0.63
9	Himachal Pradesh	0.22	0.23	0.25	0.34	0.42	0.43	0.45	0.43
10	Jammu And Kashmir	0.26	0.37	0.37	0.27	0.31	0.38	0.40	0.43
11	Jharkhand	0.00	0.25	0.25	0.23	0.28	0.31	0.32	0.33
12	Karnataka	0.60	0.62	0.62	0.71	0.78	0.86	0.82	0.82
13	Kerela	0.39	0.43	0.43	0.49	0.59	0.67	0.65	0.64
14	Madhya Pradesh	0.42	0.47	0.47	0.44	0.56	0.59	0.59	0.55
15	Maharashtra	0.83	0.92	0.94	0.72	0.91	1.05	1.00	1.09
16	Manipur	0.46	0.26	0.30	0.36	0.36	0.42	0.45	0.37
17	Meghalaya	0.16	0.18	0.29	0.55	0.50	0.61	0.33	0.30
18	Mizoram	0.13	0.26	0.27	0.21	0.39	0.31	0.30	0.30
19	Nagaland	0.13	0.13	0.13	0.18	0.19	0.20	0.22	0.25

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20	Orissa	0.39	0.45	0.48	0.52	0.63	0.67	0.61	0.53
21	Punjab	0.41	0.42	0.42	0.40	0.47	0.51	0.62	0.62
22	Rajasthan	0.52	0.48	0.51	0.65	0.83	0.92	0.98	0.96
23	Sikkim	0.12	0.16	0.17	0.19	0.28	0.46	0.48	0.51
24	Tamil Nadu	0.75	0.85	0.91	0.78	0.88	0.94	1.00	0.99
25	Tripura	0.20	0.22	0.26	0.24	0.27	0.33	0.32	0.31
26	Uttar Pradesh	0.26	0.30	0.31	0.32	0.37	0.40	0.43	0.43
27	Uttarakhand	0.20	0.24	0.19	0.24	0.28	0.34	0.35	0.38
28	West Bengal	0.40	0.46	0.48	0.49	0.54	0.57	0.62	0.61
29	All India	0.51	0.58	0.59	0.54	0.63	0.71	0.74	0.76

Source: Calculated by the Author from Table B

Table B- Credit and deposit in a Nationalised Bank (State-wise): (in Lakh Rupees)

S.No.	States	1990		1991		1992		1993		1994	
		Deposit	Credit	Deposit	Credit	Deposit	Credit	Deposit	Credit	Deposit	Credit
1	Andhra Pradesh	626927	464264	595727	442415	658126	486112	717773	533808	852205	571896
2	Arunachal Pradesh	1902	489	1900	453	1903	524	2109	682	3442	694
3	Assam	141594	69099	132783	65743	150405	72454	159529	78794	184698	80187
4	Bihar	570881	197519	543467	184708	598295	210330	661351	223397	730208	232273
5	Chhattisgarh	0	0								
6	Goa	118756	35010	110767	34638	126745	35382	149587	42407	171453	38344
7	Gujarat	967156	458073	884593	440584	1049718	475562	1206422	548819	1392189	585060
8	Haryana	297456	158971	281275	157196	313637	160745	359355	185317	415495	188302
9	Himachal	87958	32925	82708	32379	93208	33470	109863	36381	128387	35878

	Pradesh									
10	Jammu And Kashmir	50988	15748	49445	15331	52530	16164	59984	17661	67678	18208
11	Jharkhand	0	0								
12	Karnataka	656389	471246	605949	454234	706828	488257	833946	542416	896442	565321
13	Kerela	353448	177573	319304	171625	387592	183521	471971	208040	564246	212430
14	Madhya Pradesh	453461	257554	429823	246631	477099	268476	519384	294824	586312	293127
15	Maharashtra	2486023	1774534	2238105	1744119	2733941	1804948	3314177	2153866	3696600	2370573
16	Manipur	6248	4764	5820	4334	6675	5194	6361	6106	7777	6299
17	Meghalaya	16932	3649	15636	3434	18227	3863	21456	3704	24700	4155
18	Mizoram	1644	354	1586	325	1702	382	1911	395	2175	373
19	Nagaland	9774	3177	9088	2986	10460	3368	10304	3668	11095	3899
20	Orissa	158168	105105	146772	99372	169563	110838	194834	117103	218870	124363
21	Punjab	768065	310106	721207	297994	814923	322217	924264	377614	1078612	419740
22	Rajasthan	282603	168650	262946	158260	302260	179039	342093	201701	401358	212791
23	Sikkim	4537	1418	5368	2275	3705	560	4545	735	4658	942
24	Tamil Nadu	954140	794007	881141	760077	1027138	827936	1191919	969226	1353221	1018166
25	Tripura	14938	9672	13878	9107	15997	10236	17616	9668	20331	9827
26	Uttar Pradesh	1393633	587205	1323219	575952	1464046	598458	1651390	662476	1916197	672508
27	Uttarakhand	0	0								
28	West Bengal	1167320	585868	1127339	556245	1207300	615491	1406236	722640	1592185	717871
29	All India	13102562	7394012	12228383	7140235	13976741	7647789	16082431	8821857	18500577	9273249

Contd.

	States	1995		1996		1997		1998		1999	
		Deposit	Credit	Deposit	Credit	Deposit	Credit	Deposit	Credit	Deposit	Credit
1	Andhra Pradesh	2017765	1472382	1055893	791364	1241924	868506	1452920	958867	1723316	1130645
2	Arunachal Pradesh	32305	4017	6361	1000	7837	1077	7666	956	7605	1107
3	Assam	395587	153024	243619	100896	279818	109317	338131	119345	393589	136102
4	Bihar	1527408	496438	1013529	293389	1210590	341732	1441449	386263	1706064	430503
5	Chhattisgarh										
6	Goa	274998	67921	228387	54342	270649	62887	317313	76296	373025	90232
7	Gujarat	2344573	1092991	1769979	833914	2065121	848473	2461718	980284	2814812	1138525
8	Haryana	747904	340650	618218	256950	732905	283060	834185	321863	958349	381751
9	Himachal Pradesh	274413	71261	173969	45182	238680	49524	240799	54547	287214	66939
10	Jammu And Kashmir	363038	103901	88509	21504	106798	25480	122945	28707	142003	36578
11	Jharkhand										
12	Karnataka	1969942	1295556	1289341	787950	1385880	875691	1611566	1003162	1901363	1192091
13	Kerela	1725008	772991	725783	288789	833227	323575	959089	374909	1155565	432968
14	Madhya Pradesh	1338697	663359	824890	404139	962558	449948	1121430	503763	1300501	568575
15	Maharashtra	7984183	5550971	4413113	3458864	5100581	3491351	6073219	4240465	6923024	4956366
16	Manipur	18277	10636	11505	8317	13325	11256	15406	11461	20251	13675
17	Meghalaya	65429	11142	35722	4525	44356	5617	48768	6407	52421	9660
18	Mizoram	18009	2969	3281	595	4064	640	4122	782	5774	748
19	Nagaland	30002	11353	16021	4045	21931	4528	24778	4031	26671	5257
20	Orissa	527523	287573	300757	155462	366740	158849	431136	184103	540762	223668
21	Punjab	1788454	740098	1432028	559899	1669422	596140	1942709	660845	2274111	833496
22	Rajasthan	1061994	506078	534316	267787	621381	302163	735034	366973	874830	420929
23	Sikkim	14703	3534	8711	1451	10993	1465	12821	2966	15940	3479
24	Tamil Nadu	2580659	2235367	1730382	1488462	1905902	1578236	2212168	1751822	2521085	1923432

25	Tripura	48887	23238	24903	10941	33835	11877	41657	12975	48275	13917
26	Uttar Pradesh	3606050	1265665	2602485	845165	3062067	920356	3641424	1017252	4368529	1154498
27	Uttarakhand										
28	West Bengal	2806177	1512051	1919002	900247	2193930	918476	2573773	1032566	2991460	1173191
29	All India	37917414	21093912	23912030	13002615	27667720	13912548	32623665	16077382	38181529	18810898

Contd.

	States	2000		2001		2002		2003		2004	
		Deposit	Credit	Deposit	Credit	Deposit	Credit	Deposit	Credit	Deposit	Credit
1	Andhra Pradesh	2070899	1296196	2451966	1557736	6378853	3950556	7302451	4553856	3765355	2698520
2	Arunachal Pradesh	7974	1474	9356	1564	75678	11936	84042	13957	22865	3822
3	Assam	473132	173472	534656	184616	1151519	365590	1284012	375980	743790	251518
4	Bihar	2063539	453340	1433818	256717	2983254	636830	3293163	760611	1901254	476851
5	Chhattisgarh					948964	417696	1174829	412820	606494	238081
6	Goa	446056	106451	476640	111171	803180	203172	906771	219425	663975	147120
7	Gujarat	3273175	1291090	3633388	1443303	6528428	2882011	7210125	3233632	5355098	2042244
8	Haryana	1129236	442341	1288742	516388	2342553	1024789	2721360	1197642	1810948	863698
9	Himachal Pradesh	334698	81945	403718	88840	866799	202891	1002768	248544	603051	202589
10	Jammu And Kashmir	162108	41923	180487	46062	1162145	428024	1303489	476276	261512	69319
11	Jharkhand					1908408	478298	2150971	539834	1316989	302860
12	Karnataka	2237019	1454793	2614558	1577754	6295312	3879343	7532892	4692770	4257687	3007767
13	Kerela	1346513	514883	1459780	569020	5166705	2236709	5952165	2546340	2157775	1050129
14	Madhya Pradesh	1521128	667258	1389669	581103	3316234	1544891	3759000	1749825	2127375	937366
15	Maharashtra	7628151	6376080	9000493	7510788	22254602	20538117	24966767	23396716	13891669	10041527
16	Manipur	23437	11558	24189	11208	63404	16751	61726	18385	37734	13560
17	Meghalaya	61541	10399	74472	12286	195233	35817	214320	62177	127695	70205

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18	Mizoram	6326	829	6268	832	49312	12997	64585	17755	15177	3237
19	Nagaland	31588	4725	35867	4663	104990	13479	121254	16058	52842	9589
20	Orissa	636233	264658	752440	296590	1833661	816335	1996227	961790	1111306	582260
21	Punjab	2648251	1000375	2973351	1212804	5123484	2141368	5683198	2359049	3990499	1614210
22	Rajasthan	1026881	518464	1164066	602167	3159332	1529831	3493041	1775783	1578950	1022203
23	Sikkim	24560	3056	35995	4301	81051	12934	100928	17217	63272	11754
24	Tamil Nadu	2901810	2219462	3301487	2486980	7328940	6257841	8448241	7663114	5065287	3963566
25	Tripura	59257	14461	69182	13843	191096	41143	209973	54875	100964	24526
26	Uttar Pradesh	5116689	1365257	5359199	1377739	9852010	.2943982	10868455	3323047	7492012	2422813
27	Uttarakhand			489095	100062	1154316	274111	1567852	304180	770121	186673
28	West Bengal	3454753	1310408	3882305	1537249	7689700	3518118	8604858	4123089	5506776	2724828
29	All India	44249278	22423619	50803214	26137967	1.12E+08	65599308	1.28E+08	75596882	75244110	40810526

Contd.

	States	2005		2006		2007		2008	
		Deposit	Credit	Deposit	Credit	Deposit	Credit	Deposit	Credit
1	Andhra Pradesh	4489228	3613327	5215603	4661750	6374243	5757039	7939364	7437861
2	Arunachal Pradesh	25786	7535	34600	13154	37335	12843	64570	14677
3	Assam	844395	305648	983431	440370	1271651	496355	1460410	558071
4	Bihar	2069102	597449	2290355	681002	2789749	866573	3488856	978831
5	Chhattisgarh	745969	328232	992922	417276	1096465	556903	1486783	674862
6	Goa	746007	186262	1113498	229940	1174083	286166	1199166	345366
7	Gujarat	6034198	2522583	6496127	3272968	7396523	4037067	9042685	5216574
8	Haryana	2077073	1096690	2880290	1723148	3224999	21572202	3894221	2456033
9	Himachal Pradesh	679350	283266	777355	336303	935424	420272	1047443	447793
10	Jammu And Kashmir	283640	87599	299961	115075	341158	136253	377334	163904
11	Jharkhand	1429809	405051	1632642	509109	1876809	609452	2223695	743382

12	Karnataka	5135382	3988901	6061132	5212080	7754787	6356850	9418622	7740961
13	Kerela	2218654	1312977	2453077	1646389	2941522	1910261	3298865	2115801
14	Madhya Pradesh	2191927	1216628	2628833	1551331	3121826	1852601	3860150	2106368
15	Maharashtra	17024251	15506972	20017244	20988788	27651756	27644590	34990207	38161032
16	Manipur	48062	17349	60335	25610	68228	30832	88959	33051
17	Meghalaya	130921	65672	127618	77896	145983	48825	169315	50202
18	Mizoram	15720	6079	20371	6289	22652	6770	28601	8562
19	Nagaland	60349	11643	70526	14444	84820	18594	93798	23014
20	Orissa	1325502	831487	1589903	1060206	2004881	1214586	2418310	1284023
21	Punjab	4260621	2020789	4683573	2400437	5381787	3350530	6221378	3852333
22	Rajasthan	1705152	1414316	1986039	1827317	2380527	2336127	2984868	2872971
23	Sikkim	64764	18391	61563	28075	83898	40336	89250	45356
24	Tamil Nadu	5678567	5008536	6731909	6357958	8256382	8240727	10296496	10200828
25	Tripura	107787	29032	133530	43467	156528	49399	193991	60120
26	Uttar Pradesh	8454471	3160307	9664607	3896006	11755651	5046968	13624112	5898231
27	Uttarakhand	838135	231665	975307	330474	1194792	416014	1382387	519254
28	West Bengal	6262007	3398731	7149668	4106400	8694022	5408420	10832981	6619790
29	All India	87145180	55132072	1.02E+08	72513038	1.26E+08	92596526	1.56E+08	1.18E+08

Source: *Basic Statistical Returns of Scheduled Commercial Banks in India, Reserve Bank of India.*

Table 3.A.11- Banking Centres in various States :

S.No.	States	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1	Andhra Pradesh	2901	2910	2911	2921	2911	2863	2852	2834	2822	2824	2810
2	Arunachal Pradesh	59	59	60	60	61	61	61	61	61	59	59
3	Assam	906	909	914	913	914	881	870	866	863	859	833
4	Bihar	3893	3898	3904	3910	3890	3754	3736	3735	3734	3731	3695
5	Chhattisgarh											
6	Goa	151	151	151	150	150	150	150	151	153	153	153
7	Gujarat	182	1822	1821	1832	1823	1786	1753	1746	1741	1729	1727
8	Haryana	758	758	757	766	767	758	749	747	747	747	748
9	Himachal Pradesh	603	604	606	617	617	619	618	619	619	619	619
10	Jammu And Kashmir	515	520	528	530	530	527	515	514	506	507	502
11	Jharkhand											
12	Karnataka	2491	2495	2500	2497	2486	2454	2439	2416	2403	2391	2388
13	Kerela	1345	1347	1346	1348	1348	1349	1348	1349	1350	1351	1351
14	Madhya Pradesh	3162	3166	3174	3181	3147	2886	2782	2756	2723	2706	2680
15	Maharashtra	2747	2750	2748	2750	2737	2669	2646	2644	2645	2639	2631
16	Manipur	62	62	63	63	63	61	61	61	61	61	61
17	Meghalaya	120	124	134	136	136	132	132	132	132	132	130
18	Mizoram	64	65	67	68	68	68	66	66	66	66	66
19	Nagaland	46	46	46	46	46	45	45	43	43	43	42
20	Orissa	1638	1644	1651	1658	1663	1652	1650	1643	1644	1645	1645
21	Punjab	1162	1165	1164	1163	1158	1139	1139	1139	1137	1137	1138
22	Rajasthan	2152	2156	2157	2168	2142	2068	2052	2046	2032	2023	2015
23	Sikkim	24	24	25	32	32	33	33	33	33	33	33

24	Tamil Nadu	2260	2262	2265	2271	2286	2235	2226	2227	2227	2217	2207
25	Tripura	129	129	130	130	130	130	128	127	127	125	122
26	Uttar Pradesh	5856	5857	5860	5863	5788	5692	5659	5637	5632	5624	5610
27	Uttarakhand											
28	West Bengal	2494	2499	2505	2504	2504	2485	2479	2478	2478	2478	2477
29	All India	37529	37573	37634	37724	37542	36642	36334	36213	36122	36042	35885

Contd.

	States	2001	2002	2003	2004	2005	2006	2007	2008
1	Andhra Pradesh	2785	2781	2746	2736	2708	2702	2698	2719
2	Arunachal Pradesh	59	59	58	56	57	57	57	57
3	Assam	826	813	799	799	789	786	773	773
4	Bihar	2671	2671	2641	2641	2633	2632	2617	2623
5	Chhattisgarh	706	696	688	687	660	654	643	648
6	Goa	152	152	151	149	148	148	149	150
7	Gujarat	1722	1715	1673	1671	1629	1604	1604	1616
8	Haryana	749	749	746	746	738	740	748	756
9	Himachal Pradesh	619	619	616	617	617	618	617	622
10	Jammu And Kashmir	501	501	500	499	487	484	484	486
11	Jharkhand	998	996	986	986	985	985	976	978
12	Karnataka	2358	2351	2330	2321	2293	2286	2270	2282
13	Kerela	1349	1348	1340	1338	1290	1295	1284	1295
14	Madhya Pradesh	1940	1922	1892	1879	1855	1838	1810	1811
15	Maharashtra	2617	2614	2542	2528	2505	2481	2465	2471
16	Manipur	52	51	52	51	50	50	48	47
17	Meghalaya	130	130	130	130	131	131	129	128
18	Mizoram	66	66	66	66	66	66	65	61

19	Nagaland	42	42	43	43	43	43	42	43
20	Orissa	1632	1631	1616	1612	1609	1608	1600	1607
21	Punjab	1134	1135	1136	1134	1132	1126	1121	1129
22	Rajasthan	1991	1988	1952	1944	1919	1913	1906	1912
23	Sikkim	33	33	33	33	33	33	33	33
24	Tamil Nadu	2175	2144	2107	2087	2078	2075	2079	2101
25	Tripura	122	122	121	121	121	121	122	123
26	Uttar Pradesh	5057	5048	5032	5025	4999	4987	4973	4996
27	Uttarakhand	534	534	533	533	526	526	514	521
28	West Bengal	2469	2465	2460	2458	2446	2447	2444	2448
29	All India	35633	35517	35131	35032	34688	34577	34413	34579

Source: *Basic Statistical Returns of Scheduled Commercial Banks in India, RBI*

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Table 3.A.12 : PCNSDP of Various States (Base: 1999-00):

State / Union Territory	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	1999-00
Andhra Pradesh	12112.93	12594.77	13182.78	13906.35	13378.78	14935.36	15427	15427
Arunachal Pradesh	13742.93	13127.62	14717.04	13517.9	13587.14	13709.89	13990	13990
Assam	12133.38	12180.09	12228.92	12298.98	12305.35	12067.57	12282	12282
Bihar	5354.077	5828.311	4809.326	5884.725	5465.143	5659.068	5786	5786
Jhar-khand	9409.292	9653.419	9741.178	9010.39	·11582.51	12372.33	11549	11549
Goa	27603.85	28302.36	29889.44	34485.64	34333.93	42284.33	42296	42296
Gujarat	13896.21	16363.08	16524.8	18733.49	18466.8	19483.91	18864	18864
Haryana	19332.47	20238.11	20145.63	21970.86	21618.38	22209.92	23222	23222
Himachal Pradesh	14817.05	15982.46	16569.87	17208.11	18121.23	19073.89	20806	20806
Jammu & Kashmir	12242.43	12384.63	12596.06	13056.34	13337.01	13651.35	13816	13816
Karnataka	12571.54	12986.96	13421.62	14419.26	15102.53	16919.78	17502	17502
Kerala	14895.22	16042.73	16546.51	17063.36	17287.26	18320.95	19461	19461
Madhya Pradesh	9885.579	9834.53	10194.88	10643.81	10962.12	11442.59	12384	12384
Chhattis-garh	11363.12	11199.78	11250.17	11562.97	11834.05	11943.53	11629	11629
Maharashtra	18374.71	18337.01	19940.25	20306.75	21002.04	21415.3	23011	23011
Manipur	10922.64	10384.54	10492.91	11251.48	12021.25	11959.6	13260	13260
Megha-laya	10999.22	11074.22	12023.67	12130.58	12575.78	13574.7	14355	14355
Mizoram	0	0	0	0	0	0	0	16443
Nagaland	14758.52	15212.8	15594.33	15972.63	16630.61	14740.73	14107	14107
Orissa	9057.003	9349.284	9626.766	8829.468	9956.044	10120.68	10622	10622
Punjab	21998.11	22126.19	22513.88	23720.23	23905.42	24808.88	25631	25631
Rajasthan	9841.339	11356.86	11487.4	12515.79	13692.23	13935.79	13619	13619
Sikkim	12670.22	12481.72	13303.58	13792.18	14384.82	14950.32	14890	14890
Tamil Nadu	14302.09	15862.47	16205.84	16691.36	17983.42	18513.66	19432	19432
Tripura	9806.042	9504.809	10112.59	11055.28	12098.96	13105.44	14119	14119
Uttar Pradesh	8702.808	8948.465	9029.206	9802.254	9479.292	9331.554	9749	9749

Uttara-khand	12845.42	13726.49	13342.77	13925.8	13838.25	13756.29	13516	13516
West Bengal	11517.1	12093.29	12771.77	13433.2	14333.29	15025.41	15888	15888
All-India per Capita NNP	12126.39	12725.62	13386.34	14203.17	14576.9	15217.12	15881	15881

Contd.

State / Union Territory	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Andhra Pradesh	16574	17213	17340	18819	19963	21728	23898	26229
Arunachal Pradesh	14726	16793	15832	17340	19339	18179	20458	21582
Assam	12447	12529	13072	13675	13946	14419	14894	15526
Bihar	6554	5994	6658	6117	6772	6745	8233	8818
Jhar-khand	9980	10451	10563	11173	12869	12950	14252	15303
Goa	38989	39339	40602	42206	45394	52201	56021	60232
Gujarat	17227	18200	19509	22387	23346	26268	28335	31780
Haryana	24423	25638	26748	28805	30690	32980	36669	39462
Himachal Pradesh	21824	22543	23234	24377	26244	27447	28620	30519
Jammu & Kashmir	13859	13784	14341	14848	15414	16086	16817	17590
Karnataka	17352	17402	18115	18236	19840	22322	23593	26418
Kerala	19809	20659	21944	23159	25122	27714	30476	33372
Madhya Pradesh	11150	11715	10880	11870	12032	12567	12881	13299
Chhattis-garh	10808	12202	11716	13661	14070	14694	17059	18770
Maharashtra	21892	22258	23447	24859	26603	28683	30982	33302
Manipur	12157	12641	12319	13389	14334	14663	14941	15667
Megha-laya	14910	15518	15882	16658	17595	18870	20185	21597
Mizoram	16635	17245	18429	18555	18904	18616	19220	19750
Nagaland	15699	16637	17409	17319	17269	17008	17129	-
Orissa	10208	10697	10500	11900	13311	13877	15760	17352
Punjab	25986	25992	25955	27075	27905	28487	30154	31662
Rajasthan	12840	13933	12054	15579	14908	15736	17480	18769

Sikkim	15305	15953	17065	18159	19332	20777	22277	23684
Tamil Nadu	20319	19748	19662	20707	22975	25558	28320	29445
Tripura	14933	16947	17752	18554	19825	21524	21706	22493
Uttar Pradesh	9721	9672	9806	10120	10421	10758	11334	11939
Uttara-khand	14932	15364	16530	17542	19524	20219	21816	23477
West Bengal	16244	17225	17568	18374	19367	20187	21773	23456
All-India per Capita NNP	16173	16769	17109	18301	19331	20868	22580	24295

Source: *National Income Accounts, Ministry of Statistics and Programme Implementation.*

Table 3.A.13 : showing Infrastructural indicators and NSDP and PCNSDP growth rate (All-India):

Year	Road_GR	Rail_GR	PCE_GR	GIA_GR	TD_GR	IMR_GR	Hos_GR	Schools_GR	TR_GR	BC_GR	CD_GR	NSDP_GR	PCNSDP_GR
1991	0.91	0.26	5.93	5.14	10.33	0.00	5.73	1.04	17.83	0.12	3.47	0.88	-1.12
1992	0.97	1.78	5.60	1.83	12.25	-1.25	-3.58	1.02	11.51	0.16	-6.29	5.36	3.42
1993	4.60	0.61	5.65	185.55	14.70	-6.33	-3.99	-0.36	15.06	0.24	0.25	5.86	3.48
1994	1.34	0.32	7.02	-63.13	15.77	0.00	2.60	1.90	17.60	-0.48	-8.62	6.46	4.36
1995	1.42	0.41	5.00	-1.79	18.61	0.00	1.50	1.48	14.47	-2.40	10.99	7.29	5.20
1996	8.92	-0.30	-0.60	4.85	19.81	-2.70	1.43	1.58	11.03	-0.84	-2.25	8.25	6.19
1997	4.17	-0.37	4.34	-1.30	22.05	-1.39	0.02	1.93	14.18	-0.33	-7.53	4.29	2.35
1998	-5.58	0.50	3.18	2.79	22.58	1.41	0.38	2.62	9.73	-0.25	-1.99	6.64	4.57
1999	2.93	0.35	-1.34	2.58	22.66	-2.78	-4.23	2.39	15.42	-0.22	-0.03	6.18	4.27
2000	1.21	0.18	3.21	-0.13	22.72	-2.86	-4.42	-0.46	14.55	-0.44	2.86	4.07	1.83
2001	1.80	-0.35	-1.41	-0.02	23.43	-2.94	-6.69	3.96	8.47	-0.70	1.53	5.61	3.66
2002	1.23	-0.02	-10.74	0.15	21.49	-4.55	-6.33	-1.91	11.06	-0.33	13.50	3.43	2.01
2003	4.08	0.33	21.05	0.15	19.15	-4.76	26.25	9.07	12.58	-1.09	1.44	8.59	7.02
2004	2.61	0.16	5.39	3.35	38.56	-3.33	20.79	8.03	18.17	-0.28	-8.44	7.32	5.63
2005	10.95	0.39	4.26	2.91	26.41	0.00	28.29	0.66	16.63	-0.98	16.64	9.52	7.95

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2006	1.74	-0.21	9.48	3.32	42.31	-1.72		1.59	18.96	-0.32	12.91	9.71	8.2
2007	3.51	-0.01	8.38	0.62	43.05	-3.51		0.38	13.46	-0.47	3.02	8.8	7.6
2008	1.75	-0.08	NA		43.90	-3.64			15.31	0.48	2.65	6.41	4.94

Table 3.A.14 : showing Infrastructural indicators for 1990 (State-wise):

States	RL	Roads	GIA/GCA	PCE	TD	HSD	IMR	PSD	CD	BC	TR
Andhra Pradesh	18.34	543.23	0.41	245	0.46	0.11	73	0.18	0.74	0.011	0.036
Arunachal Pradesh	0.01	127.68	0.13	68	0.24	0.26	0	0.01	0.26	0.001	0.003
Assam	29.63	835.69	0.15	94	0.17	0.18	83	0.35	0.49	0.012	0.016
Bihar	56.05	907.04	0.40	110	0.11	0.26	71	0.30	0.35	0.022	0.034
Goa	21.34	1988.11	0.21	452	0.00	0.46	0	0.27	0.29	0.041	0.030
Gujarat	26.78	412.62	0.28	469	1.01	0.00	72	0.07	0.47	0.001	0.047
Haryana	33.66	598.50	0.72	400	0.54	0.13	70	0.12	0.53	0.017	0.034
Himachal Pradesh	4.78	451.30	0.17	209	0.56	0.10	77	0.13	0.37	0.011	0.022
Jammu And Kashmir	0.40	58.95	0.41	193	0.35	0.01	0	0.04	0.31	0.002	0.018
Karnataka	10.84	685.68	0.22	296	0.65	0.11	82	0.12	0.72	0.013	0.049
Kerela	27.10	3488.38	0.13	188	0.79	0.36	16	0.17	0.50	0.035	0.036
Madhya Pradesh	19.42	454.63	0.19	247	0.25	0.13	120	0.15	0.57	0.007	0.038
Maharashtra	17.69	720.67	0.11	411	1.21	0.23	60	0.13	0.71	0.009	0.042
Manipur	0.04	298.47	0.42	97	0.24	0.09	30	0.14	0.76	0.003	0.009
Meghalaya	0.00	288.96	0.19	115	0.24	0.02	52	0.19	0.22	0.005	0.018
Mizoram	0.09	177.03	0.11	69	0.24	0.04	0	0.05	0.22	0.003	0.000
Nagaland	0.54	889.80	0.29	75	0.24	0.19	0	0.08	0.33	0.003	0.011
Orissa	12.85	1258.41	0.24	271	0.18	0.16	129	0.26	0.66	0.011	0.026
Punjab	42.04	1077.42	0.94	606	0.92	0.38	54	0.25	0.40	0.023	0.048
Rajasthan	16.16	358.04	0.24	201	0.31	0.06	78	0.09	0.60	0.006	0.026

Sikkim	0.00	224.63	0.11	119	0.24	0.07	50	0.07	0.31	0.003	0.000
Tamil Nadu	30.84	1512.28	0.44	323	0.76	0.22	58	0.23	0.83	0.017	0.044
Tripura	4.29	1341.06	0.09	47	0.24	0.20	92	0.20	0.65	0.012	0.011
Uttar Pradesh	37.09	833.48	0.58	166	0.20	0.22	98	0.26	0.42	0.020	0.027
West Bengal	42.97	695.04	0.22	148	0.44	0.30	73	0.57	0.50	0.028	0.031

Table 3.A.15 : showing Infrastructural indicators for 2008 (State-wise):

States	RL	Roads	GIA/GCA	PCE	TD	HSD	IMR	PSD	BC	TR	CD
Andhra Pradesh	19.05	1254.27	0.46	650.5	39.60	0.19	49	0.23	0.010	0.134	0.94
Arunachal Pradesh	0.02	196.96	0.20	142.3	9.20	0.08	32	0.02	0.001	0.038	0.23
Assam	31.02	2936.51	0.05	124.4	20.70	0.13	61	0.40	0.010	0.074	0.38
Bihar	37.89	1275.73	0.61	49.1	22.20	0.11	52	0.49	0.028	0.062	0.28
Chhattisgarh	8.72	547.17	0.26	621	5.20	0.10	54	0.25	0.005	0.127	0.45
Goa	18.64	2854.94	0.21	1651.1	0.00	0.54	11	0.34	0.041	0.144	0.29
Gujarat	25.50	748.02	0.42	1116.4	45.20	0.26	48	0.09	0.008	0.122	0.58
Haryana	35.13	672.35	0.86	809.8	43.80	0.30	51	0.31	0.017	0.123	0.63
Himachal Pradesh	5.32	651.99	0.19	775.2	55.50	0.25	45	0.21	0.011	0.093	0.43
Jammu And Kashmir	1.15	100.45	0.41	360.9	32.80	0.03	45	0.06	0.002	0.117	0.43
Jharkhand	25.10	219.92	0.10	500.3	4.10	0.06	44	0.25	0.012	0.077	0.33
Karnataka	16.02	1331.94	0.29	660.5	45.20	0.38	41	0.15	0.012	0.172	0.82
Kerela	27.02	5268.69	0.16	360.2	30.10	0.49	12	0.18	0.033	0.122	0.64
Madhya Pradesh	16.06	538.12	0.32	395.2	58.50	0.11	67	0.32	0.006	0.132	0.55
Maharashtra	18.21	725.75	0.20	679.6	37.90	0.38	31	0.14	0.008	0.133	1.09
Manipur	0.06	739.11	0.22	84	9.20	0.13	16	0.11	0.002	0.036	0.37
Meghalaya	0.00	438.67	0.26	388.9	44.50	0.13	59	0.30	0.006	0.059	0.30

Mizoram	0.09	292.11	0.10	186.1	44.50	0.09	36	0.08	0.003	0.038	0.30
Nagaland	0.78	1345.32	0.29	84.7	44.50	0.29	26	0.10	0.003	0.000	0.25
Orissa	15.33	1383.39	0.37	520.3	23.30	0.26	65	0.32	0.010	0.100	0.53
Punjab	42.36	897.07	0.98	1155.4	58.30	0.32	38	0.26	0.022	0.114	0.62
Rajasthan	16.89	501.05	0.36	443.7	37.20	0.15	59	0.16	0.006	0.110	0.96
Sikkim	0.00	263.95	0.08	443.4	44.50	0.10	34	0.11	0.005	0.142	0.51
Tamil Nadu	31.22	1393.32	0.56	896.4	50.50	0.33	28	0.23	0.016	0.110	0.99
Tripura	14.39	3024.58	0.35	114.6	9.20	0.25	31	0.21	0.012	0.047	0.31
Uttar Pradesh	36.22	1181.57	0.75	240.9	24.90	0.12	63	0.53	0.021	0.111	0.43
Uttarakhand	6.45	767.35	0.46	548.6	11.60	0.07	41	0.29	0.010	0.123	0.38
West Bengal	43.83	2386.09	0.57	321.4	0.00	0.72	33	0.56	0.028	0.065	0.61

Annexure Chapter 4:

Table 4.A.1 – showing Physical Infrastructural Facilities of all Districts in Orissa for the year 1991

Districts	Roads	VE	TD
Balasore	0.16	85.15	1.14
Baudh-Phulbani	0.10	27.10	0.80
Bolangir	0.13	27.95	1.14
Cuttack	0.22	116.80	2.30
Dhenkanal	0.13	119.85	1.14
Ganjam	0.16	86.25	1.54
Kalahandi	0.10	19.60	0.72
Keonjhar	0.13	151.78	1.08
Koraput	0.09	236.21	0.98
Mayurbhanj	0.18	45.16	0.93
Puri	0.22	84.61	3.37
Sambalpur	0.11	202.63	2.10
Sundargarh	0.12	535.73	3.94

Source: *Statistical Abstract of Orissa, Directorate Of Economics and Statistics, Orissa, Bhubaneshwar*

Note :- *The variables Roads indicate Road length per sq.km, VE indicates Villages electrified, and TD indicates Teledensity of different districts in Orissa.*

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Table 4.A.2 – showing Physical Infrastructural Facilities of all Districts in Orissa for the year 2004

Districts	Roads	Rails	VE
Balasore	0.47	0.023	90.57
Baudh-Phulbani	0.21	0.000	58.36
Bolangir	0.28	0.021	91.59
Cuttack	0.54	0.025	95.43
Dhenkanal	0.25	0.014	84.69
Ganjam	0.36	0.011	76.71
Kalahandi	0.20	0.006	66.80
Keonjhar	0.66	0.007	86.42
Koraput	0.20	0.016	62.44
Mayurbhanj	0.33	0.011	71.96
Puri	0.42	0.016	88.26
Sambalpur	0.25	0.018	69.72
Sundargarh	0.23	0.029	87.70

Source: *Statistical Abstract of Orissa, Directorate Of Economics and Statistics, Orissa, Bhubaneshwar*

Note :- *The variables Roads indicate Road length per sq.km, VE indicates Villages electrified, and Rails indicates rail length per sq.km of different districts in Orissa.*

Table 4.A.3 – showing Social Infrastructural Facilities of all Districts in Orissa for the year 1991

Districts	Hospitals	LR	GC
Baleshwar	0.15	48.60	0.17
Baudh-Phulbani	0.21	31.36	0.01
Bolangir	0.40	33.02	0.10
Cuttack	0.06	53.17	0.18
Dhenkanal	0.27	44.38	0.14
Ganjam	0.06	36.43	0.13
Kalahandi	0.16	25.18	0.11
Keonjhar	0.41	36.35	0.15
Koraput	0.08	18.61	0.06
Mayurbhanja	0.13	30.68	0.11
Puri	0.18	54.05	0.16
Sambalpur	0.15	41.39	0.15
Sundargarh	0.25	44.24	0.15

Source: *Statistical Abstract of Orissa, Directorate Of Economics and Statistics, Orissa, Bhubaneshwar*

Note :- *The variables Hospitals indicate Total number of hospitals per 10,000 persons,, LR indicates Literacy Rate and GC indicates General Colleges of different districts in Orissa.*

Table 4.A.4 – showing Social Infrastructural Facilities of all Districts in Orissa for the year 2004

Districts	Hospitals	LR	GC
Baleshwar	0.43	72.21	0.17
Baudh-Phulbani	0.70	55.21	0.13
Bolangir	0.46	59.27	0.19
Cuttack	0.40	76.00	0.20
Dhenkanal	0.41	69.11	0.16
Ganjam	0.41	51.02	0.13
Kalahandi	0.46	43.97	0.14
Keonjhar	0.54	59.24	0.18
Koraput	0.67	34.08	0.08
Mayurbhanja	0.52	51.91	0.19
Puri	0.46	76.02	0.05
Sambalpur	0.46	65.56	0.17
Sundargarh	0.45	64.86	0.15

Source: *Statistical Abstract of Orissa, Directorate Of Economics and Statistics, Orissa, Bhubaneshwar*

Note :- *The variables Hospitals indicate Total number of hospitals per 10,000 persons,, LR indicates Literacy Rate and GC indicates General Colleges of different districts in Orissa.*

Table 4.A.5 – showing Financial Infrastructural Facilities of all Districts in Orissa for the year 1991

Districts	PO	C/D	BO
Baleshwar	28.65	0.89	6.21
Baudh-Phulbani	42.60	0.74	6.95
Bolangir	19.21	0.86	5.86
Cuttack	20.32	0.67	6.74
Dhenkanal	22.95	0.48	6.50
Ganjam	25.71	0.55	7.03
Kalahandi	23.24	1.16	6.50
Keonjhar	29.77	0.78	6.43
Koraput	21.58	0.83	5.11
Mayurbhanja	36.19	0.64	6.95
Puri	21.25	0.78	8.38
Sambalpur	21.47	0.61	7.04
Sundargarh	24.78	0.51	6.93

Source: *Statistical Abstract of Orissa, Directorate Of Economics and Statistics, Orissa, Bhubaneshwar*

Basic Statistical returns of Scheduled Commercial Banks in India, Reserve Bank of India.

Note: - *The variables PO indicates Total number of Post Offices per 10,000 persons,, C/D indicates Credit-Deposit ratio of Scheduled Commercial banks and BO indicates General the total number of banking offices per 100,000 persons of different districts in Orissa.*

Table 4.A.6 – showing Financial Infrastructural Facilities of all Districts in Orissa for the year 2004

Districts	C/D	PO	BO
Balashore	0.67	24.36	5.33
Baudh-Phulbani	0.52	37.69	5.68
Bolangir	0.59	20.44	5.11
Cuttack	0.43	18.91	6.29
Dhenkanal	0.50	21.43	6.03
Ganjam	0.37	22.53	6.01
Kalahandi	0.62	22.45	5.79
Keonjhar	0.48	28.17	5.63
Koraput	0.55	23.77	5.14
Mayurbhanj	0.48	31.84	6.25
Puri	0.62	18.80	8.65
Sambalpur	0.60	19.11	6.78
Sundargarh	0.60	22.01	6.50

Source: *Statistical Abstract of Orissa, Directorate Of Economics and Statistics, Orissa, Bhubaneshwar*

Basic Statistical returns of Scheduled Commercial Banks in India, Reserve Bank of India.

Note: - *The variables PO indicates Total number of Post Offices per 10,000 persons,, C/D indicates Credit-Deposit ratio of Scheduled Commercial banks and BO indicates General the total number of banking offices per 100,000 persons of different districts in Orissa.*

Table 4.A.7 – showing Physical Infrastructural Facilities of all Districts in Gujarat for the year 1991

Districts	Road length per sq. km	GIA/GCA	VE	Villages Electrified	Villages Inhabited
Jamnagar	0.18	16.79	1.00	692	694
Rajkot	0.29	21.06	0.99	854	859
Surendranagar	0.24	13.59	1.00	648	648
Bhavnagar	0.31	20.27	1.00	864	865
Amreli	0.38	12.51	1.00	595	595
Junagadh	0.32	18.71	0.93	958	1034
Kachchh	0.09	16.32	0.99	874	884
Banaskantha	0.28	33.81	1.00	1368	1368
Sabarkantha	0.43	34.79	0.98	1341	1363
Mahesana	0.35	49.34	1.00	1089	1093
Gandhinagar	1.08	64.83	1.00	75	75
Ahmedabad	0.39	64.59	0.99	653	660
Kheda	0.56	53.58	1.00	965	965
Panchmahals	0.44	18.01	1.00	1886	1889
Vadodara	0.44	30.95	1.00	1637	1639
Bharuch	0.33	14.45	0.98	1099	1116
Surat	0.47	42.05	0.99	1190	1196
Valsad	0.63	31.19	1.00	820	821
Dangs	0.43	0.55	0.24	311	1309

Source: *Statistical Abstract of Gujarat State, Directorate Of Economics and Statistics, Govt. of Gujarat, Gandhinagar.*

Note :- *The variables Roads indicate Road length per sq.km, VE indicates Villages electrified, and GIA/GCA indicates Gross Irrigated Area as a proportion of Gross Cropped Area of different districts in Gujarat.*

Table 4.A.8 – showing Physical Infrastructural Facilities of all Districts in Gujarat for the year 2004

Districts	Roads	GIA/GCA	VE	Villages Inhabited	Villages Electrified
Jamnagar	0.25	22.10	0.99	698	694
Rajkot	0.4	30.23	1.00	844	840
Surendranagar	0.35	17.73	1.00	650	650
Bhavnagar	0.43	34.67	0.99	790	785
Amreli	0.45	20.60	1.00	615	615
Junagadh	0.8	24.35	0.99	923	910
Kachchh	0.12	30.55	0.99	886	878
Banaskantha	0.57	30.01	1.00	1503	1503
Sabarkantha	0.6	33.26	0.99	1372	1352
Mahesana	0.7	34.42	0.98	852	838
Gandhinagar	0.91	56.63	1.00	291	291
Ahmedabad	0.42	37.65	0.98	546	535
Kheda	1.23	71.09	1.00	962	962
Panchmahals	1.07	21.14	0.99	1894	1882
Vadodara	0.8	28.59	0.99	1774	1765
Bharuch	0.66	22.03	0.99	883	871
Surat	1.32	58.83	0.99	1541	1523
Valsad	0.7	28.92	1.00	450	448
Dangs	0.52	0.86	0.24	1312	311

Source: *Statistical Abstract of Gujarat State, Directorate Of Economics and Statistics, Govt. of Gujarat, Gandhinagar.*

Note :- *The variables Roads indicate Road length per sq.km, VE indicates Villages electrified, and GIA/GCA indicates Gross Irrigated Area as a proportion of Gross Cropped Area of different districts in Gujarat.*

Table 4.A.9– showing Social Infrastructural Facilities of all Districts in Gujarat for the year 1991

Districts	LR	Hospitals	GC
Jamnagar	58.96	0.30	0.005
Rajkot	66.96	0.29	0.012
Surendranagar	54.77	0.33	0.006
Bhavnagar	57.89	0.32	0.005
Amreli	60.06	0.16	0.006
Junagadh	60.33	0.19	0.009
Kachchh	52.75	0.16	0.004
Banaskantha	39.29	0.10	0.002
Sabarkantha	59.03	0.27	0.010
Mahesana	65.14	0.12	0.008
Gandhinagar	87.11	0.51	0.012
Ahmedabad	73.1	0.27	0.011
Kheda	65.83	0.28	0.008
Panchmahals	43.79	0.08	0.005
Vadodara	63.61	0.27	0.005
Bharuch	61.92	0.25	0.006
Surat	64.36	0.52	0.006
Valsad	64.35	0.36	0.007
Dangs	47.56	0.11	0.007

Source: *Statistical Abstract of Gujarat State, Directorate Of Economics and Statistics, Govt. of Gujarat, Gandhinagar*

Note :- *The variables Hospitals indicate Total number of hospitals per 10,000 persons,, LR indicates Literacy Rate and GC indicates General Colleges of different districts in Gujarat.*

Table 4.A.10 – showing Social Infrastructural Facilities of all Districts in Gujarat for the year 2004

Districts	LR	Hospital	GC
Jamnagar	66.48	0.30	0.09
Rajkot	74.16	0.27	0.17
Surendranagar	61.61	0.37	0.08
Bhavnagar	66.20	0.30	0.08
Amreli	66.09	0.39	0.11
Junagadh	68.20	0.34	0.15
Kachchh	59.79	0.38	0.05
Banaskantha	55.67	0.34	0.07
Sabarkantha	66.65	0.45	0.13
Mahesana	67.79	0.39	0.14
Gandhinagar	76.59	0.47	0.11
Ahmedabad	79.50	0.24	0.15
Kheda	73.24	0.35	0.11
Panchmahals	53.03	0.46	0.05
Vadodara	65.31	0.37	0.06
Bharuch	67.14	0.45	0.08
Surat	75.24	0.28	0.09
Valsad	69.15	0.43	0.10
Dangs	59.65	0.53	0.05

Source: *Statistical Abstract of Gujarat State, Directorate Of Economics and Statistics, Govt. of Gujarat, Gandhinagar*

Note :- *The variables Hospitals indicate Total number of hospitals per 10,000 persons,, LR indicates Literacy Rate and GC indicates General Colleges of different districts in Gujarat.*

Table 4.A.11 – showing Financial Infrastructural Facilities of all Districts in Gujarat for the year 1991

Districts	C/D	Bank offices per 100000
Ahmadabad	0.60	11.56
Amreli	0.43	7.19
Banas Kantha	0.58	0.51
Bharuch	0.94	8.67
Bhavnagar	0.57	7.02
Dangs	0.43	7.63
gandhinagar	0.59	11.49
Jamnagar	0.36	9.15
Junagadh	0.40	7.31
Kachchh	0.13	12.75
Kheda	0.51	8.37
Mahesana	0.54	6.67
Panch Mahals	0.66	5.24
Rajkot	0.40	9.03
Sabarkantha	0.58	7.21
Surat	0.46	8.06
Surendranagar	0.52	7.78
Vadodara	0.75	10.00
Valsad	0.37	10.40

Source: *Statistical Abstract of Gujarat State, Directorate Of Economics and Statistics, Govt. of Gujarat, Gandhinagar*

Basic Statistical returns of Scheduled Commercial Banks in India, Reserve Bank of India.

Note: - *The variables C/D indicates Credit-Deposit ratio of Scheduled Commercial banks and BO indicates the total number of banking offices per 100,000 persons of different districts in Gujarat.*

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Table 4.A.12 – showing Financial Infrastructural Facilities of all Districts in Gujarat for the year 2004

Districts	Bank Offices per 100000	C/D
Jamnagar	8.46	0.25
Rajkot	8.20	0.34
Surendranagar	6.07	0.52
Bhavnagar	6.32	0.33
Amreli	6.46	0.33
Junagadh	6.63	0.27
Kachchh	11.18	0.11
Banaskantha	4.17	0.39
Sabarkantha	5.57	0.46
Mahesana	5.97	0.30
Gandhinagar	7.05	0.42
Ahmedabad	10.68	0.64
Kheda	7.91	0.17
Panchmahals	4.07	0.24
Vadodara	9.39	0.69
Bharuch	8.29	0.36
Surat	7.39	0.31
Valsad	7.30	0.35
Dangs	4.28	0.22

Source: *Statistical Abstract of Gujarat State, Directorate Of Economics and Statistics, Govt. of Gujarat, Gandhinagar*

Basic Statistical returns of Scheduled Commercial Banks in India, Reserve Bank of India.

Note: - *The variables C/D indicates Credit-Deposit ratio of Scheduled Commercial banks and BO indicates the total number of banking offices per 100,000 persons of different districts in Gujarat.*

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