

**SOCIAL SECTOR PUBLIC OUTLAY AND SOCIAL  
DEVELOPMENT - AN INTER STATE COMPARISON**

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### SUPERVISOR'S CERTIFICATE

This is to certify that the thesis entitled "SOCIAL SECTOR PUBLIC OUTLAY AND SOCIAL DEVELOPMENT - AN INTER STATE COMPARISON" is a bonafide record of research work done by Smt. MERCY W.J under my supervision.

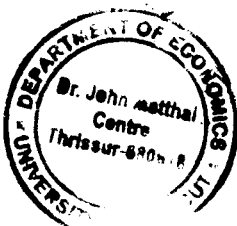
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I, Mercy W.J, do hereby declare that the thesis entitled “SOCIAL SECTOR PUBLIC OUTLAY AND SOCIAL DEVELOPMENT - AN INTER STATE COMPARISON” is a bonafide record of research work done by me under the guidance of Prof. (Dr) A.C. KuttyKrishnan Nambiar, Department of Economics, University of Calicut, Dr. John Matthai Centre, Aranattukara, Thrissur.

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MERCY W.J

*Dedicated*

*To*

*My*

*Teachers*

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# CHAPTER I

## INTRODUCTION

The real wealth of a nation is its people and the purpose of development is to create an enabling environment for the people to enjoy long, healthy and creative lives. This simple but powerful truth is the core of social development. History and recent experiences have taught us that development is not just getting the right economic and technical outputs. It is also about the underlying institutional environment, the rules and customs that determine how these inputs are used (World Bank 1997)<sup>1</sup>. Hence development includes economic growth but is a broader concept that also encompasses social and institutional changes that normally accompany growth. Thus development, in its dynamic sense must represent the whole gamut of change by which an entire social system moves away from a condition of life perceived as unsatisfactory towards a situation regarded as materially and socially better.

For any approach or development framework to be meaningful and effective, it has to be anchored in a social context. More importantly it should reflect the values and development priorities of the society. Therefore what development brings to the poor and downtrodden is of great concern and the development efforts of a nation should be assessed in terms of what it does for an average individual. Social development must therefore be conceived as a multi-dimensional process involving major changes in social structure, attitudes, and

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<sup>1</sup> World Development Report 1997, Oxford University Press, P.1

institutions, as well as the acceleration of economic growth, the reduction of inequality and the eradication of poverty.

## **1.1 Global Initiatives for Social Development**

For the past several years, social development has acquired a new salience in development thinking. In the immediate post war period, development was seen mainly in terms of increase in the material wealth of nations, and was measured in terms of rate of growth in domestic product. Acceleration in the rate of growth was supposed to take care of both economic and social problems. This thinking on development prevailed up to the end of the 1960s. Though the anomalies of a development strategy based on such a thinking had started becoming evident even during the 1960s, they acquired momentum in the late 1970s and early 1980s. It was during this period, that neglect of the social aspect was recognized as a basic constraint to development. Social development came to be recognized not only as a means to development, but also an end in itself, in terms of expanded individual opportunities, capabilities and freedom.

Since the late 1980's, the development debate has witnessed repeated calls for restructuring of public expenditure in favour of social and physical infrastructure. The demand for reallocation came in response to the recognition of development in its instrumental role in economic growth as well as for its intrinsic value. Human development and better standards of living are not only ends in themselves but essential for promoting economic growth and development. A well-nourished, healthy, educated, skilled labour force is the most important productive asset.

This emphasis to social development was reinforced by the World Bank's social conditionality with regard to public expenditure. In the 1990's World Bank not only increased its own lending for health and education, but also increasingly called on governments to protect health and education expenditure. In its expenditure reviews, World Bank has repeatedly argued that governments should restructure their spending patterns in favour of basic social services.

A major event that helped in focusing attention on social development was the UNDP Human Development Report launched in 1990. Through its global Human Development Reports, the UNDP has been in the forefront of an effort to generate a policy focus on the broader attributes of human development. As pointed out by Mahbub ul Haq, one of the chief architects of human development paradigm, "People must be at the centre of our development debate – what really counts is how they participate in economic growth and how they benefit from it"<sup>2</sup>.

This new thinking on development was institutionalized at the global level in the form of the Summit Conference on Social Development held in Copenhagen in 1995 and in the Declaration and Programme of Action adopted at this conference. The restructuring of public expenditure in favour of social sector is exemplified by the commitment made at the World summit for social development in Copenhagen (1995) to increase simultaneously government budgetary allocations to basic social services to 20 percent of public spending in

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<sup>2</sup> Mahbub ul Haq (1992), Human Development in a Changing World, Occasional Papers, Human Development Report Office, New York, p. 1.

developing countries and to increase foreign assistance for basic social services to 20 percent of aid by donor countries (20/20 initiative).

The global initiatives which are aimed at sustainable economic and social development have culminated in the shape of the United Nations Millennium Declaration of September 2000, setting out various developmental goals influencing the well being of people. It holds out the promise of a new pattern of global integration built on the foundations of greater equity, social justice and respect for human rights. Education and health sector goals have been recognized as crucial components of the Millennium Development goals.

The Millennium Development Goals, a set of time bound and quantified targets for reducing poverty and extending universal rights by 2015, provide the benchmarks for measuring progress. The goals set are:- (i) eradicate extreme poverty and hunger (ii) achieve universal primary education (iii) promote gender equality and empower women (iv) reduce child mortality (v) improve maternal health (vi) combat HIV/AIDS, malaria and other diseases (vii) ensure environmental sustainability and (viii) develop a global partnership for development.

Most of the developing countries have experienced rapid social progress and rising living standards since the first Human Development Report was published. Yet the human development advances fall short of those anticipated in the report and far short of what was possible, mainly due to half hearted endeavour and failed international cooperation. The Millennium Declaration may be considered as an endeavour to get back on the track.

## 1.2 Role of Government in Social Development

The issues pertaining to human development have been receiving increasing attention from academicians as well as policy – makers during the nineties. This is largely due to the realization that economic growth does not automatically translate itself into better human development unless specific measures are taken in that direction. Social development involves positive and far-reaching changes in the social, political, cultural and economic institutional setup of the country, which can never be brought about by the market forces alone. Thus the debate on the role of the State has occupied the central stage in the development theories. The approaches to the State action vary from State minimalism at one end to totalitarian and centrally planned economy at the other end. In between these two extremes, there are economic systems with different degrees of State interference.

The literature on the respective roles of State and market is long and interesting. From the days of Adams Smith to the present, notable contributions have been made by distinguished economists. Adam Smith, who advocated the role of the market, told us, “It is not from the benevolence of the Butcher, the Brewer or the Baker, that we expect our dinner but from their regard to their own interest” (Smith 1776)<sup>3</sup>. He also felt that the outcome of the pursuit of self interest need not be chaotic. It can be orderly; and individual optimum can lead to social optimum. He restricted the role of the State in defending the country, maintaining law and order and executing and maintaining certain public works and institutions; which individuals find unprofitable.

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<sup>3</sup> Adam Smith (1776), *An Enquiry into the Nature and Causes of Wealth of Nations*, The Modern Library New York, 1937, p. 14.

As against this market led organization of economic activity, came the influential writings of Keynes, who advocated the role of the state in economic development. This came in the wake of the Great Depression of 1930's. He pleaded for active state investment to fill the gap between the actual level of investment and the investment desired to maintain full employment.

The importance of State intervention has also received support in the works of economists who regarded the State as "trustee of the poor". It has been argued that the ultimate aim of development is to enhance the quality of life of the people which can result from direct State intervention in providing basic needs. They advocated the need for State intervention in providing literacy, health care and nutrition.

Since the end of the Second World War, the debate on the role of the State has gone through the following three stages (1) The age of regulation when most countries saw an increase in government intervention in the form of increased government expenditure, nationalization and extension of regulation, (2) Age of interventionist Economic Theories and (3) The transition period when the post war regimes of intervention began to be exposed to significant political attack, helped by anti-interventionist theories.

These developments in literature were paralleled by certain historical experiences. The 1950s were probably heyday of government intervention. Three distinct streams of thoughts and developments culminated in this situation. They are (1) the process of putting Keynesian macro economics into action (2) success stories of command economies of USSR and Eastern Europe and (3) the birth of planning in

the newly independent third world countries. In keeping with the spirit of times, India too went for economy wide planning in 1951.

Recent developments in global economy have again made us question the role of Government. History also has shown clearly both the benefits and the limitations of State actions, especially in the promotion of development. Governments have helped to deliver substantial improvements in education and health and reduction in social inequality. But Government actions have also led to some poor outcomes even on the social fronts. Even where Governments have done a good job in the past, many worry about its sustainability and adaptability to the demands of a globalizing economy.

The new worries and questions on State's role are many and various. But the recent developments in the world economy like collapse of command and control economies in the former Soviet Union, the fiscal crisis of the welfare state in most of the established industrialized countries, the important role of State in the 'miracle' economies of East Asia and the collapse of States and the explosion in humanitarian emergencies in parts of Africa and elsewhere, have challenged existing conceptions of the State's place and its potential contribution to human welfare.

The determining factor behind these contrasting developments is the effectiveness of the State. An effective State is vital for the provision of goods and services and for the rules and institutions that allow people to lead healthier, happier lives. Without State, sustainable development, both economic and social, is impossible. But this doesn't mean that development has to be State provided. The message of experience is that

the State is central to economic and social development, not as a direct provider of development, but as a partner, catalyst and facilitator (World Bank 1997)<sup>4</sup>. What makes for an effective state differs enormously across countries at different stages of development.

The question – market or State doesn't admit a categorical 'either-or' answer. What needs to be determined is the optimal State-market mix. The mix can vary from country to country depending on the historical experience of functioning of State and markets. While recognizing that State and market have separate but interconnected roles to play, the emerging view is that the market must be allowed to work wherever it can function efficiently and State must step in wherever the market doesn't succeed. At the same time in social sector development it is a widely recognized fact that the State has no less important a role to play.

Education and Health services are the two crucial segments of social sector. The role of public policy in these sectors is supported on the premise that expansion of health care and education can directly improve the quality of life. Public provision of social services, particularly education, is also considered as an effective instrument to promote equity by way of providing equality of opportunity to the masses. Further, disparities prevailing in education levels and health indicators between rich and poor and between urban and rural populations in the country necessitate the need for public sector financing of education and health to take care of such disparities. As

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<sup>4</sup> World Bank, World Development Report 1997, Oxford University Press, New York, p.128.

Alfred Marshall has rightly pointed out, “The most valuable form of capital is that invested in human beings”<sup>5</sup>.

Social services, even though highly subsidized, may still be out of reach for the poor, because the component of private costs (transportation, books, medicines, etc.) may be prohibitively high. This underlies the basis for a pro-poor bias in public funding of social sector programmes, to ensure that the targeted population is covered to the extent possible. Hence the poor, the vulnerable and the underprivileged will continue to be the responsibility of national governments and hence of public policy. Promotion of education and health sectors should be seen as irreducibly social concerns, even when particular services are effectively provided by private channels.

Apart from the social and welfare concerns, the justification for state action in provision of education and health services is based on public goods character of these services. Both education and health have large externalities leading to differences between social and private returns. It is well established that the dependence on market mechanism may not provide an optimal solution in such situations. Efficiency considerations, therefore call for public intervention. Further there is no guarantee of an equitable provision of these basic services under the market mechanism.

The positive inter connection between health and education is well recognized. Education in general and female education in particular is supposed to have positive effects on child health and schooling. These inter connections between health and education sectors assume

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<sup>5</sup> Alfred Marshall (1880), *Principles of Economics*, sixth edition (1910), Mac millan, London, p.564.

importance from the point of view of policy formulation and implementation. Therefore, public provision of education and health services to the masses and thus their empowerment is considered critical for social development in the overall development strategy of any country.

### **1.3 Indicators of Social Development**

The process of development, in any society should ideally be viewed and assessed in terms of benefits and opportunities that it generate for its people and how these are eventually distributed – between men and women, the well off and deprived and across regions. Experience shows that, often, there is no one-to-one correspondence between economic attainments of a society and quality of life of people. Regions and Nations with high level of income and economic growth need not necessarily have similar social attainment across various segments of the society. It becomes necessary, therefore, to have a framework for the measurement of the level of human development achieved. It would facilitate comparison of development of any society over time and international comparison also. Such a measure helps the Governments to evolve most suited development strategies. At this juncture, it is desirable to have a review of attempts made to formulate well accepted indicators of social development.

Development was traditionally considered as the capacity of a national economy to generate and sustain an annual increase in its gross national product (GNP) at rates 5 percent to 7 percent or more. A common alternative economic index has been the rate of growth of per capita income. This measure takes into account the ability of a nation to

expand its output at a faster rate than the growth rate of its population. Therefore the level and rate of growth of real per capita GNP are used to measure the overall economic well being of a population. An important limitation of per capita income as a measure of development is its failure to incorporate welfare and income distribution. Thus during the 1970's, economic development came to be redefined in terms of the reduction or elimination of poverty, inequality and unemployment.

Welfare approaches look at human being as the end as well as the means of development. Therefore the conventional measures of well being such as GDP or per capita income and even their distributionally sensitive variants are inherently limited in capturing the wider aspects of well being. Income is only one option that people would like to have, though certainly an important one. But it is not the sum total of their lives. It may also be noted that the phenomenon of development or the existence of a chronic state of underdevelopment is not merely a question of quantitative measurement of incomes, unemployment and inequality. Underdevelopment is a real fact of life – a state of mind as much as a state of national poverty. Therefore it was felt that the economic measures of development should be supplemented by social indicators like gains in literacy, schooling, health conditions and provision of housing.

One of the early studies in this direction was carried out by the United Nations Research Institute on Social Development (UNRISD) in 1970. The study was concerned with the selection of the most appropriate indicators of development and an analysis of the relationship between these indicators at different levels of development.

Several studies have sought to develop composite indicators that measure development in terms of meeting the basic needs of the majority of population or in terms of the quality of life. One well known endeavour in this area was development of the Physical Quality of Life Index (PQLI) by Morris. D. Morris in 1979. The indicators – life expectancy at age 1, infant mortality and literacy were used to form a simple composite index .For each indicator, the performance of individual countries was rated on a scale of 1 to 100, where 1 represents the worst performance and 100 the best performance by any country.

It was found that even though GNP and PQLI were positively correlated, the correlations were not substantially close. Some countries with high per capita GNP had very low PQLI, where as some countries with very low per capita GNP had PQLI that were higher than the average for the upper middle income countries. This indicates that significant improvements in basic quality of life can be achieved before there is great rise in per capita GNP. Conversely a higher level of per capita GNP is not a guarantee for a better quality of life.

The United Nations Development Programme, in its annual series of Human Development Reports analyses the comparative status of socio-economic development, in both developing and developed nations. The centrepiece of these reports, which were initiated in 1990, is the construction and refinement of the Human Development Index (HDI). The HDI measures the average achievements of a country in three basic dimensions of human development, namely,

1. A long and healthy life, as measured by life expectancy at birth.

2. Knowledge as measured by the adult literacy rate (with two thirds weight) and the combined enrolment ratio (with one third weight) and
3. A decent standard of living as measured by GDP per capita (PPP US \$). It serves as a surrogate for all the dimensions of human development not reflected in life expectancy and education

HDI is the average of the three dimension indices – the life expectancy index, education index and GDP index and ranges from zero to one. HDI is increasingly used to monitor the progress of nations. The Human Development Reports rank all countries according to HDI and groups them as low human development countries (HDI<0.5), Medium development countries (HDI 0.5 to 0.79) and high human development countries (HDI 0.8 to 1). Table 1.1 gives an account of human development status of some selected countries for the year 2003.

**Table 1.1 Human Development Index**

HDI Rank	Country	HDI value 2003	Life Expectancy 2003	Adult Literacy 2003	Combined GER 2003	GDP per capita 2003	Life Expectancy Index	Education Index	GDP Index
<b>High HDI</b>									
1	Norway	0.963	79.4	-	101	37670	0.91	0.99	0.99
10	United States	0.94	77.4	-	93	37562	0.87	0.97	0.99
20	Germany	0.93	78.7	-	89	27756	0.9	0.96	0.94
34	Argentina	0.863	74.5	97.2	95	12106	0.82	0.96	0.8
44	Kuwait	0.844	76.9	82.9	74	18047	0.87	0.8	0.87
57	Trinidad and Tobago	0.8	69.9	98.5	66	10766	0.75	0.88	0.78
<b>Medium HDI</b>									
58	Libyan Arab Jamahiriya	0.799	73.6	81.7	96	-	0.81	0.86	0.72
61	Malaysia	0.796	73.2	88.7	71	9512	0.8	0.83	0.76
85	China	0.755	71.6	90.9	69	5003	0.78	0.84	0.65
93	Sri Lanka	0.751	74	90.4	69	3778	0.82	0.83	0.61
120	South Africa	0.658	48.4	82.4	78	10346	0.39	0.81	0.77
127	India	0.602	63.3	61	60	2892	0.64	0.61	0.56
135	Pakistan	0.527	63	48.7	35	2097	0.63	0.44	0.51
145	Zimbabwe	0.505	36.9	90	55	24431	0.2	0.78	0.53
<b>Low HDI</b>									
146	Madagascar	0.499	55.4	70.6	51	809	0.51	0.64	0.35
158	Nigeria	0.453	43.4	66.8	64	1050	0.31	0.66	0.39
166	Zambia	0.394	37.5	67.9	48	877	0.21	0.61	0.36
177	Niger	0.281	44.4	14.4	21	835	0.32	0.17	0.35

Source: UNDP, Human Development Report 2005

Among the 177 Countries listed in the Human Development Report, Norway occupies the top position and Niger the last. It is seen that in 2003, 57 countries have HDI value between 0.8 and 1 and are grouped as countries with high human development. Medium development countries, with HDI values between 0.5 and 0.8, rank from 58 to 145. India is among medium development countries with HDI value 0.602 and ranks 127. From rank 146 to 177, the HDI values are below 0.5 and the countries belong to low development group.

Even though HDI is not without limitations the fact remains that it increases our understanding of which countries are experiencing development and which are not. Table 1.2 presents trends in human development index of selected countries for the period from 1980 to 2003. It is observed from the table that almost all the countries have experienced improvement in HDI value. But in South Africa the HDI has come down from 0.742 in 1995 to 0.696 in 2000 and 0.658 in 2003. Similar decrease in HDI is shown by Zimbabwe and Zambia from 1990 onwards.

**Table 1.2 Trends in Human Development Index**

Country	1980	1985	1990	1995	2000	2003	HDI Rank
Norway	0.888	0.898	0.912	0.936	0.956	0.963	1
United States	0.887	0.901	0.916	0.929	0.938	0.944	10
Germany	0.861	0.869	0.888	0.913	0.927	0.930	20
Argentina	0.799	0.808	0.810	0.833	0.856	0.863	34
Kuwait	0.777	0.780	-	0.813	0.837	0.844	44
Trinidad and Tobago	0.781	0.788	0.792	0.789	0.800	0.801	57
Malaysia	0.659	0.695	0.721	0.760	0.790	0.796	61
China	0.558	0.594	0.627	0.683	-	0.755	85
Sri Lanka	0.649	0.681	0.705	0.727	-	0.751	93
South Africa	0.674	0.702	0.735	0.742	0.696	0.658	120
India	0.438	0.476	0.513	0.546	0.577	0.602	127
Pakistan	0.386	0.419	0.462	0.492	-	0.527	135
Zimbabwe	0.574	0.640	0.637	0.589	0.527	0.505	145
Madagascar	0.437	0.436	0.446	0.458	-	0.499	146
Zambia	0.475	0.484	0.462	0.424	0.409	0.394	166
Niger	0.252	0.242	0.249	0.256	0.271	0.281	177

Source: UNDP, Human Development Report 2005

Among the countries listed in the table, Argentina, Kuwait and Trinidad and Tobago moved up from medium development level to High human development by 1985, 1995 and 2000 respectively. India with HDI value 0.513 is counted with countries of medium development from 1990 and in 2003 its HDI is 0.602. Pakistan has moved up to medium development group of countries in 2003, with HDI value 0.527.

From 1995 onwards HDI is supplemented by gender related development index (GDI) and gender empowerment index (GEM). These two indices capture gender inequality in achievements and in political and economic participation and decision-making. The Human Development Report 2002 examined political participation as a dimension of human development using indicators of governance such as civil liberties, political rights, press freedom and political stability.

#### **1.4 Rationale of the Study**

Social development is not only a means but also an important end of development. In this the role of the State has been well recognized. In India the very objective of planning is articulation of this, so that the ultimate goal of plan is growth with social justice. In the constitutional division of responsibilities between Centre and States, social sector planning and development are primarily the responsibility of State Governments. No doubt, the States have been earmarking sizeable resources for social development, though supplemented by the Centre. But the accomplishment appears to be widely at variance across the States. Within States, glaring inequality according to region, sex and community to which people belong, adds to the problem of imbalances. This raises a number of issues. Are the States allocating adequate

resources for social development? What is the structural composition of social sector allocation of resources? What is the magnitude of inter-state disparity in allocation? What is the level of social development across the States? Are they comparable with the State's efforts? If not what are the reasons for variations across States? All these need to be explored by a systematic analysis. This study attempts to focus on these issues. Against this background, the following objectives are proposed.

### **Objectives of the Study**

The specific objectives of the study are as follows:-

1. To examine the structure and growth of social sector outlay of 15 major Indian States.
2. To study inter state variations in the social sector outlay and disparities in the development of social infrastructure.
3. To analyse inter state disparities in the level of social attainment
4. To identify the factors that influence differential performance of States with respect to social development.

### **Hypotheses**

1. Government expenditure on social sector assumes importance in India for at least two reasons. The first is that the magnitude of deprivation in the country is too large to be left to market forces alone to tackle. Secondly a higher proportion of the poor utilizes government services as compared to richer households. Therefore the level of social

development depends, to a great extent, on social sector expenditure of governments. In order to assess the role of government in social development, the hypothesis tested is that per capita social expenditure is an important factor that determines level of social development.

2. The disparities among States in their fiscal capacity and commitment towards social development get reflected in their expenditure on social sector and social development. Therefore the second hypothesis tested is that disparities among States in social attainment commensurate with disparities in per capita social expenditure.

3. In spite of large constitutionally provided statutory transfers through the Finance Commissions and non statutory transfers through the Planning Commission, it is true that the States vary greatly in their resource availability. More over, the fiscal crisis and economic reform policies have compelled the governments to cut down their expenditure. This is more true in the case of poor States. So also it is likely that governments with relatively low political commitment to social development find an easy solution to the problem by curtailing expenditure on social sector. The disparity in fiscal capacity leads to variations in social expenditure and greater variations in social development. So, the question whether the states show converging or diverging tendencies in terms of social attainment, has important policy implications. Therefore, the third hypothesis tested is that the States are diverging as far as social development is concerned.

### **Data Source**

The study is based on secondary data. The government expenditure in respect of 15 major states, for 24 years from 1980-81 to

2003-04 are compiled from various issues of the Reserve Bank of India Bulletin, Hand book of Statistics on State Government Finances, Reserve Bank of India, 2004 and Public Finance, Centre for Monitoring Indian Economy (CMIE), October 2005. Data on expenditure on elementary and secondary education are collected from Budgetary Resources for Education (1951-52 to 1993-94) and Analysis of Budgeted Expenditure on Education, Ministry of Human Resource Development, Government of India. The data pertain to final accounts. Net State domestic products at current and constant prices are collected from Hand Book of Statistics, Reserve Bank of India, National Income Statistics, CMIE, and CSO Web site.

Data on infrastructure and attainment in education and health are collected from Social and Cultural Tables – (census 1981, 1991 and 2001), various issues of Statistical Abstract, Economic Survey, Man Power Profile, Health Information of India published by Central Bureau of Health Intelligence, Ministry of Health and Family Welfare, SRS Bulletin, and (i) Selected Educational Statistics, (ii) Education in India, and (iii) Annual Report by Ministry of Human Resource Development, Government of India.

## **Methodology**

The analysis is confined to 15 major States – Andhra Pradesh (AP), Assam (AS), Bihar (BH), Gujarat (GU), Haryana (HY), Karnataka (KA), Kerala (KE), Madhya Pradesh (MP), Maharashtra (MH), Orissa (OR), Punjab (PN), Rajasthan (RJ), Tamil Nadu (TN), Uttar Pradesh (UP) and West Bengal (WB). These were the States with population of ten million and above and account for India's 96 per cent of population

and 85.5 per cent of area as per Census 1991. Since new States – Jharkhand, Chattisgarh and Uttaranchal were carved off Bihar, Madhya Pradesh and Uttar Pradesh; appropriate adjustments are made in the data to treat the mother states as undivided.

In this study social sector is taken to refer to the activities which contribute to human capital formation and human development. As per budgetary classification “social services” includes sub sectors like education, public health and medical care, water supply, sanitation, housing etc. Of these sub sectors, education (which includes education, sports, art and culture) and health sector (constituted by Medical and Public health) are given special focus in this study. It may be noted that, these two sectors, together account for more than 60 percent of the total social sector expenditure and are the most decisive factors in social development.

An analysis of trends and inter state disparities in real per capita expenditure on social sectors in general, and health and education in particular, is conducted for 15 States over the period 1980-81 to 2003-04 as well as for two sub periods - 1980-81 to 1990-91 and 1991-92 to 2003-04. The second sub period coincides with the initiation of the new economic policy. An analysis of the trends in expenditures during this period would help explain impact of the reforms on social sector.

Real per capita expenditures are calculated using State specific deflators and mid year population figures. State specific deflators are derived from the series on state domestic product. Expenditure on these sectors as a percentage of NSDP, their share in total expenditure and

share of Education and Health sectors in total social sector are also used to examine trends in social expenditure.

Inter state disparities in social attainment are studied using both education and health indicators. To avoid the conceptual ambiguity in measuring social development using indicators that represent inputs and final out comes together, a distinction has been maintained between infrastructure facilities and final out comes in each of the two sectors. Inter state disparities in terms of social infrastructure and social attainment are examined separately. The indicators used are the number of schools and colleges per lakh population and pupil teacher ratio to represent education infrastructure, and number of hospitals, dispensaries, hospital beds, doctors and nursing personnel per lakh population to study health infrastructure development. Disparities in social attainment are examined in terms of literacy rate, stock of educated population with different levels of education attained, life expectancy, infant mortality rate and crude death rate.

Indices of educational and health attainment and infrastructure are constructed with the help of principal component analysis. The composite indices are computed as the weighted average of education and health attainment indices. Finally the attainment indices are related to the indices of infrastructure, real per capita expenditures in respective sectors and per capita income.

### **Tools of Analysis**

In addition to ratios and percentages the following statistical techniques have been used to fulfill the objectives of the study.

## **1. To find trend and growth**

(i) Compound growth rate.

(2) Trend lines are fitted to examine trends in real per capita expenditures on education, health and over all social sectors.

## **2. To measure inter state disparity**

Disparities among States in social expenditure, social infrastructure development and social attainment are studied using the following tools.

(i) Coefficient of variation is used to measure the extent of disparities among States in terms of each indicator of social infrastructure and social achievement and also social expenditure. In order to examine disparities among States with comparable income, States are grouped as high income, middle income and low income states according to per capita NSDP at constant price for the year 2003-04 and coefficients of variation in social expenditures within each income group and also between groups are computed.

(ii) Infrastructure indices and attainment indices for education and health sectors are constructed using principal component analysis and the composite indices of infrastructure and social attainment are computed as the weighted average of education and health indices.

On the basis of their composite scores, the States are grouped as highly developed, developed, moderately developed and backward States. The criteria used for the classification are 1) those states whose

scores are less than mean minus standard deviation are grouped as backward; 2) the States with scores between mean minus standard deviation and mean are grouped as moderately developed; 3) the States with scores between mean and mean plus standard deviation are grouped as developed and 4) those States whose scores exceed mean plus standard deviation are highly developed States.

(iii) Ranking of States: States are ranked according to their real per capita expenditures, infrastructure indices and attainment indices with respect to education, health and over all social sectors.

(iv) Squared Euclidean Dissimilarity Coefficient Matrix: Development distances between States are measured using Squared Euclidean Dissimilarity Coefficient Matrix (SEDCM) and these distances are used to identify the most similar and dissimilar States.

(v) Cluster analysis: Using cluster analysis the States are grouped according to level of development in such way that States within a group are internally homogenous. States are divided into small sets, then into larger groups, so that one eventually ends up with complete hierarchical structure of the given set of States. The hierarchical structure is represented by dendrogram. It also gives the measurement of closeness in terms of the smallest distance prevailing between any two States or clusters of States through the analysis of 'Euclidean distances'. Dendrograms are plotted for three points of time 1981, 1991 and 2001 separately for infrastructure development and attainment in education and health sectors

(vi) ANOVA: Variations between States of different income groups in terms of real per capita expenditures, infrastructure indices and attainment indices are examined using ANOVA

(vii) Test of convergence: To test whether the States show converging or diverging tendencies, regression analysis was conducted taking rate of growth of development index as the dependent variable and initial development index as the independent variable. If the sign of the coefficient is negative, it may be concluded that the States are converging.

### **3. To analyse influences and relationships**

(i) Rank correlation between social expenditure and attainment

(ii) Step wise regression: To find out the most significant factors that influence the differential performance of States, step-wise regression was conducted using the equation

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + u$$

where,

Y = composite development index,

$x_1$  = per capita social expenditure,

$x_2$  = health infrastructure index,

$x_3$  = education infrastructure index,

$x_4$  = per capita income at constant price,

u is the random variable and

a,  $b_1$ ,  $b_2$ ,  $b_3$  and  $b_4$  are the parameters estimated

To have a sector-wise picture of significant factors, regression equations are fitted for education and health attainment separately.

In order to have state-wise picture of influences, regression equations were fitted for each State separately. The analysis is repeated for education and health sectors.

### **Limitations of the Study**

The present study is based on time series data, which are limited to 15 major states, for the period from 1980-81 to 2003-04.

The status of data relating to the private and public sector allocation to different components of social sector in India is not very satisfactory. Private sector's allocation to the components of the social sector is not clearly known. It is generally noticed that the government's allocation to education is larger than that of the private sector. As against this, with regard to health sector, government's allocation is less than the allocation by the private sector. However, it is well recognized that Government initiative constitutes an important element in social development.

The National Sample Survey data give some idea about the allocations to education and health by the households. However these data are not available for all the years under study. Hence a comparative perspective would not be facilitated by such data. In view of this, we have considered only the government allocations to different components of the social sector. This obviously is a limitation of the study.

Cross State analysis does not allow for direct assessment of the impact of some determinants of education and health outcomes such as school management, quality of services being rendered etc. Regional disparity within States and variations according to community and other socio economic groups, which people belong to, are not within the scope of the study.

## **Chapter Scheme**

The present study, “Social Sector Public Outlay and Social Development – An Inter State Comparison” is divided into eight chapters. The first chapter introduces the problem analysed, the specific objectives, data source and methodology adopted in tackling the issues posed. The second chapter presents review of literature in the related areas of the study. The third chapter discusses the social development policies and programmes in India. The subsequent chapters deal with the issue empirically. The fourth chapter discusses inter state disparities in spending and the changes in the relative spending patterns of the States. Analysis of inter state disparity in social infrastructure is presented in the fifth chapter and the sixth chapter presents inter state disparity in social development. The seventh chapter is about the influences and relationships between social expenditure, social infrastructure and social attainment. The last chapter presents the summary along with conclusions and suggestions.

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## **Chapter II**

### **REVIEW OF LITERATURE**

The importance of social development in economic development is now a well recognized fact. However the problem is complex in nature not only from the point of view of resource availability in developing countries like India, but also because of the fact that it involves radical changes in social, political, cultural and other institutional factors which act as blocks to development. Increasingly there is academic interest in studying the problem of social development. So also even traditionally the State has been committing bulk of its resources in the social sector. The size, the pattern and its accomplishments were also subject to review by the scholars. Some of such works are reviewed below. The available literature is grouped into three categories namely, (1) Literature on social development, (2) Literature on role of Government in social development and (3) Literature on India's social development scenario.

#### **1. Literature on Social development**

Amartya Sen (1989)<sup>1</sup> discussed the nature and implications of the task of identification of ends, in terms of which the means of development can be systematically assessed. He argued for the necessity of seeing human beings as ends in themselves, rather than as means to other ends of development. He is of the view that expansion of real

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<sup>1</sup> Amartya Sen (1989), "Development as Capability Expansion", in Sakiko Fukuda-Parr and A K Sivakumar (eds), *Readings in Human Development*, pp. 3-13.

income and economic growth should be just an intermediate goal, the importance of which is contingent on what it ultimately contributes to human lives. For him the foundational importance of human capabilities provides a firm basis for evaluating living standards and quality of life and also points to a general format in terms of which problems of efficiency and equality can be discussed. It is concluded that the challenge of human development can not be fully grasped without paying deliberate attention to the enhancement of freedoms and capabilities that matter most in the lives that we can lead.

Newman and Thomson (1989)<sup>2</sup> investigated the controversy surrounding the inter relation between economic growth and social development using a lagged-dependent variable model for 46 developing countries for the years 1960, 1970 and 1980. They provided a test of the two competing hypotheses; 1) Economic growth is a cause of subsequent social development 2) Social development is the cause of subsequent economic development. The findings of the study suggest that the level of social development in a country is substantially a product of its earlier social indicators. Economic indicators do not significantly predict subsequent social development. On the other hand, economic growth appears to be a product of earlier economic and social indicators. Hence social development policies may be justified on the basis of both expected social and economic benefits, at least in the long run, while economic growth policies should be justified on the basis of economic benefits alone.

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<sup>2</sup> Barbara A Newman and Randal J Thomson (1989), "Economic Growth and Social Development: A Longitudinal Analysis of Causal Priority", *World Development*, Vol. 17, No. 4, pp. 461-471.

UNDP (1990)<sup>3</sup> defined human development as "a process of enlarging people's choice". The three essential choices are, to lead a long and healthy life, to acquire knowledge and to have access to the resources needed for a decent standard of living. In this report UNDP has attempted to divert attention from the exclusive use of income measures to assess the development levels and gave 'a human face' to development. The most important contribution of the report is the construction of a composite indicator, the human development index (HDI) which assesses achieved development levels of countries. The countries are classified as: low human development (HDI<0.5); medium human development (HDI 0.5 to 0.79) and high human development (HDI 0.8 to 1). HDI is increasingly used to monitor the progress of nations and of global society.

Mark Gillivray (1991)<sup>4</sup> examined both the composition and usefulness of HDI as a composite development indicator using simple and rank correlation coefficients. On the basis of the correlation analysis it is argued that the composition of the index is flawed as it is significantly and positively correlated with each of its component variables individually. As a consequence, assessing inter country development levels on any of these variables yields similar results to those that the index itself yields. According to him the index provides us with little more information regarding inter country development levels than the traditional indicator GNP per capita alone provides. It is concluded that the UNDP index is yet another redundant composite inter country development indicator.

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<sup>3</sup> UNDP, Human Development Report 1990, Oxford University Press.

<sup>4</sup> Mark McGillivray (1991), "The Human Development Index: Yet Another Redundant Composite Development Indicator?" World Development, Vol.19, No.10, pp. 1461-1468.

Michael Hopkins (1991)<sup>5</sup> made a critical appraisal of the UNDP's first human development report and the composite index (HDI). He posed the question whether HDI can help understand development better and thus provide guidance for international and national development efforts. He examined the case of Sri Lanka and concluded that performing well on the HDI is not a necessary and sufficient condition for rapid economic growth or poverty elimination. Another important criticism leveled against HDI is that skating over the experiences of many countries; the report is of no use in addressing practical issues of implementing human resource development programmes. It is concluded that every country is different and that packages can not be borrowed from one country to fit another country's needs.

Das Gupta and Martin Weale (1992)<sup>6</sup> made an attempt to extend the measures of general well-being in current use by including ordinal indices of political and civil liberties and provide a ranking of the world's poorest countries. They used Borda rules as the aggregator of a set of six constituents of well-being namely, per capita income, life expectancy, infant mortality rate, adult literacy rate, index of political rights and index of civil rights, to rank forty eight countries which were among the poorest in terms of income per capita. This new ranking was compared with rankings based on each of the six chosen elements of well-being. It is pointed out that there are countries which are very poor but enjoy relatively high levels of civil and political liberties.

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<sup>5</sup> Michael Hopkins (1991), "Human Development Revisited: A New UNDP Report", World Development, Vol.19, No. 10, pp.1469-1473.

<sup>6</sup> Partha Das Gupta and Martin Weale (1992), "On Measuring the Quality of Life", World Development, Vol.20, No.1, pp. 119-131.

Srinivasan and Verma (1993)<sup>7</sup> discussed a conceptual framework within which the term 'development' can be defined for the purpose of identifying measurable indicators of development. They also made a brief review of the major approaches to the development of indicators and described human development as a multi-dimensional concept comprising economic, social, political, psychological and spiritual dimensions. It is argued that development should begin with the fulfillment of basic needs of an individual in terms of food clothing and shelter and gradually reach the highest level of self reliance. The authors concluded by expressing the hope that the review of the past major approaches will stimulate further discussion on the issue of development indicators.

S.P Pal and D.K Pant (1993)<sup>8</sup> made an attempt to critically assess the methodology employed in UNDP's Human Development Reports for measuring progress and suggested modifications in the methodology and formulation. The conceptual framework used by UNDP is attacked on the following grounds. (1) The HDI is sensitive to the choice of maximum and minimum values of an indicator, (2) the HDI ignores the distributional aspects of an indicator across population groups within a country, (3) the introduction of the income variable in enlarging people's choices is not fully justified and (4) the three indicators chosen do not fully reflect the development goals of a country. To do away with the above said limitations of HDI, they introduced a few modifications and examined how meaningful and realistic are the numerical values

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<sup>7</sup> K. Srinivasan and Ravi K Verma (1993), "Human Development Indicators; Conceptual Issues", in S.P Pal (ed) Special Issue on Human Development , Margin, Vol. 25, No. 2 Part II pp. 23 – 31..

<sup>8</sup> S.P. Pal and D K Pant ( 1993 ), " An Alternative Human Development Index", in S P Pal (ed) Special Issue on Human Development, Margin Vol 25, No 2, Part II , pp. 9-22.

generated by the two alternative measures. It is claimed that the values generated by modified HDI are more realistic than those by UNDP's HDI.

Mahbub ul Haq (1995)<sup>9</sup> explained how the focus of Development Economics shifted from national income accounting to people-centered policies. He also analysed the evolution of the human development index as a far more comprehensive measure of socio-economic progress than the traditional measure of GNP, and introduced a political freedom index in measuring overall social development, with political participation, rule of law, freedom of expression and non discrimination as indicators.

Being one of the chief architects of the new paradigm, Haq discussed the development policies and strategies that link economic growth with human lives. It is opined that most development plans would look different if their pre occupation were with people rather than with production. It is concluded that the human dimension of development is not just another addition to the development dialogue. Instead of being the residual of development, human beings could finally become its principal object and subject.

UNDP (1995)<sup>10</sup> focused on the pervasive and persistent inequality between men and women. It is pointed out that the focus on gender inequality is an important starting point since a widespread gender bias severely affects the social, economic and political situation of many countries. The innovative features of the report were the design of two new composite indices: the gender related development index (GDI) and

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<sup>9</sup>Mahbub-Ul-Haq (1995 ), Reflections on Human Development, Oxford University Press, New Delhi

<sup>10</sup> UNDP, Human Development Report 1995, University Press.

the gender empowerment measure (GEM) and ranking of countries according to GDI and GEM. GDI measures achievements in the same basic capabilities measured by HDI, but takes note of inequality in achievements between men and women. The GEM examines whether women are able to participate actively in economic and political life and take part in decision making. It is argued that continuing exclusion of women from many opportunities of life totally warps the process of development. Thus the simple but far reaching message of Human Development Report (1995) is: "Human development, if not engendered is endangered".

Inderjeet Singh and Reena Singh (2001)<sup>11</sup> have attempted a modification in UNDP's Human development Index formulation and have constructed an income disparity adjusted HDI and a gender disparity- adjusted HDI for the Indian States. The UNDP methodology is criticised on the ground that it assigned equal weight to all the three indicators of human development. In the wake of this the authors attempted to modify HDI by using weighted average instead of simple average used by UNDP. HDI is further criticised as it hides differences in the distribution of income, gender etc. So income is adjusted by a factor indicating distributional inequality (1- Gini coefficient). The adjusted income  $W(Y)(1-G)$  is used as the third component along with life expectancy and educational attainment. To highlight gender disparity in human development the per capita income of each state is discounted on the basis of relative ratio of work participation and wage

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<sup>11</sup> Inderjeet Singh and Reena Singh(2001), " A modified measure of Human Development", in Ruddar Dutt(ed) Human Development and Economic Development, Indian Economic Association, Deep Deep Publications, New Delhi, pp.230-239

differentials. It is concluded that income and gender disparities in a State have a strong bearing on its level of human development.

Achin Chakraborty (2002)<sup>12</sup> discussed the methodological issues behind construction of human development index (HDI) and its use in measuring and comparing the level of human development. It is pointed out that a composite index fulfils the need for a measure of the achievements of development, but it pre-supposes a deliberate conceptual aggregation of separable variables. For him, a composite index contains no more information than the individual indicators out of which it is made. It only presents that information in a form convenient and more amenable to some forms of analysis. But in the process, much useful information may be lost. This loss should be weighed against the gain from avoidance of the trouble of handling a large set of data. It is argued that indices can capture only the state of development and not the process aspect of it. Therefore it is suggested that a properly designed indicator capable of illuminating even some of the process aspects of development may be evolved.

UNDP (2002)<sup>13</sup> examined political participation as a dimension of human development. The challenges faced by democracies in broadening people's participation and strengthening accountability of democratic institutions are briefly discussed. It also analysed the main tools - political participation, rule of law and freedom of expression - for measuring political and civil freedoms and their relationship to the human development index. The central message of this report is that

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<sup>12</sup> Achin Chakraborty(2002), “ Issues in Social Indicators, Composite Indices and Inequality”, Economic and Political Weekly, Vol. 37, No 13, pp.1199 –1202.

<sup>13</sup> UNDP, Human Development Report 2002, Oxford University Press.

effective governance is central to human development and lasting solutions should be firmly grounded in democratic policies.

Paul Streeten (2003)<sup>14</sup> made a brief survey of the progress of the development thinking and the place of people in it. He showed that our thinking has undergone an evolution and uneven progress. Both internal logic and new evidence have led to the continual revision of our views. He is of the view that previous and partly discarded approaches have taught us much that is still valuable and our current approach will surely be subject to criticisms and be overtaken. After giving a brief history of the development thinking up to Human development index, he concluded that human development and human development index are not ultimate insights and other ideas will take their place.

## **2. Literature on Role of Government in Social Development**

John Toye (1981)<sup>15</sup> analysed empirical data on public expenditure in India between 1960 and 1970. The real growth rate of public expenditure and its functional and economic composition at the all India level are presented and the strong contrast between the patterns of the first and last five year periods is elucidated. He was of the view that one would not expect that States with different levels and growth rates of income and population density, as well as differences in political preferences would exhibit the same level or growth rates of expenditure. Regarding the problem of expenditure control he opined that it is a problem of intelligent selection based on detailed information about the economic effects of existing and potential items of public expenditure. It

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<sup>14</sup> Paul Streeten (2003), "Shifting Fashions in Development Dialogue", in Sakiko Fukuda-Parr and A.K. Shivakumar(eds), *Readings in Human Development*, pp.92-105

<sup>15</sup> John Toye (1981), *Public Expenditure and Indian Development Policy*, South Asian Studies, Cambridge University Press.

is argued that the formal adoption of the administrative technique of programme and performance budgeting is no substitute for the creation of a series of official and political committees to decide priorities over the entire field of public expenditure.

B.N.P Singh (1983)<sup>16</sup> made an analytical presentation of the growth and trends of public expenditure in the Indian institutional framework, with special reference to Bihar. He has presented a critical examination of the performance of the Government of Bihar on fiscal front from its inception in 1947 to the end of the Fifth Five Year Plan. It is pointed out that there has been a deceleration in the rate of growth of tax revenues of the state due to various concessions and exemptions granted. On the other hand the expenditure of the government has tremendously increased leading to budgetary deficits. The Government has failed in exercising effective and powerful control. It is opined that the successful operation of fiscal policy ultimately depends upon stable governments and efficient and honest administrative officials.

R.K Sinha (1983)<sup>17</sup> examined the experiences of developing countries in their effort to achieve the goal of economic and social development. The experiences of developing nations indicate that they are far away from the goals to be realized. An attempt is made to find out the reasons for the failure of the developing nations and the following suggestions are made. (i) In neglecting agriculture, most of the countries have committed a great mistake. (ii) After agriculture the other important choice relates to the area of human development. In selecting an appropriate structure of educational levels for accelerating

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<sup>16</sup>B.N.P Singh (1983), Public Expenditure and Economic Development in India, Capital Publishing House

<sup>17</sup>R K Sinha (1983), Fiscal Policy for Developing Countries, South Asian Publishers.

economic growth, the developing countries should learn lesson from and make use of the experience of countries that have proceeded well ahead in economic development. (iii) Like expenditure on education, expenditure on housing, health and social services have important effect on redistributive justice and help economic growth.

Sharda (1986)<sup>18</sup> provided an in depth analysis of the expenditure, sources of revenue and the impact of state budgetary operations on the social and economic development of the people with special reference to Himachal Pradesh. The impact of budgetary operations is traced in terms of the changes in the behaviour of capital formation in public sector and trend of Government's expenditure. Effectiveness of public expenditure has been evaluated by examining the changing importance of expenditure categories that are supposed to benefit the poor. It is pointed out that a vast majority of the population in Himachal Pradesh has for long remained deprived of the social services. Since these services will help in improving the productive capacity of the masses, it is essential for the Government to extend services like education and health care to the deprived groups.

Dholakia (1990)<sup>19</sup> made an endeavour in the direction of developing a methodology for empirically estimating the socio-economic impact of the government expenditures. She has developed an alternative approach called Welfare Indicator Approach for measuring impact of Government expenditure. This approach attempted to measure welfare in real terms through combination of various socio-economic indicators, improvement in which would indicate

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<sup>18</sup> N K Sharda (1986), *State Finance and Regional Development in India*, Deep Publications, New Delhi.

<sup>19</sup> Archana, R, Dholakia(1990), *Benefits from Government Expenditure in India- A Welfare Indicator Approach*, Himalaya Publishing House.

improvement in the well-being of the poorest section of the society and expressed changes in the welfare variables as a function of government expenditure. It is evident from the analysis that in terms of the composite welfare index, government effort on human capital had increasing returns whereas; efforts on physical capital had constant returns. It is inferred that a policy in favour of expenditure on human capital would help achieving the targeted welfare level more efficiently than expenditure on physical capital.

Keith Hinchliffe (1993)<sup>20</sup> discussed some analytical issues involved in a number of alternative ways of increasing total resources for human development programmes. The focus was on the mobilisation of resources for basic schooling, health services and drinking water. It is pointed out that mobilising additional resources for human development programmes is only one of the methods to expand their scope and coverage. The other one is to use existing resources efficiently. It is a central position of this paper that Governments are essentially responsible for providing basic services to their populations and that with few exceptions they are financially capable of this. It is concluded that Governments can fulfill the responsibility of providing basic services by increasing total revenue, by redirecting resources from some activities to others and by targeting of programmes.

Prabhu and Chatterjee (1993)<sup>21</sup> examined the size and composition of State Government expenditures on health, education and nutrition and analysed the trends therein. They also assessed the impact

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<sup>20</sup> Keith Hinchliffe(1993),” Financing Human Development Programmes”, Special issue on Human Development, Margin, Vol.25, No2, Part II, pp.79-87

<sup>21</sup> K Seeta Prabhu nad Somnath Chatterjee (1993), Social Sector Expenditures and Human Development- A Study of Indian States, Development Research Group, Study 6, Reserve Bank of India.

of such expenditures on the levels of health, education and nutrition attainment. In addition, the study made an attempt in arriving at the social priority ratio and human expenditure ratio which are considered by UNDP to be the most telling indicators of the Government's commitment to the cause of human development. In order to assess the impact of these expenditures on levels of human development, indices of educational and health attainment have been constructed. These attainment indices were related to the index of physical infrastructure and revenue expenditure. It is concluded that there is an urgent need to increase the range and scope of Government interventions both directly and indirectly. It is also suggested that the increase in allocations are to be accompanied by a drastic reallocation of resources in favour of primary level facilities, particularly in health sector.

Shariff (1997)<sup>22</sup> made an analysis of Central budget allocations for social sector and poverty alleviation programmes since 1990-91. The most relevant fact which emerges from a comparison of budget allocations and actual expenditures since 1990-91 is that there has been significant increase in social sector allocations. The study is concluded with two important suggestions. The first is that the corporate sector may be made a dominant partner in the development of social services in the country, allowing them to invest in social services in rural and backward areas. Secondly, to find out resources for social service sector, a 3-5 percent levy, which may be called as 'social service tax', may be imposed on the profits of large and medium business houses. The 'social fund' so generated may be transferred entirely to the states for investing exclusively in social sector.

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<sup>22</sup> Abusaleh Shariff(1997), " National Expenditure on Poverty Alleviation and Social Sector: An Evaluation in the Light of the 1997-98 Budget), The Indian Journal of Labour Economics, Vol. 40, No.2, pp. 307-326

Sunando Roy (1997)<sup>23</sup> made an attempt to review the developments in the provision of basic needs by the state and tried to locate the shortcomings and weaknesses of the schemes and also to draw lessons for the future role of government in providing for the basic needs in the Indian context. According to the author restructuring the public policy towards basic needs involve tackling three basic issues namely targeting the resources, improving quality of services provided and reducing the existing gap between provision and utilisation of welfare activities. It is pointed out that as the nation stands at a crucial phase seeking to integrate with the rest of the world; it faces the grim reality that the number of people deprived of even the basic necessities of life remains substantially large. Attempts must therefore be made to promote basic needs with a conviction that this will help to improve productivity.

World Bank (1997)<sup>24</sup> discussed the role and effectiveness of the State: what the State should do, how it should do and how it can do it in a rapidly changing world. It explored why and how some states have been more effective than others in playing a catalytic and sustainable role in economic development. It has provided a broad historical and conceptual introduction to the issues and examined the empirical evidence of the impact of State policies and institutions on development. The principal message conveyed is that sustainable economic and social development is impossible without an effective State. An effective State is central to social and economic development more as a partner and

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<sup>23</sup> Sunando Roy (1997), *Public Provision of Basic Needs : Lessons from Indian Experience*. Reserve Bank of India, Occasional Papers Vol.18 Nos 2 & 3, pp. 553-582.

<sup>24</sup> World Bank. (1997), "State in a Changing World", *World Development Report*, Oxford University Press.

facilitator than as director. It is concluded that state should work to compliment markets, not to replace them.

Allen Roy et.al (2000)<sup>25</sup> estimated the normative levels of expenditure on primary, secondary and higher education, utilising the pooled data for 15 States over the period 1992-93 to 1997-98. On the basis of normative expenditures, a comparative analysis of the normative and actual expenditure levels is made with the objective of classifying States on the basis of the relative emphasis laid on the provision of education. Findings of the study reveal that the actual spending on educational services in low income States is lower than their requirement. This implies that the existing fiscal equalisation mechanism has not been effective in offsetting the revenue and cost disabilities of the poor States in India.

Shariff and Ghosh (2000)<sup>26</sup> analysed State level and national level patterns of public expenditure on various heads of account in education. Patterns of intra sectoral allocation of resources also are analysed. The priority to education in the national development framework is studied in terms of share of education in gross national product and in government expenditure. The unit cost of education is studied in terms of per pupil government expenditure at different levels of education. It was found that the annual rate of growth as well as the share of education expenditure in GDP has declined considerably during the post reform period. Per pupil expenditure on education, especially by the less

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<sup>25</sup> Allen Roy, B. Kamalah and M.Govindha Rao (2000),“ Educational Expenditure of Large States –A Normative View”, Economic and Political Weekly, Vol.35, No. 17, pp. 1465- 1469.

<sup>26</sup> Abusaleh Shariff and P.K.Ghosh (2000),“ Indian Education Scene and the Public Gap”, Economic and Political Weekly, Vol.35, No.16, pp.1396- 1406.

developed states also has declined. As 90 percent of the expenditure on education is currently met from state funds, there are limitations on the availability of resources for education. Therefore it is suggested that the central government may expand its role in contributing resources, especially in respect of elementary education. Lack of resources cannot be a convincing argument for failing to discharge this national duty.

Kuldip Kaur and Bawa (2000)<sup>27</sup> examined the impact of social services on poverty alleviation through lagged regression equations separately for each sector for rural and urban areas in major States in India. The State-wise estimates of poverty index showed that poverty alleviation varied significantly across the states. It is pointed out that much of these inter state differences can be attributed to State specific growth promoting or inequality reducing policies. Results of the analysis do not lead to any optimistic turn about the effectiveness of social sector expenditure on incidence of poverty, despite a rise in government expenditure on these sectors. Therefore it is concluded that the need of the hour is to ensure that social expenditures are cost effective and well targeted.

Panchamukhi (2000)<sup>28</sup> made an attempt to focus on the impact of economic reforms on social sector in India, by comparing the data of the pre-reform and post-reform periods. The important questions addressed are (1) Are allocations to social sector, especially to education and health being affected during the period of economic reforms? (2) What

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<sup>27</sup> Kuldip Kaur and R.S.Bawa ( 2000), “Expenditure on Social Sectors and Incidence of Poverty in India –An Inter State Analysis”, *Indian Journal of Regional Science*, Vol.32, No. 1, pp. 96-105.

<sup>28</sup>P.R.Panchamukhi (2000), “Social Impact of Economic Reforms in India – A Critical Appraisal”, *Economic and Political Weekly*, Vol. 35, No. 10, pp. 836-847.

are the effects of such changes in social sector outlays? (3) Are all the components of the social sector uniformly affected? It is clear from the data that during the reform period, expenditures on social sector have relatively declined. It is shown that with regard to individual components of social sector also, the initiative of the government presents a contrasting picture for the pre-reform and reform period. It is shown that during the period of reforms, the relative allocations to the sub-sectors of the social sector have been disturbed even showing declining trends. Therefore it is concluded that the effects of economic reforms appear to be unfavourable to countries like India, particularly when their social impacts are considered.

Sarker and Prabhu (2001)<sup>29</sup> estimated the rate of growth of government expenditure on social services, on education and health in 15 major Indian states over the period 1974-75 to 1995-96, using kinked exponential growth model. The main objective of this exercise was to investigate whether there has been a break or shift in the trend path of social sector expenditure series and if there has been a shift, what was the direction of the shift. The results of the trend analysis for real per capita social expenditures revealed a clear shift in 14 out of 15 States in the latter part of 1980s. They have estimated the levels of expenditure that would have been incurred had the past trends continued. They also attempted to indicate the impact of these expenditures on social indicators. It is concluded that the deceleration of social sector expenditures in low income and low human development States like Bihar, Orissa and Madhya Pradesh demands special attention.

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<sup>29</sup> P.C.Sarker and K.Seeta Prabhu (2001), "Financing Human Development in Indian States: Trends and Implications (1974-75 –1995-96)", *The Asian Economic Review*, Journal of The Indian Institute of Economics, Vol.43, No.1, pp. 36-58.

Shariff et.al (2002)<sup>30</sup> have analysed trends in expenditures on social sector and poverty alleviation programmes from 1990-91. The trends in State expenditure, expenditure by the Central Government and Central and State adjusted combined expenditures are examined in detail. It is shown that overall expenditure on social schemes was increasing in real terms but mainly through increased expenditure of the Central Government. The State Governments seem to be easing out of their constitutional commitment to sustain programmes in social sector. It is also seen that there are large inter- sectoral reallocation of funds in the poverty alleviation sectors. One major development has been that large funds that were allocated to employment generation have now been diverted to the rural road construction. It is cautioned that this reallocation may have serious implications on employment generation.

Dev and Mooij (2002)<sup>31</sup> examined the trends in social sector expenditure in the Centre and State budgets for the period from 1990-91 to 2000-01 and compared expenditure levels in the 1980s with those in the 1990s. They analysed the trends in social sector expenditures as a proportion of state domestic product, as a percentage of the aggregate budget expenditure and also as real per capita expenditure. The trends are examined at three levels - Centre, States and combined Centre and State. The most significant change visible both at the Centre and State is a shift away from the traditional way of addressing rural poverty to basic needs interventions. Another finding is that the social sector

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<sup>30</sup> Abusaleh Shariff, Prabir Ghosh and S.K.Mondal (2002), "State Adjusted Public Expenditures on Social Sector and Poverty Alleviation Programme", *Economic and Political Weekly*, Vol. 37, No.8, pp. 767- 787.

<sup>31</sup> S.Mahendra Dev and Jose Mooij (2002), "Social Sector Expenditures in the 1990s-Analysis of Central and State Budgets", *Economic and Political Weekly*, Vol.37, No.9, pp. 853-865.

expenditure in India is low compared with East Asian countries and compared with the UNDP recommended ratios. The study is concluded with two important observations First; there is an urgent need for stepping up social sector expenditure. Second, there is an obvious need for better utilisation of the allocated money.

Kaur and Misra (2003)<sup>32</sup> have made an attempt to analyse the present state of social sector development across States and to examine the effectiveness of public spending on social sectors namely education and health in terms of select human development indicators of various States. Empirical analysis to examine whether increased public outlays have been reflected in improved social indicators is done for 15 States. The variables chosen are gross enrolment ratio-both primary and secondary-in education sector and infant mortality as health attainment indicator. State-wise revenue expenditure on education and health as percentage of GSDP is taken as the policy variable. The study clearly brings out that the relationship between public spending on education and primary enrolment is stronger for poor States. However it is shown that the association between public spending and health outcome is weak. Income turns out to be a more significant determinant of health outcome than public spending. The authors have recommended future research exploring relative role of different factors for different states by examining the slope coefficients.

Seenuvasan (2004)<sup>33</sup> discussed the welfare programmes and issues relating to the expenditure on welfare programmes in India. An

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<sup>32</sup> Balbir Kaur and Sangita Misra (2003), "Social Sector Expenditure and Attainments: An Analysis of Indian States." Reserve Bank of India Occasional Papers, Vol.24, Nos.1 and 2, pp.105-143.

<sup>33</sup> M. Seenuvasan (2004), "Welfare Programme Expenditure in Indian States", Asian Economic Review, Vol.46, No.3, pp. 494- 520.

analysis of welfare expenditure in the pre reform and reform periods is made using state expenditure on welfare programmes. The study revealed that among the welfare programme components, the expenditure share of labour and labour welfare, employment and nutrition showed broadly declining trend in the reform period when compared to pre- reform period. In contrast the expenditure share of rural development and social security has improved in the reform period in almost all States. A brief analysis of the other components of social service expenditure namely health and education revealed that during the reform period the expenditure on health declined, while most of the States witnessed increasing trend in education expenditure. It is cautioned that unless people in the rural areas, SC/ST/OBC, Labourers and other welfare dependents are incorporated, supported and empowered through sound welfare programme policies, efforts for removing poverty and attainment of human welfare would be ineffective.

Mukta.S.Adi (2004)<sup>34</sup> made an attempt to examine as to how the expenditure on social sector has changed in the post reform period vis-à-vis the pre-reform period. It is seen that over the years, public expenditure on social sector has increased substantially in absolute terms but the rate of increase during the 1990s has been at declining rate until 1997. It is pointed out that multiplicity of programmes for universalising education, providing primary health care, ensuring employment, subsidising food distribution and a number of social welfare programmes have proved to be counter productive. Many of

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<sup>34</sup> Muktha S Adi (2004), "Public Expenditure on Social Sector in India", Indian Journal of Regional Science, vol. 36. No.2, pp. 31-44.

them are deeply criticised for being unsuccessful in generating intended outputs due to poor implementation. It is pointed out that the per capita public expenditure on social sector and poverty alleviation programmes is too low and inadequate and a major part of the allocated money is disbursed as salaries and spent on establishment. The author has suggested further studies to explore reasons for low spending and to explore corrective measures that National and State Governments can undertake on an annual basis.

Gupta and Kalra (2005)<sup>35</sup> examined the issues related to the problem of equity among States and financing of development activities of backward States including financial transfers from Centre to States. It is observed that even after more than five decades of planning for development, very few States in India can hardly claim to have achieved the path of self sustained development and inter state disparities have persisted. A comprehensive index of development was constructed using 18 indicators of development and have made an attempt to estimate additional public expenditure required to cross the below average status of States. This has been juxtaposed with relative fiscal capacity of the States to finance the required level of public expenditure. The study has also examined whether transfer of resources through Finance Commissions and Planning Commissions have made any impact on the inter state disparities and how far the criteria adopted by Finance Commissions are responsible for the unabated inter state disparity.

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<sup>35</sup> J.R.Gupta and Manjit Kalra (2005), Federal Transfers and Inter state Disparities in India. Atlantic Publishers and Distributors.

### **3. Literature on India's Social Development Scenario**

Panikar (1979)<sup>36</sup> conducted a study of the performance of Kerala in health improvement and compared it with other States and some selected developing countries. He examined the factors which contributed to the comparatively better achievements of Kerala in the health sector. Setting primary focus on rural population, he studied variations among the major states in India with respect to important health achievement indicators and health infrastructure facilities and also state domestic product. It is shown that in spite of its low domestic product, Kerala stands out from the rest of India, when judged in terms of indices of health such as general mortality rate, infant mortality rate and life expectancy.

It is pointed out that the reason for better health status of Kerala lies in the State having given equal importance to preventive and promotive measures like sanitation, hygiene and health education as to curative medicine. Moreover, the spread of education among women in rural Kerala is found to be a crucial factor contributing to the high degree of awareness of health problems and fuller utilisation of the available health care facilities. It is concluded that given proper policies and priorities, lack of resources need not be an impediment to the improvement of health status even in low income countries.

Sarker (1989)<sup>37</sup> made an attempt to study the regional imbalances prevailing in the major States of India on the basis of a set of fifteen

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<sup>36</sup> P.G.K.Panikar (1979), "Resources Not the Constraint on Health Improvement. A Case Study of Kerala", *Economic and Political Weekly*, Vol.14, No. 44, pp. 1803-18010.

<sup>37</sup> P.C. Sarker (1989), "Measurement of Imbalances in Regional Development in India: Graphical Approach", in *Occasional Papers*, Vol.10 No.1, pp. 1- 37.

indicators. The objective of the study was to present the multivariate socio- economic indicators graphically in such a manner as to provide an insight into the level of disparities prevailing among various states. This is done using three graphical procedures: (1) Cluster analysis along with Dendrogram, (2) Principal Component Analysis with its two dimensional representation of first two principal components and (3) Singular value Decomposition method and Biplot technique. A broad data analysis has also been carried out by presenting the ranks of different states for each of the variables.

All the three graphical methods confirmed that Punjab was ahead of other States in overall development and Bihar was the least developed state among all the 15 States considered. The different methods used have provided a sharper insight into the prevalent imbalances which would not be available in the traditional comparisons of SDP as overall indicator of development. The studies of the above type could be utilised for monitoring progress achieved in each of the plan period and to evaluate the extent of reduction of imbalances.

Shiva Kumar (1991)<sup>38</sup> made an attempt to construct Human Development Index (HDI) for 17 States and ranked the States along with the countries for which the HDI has been computed in UNDP's Human Development Report (1990). HDI for India as a whole was 0.439 placing it in the category of low HDI countries. The indices constructed for the States illustrated the diversity within India. The HDI ranged from a low of 0.292 in Uttar Pradesh to a high of 0.651 in

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<sup>38</sup> A.K.Shiva Kumar( 1991), "UNDP's Human Development Index A Computation for Indian States", Economic and Political Weekly, Vol. 26, No. 41, pp.2343-2345.

Kerala. It is seen that only four States out of seventeen, (Haryana, Maharashtra, Punjab and Kerala) had an HDI in the medium category. Ranking the States of India along with the countries ranked in UNDP's HDR showed that Uttar Pradesh was placed between Ethiopia and Zaire. Kerala came between Botswana and Tunisia. Kerala's achievement was reported as exceptional, given that the level of human development has been achieved despite low per capita income. While 101 countries had per capita incomes that were higher than Kerala's, there were only 51 countries in the world with a higher life expectancy and 53 countries with a higher adult literacy than the levels achieved in Kerala.

Dre`ze and Sen (1995)<sup>39</sup> analysed the task of economic development in India in a broad perspective, in which social as well as economic opportunities have central roles. It is pointed out that variations in social opportunities not only lead to diverse achievements in quality of life, but also influence economic performance. This general approach is explored fairly extensively, drawing on empirical findings from different parts of India and also on international comparisons. Special attention is paid to the role of basic education in social transformation as well as economic expansion. The importance of women agencies in bringing about major changes is another area of investigation in this work. There is also considerable discussion of the role of political and social movements, particularly in confronting deep seated inequalities. The study also draws on comparisons of India's achievements with those of other countries such as South Korea and other economies of East Asia and post reform China. The authors caution that India is in some danger of emulating the divisive pattern of

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<sup>39</sup> Jean Dre`Ze and Amartya Sen (1995), India. Economic Development and Opportunity, Oxford University Press, New Delhi.

economic growth experienced in countries such as Brazil, with much social inequality, rather than the more participatory development seen in South Korea.

Kapoor and Mehta (1997)<sup>40</sup> examined whether educational development has helped in increasing inter generation social and economic mobility. The study was based on a field survey of more than 2500 male inhabitants of Udaipur rural and urban constituencies that collected information about the caste, the class, standard of living and education of the respondent and their fathers. Affinity and mobility indices were constructed and effect of characteristics related to fathers on the education and class position attained by the respondents was estimated. It is observed that education has helped upward class mobility, though the momentum is weak and is confined to the middle class. Therefore it is suggested that public policy should be directed towards increasing weaker sections' access to quality education at all levels. This in itself will improve the chances of upward social mobility.

Kiran Bhatta (1998)<sup>41</sup> addressed the issues of economic constraints, schooling quality and parental motivation as a set of possible influences determining the educational decisions within a household, and contributing to the overall picture of economic deprivation at the national level. The study has identified three obstacles to universal elementary education: inadequate parental motivation, poverty and low quality of schooling. The author is of the view that the economic status of the household plays a crucial role in influencing participation in

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<sup>40</sup> Kranti Kapoor and B.C Mehta (1997), "Education in India—Growth and Equity Aspect", Spellbound Publication, Rohtak.

<sup>41</sup> Kiran Bhatta (1998), "Educational Deprivation in India, A Survey of Field Investigations", Economic and Political Weekly, Vol.33, No.28, pp. 1858-1863.

schooling. It is argued that the above conclusion points to the crucial role of the State in resolving these problems. These findings also have a bearing on the issue of compulsory education. The case for compulsory education is particularly strong when it comes to female education, given the problem of inadequate parental motivation. It is argued that compulsory education should be understood to include compulsion on the State to provide adequate schooling facilities.

Kannan (1999)<sup>42</sup> discussed poverty alleviation as advancing basic human capabilities. The study highlights Kerala's achievements in advancing basic human capabilities to an extent that is far above than that would be warranted by its per capita income. Kerala's experience is compared with six Asian countries - India, China, Thailand, Malaysia, Indonesia and Sri Lanka. Emphasis has been given to public action by which Kerala has achieved considerable reduction in poverty. Education is identified as the central process through which other changes in society were brought about. In this process the importance and impact of historical factors in poverty alleviation have been highlighted. What Kerala has demonstrated is the feasibility of poverty alleviation in the context of a political democracy that does not impose any limitations on the freedom of political choice or public action of the people. It is therefore concluded that poverty alleviation can be achieved with or without economic growth if concerted public action is focused on the problem.

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<sup>42</sup> K.P.Kannan (1999), "Poverty Alleviation as Advancing Basic Human Capabilities: Kerala's Achievements Compared", Working Paper, CDS, Trivandrum.

NCAER (1999)<sup>43</sup> presented an integrated picture of the various dimensions related to human development in India. About 90 indicators of human development are discussed and compared to highlight disparities between select States and between eight selected population groups. Bihar, Uttar Pradesh, Madhya Pradesh, Orissa and Rajasthan are found to be the most backward states. The states of Kerala, Tamil Nadu, Karnataka, Maharashtra, Punjab and Haryana are relatively better off with Kerala ranking first in respect of most human development indicators. Among social groups, scheduled castes and the scheduled tribes have the lowest levels of income and human development in rural India. It is pointed out that a determined and sustained effort to eliminate poverty and social disability is necessary in India in the form of targeted investments in social services. The survey has shown that while absolute deprivation still persists in India, relative deprivations are narrowing down slowly. It is concluded that the challenge before India in the next century is to improve the levels of living and concurrently reduce relative deprivation within a limited time frame.

Neena Malhotra (1999)<sup>44</sup> analysed educational achievements in India and its inter-state patterns. It is shown that India spends only 4.06 per cent of its GDP on education, when the recommended level is 6%. The per capita expenditure on education has increased but the educational expenditure as a proportion of total budgetary expenditure showed a declining trend. Wide inter state disparities in educational achievements and the existence of gender gap in literacy are highlighted in the study. It is pointed out that the persistent gender gap in literacy

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<sup>43</sup>. NCAER (1999), *India Human Development Report A Profile of Indian States in the 1990s*, Oxford University Press.

<sup>44</sup> Neena Malhotra (1999), "Human Development in India and Inter-State Pattern", *Indian Journal of Regional Sciences*, Vol.31, No.1, pp. 31-45.

will prove to be the greatest hindrance in the attainment of total literacy in most of the states. The study also emphasized the urgent need to improve educational infrastructure. It is concluded with a reference to the World Bank estimation that if all the children in the age group of 6-10 are to be accommodated, then by 2007 India will need 13 million more class rooms and 740000 new teachers.

Hemlata Joshi (2000)<sup>45</sup> made a spatio-temporal appraisal of crude literacy rate, female literacy rate, index of deprivation (IOD) and educational development index (EDI) in India. She has made an attempt to show the changes in relative status of States and Union Territories in educational development using EDI. After analysing the growth pattern of EDI it is shown that the States having low EDI in 1997 showed higher growth rate than others, because of low base and the States having higher EDI have lower growth rate. The study sets five EDI levels—very high, high, medium, low and very low. A clear cut shift among all States in the level of EDI from low and very low level to high and very high level is noticed during the period. In 1981 there was no State or Union Territory in the very high level. Only Kerala and Chandigarh were in the high level and most of states were in the low level. In the year 1991, all the States and Union Territories improved their EDI and ten States jumped into the very high level.

Kurian (2000)<sup>46</sup> assessed disparities among States in terms of demographic indicators, female literacy, state domestic product and poverty, development and non development expenditure by State

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<sup>45</sup> Hemlata Joshi (2000), "Education Development in India: Spatio-Temporal Appraisal", *Indian Journal of Regional Science*, Vol. 32, No. 2, pp. 87-91.

<sup>46</sup> . N.J.Kurian (2000), "Widening Regional Disparities in India Some Indicators", *Economic and Political Weekly*, Vol.35, No.7, pp.538- 550.

Governments, shares in plan outlay, investments, banking activities and infrastructure development. The scope of the study was restricted to a comparative analysis of emerging trends in fifteen major States in respect of the above indicators of development. The analysis has established that there are considerable disparities in socio-economic development across the States. It is also pointed out that an important factor which influences the speed of socio-economic progress of a state is the quality of governance. It is concluded that if the existing trends in differential rate of socio-economic development continues, regional disparities in India are bound to accentuate. Therefore it is imperative that the present trends are arrested and preferably reversed with more focused investment in social sector.

Singh and Ahmad (2001)<sup>47</sup> analysed India's achievements in the field of human development during the period from 1950-51 to 1996-97 and made a comparative study of the achievement of India in this field with that of some developing Asian countries. The study has examined the concerted efforts made under the five year plans for the development of human resources. It is concluded that if the aim of human development is to enhance the capabilities of the bottom 40% of the population, the two routes to capability enhancement namely, income generation and public provision of education, health and nutrition cannot be divorced from each other. In the absence of such a vision, the mutually reinforcing links between poverty, under nutrition, ill-health and inequitable nature of development could result in the phenomenon of social exclusion.

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<sup>47</sup> Bishwa Nath Singh and S. M. Humair Ahmad (2001), "Human Development: Achievements in the Indian Economy", in Ruddar Dutt (ed) Human Development and Economic Development, Indian Economic Association, Deep Deep Publications, New Delhi, pp. 289-300.

Biswajit Guha (2001)<sup>48</sup> made a comprehensive study of human development in India, highlighting inter state variations. In addition to life expectancy, per capita income and literacy, three more elements of development, such as quality of life, poverty eradication and urbanisation are included in the study. The nature of human development in fifteen major States has been studied and Indices are calculated following UNDP methodology. The rank correlation coefficient indicating the association between different attributes of development is also computed. A comparison of HDI computed in the study with alternative studies by Mehabub-ul-Haq and UNFPA also is presented. The study reveals glaring inter state disparity with respect to all the indicators used. A comparative study of state wise percentages of population and the number of seats in the Lok Sabha and the HDI reveals a paradox in the arena of economics and politics in India. In spite of enjoying a large majority of total population and total seats of Lok Sabha, the states like Bihar, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh continue to be the most backward states. On the other hand the states like Kerala, Punjab, Haryana, Gujarat and Maharashtra with a lesser percentage of population and Lok Sabha seats, lead the country in the field of human development.

Debabratha Mandal (2001)<sup>49</sup> analysed the human development experience in India, making an empirical assessment of the stark contrasts in the levels and trends of human development across sixteen

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<sup>48</sup> Biswajit Guha( 2001), Human Development in India – A study of Inter state Disparity in Human Development and Economic Development.” In Ruddar Dutt (ed), Human Development and Economic Development Indian Economic Association, Deep Deep Publications, New Delhi, pp. 211-229.

<sup>49</sup> Debabrata Mandal (2001),“Inter state Comparison of Human Development in India- An Alternative Measure”, In Ruddar Dutt (ed), Human Development and Economic Development, Indian Economic Association, Deep Deep Publications, New Delhi, pp. 197-210

major States. The inter state comparisons are based on four State level indices: per capita net state domestic product, life expectancy, literacy rate and female- male ratio. A modified human development index based on Borda rule is used in the study. The ranking showed that four worst off states are Uttar Pradesh, Bihar, Rajasthan and Madhya Pradesh. On the other hand Kerala's human development outstrips those of all States in India. It is shown that the pattern of human development in India is not only uneven but it has remained stagnant over the decade.

Mazumdar (2001)<sup>50</sup> made an attempt to provide an overview of the changing pattern of human well being of countries over the period 1960-1994. Overall achievement indices representing overall human well being for sample countries have been estimated for five points of time: 1960, 70, 80, 90 and 1994 and overall improvement index for a period of time is derived as the difference between the achievement indices of two points of time. A comparison of the relative position of a country is attempted on the basis of the overall achievement index and other composite indices like PQLI and HDI. The achievement indices and improvement indices for the sample countries show wide variations in the achievement levels among the countries considered. The study focuses a tripolar picture of the world. The countries from North America, Western Europe and Australia and New Zealand are at the peak of human development. The south and Central America, the Caribbean countries and countries from East Asia are at the middle

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<sup>50</sup> Krishna Majumdar (2001), "Measuring Human Well being of the Countries : Achievement and Improvement Indices", in Biswanath Ray (ed) Welfare, Choice and Development –Essays in Honour of Professor Amartya Sen, pp. 56-85, Kanishka Publishers, New Delhi.

level, while countries from South Asia and Sub-Saharan Africa are lagging behind the rest of the world in respect of human development.

Khan (2001)<sup>51</sup> made a study of inter-state variations in human development in India, by constructing human development indices for 15 major states using UNDP methodology. Unlike the UNDP, the study is based on four elements: life expectancy, educational attainment, real per capita SDP and urbanisation. It is seen that Kerala has the highest ranking in educational attainment. The life expectancy indices reveal that Kerala is at the top and Kerala's expectancy is very close to that of developed countries. Madhya Pradesh is at the bottom with life expectancy of 54 years. The human development indices indicate low level of human development and high inter state variations in India. This leads to the conclusion that an all out effort has to be made to improve the level of human development and reduce inter state variations.

Yadav et.al (2002)<sup>52</sup> made a comparison of the growth of primary education among different segments of the society. The exercise has been conducted for sixteen major States for the year 1993-94 and constructed an educational development index for assessing growth of primary education in various States using Principal component analysis. The index has been constructed separately for rural and urban areas. The parameters selected were 1) overall male enrolment rate, 2) overall female enrolment rate, 3) male enrolment in class vi as a percentage of male enrolment in class 1 and 4) female enrolment in class vi as a

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<sup>51</sup> Nisar Ahmad Khan (2001), Human Development in India : A Study of Inter state Variation ", in Ruddar Dutt (ed) Human Development and Economic Development, Indian Economic Association, Deep Deep Publication New Delhi, pp. 301 -315.

<sup>52</sup> Anil k.Yadav, Madhu Srivastava and Chaitali Pal (2002), "Disparities in the Growth of Primary Education: An Inter- State Comparison", Labour and Development, Vol. 8, No. 1 & 2, pp. 115-131.

percentage of female enrolment in class 1. The educational index developed for different states revealed that the leading states both in rural and urban areas are Kerala and Himachal Pradesh where as the States like Punjab, Haryana and Uttar Pradesh are among the first five states in urban areas and the States of Tamil Nadu, Maharashtra and Gujarat have high ranks for rural areas. The States which rank last in order of both rural and urban areas are Assam, Andhra Pradesh and Rajasthan.

Planning Commission (2002)<sup>53</sup> presented the status of human development at State level in India. It has put together an extensive data base for three points of time since 1980, covering nearly 70 distinct social indicators on various aspects of well being of the people. The differences in the level of attainment of people depending on their place of residence and sex are high lighted by estimating the rural- urban gap and gender gap in all indicators. The data has been presented through 'development radars', which give a snapshot view of the structure, growth and the gaps vis-à-vis desired normative levels, in respect of eight different indicators covering attainments on education, health, economic well being and access to amenities. The report estimates a core set of composite indices namely the human development index and human poverty index and gender equality index. This report is useful to policy planners, administrators and researchers engaged in the development of this country. Much needs to be done to integrate the findings of this report into the planning framework and specify targets covering economic, social and environmental dimensions of human development.

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<sup>53</sup> Planning Commission (2002), National Human Development Report 2001, Oxford University Press.

Patnaik and Vasudevan (2003)<sup>54</sup> proposed an index of economic development for India following UNDP philosophy. The changes in the standard of living in India in the nineties have been measured using the index. The index of development presented in the study comprises health, education and income indicators. The trends in the index suggest that the rate of improvement in living conditions decelerated in the post reform period. This points towards the need for better prioritisation in allocation of public expenditure. It may be noted that the index presented does not capture gender differences or inter state or inter regional inequalities in income. It is an attempt to measure trends in living conditions at the national level only.

Mathew Joseph (2003)<sup>55</sup> examined the performance of the four Southern States-Andhra Pradesh, Karnataka, Kerala and Tamil Nadu in various economic and social sectors by comparing and contrasting them with each other and with the corresponding all India figures. He analysed the developments in these States with regard to sector-wise economic performance, social progress, state finances, banking, I T growth, infrastructure, and reform initiatives undertaken in different areas and also their future prospects. It is seen that Karnataka has been the top economic performer in Southern India in the post reform period. The excellent performance in the industrial sector has brought Tamil Nadu to a position of an advanced industrialised State Kerala is industrially weak but has been at the top with regard to social indicators. All the four States have good banking infrastructure. State finances of all the four States are in a severe condition and Kerala is the worst case.

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<sup>54</sup> Ila Patnaik and Deepa Vasudevan (2003), "Human development in the nineties: A tale not told by GDP growth", *Margin*, Vol. 35, No.2, pp. 95- 111.

<sup>55</sup> Mathew Joseph (2003), "Performance of Southern States- A Comparative Study", *Economic and Political Weekly*, Vol. 38, No. 37, pp. 3915-3930.

However poverty ratio in Tamil Nadu is the highest in the south and Kerala has the lowest poverty ratio. Kerala continues to remain at the bottom of the league of reformers although the Government has taken a few positive steps.

Dholakia (2003)<sup>56</sup> examined the trends in regional disparity in India's economic and human development over the past two decades, and the direction of the causality between economic and human development. Taking average of triennium from 1977-80 to 1997-2000, he examined trends in regional disparity in the average per capita SDP and also in indicators of human development over the last two decades. The results of the regressions showed no significant trend for increase or decrease of disparity in per capita income among regions. But results of the analysis revealed that the overall HDI for the 15 major States shows a clear and highly significant declining trend in regional disparity during 1981-91 and 1991-2001. It was found that the data suggest two-way causality between human and economic development. It is revealed that HDI influence per capita income with a lag of about 8years, where as per capita income affect HDI within two years. Based on the above findings it is argued that emphasis on economic growth is likely to address the issue of twin disparity of income and human development in the shortest time.

Deepa Sankar and Kathuria (2004)<sup>57</sup> analysed the performance of rural public health systems of 16 major States in India. The efficiency of

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<sup>56</sup> Ravindra Dholakia (2003), "Regional Disparity in Economic and Human Development in India", *Economic and Political Weekly*, Vol.38, No. 39, pp. 3915- 3930.

<sup>57</sup> Deepa Sankar and Vinish Kathuria (2004), "Health System Performance in Rural India. Efficiency Estimates across States", *Economic and Political Weekly*, Vol.39, No.13, pp. 1427- 1433.

rural public health systems in improving the health outcomes of rural areas and the relative performance of various states in India is the focus of the study. One of the most important findings of the study is that health outcomes in the rural areas of Indian States is positively related to the level of health infrastructure in terms of access to facilities and availability of skilled professionals such as doctors. It is seen that States vary enormously in their levels of health outcomes such as infant mortality and also in their levels of health system efficiencies. The variation in relative efficiencies is due to differences not only in health sector endowment, but also its efficient use. Therefore it is concluded that States should not only increase their investment in health sector but also manage it efficiently to achieve better health out comes.

Divya Vaid (2004)<sup>58</sup> highlighted the causes for inequality in educational transitions in India. The study examined the factors responsible for the inequality for both boys and girls from deprived origins and highlighted the inequality faced by girls at each level of educational transition. The method of logistic regression was used to study the effects of socio-economic background variables on educational attainment. The regression analysis made it clear that the gender inequality in educational transitions still remains. It is also seen that father's class plays a decisive role in the transition likelihood of the subject. The effect of other background characteristics like parental education and religion were found to be important determinants of likelihood of an educational transition for a child.

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<sup>58</sup> Divya Vaid (2004), "Gendered Inequality in Educational Transitions", Economic and Political Weekly, Vol. 39, No.35, pp. 3927- 3937.

Ghosh and Prabir De (2004)<sup>59</sup> investigated the role played by various categories of infrastructure facilities in determining the level of economic development across Indian states during the past quarter century. The infrastructure facilities are divided into three major categories: physical, social and financial and three separate infrastructure development indices are constructed on the basis of Principal component analysis. It has been observed that inter state disparity in per capita net state domestic product is rising significantly over the last quarter century. Physical and social infrastructure facilities are proved to be highly significant factors in determining inter state level of development. It is pointed out that differential infrastructure facilities across the states are primarily responsible for the widening of income disparity. Therefore the aim of the public policy has to be much more towards curing the problem of growing regional imbalance. It is suggested that rather than crudely allocating public sector investment across the states, government should better try to minimise the differences in key infrastructure facilities between waning and accelerating states.

McGillivray and Pillarisetti (2004)<sup>60</sup> examined inter-country inequality evident from four indicators of development levels in the Asia –Pacific and sub-Saharan Africa: GDP per capita, the human development index, the gender related development index and the gender empowerment measure. They analysed the experience of countries located in these regions during the period 1992-94 and

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<sup>59</sup> Buddhadeb Ghosh and Prabir De (2004), “How Do Different Categories of Infrastructure Affect Development? Evidence from Indian States”, *Economic and Political Weekly*, Vol. 39, No.42, pp. 4645-4656

<sup>60</sup> Mark McGillivray (2004), “Inequality in Human Development: Africa and Asia in their International Contexts”. *Asian African Journal of Economics and Econometrics*, Vol.4, No.1, pp. 77-83.

compared results for these regions with those of other groups of developing countries. Wolfson's inequality indices indicated that sub-Saharan Africa exhibits higher inequality in GDP per capita, HDI and the GDI than the Asia-Pacific in all years under consideration. The reverse is the case with GEM inequality. Both regions recorded higher inequality than Latin America and the Caribbean countries in all indicators for all years.

Mathew Joseph (2004)<sup>61</sup> made an attempt to understand various facets of under performance of the Northern States in comparison with other regions and to suggest the possible ways by which the States could improve their future economic and social performance. The study revealed that the share of Northern States in the aggregate GDP of the country in 2001 is almost the same they had two decades ago. This constancy however hides the steady fall in the share of UP, the second biggest State in the country. It is shown that the northern region is socially much behind the southern and western regions. Punjab, Haryana, Delhi and Chandigarh are exceptions in this regard. It is pointed out that, northern states have vast economic potential. Realisation of this potential is a matter of management at the political and bureaucratic levels, by offering better governance and an atmosphere for investment. It is concluded that India can not pull ahead firmly so long as the big States of north India like Uttar Pradesh and Rajasthan continue to lag behind.

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<sup>61</sup> Mathew Joseph (2004), "Performance of the Northern States –A Comparative Analysis." *Economic and Political Weekly*, Vol.39, No. 6, pp.564-577.

Srinivasan and Mohanthy (2004)<sup>62</sup> estimated levels of deprivation based on possession of some basic amenities of life at the household level. Using the NFHS data 1992 and 1999, they categorized and examined changes in levels of deprivation and also analysed the changes in terms of caste and religion. The study has revealed that there has been considerable improvement in the basic amenities of households during the 1990s. The percentage of deprived section of population ranged among States from a low of 3.6 percent in Punjab to a shockingly high level of 46.8 percent in Bihar. The study is concluded with the suggestion that the role of various public policies and poverty alleviation programmes in contributing to the declines in the levels of deprivation in different States deserve further examination.

T K Roy et al (2004)<sup>63</sup> assessed the extent of inequalities in health care and nutritional status across States with a focus on caste and tribe. They also examined how far these inequalities are the result of caste /tribe per se or whether they can be attributed to the differential economic conditions and educational status of individuals belonging to different caste/tribe categories. To study inequality regarding each of indicators among SC, ST, OBC and others, Chi-square test of association is employed. The association has been examined further by employing Logistic regression, considering the nutrition indicators and health indicators as the depending variable and the independent variables being the socio- economic variables, caste, age and place of residence. The analysis has brought out the effect of social stratification

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<sup>62</sup> K.Srinivasan and S.K.Mohanty (2004), "Deprivation of Basic Amenities by Caste and Religion. Empirical Study Using NFHS Data", *Economic and Political Weekly*, Vol.39, No.7, pp.728- 735.

<sup>63</sup> T.K.Roy, Sumati Kulkarni and Y Vaidehi (2004),"Social Inequalities in Health and Nutrition in Selected States", *Economic and Political Weekly*, Vol.39, No.7, pp. 677- 683.

on the utilisation of health care programmes and nutritional status. It is shown that the differentials between SC, ST, OBC and others are partly due to differences in socio-economic conditions. But in some States differentials persist even after adjusting the effect of socio-economic factors.

Majumdar (2005)<sup>64</sup> analysed the relationship between infrastructure availability and development. The study examined the veracity of the argument that imbalances in regional infrastructure availability have been a major reason behind lopsided development in India in the light of empirical results at the district level. He has used a multi-dimensional approach with sub sectoral, sectoral and composite indices of development and infrastructure availability. Significant association between infrastructure and development levels of regions is observed, though the magnitude has declined in recent years. This association is found to be different for regions at different stages of development. The findings of the study suggest that identification of specific requirements of different regions and cost benefit analysis followed by infrastructural expansion are major planks of balanced regional development.

Sures Chandra Jain (2005)<sup>65</sup> made an attempt towards linking the system of education with socio economic development, formulating appropriate policies and then evolving a planning process for their implementation. Based on the analysis of return on investments in various types of education, it is recommended that we now need to

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<sup>64</sup> . Rajarshi Majumdar (2005), "Infrastructure and Regional Development: Inter linkages in India", Indian Economic Review, vol.40, No.2, pp. 167-184.

<sup>65</sup> Sures Chandra Jain (2005), "Education and Socio- Economic Development", Concept Publishing Company, New Delhi.

invest overwhelmingly in primary education, literacy campaigns and vocational training, treating educational system as a “sub system” of total production system comprising agriculture and industry. It has also been argued that for authentic economic development we need to adhere to our own indigenous values, cultural tradition and concrete socio-economic realities.

Pranjape (2007)<sup>66</sup> examined disparities in the educational attainment of the population that are based on regional, gender and caste differences in Maharashtra, utilising the tools of Gini index and Lorenze Curve. It was observed that the distribution of education is extremely skewed, particularly in rural region and especially among socially backward sections. The inequality spread of education was found to be higher among females than males and caste based inequity was sharper in rural areas. It was also seen that urban males show least disparity while rural females showed the highest disparity in educational attainment. It is pointed out that the neglect of education in India due to inadequate budgetary allocations has resulted in education poverty manifest through unequal access to education and low levels of educational attainment.

On an overall review of literature, it is quite evident that detailed study of inter state regional experience in social development in India, examining the nature, extent and possible causes of disparities, the patterns of regional change and the inter relationship between economic and social development at the regional level are few. The studies on inter state disparities in social development have not examined the reasons for

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<sup>66</sup> Madhu.s. Pranjape (2007), “ Uneven Distribution of Education in Maharashtra. Rural-Urban, Gender and Caste Inequalities”, Economic and Political Weekly, Vol.XLII, No.3, pp. 213-216.

differential performance of States. The present study makes an attempt to probe into the problems of the development process in different States. It would be of considerable relevance, particularly because the period covered includes a decade before and after the economic reforms.

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## **CHAPTER III**

### **SOCIAL DEVELOPMENT POLICIES AND PROGRAMMES IN INDIA – AN OVERVIEW**

India began its endeavour to achieve the goal of universal and free basic education with the Constitution stating, “The State shall endeavour to provide, with in a period of ten years from the commencement of this Constitution, for free and compulsory education for all children until they complete the age of fourteen years”<sup>1</sup>. In the light of the above statement it is appropriate to examine some of the policies and programmes of the Government for universalising education.

#### **3.1 Educational Policies and Programmes**

By resolving to provide elementary education ‘free’ to all, the Government of India has implicitly recognized the ‘public good’ and ‘merit good’ nature of elementary education. Elementary education is recognized as a ‘pure public good’ as the benefits from elementary education are not confined to individuals who go to school; the rest of the society also benefits considerably. The externality benefits of elementary education are high and are believed to outweigh the direct private benefits. Besides it is a ‘merit good’ as the State knows better than individuals availing the benefits of education. Hence, it is necessary that elementary education is fully financed by the Government.

The Government has accorded special importance to education in the Five Year plans. From the very first Five Year plan onwards, the

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<sup>1</sup> The Constitution of India, Article 45.

attempt was to make education an integral part of economic planning. Plan after plan incorporated a chapter each on education, and science and technology and highlighted their relationship with economic development. The emphasis during the First Five Year Plan was mainly on primary education. The Fifth Five Year plan recognized education as a key factor in Production. Elementary education was made an important component of National Minimum Needs Programme of the plan.

It was the Education (Kothari) Commission (1966) that stressed the relationship between education and productivity and the critical role of education in national development. It clearly states, “Education as an investment in human resources plays an important role among the factors which contribute to economic growth”<sup>2</sup>. The policy statements – National Policy on Education 1968 and 1986 and revised 1992 – laid special emphasis on the role of education as an important means of development, viewing education as a crucial area of investment for national development. The national policies laid stress on the promotion of education specifically, the need for eradicating illiteracy altogether, and to provide universal elementary education to all in the shortest possible time. They also laid special emphasis on vocational and technical education at the secondary level and on improvement of quality and relevance in higher education.

The 42<sup>nd</sup> amendment to the constitution in 1976 brought education, which was largely a state responsibility, into the ‘concurrent list’, making it a responsibility of both the Union and the State Governments. The 73<sup>rd</sup> and the 74<sup>th</sup> amendments to the constitution placed a greater role on local

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<sup>2</sup> Education (Kothari) Commission (1966), Education and National Development: Report of the Education Commission 1964-66, New Delhi, Government of India.

bodies for the development of education, among others. Elementary education has been made a fundamental right with the 86<sup>th</sup> amendment to the Constitution in 2002. This amendment, however, is only the beginning - not the end - of the struggle to universalize elementary education. If the right to elementary education is to become a reality, a massive effort is required to bring the schooling system in line with this goal. However, all State Governments have abolished tuition fees in government schools up to upper primary level. Education in schools run by local bodies and private aided institutions is also mostly free.

The policies and strategies adopted by the Government so far have focused relatively more on elementary education and aimed to enhance access, quality and equity in education. While the initiatives taken by the Government in universalizing education are many, a few recent measures need special mention.

### **Sarva Shiksha Abhiyan**

The Sarva Shiksha Abhiyan launched in 2000 is a time- bound initiative of the Central Government, in partnership with the States, the local governments and the community, to provide elementary education to all children in the age group 6-14 years by 2010. In particular, its objectives are:

1. All children in school, Education Guarantee Centre, Alternate school, or 'Back to School' Camp by 2003;
2. All children to complete five years of primary schooling by 2007;
3. All children to complete eight years schooling by 2010;

4. Focus on quality elementary education with emphasis on education for life;
5. To bridge all gender and social category gaps at primary stage by 2007 and at elementary education level by 2010; and
6. Universal retention by 2010.

The Sarva Shiksha Abhiyan seeks to bring about convergence of existing institutional efforts for elementary education at state and district level. The programme seeks functional decentralization right down to the school level, to improve community participation.

### **National Programme for Education of Girls at elementary level**

In July 2003, Government of India approved a new programme called 'National Programme for Education of Girls at Elementary Level' (NPEGEL) as an amendment to the scheme of Sarva Shiksha Abhiyan for providing additional support for education of disadvantaged girls at the elementary level. The scheme is implemented in Educationally Backward Blocks where the level of female literacy is below, and gender gap is above the national average. Apart from NPEGEL, a new scheme called Kasturba Gandhi Balika Vidhyalaya (KGBV) has been launched for setting up residential schools with boarding facilities at elementary level for girls belonging to the SC, ST, OBC and minorities in difficult areas.

### **Prathmik Shikaha Kosh**

An educational cess of 2 per cent on all direct and indirect Central taxes has been imposed in 2004, for creation of a separate, non lapsable Fund named as Prathmik Shikaha Kosh. The Proceeds would be available for the schemes of basic Education and the Mid-day Meal Scheme.

## **Mid-day Meal Scheme**

A national scheme of mid-day meals was launched in 1995. The scheme aims at increasing enrolments, retention and attendance in schools as well as improved nutritional status of children in primary and upper primary schools. Though there are several weaknesses in the execution, the scheme is believed to have a significant positive effect on enrolment and retention. For example in Rajasthan, Karnataka and Chattisgarh, enrolments in class I have increased by nearly 15 per cent on an average (Dreze and Goyal 2004)<sup>3</sup>.

## **The National Literacy Mission**

The National Literacy Mission (NLM) launched in 1988 as a Technology Mission to impart functional literacy to non literates, aims at attaining a literacy rate of 75 per cent by 2007. The Total Literacy Campaign has been the principal strategy of NLM for eradication of illiteracy. These Campaigns are area specific, time-bound, volunteer-based and are implemented by Zilla Saksharatha Samities. NLM accorded high priority for the promotion of female literacy.

## **Education Guarantee scheme (EGS)**

A novel scheme called Education Guarantee Scheme has been viewed as an effective answer to the problem of physical access to schools. This is an important initiative that the Government has taken at the national level in 1999-2000, drawing from the experience of the Education Guarantee Scheme of the Government of Madhya Pradesh. The scheme is

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<sup>3</sup> Dreze Jean and Aparajitha Goyal (2004), *The Future of Mid-Day Meals* New Delhi, Samya Centre for equity Studies, p.43

meant for those areas where no school currently exists within a radius of 1 km.

The EGS envisages the local community to come forward, expressing the demand for a school, specifically provide the premises required for a school, provide for a local part-time teacher and maintain the school at least for two years with the Gram Panchayat mobilizing contributions in cash and kind from the local community. The notion that a community should demand a school facility, rather than receive it as a right from the Government, implies shifting of responsibility of opening schools from the shoulders of the Government to those of the people themselves. However, the scheme is claimed to be a success and is now made a part of the Sarva Shiksha Abhiyan and according to official reports, 4.4 crore children are so far covered by EGS by 2004 (MHRD Annual Report 2004-05)<sup>4</sup>.

### **District Primary Education Programme (DPEP)**

The 1990s saw the primary education scene opening up to external assistance on a fairly large scale. As part of the commitments made by the international donor community, the country saw the emergence of a large multi-state programme under the banner of the District Primary Education Programme (DPEP). Thus primary education in India became a subject of international scrutiny.

### **Operation Black Board**

The Government of India has initiated the Operation Blackboard programme, as a follow-up of the National Policy on Education 1986 to

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<sup>4</sup> Ministry of Human Resource Development (2004-05), Annual Report, Government of India.

improve the infrastructure facilities and quality of education. The scheme was started in 1987-88 and aimed at substantial improvement in basic facilities in all primary schools run by government and local bodies. It consists of three different components: (i) a building comprising at least two reasonably large all- weather rooms with a verandah and separate toilet facilities for boys and girls. (ii) at least two teachers in every school, as far as possible one of them a woman, and a third teacher if the enrolment in a school is above 100, and (iii) essential teaching materials including blackboards, maps, charts, toys and equipment for work experience.

The Revised National Policy on Education (1992) suggested an expansion of the scope of Operation Blackboard, to provide three reasonably large rooms and three teachers in every primary school, and extend the scheme to upper primary level. Accordingly in the Eighth Five Year Plan, provision was made for (i) continuation of the scheme to cover the remaining schools identified in the Seventh plan, (ii) provision of three teachers and three class rooms where enrolment exceeds 80, and (iii) extension of the scheme to upper primary level.

### **Access to Schools**

It has been noted that lack of school facilities for children was a major constraint on universalisation of elementary education. Proximity to schools, particularly at primary and upper primary level, matters a lot for the participation of children in schooling. Improvement in access of weaker sections to primary schools has been an explicitly stated goal of the government. Efforts towards opening more and more schools were expected to have been intensified under the National policy on Education 1986.

## **Provision of Teachers**

Another important component of improvement of school environment refers to provision of teachers in schools. Unfortunately there are a sizeable number of schools in India, especially in rural areas, with inadequate number of teachers. It was expected that, with the launching of Operation Blackboard programme that promised to convert all single teacher primary schools to two teacher schools, there would be no more single teacher schools in the country. The situation has not changed much even after a decade.

## **Mahila Samakhya –Education for Women’s Equality**

The Mahila Samakhya project was initiated in 1987-89 for education and empowerment of women in rural areas, particularly of women from socially and economically marginalized groups. The initiative focuses on (i) enabling a greater access to education, (ii) generating a demand for education and (iii) strengthening women’s abilities to effectively participate in village level processes for educational development.

## **Decentralization**

An important development of the 1990s refers to significant efforts of the government to decentralize educational planning and administration and the involvement of the community at various levels in planning, administration, financing and supervision of the working of the school system. Following the constitutional amendment in favour of panchayati raj institutions, and also the launching of externally aided projects in primary education, village education committees, school development committees and similar committees at various levels have been set up with the involvement of the local community.

Decentralization is important in large size developing countries, where the Central Government may not be able to effectively plan and supervise the education systems in all parts of the country. The decentralized approach is also viewed in many places as a mechanism of raising resources from the local communities, which will substitute the budgetary resources of the central government for education.

### **Encouragement to Private schools**

Another initiative includes encouragement to private schools. With dwindling public budgetary support for education, the Government's preference in the recent years is more in favour of private schools. Government aided private schools are decreasing as a proportion of the total number of schools. Private unaided schools are increasing rapidly and such schools form 6 per cent of the total at upper primary level, 16 per cent at secondary/ higher secondary level and 24 per cent of the total number of schools. The relative size of the government sector in education gets diminished, aggravating the problems of access, equity and even quality. With the growth of such schools, the government might not feel the need for opening new government schools and as a result, the access of the poor to schools would be seriously affected.

There is strong need for government to substantially increase investment in education sector. It is generally felt that it is not the financial resources, but a strong political will that is lacking (Dreze and Sen 1995)<sup>5</sup>. But critical importance of finances can not be ignored. Suitable norms may be developed in such a way that a minimum proportion of the state and central budgets are allocated to education consistently, so that the

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<sup>5</sup> Dreze Jean and Amartya Sen (1995), "Basic Education as a Political Issue", Journal of Educational Planning and Administration, Vol.9, No.1, January pp.1-26.

development of education should serve the goals of social equity and economic growth.

Thus the policy for universalisation of elementary education focuses on a universal access and enrolment; universal retention of children up to 14 years of age; and policy framework for bringing about substantial improvement in the quality of education, which includes improvement in educational infrastructure, improvement in teaching aids, practices and training. The legislative support will help in bringing these elements of the educational strategy into a sharper public focus. It is hoped that the law making elementary education compulsory would result in adequate provisioning of public resources for elementary education. Above all, the legislation is seen as a framework for bringing about attitudinal changes – the attitude of parents towards their children’s education, the State’s attitude towards children not in school and towards improving the quality of educational system.

### **Educational achievements**

The above mentioned policies and programmes were not without result. Public policy towards equality in education led to the expansion of education horizontally. There has been a very significant improvement in education with respect to inter regional disparities and inequalities by gender, caste, religion etc, during the post independence period. The success of the initiatives taken by the government is reflected in the progressive improvement in literacy, enrolment and infrastructural indicators over time, as presented in Table 3.1.

As observed from the table, Literacy rate of the population in the age group 7 years and above increased to 65.4 per cent in 2001 from

18.3 in 1951. Female literacy has come up from 8.9 per cent to 54.3 per cent in 2001. The education system in India is the second largest in the world, with 10.199 lakh schools and about 10495 colleges and about 389 universities.

**Table 3.1 Educational Achievements in India (1951-2001)**

<b>Indicators</b>	<b>1951</b>	<b>1981</b>	<b>2001</b>
<b>Literacy rate</b>	18.3	43.57	65.2
Male	27.3	56.38	75.64
Female	8.9	29.76	54.03
<b>Gross enrolment ratio</b>			
Primary	19.1	78.32	96.3
Boys	24.8	93.09	105.29
Girls	12.9	62.35	86.91
Upper Primary	13.1	46.18	60.2
Boys	20.6	58.53	67.77
Girls	4.6	32.35	52.09
<b>Number of Schools</b>	286145	761075	1019916
Primary	209671	494503	710471
Upper Primary	13596	118555	262649
<b>Number of colleges</b>	816	9172	10495

Sources: (1) Census 1951, 1981 and 2001.

(2) Statistical Abstract India (various issues)

Schooling facilities at Primary level are accessible to the population living in 83 per cent of the habitations within a distance of 1 km, according to the draft Tenth Five Year Plan. There has been spectacular growth in elementary education in India during the post independence period. Estimates on Gross Enrolment Ratio in primary education have increased from 19.1 in 1951 to 96.3 in 2001; and those in upper primary education from 13.1 in 1951 to 60.2 in 2001.

The review of the progress achieved in education, particularly in literacy and elementary education, reveals significant achievements and also the magnitude of the unfinished tasks, and the inadequacies of the policies. Universal elementary education includes not only universal enrolment but also universal retention and universal achievement. The retention rate of the school system is at a very low level. Out of every 100 children enrolled in class 1, about 47 reach Grade VIII and 37 Grade X, according to the rates of drop outs estimated for 2002-03. Universalisation of elementary education, a goal set by the constitution to be achieved within a ten- year period after the constitution was framed, still eludes and remains as the most conspicuous failure of the Indian education system. The time limit set for universalisation is repeatedly revised. The National Policy on Education 1986 resolved that 'by 1995, all children will be provided free and compulsory education up to 14 years of age'. Now according to Sarva Shiksha Abhiyan, universalisation of elementary education with respect to enrolment and retention will be achieved by 2010.

Despite various efforts initiated by the Government, such as total literacy campaigns, formal centre- based adult education programmes, the launching of the National Literacy Mission, and expansion of school

education, one third of the population is still illiterate. The problems of all levels of education in India include inadequate quantitative expansion, poor quality of education, and a high degree of inequalities – regional, rural – urban, gender, and by socio economic groups of population. All this exists despite the explicit assertions in the plans in favour of equality of opportunities, and for balanced regional development in education.

In the case of secondary education inequalities in access by gender, caste and region remain high. The most significant set back in secondary education refers to the extremely slow growth of vocational and technical education. But serious attention was not paid to vocational education, partly because of the need for heavy investments on the one hand and lack of sufficient demand for such education on the other. Vocational education is costlier than general secondary education and employment opportunities have not been particularly better for vocational school graduates and as a result, economic rates of return to vocational education were generally less than those to secondary general education (Tilak 2003b)<sup>6</sup>. This explains the lack of sufficient demand for vocational education

Higher education was given a poor treatment from the Seventh Plan onwards. This resulted in erratic growth of higher education affecting quality and excellence. Inequalities in access to higher education by gender, caste and religion are high. The need for special efforts for improvement in the quality and excellence in higher education is being increasingly felt.

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<sup>6</sup> Tilak, J.B.G.(2003b) “Vocational Education and Training in Asia”, in J.P.Kleeves and Ryo Watanabe (eds), Handbook on Educational Research in the Asia Pacific Region, Dordrecht: Kluwer Academic Publishers, pp. 673-86.

Aside from being low on average, educational achievement in India are highly uneven. Literacy, for instance is almost universal in urban Kerala, but practically unknown among scheduled caste women in Rajasthan. Gender disparities in literacy also are high. For example, the rate of literacy among rural females in 2001 was only 46.4 per cent, while it was 86 per cent among urban males. The national averages conceal vast differences between different regions. Of the 28 States and Union territories, as many as ten have a literacy rate below the national average.

### **3.2 Health Policies and Programmes**

The Constitution of India states, “The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and, in particular, the State shall endeavour to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health”.<sup>7</sup> The above statement highlights the responsibility of the Government to provide basic health care facilities. Therefore it is felt appropriate to have an overview of the policies and programmes of the Government for improvement of public health.

The first land mark in official health policy of independent India was the acceptance of the Bhore Committee recommendations of 1946, which laid the foundation of comprehensive rural health services through the concept of primary health centres. At the time of Independence, communicable diseases were a major cause of morbidity and mortality in India. Therefore initial efforts in public health care were directed to their prevention and control. Among the initiatives, at national level, the

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<sup>7</sup> The Constitution of India, Directive Principles of State Policy Part IV, Article 47.

important interventions that have contributed considerably in bringing down the crude death rate are:

1. The National Anti Malaria Programme launched in 1953;
2. The programme for the eradication of Kala Azar which is confined to some districts in Bihar and West Bengal;
3. The National Tuberculosis Control Programme launched in 1962;
4. National Leprosy Eradication Programme launched in 1983 and
5. National AIDS Control Programme launched in 1992.

However, morbidity due to communicable diseases continues to be high in spite of renewed efforts at extending the immunization coverage of the population. Deteriorating urban and rural sanitation, poor solid waste management and overcrowding have escalated the prevalence of communicable diseases. The emergence of drug-resistant pathogens and insecticide-resistant vectors has compounded the problem of controlling communicable diseases.

The 1978 Declaration at Alma-Ata, which received a full-fledged commitment from the Indian government, called for a convergence of trends in thinking in relation to health, health care and development. This declaration was important in proposing a broad and consistent philosophy towards a strategy secured in the primary health care approach to reach the goal of 'Health for all' by the year 2000. The declaration highlights health as a fundamental human right and the attainment of the highest possible level of health as the most important world wide social goal.

### **National Health Policy - 1983**

The primary objective of the National Health Policy (NHP) 1983 was to attain the goal of Health for all by AD 2000, by establishing

an effective and efficient health care system for all citizens, in particular vulnerable groups like women, children and underprivileged. The creation of an infrastructure for primary health care was emphatically stressed in NHP 1983. The noteworthy initiatives under that policy were:-

- (i) A phased, time-bound programme for setting up a well dispersed network of comprehensive primary health care services, linked with extension and health education, designed in the context of the ground reality that elementary health problems can be resolved by the people themselves;
- (ii) Intermediation through 'Health volunteers' having appropriate knowledge, simple skills and requisite technologies;
- (iii) Establishment of a well-worked out referral system to ensure that patient load at the higher levels of the hierarchy is not needlessly burdened by those who can be treated at the decentralized level;
- (iv) An integrated net-work of evenly spread speciality and super speciality services; encouragement of such facilities through private investments for patients who can pay, so that the facilities provided by the Government are limited to those entitled to free use.

Other major priority areas were: (i) close co-ordination of health related services and activities like drinking water supply, sanitation and nutrition, (ii) the active involvement and participation of voluntary organizations and (iii) provision of essential drugs and vaccines. In addition, qualitative improvement in the family welfare services and provision of adequate training and medical research were given great importance.

The National Health Policy-1983, in a spirit of optimistic empathy for the health needs of the people, particularly the poor and underprivileged,

had hoped to provide 'Health for All by the year 2000 AD', through the universal provision of comprehensive primary health care services. In retrospect, it is observed that the financial resources and public health administrative capacity which it was possible to marshal, was far short of that necessary to achieve such an ambitious and holistic goal.

Against this backdrop, it was felt that it would be appropriate to pitch NHP-2002 at a level consistent with our realistic expectations about financial resources, and about the likely increase in Public Health administrative capacity. The recommendations of NHP-2002, therefore, attempt to maximize the broad-based availability of health services to the citizens of the country on the basis of realistic considerations of capacity.

### **National Health Policy - 2002**

The main objective of NHP-2002 is to achieve an acceptable standard of good health amongst the general population of the country. The approach would be to increase access to the decentralized public health system by establishing new infrastructure in deficient areas and by upgrading infrastructure in the existing institutions. Over riding importance would be given to ensuring a more equitable access to health services across the social and geographical expanse of the country. Emphasis is on increasing the aggregate public health investment through substantially increased contribution by the central government. It is expected that this initiative will strengthen the capacity of the public health administration at the state level to render effective service delivery. The contribution of the private sector in providing health services would be much enhanced, particularly for the population group, which can afford to pay for the services.

Importance is given to preventive and first line curative initiatives at the primary health level through increased sectoral share of allocation. Emphasis is laid on rational use of drugs within the allopathic system. Increased access to tried and tested systems of traditional medicine will be ensured. The Policy highlights the expected roles of different participating groups in the health sector. The attainment of improved health levels would be significantly dependent on population stabilization, as also on complementary efforts from other areas of the social sectors – like improved drinking water supply, basic sanitation, minimum nutrition, etc. - to ensure that the exposure of the populace to health risks is minimized.

### **Health Achievements**

Government initiatives in the public health sector have recorded some noteworthy successes over time. The successful eradication of smallpox is a major public health achievement in India. Plague has remained in control since 1969. Cholera epidemics and deaths are comparatively infrequent and fewer. The incidence of polio, whooping cough and tetanus in children has been significantly lowered. Leprosy, Kala Azar, and Filariasis can be expected to be eliminated in the foreseeable future. There has been a substantial drop in crude death rate and infant mortality rate and Life expectancy at birth has improved considerably.

The success of the initiatives taken in the public health field as reflected in the progressive improvement of many demographic, epidemiological and infrastructural indicators over time is presented in Table 3.2.

**Table 3.2 Health Achievements in India (1951-2001)**

<b>Indicators</b>	<b>1951</b>	<b>1981</b>	<b>2001</b>
<b>Demographic Changes.</b>			
Life Expectancy	36.7	54	64.6
Crude Birth Rate	40.8	33.9	26.1
Crude Death Rate	25	12.5	8.4
IMR	146	110	66
<b>Epidemiological Shifts.</b>			
Malaria (cases in million)	75	2.7	2.2
Leprosy (cases per 10 000)	38.1	57.3	3.74
Small Pox (no of cases)	>44887	Eradicated	
Guinea worm disease ( no. of cases)	>39,79	Eradicated	
Polio	-	29709	265
<b>Infrastructure development.</b>			
SC/PHC/CHC	725	57,363	1,63,181
Dispensaries & Hospitals	9209	23,555	43,3228
Beds (Pvt & Public)	117,198	569,495	1068214
Doctors(Allopathy)	61800	2,68,700	622105
Nursing Personnel	18,054	1,43,887	1382901

Sources: (i) SRS Bulletin

(ii) Health Information India, CBHI (various issues)

While noting that the public health initiatives over the years have contributed significantly to the improvement of these health indicators, it is to be acknowledged that public health indicators or disease-burden statistics are the outcome of several complementary initiatives under the wider umbrella of the developmental sector, covering Rural Development, Agriculture, Food Production, Sanitation, Drinking Water Supply,

Education, etc. One of the major reasons for these gains has been the development of a vast, three tiered system of rural health infrastructure, namely, Sub- centres, Primary Health Centres (PHC) and Community Health Centres (CHC). Immunization and diagnostic laboratory services also have made a major contribution to these gains.

The 1980s witnessed massive infrastructure expansion and programmes for providing primary health care facilities to achieve the target of one PHC for 30000 people and one sub- centre for 5000 people in the plains, and one PHC for 20000 people and one sub centre for 3000 people in the tribal and hilly areas. This target was more or less attained in almost all the states. However, in spite of the vast expansion in infrastructure it remained grossly under utilized because of poor facilities, inadequate supplies, insufficient man power and lack of proper monitoring mechanisms.

Despite the impressive public health gains as revealed in the statistics in table 3.2, there is no gainsaying the fact that the morbidity and mortality levels in the country are still unacceptably high. These unsatisfactory health indices are, in turn, an indication of the limited success of the public health system in meeting the preventive and curative requirements of the general population.

Out of the communicable diseases which have persisted over time, the incidence of Malaria staged resurgence in the 1980s before stabilising at a fairly high prevalence level during the 1990s. Over the years, an increasing level of insecticide-resistance has developed in the malarial vectors in many parts of the country, while the incidence of the more deadly P-Falciparum Malaria has risen to about 50 percent in the country as a whole. In respect of TB, the public health scenario has not shown any significant

decline in the infection amongst the community, and there has been a distressing trend in the increase of drug resistance to the type of infection prevailing in the country.

A new and extremely virulent communicable disease – HIV/AIDS - has emerged on the health scene since the declaration of the NHP-1983. As there is no existing therapeutic cure or vaccine for this infection, the disease constitutes a serious threat, not merely to public health but to economic development in the country. The common water-borne infections –Gastroenteritis, Cholera, and some forms of Hepatitis – continue to contribute to a high level of morbidity in the population, even though the mortality rate may have been somewhat moderated.

The period after the announcement of NHP-83 has also seen an increase in mortality through ‘life-style’ diseases diabetes, cancer and cardiovascular diseases. The increase in life expectancy has increased the requirement for geriatric care. Similarly, the increasing burden of trauma cases is also a significant public health problem.

Another area of grave concern in the public health domain is the persistent incidence of macro and micro nutrient deficiencies, especially among women and children. In the vulnerable sub-category of women and the girl child, this has the multiplier effect through the birth of low birth weight babies and serious ramifications of the consequential mental and physical retarded growth.

A comparison of India’s disease burden with that of the world will help understand the country’s health status better. India accounts for a fifth of the global disease burden with a 17 percent share of the world’s

population. Table 3.3 gives a picture of India's Share of World's Health Problems.

**Table 3.3 Health Problems – Incidence in India**

	Percentage of world
Population	17
Total deaths	17
Under five mortality	23
Maternal deaths	20
DALYs lost	20
Deaths Preventable with childhood vaccination	26
HIV cases	14
Tuberculosis cases	30
Leprosy cases	68

Source: World Bank (2000), WHO (2000)

Although India's share of the world's death is equal to its share of the world's population (17 per cent), the country's contribution to under-five mortality is 23 per cent. India's share of world's total burden of disability adjusted Life Years (DALYs) lost was 20 per cent. As observed from the table, 68 per cent of world's leprosy cases are in India and the country's tuberculosis cases come to 30 per cent of world's disease burden. All this shows that the health system in India has a long way to go to provide health for all.

Despite substantial improvements, India's performance with regard to both education and health pales to insignificance when compared with that of other developing countries. To gain further insight into the performance of India, a comparison is made with a group of selected developing countries. Table 3.5 gives an inter country comparison of trends in indicators social development.

As may be observed from table 3.5, as early as in the mid 1970s the countries like Sri Lanka, Malaysia, Thailand, Philippines and Indonesia have recorded adult literacy rates ranging from 60 per cent in Malaysia to 87 per cent in Philippines, when India's rate was only 36 per cent. The gap remained unbridged in 1990 as the rate increased to 78 in Malaysia, 93 in Thailand, 90 in Philippines, 88 in Sri Lanka and 82 in Indonesia, while India's rate increased modestly to 48 per cent. India's adult literacy rate - 61 per cent - for 2003 lies far behind that of Thailand (92.6), Sri Lanka (90.4), China (90.9) and Philippines (92).

China and Sri Lanka started their development process at the same levels of health as that of India. Yet these countries are far ahead of India in terms of health attainment. They focused on low cost, community based public health strategies as opposed to expensive hospital based curative strategy adopted in India. Infant mortality in 1970 was 65 Per thousand in Sri Lanka, 46 per thousand in Malaysia and 85 per thousand in China compared to 127 in India. By 2003, infant mortality rate declined sharply to 13 in Sri Lanka, 30 in China and 7 in Malaysia. It may be noted that India's infant mortality was 9 times higher than that of Malaysia. In the case of life expectancy also India was behind all the countries listed.

**Table 3.4 Social Development - An Inter Country Comparison**

<b>HDI Rank</b>	<b>Country</b>	<b>Life expectancy</b>			<b>Infant mortality</b>			<b>Adult Literacy rate</b>			<b>Enrolment ratio</b>		
		1975	1990	2003	1970	2000	2003	1974	1990	2003	1990	2000	2003
61	Malaysia	56	71.1	73.2	46	8	7	60	78	88.7	75	66	71
73	Thailand	58	66.1	70	74	25	23	82	93	92.6	60	60	73
84	Philippines	58	64.2	70.4	60	30	27	87	90	92.6	97	82	82
85	China	62	70.1	71.6	85	32	30	-	73	90.9	88	70	69
93	Sri Lanka	68	70.9	74	65	17	13	78	88	90.4	88	73	69
110	Indonesia	48	61.5	66.8	104	35	31	62	82	87.9	81	65	66
127	India	50	59.1	63.3	127	69	63	36	48	61	68	52	60

Source: UNDP, Human Development Report (various issues)

It is to be remembered that even the modest achievements in India were only the average position and conceal large inter regional disparities within the country. Kerala, with literacy rate 90.9 per cent and infant mortality rate 11 per thousand in 2001 has a level of human development comparable to that of Sri Lanka and Malaysia. In sheer contrast, the infant mortality levels in Madhya Pradesh and Orissa were 86 and 91 per thousand. Further more, considerable intra state disparities exist in the levels of human development according to region, sex and community which people belong to. India in fact is in a paradoxical situation having one of the largest groups of both scientific personnel as well as illiterate persons in the world.

Any expectation of a significant improvement in the quality of health services, and the consequential improved health status of the citizenry, would depend not only on increased financial and material inputs, but also on a more empathetic and committed attitude in the service providers, whether in the private or public sectors. In this backdrop, it needs to be recognized that any policy in the social sector is critically dependent on the service providers treating their responsibility not as a commercial activity, but as a service, albeit a paid one. In the area of public health, an improved standard of governance is a prerequisite for the success of any health policy.

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## **CHAPTER IV**

### **TRENDS IN SOCIAL SECTOR EXPENDITURE**

#### **– AN INTER STATE COMPARISON**

Investing in People is now well recognized as the prime motive behind various development and poverty alleviation initiatives. At the international level, several initiatives were taken in the 1990s aimed at sustainable economic and social development, which have culminated in the shape of the United Nations Millennium Declaration of September 2000, setting out various developmental goals influencing the well being of people. Education and health sector goals have been recognized as crucial components of the Millennium Development goals. The importance being attached to these two sectors is associated with the changing perceptions about the desirability of human capital formation not only as a means, but also as an end in itself.

The World Development Report 2003 also notes that one of the initiatives to promote sustainable development in a dynamic world is to empower underprivileged sections of population by increasing their access to education and health. In recognition of the fact that economic prosperity, measured in terms of per capita income alone, does not always ensure enrichment in quality of life, the development strategy adopted in India also is built on the need to exploit synergies between economic growth, desirable social attainment and growing opportunities for all. In line with this thinking, it is envisaged that the Government's role in social sector development have to expand.

Against the backdrop of increasing importance being attached to human development both at national and international levels, an attempt has been made to analyse the present state of social development and public spending on social sector across States. Government expenditure on social sector assumes importance in India for at least two reasons. The first is that the magnitude of deprivation in the country is too large to be left to market forces alone to tackle. Secondly a higher proportion of the poor utilizes government services as compared to richer households.

An important feature of social sector expenditures in India is that they are incurred mainly by State Governments. In the constitutional division of responsibilities between Centre and States, sectors that ensure the provision of basic needs are the primary responsibility of State governments, though the Centre may provide leadership, direction and support. Among the social sectors, education is in the concurrent list though the bulk of expenditure is incurred by the State Governments. On the other hand, although medical and public health is in the domain of the States, the Centre plays an important role and finances several Centrally-sponsored programmes and almost the entire family welfare programmes which includes maternal and child health services.

In the combined social sector expenditure of Centre and States, about 80 to 85 per cent is incurred by States. Table 4.1 gives information about the share of the States and of the Centre in overall social sector spending. It may be noted that aggregating expenditure by the Centre and by the States gives an inflated picture because the budget information does not adjust for central transfers to States. Therefore data from the Indian Public Finance Statistics (Ministry of finance,

Government of India), which is adjusted for transfer of funds, are presented in the Table 4.1.

**Table 4.1.**

**Share of States in Total Social Sector Expenditure of Centre and States**

Major Heads	1990-91 Expenditure (Rs.Crore)			1998-99 Expenditure (Rs.Crore)			Share of States (%)	
	Centre	States	Total	Centre	States	Total	1990-91	1998-99
Education, art and culture	1680	15700	17380	6300	46400	52700	90.3	88.1
Medical and Public Health	610	5950	6560	2190	18390	20580	90.7	89.3
Water supply and sanitation and Family Welfare	60	870	930	300	1920	2220	93.5	85.9
Housing	220	550	770	2160	1740	3900	71.4	44.6
Urban development	110	660	770	200	2570	2770	85.7	93.1
Labour and employment	290	440	730	710	1080	1790	60.3	60.4
Social security and welfare	280	3600	3870	1340	11050	12390	92.3	89.2
Others	1950	440	2390	4960	1330	6290	18.4	21.2
Social Services (Total)	5200	28210	33400	18160	84710	102880	84.4	82.3

Source: S. Mahendra Dev, “Social Sector Expenditures in India: Trends and Patterns”, in Infrastructure Report 2003, p. 151.

It is clear from the table that the States contribute the lions share in the combined expenditure. In 1990-91 the share of States in the total social sector expenditure was about 85 per cent. However, the share declined for most of the major heads in the course of the 1990s and the share in the total social sector declined to 82 per cent. This suggests that the commitment of the States to social development has declined during the reform period.

A disquieting feature of social sector expenditure in India is the relatively low importance given to investment. This is reflected in the fact that capital expenditure constitutes a very small portion of total social sector expenditure and revenue component is over 90 per cent. Revenue expenditure consists mainly of salaries, while capital

expenditure results in infrastructure development. Table 4.2 shows the revenue-capital composition of State governments' expenditure on education, health and overall social sector.

As observed from the table, the share of revenue component of total social expenditure of States on an average was 90.85 per cent in 1980-81. The capital component was highest in Rajasthan (16.9%) while it was the lowest in Andhra Pradesh (4.82 %). In 2003-04 the share of revenue component for all the States taken together increased to 92.84 per cent. In Punjab it increased from 88.16 per cent to 99.88 per cent. The capital component was highest in Tamil Nadu (18.93%) and lowest in Punjab (0.12%).

In the case of education more than 99 per cent of total expenditure was on revenue account both in 1980-81 and 2003-04. As a result the share of capital expenditure was less than one per cent in eleven States. The capital component in 1980-81 was highest in Haryana (2.29%) and lowest in Bihar (0.26%). In 2003-04 the highest capital component was that of Madhya Pradesh (1.9%) and Assam had the lowest (0.04%).

**Table 4.2 Pattern of Social, Education and Health Expenditures (percentage)**

States	Social Sector				Education				Health			
	1980-81		2003-04		1980-81		2003-04		1980-81		2003-04	
	Revenue	Capital	Revenue	Capital	Revenue	Capital	Revenue	Capital	Revenue	Capital	Revenue	Capital
AP	95.18	4.82	89.16	10.83	99.71	0.29	99.23	0.77	91.23	8.77	95.59	4.41
AS	92.9	7.1	98.62	1.38	99.04	0.96	99.96	0.04	89.91	10.09	93.51	6.49
BH	88.09	11.91	96.66	3.34	99.74	0.26	99.86	0.14	67.72	32.28	89.41	10.59
GU	86.67	13.33	84.99	15.01	99.64	0.36	99.76	0.24	84.02	15.98	98.83	1.17
HA	90.66	9.34	91.04	8.96	97.71	2.29	99.68	0.32	92.75	7.25	97.14	2.86
KA	93.16	6.84	91.06	8.94	99.35	0.65	99.87	0.13	98.66	1.34	96.93	3.07
KE	91.4	8.6	98.2	1.8	98.52	1.48	99.52	0.48	78.72	21.28	97.04	2.96
MP	94.13	5.87	90.91	9.09	99.26	0.74	98.1	1.9	97.45	2.55	94.16	5.84
MH	93.2	6.8	97	3	99.56	0.44	99.82	0.18	94.64	5.36	91.19	8.81
OR	94.64	5.36	96.64	3.36	98.93	1.07	99	1	93.5	6.5	90.44	9.56
PN	88.16	11.84	99.88	0.12	99.17	0.83	100	0	91.76	8.24	99.64	0.36
RJ	83.1	16.9	84	16	99.45	0.55	99.45	0.55	69.68	30.32	97.71	2.29
TN	86.72	13.28	81.07	18.93	98.24	1.76	98.14	1.86	94.69	5.31	93.8	6.2
UP	92.25	7.75	95.2	4.8	99.36	0.64	98.37	1.63	94.98	5.02	89.68	10.32
WB	92.56	7.44	98.2	1.8	99.32	0.68	99.93	0.07	95.42	4.58	96.05	3.95
<b>Average</b>	90.85	9.15	92.84	7.16	99.13	0.87	99.38	0.62	89.01	10.99	94.74	5.26

Sources : Computed using data from (i) Reserve Bank of India Bulletin (various issues)  
(ii) Handbook of Statistics on State Government Finances, Reserve Bank of India, 2004  
(iii) Public Finance, Centre for Monitoring Indian Economy, October 2005

Compared to education, share of capital component was higher in health sector. The revenue component on an average was 89 per cent in 1980-81 but increased to 94.7 per cent in 2003-04. The capital component in 1980-81 was highest in Bihar (32.28%) and lowest in Karnataka (1.34%). The share of capital expenditure in 2003-04 was comparatively lower and ranged between 0.36 per cent in Punjab and 10.59 in Bihar. These figures suggest neglect of investment in basic infrastructure facilities in both education and health sectors.

Another important factor to be considered is that in spite of all fiscal measures to correct financial imbalances, Indian States experience a great deal of diversity with respect to per capita income, fiscal status, as well as political commitment to the cause of human development. These inequalities get reflected in the level of social development. Hence it is important to study trends and disparity in social expenditure in general and education and health expenditures in particular.

#### **4.1 Trends in Social expenditure**

Trends in levels of social sector expenditures in 15 major States over a period of 24 years ranging from 1980-81 to 2003-04 is studied to have a clear understanding of the States' efforts for social development. It may be noted that the figures comprise of both revenue and capital expenditures. Apart from total social sector expenditures, expenditures on education and health have been examined separately as they constitute a major share of the social sector expenditure. Trends in expenditure on each category namely, social, education and health

sectors are analysed in terms of ratio of expenditure to net State domestic product (NSDP), ratio to total expenditure and real per capita expenditure. In the case of education and health sectors, an analysis of the shares of these sectors in total social expenditure also is attempted so as to highlight importance given to education and health by State governments in their social development policies.

### **Social Expenditure as a Percentage of Net State Domestic Products**

Social expenditure of States as a percentage of their NSDP is presented in Table 4.3. As observed from the table, all the States registered random ups and downs throughout the period and coefficient of inter temporal variation in the over all period was the highest in Kerala (22.21) and the lowest in Uttar Pradesh (8.51). In Kerala the percentage decreased from 10.07 in 1980-81 to 6.48 in 2003-04. During pre reform period the percentage ranged between 5.72 in Punjab and 10.76 in Kerala. It is seen that only seven States have earmarked higher percentage of their domestic product for social sector compared to the all States average (7.53). It is important to note that out of the eight States with comparatively lower percentage, four – Gujarat, Maharashtra, Punjab and Haryana - were the richest States of the country. This indicates that the high income States have given less importance to social sector in their resource allocation.

**Table 4.3. Social Expenditure as a Percentage of NSDP**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V (Inter State)
1980-81	6.86	7.41	7.11	6.34	4.82	6.22	10.07	5.63	4.63	7.4	5.83	7.83	6.91	5.41	6.07	6.57	20.65
1981-82	6.42	5.92	8.09	5.75	4.94	6.23	10.46	6	4.99	6.72	5.29	8.75	6.97	5.48	6.47	6.57	23.00
1982-83	6.83	6.4	8.12	7.41	5.86	6.8	9.35	6.3	5.63	11.55	5.01	9	9.05	5.76	7.02	7.34	24.08
1983-84	9.08	8.45	7.14	5.93	5.56	6.1	10.08	6.66	6.06	6.8	5.48	7.72	9.11	5.79	6.06	7.07	20.90
1984-85	9.42	8.09	6.67	7.16	8.39	6.78	10.06	7.49	6.26	7.82	5.25	8.96	8.08	6.2	6.83	7.56	17.29
1985-86	8.71	8.01	7.77	7.88	5.46	8.44	12.95	7.81	6.39	7.39	6.18	9.18	9.34	6.07	5.88	7.83	23.89
1986-87	10.01	9.48	7.29	7.84	5.71	8.46	11.78	8.53	7.09	8.24	5.33	9.52	9.08	6.14	6.93	8.10	21.58
1987-88	8.64	9.86	7.08	9.72	7.04	8.86	10.84	8.14	6.34	9.12	6.89	11.38	8.52	6.29	6.3	8.33	19.89
1988-89	7.47	9.73	7.68	7.14	6.74	8.11	11.09	8.13	6.18	7.97	7.42	8.88	8.3	6.54	6.45	7.86	16.67
1989-90	7.78	8.71	8.99	7.19	6.34	7.87	10.65	7.82	5.96	8.29	4.74	9.24	9.15	7.3	6.48	7.77	19.38
1990-91	7.17	8.72	8.99	7.1	5.62	7.71	11.07	7.57	5.62	9.31	5.48	8.92	9.6	7.27	7.66	7.85	20.37
1991-92	6.7	9.34	9.2	7.87	5.18	7.54	9.47	8.01	5.81	8.84	5.3	9.07	9.55	6.41	6.43	7.65	20.60
1992-93	7.09	8.82	8.83	6.2	5.84	7.52	8.96	8	5.27	9.35	4.77	8.94	9.4	6.92	6.07	7.47	21.00
1993-94	6.17	9.35	7.44	5.84	5.13	6.92	8.11	6.03	4.82	8.82	4.56	8.48	7.42	5.5	5.77	6.69	22.65
1994-95	5.94	8.77	7.58	5.1	5.63	6.76	7.7	6.27	4.83	8.45	4.32	7.89	6.88	5.49	5.74	6.49	20.97
1995-96	6.86	8.9	8.75	5.14	6.62	6.87	7.01	6.25	4.99	8.2	4.87	8.48	6.84	5.62	5.2	6.71	20.69
1996-97	6.81	8.61	7.13	4.91	5.19	6.68	6.99	6.59	5.05	9.54	4.31	7.59	7.16	5.58	5.68	6.52	21.97
1997-98	6.73	8.87	7.07	5.71	5.24	6.89	6.87	6.69	5.33	8.43	4.92	7.54	6.56	6.09	5.04	6.53	18.06
1998-99	7.16	9.41	6.92	6.73	5.94	6.91	6.25	7.41	7.77	9.47	5.74	9.71	7.16	6.15	5.47	7.21	18.82
1999-00	6.87	11.57	10.38	7.82	5.86	7.15	7.74	7.18	5.48	13.05	5.2	10.21	7.12	6.31	6.94	7.93	29.21
2000-01	6.89	10.49	9.18	9.52	5.76	7.22	6.91	8.05	7.01	10.53	5.33	9.61	6.96	6.27	6.78	7.77	21.71
2001-02	6.77	9.26	10.33	8.2	5.58	7.13	6.03	7.25	6.22	9.76	5.28	9.05	6.85	6.14	6.07	7.33	21.92
2002-03	6.77	8.96	8.24	6.38	5.16	6.4	7.32	8.61	5.65	9.36	5.07	9.87	6.62	6.41	5.09	7.06	22.62
2003-04	7.1	9.48	7.05	5.84	4.96	6.46	6.48	8.44	5.76	8.53	4.83	9.21	7.09	6.12	4.71	6.80	22.64

Sources : Computed using data from (i) Reserve Bank of India Bulletin (various issues)  
(ii) Handbook of Statistics on State Government Finances, Reserve Bank of India, 2004  
(iii) Public Finance, Centre for Monitoring Indian Economy, October 2005  
(iv) Central Statistical Organisation Website

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### **Share of Social Sector in Total Expenditure (Social Allocation ratio).**

Table 4.4 presents State-wise figures of social expenditure as a percentage of total expenditure. As observed from the table, Kerala's social allocation ratio (44.98%) in 1980-81 has crossed the minimum (40 %) recommended by UNDP<sup>1</sup>. But it is seen that Kerala has not maintained that level after 1988-89. The ratio decreased over the period and reached 25.88 per cent in 2003-04. Other States that have spent more than 40 per cent of total budget on social sector are Andhra Pradesh in 1983-84, Tamil Nadu in 1990-91 and West Bengal in 1982-83, 1984-85 and 1990-91.

Punjab has shown some notable fluctuations in the percentage share of social expenditure. It has spent 31.77 per cent of its total expenditure on social sector in 1980-81. But the share decreased to 22.46 per cent in 1984-85, then increased and reached a peak value of 34.8 per cent in 1988-89 and came down to 16.58 per cent (the ever lowest value for all States) in 2003-04. This drift in the share is a clear indication of withdrawal of governments - especially of high income States- from social commitment. On the other hand Assam with the lowest share (22.45%) in 1980-81 registered remarkable improvement and spent 39.07 per cent in 1998-99, when the all State percentage was 33.31. Its percentage share was 32.2 in 2003-04, when the all States average was 24.03 per cent.

During pre reform period the share of social sector in total expenditure was highest in Kerala (41.09%) and was lowest in Haryana

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<sup>1</sup> UNDP, Human Development Report 1991, Oxford University Press, p. 40.

(27.36%) followed by Punjab (27.37%). The all States average in the pre reform period was 32.33 per cent and in nine States the percentage was less than the all States average. Lack of commitment to social causes shown by richer States is reflected in the share of social sector in total budget also. The high income States like Punjab, Haryana, Maharashtra and Gujarat have spent comparatively lower share of total expenditure on social sector.

During post reform period in six States the percentage was higher than that in the pre reform period and the all States average decreased from 32.33 to 31.07 per cent. The post reform percentage ranged between 21.91 in Punjab and 35.49 in Tamil Nadu. In the over all period the percentage was highest in Kerala (37.13) and the lowest percentage was spent by Punjab (24.41). It is seen that inter temporal variation in pre reform period was highest in Haryana with coefficient of variation 14.22 and lowest in West Bengal with the coefficient 5.07. During post reform period the most consistent percentage expenditure was that of Assam with coefficient of variation 6.72 and Haryana with CV 15.42 was the least consistent. In the over all period Maharashtra (6.97) was the most consistent State and Punjab was the most fluctuating one with CV 16.94.

**Table 4.4. Social Expenditure as a Percentage of Total Expenditure**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V (Inter State)
1980-81	33	22.5	25.2	28.8	24.1	26.7	45	24.8	26.9	29.1	31.8	28.9	29.6	28.4	37.5	29.48	19.41
1981-82	33.5	28.4	32	30.1	24.8	28.4	39	27.2	27.4	31.7	28.1	31.2	30.1	28	37.6	30.51	12.67
1982-83	36.1	31.1	34.7	33	25.6	27.9	44.2	28.2	28.8	39.5	26.1	35.1	34.8	29.1	40.7	32.98	16.91
1983-84	41.5	36	31.6	30.7	25.2	26.2	42.1	29.1	30.2	35.8	24.7	34.3	33.9	27.5	39.3	32.54	17.36
1984-85	38.3	32.8	31.5	34.1	35.6	25.1	39.3	30.7	28.3	31.7	22.5	34	32.9	25.7	40.7	32.21	16.27
1985-86	36.1	34.3	32.4	36.3	24	29.8	42.8	32.4	29.5	32.6	26.3	33.3	38.6	28.1	34.4	32.73	14.70
1986-87	37.1	33.5	30.8	33.1	23	32.3	40.1	31.8	31.5	32.2	26.7	31.1	38.5	26.9	37.4	32.38	14.34
1987-88	36.6	34.8	27.8	33.1	28.5	34.6	39.8	33.4	30.9	31.4	28.4	31.7	36.9	27.8	36.8	32.82	11.45
1988-89	33.2	35.6	32.9	31.8	31.9	33.6	40.4	33.6	30.9	30.6	34.8	33.5	36.7	29.6	37.2	33.76	8.41
1989-90	35.9	31	33.4	31.8	29.7	31.8	39.3	34.3	30.7	33.2	24.8	35.9	38.7	31.6	36.9	33.25	11.33
1990-91	34.4	30.8	32.9	31.4	28.7	31.8	39.9	34	30.3	29.5	27	34.5	40.1	29.4	40	32.99	12.80
1991-92	33.2	35.9	33.9	29.7	27.8	32.3	35.7	33.6	31.7	30.4	21.4	31.3	32.4	27.7	37.9	31.66	12.72
1992-93	32.9	32.5	30.6	27.2	30.5	30.9	35.3	32.4	30.9	32	26.4	33.4	36.6	26.6	35.4	31.55	9.79
1993-94	30.2	34.8	30.2	30.2	23.7	31.6	37	31.7	30.7	31.4	23.7	33.2	38.1	26.3	35	31.17	13.65
1994-95	29.5	34.3	34.3	31.2	18.4	32.8	37.1	34.5	28.1	32.1	17.5	34.6	37	23.6	34.8	30.65	20.28
1995-96	34.4	34.8	35.7	30.6	27.7	33	35.5	33.9	32.8	34.3	23.9	32.7	38.4	27.7	33.2	32.58	11.43
1996-97	34.2	37.3	35.4	29.3	20.5	32.7	35.9	33.1	31.5	33.6	22.5	35.7	37.1	29.7	32.4	32.04	15.36
1997-98	32.5	35.7	36.4	30.4	22.4	34.7	33.6	33.1	32.9	33.7	22.3	34.1	35.3	29.8	33.3	32.01	13.46
1998-99	33.9	39.1	32.8	31.2	26.2	35.4	33.3	36.6	32.9	32.7	25.1	39.1	38.2	29.3	33.9	33.31	12.59
1999-00	34.1	35.3	33.3	32.6	29.2	34	34.2	36.1	30.4	42.2	23.6	36.8	36.4	26.3	37.4	33.45	13.87
2000-01	30.9	38.9	36.3	32.8	30.5	34.4	33.2	36.2	34.9	32.3	22.1	38.4	35.9	26.8	32.7	32.13	13.18
2001-02	29.7	32.1	32.2	33.6	27.6	31.6	32	31.6	34.4	30	21.2	37.2	35	26	30.5	30.91	12.59
2002-03	28.3	32.7	33.5	28.1	28.6	28.5	30.7	32.3	31	27.3	18.8	34.1	29.7	26	27.9	28.41	12.86
2003-04	27.8	32.2	24.4	25.2	21.8	26.1	25.9	25.4	27	24.7	16.6	32.9	31.4	16.7	21.3	24.03	19.23
X1	35.97	31.88	31.38	32.20	27.36	29.86	41.09	30.86	29.57	32.48	27.37	33.04	35.53	28.36	38.05	32.33	-
CV1	6.94	12.22	8.59	6.35	14.22	10.70	5.11	10.16	5.14	9.08	12.54	6.34	10.03	5.47	5.07	3.87	-
X2	31.65	35.03	32.99	30.15	25.75	32.15	33.78	33.11	31.48	32.05	21.91	34.88	35.49	26.35	32.75	31.07	-
CV2	7.47	6.72	9.86	7.70	15.42	7.97	9.01	8.64	7.10	12.69	13.08	6.85	7.68	12.77	13.23	7.95	-
X3	33.63	33.59	32.26	31.09	26.49	31.10	37.13	32.08	30.60	32.25	24.41	34.04	35.51	27.27	35.18	31.65	-
CV3	9.61	10.34	9.48	7.70	14.85	9.76	12.21	9.79	6.97	10.94	16.94	7.05	8.63	10.38	12.29	6.54	-

Source: Same as Table 4.2

Note: X1, X2 & X3 are the averages for pre reform, post reform & overall periods and CV1, CV2 & CV3, the corresponding coefficients of variation

## **Real Per capita Expenditure on social sector**

Real per capita social expenditures (RPSE) of 15 major States for the period from 1980-81 to 2003-04 are computed using mid year population and State specific deflators derived from the series on net State domestic product and are presented in Table 4.5. It is observed from the table that as compared to initial levels, per capita expenditures in all the States have increased over time. In seven out of fifteen States RPSE have more than doubled. The States which witnessed such increases comprised of both high and low income States, namely Maharashtra, Gujarat, Haryana, Andhra Pradesh, Karnataka, Tamil Nadu and Rajasthan. In the remaining 6 States - Assam, Madhya Pradesh, Orissa, Punjab, Uttar Pradesh and West Bengal - the increase was between 50 per cent and 100 per cent. In Bihar and Kerala the increase was less than 50 per cent. .

**Table 4.5 REAL PERCAPITA SOCIAL EXPENDITURE (Rupees)**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V
1980-81	316.1	313.7	242.3	421.7	357.2	311.8	562.5	292.3	332.6	302.1	495.8	338.6	367.6	228.6	304.2	345.8	25.6
1981-82	336.8	299.2	282.7	410.7	370.7	324.8	569.0	312.8	359.0	269.5	481.7	398.7	406.3	231.0	309.0	357.5	24.3
1982-83	354.6	330.3	278.6	507.2	452.6	353.1	512.1	333.5	410.1	425.9	459.4	404.0	504.2	254.4	339.4	394.6	20.8
1983-84	485.9	402.2	264.7	477.2	427.9	333.5	520.0	365.4	461.0	297.3	501.3	417.1	512.7	262.3	323.3	403.5	22.4
1984-85	479.6	378.6	264.7	564.4	652.2	390.3	540.9	382.2	472.4	320.0	507.6	437.2	505.3	279.3	366.9	436.1	25.1
1985-86	463.3	390.9	308.4	592.5	487.1	456.2	708.8	423.7	509.1	330.9	631.8	434.9	597.1	278.6	322.6	462.4	27.7
1986-87	508.3	439.8	305.6	614.4	497.1	490.1	619.1	433.3	562.9	367.7	553.7	481.4	566.6	288.1	387.6	474.4	21.8
1987-88	489.1	467.0	274.8	664.6	588.0	538.8	584.8	460.4	528.0	387.5	742.2	521.6	556.2	302.0	364.7	498.0	25.7
1988-89	486.4	453.9	328.4	673.2	685.9	525.7	648.0	483.8	559.2	402.9	830.6	560.6	579.7	348.0	382.0	529.9	26.5
1989-90	537.4	426.6	370.1	655.6	640.2	529.2	654.3	465.8	619.2	439.0	568.4	557.0	673.4	390.8	390.6	527.8	20.4
1990-91	509.3	435.2	396.2	646.8	614.7	512.9	720.5	505.1	602.1	402.6	661.2	605.9	755.6	403.8	477.7	550.0	21.4
1991-92	477.5	531.5	376.1	641.2	566.5	560.1	641.2	471.7	582.5	421.0	642.7	562.5	769.2	343.2	411.5	533.2	21.9
1992-93	482.4	495.8	331.3	656.4	624.5	562.7	641.0	495.6	595.9	429.3	597.5	624.4	788.4	368.7	392.9	539.1	23.3
1993-94	461.4	537.0	284.6	587.0	558.5	544.8	633.8	402.9	595.0	424.7	581.7	528.9	666.2	290.9	393.0	499.3	23.6
1994-95	461.9	505.8	309.3	611.5	643.4	549.6	650.5	417.4	597.3	416.8	553.9	575.8	681.5	299.0	410.6	512.3	23.7
1995-96	556.9	515.3	327.0	629.1	754.2	577.0	613.9	428.0	671.6	416.1	634.3	630.3	697.9	311.0	392.3	543.6	25.5
1996-97	581.8	501.0	292.9	659.0	648.4	603.1	633.6	470.9	699.1	445.2	592.0	618.3	758.2	302.8	450.6	550.5	24.8
1997-98	553.0	517.0	284.2	740.5	653.1	656.0	635.4	362.6	746.3	455.3	686.4	652.5	740.5	321.0	425.7	562.0	28.2
1998-99	656.7	509.1	289.3	916.3	760.7	736.1	613.4	419.5	1103.8	519.9	832.3	855.0	832.7	319.4	484.1	656.5	35.5
1999-00	650.3	550.8	438.2	1046.1	784.6	785.4	804.6	577.2	835.7	750.9	779.0	878.8	868.8	342.2	648.9	716.1	25.5
2000-01	703.7	622.7	270.2	1194.9	801.8	865.4	731.6	565.4	1001.3	587.5	812.6	791.0	907.4	357.6	666.1	725.3	32.3
2001-02	719.0	559.6	471.9	1090.6	795.7	860.7	652.5	553.3	914.9	580.1	799.1	798.5	872.9	358.0	631.6	710.5	26.9
2002-03	721.7	552.4	414.1	929.2	761.6	804.3	840.0	605.2	876.9	547.7	769.5	785.4	852.2	382.8	559.0	693.5	24.7
2003-04	807.3	610.0	343.1	983.7	783.4	852.1	789.7	570.2	928.2	550.2	761.7	896.2	953.7	373.6	549.0	716.8	28.6
X1	451.5	394.3	301.5	566.2	524.9	433.3	603.6	405.3	492.3	358.7	584.9	468.8	547.7	297.0	360.7	452.7	-
CV1	17.1	14.7	15.7	17.2	22.2	21.1	12.0	17.9	19.3	16.0	20.4	17.7	20.0	20.1	13.9	15.7	-
X2	602.6	539.1	340.9	822.0	702.8	689.0	683.1	487.7	780.7	503.4	695.6	707.5	799.2	336.2	493.5	612.2	-
CV2	19.2	7.4	19.1	25.8	12.7	19.0	11.6	16.3	22.4	19.7	14.4	18.3	11.3	9.1	21.2	14.8	-
X3	533.4	472.7	322.9	704.7	621.2	571.8	646.7	449.9	648.5	437.1	644.8	598.1	683.9	318.2	432.6	539.1	-
CV3	23.3	18.6	18.5	29.9	21.8	30.1	13.1	19.0	31.4	25.1	18.7	27.2	23.5	15.5	24.6	21.2	-

Sources : Computed using data from (i) Reserve Bank of India Bulletin (various issues) (ii) Handbook of Statistics on State Government Finances, Reserve Bank of India, 2004 (iii) Public Finance Centre for Monitoring Indian Economy, October 2005, (iv) Statistical Abstract (various issues) and (v) CSO Website

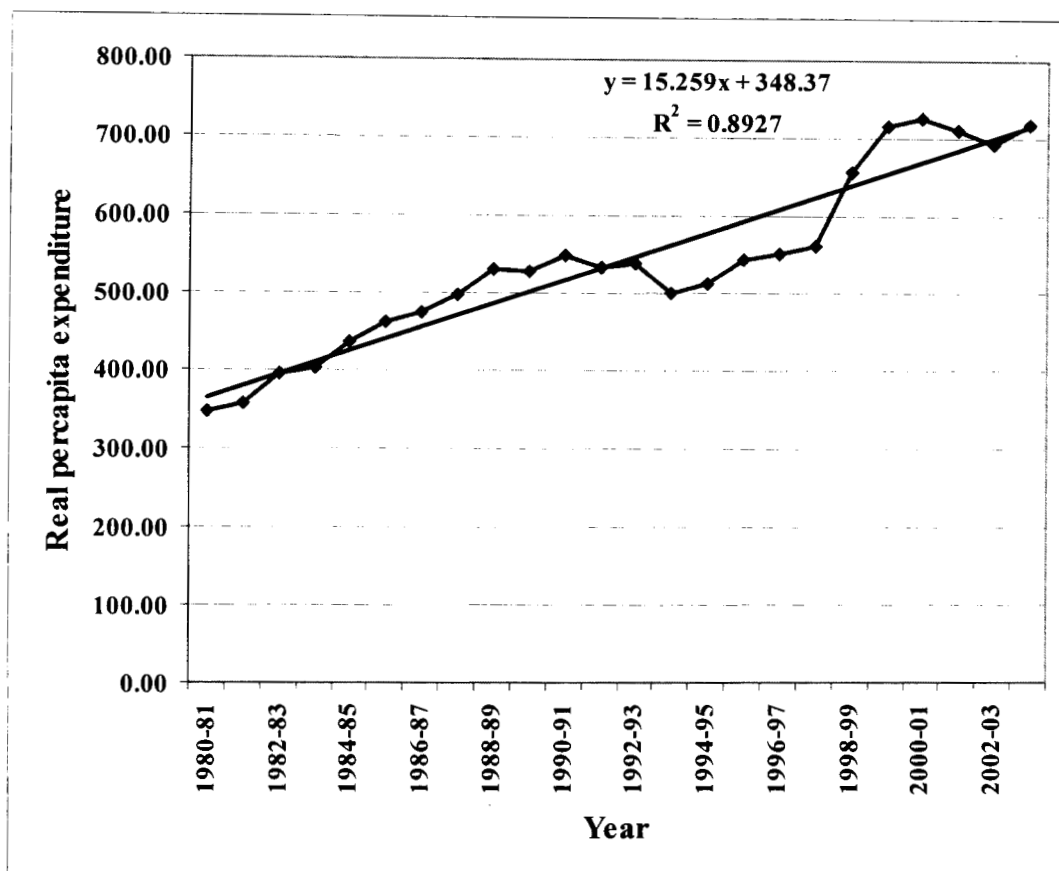
Note: X1, X2 & X3 are the averages for pre reform, post reform & overall periods and CV1, CV2 & CV3, the corresponding coefficients of variation

In the pre reform period RPSE was highest in Kerala (Rs.603.6) and the lowest in UttarPradesh (Rs.297). The all States average was Rs.452.7 and in seven States the RPSE is found to be less than the average. In post reform period the expenditure was highest in Gujarat (Rs.822) followed by Tamil Nadu (Rs.799.2) and the lowest RPSE was in Uttar Pradesh (Rs.336.2). Compared to pre reform period all States have shown improvement in post reform period in terms of per capita expenditure. In the over all period RPSE ranged between Rs.318.2 in Uttar Pradesh and Rs.704.7 in Gujarat. It may be noted that all the rich States have spent more than the all State average in per capita terms, where as in all the low income States except Rajasthan, RPSE was less than the average in all the periods.

A comparison of inter temporal coefficient of variation shows that the most stable RPSE was that of Kerala. The coefficient for the overall period ranged between 13.1 in Kerala and 31.38 in Maharashtra. In Pre reform period the variation was between 13.9 in West Bengal and 22.2 in Haryana. The post reform the range was higher as the coefficient was between 7.4 in Assam and 25.8 in Gujarat.

Trend line of per capita social expenditure for the period from 1980-81 to 2003-04 is presented in figure 4.1. As observed from figure, real per capita social expenditure shows increasing trend during 1980-81 to 2003-04. It may be noted that the actual expenditure is much below the estimated trend line from 1992-93 upto 1998-99, indicating the impact of economic reforms on social expenditure. However, the actual line is above the estimated line from 1999-2000 to 2002-03.

**Figure 4.1. Trends in real per capita social expenditure**



### **Expenditure on Education and Health**

Education and health services being the two crucial segments that attract significant share of public expenditure on social sector, the trends in expenditure on these sectors are worth examining. Education and health expenditures are examined in terms of percentage to NSDP, percentage to total expenditure and also as a percentage of total social expenditure.

## **Expenditure on Education as a Percentage of NSDP**

The priority assigned to education in resource allocation is reflected in the proportion of national income devoted to education. The recommendation of the Education commission (1966) to invest 6 per cent of national income in education may be considered as the target level of education expenditures of States governments. Table 4.6 presents education expenditure of the States as a percentage of their domestic products.

As observed from the table, no State except Kerala, Assam and Bihar had ever achieved the recommended rate of 6 per cent of State domestic product allocated to education during the period from 1980-81 to 2003-04. Kerala could maintain the rate only for seven years (1981-82 and six years from 1985-86 to 1990-91). During 1991-92 the percentage came down to 5.65 and then to 3.92 in 2003-04. Assam maintained the recommended rate from 1998-99 to 2003-04 and Bihar spent 6.71 per cent in 1999-2000 and 6.13 per cent in 2001-02. On an average, the percentage ranged between 3.19 and 4.29 over the period.

**Table 4.6. Education Expenditure as a Percentage of NSDP**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V (Inter State)
1980-81	2.98	4.21	3.72	2.76	2.42	3.1	5.66	2.45	2.52	3.14	3.12	3.55	3.36	2.5	2.58	3.20	26.71
1981-82	2.93	3.36	4.08	2.51	2.4	3.09	6.13	2.66	2.49	3.04	2.77	3.64	3.15	2.63	3.04	3.19	29.15
1982-83	3.38	3.45	4.35	2.86	2.39	3.45	5.75	2.78	2.67	3.5	2.83	3.9	3.98	2.84	3.43	3.44	24.43
1983-84	3.65	4.75	4.06	2.65	2.57	3.18	5.69	2.91	2.7	3.04	2.96	3.55	3.77	2.86	2.95	3.42	25.41
1984-85	3.77	3.96	3.82	3.56	2.85	3.41	5.76	3.3	2.96	3.55	2.94	4.18	3.75	3.18	2.75	3.58	20.65
1985-86	3.81	4.27	4.35	3.93	2.68	3.74	6.53	3.21	3	3.34	2.89	4.27	4.12	3.19	3.09	3.76	25.08
1986-87	3.79	5.46	3.55	3.36	2.92	3.72	6.65	3.51	3.39	3.95	2.79	4.52	4	3.22	3.6	3.90	25.68
1987-88	3.82	4.82	3.41	4.16	3.45	4.27	6.27	3.36	3.23	4.31	3.12	5.04	3.85	3.2	3.14	3.96	22.31
1988-89	3.38	5.01	4.65	3.56	3.08	4.09	6.36	3.43	3.18	4.07	3.16	4.24	3.89	3.54	3.46	3.94	22.16
1989-90	3.87	4.93	5.87	3.78	3.11	4.05	6.02	3.62	3.19	4.38	3.57	4.96	4.49	4.52	3.45	4.25	21.02
1990-91	3.21	4.79	5.45	3.79	2.71	3.91	6.53	3.64	2.99	4.78	3.09	4.54	4.67	4.32	4.39	4.19	24.32
1991-92	3.01	5.31	5.15	4.14	2.57	3.61	5.65	3.74	3.2	4.42	2.96	4.46	4.49	3.6	3.64	4.00	22.84
1992-93	3.26	5.63	5	3.27	2.88	3.78	5.44	3.69	2.89	4.7	2.7	4.51	4.14	4.13	3.56	3.97	23.41
1993-94	2.84	5.9	4.12	3.17	2.5	3.48	5.01	2.77	2.66	4.38	2.62	4.25	3.39	3.08	3.4	3.57	27.44
1994-95	2.75	5.6	4.37	2.71	2.43	3.39	4.78	2.78	2.63	4.37	2.56	3.97	3.15	3.22	3.19	3.46	27.37
1995-96	2.4	5.72	5.27	2.93	2.58	3.42	4.15	2.95	2.63	4.06	2.66	4.08	3.18	3.35	2.94	3.49	28.38
1996-97	2.45	5.64	4.78	2.74	2.46	3.31	4.02	2.97	2.73	4.86	2.67	3.86	3.18	3.19	3.27	3.48	27.80
1997-98	2.62	5.78	4.79	2.91	2.6	3.48	3.73	2.88	2.87	4.41	3.05	3.76	3.13	3.26	2.84	3.47	25.92
1998-99	2.74	6.04	4.46	3.54	3.29	3.5	3.51	3.31	4.17	4.97	3.61	4.85	3.71	3.85	2.87	3.89	22.45
1999-00	2.94	6.38	6.71	3.82	3.04	3.56	4.61	3.38	3.44	5.92	3.33	5.31	3.81	3.98	4.1	4.29	28.56
2000-01	2.96	6.88	5.99	3.94	2.76	3.73	4.18	3.56	4.48	5.19	3.17	4.7	3.5	3.97	3.55	4.17	27.20
2001-02	2.84	6.31	6.13	3.11	2.78	3.6	3.58	2.87	3.99	4.74	2.91	4.43	3.39	3.87	3.22	3.85	29.19
2002-03	2.79	6.13	5.22	3.07	2.48	3.34	4.2	2.66	3.45	4.78	3.27	4.47	3.08	3.73	2.9	3.70	28.33
2003-04	2.9	6.57	4.62	2.59	2.32	3.19	3.92	3.14	3.3	4.23	2.98	3.96	2.84	3.58	2.6	3.52	30.37
X1	3.51	4.46	4.3	3.36	2.78	3.64	6.12	3.17	2.94	3.74	3.02	4.22	3.91	3.27	3.26	3.71	-
CV1	9.97	14.93	17.92	16.97	12.29	11.51	6.05	12.85	10.34	15.97	7.59	12.44	11.14	19.6	15.04	9.98	-
X2	2.81	5.99	5.12	3.23	2.67	3.49	4.37	3.13	3.26	4.69	2.96	4.35	3.46	3.6	3.24	3.76	-
CV2	8.19	7.46	14.72	15.33	10.29	4.77	15.68	11.76	19.06	10.36	10.8	10.10	13.48	9.74	12.74	7.68	-
X3	3.13	5.29	4.75	3.29	2.72	3.56	5.17	3.15	3.12	4.26	2.99	4.29	3.67	3.45	3.25	3.74	-
CV3	14.57	18.02	18.01	15.9	11.19	8.71	20.3	12.29	16.67	16.88	9.3	11.06	13.6	15.09	13.54	8.61	-

Source: Same as table 4.3

The all States averages for pre reform, post reform and overall periods are found to be stable (3.71, 3.76 and 3.74). But individual States showed much fluctuation over the periods. The pre reform average was highest in Kerala (6.12%) followed by Assam (4.46%), Bihar (4.3%) and Rajasthan (4.22%). Haryana and Maharashtra – two high income States – were at the bottom of the list with the lowest percentage of NSDP (2.78 and 2.94) spent on education. It may be noted that these averages were less than half of the average for Kerala. The highest post reform average was that of Assam (5.99%) followed by Bihar (5.12%), where as, the lowest average was 2.67 per cent in Haryana. In the overall period Assam (5.29%) tops the list, followed by Kerala (5.17%), while Haryana (2.72 %) was at the bottom.

In nine States the percentage share of education has decreased in post reform period compared to pre reform period but there was a marginal increase in the all States average from 3.71 per cent to 3.76 per cent. The States that showed improvement were Assam, Bihar, Maharashtra, Orissa, Rajasthan and Uttar Pradesh. The average for Kerala has come down from 6.12 per cent to 4.37 per cent.

Inter temporal variation in the over all period was the highest in Kerala (20.3 %) and the lowest in Karnataka (8.71%). But in the pre reform period the most consistent percentage spending was that of Kerala with inter temporal coefficient of variation (6.05). Variation was the highest in Uttar Pradesh (19.6) followed by Bihar (17.92). In the post reform period Karnataka with coefficient of variation 4.77 was the most consistent State, where as the highest variation was that of Maharashtra (19.06).

## **Share of Education in Total Expenditure**

State wise figures of Share of education in total expenditure are presented in Table 4.7. In the pre reform period the average education expenditure as a percentage of total expenditure ranged between 12.61 per cent in Haryana and 23.4 per cent in Kerala. The all States average was 15.94 and only 5 States are found to have spent a higher percentage of total expenditure on education. It is seen that compared to pre reform period, the percentage share of education has increased in nine States during the post reform period and the highest average was that of Assam (22.85 %) and the lowest was 12.45 per cent spent by Haryana.

Even though the average expenditure for all States taken together was more or less stable, individual States showed some inter temporal variations. The variations during pre reform period ranged from 6.72 per cent in Kerala to 15.87 per cent in Bihar. The post reform percentage expenditure was most stable in Assam with coefficient of variation 7.58 and Haryana with the coefficient 18.83 was the most inconsistent one. Inter temporal coefficient of variation for the overall period ranged from 10.35 in Karnataka to 16.72 in Assam.

**Table 4.7 Education Expenditure as a percentage of Total Expenditure.**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V (Inter State)
1980-81	14.4	12.8	13.2	12.6	12.1	13.3	25.3	10.8	14.6	12.4	17	13.1	14.4	13.2	15.9	14.32	23.78
1981-82	15.2	16.1	16.1	13.1	12	14.1	22.9	12.1	13.7	14.4	14.7	13	13.6	13.4	17.6	14.81	18.35
1982-83	17.8	16.8	18.6	12.8	10.4	14.1	27.2	12.4	13.6	12	14.7	15.2	15.3	14.3	19.9	15.68	26.13
1983-84	16.7	20.3	18	13.7	11.7	13.7	23.8	12.7	13.4	16	13.3	15.8	14	13.6	19.1	15.71	21.22
1984-85	15.3	16	18	17	12.1	12.7	22.5	13.5	13.4	14.4	12.6	15.9	15.3	13.2	16.4	15.21	17.66
1985-86	15.8	18.3	18.1	18.1	11.8	13.2	21.6	13.3	13.9	14.7	12.3	15.5	17	14.8	18.1	15.77	17.37
1986-87	14	19.3	15	14.2	11.8	14.2	22.6	13.1	15.1	15.4	14	14.8	17	14.1	19.5	15.59	18.23
1987-88	16.2	17	13.4	14.2	14	16.7	23	13.8	15.7	14.8	12.9	14.1	16.7	14.1	18.4	15.65	16.41
1988-89	15.1	18.3	20	15.9	14.5	17	23.2	14.2	15.9	15.6	14.8	16	17.2	16	20	16.90	14.66
1989-90	17.9	17.6	21.8	16.7	14.5	16.4	22.2	15.9	16.4	17.5	18.6	19.3	19	19.5	19.7	18.20	11.71
1990-91	15.4	16.9	20	16.7	13.9	16.1	23.6	16.3	16.2	15.1	15.2	17.6	19.5	17.5	23	17.53	16.04
1991-92	14.9	20.4	19	15.6	13.8	15.4	21.3	15.7	17.5	15.2	12	15.4	15.2	15.5	21.5	16.56	16.85
1992-93	15.1	20.7	17.3	14.3	15	15.5	21.4	15	16.9	16.1	14.9	16.8	16.1	15.9	20.8	16.80	13.79
1993-94	13.9	22	16.7	16.4	11.5	15.9	22.8	14.6	17	15.6	13.6	16.7	17.4	14.7	20.6	16.62	18.70
1994-95	13.6	21.9	19.8	16.6	7.97	16.5	23	15.3	15.3	16.6	10.4	17.4	16.9	13.8	19.4	16.29	24.28
1995-96	12.1	22.4	21.5	17.5	10.8	16.5	21.1	16	17.3	17	13	15.7	17.8	16.5	18.8	16.92	19.45
1996-97	12.3	24.4	23.7	16.4	9.68	16.2	20.7	14.9	17	17.1	13.9	18.2	16.5	17	18.7	17.11	22.56
1997-98	12.7	23.3	24.7	15.5	11.1	17.5	18.2	14.3	17.7	17.7	13.8	17	16.9	16	18.8	17.01	21.00
1998-99	13	26.3	21.2	16.4	14.5	17.9	18.7	16.4	17.7	17.2	15.8	19.5	19.8	18.3	17.8	18.02	17.19
1999-00	14.6	23.6	21.5	15.9	15.1	16.9	20.4	17	19.1	19.2	15.1	19.2	19.5	16.6	22.1	18.38	15.06
2000-01	13.3	25.5	23.7	13.6	14.6	17.7	20	16	22.3	15.9	13.2	18.8	18	17	17.1	17.78	21.14
2001-02	12.5	21.9	19.1	12.7	13.8	16	19	12.5	22.1	14.6	11.7	18.2	17.3	16.4	16.2	16.26	20.63
2002-03	11.7	22.4	21.2	13.5	13.8	14.8	17.6	9.97	18.9	14	12.1	15.5	13.8	15.1	15.9	15.34	22.40
2003-04	11.3	22.3	16	11.2	10.2	12.9	15.7	9.46	15.5	12.2	10.2	14.1	12.6	9.8	11.8	13.02	25.71
X1	15.8	17.2	17.5	15	12.6	14.7	23.4	13.5	14.7	14.8	14.6	15.5	16.3	14.9	18.9	15.9	-
CV1	7.95	11.44	15.87	13.00	10.91	10.63	6.72	11.84	7.98	10.62	13.20	11.90	11.92	13.58	10.22	7.25	-
X2	13.1	22.8	20.4	15	12.4	16.1	20	14.4	18	16	13	17.1	16.8	15.6	18.4	16.6	-
CV2	9.31	7.58	13.4	12.2	18.8	8.36	10.5	16.4	11.9	11.1	13.2	9.53	12.1	13.3	15	8.11	-
X3	14.4	20.3	19.1	15	12.5	15.5	21.6	14	16.5	15.4	13.7	16.4	16.5	15.3	18.6	16.3	-
CV3	12.63	16.72	16.19	12.27	15.35	10.34	11.78	14.71	14.63	11.48	14.09	11.54	11.83	13.34	12.78	7.87	-

Source: Same as Table 4.2.

## **Share of Education in Total Social Expenditure**

Education claims a major share of total social sector expenditure of States. As shown by Table 4.8, on an average the States have allocated 47 to 55 per cent of their social expenditure on education. Among 15 States Assam has earmarked the highest share of social expenditure for education (60.16%) in the overall period followed by Kerala (58.18%) and the share was lowest in Andhra Pradesh (42.74 %).

The average share during pre reform period was the highest in Kerala (57.05%) followed by Bihar and Assam (55.42 and 54.13 per cent) and the lowest share was in Madhya Pradesh (43.61%). The all States average for the pre reform period was 49.34 per cent and in seven States the percentage share was above the all States average. In the post reform period 13 States registered improvement in the share of education compared to pre reform period. The post reform average share was highest in Assam (65.26%) followed by Bihar (61.81%) and the lowest share for education was in Andhra Pradesh (41.64%).

Inter temporal coefficient of variation during 1980-2004 shows that share of education in social expenditure was comparatively stable in Karnataka and Kerala, where the coefficients were to the tune of 4.04 and 4.5. Relatively higher variation is shown by Punjab (12.08%) and Gujarat (11.32%). In the pre reform period, the most consistent share of education was that of Kerala with inter temporal coefficient 4.72, whereas Punjab (15.96) was the most inconsistent State. The post reform coefficient was the highest in Gujarat (11.44), while the variation was the least (2.08%) in Karnataka.

**Table 4.8. Education Expenditure as a Percentage of Total Social Expenditure**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V
1980-81	43.4	56.8	52.3	43.6	50.1	49.8	56.3	43.6	54.4	42.5	53.5	45.3	48.6	46.3	42.4	48.6	10.6
1981-82	45.6	56.7	50.4	43.6	48.5	49.7	58.6	44.3	50.0	45.2	52.2	41.6	45.2	47.9	47.0	48.4	9.8
1982-83	49.5	54.0	53.5	38.7	40.8	50.7	61.5	44.1	47.3	30.3	56.5	43.4	44.0	49.3	48.9	47.5	16.3
1983-84	40.2	56.3	56.8	44.6	46.3	52.2	56.4	43.6	44.5	44.7	53.9	46.0	41.3	49.3	48.7	48.3	11.6
1984-85	40.0	48.9	57.2	49.8	33.9	50.3	57.3	44.1	47.3	45.4	56.0	46.7	46.4	51.3	40.2	47.7	13.8
1985-86	43.8	53.3	56.0	49.9	49.0	44.3	50.4	41.1	47.0	45.2	46.7	46.5	44.1	52.6	52.6	48.2	8.8
1986-87	37.9	57.5	48.7	42.8	51.1	44.0	56.5	41.2	47.8	47.9	52.5	47.5	44.0	52.5	52.0	48.3	11.6
1987-88	44.3	48.9	48.2	42.9	49.1	48.2	57.8	41.3	50.9	47.2	45.3	44.3	45.2	50.9	49.9	47.6	8.5
1988-89	45.3	51.5	60.6	49.8	45.7	50.4	57.3	42.2	51.5	51.1	42.6	47.7	46.8	54.1	53.6	50.0	10.3
1989-90	49.8	56.6	65.3	52.6	49.0	51.5	56.5	46.3	53.6	52.8	75.3	53.7	49.0	61.9	53.3	55.1	13.5
1990-91	44.8	55.0	60.7	53.3	48.3	50.8	59.0	48.0	53.3	51.4	56.5	50.9	48.7	59.4	57.3	53.1	8.9
1991-92	44.9	56.9	56.0	52.6	49.6	47.9	59.7	46.7	55.1	50.0	55.9	49.2	47.0	56.1	56.7	52.3	8.8
1992-93	46.0	63.8	56.7	52.8	49.3	50.3	60.7	46.1	54.9	50.3	56.5	50.5	44.1	59.7	58.7	53.4	11.1
1993-94	46.1	63.1	55.4	54.3	48.7	50.3	61.7	46.0	55.3	49.7	57.4	50.2	45.7	56.0	58.9	53.2	10.6
1994-95	46.3	63.9	57.7	53.1	43.2	50.1	62.1	44.3	54.5	51.7	59.3	50.3	45.7	58.5	55.6	53.1	12.2
1995-96	35.0	64.2	60.3	57.1	39.0	49.8	59.3	47.2	52.8	49.6	54.5	48.1	46.4	59.6	56.6	52.0	15.6
1996-97	36.0	65.5	67.1	55.9	47.3	49.6	57.6	45.1	54.1	50.9	61.9	50.8	44.4	57.2	57.6	53.4	15.7
1997-98	39.0	65.2	67.7	51.0	49.6	50.6	54.3	43.1	53.9	52.4	62.1	49.9	47.8	53.6	56.3	53.1	14.4
1998-99	38.2	67.4	64.5	52.5	55.3	50.7	56.2	44.7	53.7	52.5	62.8	49.9	51.8	62.6	52.5	54.3	14.1
1999-2000	42.8	67.1	64.6	48.8	51.9	49.8	59.6	47.2	62.8	45.4	64.2	52.0	53.6	63.1	59.1	55.5	14.2
2000-01	43.0	65.6	65.2	41.4	47.9	51.6	60.5	44.2	63.9	49.3	59.5	48.9	50.3	63.3	52.4	53.8	15.7
2001-02	42.0	68.1	59.4	37.9	49.9	50.6	59.3	39.5	64.2	48.6	55.2	48.9	49.5	63.0	53.1	52.6	17.1
2002-03	41.3	68.4	63.3	48.1	48.1	52.1	57.4	30.9	61.1	51.1	64.4	45.3	46.4	58.1	57.0	52.9	18.8
2003-04	40.8	69.3	65.6	44.3	46.8	49.3	60.5	37.2	57.3	49.5	61.7	43.0	40.1	58.6	55.3	52.0	19.2
X1	44.0	54.1	55.4	46.5	46.5	49.2	57.1	43.6	49.8	45.8	53.7	46.7	45.8	52.3	49.6	49.3	-
CV1	8.4	5.8	9.8	10.2	10.8	5.5	4.7	5.0	6.5	13.3	16.0	7.2	5.2	9.0	10.1	5.1	-
X2	41.6	65.3	61.8	50.0	48.2	50.2	59.1	43.2	57.2	50.1	59.6	49.0	47.1	59.2	56.1	53.2	-
CV2	9.0	4.9	7.1	11.4	8.1	2.1	3.8	10.9	7.4	3.7	5.8	4.9	7.5	5.2	4.1	1.8	-
X3	42.7	60.2	58.9	48.4	47.4	49.8	58.2	43.4	53.8	48.1	56.9	47.9	46.5	56.0	53.1	51.4	-
CV3	9.0	10.7	9.8	11.3	9.4	4.0	4.5	8.5	9.8	9.9	12.1	6.4	6.6	9.3	9.3	5.2	-

Source: Same as table 4.2

## **Real per capita Education Expenditure**

Real per capita education expenditures (RPEE) of fifteen States for the period from 1980-81 to 2003-04 are presented in Table 4.9. As observed from the table, in 11 out of 15 States the per capita education expenditure has more than doubled in 2003-04 compared to 1980-81. In the remaining 4 States the increase was between 50 per cent and 100 per cent. It is also seen that per capita spending was comparatively high in high income States except Haryana and it was less in all low income States except Assam. It may be noted that RPEE of Assam in 2003-04 was comparable with that of high income States. Kerala's RPEE was the most stable one and inter temporal coefficient of variation ranged between 14.19 per cent in Kerala and 39.35 per cent in Maharashtra.

It may be noted that compared to total social expenditure, the difference between the highest spending and lowest spending States was wider in the case of real per capita education expenditure. As shown in table 4.9, in 1980-81, Kerala's RPEE (316) was almost three times that of Uttar Pradesh (106) and about double the all States average. In 2003-04 Maharashtra spent two and half times that of Madhya Pradesh (212) and about one and half times that of all States average (364).

The pre reform real per capita education expenditure ranged between Rs.158 in Uttar Pradesh and Rs.344 in Kerala. In all the States post reform average RPEE was higher than that in the pre reform period and the average was highest in Maharashtra (Rs.450) followed by Punjab (Rs.416) and Kerala (Rs.404). The average was the lowest in Uttar Pradesh (Rs.199), Madhya Pradesh (Rs.209) and Bihar (Rs.210). During the period 1980-2004, the States on an average spent Rs.277 and in nine States RPEE was above the all State average.

**Table 4.9 REAL PERCAPITA EDUCATION EXPENDITURE (Rupees)**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V
1980-81	137.28	178.25	126.66	183.87	179.10	155.22	316.39	127.34	181.02	128.34	265.16	153.40	178.68	105.71	128.98	169.69	32.98
1981-82	153.44	169.67	142.37	179.03	179.78	161.29	333.70	138.72	179.40	121.94	251.65	165.67	183.82	110.68	145.10	174.42	31.47
1982-83	175.39	178.23	149.17	196.03	184.50	178.94	315.01	146.99	194.06	129.01	259.49	175.13	221.83	125.34	165.86	186.33	26.47
1983-84	195.35	226.28	150.44	212.82	197.90	173.90	293.35	159.30	205.09	132.84	270.38	191.90	211.90	129.39	157.51	193.89	24.00
1984-85	191.97	185.10	151.49	280.83	221.37	196.38	309.71	168.58	223.61	145.15	284.31	204.19	234.26	143.35	147.61	205.86	25.96
1985-86	202.81	208.28	172.76	295.52	238.78	202.07	357.47	174.28	239.44	149.43	295.01	202.41	263.56	146.41	169.71	221.20	27.32
1986-87	192.40	253.04	148.76	263.00	254.15	215.38	349.50	178.27	269.25	176.03	290.56	228.78	249.53	151.17	201.62	228.10	24.26
1987-88	216.53	228.24	132.36	284.77	288.45	259.76	338.06	190.01	268.88	182.88	335.98	230.93	251.30	153.56	181.87	236.24	26.12
1988-89	220.39	233.65	198.95	335.41	313.11	265.10	371.61	204.19	287.89	205.82	353.42	267.66	271.36	188.19	204.87	261.44	23.06
1989-90	267.48	241.65	241.58	344.59	313.88	272.49	369.49	215.68	331.71	231.88	427.94	299.17	330.26	241.82	208.03	289.18	21.83
1990-91	228.14	239.28	240.37	344.82	296.92	260.29	425.03	242.50	320.61	206.72	373.28	308.41	367.69	239.83	273.73	291.17	21.96
1991-92	214.58	302.14	210.70	337.27	280.95	268.15	382.76	220.33	320.76	210.43	358.93	276.53	361.48	192.59	233.12	278.05	22.80
1992-93	221.97	316.45	187.73	346.22	307.77	283.29	389.16	228.43	327.09	215.99	337.73	315.07	347.32	220.16	230.47	284.99	21.80
1993-94	212.48	338.61	157.74	318.86	271.95	274.07	391.05	185.24	328.76	211.08	334.02	265.37	304.25	162.87	231.52	265.86	26.56
1994-95	213.64	323.02	178.50	324.82	278.14	275.52	403.88	185.01	325.45	215.57	328.30	289.37	311.57	175.02	228.36	270.41	25.18
1995-96	194.92	330.79	197.08	359.05	294.05	287.36	363.73	201.90	354.55	206.20	345.68	303.28	324.07	185.26	221.87	277.99	24.77
1996-97	209.37	328.05	196.47	368.23	306.90	298.82	364.90	212.35	377.97	226.77	366.44	314.35	336.85	173.23	259.62	289.35	24.39
1997-98	215.65	337.00	192.49	377.58	324.07	331.66	345.10	156.11	402.32	238.42	425.99	325.82	353.84	171.93	239.76	295.85	29.11
1998-99	251.08	343.31	186.52	481.23	420.94	373.01	344.47	187.45	592.87	272.87	522.72	426.79	430.93	199.81	254.09	352.54	35.93
1999-00	277.97	369.38	283.25	510.70	406.88	391.33	479.56	272.13	524.87	340.96	499.71	456.95	465.69	215.84	383.16	391.89	24.99
2000-01	302.47	408.17	176.29	494.35	383.65	446.60	442.34	250.08	639.87	289.71	483.55	386.82	456.36	226.37	349.14	382.38	31.52
2001-02	301.79	381.27	280.10	413.51	397.12	435.23	386.82	218.67	587.55	281.71	440.91	390.27	432.17	225.36	335.29	367.18	26.18
2002-03	297.83	377.82	262.14	446.71	366.20	419.21	482.42	187.09	535.98	280.05	495.44	355.87	395.81	222.55	318.35	362.90	28.26
2003-04	329.66	422.96	225.11	436.21	366.84	420.10	477.65	212.31	532.08	272.43	469.87	385.27	382.54	218.74	303.37	363.68	27.66
X1	198.00	213.00	169.00	266.00	243.00	213.00	344.00	177.00	246.00	165.00	310.00	221.00	251.00	158.00	180.00	223.00	--
CV1	18.10	14.10	24.10	24.00	22.20	20.90	10.80	19.50	22.00	23.10	18.10	23.70	22.80	29.70	22.40	19.20	--
X2	249.00	352.00	210.00	401.00	339.00	346.00	404.00	209.00	450.00	251.00	416.00	346.00	377.00	199.00	276.00	322.00	--
CV2	18.47	10.40	19.31	16.67	15.71	20.02	12.38	14.63	26.74	16.59	17.56	17.29	14.55	11.80	19.86	14.94	--
X3	226.00	288.00	191.00	339.00	295.00	285.00	376.00	194.00	356.00	211.00	367.00	288.00	319.00	180.00	232.00	277.00	--
CV3	21.43	27.14	23.57	27.78	24.34	31.36	14.19	18.37	39.35	27.86	22.90	29.20	26.38	22.78	29.35	24.25	--

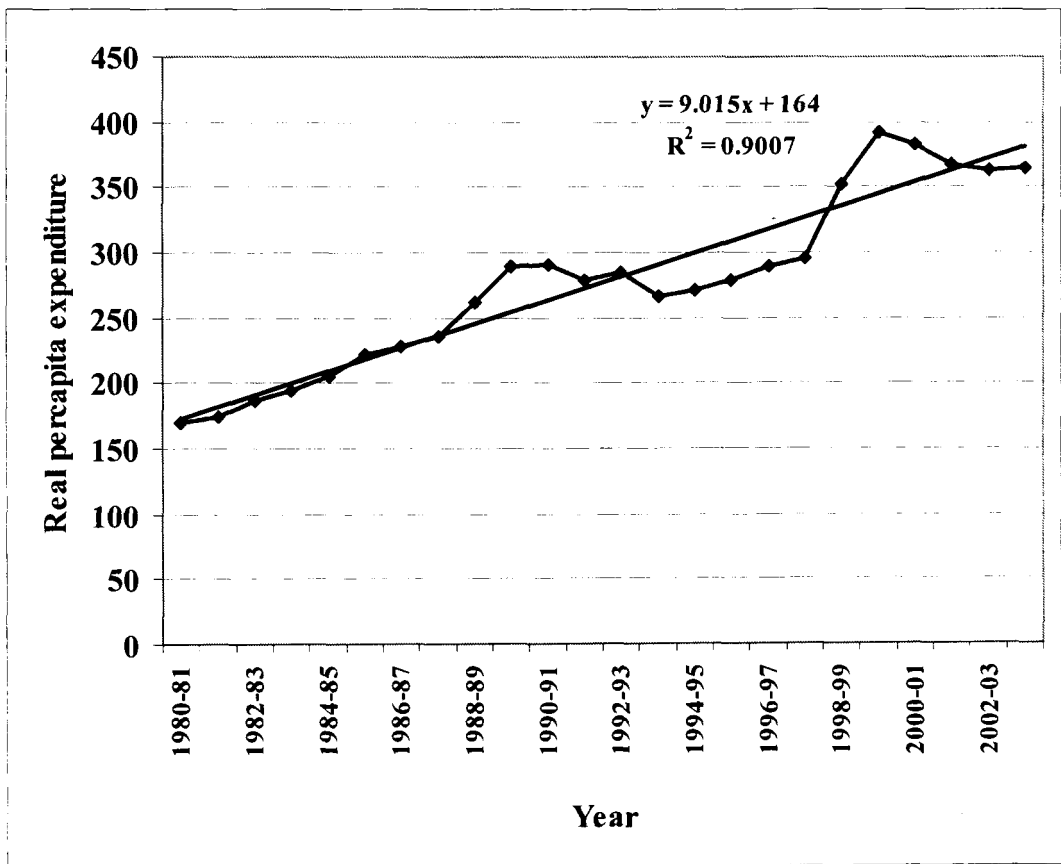
Source : Same as table 4. 5

Note: X1, X2 & X3 are the averages for pre reform, post reform & overall periods and CV1, CV2 & CV3, the corresponding coefficients of variation

Inter temporal variation was the lowest in Kerala (10.8%) and highest in Uttar Pradesh (29.7%) during pre reform period, whereas, in the post reform period it varied between 10.4 per cent in Assam and 26.7 per cent in Maharashtra. In the overall period the variation was comparatively high and the coefficient ranged from 14.19 per cent in Kerala to 39.35 per cent in Maharashtra.

Trend line of per capita education expenditure for the period from 1980-81 to 2003-04 is presented in figure 4.2.

**Figure 4.2. Trends in real per capita education expenditure**



It is seen that the education expenditure shows increasing trend over the period. As in the case of social expenditure, the actual line is below the

estimated line from 1992-93 to 1998-99 and above the estimated line from 1999-2000 to 2002-03.

### **Expenditure on Elementary and Secondary Education**

It is well established that the contribution of primary education to development – in all socio- economic development spheres – is very significant. Not only are the economic returns to primary education estimated to be positive and high, but they are also higher than returns to secondary and higher education (Tilak 1987)<sup>2</sup>. An analysis of the shares of elementary and secondary education in total education expenditure seems to be important in understanding the relative importance given to these two stages in resource allocation.

Elementary education claims a major portion of the education expenditure indicating the commitment of governments towards the objective—elementary education free to all. State wise figures of expenditure on elementary education as a percentage of total education expenditure are presented in Table 4.10. As observed from the table, the States on an average spent about half of their total education expenditure on elementary education.

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<sup>2</sup> Jandhyala B G Tilak (1987), *The Economics of Inequality in Education*, Sage Publications, New Delhi, p. 129.

**Table 4.10 Expenditure on Elementary Education as a Percentage of Total Education Expenditure**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V (Inter State)
1980-81	44.0	39.6	64.0	50.7	37.7	54.3	53.9	46.0	47.0	41.7	37.1	53.3	49.3	49.2	38.0	47.1	16.18
1981-82	43.5	41.0	36.0	48.8	38.7	54.7	53.3	45.8	44.2	44.2	34.3	53.2	46.7	48.0	37.8	44.7	14.19
1982-83	47.0	48.2	64.0	52.7	38.4	53.3	52.9	46.6	45.6	44.6	33.5	51.7	49.5	47.0	39.7	47.6	15.24
1983-84	48.5	42.7	61.0	55.6	39.0	53.3	51.9	45.3	44.5	41.3	33.3	51.8	46.9	47.9	41.2	47.0	15.12
1984-85	46.1	42.6	60.0	55.6	39.2	51.7	51.3	44.1	45.2	40.7	33.1	53.4	47.9	49.8	40.9	46.8	15.04
1985-86	45.4	56.5	60.0	58.1	40.6	51.8	50.3	59.3	45.3	43.2	33.9	52.9	48.7	48.8	39.5	48.9	15.83
1986-87	45.3	64.1	59.0	48.9	40.0	52.1	50.7	62.3	48.7	45.6	33.0	53.3	45.3	51.2	36.0	49.0	17.98
1987-88	46.6	54.9	61.0	48.8	40.8	51.1	50.9	55.4	44.2	58.0	32.2	50.9	48.4	47.7	39.2	48.7	15.39
1988-89	43.2	56.5	63.0	50.0	39.1	50.8	51.8	55.1	42.2	57.8	30.2	51.6	47.5	51.6	37.0	48.5	17.99
1989-90	43.4	52.3	64.0	49.0	38.7	51.3	51.0	56.3	43.2	56.3	32.2	52.1	43.9	54.2	38.8	48.4	17.16
1990-91	45.1	55.4	62.0	51.2	44.8	50.8	51.4	57.1	39.8	54.1	31.7	53.6	48.6	57.6	35.3	49.2	17.30
1991-92	43.5	55.2	62.0	50.7	43.3	48.7	49.0	58.4	42.3	57.1	29.6	51.5	50.6	53.0	36.5	48.8	17.57
1992-93	44.7	54.8	64.0	49.6	44.9	54.5	50.3	64.6	42.9	67.4	34.9	49.8	47.2	48.5	36.7	50.3	18.97
1993-94	44.7	50.7	68.0	50.4	43.9	59.0	46.8	60.5	36.7	59.3	34.6	47.9	50.8	56.6	33.3	49.6	20.30
1994-95	42.8	46.7	63.0	53.8	44.6	49.5	48.4	59.9	41.4	54.6	29.5	54.5	46.2	56.2	33.2	48.3	19.18
1995-96	42.2	58.3	65.0	51.5	46.0	50.4	55.1	58.7	43.4	54.1	27.1	55.3	45.7	55.0	33.7	49.4	20.17
1996-97	42.7	59.5	67.0	53.1	47.2	50.5	46.4	59.7	45.7	54.6	29.9	55.2	46.0	55.0	32.0	49.6	20.09
1997-98	36.4	61.9	59.9	55.0	45.5	52.1	49.2	65.7	46.1	56.6	31.6	56.2	48.2	56.1	34.3	50.3	20.17
1998-99	34.2	60.7	59.7	53.8	41.0	52.7	48.7	64.8	46.2	57.8	31.6	56.4	48.1	56.5	34.6	49.8	20.92
X1	45.3	50.4	59.5	51.7	39.7	52.3	51.8	52.1	44.5	48.0	33.1	52.5	47.5	50.3	38.5	47.8	-
CV1	3.71	15.9	13.4	6.34	4.8	2.67	2.21	12.6	5.32	14.7	5.24	1.77	3.64	6.38	4.89	3	-
X2	41.4	56.0	63.6	52.3	44.6	52.2	49.2	61.5	43.1	57.7	31.1	53.4	47.9	54.6	34.3	49.5	-
CV2	9.46	9.33	4.79	3.68	4.24	6.37	5.47	4.85	7.34	7.52	8.51	6	4.13	5.04	4.7	1.43	-
X3	43.6	52.7	61.2	52.0	41.8	52.3	50.7	56.1	43.9	52.0	32.3	52.9	47.7	52.1	36.7	48.5	-
CV3	7.73	14	10.8	5.26	7.34	4.44	4.49	12.7	6.26	14.8	7.24	4.07	3.76	7.04	7.46	2.9	-

Source:: (i) Budgetary Resources for Education 1951-52 to 1993-94 (ii) Analysis of Budgeted Expenditure MHRD

In the pre reform period on an average the States have spent 47.8 per cent of their education expenditure on elementary education and the average expenditure in nine States were above the all State average. It is seen that in all the three periods– Pre reform, post reform and the overall periods- the highest percentage share of elementary education was that of Bihar (59.5, 63.6 and 61.2 respectively) and it was the lowest in Punjab (33.1, 31.1 and 32.3). Compared to pre reform period, the post reform average was higher in nine States.

In the pre reform period the share of elementary education was most stable in Kerala with inter temporal coefficient of variation 2.2. The variation in post reform period was less compared to pre reform period and the coefficient ranged between 3.6 in Gujarat and 9.46 in Andhra Pradesh. In the over all period the coefficient varied between 3.76 in Tamil Nadu and 14.77 in Orissa.

State wise figures of expenditure on secondary education as a percentage of total education expenditure are given in Table 4.11. From the table the share of secondary education in total education expenditure is seen to be low compared to elementary education. The all States average ranged from 30.31 per cent to 33.32 per cent, where as it was between 44.7 per cent and 50.3 per cent in the case of elementary education. In the pre reform and post reform periods, share of secondary education was 31.85per cent and 32.1 percent for all the States taken together. The share was highest in Punjab and the lowest in Bihar in both the periods.

**Table 4.11 Expenditure on Secondary Education as a Percentage of Total Education Expenditure**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	S.D	C.V (Inter State)
1980-81	29.01	32.11	14.62	28.99	40.22	20.68	28.07	33.47	33.48	36.86	48.17	30.57	25.77	31.48	38.21	31.45	8.00	25.44
1981-82	28.89	39.27	11.30	29.75	41.27	21.15	28.39	34.24	34.22	37.23	47.26	31.14	28.27	35.21	40.23	32.52	8.75	26.90
1982-83	27.66	32.32	20.26	31.42	38.73	20.79	29.03	35.05	35.15	37.51	49.47	32.35	25.89	35.02	42.58	32.88	7.74	23.54
1983-84	26.24	28.10	20.95	30.42	42.80	21.49	28.49	32.89	35.82	37.00	48.85	32.03	26.59	36.32	38.47	32.43	7.67	23.65
1984-85	27.57	40.78	21.96	29.82	40.94	21.99	28.82	33.55	35.72	36.23	47.61	33.62	26.86	34.53	39.78	33.32	7.27	21.82
1985-86	28.24	24.90	58.20	27.29	39.34	26.31	29.25	19.18	38.66	22.62	47.73	34.84	24.42	34.29	38.89	32.94	10.41	31.59
1986-87	27.47	20.54	17.25	31.36	37.84	27.42	28.61	16.64	33.62	34.44	47.18	35.47	22.93	33.82	40.03	30.31	8.58	28.31
1987-88	27.83	27.11	1.29	33.12	38.90	29.75	28.33	22.16	36.82	22.55	47.79	32.69	34.73	37.49	38.77	30.62	10.58	34.54
1988-89	29.15	25.56	20.46	30.90	37.90	27.54	27.94	22.61	36.77	23.19	48.06	32.39	35.23	34.03	43.77	31.70	7.81	24.63
1989-90	26.90	24.78	17.56	29.71	36.18	27.62	28.57	22.20	36.30	21.58	48.67	32.80	33.17	32.64	42.37	30.74	8.14	26.48
1990-91	27.64	26.24	20.16	31.30	34.08	27.62	29.38	22.75	39.16	23.95	48.32	31.59	34.87	29.24	45.45	31.45	7.94	25.26
1991-92	28.73	26.85	19.60	33.14	35.82	28.36	29.10	22.78	38.68	21.40	49.96	33.96	33.77	33.71	47.08	32.20	8.58	26.64
1992-93	28.57	28.36	19.78	31.82	35.31	31.40	32.44	19.31	37.70	25.12	55.52	32.64	32.84	30.60	50.18	32.77	9.65	29.45
1993-94	28.33	22.64	20.11	27.64	34.38	31.21	30.61	19.76	31.90	22.68	48.30	30.98	34.35	34.07	47.13	30.94	8.43	27.25
1994-95	30.46	37.84	20.27	31.61	34.82	29.12	29.67	7.42	38.70	23.55	47.90	32.80	35.47	33.16	47.82	32.04	10.12	31.58
1995-96	31.31	23.72	19.26	32.80	34.22	29.76	34.68	22.08	38.60	24.21	47.68	32.20	36.04	32.16	48.02	32.45	8.31	25.62
1996-97	30.47	25.93	19.51	32.26	33.66	28.75	30.53	20.85	38.26	25.39	52.20	33.75	36.08	30.92	46.94	32.37	8.73	26.99
1997-98	28.30	24.30	21.00	30.30	35.70	30.70	30.60	17.40	38.80	24.80	51.20	33.30	34.60	30.60	45.80	31.83	8.84	27.78
1998-99	25.50	24.90	19.40	30.90	39.30	30.90	32.10	18.00	38.80	23.30	50.30	33.60	36.80	32.40	46.80	32.20	9.27	28.80
X1	27.87	29.25	20.36	30.37	38.93	24.76	28.63	26.79	35.97	30.29	48.10	32.68	28.98	34.01	40.78	31.85	-	-
CV1	3.22	21.47	68.24	5.03	6.28	14.12	1.60	26.08	5.16	23.95	1.45	4.54	15.90	6.66	5.90	3.24	-	-
X2	28.96	26.82	19.87	31.31	35.40	30.03	31.22	18.45	37.68	23.81	50.38	32.90	34.99	32.20	47.47	32.10	-	-
CV2	6.27	17.92	2.88	5.59	4.93	3.94	5.73	26.16	6.28	5.67	5.22	2.98	3.81	4.31	2.71	1.70	-	-
X3	28.33	28.22	20.15	30.77	37.44	26.98	29.72	23.28	36.69	27.56	49.06	32.77	31.51	33.25	43.60	31.96	-	-
CV3	5.03	20.17	51.44	5.36	7.41	14.10	5.91	31.60	5.99	23.16	4.22	3.87	14.82	6.34	9.00	2.66	-	-

Sources : (i) Budgetary Resources for Education 1951-52 to 1993-94 MHRD, New Delhi

(ii) Analysis of Budgeted Expenditure , MHRD, New Delhi

Note: X1, X2 & X3 are the averages for pre reform, post reform & overall periods and CV1, CV2 & CV3, the corresponding coefficients of variation

Inter temporal variation for the over all period was highest in Orissa (23.16%) and the lowest in Rajasthan (3.87%). The most stable expenditure share in pre reform period was that of Punjab with coefficient of variation 1.45 followed by Kerala (1.6) and the most inconsistent share was that in Bihar (68.24). In the post reform period the share of secondary education was comparatively stable and it was most inconsistent in Madhya Pradesh with the coefficient of variation 26.16 and the most consistent one was that in West Bengal (2.71).

### **Health Expenditure as a percentage of NSDP**

Compared to education, health sector could claim only lower percentage of NSDP in all the States. While the all States average share of education was between 3.19 and 4.29 percent of NSDP, the share of health sector ranged between 0.76 and 1.9. Figures of health expenditure as a percentage of NSDP are presented in Table 4.12.

As observed from the table, in the pre reform period the States on an average spent 1.5 per cent of their domestic product on health sector and only six States have spent a higher percentage than the all States average. The pre reform average was comparatively high in Rajasthan (2.24%) and Kerala (2.08%) and was the lowest in Punjab (1.12%). In the post reform period, the percentage was low compared to pre reform period in all the States. The highest post reform average was that of Rajasthan (1.16%) and the lowest was that of Haryana (0.59%).

**Table 4.12 Health Expenditure as a Percentage of NSDP**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V
1980-81	1.58	1.72	1.55	1.34	1.31	1.28	2.14	1.72	1.13	1.71	1.2	2.77	1.53	1.12	1.47	1.57	27.32
1981-82	1.45	1.51	1.5	1.32	1.47	1.38	2.43	1.78	1.36	1.75	1.15	2.88	1.82	1.26	1.53	1.64	28.11
1982-83	1.54	1.61	1.56	1.47	1.49	1.57	2.16	1.85	1.54	2.14	1.09	3.42	2.21	1.4	1.54	1.77	31.07
1983-84	1.76	1.15	1.56	1.37	1.71	1.33	2.61	1.92	1.62	1.97	1.32	2.88	2.74	1.62	1.48	1.80	29.81
1984-85	1.79	2.21	1.44	1.58	1.97	1.53	2.39	2.03	1.66	2.04	1.26	3.57	1.97	1.73	1.38	1.90	29.46
1985-86	1.34	1.39	1.21	0.99	1	1.46	1.95	1.24	1.81	1.21	1.08	1.43	2.01	1.28	1.2	1.37	23.21
1986-87	1.27	1.58	1.22	1.19	0.93	1.47	1.97	1.17	1.1	1.36	1.05	1.46	1.29	1.29	1.28	1.31	18.95
1987-88	1.32	1.64	1.22	1.28	0.99	1.48	1.83	1.3	1.09	1.48	1.05	1.78	1.33	1.38	1.18	1.36	18.43
1988-89	1.21	1.61	1.11	1.07	0.84	1.37	1.78	1.28	0.99	1.27	1.03	1.43	1.32	1.39	1.25	1.26	19.14
1989-90	1.14	1.38	1.21	1.11	0.79	1.32	1.8	1.21	0.92	1.23	1.07	1.59	1.37	1.34	1.25	1.25	19.74
1990-91	1.04	1.35	1.43	1.04	0.71	1.21	1.82	1.06	0.86	1.45	1.01	1.41	1.41	1.37	1.46	1.24	23.01
1991-92	0.98	1.47	1.68	1.09	0.71	1.12	1.53	1.13	0.83	1.37	0.98	1.48	1.35	1.19	1.13	1.20	22.71
1992-93	1.01	1.3	1.46	0.9	0.79	1.26	1.39	1.11	0.77	1.31	0.93	1.46	1.33	1.27	1.15	1.16	20.05
1993-94	1	1.38	1.36	0.82	0.61	1.09	1.28	0.89	0.71	1.21	0.86	1.36	1.09	1.25	1.08	1.07	23.06
1994-95	0.91	1.31	1.32	0.71	0.68	1.09	1.24	0.9	0.66	1.29	0.77	1.3	1.03	1.07	0.95	1.02	23.78
1995-96	0.66	1.1	0.88	0.61	0.52	0.84	1.01	0.69	0.55	0.88	0.65	1.09	0.84	0.82	0.8	0.80	22.91
1996-97	0.74	1.08	0.84	0.59	0.51	0.77	0.95	0.73	0.58	1.01	0.69	1.01	0.87	0.76	0.86	0.80	21.12
1997-98	0.8	1.11	0.77	0.68	0.59	0.91	0.91	0.74	0.59	0.9	0.81	0.99	0.84	0.91	0.76	0.82	17.31
1998-99	0.79	0.86	0.82	0.85	0.68	0.92	0.87	0.94	0.85	1.08	1	1.21	0.92	0.72	0.94	0.90	14.88
1999-00	0.82	0.98	1.22	0.93	0.6	0.96	1.06	0.85	0.61	1.09	0.94	1.23	0.89	0.78	0.94	0.93	19.86
2000-01	0.84	1.01	1.07	0.84	0.55	0.9	0.95	0.97	0.69	1.13	1.02	1.07	0.79	0.76	1.02	0.91	17.76
2001-02	0.8	1	1.18	0.61	0.51	0.89	0.94	0.82	0.69	1.04	0.92	1	0.79	0.71	0.88	0.85	20.59
2002-03	0.77	0.83	0.79	0.62	0.51	0.78	1	0.95	0.62	1.1	0.9	1.02	0.74	0.77	0.8	0.81	19.82
2003-04	0.76	0.86	0.7	0.54	0.47	0.69	0.94	0.97	0.62	0.95	0.8	0.9	0.71	0.83	0.71	0.76	19.62
X1	1.40	1.56	1.36	1.25	1.20	1.40	2.08	1.51	1.28	1.60	1.12	2.24	1.73	1.38	1.37	1.50	-
CV1	17.40	17.40	12.55	15.02	34.50	7.95	13.91	23.47	25.86	21.17	9.02	38.71	27.08	12.18	10.00	16.51	-
X2	0.84	1.10	1.08	0.75	0.59	0.94	1.08	0.90	0.67	1.10	0.87	1.16	0.94	0.91	0.92	0.92	-
CV2	12.84	18.95	28.68	21.88	16.17	17.17	19.27	15.01	14.04	14.05	13.43	16.40	22.12	22.88	15.22	15.61	-
X3	1.10	1.31	1.21	0.98	0.87	1.15	1.54	1.18	0.95	1.33	0.98	1.66	1.30	1.13	1.13	1.19	-
CV3	30.94	25.25	23.85	31.20	47.90	23.60	36.57	33.88	40.31	26.68	17.02	48.49	40.65	26.94	23.28	29.50	-

Source: Same as table 4.3

It is seen that inter temporal variation in the overall period was high in health sector compared to that in education. The coefficient of variation ranged between 17.02 in Punjab and 48.49 in Rajasthan, while the range was between 8.71 and 20.30 in the case of education. During pre reform period the coefficient varied from 7.95 in Karnataka to 38.71 in Rajasthan and in post reform period, the range was between 12.84 in Andhra Pradesh and 28.68 in Bihar.

### **Share of health sector in total expenditure**

Health expenditure as a percentage of total expenditure of the States are computed and presented in table 4.13. As observed from the table, share of health sector in total outlay was as low as 7 per cent in 1980-81 and 2.83 per cent in 2003-04 on an average. All the States have experienced sharp fall in the share of health expenditure over the period and in ten States the percentage was less than the average. In the pre reform period the share of health ranged between 5.38 per cent in Punjab and 8.37 per cent in Rajasthan. The all States average for the pre reform period was 6.49 per cent and only 4 States have spent a higher percentage than the all State average. In the post reform period the share was comparatively low in all States and ranged between 2.77 per cent in Haryana and 5.27 per cent in West Bengal. The average share in the over all period was between 4 per cent in Haryana and 6.5 per cent in West Bengal, while the all States average was 5.2 per cent.

**Table 4.13 Health Expenditure as a Percentage of Total Expenditure**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	CV(Inter State)
1980-81	7.63	5.23	5.49	6.08	6.51	5.48	9.57	7.59	6.53	6.7	6.52	10.2	6.56	5.89	9.07	7.00	20.42
1981-82	7.54	7.27	5.92	6.9	7.4	6.3	9.07	8.08	7.49	8.28	6.08	10.3	7.88	6.42	8.88	7.59	14.95
1982-83	8.14	7.84	6.65	6.54	6.5	6.44	10.2	8.3	7.84	7.32	5.7	13.4	8.5	7.05	8.92	7.95	22.25
1983-84	8.05	4.88	6.88	7.08	7.77	5.73	10.9	8.37	8.08	10.4	5.93	12.8	10.2	7.68	9.56	8.28	24.24
1984-85	7.29	8.94	6.82	7.53	8.36	5.68	9.34	8.31	7.5	8.25	5.4	13.6	8.02	7.18	8.22	8.03	21.86
1985-86	5.55	5.94	5.03	4.56	4.39	5.17	6.44	5.14	8.34	5.34	4.59	5.17	8.3	5.92	7.04	5.79	20.17
1986-87	4.72	5.59	5.13	5.02	3.75	5.63	6.71	4.37	4.89	5.32	5.28	4.76	5.48	5.66	6.92	5.28	14.30
1987-88	5.58	5.8	4.78	4.34	4	5.78	6.71	5.34	5.3	5.1	4.31	4.96	5.74	6.09	6.92	5.38	14.62
1988-89	5.38	5.89	4.76	4.78	3.99	5.69	6.49	5.28	4.94	4.88	4.83	5.38	5.83	6.28	7.23	5.44	14.09
1989-90	5.26	4.91	4.49	4.92	3.72	5.36	6.66	5.28	4.71	4.93	5.59	6.16	5.78	5.8	7.13	5.38	14.95
1990-91	5.01	4.77	5.23	4.61	3.63	5.01	6.57	4.77	4.62	4.61	4.99	5.45	5.88	5.52	7.63	5.22	16.86
1991-92	4.87	5.65	6.2	4.13	3.81	4.81	5.79	4.75	4.53	4.72	3.94	5.12	4.57	5.16	6.64	4.98	15.15
1992-93	4.7	4.77	5.07	3.96	4.14	5.17	5.48	4.52	4.54	4.48	5.13	5.45	5.16	4.9	6.72	4.95	12.49
1993-94	4.92	5.14	5.52	4.26	2.84	4.96	5.81	4.69	4.52	4.31	4.48	5.32	5.6	6	6.56	5.00	16.71
1994-95	4.51	5.13	5.97	4.36	2.23	5.29	5.98	4.97	3.86	4.9	3.14	5.68	5.55	4.58	5.75	4.79	20.84
1995-96	3.34	4.3	3.59	3.65	2.18	4.02	5.14	3.76	3.62	3.67	3.17	4.21	4.71	4.02	5.13	3.90	18.25
1996-97	3.7	4.69	4.17	3.55	2.02	3.78	4.87	3.68	3.6	3.54	3.59	4.73	4.49	4.03	4.89	3.96	17.54
1997-98	3.86	4.45	3.99	3.64	2.51	4.6	4.46	3.64	3.61	3.59	3.69	4.46	4.53	4.44	5.01	4.03	14.38
1998-99	3.73	3.73	3.88	3.93	3.02	4.73	4.66	4.65	3.6	3.74	4.35	4.88	4.91	3.4	5.83	4.20	16.36
1999-00	4.08	3.65	3.9	3.86	3	4.58	4.69	4.25	3.36	3.51	4.27	4.44	4.54	3.23	5.07	4.03	13.83
2000-01	3.77	3.74	4.21	2.89	2.88	4.26	4.55	4.34	3.45	3.47	4.22	4.28	4.09	3.23	4.94	3.89	14.59
2001-02	3.52	3.46	3.67	2.5	2.54	3.94	4.98	3.6	3.84	3.21	3.68	4.11	4.04	2.99	4.43	3.63	16.99
2002-03	3.23	3.04	3.21	2.73	2.82	3.48	4.18	3.56	3.39	3.2	3.31	3.54	3.31	3.12	4.37	3.37	12.20
2003-04	2.97	2.91	2.44	2.33	2.08	2.78	3.75	2.92	2.92	2.76	2.74	3.2	3.15	2.28	3.23	2.83	14.17
X1	6.38	6.10	5.56	5.67	5.46	5.66	8.06	6.44	6.39	6.46	5.38	8.37	7.10	6.32	7.96	6.49	-
CV1	20.94	22.20	15.70	20.71	34.01	7.55	21.71	25.69	23.60	29.08	12.42	44.00	21.73	11.06	12.55	19.68	-
X2	3.94	4.20	4.29	3.52	2.77	4.34	4.95	4.10	3.76	3.78	3.82	4.57	4.51	3.95	5.27	4.12	-
CV2	16.17	20.34	25.59	19.42	23.01	16.61	13.57	14.97	13.28	16.90	17.23	15.96	16.42	26.29	19.15	16.07	-
X3	5.06	5.07	4.88	4.51	4.00	4.94	6.38	5.17	4.96	5.01	4.54	6.31	5.70	5.04	6.50	5.20	-
CV3	31.45	28.61	24.08	31.68	47.21	18.13	31.67	32.35	34.37	37.99	22.59	49.88	30.70	29.61	25.86	29.70	-

Source: Same as table 4.2

Note: X1, X2 & X3 are the averages for pre reform, post reform & overall periods and CV1, CV2 & CV3, the corresponding coefficients of variation

Compared to other sectors health sector showed higher inter temporal variation in the percentage expenditure. In the over all period the coefficient was the highest in Rajasthan (49.88) followed by Haryana (47.21) and was the lowest in Karnataka (18.13). The pre reform coefficient of variation ranged between 7.55 in Karnataka and 44 in Rajasthan. In the post reform period variation was between 13.57 in Kerala and 26.29 in Uttar Pradesh.

### **Share of Health in Total Social Expenditure**

As may be seen from table 4.14, health expenditure constitutes a smaller part of the total social expenditure compared to education. It is also important to note that compared to education, health sector experienced drastic cut in resource allocation as a result of financial stringency experienced by States from 1980. It is observed that the all States average decreased from 23.59 per cent in 1980-81 to 11.56 per cent (more than halved) in 2003-04. The highest percentage in the overall period was 18.76 in Rajasthan and 14.47 per cent in Gujarat was the lowest. During pre reform period, the average share of health sector in total social expenditure ranged between 17.73 per cent in Gujarat and 25.36 per cent in Rajasthan. Compared to pre reform period the post reform percentage was low in all States and ranged between 10.79 in Haryana and 17.43 in Punjab.

**Table 4.14. Health Expenditure as a Percentage of Total Social Expenditure**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V
1980-81	23.13	23.50	21.70	21.20	27.38	20.42	21.31	30.64	24.35	23.15	20.42	35.30	22.25	20.70	24.20	23.98	17.45
1981-82	22.53	25.64	18.56	22.90	30.09	22.24	23.14	29.83	27.26	25.93	21.81	32.97	26.14	22.94	23.60	25.04	15.09
1982-83	22.53	25.12	19.16	19.91	25.58	23.08	23.15	29.43	27.25	18.51	21.90	37.95	24.42	24.25	21.95	24.28	19.69
1983-84	19.38	13.55	21.71	23.01	30.99	21.89	25.86	28.67	26.76	29.13	24.01	37.31	30.06	27.93	24.30	25.64	21.83
1984-85	19.02	27.26	21.63	22.00	23.59	22.66	23.79	27.15	26.51	26.10	23.99	39.81	24.29	27.91	20.18	25.06	19.40
1985-86	15.34	17.37	15.51	12.58	18.36	17.40	15.08	15.89	28.29	16.31	17.43	15.48	21.52	21.11	20.41	17.87	21.12
1986-87	12.72	16.76	16.64	15.19	16.42	17.44	16.74	13.70	15.57	16.54	19.85	15.36	14.25	21.05	18.52	16.45	13.40
1987-88	15.22	16.67	17.19	13.10	14.12	16.72	16.87	16.01	17.14	16.31	15.16	15.65	15.58	21.97	18.83	16.44	12.48
1988-89	16.20	16.53	14.47	15.02	12.53	16.92	16.10	15.67	16.01	15.89	13.91	16.07	15.87	21.17	19.48	16.12	12.80
1989-90	14.63	15.80	13.41	15.44	12.57	16.85	16.89	15.44	15.37	14.85	22.54	17.20	14.93	18.38	19.32	16.24	15.21
1990-91	14.56	15.46	15.87	14.67	12.66	15.79	16.47	14.05	15.24	15.68	18.53	15.83	14.68	18.79	19.06	15.82	11.32
1991-92	14.70	15.71	18.28	13.90	13.71	14.93	16.22	14.17	14.28	15.56	18.37	16.32	14.11	18.63	17.54	15.76	11.00
1992-93	14.33	14.73	16.60	14.55	13.55	16.74	15.52	13.93	14.71	13.95	19.46	16.35	14.12	18.41	18.96	15.73	12.37
1993-94	16.28	14.76	18.27	14.11	12.03	15.67	15.70	14.83	14.72	13.73	18.95	16.03	14.70	22.82	18.73	16.09	16.50
1994-95	15.30	14.96	17.40	14.03	12.08	16.12	16.15	14.41	13.72	15.24	17.92	16.42	14.98	19.39	16.54	15.64	11.58
1995-96	9.69	12.36	10.05	11.95	7.89	12.19	14.47	11.10	11.04	10.69	13.29	12.89	12.25	14.51	15.45	11.99	16.76
1996-97	10.84	12.58	11.79	12.12	9.87	11.58	13.57	11.13	11.44	10.53	15.98	13.26	12.11	13.55	15.07	12.36	13.58
1997-98	11.86	12.50	10.93	12.00	11.21	13.27	13.30	11.00	10.99	10.64	16.55	13.08	12.83	14.90	15.05	12.67	13.77
1998-99	11.00	9.54	11.82	12.61	11.52	13.36	13.98	12.71	10.93	11.43	17.34	12.48	12.85	11.63	17.20	12.69	16.95
1999-00	11.97	10.37	11.71	11.85	10.29	13.48	13.73	11.78	11.07	8.34	18.12	12.04	12.49	12.30	13.54	12.21	17.61
2000-01	12.19	9.65	11.61	8.82	9.47	12.40	13.72	12.00	9.88	10.73	19.04	11.15	11.39	12.06	15.10	11.95	21.42
2001-02	11.87	10.77	11.40	7.44	9.21	12.48	15.55	11.37	11.17	10.71	17.40	11.03	11.54	11.48	14.49	11.86	20.48
2002-03	11.44	9.31	9.60	9.74	9.85	12.23	13.65	11.04	10.93	11.73	17.66	10.38	11.14	11.98	15.66	11.76	19.80
2003-04	10.69	9.04	10.01	9.25	9.57	10.64	14.50	11.49	10.81	11.17	16.55	9.75	10.03	13.63	15.15	11.49	20.37
X1	17.75	19.42	17.80	17.73	20.39	19.22	19.58	21.50	21.79	19.86	19.96	25.36	20.36	22.38	20.89	20.27	-
CV1	20.98	25.2	16.72	22.98	35.86	14.7	19.8	34.43	26.49	26.13	16.97	43.24	27.19	14.26	10.65	21.65	-
X2	12.48	12.02	13.04	11.72	10.79	13.47	14.62	12.38	11.98	11.88	17.43	13.17	12.66	15.02	16.04	13.25	-
CV2	16.17	20.11	25.29	19.34	16.11	13.83	7.274	11.66	14.24	17.73	9.296	18.17	11.71	24.18	10.24	13.67	-
X3	14.89	15.41	15.22	14.47	15.19	16.10	16.89	16.56	16.48	15.54	18.59	18.76	16.19	18.40	18.26	16.46	-
CV3	26.32	34.12	25.79	30.32	45.94	23.11	21.75	41.15	38.85	35.55	15.23	51.63	33.75	27.37	17.03	29.04	-

Source: Same as table 4.2

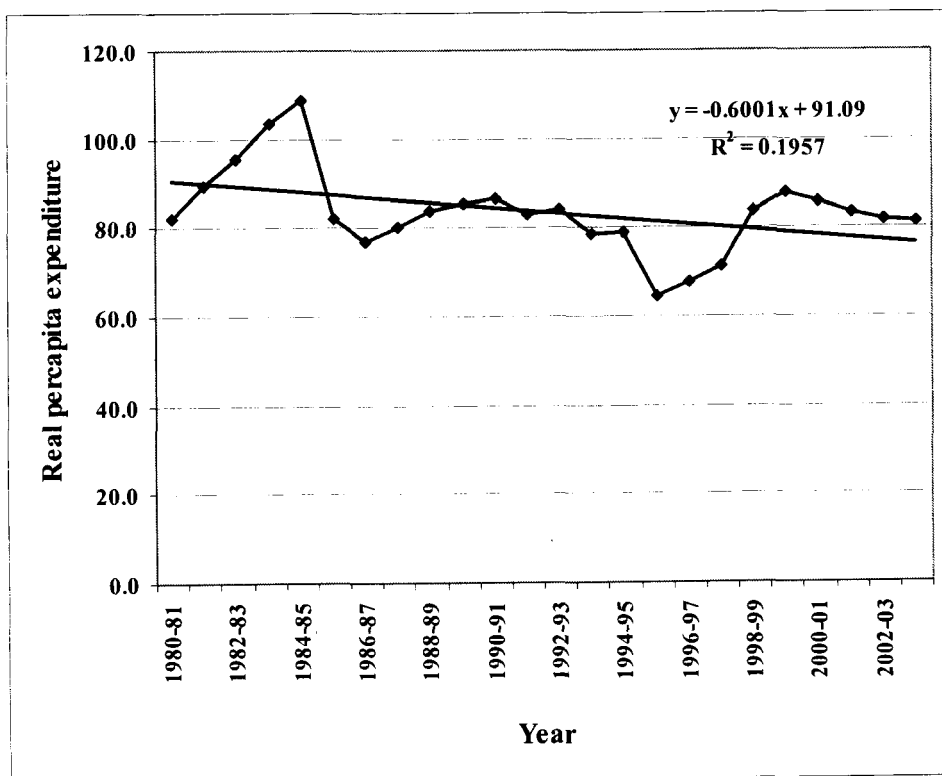
Note: X1, X2 & X3 are the averages for pre reform, post reform & overall periods and CV1, CV2 & CV3, the corresponding coefficients of variation

Inter temporal coefficient of variation in over all period was highest in Rajasthan (51.63) and the lowest in Punjab (15.23). In the pre reform period Rajasthan with coefficient of variation 43.2 was the most inconsistent and West Bengal with the lowest coefficient 10.65 was the most consistent State. In the post reform period Kerala with coefficient of variation 7.27 was the most stable and Bihar with the coefficient 25.29 was the most inconsistent State.

### Real Per capita Health Expenditure

Figures of per capita real health expenditure (RPHE) of the States for the period from 1980-81 to 2003-04 are given in the Table 4.15 and the trend line for the period is given in figure 4.3.

**Figure 4.3. Trends in real per capita health expenditure**



In contrast to the increasing trends shown by per capita education and social expenditures, health expenditure per head showed negative trends over the period. But after a sharp decline in 1995-96 the actual expenditure started increasing and after 1998-99, it is found to be above the estimated values.

**Table 4.15 Real Per capita Health Expenditure (Rupees)**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V
1980-81	72.97	73.04	52.75	89.04	96.74	63.99	119.64	89.25	80.84	69.62	101.81	119.84	81.58	47.36	73.53	82.13	25.89
1981-82	75.85	76.56	52.32	94.00	110.57	72.01	132.28	92.98	97.97	70.31	104.26	131.12	106.26	52.93	73.07	89.50	27.74
1982-83	80.06	83.28	53.42	100.64	115.05	81.48	118.44	98.02	111.78	79.03	100.44	153.59	123.08	61.68	74.44	95.63	27.35
1983-84	94.32	54.50	57.65	109.98	131.85	72.88	134.60	104.98	123.41	86.21	120.53	155.38	153.99	73.32	78.73	103.49	31.72
1984-85	91.39	103.29	57.29	124.46	153.32	88.18	128.46	103.61	125.19	83.30	122.02	174.30	122.96	78.02	74.10	108.66	28.88
1985-86	71.21	67.66	47.90	74.38	89.02	79.17	106.71	67.26	144.07	54.17	110.27	67.61	128.33	58.72	65.96	82.16	34.13
1986-87	64.62	73.45	51.00	93.24	81.01	85.35	103.68	59.48	87.54	60.86	109.53	73.78	80.72	60.66	71.66	77.11	21.81
1987-88	74.58	77.88	47.26	87.22	82.45	89.92	98.66	73.74	90.51	62.91	112.58	81.52	86.59	66.28	68.54	80.04	19.69
1988-89	78.81	75.17	47.48	101.16	85.90	88.92	104.14	75.95	89.52	64.27	115.35	90.04	92.00	73.68	74.28	83.78	20.01
1989-90	78.71	67.58	49.71	101.33	80.25	89.07	110.69	71.80	95.15	65.17	128.41	95.67	100.57	71.77	75.53	85.43	23.68
1990-91	74.11	67.39	62.85	95.04	77.91	80.82	118.68	70.85	91.69	62.92	122.28	95.87	110.75	75.88	91.03	86.54	22.29
1991-92	70.13	83.52	68.74	89.19	77.54	83.54	103.91	66.74	83.15	65.40	118.38	91.91	108.40	63.98	72.13	83.11	20.09
1992-93	69.07	72.90	54.97	95.62	84.87	94.30	99.61	69.08	87.61	60.02	116.14	102.14	111.29	67.91	74.58	84.01	22.36
1993-94	75.12	79.36	52.02	82.78	66.92	85.49	99.63	59.70	87.56	58.38	110.10	84.86	97.96	66.37	73.57	78.65	20.92
1994-95	70.72	75.73	53.89	85.68	77.90	88.56	104.92	60.15	82.02	63.56	99.10	94.63	102.11	57.98	67.86	78.99	21.05
1995-96	53.95	63.62	32.92	75.10	59.46	70.30	88.81	47.49	74.13	44.49	84.36	81.23	85.54	45.14	60.60	64.48	26.74
1996-97	63.02	63.04	34.55	79.85	64.08	69.80	85.88	52.42	79.95	46.98	94.65	81.92	91.76	41.01	67.89	67.79	26.94
1997-98	65.60	64.49	31.07	88.82	73.05	87.05	84.57	39.89	81.98	48.49	113.72	85.36	95.02	47.79	64.04	71.40	31.80
1998-99	72.31	48.65	34.17	115.56	87.64	98.27	85.76	53.33	120.65	59.47	144.26	106.66	107.05	37.14	83.27	83.61	38.94
1999-00	77.87	57.01	51.32	123.96	80.61	105.85	110.56	67.95	92.48	62.54	141.14	105.87	108.55	42.08	87.83	87.71	32.43
2000-01	85.82	59.98	31.38	105.47	75.87	107.32	100.37	67.85	98.95	63.03	154.82	88.21	103.34	43.14	100.61	85.74	35.43
2001-02	85.36	60.29	53.79	81.11	73.18	107.41	101.51	62.93	102.18	62.06	139.04	88.13	100.69	41.10	91.52	83.35	30.30
2002-03	82.58	51.43	39.76	90.47	75.00	98.37	114.67	66.80	95.89	64.23	135.87	81.54	94.98	45.84	87.57	81.67	31.60
2003-04	86.31	55.13	34.32	90.98	74.99	90.68	114.51	65.49	100.35	61.48	126.05	87.38	95.68	50.92	83.19	81.16	30.22
X1	77.88	74.53	52.69	97.32	100.37	81.07	116.00	82.54	103.42	68.98	113.41	112.61	107.89	65.48	74.62	88.59	-
CV1	10.99	16.27	9.32	13.27	24.55	10.45	10.56	19.08	19.22	14.50	8.10	32.37	21.14	15.30	8.60	11.29	-
X2	73.68	64.24	44.07	92.66	74.70	91.30	99.59	59.99	91.30	58.47	121.36	90.76	100.18	50.03	78.05	79.36	-
CV2	13.31	16.73	27.72	15.46	10.49	13.63	10.62	15.22	13.54	12.06	17.45	9.90	7.55	21.04	15.27	8.97	-
X3	75.60	68.96	48.02	94.80	86.47	86.61	107.11	70.32	96.86	63.29	117.71	100.77	103.72	57.11	76.48	83.59	-
CV3	12.31	17.85	21.60	14.36	24.98	13.62	12.98	23.92	17.57	15.65	14.39	27.06	15.88	22.37	12.75	11.47	-

Source : Same as table 4. 5

Note: X1, X2 & X3 are the averages for pre reform, post reform & overall periods and CV1, CV2 & CV3, the corresponding coefficients of variation

It is observed that, while RPSE and RPEE increased over the period, RPHE decreased in 7 States and the increase in the remaining States was between 2 per cent in Gujarat and 42 per cent in Karnataka. The all States average RPHE was Rs.83.6 in the overall period and in eight States the per capita expenditure was comparatively higher. The highest average RPHE during the period was that of Punjab (Rs.117.7) followed by Kerala (Rs.107.1), while the lowest was that of Bihar (Rs.48) followed by Uttar Pradesh (Rs.57.1). The pre reform average RPHE was the highest in Kerala (RS.116) followed by Punjab (Rs.113.4) and Rajasthan (Rs.112.6) and the lowest RPHE was that of Bihar (Rs.52.7) followed by Uttar Pradesh (Rs.65.5) and Orissa (Rs.69). During the pre reform period the all States average was Rs.88.6 and seven States spent more than the all State average. The post reform RPHE was comparatively low in all States except Karnataka, Punjab and West Bengal. On an average the States spent Rs.79.4 in the post reform period and the individual State expenditure ranged from Rs.44.1 in Bihar to Rs.121.4 in Punjab.

The most stable RPHE in the over all period was that of Andhra Pradesh and inter temporal coefficient of variation ranged between 12.3 in Andhra Pradesh and 27.1 in Rajasthan. In pre reform period the coefficient ranged between 8.1 in Punjab and 32.4 in Rajasthan while the post reform variation was between 7.5 in Tamil Nadu and 27.7 in Bihar.

### **Relative importance of health and education sectors**

The above analysis of per capita expenditures shows that per capita health expenditure was much lower than the per capita education

expenditure in all the States. We have made an attempt to examine the relative importance given by State governments to health and education sectors in terms of ratio of RPHE to RPEE.

**Table 4.16 Ratio of per capita health expenditure to per capita education expenditure**

States	1980-91	1991-04	1980-04
<b>Andhra Pradesh</b>	0.39	0.30	0.33
<b>Assam</b>	0.35	0.18	0.24
<b>Bihar</b>	0.31	0.21	0.25
<b>Gujarat</b>	0.37	0.23	0.28
<b>Haryana</b>	0.41	0.22	0.29
<b>Karnataka</b>	0.38	0.26	0.30
<b>Kerala</b>	0.34	0.25	0.28
<b>Madhya Pradesh</b>	0.47	0.29	0.36
<b>Maharashtra</b>	0.42	0.20	0.27
<b>Orissa</b>	0.42	0.23	0.30
<b>Punjab</b>	0.37	0.29	0.32
<b>Rajasthan</b>	0.51	0.26	0.35
<b>Tamil Nadu</b>	0.43	0.27	0.32
<b>Uttar Pradesh</b>	0.42	0.25	0.32
<b>West Bengal</b>	0.41	0.28	0.33
<b>All States</b>	0.40	0.25	0.30

Sources: Same as table 4.5.

As observed from the table above, the per capita expenditure on health was less than even half of the expenditure on education in all

States except Rajasthan in the pre reform period. In the overall period the ratio ranged between 0.24 in Assam to 0.35 in Rajasthan. In the pre reform period the ratio ranged from 0.31 in Bihar to 0.51 in Rajasthan. Even in well performing States like Kerala and Punjab the ratio was 0.34 and 0.37 respectively. During post reform period in all States without exception the ratio declined drastically. The fall in the ratio was to the tune of 20 per cent to 51.8 per cent. The Sharpest fall was experienced by Maharashtra (51.8%) followed by Rajasthan (48.5%) and Assam (47.9%). The decline in the ratio was the least in Punjab (20.3%). It is clear from the above figures that at times of financial stringency the governments are more tempted to cut the expenditure on health rather than expenditure on education. The education sector is seen to be relatively protected.

#### **4.2 Rate of Growth of Per capita Expenditures**

The compound growth rates of real per capita expenditures over the period 1980-81 to 2003-04 as well as that for two sub periods - 1980-81 to 1990-91 (Pre-reform) and 1991-92 to 2003-04 (Post-reform) are presented in table 4.17. As shown in the table during the period 1980-81 to 2003-04, the rate of growth of the all States real per capita social expenditure was 2.93 per cent, while the rates were 4.91 per cent and 3.47 per cent in the pre reform and post reform periods. In the overall period RPSE in 8 States had a growth rate higher than the rate for all the States taken together (2.93). Karnataka (4.32), Maharashtra (4.27), Rajasthan (3.78) and Gujarat (3.66) have comparatively higher rates and lower rates are registered by Kerala (1.34), Bihar (1.35) and Uttar Pradesh (1.61). It may be noted that relatively low rate of growth of real per capita expenditure in the case of Kerala in the context of its

extremely low rate of growth of population is due to significantly lower growth rate in absolute terms as shown by Appendix 5.

In the pre-reform period the highest growth rate was registered by Karnataka (6.4%) followed by Maharashtra (6.11%) and Haryana (6.1%). On the other hand States like Kerala (2.65%), West Bengal (3.56%), Orissa (3.6%), Bihar (3.94%), Assam (4.14%) and Punjab(4.41%) registered comparatively lower rate. In the Post-reform period all States except Gujarat, West Bengal and Orissa experienced a fall in growth rate compared to pre-reform period.

**Table 4.17 Rate of Growth of Real Per capita Expenditures (percentage)**

States	Total Expenditure			Social Expenditure			Education Expenditure			Health Expenditure		
	1980-1991	1991-2004	1980-2004	1980-1991	1991-2004	1980-2004	1980-1991	1991-2004	1980-2004	1980-1991	1991-2004	1980-2004
Andhra Pradesh	4.95	5.89	4.03	4.91	4.86	3.04	5.28	4.14	2.60	-0.58	2.28	-0.06
Assam	2.00	1.55	1.82	4.14	1.27	2.62	3.73	2.42	3.96	-0.76	-3.52	-1.56
Bihar	2.92	2.26	1.06	3.94	1.53	1.35	5.52	2.78	2.40	-0.18	-3.45	-1.86
Gujarat	4.60	5.76	4.03	5.23	5.73	3.66	7.44	3.40	3.95	-0.10	0.97	-0.18
Haryana	4.13	2.54	3.14	6.10	2.93	2.98	6.80	3.30	3.35	-4.29	0.21	-2.08
Karnataka	3.83	5.48	3.71	6.40	4.67	4.32	6.33	4.95	4.49	2.45	1.86	1.25
Kerala	3.52	4.08	3.02	2.65	1.99	1.34	2.56	1.73	1.52	-1.78	0.92	-0.97
Madhya Pradesh	2.49	3.43	1.50	5.64	2.67	2.13	5.97	0.45	1.72	-3.76	0.56	-2.21
Maharashtra	4.76	4.98	3.74	6.11	5.01	4.27	6.79	6.28	5.43	-1.02	2.01	-0.51
Orissa	4.32	4.65	3.37	3.60	3.60	3.02	6.75	3.40	3.92	-2.13	0.61	-1.12
Punjab	4.41	4.69	3.72	4.41	3.04	2.03	4.86	3.86	2.93	1.76	2.72	0.94
Rajasthan	4.38	3.36	3.20	5.39	4.22	3.78	7.17	3.43	4.14	-5.42	-0.38	-1.65
Tamil Nadu	3.06	3.29	3.28	5.91	2.31	3.40	6.53	2.51	3.67	-1.03	-0.42	-0.52
Uttar Pradesh	5.07	1.13	2.31	5.80	1.28	1.61	8.37	1.85	2.73	3.38	-3.44	-1.94
West Bengal	3.77	7.41	4.44	3.56	4.45	2.94	6.03	3.93	3.91	0.81	2.59	0.72
All States	3.89	4.22	3.23	4.91	3.47	2.93	5.83	3.37	3.43	-1.07	0.56	-0.69

Sources : Computed using data from (i) Reserve Bank of India Bulletin (various issues)

(ii) Handbook of Statistics on State Government Finances, Reserve Bank of India, 2004

(iii) Public Finance, Centre for Monitoring Indian Economy, October 2005,

(iv) Statistical Abstract (various issues) and (v) CSO Website

The decline was sharpest in low income States like Uttar Pradesh (77%), Assam (69%) and Bihar (61%). Andhra Pradesh experienced the mildest fall (from 4.91 to 4.86%). The lowest growth rate in the post reform period was that registered by Assam (1.27%) followed by Uttar Pradesh (1.28%), Bihar (1.53%) and Kerala (1.99%). Gujarat registered the highest rate (5.73), followed by Maharashtra (5.01%), Andhra Pradesh (4.86%) and Karnataka (4.32%).

As seen from the table, the rate of growth of the all States real per capita education expenditure was 3.43 percent during the period 1980-81 to 2003-04. The rates for the pre-reform and post-reform periods were 5.83 and 3.37 respectively. In the over all period, 8 out of 15 States had higher rates compared to the all States rate. The highest rate was registered by Maharashtra (5.43%) followed by Karnataka (4.49%) and Rajasthan (4.14%). Kerala (1.52%) and Madhya Pradesh (1.72%) have registered the lowest growth rate.

Compared to the pre-reform period, rate of growth of RPEE declined in the post - reform period in all the States. The deceleration was sharper compared to that of RPSE. The all State rate declined from 5.83 in the pre-reform period to 3.37 in the post-reform period. Among the States the sharpest fall was experienced by Madhya Pradesh (92%) followed by Uttar Pradesh (77%) and Tamil Nadu (61%). It may be noted that in Uttar Pradesh and Haryana the decline in rate of growth of RPSE and RPEE were of the same degree. In the post reform period the highest rate of growth was that of Maharashtra (6.28%). In Karnataka and Andhra Pradesh the rates were 4.95 per cent and 4.14 per cent

respectively. The lowest rate of the post-reform period was that of Kerala (1.73%) followed by Uttar Pradesh (1.85%).

As evident from the above analysis, health sector was the worst hit by the financial stringency experienced by States from 1980s. Real per capita expenditure on health registered a negative growth rate in 11 States in the pre-reform period. The States with positive rates were Uttar Pradesh (3.38%), Karnataka (2.45%), Punjab (1.76%) and West Bengal (0.81%). The average rate was -1.07% and 5 States have rates less than -1.07%. In sharp contrast to RPSE and RPEE, 11 States have shown improvement in growth rate of RPHE in the post-reform period. 10 States have positive rate and only 5 States experienced negative growth rate. The States with negative rate were Rajasthan (-0.38%), Tamil Nadu (-0.42%), Uttar Pradesh (3.44%), Bihar (-3.45%) and Assam (-3.52%). The all States rate was 0.56% and 9 States have rates higher than 0.56%. In the over all period 12 States registered negative growth rate and only 3 States – Karnataka (1.25%), Punjab (0.94%) and West Bengal (0.72%) – have positive growth rate. The all States rate was -0.69 per cent and 8 States have rates less than -0.69 per cent.

### **4.3 Extent of Disparity in Real Per capita social expenditures**

An idea of the extent of disparity in the real per capita expenditures of different States is given by the fact that the highest spending State disbursed nearly one and half times that of the all States average expenditure and more than double that of the lowest spending State. It is seen from table 4.5 that in 1980-81 RPSE of Kerala (562.45) was almost two and half times that of Uttar Pradesh (228.55) and more than one and half times that of all States average (345.79). In 2003-04

RPSE of Gujarat (983.72) was much more than two and half times that of Bihar (343.06).

The extent of dispersion as measured by Coefficient of Variation increased from 25.64 in 1980-81 to 28.61 in 2003-04. But the coefficient has shown random ups and downs throughout the period and the range of variation was between 20.35 in 1989-90 and 35.55 in 1998-99. During the pre reform period C.V varied between 20.35 in 1989-90 and 27.66 in 1985-86. Disparity in social expenditure is found to be higher in post reform period compared to pre reform period and the coefficient of variation has come up to 35.55 in 1998-99.

In order to examine the disparity among States with comparable income, we have grouped the States on the basis of per capita NSDP for the year 2003-04 at 1993-94 prices. States like Gujarat, Maharashtra, Punjab and Haryana are the high income States with per capita NSDP more than Rs.15000. The middle income group consists of Tamil Nadu, Karnataka, Kerala, West Bengal and Andhra Pradesh (NSDP between Rs.10000 and Rs.15000). Rajasthan, Madhya Pradesh, Assam, Orissa, Uttar Pradesh and Bihar are grouped as low income States as their per capita incomes are less than Rs.10000. Coefficient of variation for each income group and inter group variations in RPSE, RPEE and RPHE are computed and presented in table 4.18.

**Table 4.18 Coefficient of Variation in Social Expenditures among States with comparable income**

Years	Per capita Social Expenditure				Per capita Education Expenditure				Per capita Health Expenditure			
	Variation within income groups			Inter group	Variation within income groups			Inter group	Variation within income groups			Inter group
	High	Middle	Low	variation	High	Middle	Low	variation	High	Middle	Low	variation
1980-81	18.18	29.30	14.86	16.99	20.71	41.9	18.5	19.4	9.95	26.43	35.16	10.13
1981-82	13.66	27.54	18.85	15.74	18.4	40.4	16.5	17.8	7.15	29.02	37.31	12.3
1982-83	8.70	21.18	19.93	15.00	16.31	29.2	14.8	18.1	7.06	24.36	40.56	9.78
1983-84	6.59	22.59	20.62	16.72	14.86	25.5	22.8	14.9	7.43	33.38	42.46	15.54
1984-85	14.29	16.41	19.48	22.88	13.74	28.1	14.8	20.5	11.26	23.3	40.34	16.04
1985-86	12.32	29.00	17.84	21.33	12.21	31.0	14.7	20.7	28.97	29.29	13.81	26.32
1986-87	8.62	16.94	20.27	18.33	5.85	26.6	22.4	17.4	13.15	18.36	14	18.87
1987-88	14.74	17.11	24.44	22.29	9.81	23.3	21.1	22.3	14.32	14.44	18.2	15.39
1988-89	16.19	19.09	20.38	23.82	8.72	24.5	13.6	19.7	13.56	13.37	19.99	15.85
1989-90	6.12	20.44	14.97	16.84	14.22	21.5	11.5	18.6	19.88	16.25	21.16	18.04
1990-91	4.35	22.13	18.12	16.26	9.75	26.5	13.5	15.3	19.21	20.11	17.1	15.28
1991-92	6.49	24.50	19.20	15.14	10.14	26.0	18.5	15.9	19.74	20.25	15.7	11.57
1992-93	4.59	26.41	23.01	15.11	4.99	24.8	22.1	14.3	14.72	19.61	23.21	15.11
1993-94	2.71	21.23	26.72	17.28	9.05	24.9	31.9	17.5	20.54	14.2	19.22	14.31
1994-95	6.17	21.21	25.72	17.79	7.66	26.6	27.7	16.0	10.66	19.81	22.41	13.57
1995-96	8.60	19.71	27.40	20.99	8.91	25.2	26.4	17.9	14.05	21.16	32.74	17.63
1996-97	6.80	18.22	28.29	19.72	9.09	21.0	26.6	19.1	15.68	16.43	32.02	20.4
1997-98	6.33	19.77	31.97	22.45	11.41	21.7	33.1	24.0	19.53	17.34	36.68	25.55
1998-99	16.39	19.71	42.09	29.27	14.34	23.6	36.6	33.1	19.86	15.15	46.57	34.53
1999-2000	14.60	13.05	33.53	16.98	11.01	20.2	26.3	20.2	25.46	14.76	34.41	25.84
2000-01	19.49	13.62	35.49	22.78	21.07	17.41	31.67	26.62	30.54	8.18	33.62	29.76
2001-02	15.39	15.23	26.30	25.77	19.0	15.57	25.03	21.66	29.77	9.01	25.12	24.7
2002-03	9.86	16.02	26.40	24.10	15.8	19.70	26.44	24.07	26.11	12.87	26.52	26.91
2003-04	12.57	18.88	35.70	19.99	15.3	18.29	31.82	21.71	21.79	13.13	29.71	25.59

It may be noted that the variation in RPSE among high income States was very low and the coefficient of variation has decreased from 18.2 in 1980-81 to 12 in 2003-04 showing a converging tendency within the group. Middle income States too show a converging tendency as the group C.V has decreased from 29.3 in 1980-81 to 18.9 in 2003-04. In contrast to high and middle income groups the low income States differ considerably in their social spending and show a diverging tendency over the period. From 14.9 in 1980-81 the coefficient has increased to 35.7 in 2003-04. As seen from the table, initially, the low income group C.V was the lowest (14.9), but by 2003-04 the variation among the low income States was higher compared to the other two groups and the lowest variation was shown by high income States. Compared to pre reform period the inter group variation is found to be higher in the post reform period. During pre reform period the inter group coefficient of variation ranged between 15 and 23.8, whereas in the post reform period it was between 15 and 29.27.

In the case of per capita education expenditure, inter State disparity showed converging trends in the overall period and the coefficient of variation has come down from 32.98 in 1980-81 to 27.66 in 2003-04. In the pre reform period also the disparity is found to be converging as the coefficient decreased from 32.98 in 1980-81 to 21.96 in 1990-91. But post reform period showed random ups and downs throughout the period.

As observed from table 4.18, the coefficient of variation in RPEE among high income States showed converging tendency as it has decreased from 20.71 in 1980-81 to 15.25 in 2003-04, even though there

are fluctuations with in the period. The variation among middle income States was higher compared to that among high income States even though the coefficient has decreased from 41.87 in 1980-81 to 18.288 in 2003-04. But among the low income States the variation has increased from 18.47 percent in 1980-81 to 31.82 per cent in 2003-04.

In contrast to RPEE, disparity is seen to be increasing in the case of real per capita health expenditure. As shown in table 4.15, in 1980-81, Rajasthan and Kerala have spent more than two and half of RPHE of Uttar Pradesh and about one and half of the all States average. In 2003-04, RPHE of Punjab (126.1) was more than three and half times that of Bihar (34.3) and one and half times that of all State average. As measured by coefficient of variation too, disparity in RPHE is showing increasing tendency. The coefficient has increased from 25.9 in 1980-81 to 30.2 in 2003-04.

As observed from table 4.18, the coefficient of variation among high income States was low, but showed diverging tendency as it has increased from 9.95 in 1980-81 to 15.25 in 2003-04, even though there are fluctuations with in the period. But middle income States have shown converging trend and the coefficient decreased from 26.43 in 1980-81 to 13.13 in 2003-04. The variation among the low income States showed declining tendency in the pre reform period but showed high fluctuations in the period after reforms.

### **Ranking of States**

States are ranked according to their three year average per capita expenditures centred on 1981, 1991 and 2001 as presented in Table 4.19.

Table 4.19

**Ranking of States according to Per capita Real Expenditures**

States	RPTE			RPSE			RPEE			RPHE		
	1981	1991	2001	1981	1991	2001	1981	1991	2001	1981	1991	2001
Andhra Pradesh	12	11	7	8	10	9	10	12	11	10	11	9
Assam	9	9	13	12	11	11	7	8	7	9	10	13
Bihar	13	14	15	14	15	14	12	14	13	15	15	15
Gujarat	3	2	2	3	3	1	4	4	3	7	5	7
Haryana	2	4	4	5	5	7	6	7	8	3	8	10
Karnataka	8	8	5	10	8	4	8	9	5	12	7	3
Kerala	6	7	8	1	2	8	1	1	4	2	3	2
Madhya Pradesh	10	10	12	13	9	12	13	11	15	8	13	11
Maharashtra	5	5	3	7	7	2	5	5	1	6	6	5
Orissa	11	12	11	9	13	13	14	15	12	13	14	12
Punjab	1	1	1	2	4	5	2	3	2	5	1	1
Rajasthan	7	6	9	6	6	6	9	6	9	1	4	8
Tamil Nadu	4	3	6	4	1	3	3	2	6	4	2	4
Uttar Pradesh	14	13	14	15	14	15	15	13	14	14	12	14
West Bengal	15	15	10	11	12	10	11	10	10	11	9	6

Note: The expenditures relate to three year averages centered on the years shown

Some of the salient features of the ranking of States according to real per capita expenditures are as follows:

1. Kerala occupied the top most position in education expenditure in 1981 and 1991 but came down to fourth place in 2001. In the case of RPSE it came down from the topmost position to the second and then to the eighth place. With respect to RPHE Kerala ranked second in 1981, stepped down to third in 1991 and then came back to second position in 2001. It ranked sixth, seventh and eighth in terms of RPTE.
2. Punjab which accounted for the highest level of RPTE, also ranked among the top three States in terms of RPEE. In RPHE its position improved from fifth in 1981 to the first in 1991 and 2001. But in the

case of RPSE it came down in ranking from second to fourth and then to fifth.

3. Gujarat and Maharashtra made remarkable improvement in their ranking in all categories of expenditure. But ranking of Haryana, the remaining high income State, deteriorated in all sectors.
4. Low income States like Bihar, Uttar Pradesh, Madhya Pradesh and Orissa in general, occupied the last five positions in the case of RPTE, RPSE, RPEE and RPHE. Their ranking did not show much change over the period. In the case of Assam, the rank slipped from 9 to 13 in RPTE and RPHE. Compared to other low income States, Rajasthan occupied better positions in ranking.

### Results of ANOVA

Analysis of variance was conducted to examine the variation among the three income groups of States with respect to real per capita expenditures during 2001 and the results are given in tables 4.20 and 4.21

**Table 4.20 Results of ANOVA during 2001**

	Source	df	Sum of Squares	Mean Square	F
Education Expenditure	Between Income Groups	2	83899.7	41949.9	7.4**
	Error	12	67912.5	5659.4	
	Total	14	151812.3		
Health Expenditure	Between Income Groups	2	5841.5	2920.7	8.4**
	Error	12	4188.2	349.0	
	Total	14	10029.7		
Social Expenditure	Between Income Groups	2	314089.0	157044.5	8.6**
	Error	12	218554.3	18212.9	
	Total	14	532643.3		

**Table 4.21 Average expenditure during 2001**

Income group	Education Expenditure	Health Expenditure	Social Expenditure
Low	288.91 <sup>b</sup>	59.53 <sup>b</sup>	544.62 <sup>b</sup>
Middle	386.79 <sup>ab</sup>	97.47 <sup>a</sup>	759.18 <sup>a</sup>
High	473.74 <sup>a</sup>	102.32 <sup>a</sup>	895.67 <sup>a</sup>
Grand Total	370.82	83.59	709.76

As evident from the tables, there exists significant variation between high, middle and low income States with respect to their per capita social, education and health expenditures. The average social and health expenditures of low income States differ significantly from that of middle and high income States. These expenditures of high and middle income States are found to be similar. In the case of education expenditure, low income States are significantly different from high income States, but it is comparable with expenditure incurred by middle income States. At the same time there is similarity between education expenditure of high and middle income States.

#### **4.4 Concluding Remarks**

The main features of the analysis of levels, trends and inter State disparity in social expenditures are as follows.

On an average, social expenditure as a percentage of NSDP ranged between 6.49 and 7.7 over the period. The percentage decreased in 11 out of 15 States during post reform period. It is seen that percentage expenditure was comparatively low in high income States like Gujarat, Maharashtra, Punjab and Haryana.

Share of social sector in total expenditure was less than the UNDP recommended 40% in all most all States and ranged between 24 and 34 percent on an average. The high income States like Punjab, Haryana, Maharashtra and Gujarat have spent comparatively lower share of total expenditure on social sector.

In per capita terms social expenditure has increased significantly in all States between 1980-81 and 2003-04 and the increase was more than 100 per cent in seven States. The States that witnessed such increases comprised of both high and low income States..

Education expenditure as a percentage of State domestic product ranged between 3.19 and 4.29 over the period on an average. Only three States have ever achieved the recommended rate of 6 per cent of State domestic product allocated to education during the period from 1980-81 to 2003-04. Even these States could maintain the rate only for a very few years.

Education claimed a major share in total social sector and on an average it was about fifty per cent of the total social expenditure. It is also seen that while health sector experienced drastic cut in its share in total social expenditure in the post reform period, education expenditure was relatively protected.

In the case of real per capita education expenditure, 11 out of 15 States experienced more than 100 per cent increase and in the remaining States the increase was between 50-100 per cent. In general, per capita spending was comparatively high in high and middle income States and it was low in low income States.

Share of health sector in total outlay was as low as 7per cent in 1980-81 and 2.83per cent in 2003-04 on an average. All the States have experienced sharp fall in the share of health expenditure over the period.

Real per capita health expenditure showed a declining trend over the period. It is seen that the expenditures in high income States were higher than the all States average in per capita terms, where as in all low income States except Rajasthan, per capita health expenditures were less than the all States average.

On an average, per capita health expenditure was only one third of per capita education expenditure in the overall period and the relative importance of health expenditure has declined drastically during post reform period in all States without exception.

Compound growth rates of per capita social and education expenditures were positive for all the States in the overall period and also in the sub periods, where as 12 out of 15 States registered negative rate in per capita health expenditure.

In the Post reform period all States except Gujarat, West Bengal and Orissa experienced a fall in the rate of growth of per capita social expenditure compared to pre reform period. The post reform rate of growth of per capita education expenditure declined in all the States and the deceleration was sharper compared to that of per capita social expenditure. In sharp contrast to RPSE and RPEE, 11 States have shown improvement in growth rate of RPHE in the post-reform period.

Ranking of States according to per capita expenditures showed that high income States like Punjab and Gujarat together with middle income States like Kerala and Tamil Nadu, in general, occupied the first four ranks in all categories of expenditure. At the same time low income States like Bihar, Uttar Pradesh, Madhya Pradesh and Orissa continued to occupy the last five positions in respect of all categories of expenditures.

As measured by coefficient of variation, inter State disparity in per capita social expenditure and health expenditure showed diverging trend in the overall period and the disparity was found to be wider in post reform period. But per capita education expenditure exhibited a converging trend.

Disparities in per capita social expenditure within income group is found to be converging in high income and middle income States, while the inequality among low income States has increased over the period. The inter group variations are found to be higher in the post reform period compared to pre reform period in all categories of expenditures.

Results of ANOVA showed that there is significant variation between per capita expenditures incurred by high income, middle income and low income States.

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## Chapter V

### **INTER STATE DISPARITIES IN SOCIAL INFRASTRUCTURE**

India with its vast size, presents a picture of extreme regional variations in terms of several socio- economic indicators. Even after more than five decades of planning for development, inter State disparities continue to persist. These regional imbalances are to a large extent due to unequal natural endowments and lack of infrastructure facilities which form the basis for development. The deficiencies and inadequacies in the development policies of the government also have aggravated the already existing disparities over the years.

Importance of higher levels of social infrastructure as the input for human development is well recognized. Availability of adequate infrastructure facilities is an important precondition for sustainable economic and social development. It represents the fructification of capital expenditures over a number of years and gives a strong base to social development. At this juncture it is important to examine development of education and health infrastructure facilities which form major input variables of social development. An analysis of the development of education and health infrastructure facilities in 15 major States is attempted, focusing the disparities among States in the development of these facilities.

## **5.1 Education Infrastructure**

Development of education infrastructure is examined in terms of number of schools per lakh population, number of schools per 100 square kilometres, number of colleges per lakh population, number of colleges per 100 square kilometres and Pupil-teacher ratio.

### **Number of Schools per lakh population**

Table 5.1 presents State wise figures of number of schools for general education from primary to higher secondary level per lakh population. As observed from the table, at national level, number of schools per lakh has increased from 98.4 in 1980-81 to 104.9 in 2003-04, but in seven States – Bihar, Kerala, Maharashtra, Orissa, Punjab, Tamil Nadu and West Bengal - the ratio has declined over the period. In 1980-81, only five States had more schools per lakh than that at national level and Orissa was at the top position with 177.3 schools per lakh people, followed by Assam (143.3) and Madhya Pradesh (134.5). In 2003-04 the ratio decreased from 177.3 to 162.1 in Orissa, where as Assam and Madhya Pradesh showed improvement to 157.1 and 176.9. Kerala with 46 schools per lakh occupied the last position followed by Haryana (57.3) and Tamil Nadu (76.5). It is seen that six States were above the national level in 2003-04 with Madhya Pradesh (176.9), Orissa (162.1) and Assam (157.1) at the top three positions. On the other hand Kerala (42.5), Bihar (66) and West Bengal (72) occupied the last three positions.

Table 5.1. Number of schools per Lakh Population (Primary to Higher Secondary)

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1980-81	92.9	143.3	95.8	84.1	57.3	103.6	46.1	134.5	92.3	177.3	97.1	89.9	76.5	82.0	100.4	98.4	98.2	33.4
1981-82	91.8	156.1	93.7	83.9	57.3	101.6	45.7	141.1	91.3	176.9	95.9	90.4	75.8	81.7	102.7	98.6	99.1	35.2
1982-83	90.9	167.6	91.4	83.7	56.4	102.5	45.4	138.6	90.3	174.2	94.2	89.2	75.6	84.0	100.3	97.8	99.0	36.2
1983-84	90.6	161.9	89.8	84.5	56.2	104.0	45.0	137.9	90.5	173.7	92.4	92.7	75.4	81.4	99.9	97.4	98.4	35.6
1984-85	90.3	156.4	88.3	85.3	56.1	105.5	44.6	137.2	90.7	173.1	90.7	96.4	75.1	78.9	99.5	97.0	97.9	35.1
1985-86	90.0	151.1	86.8	86.1	55.9	107.1	44.2	136.4	90.9	172.6	89.1	100.1	74.8	76.5	99.1	96.6	97.4	34.8
1986-87	94.1	148.7	85.9	87.8	54.2	105.8	43.9	136.9	90.3	161.4	87.6	99.5	74.4	79.7	94.4	96.2	96.3	33.2
1987-88	95.7	151.8	85.8	89.2	54.7	103.9	43.2	138.3	90.3	163.7	87.0	98.4	73.8	78.7	92.8	96.2	96.5	34.0
1988-89	95.7	151.8	84.6	89.3	54.7	103.2	42.6	138.1	90.5	167.3	86.1	98.8	73.5	77.7	92.6	96.0	96.4	34.8
1989-90	95.6	151.8	83.4	89.5	54.6	102.5	41.9	137.9	90.6	171.0	85.2	99.3	73.2	76.6	92.3	95.8	96.4	35.5
1990-91	95.6	151.8	82.2	89.7	54.6	101.8	41.3	137.7	90.8	174.7	84.4	99.7	72.9	75.5	92.1	95.7	96.3	36.4
1991-92	93.2	170.4	81.1	89.4	54.3	102.7	42.5	133.6	86.6	181.2	81.5	99.8	72.8	73.0	89.0	94.5	96.7	39.6
1992-93	91.6	173.0	79.3	89.1	55.7	101.9	41.8	136.1	87.1	177.9	80.5	103.4	72.5	72.3	82.9	93.8	96.3	40.1
1993-94	92.3	167.7	79.5	87.4	54.0	99.0	40.4	134.5	87.8	158.7	80.1	103.2	72.0	76.5	80.6	92.8	94.2	37.3
1994-95	92.0	169.7	77.4	87.2	59.6	101.3	40.8	138.1	87.4	162.1	80.4	104.1	71.9	76.1	80.3	93.3	95.2	37.7
1995-96	91.6	171.8	75.4	87.0	65.9	103.7	41.2	141.7	86.9	165.7	80.7	105.0	71.8	75.8	79.9	93.8	96.3	38.1
1996-97	91.2	173.9	73.5	86.8	72.8	106.2	41.6	145.5	86.4	169.2	80.9	105.9	71.7	75.4	79.6	94.2	97.4	38.6
1997-98	90.9	176.0	71.6	86.6	80.5	108.7	42.0	149.3	86.0	172.9	81.2	106.9	71.6	75.0	79.2	94.7	98.6	39.2
1998-99	93.7	178.6	67.4	85.6	80.4	113.6	41.1	150.4	84.6	170.5	79.9	105.3	72.1	75.2	79.5	94.6	98.5	39.8
1999-00	98.6	176.4	67.1	86.0	81.5	114.4	42.5	152.2	85.0	168.7	79.5	104.9	72.3	72.5	80.0	95.1	98.8	39.2
2000-01	103.8	174.3	66.7	86.5	82.7	115.2	43.9	154.0	85.5	167.0	79.2	104.5	72.5	69.9	80.6	95.7	99.1	38.7
2001-02	111.1	164.8	67.5	95.8	80.5	113.0	41.6	150.7	85.2	157.7	80.0	107.8	74.6	82.1	76.6	97.0	99.3	35.6
2002-03	118.9	155.9	68.3	106.1	78.4	110.8	39.4	147.5	84.9	148.8	80.9	111.3	76.8	96.5	72.9	98.4	99.8	33.3
2003-04	122.7	157.1	66.0	86.5	85.3	115.9	42.5	176.9	85.0	162.1	78.6	150.1	75.6	102.0	72.0	104.9	105.2	38.4

CGR

1980-04	0.80	0.52	-1.64	0.34	2.11	0.45	-0.44	0.66	-0.39	-0.36	-0.86	1.14	-0.13	0.12	-1.52	-0.01	-	-
1980-91	-0.55	0.27	1.45	-0.82	0.56	0.03	1.08	-0.02	0.10	0.47	1.46	-1.22	0.47	0.88	1.19	0.31	-	-
1991-04	2.35	-0.50	-1.86	0.54	4.22	1.28	0.04	1.69	-0.27	-0.80	-0.16	1.66	0.38	1.87	-1.14	0.63	-	-

Source: Various issues of (i) Statistical Abstract, (ii) Economic Survey

It is observed that during pre reform period the rate of growth of the number of schools per lakh was negative in 4 States and the rate was the highest in Punjab(1.46%) and the lowest rate was that of Rajasthan (-1.22%). Compared to pre reform period growth rates in the post reform period are found to be higher in seven States (Andhra Pradesh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Rajasthan and Uttar Pradesh) and at all India level the rate increased from 0.31 per cent to 0.63 per cent. The Post reform growth rate was the highest in Haryana (4.22%) and the rate was lowest in Bihar ( -1.86 %). In the overall period seven States have registered negative growth rate and the rates ranged from -1.64 per cent in Bihar to 2.11 per cent in Haryana. It is seen that inter state disparity as measured by coefficient of variation has widened, as the coefficient has increased from 33.4 in 1980-81 to 38.4 in 2003-04.

### **Number of Schools per 100 Square Kilometres**

Table 5.2 presents State-wise number of schools from primary to higher secondary level per 100 Sq. Km. It is observed that over the period the number has increased in all the States. At national level the number increased gradually from 20.2 in 1980-81 to 40.5 in 2003-04. In 1980-81 West Bengal had the highest number of schools per area (60.9), followed by Bihar (37.7) and Assam (35.6) while, Rajasthan (8.8), Gujarat (14.4), and Madhya Pradesh (15.6) were at the last three positions and in seven States the number was less than the all India level. In 2003-04 the number ranged between 26 in Rajasthan and 67.2 in West Bengal. In five States – Rajasthan (26), Maharashtra (27.7), Gujarat (28.3), Karnataka (32.9) and Madhya Pradesh (33.9) – the number was less than national level (34.1)

Table 5.2. Number of Schools per 100 Square Kilometres (Primary to Higher Secondary)

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1980-81	17.8	35.6	37.7	14.4	16.5	19.7	29.9	15.6	18.6	29.7	31.9	8.8	28.3	30.3	60.9	20.2	26.4	48.8
1981-82	18.0	36.1	37.9	14.7	16.9	19.8	30.1	16.7	18.8	30.1	32.2	9.1	28.4	31.0	63.6	20.7	26.9	49.5
1982-83	18.3	39.8	38.1	15.1	17.1	20.6	30.4	16.9	19.1	30.4	32.3	9.3	28.9	31.6	63.8	21.1	27.4	49.1
1983-84	18.6	40.6	38.1	15.5	17.6	21.3	30.7	17.2	19.5	30.8	32.3	9.9	29.2	31.6	64.6	21.4	27.8	48.7
1984-85	18.8	41.5	38.2	15.9	18.0	22.0	31.0	17.4	19.9	31.2	32.3	10.6	29.6	31.6	65.5	21.7	28.2	48.2
1985-86	19.0	42.4	38.2	16.4	18.4	22.8	31.3	17.6	20.3	31.6	32.4	11.3	29.9	31.5	66.4	22.1	28.6	47.8
1986-87	20.3	42.7	38.7	17.0	18.3	23.0	31.6	18.1	20.6	30.1	32.4	11.5	30.2	33.5	64.5	22.4	28.8	45.9
1987-88	21.0	44.5	39.5	17.6	18.9	23.0	31.7	18.6	20.9	31.1	32.7	11.7	30.4	33.8	64.6	22.9	29.3	45.3
1988-89	21.3	45.6	39.8	17.9	19.3	23.2	31.7	19.0	21.3	32.3	32.7	12.0	30.7	34.1	65.6	23.3	29.8	45.2
1989-90	21.7	46.6	40.0	18.2	19.7	23.5	31.7	19.3	21.6	33.6	32.8	12.4	31.0	34.3	66.6	23.7	30.2	45.2
1990-91	22.1	47.7	40.3	18.6	20.1	23.8	31.7	19.7	22.0	34.9	32.9	12.8	31.3	34.5	67.6	24.1	30.7	45.2
1991-92	22.7	49.0	40.5	19.0	20.4	24.2	32.0	20.1	22.4	37.0	33.0	12.9	31.4	34.8	68.7	24.5	31.2	45.2
1992-93	22.7	50.9	40.6	19.2	21.4	24.4	31.9	20.9	22.9	37.1	33.1	13.7	31.6	35.0	65.0	24.8	31.4	42.7
1993-94	23.2	50.2	40.9	19.3	21.3	24.2	31.1	21.2	23.5	33.6	33.8	14.0	31.9	38.2	64.5	25.0	31.4	42.0
1994-95	23.4	51.7	41.0	19.6	24.1	25.2	31.7	22.2	23.9	34.8	34.5	14.5	32.2	38.9	65.4	25.7	32.2	41.1
1995-96	23.7	53.3	41.0	19.9	27.3	26.2	32.3	23.3	24.4	36.1	35.2	15.0	32.5	39.5	66.3	26.3	33.1	40.2
1996-97	24.0	54.9	41.1	20.3	30.9	27.2	32.9	24.4	24.8	37.5	35.9	15.5	32.8	40.2	67.3	27.0	34.0	39.4
1997-98	24.3	56.6	41.2	20.6	35.0	28.3	33.5	25.5	25.2	38.9	36.7	16.1	33.1	40.9	68.2	27.7	34.9	38.8
1998-99	25.3	58.4	39.8	20.8	35.8	30.0	33.0	26.2	25.3	38.9	36.7	16.2	33.6	41.9	69.4	28.1	35.4	39.0
1999-00	26.8	58.5	40.6	21.4	37.3	30.7	34.4	27.0	25.9	39.0	37.2	16.6	34.0	41.4	70.9	28.8	36.1	38.3
2000-01	28.5	58.7	41.4	22.0	38.8	31.4	35.8	27.9	26.6	39.1	37.7	16.9	34.4	40.8	72.3	29.5	36.8	37.7
2001-02	32.0	59.0	42.8	24.8	38.6	31.2	36.0	27.8	26.9	39.0	39.0	17.9	35.8	57.0	72.0	31.0	38.6	37.1
2002-03	33.3	54.2	44.3	28.0	38.4	31.0	32.7	27.7	27.3	35.7	39.8	18.9	37.2	58.8	67.1	31.5	38.3	34.0
2003-04	34.7	55.5	43.5	28.3	42.5	32.9	35.6	33.9	27.7	39.4	39.2	26.0	37.0	63.5	67.2	34.1	40.5	30.8
<b>CGR</b>																		
1980-04	2.59	2.10	0.57	2.50	4.56	2.17	0.60	2.93	1.80	1.29	0.96	3.63	1.08	2.49	0.41	2.02	-	-
1980-91	2.39	2.86	0.70	2.73	1.94	2.01	0.63	2.11	1.76	1.28	0.28	3.93	1.07	1.34	0.71	1.73	-	-
1991-04	3.63	1.19	0.56	3.25	6.77	2.84	0.90	3.76	1.74	0.62	1.61	4.20	1.43	4.19	0.44	2.57	-	-

Source: Various issues of (1) Statistical Abstract, (2) Economic Survey

The rate of growth of number of schools per 100 Sq. Km is found to be ranging between 0.41 in West Bengal and 4.56 in Haryana in the overall period. In the pre reform period the highest rate was 3.93 per cent in Rajasthan, followed by 2.86 per cent in Assam and 2.73 per cent in Gujarat. The growth rate was the lowest in Punjab (0.28%) followed by Kerala (0.63%). The post reform rate ranged between 0.44 per cent in West Bengal and 6.77 per cent in Haryana. Compared to pre reform period growth rates in the post reform period are found to be higher in 10 States. In States like Assam, Bihar, Maharashtra, Orissa and West Bengal the post reform States rates were lower than pre reform rates. Disparity among States has decreased from 48.8 in 1980-81 to 30.8 in 2003-04. This is against the diverging trend seen in the case of number of schools per lakh population.

### **Number of Colleges per lakh Population**

The table 5.3 presents State wise number of colleges per lakh population for the period from 1980-81 to 2003-04. It is observed that in 9 States the number of colleges per population increased over the period. The national average improved from 1.36 in 1980-81 to 1.42 in 2003-04. In 1980-81 only in 6 States the ratio was higher than the national level (1.36) and the ratio ranged between 0.81 in Tamil Nadu and 2.09 in Karnataka. In 2003-04 too 6 States were with more colleges per lakh population and the number ranged between 0.59 in West Bengal and 2.77 in Karnataka.

The rate of growth in the overall period was negative in 9 States and ranged between -5.2 per cent in Uttar Pradesh 1.8 per cent in Tamil Nadu. The pre reform growth rates were negative in 9 States and the

highest rate was 4 per cent in Maharashtra and the lowest rate was -11 per cent in Uttar Pradesh. Post reform rates were comparatively higher in 10 States and only 5 States registered negative rates. The highest rate was 5.3 per cent in Andhra Pradesh, while -1.3 per cent growth in West Bengal was the lowest. Inter- State disparity shows diverging trend over the period. The coefficient of variation has increased from 30.51 in 1980-81 to 41.55 in 2003-04.

### **Number of Colleges per 100 Square Kilometres**

As observed from table 5.4, Number of colleges per 100 sq.km has increased in all States except Uttar Pradesh and West Bengal .The ratio has come down from 0.64 to 0.44 in Uttar Pradesh and from 0.77 to 0.55 in West Bengal. At national level the number increased from 0.28 per 100 Sq. Km in 1980-81 to 0.43 in 2003-04. In 1980-81, four States – Rajasthan (0.08), Madhya Pradesh (0.11), Gujarat (0.19) and Orissa (0.2) had lesser number of colleges than all India level. The same States except Orissa were below the national level in 2003-04 too, even though the number showed improvement over the period. Kerala with 0.78 and West Bengal with 0.77 occupied the first two positions in 1980-81 and in 2003-04, Kerala with 1.02 and Karnataka with 0.79 were at the top positions.

Table 5.3 Number of Colleges Per Lakh Population

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1980-81	1.65	1.11	0.92	1.13	1.82	2.09	1.21	0.96	1.60	1.21	1.82	0.82	0.81	1.74	1.27	1.36	1.34	30.51
1981-82	1.81	1.24	0.91	1.10	1.84	2.29	1.29	0.95	1.58	1.34	1.79	0.82	0.80	1.76	0.98	0.79	1.37	33.35
1982-83	1.95	1.25	0.90	1.08	1.80	2.32	1.32	0.94	1.67	1.46	1.77	0.82	0.78	1.78	0.95	1.37	1.39	34.40
1983-84	2.09	1.13	0.91	1.07	1.82	2.32	1.31	0.97	1.80	1.56	1.74	0.82	0.86	2.12	1.02	1.48	1.44	35.73
1984-85	2.21	1.12	0.92	1.05	1.84	2.31	1.30	0.99	1.93	1.64	1.70	0.83	0.93	2.59	1.08	1.60	1.50	38.49
1985-86	2.35	1.12	0.94	1.03	1.86	2.29	1.29	1.01	2.07	1.74	1.67	0.83	1.01	3.17	1.14	1.73	1.57	43.08
1986-87	2.34	1.09	0.92	1.12	2.00	2.25	1.28	1.01	2.32	1.79	1.60	0.82	1.01	0.47	1.17	1.31	1.41	42.15
1987-88	1.39	0.87	1.07	1.17	2.05	2.89	1.35	1.14	2.35	1.20	1.59	0.89	0.99	0.86	1.18	1.34	1.40	42.21
1988-89	1.37	0.87	1.02	1.12	1.81	2.73	1.21	1.1	2.24	1.26	1.5	0.83	0.95	0.83	1.05	1.28	1.33	41.28
1989-90	1.34	0.85	1	1.11	1.77	2.68	1.2	1.08	2.21	1.24	1.48	0.81	0.94	0.81	1.03	1.25	1.30	41.32
1990-91	1.32	0.85	0.95	1.07	1.57	2.53	1.08	1.05	2.11	1.3	1.4	0.75	0.9	0.78	0.91	1.2	1.24	40.78
1991-92	1.25	0.94	0.9	1.03	1.38	2.41	1.01	0.99	1.91	1.36	1.29	0.71	0.87	0.73	0.78	1.13	1.17	39.78
1992-93	1.23	0.94	0.85	0.99	1.21	2.29	0.91	0.96	1.82	1.43	1.22	0.66	0.83	0.7	0.69	1.07	1.12	40.34
1993-94	1.31	0.91	0.84	1	1.03	2.18	0.76	1	1.85	1.71	1.18	0.63	0.8	0.71	0.6	1.06	1.10	42.81
1994-95	1.3	1	0.8	0.96	0.99	2.17	0.8	0.92	1.71	1.66	1.09	0.61	0.83	0.65	0.55	1.02	1.07	42.77
1995-96	1.4	1.06	0.81	0.99	1.02	2.26	0.83	0.94	1.74	1.7	1.09	0.63	0.9	0.65	0.55	1.05	1.10	43.10
1996-97	1.51	1.11	0.81	1.02	1.05	2.37	0.88	0.96	1.78	1.74	1.09	0.65	0.97	0.65	0.55	1.08	1.14	43.83
1997-98	1.63	1.18	0.78	1.05	1.07	2.5	0.93	0.98	1.78	1.79	1.1	0.67	1.06	0.66	0.55	1.11	1.18	44.75
1998-99	1.75	1.27	0.79	1.06	1.11	2.66	0.99	1.00	1.85	1.81	1.21	0.66	1.16	0.69	0.56	1.16	1.24	45.56
1999-00	1.8	1.31	0.7	1.15	1.14	2.74	1.05	0.99	1.59	1.86	1.27	0.71	1.24	0.7	0.58	1.21	1.26	45.11
2000-01	1.86	1.34	0.61	1.24	1.16	2.82	1.11	0.98	1.36	1.92	1.33	0.76	1.32	0.71	0.61	1.26	1.28	45.71
2001-02	1.79	1.27	0.71	1.07	0.99	2.39	0.86	0.72	1.78	1.67	1.13	0.60	1.03	0.54	0.55	1.08	1.14	47.88
2002-03	2.12	1.39	0.90	1.26	1.20	2.78	1.22	1.26	1.88	2.06	1.39	0.87	1.39	0.73	0.60	1.31	1.40	41.81
2003-04	2.31	1.40	0.90	1.25	1.23	2.77	1.21	1.27	1.87	2.04	1.37	1.12	1.32	0.71	0.59	1.33	1.42	41.55
<b>CGR</b>																		
1980-04	-0.1	0.9	-1.1	0.2	-3.1	0.7	-1.4	0.2	-0.4	1.6	-1.9	-0.6	1.8	-5.2	-3.8	-0.6	-	-
1980-91	-3.7	-4.0	1.2	0.1	-0.5	2.3	-1.0	1.6	4.0	-0.8	-2.5	-0.2	2.0	-11	-0.7	0.6	-	-
1991-04	5.3	4.0	-0.8	2.1	-0.1	1.9	2.6	1.0	-0.5	2.7	1.0	2.7	4.7	-0.3	-1.3	1.7	-	-

Source: Various issues of (1) Statistical Abstract, (2) Economic Survey

Table 5.4 Number of Colleges Per 100 Square Kilometres

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1980-81	0.32	0.28	0.36	0.19	0.52	0.40	0.78	0.11	0.32	0.20	0.60	0.08	0.30	0.64	0.77	0.28	0.39	57.13
1981-82	0.36	0.29	0.37	0.19	0.54	0.45	0.85	0.11	0.32	0.23	0.60	0.08	0.30	0.67	0.61	0.17	0.40	54.92
1982-83	0.39	0.30	0.37	0.20	0.55	0.47	0.88	0.12	0.35	0.25	0.61	0.09	0.30	0.67	0.61	0.30	0.41	53.97
1983-84	0.46	0.31	0.40	0.20	0.59	0.48	0.90	0.13	0.42	0.30	0.61	0.09	0.37	1.05	0.71	0.36	0.47	57.61
1984-85	0.46	0.31	0.40	0.20	0.59	0.48	0.90	0.13	0.42	0.30	0.61	0.09	0.37	1.05	0.71	0.36	0.47	57.61
1985-86	0.50	0.31	0.41	0.20	0.61	0.49	0.91	0.13	0.46	0.32	0.61	0.09	0.40	1.31	0.77	0.39	0.50	62.94
1986-87	0.50	0.31	0.41	0.22	0.67	0.49	0.92	0.13	0.53	0.33	0.59	0.10	0.41	0.20	0.80	0.31	0.44	54.22
1987-88	0.31	0.26	0.49	0.23	0.71	0.64	0.99	0.15	0.54	0.23	0.60	0.11	0.41	0.37	0.82	0.32	0.46	56.52
1988-89	0.30	0.26	0.48	0.23	0.64	0.61	0.90	0.15	0.53	0.24	0.57	0.10	0.40	0.36	0.74	0.31	0.43	52.99
1989-90	0.30	0.26	0.48	0.23	0.64	0.61	0.90	0.15	0.53	0.24	0.57	0.10	0.40	0.36	0.74	0.31	0.43	52.99
1990-91	0.30	0.27	0.47	0.22	0.58	0.59	0.83	0.15	0.51	0.26	0.55	0.10	0.39	0.35	0.67	0.30	0.42	49.60
1991-92	0.30	0.27	0.45	0.22	0.52	0.57	0.76	0.15	0.49	0.28	0.52	0.09	0.37	0.35	0.60	0.29	0.40	46.43
1992-93	0.30	0.28	0.44	0.21	0.47	0.55	0.70	0.15	0.48	0.30	0.50	0.09	0.36	0.34	0.54	0.28	0.38	43.49
1993-94	0.30	0.29	0.41	0.21	0.38	0.51	0.58	0.14	0.45	0.34	0.46	0.08	0.34	0.32	0.44	0.27	0.35	38.71
1994-95	0.33	0.31	0.42	0.22	0.40	0.54	0.62	0.15	0.47	0.36	0.47	0.08	0.37	0.33	0.45	0.28	0.37	38.64
1995-96	0.36	0.33	0.43	0.23	0.42	0.58	0.66	0.15	0.48	0.37	0.48	0.09	0.41	0.34	0.46	0.29	0.39	38.76
1996-97	0.40	0.35	0.44	0.24	0.44	0.61	0.70	0.16	0.50	0.39	0.49	0.10	0.45	0.35	0.46	0.31	0.41	38.41
1997-98	0.43	0.38	0.45	0.25	0.47	0.65	0.74	0.17	0.52	0.40	0.50	0.10	0.49	0.36	0.47	0.32	0.43	38.97
1998-99	0.47	0.41	0.47	0.26	0.50	0.70	0.79	0.17	0.55	0.41	0.56	0.10	0.54	0.39	0.49	0.35	0.45	39.71
1999-00	0.49	0.43	0.42	0.29	0.52	0.74	0.85	0.18	0.48	0.43	0.59	0.11	0.58	0.40	0.51	0.37	0.47	40.58
2000-01	0.51	0.45	0.38	0.32	0.55	0.77	0.91	0.18	0.42	0.45	0.64	0.12	0.63	0.41	0.54	0.39	0.48	42.14
2001-02	0.49	0.43	0.45	0.28	0.47	0.66	0.70	0.13	0.56	0.39	0.55	0.10	0.49	0.32	0.50	0.34	0.44	39.05
2002-03	0.59	0.48	0.58	0.33	0.59	0.78	1.02	0.24	0.60	0.50	0.68	0.15	0.67	0.44	0.55	0.42	0.55	38.93
2003-04	0.65	0.49	0.59	0.34	0.61	0.79	1.02	0.24	0.61	0.50	0.68	0.19	0.65	0.44	0.55	0.43	0.56	37.25

**CGR**

1980-04	1.6	2.4	1.1	2.2	-0.8	2.4	-0.3	2.3	1.7	3.3	-0.2	1.9	2.9	-3.1	-2.0	1.4	-	-
1980-91	-2.3	-1.2	3.3	2.0	2.0	4.3	0.7	3.5	5.8	0.7	-0.8	2.5	3.4	-9.6	1.0	2.4	-	-
1991-04	6.9	5.6	1.8	4.3	2.5	3.6	3.4	3.3	1.8	4.2	3.0	5.5	5.9	2.1	0.5	3.9	-	-

Source: Various issues of (1) Statistical Abstract, (2) Economic Survey

During the period from 1980-81 to 2003-04, five States – Haryana (-0.8 %), Kerala (-0.3%), Punjab (-0.2 %), Uttar Pradesh (-3.1%) and West Bengal (-2 %) - registered negative growth rate. The growth rates were higher than the all India rate (1.4%) in 9 States. During pre reform period, the rates in Andhra Pradesh (-2.3 %), Assam (-1.2%), Punjab (-0.8%) and Uttar Pradesh (-9.6%) were below the all India rate (2.4%). The highest pre- reform rate was 5.8 per cent in Maharashtra, followed by 4.3 per cent in Karnataka. Post reform growth rates were positive in all States and ranged between 0.5 per cent in West Bengal and 6.9 per cent in Andhra Pradesh followed by 5.9 per cent in Tamil Nadu. It may be noted that post reform growth rates were higher than pre reform rates in 10 States. Disparity as measured by coefficient of variation has declined from 57.13 to 37.25 indicating a converging tendency. It is seen that the coefficient in the pre reform period was high compared to post reform period.

### **Pupil - Teacher Ratio**

One of the important indicators that influence class room teaching is the number of students per teacher. Stage-wise details show that the ratio differs at each stage from State to State. The current official norms of pupil- teacher ratio are 40: 1 in primary schools and 35: 1 in upper primary schools. State wise pupil teacher ratio in Primary stage is presented in Table 5.5.

**Table 5.5. Pupil Teacher Ratio in Primary Stage**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1980-81	50	35	40	41	39	43	34	37	39	33	40	40	39	37	35	38	38.80	10.77
1981-82	50	39	40	42	42	46	33	37	39	33	39	42	40	40	33	38	39.67	11.77
1982-83	52	35	41	42	44	44	33	41	40	33	37	45	41	42	36	40	40.40	12.51
1983-84	53	37	43	42	43	43	33	42	39	34	37	44	42	43	37	40	40.83	12.04
1984-85	54	39	45	41	42	42	32	42	39	35	38	44	42	45	37	41	41.28	12.04
1985-86	55	41	47	41	41	41	32	43	38	37	38	43	43	46	38	41	41.76	12.51
1986-87	56	43	49	41	40	40	32	44	38	38	39	43	44	48	39	42	42.27	13.40
1987-88	55	42	49	40	41	41	32	43	38	37	39	43	44	49	39	42	42.28	13.23
1988-89	54	41	49	38	42	43	32	43	38	36	39	42	44	49	40	42	42.31	13.31
1989-90	54	41	50	37	44	44	32	42	39	36	39	42	45	50	40	42	42.35	13.63
1990-91	53	40	50	36	45	46	32	42	39	35	39	42	45	51	41	42	42.40	14.17
1991-92	53	39	50	38	20	47	33	44	38	35	39	41	47	56	41	43	41.40	21.37
1992-93	53	39	52	44	44	41	32	45	37	36	40	46	47	58	55	45	44.60	16.71
1993-94	49	35	50	36	47	39	31	40	37	38	42	37	37	42	43	40	40.24	13.34
1994-95	52	39	56	45	51	50	31	39	35	36	39	44	50	59	57	48	45.53	19.27
1995-96	50	39	55	48	46	48	30	44	38	35	40	51	50	59	57	47	46.00	18.06
1996-97	53	37	58	46	48	36	30	43	37	36	41	49	40	59	57	45	44.67	20.36
1997-98	49	37	62	47	47	31	30	44	38	35	40	42	39	42	57	42	42.67	20.67
1998-99	46	35	63	51	46	32	32	32	32	32	32	32	32	32	32	32	37.40	25.62
1999-00	47	38	63	51	43	32	45	44	35	37	41	54	36	42	54	43	44.13	19.22
2000-01	42	35	69	43	42	30	38	41	35	38	40	49	35	46	54	43	42.56	22.22
2001-02	37	32	76	37	42	28	33	38	36	39	39	45	35	50	53	42	41.30	28.12
2002-03	33	30	83	31	41	26	28	36	36	40	38	41	34	55	53	42	40.33	35.59
2003-04	35	40	74	32	45	34	29	41	37	56	42	46	35	57	55	45	43.87	27.57

Source: Various issues of (1) Selected Educational Statistics- MHRD, Govt. of India, (2) Statistical Abstract

As observed from the table, in 1980-81, at all India level the ratio was 38 and 3 States – Andhra Pradesh (50), Gujarat (41) and Karnataka (43) – could not follow the norm of 40 students per teacher in the primary stage. In 1980-81 the ratio was the lowest in Orissa with 33 students per teacher and Andhra Pradesh had the highest Pupil teacher ratio. The all India ratio in 2003-04 increased to 45 and only in 7 States the ratio was according to the prescribed 40 students per teacher. The ratio was very high in Bihar with 74 students per teacher and the ratio was the lowest in Kerala (29).

## **5.2 Health Infrastructure**

The health status of people is a reflection of the socio economic development of the country and is shaped by a variety of factors, of which availability, accessibility and affordability of health care delivery services are the most important. Therefore an analysis of health infrastructure development and the inter state disparities are attempted. The indicators used are number of hospitals, dispensaries, hospital beds, doctors and nursing personnel per lakh population.

### **Number of Hospitals per Lakh population**

Table 5.6 presents the number of hospitals per lakh population from 1980-81 to 2003-04. As observed from Table 5.6, in 1980-81 number of hospitals per lakh population was the highest in Kerala (3.01) which is more than nine times greater than the facility available to people of Bihar (.33). At the national level the number was 1.01 and States like Kerala, Gujarat (2.47), Maharashtra (1.62), Punjab (1.54), Orissa (1.16) and Andhra Pradesh (1.15) had better facility compared to

the national level. On the other hand States like Bihar (0.33), Madhya Pradesh (0.54) and Assam (0.56) were at the lowest level.

In 2003-04 too Kerala with 6.44 hospitals per lakh population stood far ahead of other States. Only five States – Andhra Pradesh, Assam, Gujarat, Kerala and Maharashtra- has shown improvement in 2003-04 compared to 1980-81. States like Madhya Pradesh (0.11), Rajasthan (0.19), Bihar (0.29) and Haryana (0.356) were at the other end of the list. It may be noted that all these States have lower per capita health expenditure in 2003-04 compared to 1980-81. These are also the States with relatively higher rate of growth of population. In ten out of 15 States the hospital–population ratio has declined in 2003-04 compared to 1980-81. At national level the facility has increased from 1.01 in 1980-81 to 1.44 in 2003-04 and was the highest (1.68) in 1993-94.

Table 5.6. Number of Hospitals per Lakh Population

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1980-81	1.15	0.56	0.33	2.47	0.67	0.64	3.01	0.54	1.62	1.16	1.54	0.68	0.78	0.67	0.76	1.01	1.10	69.08
1981-82	1.13	0.60	0.32	2.53	0.66	0.62	2.96	0.53	1.79	1.17	1.51	0.66	0.77	0.65	0.74	1.02	1.11	69.89
1982-83	1.10	0.58	0.31	2.59	0.65	0.61	2.91	0.51	1.96	1.17	1.48	0.64	0.76	0.64	0.72	1.02	1.11	71.35
1983-84	1.09	0.57	0.31	2.55	0.63	0.60	2.86	0.52	2.07	1.16	1.46	0.69	0.78	0.63	0.70	1.02	1.11	70.80
1984-85	1.08	0.58	0.30	3.38	0.60	0.60	1.21	0.51	2.29	1.11	1.44	0.65	0.77	0.62	0.70	1.02	1.06	76.77
1985-86	1.06	0.58	0.39	3.82	0.52	0.61	1.19	0.53	2.69	1.09	1.45	0.63	0.78	0.61	0.69	1.07	1.11	85.11
1986-87	1.04	0.62	0.38	3.75	0.53	0.60	7.33	0.59	2.68	1.02	1.44	0.63	0.69	0.59	0.68	1.28	1.50	123.67
1987-88	1.02	0.73	0.37	3.86	0.51	0.63	7.21	0.59	2.64	1.00	1.41	0.61	0.72	0.58	0.67	1.28	1.50	122.35
1988-89	1.00	0.86	0.37	3.98	0.49	0.66	7.10	0.59	2.60	0.99	1.38	0.59	0.75	0.57	0.65	1.28	1.51	120.91
1989-90	0.99	1.11	0.36	4.47	0.49	0.65	9.96	0.65	2.86	0.94	1.19	0.63	0.74	0.56	0.65	1.43	1.75	144.07
1990-91	1.69	1.09	0.37	5.07	0.48	0.65	8.19	0.60	3.43	0.92	1.14	0.55	0.73	0.55	0.62	1.52	1.74	126.98
1991-92	2.79	1.19	0.38	5.70	0.47	0.65	6.98	0.54	3.92	0.89	1.06	0.49	0.73	0.52	0.57	1.61	1.79	117.39
1992-93	2.73	1.16	0.37	5.60	0.46	0.64	6.88	0.53	3.84	0.88	1.05	0.48	0.72	0.52	0.56	1.58	1.76	117.49
1993-94	4.27	1.14	0.37	5.48	0.45	0.62	6.81	0.52	3.78	1.13	1.02	0.47	0.71	0.50	0.55	1.68	1.86	114.55
1994-95	4.20	1.12	0.36	5.73	0.44	0.61	6.73	0.51	3.71	1.11	1.02	0.46	0.70	0.49	0.55	1.66	1.85	115.61
1995-96	4.13	1.10	0.36	5.62	0.43	0.60	6.64	0.50	3.64	1.26	1.00	0.45	0.69	0.48	0.54	1.64	1.83	114.85
1996-97	4.30	1.08	0.35	5.52	0.42	0.59	6.78	0.49	3.58	0.79	0.98	0.44	0.68	0.47	0.53	1.62	1.80	118.78
1997-98	4.27	1.06	0.33	5.41	0.42	0.59	6.80	0.48	3.45	0.78	0.97	0.43	0.68	0.46	0.52	1.58	1.78	119.48
1998-99	4.22	1.05	0.32	5.30	0.41	0.58	6.75	0.47	3.74	0.77	0.95	0.42	0.67	0.45	0.52	1.59	1.77	119.41
1999-00	4.18	1.03	0.31	5.19	0.40	0.57	6.68	0.46	3.67	0.76	0.93	0.21	0.67	0.44	0.51	1.59	1.73	121.04
2000-01	4.15	1.02	0.30	5.07	0.38	0.56	6.62	0.12	3.60	0.75	0.92	0.20	0.66	0.43	0.52	1.54	1.69	123.83
2001-02	4.13	1.00	0.30	4.96	0.37	0.55	6.58	0.12	3.54	0.74	0.90	0.20	0.66	0.42	0.51	1.49	1.66	124.06
2002-03	4.07	0.98	0.29	4.88	0.37	0.55	6.50	0.11	3.49	0.73	0.89	0.19	0.65	0.41	0.50	1.47	1.64	124.19
2003-04	4.02	0.97	0.29	4.80	0.36	0.54	6.44	0.11	3.44	0.72	0.88	0.19	0.64	0.40	0.50	1.44	1.62	124.34
<b>CGR</b>																		
1980-04	8.6	3.1	-0.5	3.3	-2.6	-0.6	4.8	-5.6	3.2	-2.1	-2.8	-5.6	-0.8	-2.2	-2.0	2.2	-	-
1980-91	0.8	7.2	1.9	7.6	-3.8	0.6	15.9	2.1	6.7	-2.7	-2.5	-1.7	-0.8	-1.9	-1.8	4.4	-	-
1991-04	2.2	-1.7	-2.5	-1.5	-2.3	-1.5	-0.5	-14.2	-0.9	-3.3	-1.6	-9.3	-1.0	-2.2	-1.1	-1.0	-	-

Source: (i) Health Information of India, Central Bureau of Health Intelligence (various issues ), (ii) Statistical Abstract, India ( various issues)

The rate of growth of hospitals per lakh ranged between -5.6 per cent in Madhya Pradesh and Rajasthan, and 8.6 per cent in Andhra Pradesh during the over all period. Growth rates in the post reform period were much low compared to the pre reform period in eleven out of fifteen States. When the pre reform rates ranged between -3.8 per cent in Haryana and 15.9 in Kerala, the post reform growth rates ranged between -14.2 per cent in Madhya Pradesh and 2.2 per cent in Andhra Pradesh. Madhya Pradesh had the lowest rate of growth in the number of hospitals in the post reform period (-14.2) and in the overall period (-5.6).

Disparity among States in terms of number of hospitals per population, is found to be very high and has increased over the period. This is evident from the fact that the facility in Kerala was more than nine times higher than that in Bihar in 1980-81 and 22 times higher in 2003-04. Hospital facility in Kerala was 58 times that of M.P and 34 times that of Rajasthan in 2003-04. It is seen from the table that coefficient of variation has increased from 69.08 in 1980-81 to 124.34 in 2003-04. The coefficient ranged between 69.08 in 1980-81 and 144.07 in 1989-90. During post reform period the coefficient increased from 117.49 in 1991-92 to 124.34 in 2003-04 more or less gradually. On the other hand in the pre reform period it shows sharp changes. The coefficient has increased from 69.08 in 1980-81 to 126.98 in 1990-91. In 1986-87 the coefficient increased to 123.67 from 85.11 in 1985-86 and in 1989-90, to 144.07 from 120.91 in 1988-89.

## **Number of Dispensaries per Lakh population**

As observed from Table 5.7, number of dispensaries per lakh population in 1980-81 varied from 0.72 in West Bengal to 8.51 in Punjab. At all India level the number was 2.25 and six States – Punjab (8.51), Maharashtra (5.41), Karnataka (3.71), Rajasthan (3.41), Kerala (2.91) and Assam (2.32) - had more dispensaries than all India level. In 2003-04 Gujarat had the highest number of dispensaries (13.72) followed by Punjab (5.9) and Maharashtra (5.44). At all India level the number decreased to 2.03 per lakh in 2003-04 and only four States had more dispensaries than the national average. This decrease may be attributed partly to the fact that dispensaries figures prior to 1997 are generally inclusive of PHCs and from 1997 excluding PHCs and partly to restrictions for investment due to financial stringency following economic reforms.

Rate of growth of number of dispensaries in the overall period was -1.26 per cent at national level and only two States-Gujarat (8.05%) and Orissa (7.58%) registered positive growth rate. In twelve States the growth rate was less than the rate at national level and the rate was the lowest in Kerala (-14.3%). During pre reform period Gujarat registered the highest rate (29.77 %) but during post reform period the rate declined to -1.76 per cent. It is seen that the post reform growth rate was less than the pre reform rate in nine States and the all India rate decreased from 4.574 per cent to -4.28 per cent. The rate of growth of number of dispensaries during post reform period was lowest in Kerala (- 34.4 %) and the highest growth rate was that of Orissa (14.15%).

Table 5.7. Number of Dispensaries per Lakh Population

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1980-81	1.3	2.3	1.4	1.3	1.9	3.7	2.9	1.2	5.4	1.1	8.5	3.4	1.3	1.3	0.7	2.3	2.5	83.2
1981-82	1.3	2.4	1.4	1.4	1.9	3.8	2.9	1.2	5.5	1.1	8.8	3.5	1.4	1.4	0.8	2.4	2.6	82.9
1982-83	1.3	2.3	1.4	2.7	1.8	3.9	2.9	1.2	7.2	1.1	9.3	3.6	1.3	1.5	0.7	2.7	2.8	86.3
1983-84	1.4	2.1	1.4	5.4	1.8	4.0	2.8	1.2	9.5	1.1	9.9	3.7	1.3	1.5	0.7	3.0	3.2	92.8
1984-85	1.4	2.1	1.3	5.3	1.7	3.9	2.8	1.1	9.2	1.1	9.9	3.7	1.3	1.4	0.7	3.0	3.1	92.9
1985-86	1.4	1.9	1.3	12.8	1.6	3.8	5.8	0.9	10.5	1.0	9.8	3.6	1.3	1.4	0.9	3.6	3.9	103.4
1986-87	1.3	1.9	2.2	11.3	0.9	3.6	5.3	0.8	12.7	1.0	9.6	3.0	1.3	1.4	0.9	3.7	3.8	106.1
1987-88	1.3	1.7	0.3	11.1	0.9	3.3	7.4	0.7	12.8	0.9	9.2	3.0	0.9	1.4	0.9	3.5	3.7	113.6
1988-89	1.3	1.5	0.4	12.8	1.1	2.8	6.6	0.6	12.6	0.8	8.6	2.9	0.9	1.4	0.9	3.5	3.7	118.0
1989-90	1.3	1.3	0.5	14.7	1.3	2.3	6.0	0.6	12.4	0.7	8.1	2.8	0.9	1.3	0.9	3.5	3.7	124.1
1990-91	1.2	1.3	0.5	15.4	1.3	1.9	5.9	0.4	12.3	0.6	7.5	1.7	0.9	1.3	0.8	3.4	3.6	132.0
1991-92	0.7	1.4	0.5	16.2	1.3	1.8	6.3	0.4	10.9	0.7	7.2	1.0	0.9	1.2	0.8	3.3	3.4	136.8
1992-93	0.4	1.4	0.5	17.1	1.3	1.8	6.6	0.4	10.0	0.7	7.1	0.6	0.9	1.2	0.8	3.2	3.4	142.3
1993-94	0.4	1.4	0.5	16.8	1.2	1.8	6.5	0.4	9.9	0.7	6.9	0.6	0.9	1.2	0.8	3.1	3.3	142.2
1994-95	0.4	1.4	0.5	16.4	1.2	1.7	6.4	0.4	9.7	3.3	6.8	0.6	0.9	1.2	0.8	3.1	3.4	133.4
1995-96	0.4	1.3	0.5	16.1	1.2	1.7	6.4	0.4	9.5	3.3	6.6	0.6	0.9	1.1	0.7	3.1	3.4	133.4
1996-97	0.4	1.3	0.5	15.9	1.2	1.7	6.3	0.3	9.4	3.3	6.5	0.6	0.9	1.1	0.7	3.0	3.3	133.1
1997-98	0.2	1.3	0.4	15.5	0.7	1.6	0.2	0.3	9.0	3.3	6.5	0.5	0.9	1.1	0.7	2.7	2.8	154.3
1998-99	0.2	1.3	0.4	15.2	0.7	1.6	0.2	0.3	8.8	3.4	6.3	0.5	0.8	1.1	0.7	2.6	2.8	153.8
1999-00	0.2	1.2	0.4	14.9	0.6	1.5	0.2	0.3	7.5	3.5	6.2	0.5	0.8	1.0	0.7	2.3	2.6	153.4
2000-01	0.2	1.2	0.4	14.6	0.6	1.5	0.2	0.3	6.1	3.5	6.0	0.5	0.8	1.0	0.3	2.3	2.5	156.9
2001-02	0.2	1.2	0.4	14.2	0.6	1.5	0.2	0.1	6.0	3.4	5.9	0.5	0.8	1.0	0.3	2.2	2.4	157.6
2002-03	0.2	1.2	0.4	14.0	0.6	1.5	0.2	0.1	5.9	3.4	6.0	0.5	0.8	1.0	0.3	2.1	2.4	157.2
2003-04	0.2	1.2	0.4	13.7	0.6	1.5	0.2	0.1	5.4	3.4	5.9	0.4	0.8	1.0	0.2	2.0	23.2	157.8

**CGR**

1980-04	-11	-3.07	-6.34	8.05	-4.84	-5.11	-14.3	-9.34	-1.09	7.589	-2.44	-11.3	-2.45	-1.94	-4.23	-1.26	-	-
1980-91	-0.51	-6.18	-12.8	29.77	-5.8	-6.02	10.9	-9.7	9.476	-5.58	-1.26	-4.85	-4.67	-0.69	2.19	4.574	-	-
1991-04	-11.5	-1.65	-2.51	-1.76	-7.85	-2.00	-34.3	-9.73	-5.71	14.15	-1.69	-4.65	-1.02	-2.22	-11.2	-4.28	-	-

Source: (i) Health Information of India, Central Bureau of Health Intelligence (various issues ), (ii) Statistical Abstract, India ( various issues)

Widening of inequality among States in number of dispensaries is clear from the fact that this facility in Punjab was about 12 times higher than that in West Bengal in 1980-81 and the number was 13.72 per lakh in Gujarat in 2003-04 as against 0.1 in Madhya Pradesh. Disparity as measured by coefficient of variation was very high and varied from 82.9 per cent in 1981-82 to 157.8 per cent in 2003-04.

### **Number of Hospital Beds per lakh population**

From table 5.8 it is seen that, the number of hospital Beds per lakh population was highest in Kerala (198) followed by Maharashtra (142) and Punjab (127) in 1980-81. In 2003-04 too Kerala with 341 beds was at the top followed by Gujarat (149), Maharashtra (128) and Punjab (116). It may be noted that even though Maharashtra and Punjab were among the top few, they had lesser number of beds per lakh in 2003-04 compared to 1980-81. In Maharashtra it has come down from 142 per lakh to 128 and Punjab showed a decline from 127 to 116. Bihar and Madhya Pradesh with 39 beds per lakh were at the lowest position in 1980-81 and in 2003-04 Madhya Pradesh with 22 and Bihar with 39 were at the bottom. At national level the number ranged between 84 in 1980-81 and 99 in 1989-90 and 1990-91. As evident from the table, in seven States – Madhya Pradesh, Bihar, Uttar Pradesh, Orissa, Assam, Rajasthan and Haryana- the facility was less than the national level in 1980-81 and the same seven States were below national level in 2003-04 too.

**Table 5.8. Number of Hospital Beds per Lakh Population**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1980-81	70	56	39	104	71	96	198	39	142	54	127	63	98	50	108	84	88	50.1
1981-82	70	61	38	103	69	96	195	38	150	53	127	62	97	50	108	85	88	50.3
1982-83	70	59	37	102	67	96	192	37	157	52	127	61	95	51	108	85	87	51.1
1983-84	70	62	38	101	65	97	188	38	173	55	125	68	97	50	110	87	89	50.9
1984-85	74	65	36	112	63	95	203	43	181	54	122	67	100	49	110	89	92	53.2
1985-86	72	59	47	126	62	98	232	42	184	53	126	68	106	48	109	93	95	57.1
1986-87	71	67	46	127	67	96	282	46	178	52	124	68	104	47	107	94	99	63.8
1987-88	70	71	46	134	69	99	284	45	175	52	124	67	106	46	106	94	100	63.6
1988-89	68	76	46	143	70	102	287	44	173	53	125	65	108	45	105	94	101	63.9
1989-90	67	66	45	165	69	104	272	45	205	52	124	80	111	51	103	99	104	62.8
1990-91	66	65	45	172	61	107	280	45	203	53	125	78	109	52	101	99	104	64.7
1991-92	63	71	44	178	54	110	298	43	190	53	122	77	109	53	96	98	104	67.7
1992-93	71	69	46	180	55	109	294	42	171	52	120	76	108	52	96	96	103	66.2
1993-94	80	68	50	182	55	106	291	41	154	51	117	75	106	51	94	95	101	65.3
1994-95	79	67	49	178	63	106	287	40	151	50	115	75	105	49	94	93	101	64.5
1995-96	78	66	48	175	62	112	284	39	148	49	113	75	103	48	92	92	99	64.5
1996-97	103	64	48	172	61	112	342	38	145	48	111	73	102	47	92	95	104	73.5
1997-98	103	63	45	168	59	113	345	38	140	48	110	73	102	46	91	93	103	74.7
1998-99	102	62	44	165	58	112	343	37	137	47	114	92	101	45	89	93	103	73.8
1999-00	101	61	42	161	57	110	346	36	136	47	112	70	100	44	89	91	101	76.6
2000-01	101	61	41	158	52	108	346	26	134	46	110	68	99	43	88	89	99	79.1
2001-02	100	60	40	154	51	107	344	26	132	46	114	78	98	42	88	89	99	78.4
2002-03	99	59	40	152	50	106	342	24	130	45	115	79	97	41	87	87	98	78.8
2003-04	98	58	39	149	49	105	341	22	128	44	116	81	96	41	86	86	97	79.4

**CGR**

1980-04	2.1	-0.1	0.3	2.1	-1.3	0.7	2.8	-2.0	-1.3	-0.8	-0.6	1.0	-0.1	-0.8	-1.2	0.1	-	-
1980-91	-0.6	1.9	2.3	5.7	-0.4	1.0	5.0	2.1	3.1	-0.2	-0.2	2.1	1.6	-0.3	-0.6	1.8	-	-
1991-04	3.6	-1.6	-1.7	-1.7	-1.2	-0.2	1.8	-5.4	-2.7	-1.4	-0.4	0.2	-1.0	-2.2	-0.9	-0.9	-	-

Source: (i) Health Information of India, Central Bureau of Health Intelligence (various issues ), (ii) Statistical Abstract, India ( various issues)

Nine States registered negative growth rates in the overall period and the all India rate was 0.1 per cent. The rate ranged between -2 per cent in Madhya Pradesh and 2.8 per cent in Kerala. During pre reform period the growth rate was negative in six States. The lowest pre reform rate was that of Andhra Pradesh and West Bengal (-0.6%) and the rate was the highest in Gujarat (5.7%). The post reform growth rate was lower in all States except Andhra Pradesh compared to pre reform rate and ranged between -5.4 per cent in Madhya Pradesh and 3.6 per cent in Andhra Pradesh. The coefficient of variation was above 50 for all years and ranged between 50.1 during 1980-81 and 79.4 in 2003-04, indicating a diverging trend in inequality among the States.

### **Number of Doctors per Lakh Population**

As observed from Table 5.9, all the States show an increasing trend in the number of doctors per lakh population over the period. Punjab was at the top both in 1980-81 and 2003-04 with 121.1 and 133 doctors respectively. Number of doctors in Haryana was extremely low as it had only 0.53 doctors per lakh in 1980-81 against the national average, 37.8 per lakh. Haryana had the lowest number of doctors through out the period ranging between 0.53 and 5.83 per lakh population, while all India figure was 37.8 and 58.2. It is seen that the same seven States - Haryana Madhya Pradesh, Uttar Pradesh, Bihar, Orissa, Rajasthan and Assam - had lesser number of doctors than the national level both in 1980-81 and 2003-04.

Table 5.9. Number of Doctors Per Lakh Population

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1980-81	40.7	36.8	24.9	41.37	0.53	51.91	43.97	21.8	63.05	29.5	121.1	24.2	63.06	20.8	58.74	37.8	42.8	65.1
1981-82	42.7	39.8	26.1	42.67	0.64	50.67	45.72	22.6	64.95	30.49	127	25.2	65.35	21.4	59.73	39	44.3	65.5
1982-83	43.7	41	27.5	43.44	0.78	56.51	47.85	23.3	48.26	30.42	127.7	25.4	66.62	22.3	59.88	38.4	44.3	64.8
1983-84	44.7	82.7	19.5	8.08	0.95	32.13	36.4	24.2	47.47	27.66	110.5	25.2	61.07	19.9	39.32	34.5	38.6	73.7
1984-85	45.3	30.4	24	41.6	1.16	53.87	25.05	25.1	49.55	28.07	111.1	25.9	62.6	20.2	40.28	35.4	39.0	64.7
1985-86	46.1	34.7	26.5	44.93	1.41	57.47	36.49	25.7	52.71	30.27	119.9	26.9	67.65	21.6	50.07	38.8	42.8	63.0
1986-87	46.8	39.6	29.3	48.55	1.71	61.34	53.2	26.5	56.17	32.65	129.6	28	73.18	23	62.27	42.5	47.5	61.8
1987-88	48.5	39.8	29.3	49.65	2.09	62.99	54.68	27	57.53	33.38	130.2	28.6	74.6	23.2	62.7	43.2	48.3	61.2
1988-89	49.1	40.1	29.5	50.41	2.8	64.73	56.89	27.5	58.99	33.53	131.1	29.4	76.18	23.5	62.79	44	49.1	60.6
1989-90	49.7	40.5	29.8	51.82	3.28	66.99	59.54	28.1	60.79	34.09	131.9	30.2	78.06	23.8	62.76	44.9	50.1	60.0
1990-91	50.5	41	30.1	53.17	3.7	69.22	61.99	28.7	62.85	34.55	133.2	30.7	80.06	24.1	62.77	45.8	51.1	59.7
1991-92	49.9	46.5	30.4	53.85	3.88	72.51	66.62	28.2	62.15	34.82	130.5	31.7	82.76	23.7	60.91	46.2	51.9	58.3
1992-93	50.4	47.4	30.4	54.78	4.18	75.99	68.79	28.9	64.05	35.09	131.1	32.3	85.38	24.2	61.33	47.2	53.0	58.0
1993-94	51.5	48.2	30.9	56.1	4.49	79.73	71.09	29.3	66.35	34.96	130.3	32.6	87.23	24.4	61.38	48.1	53.9	57.5
1994-95	52.2	48.8	31.1	56.89	4.61	83.34	73.88	29.7	67.99	35.83	129.9	33.2	88.86	24.4	61.21	49	54.8	57.1
1995-96	53	49.7	31.2	58.11	4.74	86.9	76.92	30	69.93	36.22	129.7	33.7	90.53	24.6	61.23	49.9	55.8	56.9
1996-97	53.8	50.3	31.6	59.67	4.89	90.86	79.32	30.2	72.38	36.62	129.8	34.3	92.46	24.7	61.07	50.8	56.8	56.8
1997-98	55.8	51.3	30.2	60.82	4.87	95.61	82.81	30.9	73.64	37.1	132.2	34.6	95.38	24.5	60.99	51.8	58.0	57.7
1998-99	56.2	51.9	30	61.82	4.93	100.1	85.55	31.2	76.14	37.61	132.5	35.1	97.75	24.2	61.08	52.7	59.1	58.0
1999-00	56.6	52.9	30	63.16	5.04	105	88.69	31.6	78.55	37.99	132.5	35.5	100.2	24.8	61.54	53.8	60.3	58.1
2000-01	57.1	54	29.9	64.57	5.14	110	91.77	32.2	80.83	38.47	132.8	35.6	102.7	24.7	61.87	54.7	61.4	58.5
2001-02	58.7	54.5	29.9	66.01	5.39	115.4	94.55	32.7	82.97	38.84	133.2	35.9	105.6	24.7	62.01	55.9	62.7	58.9
2002-03	60.3	55.3	29.9	67.92	5.7	119.3	97.16	32.9	85.54	39.2	134.1	36.5	108.4	25	62.17	57.7	64.0	59.1
2003-04	61.7	56	30.2	68.41	5.83	121	96.13	33.3	88.11	38.89	133.1	36.9	110.7	24.5	62.73	58.2	64.5	59.0
<b>CGR</b>																		
1980-04	1.59	1.58	0.99	3.5753	10.52	4.487	4.642	1.69	2.265	1.415	0.486	1.92	2.642	0.84	0.822	2.13	-	-
1980-91	2.05	-0.6	2.48	5.8598	22.2	4.118	4.517	2.79	0.759	1.886	1.087	2.47	2.637	1.62	1.873	2.35	-	-
1991-04	1.75	1.57	-0.28	2.0782	2.888	4.559	3.396	1.35	2.919	1.09	0.248	1.24	2.443	0.27	0.18	1.95	-	-

Source: (i) Health Information of India, Central Bureau of Health Intelligence (various issues ), (ii) Statistical Abstract, India ( various issues)

Twelve States out of fifteen had lower growth rates in post reform period compared to pre reform period. Haryana, the State with the lowest number of doctors for both the periods had the highest rate of growth in the pre reform (22.2%) and overall periods (10.52%) but in post reform period the rate has come down to 2.89 per cent. The pre reform growth rate was the lowest in Assam (-0.6%) and it was the only negative rate for the period. It is seen that twelve States experienced decline in the growth rate in the post reform period and the all India rate came down from 2.35 per cent to 1.95 per cent. 0.28 per cent in Bihar with growth rate -0.28 per cent was the only State with negative rate of growth in the post reform period. The highest rate in the post reform period was 4.55 per cent in Karnataka. Coefficient of variation has come down from 65.1 in 1980-81 to 59.02 in 2003-04 and ranged between 56.8 in 1996-97 and 73.69 in 1983-84.

### **Number of Nursing Personnel**

Table 5.10 presents the state-wise figures of total number of nursing personnel per lakh population. During 1980-81 the number of nurses per lakh population ranged between 20 in Bihar and Orissa and 203 in Punjab. In 2003-04 the difference was wider and the number ranged from 14.7 in Bihar to 344.5 in Tamil Nadu. The all India figure was 53 in 1980-81 and five States – Punjab (203.1), Tamil Nadu (122.7), Maharashtra (116.4), Kerala (63.7) and Karnataka (57.4) had higher number of nurses than the national level. In 2003-04 ten States were above the all India level (129.5) and in States like Bihar (14.7), Uttar Pradesh (24.2), Assam (79), Rajasthan (90.8) and Maharashtra (104.1) the number was below the national level.

**Table 5.10. Number of Nursing Personnel per Lakh Population**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1980-81	46.2	21.8	20.0	39.6	28.1	57.4	63.7	41.6	116.4	20.1	203.1	42.9	122.7	26.6	44.8	53.0	59.7	84.8
1981-82	51.4	28.2	22.2	39.6	30.3	52.0	86.9	43.8	112.1	20.4	210.8	43.9	123.7	27.1	48.3	54.9	62.7	82.3
1982-83	56.0	32.2	24.4	39.5	32.2	46.7	108.9	45.7	107.2	20.5	218.5	44.7	123.7	28.2	51.4	56.2	65.3	81.7
1983-84	61.9	33.3	27.1	39.9	34.4	42.4	136.5	48.2	103.6	20.8	226.3	46.1	124.6	28.1	55.4	58.2	68.6	82.3
1984-85	64.0	32.6	28.2	41.7	37.4	52.5	162.9	50.5	108.7	22.7	228.1	47.8	121.4	28.5	56.7	61.0	72.2	81.1
1985-86	66.2	31.9	29.4	43.5	40.9	65.1	194.4	53.0	114.1	24.7	230.3	49.7	118.3	28.9	58.1	64.0	76.6	81.2
1986-87	67.7	31.2	31.1	45.6	44.2	75.8	209.8	55.1	116.1	25.5	243.0	51.9	127.8	29.0	60.5	67.1	81.0	82.0
1987-88	65.6	30.7	29.0	45.6	48.3	88.6	223.4	57.2	112.5	26.6	256.6	53.0	132.0	28.0	62.2	64.3	83.9	84.2
1988-89	56.2	23.6	24.9	54.1	47.4	98.1	136.3	67.4	85.3	38.2	213.0	48.9	98.2	23.0	52.1	57.6	71.1	71.1
1989-90	48.1	18.1	21.4	64.1	46.6	108.8	83.2	79.5	64.7	55.0	177.0	45.0	73.1	19.0	43.7	51.7	63.2	63.9
1990-91	47.3	17.7	21.0	63.1	45.7	106.8	82.0	78.0	63.8	54.1	174.9	43.9	72.1	18.6	41.4	50.7	62.0	64.4
1991-92	54.1	19.4	20.6	75.9	44.8	105.8	103.2	131.0	64.8	70.6	186.5	46.4	79.0	19.3	54.7	59.7	71.7	63.5
1992-93	57.8	18.9	20.1	97.6	43.8	115.2	101.7	148.7	68.2	92.3	198.5	45.4	99.7	19.5	55.8	65.5	78.9	64.3
1993-94	62.7	18.6	20.0	122.0	50.3	112.7	100.7	146.3	92.2	91.0	200.5	43.9	145.3	18.9	75.4	74.5	86.7	61.4
1994-95	67.9	18.3	19.7	152.6	58.0	110.7	99.4	144.4	124.3	89.5	203.7	42.7	212.3	18.5	102.0	84.8	97.6	64.0
1995-96	134.1	17.9	19.4	149.7	56.6	108.7	108.8	141.1	128.9	119.7	208.6	106.3	209.6	18.1	100.1	94.1	108.5	55.8
1996-97	131.9	17.6	19.1	147.0	55.3	106.8	107.5	138.2	129.9	118.0	214.5	97.9	207.2	19.4	98.4	93.2	107.2	56.6
1997-98	130.4	17.3	17.9	185.1	53.8	168.5	107.9	137.8	130.3	116.5	213.9	95.3	205.8	17.7	96.6	97.3	113.0	57.8
1998-99	129.0	20.7	17.5	222.5	52.4	235.6	107.0	136.0	131.9	135.8	219.0	92.9	203.8	18.6	137.3	106.2	124.0	60.0
1999-00	222.2	20.4	17.0	218.8	51.1	232.1	208.6	128.9	133.7	134.0	231.8	75.0	201.9	24.8	135.9	115.4	135.8	60.1
2000-01	228.3	79.9	16.6	202.3	142.9	240.6	228.4	135.0	140.5	169.3	237.6	82.9	248.3	25.5	138.1	125.2	154.4	50.1
2001-02	226.9	78.6	15.3	197.8	139.3	237.0	226.8	132.6	137.4	167.3	233.3	80.8	246.3	24.9	136.5	122.9	152.1	50.5
2002-03	229.7	78.8	15.0	214.6	136.9	211.0	263.6	135.9	119.6	183.3	235.0	85.6	291.2	24.6	135.3	126.2	157.3	53.5
2003-04	232.7	79.0	14.7	232.8	134.4	187.8	306.4	139.3	104.1	201.0	236.7	90.8	344.5	24.2	134.2	129.5	164.2	58.7

**CGR**

1980-04	7.53	2.51	-2.53	10.04	5.98	7.56	2.83	6.45	1.03	12.26	0.24	3.75	4.60	-1.15	5.59	4.29	-	-
1980-91	0.03	-3.51	0.36	5.18	5.77	9.65	2.76	6.69	-5.02	10.92	-1.09	0.77	-4.69	-3.41	-0.42	-0.08	-	-
1991-04	14.99	15.46	-2.95	8.36	10.90	8.04	10.60	-0.48	4.33	8.24	1.98	6.16	9.60	2.87	8.03	6.61	-	-

Source: (i) Health Information of India, Central Bureau of Health Intelligence (various issues), (ii) Statistical Abstract, India (various issues)

The Compound growth rate during the period from 1980-81 to 2003-04 ranged between -2.53 per cent in Bihar and 12.26 per cent in Orissa. The all India growth rate was 4.29 per cent and seven States were with rates lower than 4.29 per cent. The growth rate was between -5.02 per cent in Maharashtra and 10.92 per cent in Orissa during pre reform period. The rate of growth shows improvement in ten States in the post reform period and the rate at the national level increased from -0.08 per cent in the pre reform period to 6.61 per cent in the post reform period. The post reform growth rate varied between -2.95 percent in Bihar and 15.46 per cent in Assam. High disparity existed among States but it is seen that inequality has shown converging trend over the period and the coefficient of variation decreased from 84.8 in 1980-81 to 58.7 in 2003-04.

### **5.3 Multivariate Analysis of disparity**

In addition to univariate analysis using coefficient of variation, multivariate analysis of dispersion also is conducted to have a better picture of inter State disparity in infrastructure development. The tools used are ranking of States on the basis of infrastructure indices constructed using principal component analysis, cluster analysis using squared Euclidean distance and dendrogram, and ANOVA.

#### **Infrastructure Indices**

Indices of infrastructure development were constructed for 15 States with the help of principal component analysis. The indicators used are number of schools and colleges per lakh population and Pupil-teacher ratio to represent education sector. Health infrastructure is

represented by number of hospitals, dispensaries, hospital beds, doctors and nursing personnel per lakh population. The original variables were redefined into a set of newly constructed orthogonal variables in order to find out few components which account for most of the variations in the original data. The relationship between the original variables and newly constructed variables is expressed by component loadings which are derived from the correlation matrix of the variables. These component loadings are used as weights in calculating component scores. Loadings of the indicators of infrastructural development are given in Table 5.11.

**Table 5.11**

**Loadings of Principal Components**

Indicators	Component loadings				
	1981		1991		2001
	Factor I	Factor II	Factor I	Factor II	Factor I
<b>Health Infrastructure</b>					
Number of hospital beds per lakh	0.246	0.426	0.304	-0.222	0.303
Number of dispensaries per lakh	0.251	-0.299	0.27	-0.179	0.171
Number of hospitals per lakh	0.179	0.671	0.263	-0.399	0.285
Number of doctors per lakh	0.268	-0.256	0.229	0.483	0.265
Number of nurses per lakh	0.271	-0.3	0.215	0.512	0.28
<b>Percentage of variance explained</b>	66.464	22.806	60.088	27.162	56.93
<b>Educational Infrastructure</b>					
Number of schools per lakh	-0.315		-0.198		0.374
Pupil Teacher ratio	0.473		0.522		0.442
Number of colleges per lakh	0.412		0.49		0.427
<b>Percentage of variance explained</b>	67.64		60.49		64.42

As observed from the table, first component explained over 60 percent of the variation. Therefore, the component scores were calculated using the first component only. In the case of health

infrastructure 2001, we have considered only the first component because Eigen value was greater than one only for the first component. The scores obtained by the States in each of the sectors at the three time points are given in Table 5.12. Composite index for infrastructure development was computed as the weighted average of education and health infrastructure scores. Considering the relative importance given to health and education in expenditure and the threshold effect of education on health, the weights assigned to education and health sectors are 0.75 and 0.25 respectively. It may be noted that the average RPHE in the over all period for all States taken together is about 1/3<sup>rd</sup> of RPEE.

**Table 5.12**

**Scores of Infrastructure Indices**

States	1981			1991			2001		
	Health	Education	composite	Health	Education	composite	Health	Education	composite
Andhra Pradesh	0.98	1.19	1.14	0.93	0.78	0.82	1.67	1.43	1.49
Assam	0.82	1.49	1.32	0.70	1.14	1.03	0.82	1.81	1.56
Bihar	0.54	1.03	0.91	0.43	0.77	0.69	0.36	0.91	0.77
Gujarat	1.26	1.04	1.09	2.90	0.79	1.32	2.98	1.18	1.63
Haryana	0.61	0.88	0.80	0.53	0.28	0.34	0.55	1.14	0.99
Karnataka	1.33	1.34	1.33	1.23	0.62	0.77	1.44	1.77	1.68
Kerala	1.88	0.89	1.14	3.07	0.54	1.17	2.98	0.96	1.46
Madhya Pradesh	0.64	1.42	1.22	0.65	1.04	0.94	0.50	1.39	1.17
Maharashtra	2.17	1.18	1.43	2.55	0.63	1.11	2.03	1.21	1.42
Orissa	0.72	1.65	1.42	0.68	1.44	1.25	0.98	1.72	1.53
Punjab	3.14	1.25	1.72	2.31	0.71	1.11	1.91	1.17	1.36
Rajasthan	0.97	1.20	1.14	0.73	1.15	1.04	0.58	1.11	0.98
Tamil Nadu	1.48	0.93	1.06	1.11	0.73	0.82	1.36	1.14	1.20
Uttar Pradesh	0.63	1.38	1.19	0.51	0.76	0.70	0.43	0.95	0.82
West Bengal	1.07	1.14	1.12	0.88	0.83	0.84	0.89	0.75	0.78
Mean	1.21	1.2	1.20	1.28	0.81	0.93	1.3	1.24	1.26
S.D	0.72	0.23	0.22	0.93	0.28	0.26	0.87	0.32	0.32
Mean+ S.D	1.93	1.43	1.43	2.21	1.1	1.19	2.17	1.57	1.58
Mean -S.D	0.5	0.97	0.98	0.35	0.53	0.68	0.43	0.92	0.94

Ranking of States on the basis of these scores is given in Table 5.13. As per the table above; ranking of the States with respect to each of the sectors differs considerably. In the case of education infrastructure, the top positions were occupied by States like Orissa and Assam. From the top most position in 1981 and 1991, Orissa came down to the third place in 2001, and Assam topped the list. Haryana was ranked fifteenth in 1981 and 1991 and came up to the tenth place in 2001.

**Table 5.13**

**Ranking of States According to Infrastructure Facilities**

States	Health Index			Education Index			Composite Index		
	1981	1991	2001	1981	1991	2001	1981	1991	2001
<b>Andhra Pradesh</b>	8	7	5	8	7	4	9	11	5
<b>Assam</b>	10	10	10	2	3	1	5	7	3
<b>Bihar</b>	15	15	15	12	8	14	14	14	15
<b>Gujarat</b>	6	2	2	11	6	7	12	1	2
<b>Haryana</b>	14	13	12	15	15	10	15	15	11
<b>Karnataka</b>	5	5	6	5	13	2	4	12	1
<b>Kerala</b>	3	1	1	14	14	12	8	3	6
<b>Madhya Pradesh</b>	12	12	13	3	4	5	6	8	10
<b>Maharashtra</b>	2	3	3	9	12	6	2	4	7
<b>Orissa</b>	11	11	8	1	1	3	3	2	4
<b>Punjab</b>	1	4	4	6	11	8	1	5	8
<b>Rajasthan</b>	9	9	11	7	2	11	10	6	12
<b>Tamil Nadu</b>	4	6	7	13	10	9	13	10	9
<b>Uttar Pradesh</b>	13	14	14	4	9	13	7	13	13
<b>West Bengal</b>	7	8	9	10	5	15	11	9	14

In Health sector, the first four positions were occupied by Punjab, Maharashtra, Kerala, and Tamil Nadu in 1981. In 1991 and 2001 the States at the top were Kerala, Gujarat, Maharashtra and Punjab in order and Tamil Nadu slipped to the sixth and seventh positions. Bihar, Uttar Pradesh, Madhya Pradesh and Haryana occupied the last four positions in all the three points of time.

When States are ranked according to the composite index, Punjab, Maharashtra and Orissa occupied the first three positions in 1981. But Punjab slipped to fifth and eighth positions in 1991 and 2001, and Gujarat, Orissa and Kerala occupied the top three positions in 1991. In 2001 Karnataka, Gujarat and Assam were at the top. The last three positions are occupied by Haryana, Bihar and Tamil Nadu in 1981 and in 1991 Haryana, Bihar and Uttar Pradesh were at the bottom. In 2001, Uttar Pradesh, West Bengal and Bihar were placed at the last three positions.

As observed from the table, Gujarat has made remarkable progress in its ranking over the period. Its health index moved from the sixth position in 1981 to the second in 1991 and 2001. In the case of education infrastructure also improvement is evident as the rank changed from 11 in 1981 to six and seven in 1991 and 2001. In terms of the composite index the improvement was from the twelfth place in 1981 to the first place in 1991 and second in 2001. In spite of the low ranks in education infrastructure, Kerala occupied comparatively higher positions in composite index. This is because of its high scores in health infrastructure. Similarly, in spite of its low ranks in health infrastructure Orissa has come up to the top in composite index because of its high scores in educational infrastructure. Andhra Pradesh has shown some improvement in ranking according to composite index, as it moved from eleventh place in 1991 to fifth in 2001.

Based on the composite infrastructure scores obtained, the States were grouped as backward, moderately developed, developed and highly developed States. The criteria used for the classification are: those States whose scores are less than mean minus standard deviation

are grouped as backward; the States with scores between mean minus standard deviation and mean are grouped as moderately developed; the States with scores between mean and mean plus standard deviation are grouped as developed; and those States whose scores exceed mean plus standard deviation are highly developed States. The grouping is presented in table 5.14.

Table 5.14

**Grouping of States According to Infrastructure development**

States	1981	1991	2001
Andhra Pradesh	MD	MD	D
Assam	D	D	D
Bihar	B	MD	B
Gujarat	MD	HD	HD
Haryana	B	B	MD
Karnataka	D	MD	HD
Kerala	MD	D	D
Madhya Pradesh	D	D	MD
Maharashtra	HD	D	D
Orissa	D	HD	D
Punjab	HD	D	D
Rajasthan	MD	D	MD
Tamil Nadu	MD	MD	MD
Uttar Pradesh	MD	MD	B
West Bengal	MD	MD	B

As observed from the table, in 1981 Maharashtra and Punjab were grouped as highly developed States. These two States came down to the group of developed States in 1991 and 2001. At the same time Kerala grouped as moderately developed in 1981 became developed State in 1991 and 2001. It is seen that Tamil Nadu remained moderately developed throughout the period. Similarly Assam remained developed at all time points. Haryana, which was backward in infrastructure development in 1981 and 1991 showed improvement and was moderately developed in 2001. Orissa, a developed state in 1981

showed improvement and was grouped as highly developed in 1991 but came back to the group of developed States in 2001. Andhra Pradesh grouped as moderately developed State in 1981 and 1991 came up to the group of developed States in 2001. But Uttar Pradesh and West Bengal showed opposite trend when these States came down from the group of moderately developed States to the group of backward States.

### **Cluster Analysis**

The States are grouped according to their development pattern using cluster analysis. The States are grouped in such way that States within a group are internally homogenous. In cluster analysis States are divided into small sets, then into larger groups, so that one eventually ends up with complete hierarchical structure of the given set of States. The hierarchical structure is represented by dendrogram. It also gives the measurement of closeness in terms of the smallest distance prevailing between any two States or clusters of States through the analysis of 'Euclidian distances'. The 'clusters' from dendrogram are obtained by drawing a line perpendicular to the distance axis.

### **Squared Euclidean Dissimilarity Coefficient Matrix**

Squared Euclidean dissimilarity matrix has been used to find out the development distances between States and to identify the most similar or most dissimilar States. The Euclidean matrix and dendrogram for educational infrastructure for three time points - 1981, 1991 and 2001 – are presented in tables numbered 5.15 to 5.17 and figures numbered 5.1 to 5.3.

**Table 5.15 Squared Euclidean Distance Matrix for Education Infrastructure -- 1981**

States	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB
AP		2536.6	8.5	78.0	1269.0	113.0	2195.2	1727.6	0.5	7111.6	17.2	10.0	271.4	120.1	56.4
AS	2536.6		2259.5	3502.0	7393.8	1580.2	9450.4	77.5	2604.7	1153.8	2136.6	2853.1	4464.3	3760.4	1837.2
BH	8.5	2259.5		135.6	1479.2	62.1	2468.1	1500.1	12.7	6642.6	2.5	34.6	371.8	190.7	22.0
GU	78.0	3502.0	135.6		719.1	378.7	1446.7	2537.5	66.5	8675.9	168.4	33.3	58.4	5.0	266.2
HY	1269.0	7393.8	1479.2	719.1		2138.6	126.5	5957.6	1221.6	14388.8	1581.4	1061.9	368.5	608.4	1859.8
KA	113.0	1580.2	62.1	378.7	2138.6		3303.9	958.3	127.8	5433.5	42.0	188.6	734.7	465.8	10.4
KE	2195.2	9450.4	2468.1	1446.7	126.5	3303.9		7816.3	2132.7	17208.3	2600.9	1918.6	924.2	1288.7	2954.0
MP	1727.6	77.5	1500.1	2537.5	5957.6	958.3	7816.3		1783.8	1829.4	1400.6	1990.0	3365.3	2758.5	1160.1
MH	0.5	2604.7	12.7	66.5	1221.6	127.8	2132.7	1783.8		7225.4	23.2	6.3	249.7	105.8	66.9
OR	7111.6	1153.8	6642.6	8675.9	14388.8	5433.5	17208.3	1829.4	7225.4		6430.1	7635.5	10157.2	9079.8	5902.8
PN	17.2	2136.6	2.5	168.4	1581.4	42.0	2600.9	1400.6	23.2	6430.1		52.8	425.3	228.0	11.6
RJ	10.0	2853.1	34.6	33.3	1061.9	188.6	1918.6	1990.0	6.3	7635.5	52.8		179.6	63.3	111.5
TN	271.4	4464.3	371.8	58.4	368.5	734.7	924.2	3365.3	249.7	10157.2	425.3	179.6		31.1	573.9
UP	120.1	3760.4	190.7	5.0	608.4	465.8	1288.7	2758.5	105.8	9079.8	228.0	63.3	31.1		340.9
WB	56.4	1837.2	22.0	266.2	1859.8	10.4	2954.0	1160.1	66.9	5902.8	11.6	111.5	573.9	340.9	

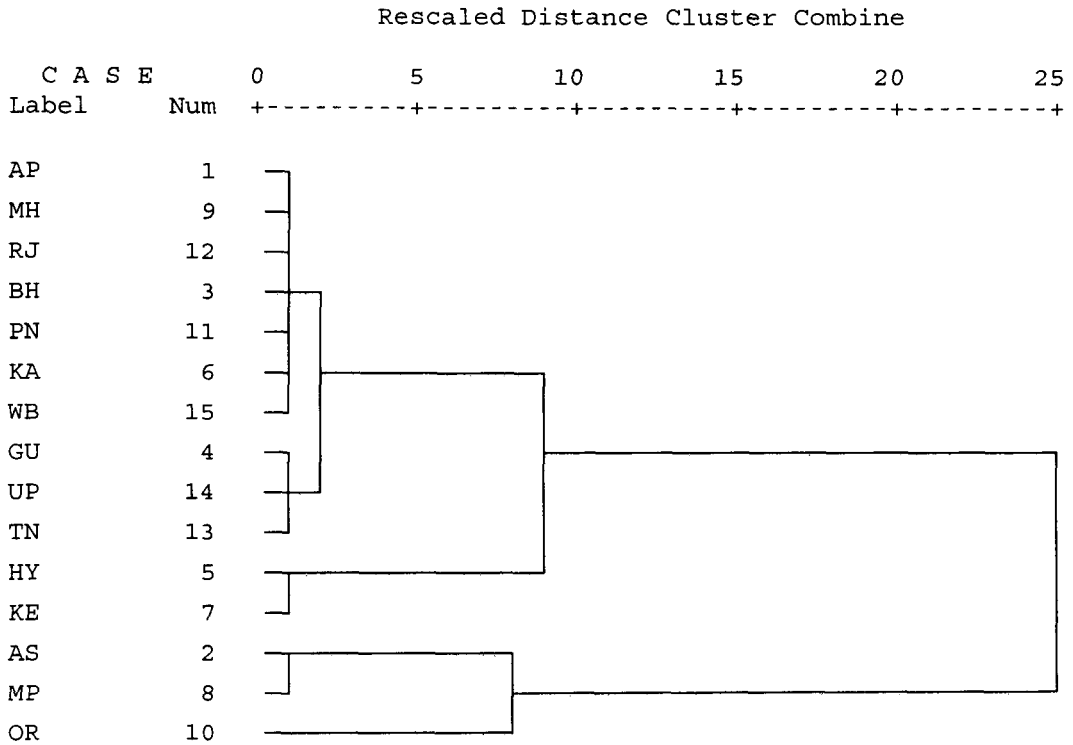
**Table 5.16 Squared Euclidean Distance Matrix for Education Infrastructure -- 1991**

States	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB
AP		3156.2	180.8	35.2	1682.2	39.3	2952.1	1772.3	23.8	6256.9	126.4	17.2	517.9	404.4	12.6
AS	3156.2		4846.9	3857.5	9446.8	2505.9	12212.7	198.3	3721.2	525.7	4545.6	2711.6	6230.0	5818.8	3565.2
BH	180.8	4846.9		56.4	760.6	386.2	1672.2	3084.7	75.8	8564.2	5.0	307.9	86.7	44.4	98.2
GU	35.2	3857.5	56.4		1231.1	148.0	2342.8	2306.8	2.3	7230.4	28.3	100.8	283.0	200.9	5.8
HY	1682.2	9446.8	760.6	1231.1		2225.1	177.6	6907.9	1311.0	14427.6	886.5	2036.4	333.9	437.9	1405.4
KA	39.3	2505.9	386.2	148.0	2225.1		3660.0	1294.6	120.3	5323.7	303.6	7.3	837.9	692.1	96.3
KE	2952.1	12212.7	1672.2	2342.8	177.6	3660.0		9299.0	2453.5	17804.6	1857.0	3415.1	997.4	1171.8	2580.9
M.P	1772.3	198.3	3084.7	2306.8	6907.9	1294.6	9299.0		2201.6	1369.2	2845.2	1443.6	4205.7	3869.0	2082.1
MH	23.8	3721.2	75.8	2.3	1311.0	120.3	2453.5	2201.6		7041.7	41.9	81.3	323.4	235.6	3.1
OR	6256.9	525.7	8564.2	7230.4	14427.6	5323.7	17804.6	1369.2	7041.7		8161.6	5624.7	10374.3	9841.6	6828.2
PN	126.4	4545.6	5.0	28.3	886.5	303.6	1857.0	2845.2	41.9	8161.6		235.9	132.8	78.9	59.7
RJ	17.2	2711.6	307.9	100.8	2036.4	7.3	3415.1	1443.6	81.3	5624.7	235.9		721.4	586.0	58.3
TN	517.9	6230.0	86.7	283.0	333.9	837.9	997.4	4205.7	323.4	10374.3	132.8	721.4		7.0	369.5
UP	404.4	5818.8	44.4	200.9	437.9	692.1	1171.8	3869.0	235.6	9841.6	78.9	586.0	7.0		274.6
WB	12.6	3565.2	98.2	5.8	1405.4	96.3	2580.9	2082.1	3.1	6828.2	59.7	58.3	369.5	274.6	

**Table 5.17 Squared Euclidean Distance Matrix for Education Infrastructure - 2001**

States	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB
AP		4965.4	1378.7	300.6	447.4	131.1	3588.6	2520.8	336.3	3993.1	606.8	1.7	980.0	1152.8	540.1
AS	4965.4		11572.8	7707.3	8391.2	3489.8	16994.9	410.8	7884.5	53.2	9042.4	4868.4	10355.9	10899.1	8774.5
BH	1378.7	11572.8		391.8	255.4	2358.9	519.6	7623.3	353.2	10062.2	156.3	1429.1	34.3	10.1	193.4
GU	300.6	7707.3	391.8		14.5	828.2	1812.5	4560.0	1.0	6483.7	53.3	325.0	195.2	276.0	35.0
HY	447.4	8391.2	255.4	14.5		1062.1	1502.4	5089.4	7.9	7112.2	12.2	476.8	103.3	163.9	4.6
KA	131.1	3489.8	2358.9	828.2	1062.1		5087.8	1508.2	886.5	2682.4	1300.7	119.1	1826.2	2060.2	1203.0
KE	3588.6	16994.9	519.6	1812.5	1502.4	5087.8		12122.2	1728.1	15152.3	1244.2	3671.6	818.0	674.5	1346.8
MP	2520.8	410.8	7623.3	4560.0	5089.4	1508.2	12122.2		4696.6	169.6	5599.3	2451.1	6642.4	7078.4	5388.5
MH	336.3	7884.5	353.2	1.0	7.9	886.5	1728.1	4696.6		6646.2	39.6	362.3	168.2	243.9	24.3
OR	3993.1	53.2	10062.2	6483.7	7112.2	2682.4	15152.3	169.6	6646.2		7712.5	3907.5	8929.0	9434.6	7466.1
PN	606.8	9042.4	156.3	53.3	12.2	1300.7	1244.2	5599.3	39.6	7712.5		641.4	44.5	87.0	2.6
RJ	1.7	4868.4	1429.1	325.0	476.8	119.1	3671.6	2451.1	362.3	3907.5	641.4		1023.9	1198.9	571.1
TN	980.0	10355.9	34.3	195.2	103.3	1826.2	818.0	6642.4	168.2	8929.0	44.5	1023.9		7.3	66.0
UP	1152.8	10899.1	10.1	276.0	163.9	2060.2	674.5	7078.4	243.9	9434.6	87.0	1198.9	7.3		115.1
WB	540.1	8774.5	193.4	35.0	4.6	1203.0	1346.8	5388.5	24.3	7466.1	2.6	571.1	66.0	115.1	

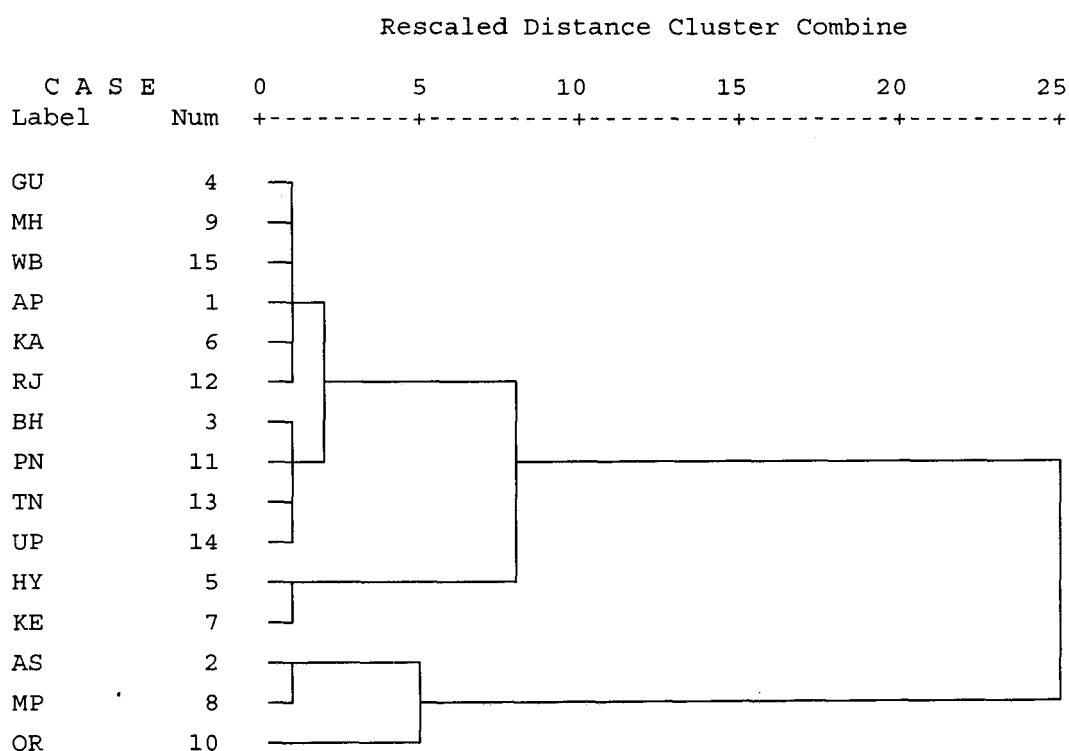
**Figure 5.1 Dendrogram Showing the Similarity in Educational Infrastructure -- 1981**



From Table 5.15, which presents the distance matrix for 1981, it is observed that Andhra Pradesh and Maharashtra are the most similar States in the development of education infrastructure at a distance 0.5. At the same time Orissa and Kerala are found to be the most dissimilar States. Figure 5.1 presents the dendrogram for 1981. At the distance 2.5 (10% variation), we get four distinct clusters of which the first is formed by 10 States. Within the first cluster 7 States - AP, Maharashtra, Rajasthan, Bihar, Punjab, Karnataka and West Bengal - are more similar in educational infrastructure than the other 3 States – Gujarat, UP and TN. The second cluster is formed by Haryana and Kerala which are similar at 4 per cent variation. The third group consists of Assam and Madhya Pradesh which are similar at 4 percent variation. Orissa alone form the fourth

cluster and is at a distance 8 (32% variation). The cluster formed by Orissa, Assam and Madhya Pradesh is different from all other States at distance 8 (32% Variation). It may be noted that these States have occupied the first three positions in the ranking of States.

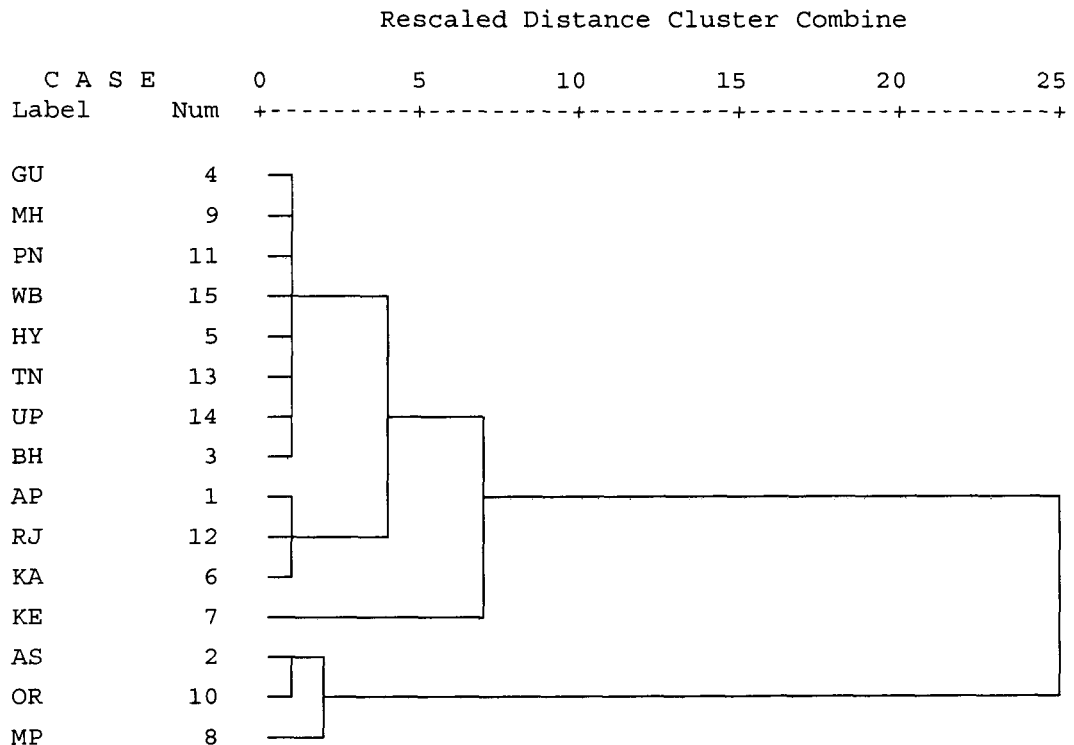
**Figure 5.2**  
**Dendrogram Showing the Similarity in Educational Infrastructure - 1991**



According to table 5.16, Maharashtra and Gujarat are the most similar States in education infrastructure in 1991. Figure 5.2 shows that the grouping of States in 1991 is more or less similar to that of 1981. At distance 2, four clusters are formed and the States that formed the clusters are the same. But the distance between Orissa and other States has decreased from 8 to 5. Another difference seen in the grouping is that while Gujarat, UP and TN formed one group within group (i) in 1981,

Bihar, Punjab, UP and TN were similar with variation equal to 4 per cent in 1991.

**Figure 5.3**  
**Dendrogram Showing the Similarity in Educational Infrastructure -**  
**2001**



In 2001, the clustering of States was different from that in 1981 and 1991. As observed from Table 5.17, Maharashtra and Gujarat are the most similar in educational infrastructure at a distance 1. Figure 5.3 shows that at distance 2 (8% variation), we get four clusters of which the first is formed by 8 States- Gujarat, Maharashtra, Punjab, WB, Haryana, TN, UP and Bihar. These States are similar at 4% variation. The second group consists of 3 States, AP, Rajasthan and Karnataka. Kerala alone forms the third group and the fourth cluster is formed by Assam, Orissa and Madhya Pradesh. Kerala is the most dissimilar from other States at 28 per cent

variation. It may be noted that the variation among States is comparatively low in 2001. For instance, only one State, Kerala, was at a distance greater than 2 (8 % variation) and the variation was less than 8 per cent for all other States except Madhya Pradesh.

The Euclidean matrix and dendrogram for health infrastructure for three time points - 1981, 1991 and 2001—are presented in tables numbered 5.18 to 5.20 and figures numbered 5.4 to 5.6.

From table 5.18 and figure 5.4 it is observed that in 1981 the most similar States are UP and Orissa and the dissimilar States are Punjab and Bihar. The dendrogram shows that 8 States - Orissa, UP, Bihar, Assam, MP, AP, Rajasthan and Haryana - are similar in the development pattern at distance 1 (4 % Variation). At 28 per cent variation (distance 7), the States are grouped into 3 clusters. Punjab alone form one cluster and it is far ahead of other States and the variation is 100 per cent. The second cluster is formed by Kerala, Maharashtra, and TN. Within this cluster, Kerala and Maharashtra are nearer in development pattern and TN is at a distance 6.5. The third cluster is formed by two clusters of States such as (i) Gujarat, West Bengal and Karnataka and (ii) the remaining 8 States.

Table 5.19 and figure 5.5 show the distance matrix and dendrogram for 1991. It is observed that the most similar States are UP and Bihar and Punjab is the most dissimilar State at a distance 21.5. It may be noted that the distance has come down compared to 25 in 1981. At distance 2, States form five clusters. Of 8 States in first cluster, MP is different from others at 8 per cent variation. Others are similar with 4 per cent variation. The second cluster is formed by TN, WB and Karnataka and within the cluster TN and WB are more similar at distance one. The third set is formed by

Gujarat and Maharashtra. Kerala and Punjab alone form fourth and fifth clusters. Kerala is at a distance 12 (48% variation) and variation of Punjab is 86 per cent.

Distance matrix presented in table 5.20 shows that the most similar States in 2001 are UP and Bihar and the most dissimilar States are Bihar and Kerala. As seen from the figure, Kerala is at a distance 25 and all other States form one cluster at distance 9 and two clusters at distance 6. At distance 2, we get 6 groups, of which the first is formed by the most similar States, Bihar and UP. At 4 per cent variation the States included in the second group form 3 clusters such as (i) Haryana, MP and Orissa, (ii) Assam and Rajasthan and (iii) West Bengal. Third cluster is formed by Karnataka, TN, Punjab and AP and within that group; the first 3 States are nearer in health infrastructure development. Gujarat and Maharashtra form the fourth and fifth clusters and the sixth cluster is formed by Kerala alone.

It can be readily seen that, in general, grouping of States on the basis cluster analysis is in conformity with ranking of States. For instance according to cluster analysis of educational infrastructure in 1981 it is seen that AP and Maharashtra are most similar. These two States rank 8 and 9 in 1981. Orissa and Kerala which rank first and fourteenth are found to be dissimilar and Kerala and Haryana ranking fourteenth and fifteenth are found to be similar. In 2001 Maharashtra and Gujarat with ranks 6 and 7 are found to be most similar in development pattern. The cluster formed by Assam Orissa and Madhya Pradesh with ranks 1, 3, and 5 is found to be similar at a distance 2 (8% variation).

**Table 5.18 Squared Euclidean Distance Matrix for Health Infrastructure -- 1981**

States	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB
AP		869.3	2091.5	1241.2	2002.7	1529.5	15800.3	1507.7	14699.2	1135.5	39521.5	826.5	6990.9	1166.7	1821.4
AS	869.3		726.8	2652.8	1441.9	3058.9	20131.2	1227.1	20310.3	293.4	48521.3	727.7	12278.2	445.6	3672.1
BH	2091.5	726.8		5336.3	1598.0	6173.6	27255.8	483.1	26959.3	322.1	56134.7	1537.7	15385.3	268.6	6856.8
GU	1241.2	2652.8	5336.3		3376.9	1370.0	8969.2	4987.9	11138.5	3196.5	38962.6	2741.4	7709.1	3519.5	691.8
HY	2002.7	1441.9	1598.0	3376.9		4685.5	19437.4	1577.4	21162.9	1210.5	53260.8	1059.6	13675.8	695.2	5476.8
KA	1529.5	3058.9	6173.6	1370.0	4685.5		9943.0	5270.1	7710.9	4543.6	29354.5	2211.2	4977.2	4515.9	1245.0
KE	15800.3	20131.2	27255.8	8969.2	19437.4	9943.0		25908.3	5184.0	22380.5	32950.5	18547.9	14010.6	22596.0	8614.1
MP	1507.7	1227.1	483.1	4987.9	1577.4	5270.1	25908.3		23588.3	787.7	49482.4	1074.3	11653.0	425.2	6446.2
MH	14699.2	20310.3	26959.3	11138.5	21162.9	7710.9	5184.0	23588.3		23311.1	12742.5	16613.3	5650.7	22852.4	9818.8
OR	1135.5	293.4	322.1	3196.5	1210.5	4543.6	22380.5	787.7	23311.1		53014.9	1190.1	13520.6	149.8	4630.9
PN	39521.5	48521.3	56134.7	38962.6	53260.8	29354.5	32950.5	49482.4	12742.5	53014.9		42069.9	16120.5	52233.5	35430.7
RJ	826.5	727.7	1537.7	2741.4	1059.6	2211.2	18547.9	1074.3	16613.3	1190.1	42069.9		9483.0	814.6	4128.5
TN	6990.9	12278.2	15385.3	7709.1	13675.8	4977.2	14010.6	11653.0	5650.7	13520.6	16120.5	9483.0		12962.8	6288.6
UP	1166.7	445.6	268.6	3519.5	695.2	4515.9	22596.0	425.2	22852.4	149.8	52233.5	814.6	12962.8		5060.4
WB	1821.4	3672.1	6856.8	691.8	5476.8	1245.0	8614.1	6446.2	9818.8	4630.9	35430.7	4128.5	6288.6	5060.4	

**Table 5.19 Squared Euclidean Distance Matrix for Health Infrastructure -- 1991**

States	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PU	RU	TN	UP	WB
AP		1000.9	1780.8	32770.4	2367.1	5726.1	53509.5	2044.2	31804.7	568.3	30551.2	701.0	3441.5	1851.1	1539.0
AS	1000.9		648.2	35173.3	2227.4	10552.5	57919.4	4280.0	34343.1	1558.0	40638.4	1005.1	6452.5	486.1	2376.5
BH	1780.8	648.2		42959.6	1635.4	12947.4	68981.8	3255.9	42833.0	1213.5	45697.7	1771.4	9242.1	158.5	4640.3
GU	32770.4	35173.3	42959.6		37094.4	26734.5	22214.1	41442.9	2280.5	38236.4	28975.9	30518.2	27744.2	39262.3	28877.3
HY	2367.1	2227.4	1635.4	37094.4		10177.3	60695.0	1997.4	37000.5	1153.0	41422.1	1040.1	8855.6	1233.0	5132.6
KA	5726.1	10552.5	12947.4	26734.5	10177.3		37891.6	6531.3	22835.3	7063.6	12238.6	6289.6	1418.8	12891.1	4463.6
KE	53509.5	57919.4	68981.8	22214.1	60695.0	37891.6		65073.0	12704.3	61105.1	42982.8	50787.6	37695.7	65385.9	41957.5
MP	2044.2	4280.0	3255.9	41442.9	1997.4	6531.3	65073.0		41305.4	681.7	31751.6	2423.0	6796.1	3670.7	5650.3
MH	31804.7	34343.1	42833.0	2280.5	37000.5	22835.3	12704.3	41305.4		37743.5	26267.4	29128.9	22988.9	39376.1	24914.1
OR	568.3	1558.0	1213.5	38236.4	1153.0	7063.6	61105.1	681.7	37743.5		34244.4	880.1	5544.7	1431.5	3274.5
PN	30551.2	40638.4	45697.7	28975.9	41422.1	12238.6	42982.8	31751.6	26267.4	34244.4		33241.9	17996.8	45573.0	27816.4
RJ	701.0	1005.1	1771.4	30518.2	1040.1	6289.6	50787.6	2423.0	29128.9	880.1	33241.9		4264.8	1380.4	1642.4
TN	3441.5	6452.5	9242.1	27744.2	8855.6	1418.8	37695.7	6796.1	22988.9	5544.7	17996.8	4264.8		9274.1	1308.3
UP	1851.1	486.1	158.5	39262.3	1233.0	12891.1	65385.9	3670.7	39376.1	1431.5	45573.0	1380.4	9274.1		4443.7
WB	1539.0	2376.5	4640.3	28877.3	5132.6	4463.6	41957.5	5650.3	24914.1	3274.5	27816.4	1642.4	1308.3	4443.7	

**Table 5.20 Squared Euclidean Distance Matrix for Health Infrastructure - 2001**

States	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB
AP		24722.2	50628.8	24744.8	13829.7	4471.5	61835.0	16579.1	12917.6	9080.2	10378.6	24253.0	3744.8	46976.9	9640.1
AS	24722.2		5105.4	43925.8	6520.0	31203.9	107962.3	4899.5	12784.9	8968.0	35794.7	518.8	32225.2	4175.6	4302.9
BH	50628.8	5105.4		71721.9	16701.7	61213.6	145703.1	14247.2	30959.9	24379.6	67405.4	5158.3	62401.3	150.8	18006.2
GU	24744.8	43925.8	71721.9		39897.5	25051.9	57712.4	45743.2	12000.6	28508.9	17169.8	45390.2	27851.3	66569.8	31557.7
HY	13829.7	6520.0	16701.7	39897.5		23755.3	105163.0	1487.1	16514.1	2654.9	31566.9	4792.8	22846.0	14265.8	4553.4
KA	4471.5	31203.9	61213.6	25051.9	23755.3		60984.5	24102.6	14583.9	14419.8	2585.2	32129.9	245.0	57784.4	13377.8
KE	61835.0	107962.3	145703.1	57712.4	105163.0	60984.5		118907.8	57243.3	100858.7	64170.9	105737.1	65124.9	141368.6	79335.0
MP	16579.1	4899.5	14247.2	45743.2	1487.1	24102.6	118907.8		18643.0	2644.0	31043.1	4491.2	23208.0	12383.5	4751.5
MH	12917.6	12784.9	30959.9	12000.6	16514.1	14583.9	57243.3	18643.0		11893.9	13421.0	14056.3	17003.2	28262.5	6872.1
OR	9080.2	8968.0	24379.6	28508.9	2654.9	14419.8	100858.7	2644.0	11893.9		18318.3	8876.2	13869.3	21482.2	4313.5
PN	10378.6	35794.7	67405.4	17169.8	31566.9	2585.2	64170.9	31043.1	13421.0	18318.3		38281.4	3870.3	63686.3	18766.2
RJ	24253.0	518.8	5158.3	45390.2	4792.8	32129.9	105737.1	4491.2	14056.3	8876.2	38281.4		32871.4	4068.7	4156.3
TN	3744.8	32225.2	62401.3	27851.3	22846.0	245.0	65124.9	23208.0	17003.2	13869.3	3870.3	32871.4		58877.6	13970.5
UP	46976.9	4175.6	150.8	66569.8	14265.8	57784.4	141368.6	12383.5	28262.5	21482.2	63686.3	4068.7	58877.6		16144.3
WB	9640.1	4302.9	18006.2	31557.7	4553.4	13377.8	79335.0	4751.5	6872.1	4313.5	18766.2	4156.3	13970.5	16144.3	

**Figure 5.4**

**Dendrogram showing the similarity in health infrastructure -- 1981**

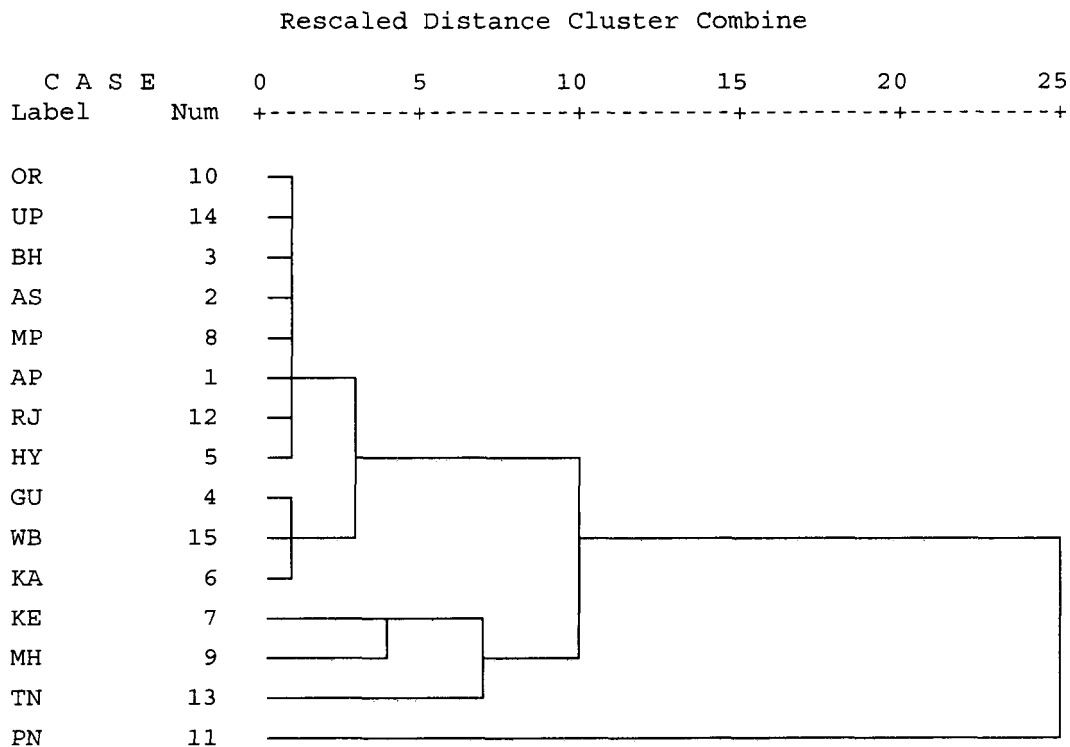
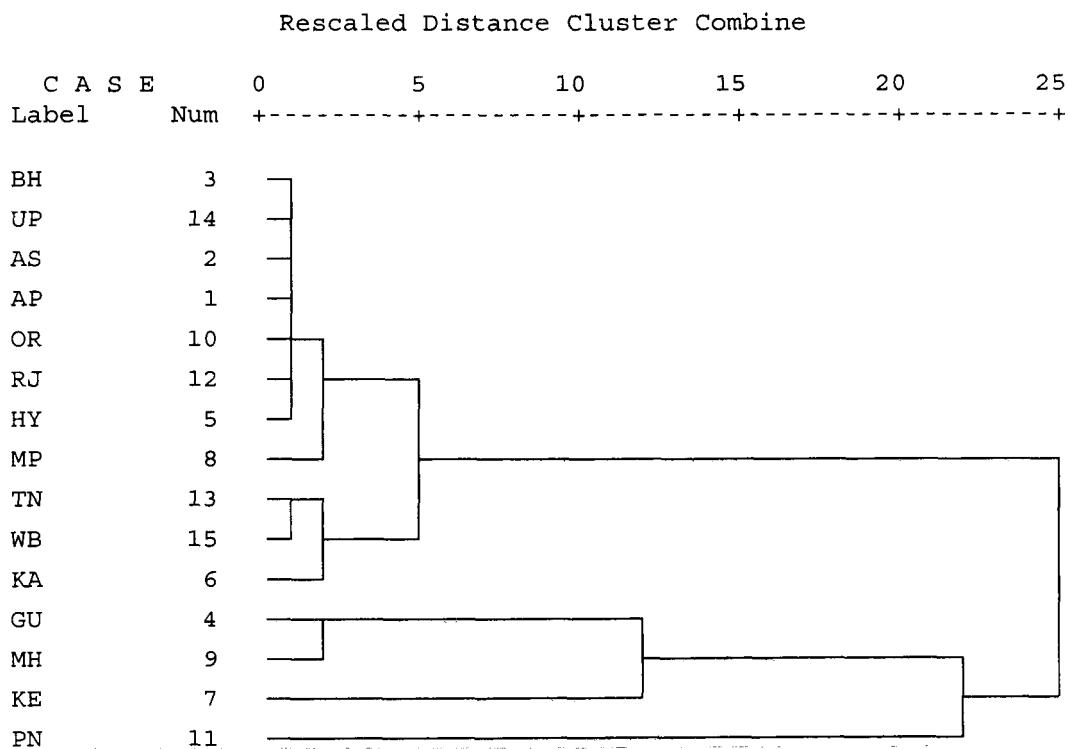


Figure 5.5

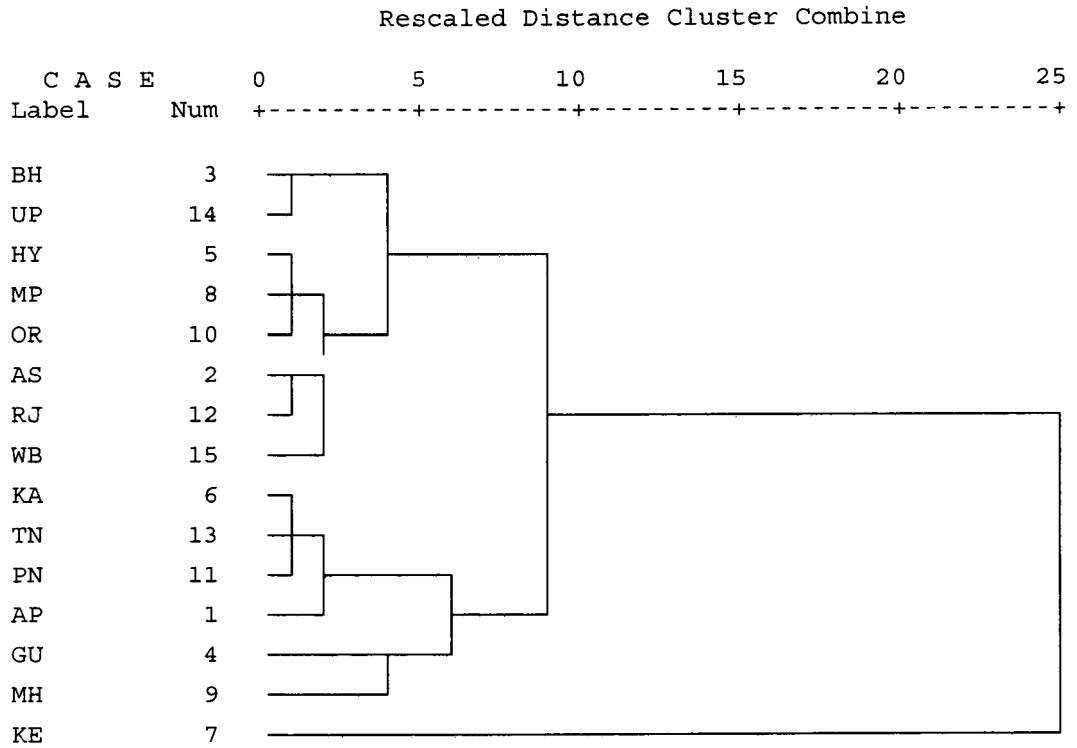
Dendrogram Showing the Similarity in Health Infrastructure -- 1991



**Figure 5.6**

**Dendrogram Showing the Similarity in Health Infrastructure - 2001**

Dendrogram using Average Linkage (Between Groups)



Clustering on the basis of health infrastructure also conforms to the ranking of States. In 1981, 8 States that are found to be similar at distance one (4% variation), rank from eighth to fifteenth. Punjab which ranks 1 is the most dissimilar State. Uttar Pradesh and Bihar which rank 14<sup>th</sup> and 15<sup>th</sup> are found to be the most similar States in 1991. Kerala ranking 1 is the most dissimilar State in 2001 and is at a distance of 25. Bihar and Uttar Pradesh ranking fifteenth and fourteenth are found to be the most similar States.

## ANOVA

Disparities among the three income groups of States with respect to infrastructure development in 2001 are analysed using ANOVA and the results are given in tables 5.21 and 5.22

**Table 5.21 Results of ANOVA for Education and Health Infrastructure 2001**

Variables	Source	df	Sum of Squares	Mean Square	F
<b>Health Infrastructure</b>	Between Income groups	2	4.82	2.41	5.01*
	Error	12	5.76	0.48	
	Total	14	10.58		
<b>Education Infrastructure</b>	Between Income groups	2	0.06	0.03	0.24
	Error	12	1.40	0.12	
	Total	14	1.46		

It is seen that there is significant variation among different income groups in health infrastructure development. But in the case of education infrastructure, the variation among income groups is not significant.

**Table 5.22. Mean of Infrastructure Indices for Different Income Groups 2001**

Income group	INFRA_H	INFRA_E
<b>Low income</b>	0.61 <sup>b</sup>	1.32
<b>Middle income</b>	1.67 <sup>a</sup>	1.21
<b>High income</b>	1.87 <sup>a</sup>	1.18

Note: Group means with same letter as superscript are homogeneous

Mean health infrastructure in low income States is significantly low compared to middle income and high income States, whereas average health infrastructure index in middle income States is comparable with that

of high income States. In the case of education infrastructure there is no significant difference between income groups.

#### **5.4 Concluding Remarks**

The univariate analysis conducted to examine infrastructure development in education and health sectors brings out the following conclusions.

In terms of schools per lakh population, States like Madhya Pradesh, Orissa and Assam occupied the first three positions and Kerala was at the bottom both in 1980-81 and 2003-04. The rates of growth have declined in seven out of fifteen States in the over all period and in eight States post reform growth rates were less than that in pre reform period. Disparity among States in terms of schools per lakh is found to have widened. A totally different picture has emerged when we considered number of schools per 100 square kilometers. Post reform growth rate was higher than pre reform rate in 10 States and inequality among States showed converging tendency.

In the case of colleges per lakh population, post reform rates were comparatively higher in 10 States. Colleges per area also grew at a higher rate in post reform period. Inter state disparity showed diverging trend over the period in terms of colleges per population, but colleges per 100 square kilometers showed converging tendency.

In all States except Andhra Pradesh, Gujarat and Karnataka, pupil teacher ratio was within the prescribed limit of 40 students per teacher in

1980-81. But in 2003-04 the ratio was according to the norm only in 7 States.

Coming to the development of health infrastructure, it is seen that only five States—Andhra Pradesh, Assam, Gujarat, Kerala and Maharashtra - have shown improvement in number of hospitals per population over the period. Post reform rate of growth was found to be low compared to pre reform rate in 11 States. Number of hospital beds also registered negative growth rate in nine States and the post reform rate was low compared to pre reform rate in all States except Andhra Pradesh.

In the case of doctors all the States have experienced improvement and the number of nurses improved in thirteen States over the period. Only four States – Bihar, Uttar Pradesh, Assam and Rajasthan had less nursing personnel than the national level. Post reform rate was higher than pre reform rate only in the case of number of nurses.

Disparities as measured by coefficient of variation are found to be very high and have increased over the period in the case of number of hospitals, dispensaries and hospital beds per population. But inequality in number of doctors and nurses has shown converging trend over the period.

It is seen that multivariate analysis of infrastructure development conforms to the findings of the univariate analysis. When States are ranked according to education infrastructure, the top positions were occupied by States like Orissa and Assam, while Kerala and Haryana were at the bottom. In health infrastructure Kerala, Gujarat, Maharashtra and Punjab were the toppers and States like Bihar, Uttar Pradesh, Madhya Pradesh and Haryana occupied the last four positions.

Grouping of States according to composite infrastructure scores at three time points puts Gujarat in the group of highly developed States in 1991 and 2001 and Maharashtra and Punjab were highly developed States in 1981 and 1991. Bihar remained backward in 1981 and 2001. Haryana, which was backward in infrastructure development in 1981 and 1991 showed improvement and was moderately developed State in 2001.

Results of ANOVA show that the health infrastructure indices of low income group of States are significantly low compared to middle income and high income States. However, disparities among income groups are not significant in the case of education infrastructure.

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## **Chapter VI**

# **INTER STATE DISPARITIES IN SOCIAL ATTAINMENT**

The diversity of India is legendary, for there are few societies that exhibit so many cultural, social, economic and regional variations. Substantive differences in fiscal capacity and differences in the practice of education and health policies in different States lead to differing outcomes and impacts. Economically disadvantaged States have lagged behind in development so much so that they are now termed as BIMARU States.

Balanced regional growth is of utmost importance for the harmonious development of a federal democratic country like India, which has adopted social justice as one of the major planks of its development policy. Bringing down the disparities in economic and social development across the regions and intra regional disparities among different segments of the society has been the most important objective of planning in India. While efforts to bring down disparities were not lacking, achievements were disproportionately low. Assessment of the extent of disparities among States is important in the attempts to evolve effective and well structured policy framework for reducing imbalances.

With the new era of free market philosophy, States are competing with each other for resources. How are the States doing relative to one

another? Have they been diverging away from one another? These are the critical questions that demand immediate attention. This chapter analyses the extent of inter state disparities among States in educational and health attainments and makes an attempt to see whether States are converging or diverging away from one another as far as social development is concerned. Inter state disparities in educational attainment is analysed in terms of literacy rate and level of education attained. Indicators of health attainment examined are life expectancy at birth, infant mortality rate, crude death rate and morbidity prevalence rate.

### **6.1 Inter state Disparity in Educational Attainment**

Education, in the present day context, is the single most important means for individuals to improve personal endowments, build capability levels and enlarge their available set of opportunities for a sustained improvement in well being. It is not merely a means to other ends, but it is an attribute that is valued in itself. More importantly, it is a critical instrument for bringing about social, economic, and political inclusion and integration of people, particularly those 'excluded' from the mainstream of any society.

Even though India has made significant progress in educational attainment, regional variations in attainment levels are remarkable. When literacy is universal among urban women of Kerala, it is unknown to women of rural Rajasthan. In this context a study of inter state disparities in educational attainment is attempted using literacy rate and percentage of population with different levels of education as indicators.

## Literacy rate

Literacy is a person's first step in learning and knowledge building. Therefore literacy indicators are essential for any measurement of educational attainment. It measures the capacity to read and write one's name or a simple sentence in one's own mother tongue. Literacy rate is defined as the number of literates per 100 persons aged 7 years and above. Table 6.1 presents state wise figures of literacy rate.

Table 6.1  
State-wise Literacy Rate - Combined

States	Literacy Rate			Compound Growth Rate		
	1981	1991	2001	1981-01	1981-91	1991-01
Andhra Pradesh	35.66	44.09	61.11	4.08	2.14	3.41
Assam	NA	52.89	64.28	NA	NA	1.39
Bihar	32.05	38.48	47.53	2.86	1.85	1.97
Gujarat	52.21	61.29	66.43	1.73	1.62	1.17
Haryana	43.88	55.85	68.59	3.04	2.44	2.13
Karnataka	46.21	56.04	67.04	2.33	1.95	1.78
Kerala	81.56	89.81	90.92	0.59	0.97	0.20
Madhya Pradesh	33.63	44.20	64.08	4.80	2.77	3.89
Maharashtra	55.83	64.87	77.27	2.38	1.51	1.82
Orissa	40.97	49.09	63.61	2.72	1.82	2.10
Punjab	48.17	58.51	69.95	2.51	1.96	1.74
Rajasthan	30.11	38.55	61.03	5.84	2.50	5.05
Tamil Nadu	54.39	62.66	73.47	2.12	1.43	1.63
Uttar Pradesh	33.35	41.60	57.36	4.25	2.24	3.34
West Bengal	48.65	57.70	69.22	2.86	1.72	2.19
India	43.57	52.21	65.20	2.95	1.83	2.26
Mean	45.48	54.38	66.79	-	-	-
S.D	13.52	13.15	9.66	-	-	-
C.V	29.72	24.18	14.46	-	-	-

Source: Census 1981, 1991 and 2001

Note: Census 1981 was not conducted in Assam

As seen from the table, States differ considerably in literacy rate. In 1981 literacy rate varied from 30.1 per cent in Rajasthan to 81.6 per cent in Kerala. Kerala was the only state with literacy rate above 75 per cent. In 3 States – Gujarat (52.2%), Maharashtra (55.8%) and Tamil Nadu (54.4%)- literacy rate was between 50 and 75 per cent and in the remaining States the rate was below 50 per cent. At all India level, literacy rate was 43.6 per cent and the States with literacy rates below the national rate were Rajasthan (30.1%), Bihar (32.1%), Uttar

Pradesh (33.4%), Madhya Pradesh (33.6%) and Andhra Pradesh (35.66%).

Literacy rate has increased in every state between 1981 and 1991 and the rate at the national level has increased from 44 to 52.2 per cent. Kerala with 89.8 per cent literacy was the only state with literacy above 75 per cent in 1991. Number of States with rate between 50 and 75 percent has increased from 3 in 1981 to 8 in 1991. States with literacy less than 50 per cent were Orissa (49.1%), Madhya Pradesh (44.2%), Andhra Pradesh (44.1%), Uttar Pradesh (41.6%), Rajasthan (38.6%) and Bihar (38.5%). The compound growth rate of literacy for the period 1981-91 was the lowest in Kerala (0.97%) and the highest in Madhya Pradesh (2.77%). At the national level the growth rate was 1.83 per cent and in 7 States the rate of growth was higher than the all India rate.

In 2001 too Kerala occupied the first place with literacy rate 90.9 per cent and Bihar with 47.5 per cent was the last in order. The number of States with literacy rate more than 75 per cent has become two, as the rate in Maharashtra has come to 77.3 per cent. In the remaining 12 States literacy rate ranged between 57.4 and 73.5 per cent. At the national level the rate of growth was 2.26 per cent and in 11 States the rate was less than the national rate. The highest growth rate was that of Rajasthan (5.05%) followed by 3.89 per cent in Madhya Pradesh. Literacy rate in Rajasthan has more than doubled, as it increased from 30.1 per cent in 1981 to 61 per cent in 2001. The lowest growth rate (0.2%) was registered by Kerala, the state with the highest literacy rate. During the period from 1981 to 2001 the compound growth rate was 2.95 per cent at all India level and in 9 States the growth rate was less than the national rate. The inter state disparity as measured by

coefficient of variation decreased from 29.7 in 1981 to 24.2 in 1991 and to 14.5 in 2001, indicating a converging tendency over the period.

Grouping of States according to literacy rate, as presented in table 6.2, clearly explains the progress made by the States as well as the extent of inequality among them.

Table 6.2

**Grouping of States According to Literacy Rates**

Literacy rate	1981	1991	2001
<b>Above 75%</b>	KE (81.6)	KE (89.8)	KE (90.92) MH(77.27)
<b>50 - 75%</b>	MH (55.8) TN (54.4) GU (52.2)	MH (64.9) TN (62.7) GU (61.3) PN (58.5) WB (57.7) KA (56) HY (55.9) AS (52.9)	AP (61.11) AS (64.28) GU (66.43) HA (68.59) KA (67.04) MP (64.08) OR (63.61) PN(69.95) RJ (61.03) TN (73.47) UP (57.36) WB(69.22)
<b>Below 50%</b>	WB (48.7) PJ (48.2) KA (46.2) HY (43.9) OR (41) AP (35.7) MP (33.6) UP (33.4) BH (32.1) RJ (30.1)	AP (44.1) OR (49.1) UP (41.6) MP (44.2) RJ (38.6) BH (38.5)	BH (47.53)

Source: Census 1981, 1991 and 2001

Note: Census 1981 was not conducted in Assam

As seen from the table, in 1981 most of the States were in the group with literacy rate less than 50 per cent. By 1991 the number of States in that group has decreased to six and in 2001 Bihar was the only state

with less than 50 per cent literacy. At the other end of the list Kerala was the only state with more than 75 percent literates in 1981 and 1991. In 2001 Maharashtra with 77 percent came up to the first group.

An examination of literacy among males and females brings out more stories of inequality. Table 6.3 presents the gender disparities in literacy rate in the major Indian States.

**Table 6.3 Gender wise Literacy rate**

States	1981			1991			2001		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Andhra Pradesh	47	24	36	55	33	44	71	51	61
Assam	NA	NA	NA	62	43	53	72	56	64
Bihar	47	17	32	52	23	38	60	34	48
Gujarat	65	38	52	73	49	61	76	56	66
Haryana	59	27	44	69	40	56	79	56	69
Karnataka	59	33	46	67	44	56	76	57	67
Kerala	88	76	82	94	86	90	94	88	91
Madhya Pradesh	48	24	34	58	29	44	77	51	64
Maharashtra	70	41	56	77	52	65	86	68	77
Orissa	56	25	41	63	35	49	76	51	64
Punjab	56	40	48	66	50	59	76	64	70
Rajasthan	45	14	30	55	20	39	76	44	61
Tamil Nadu	68	40	54	74	51	63	82	65	73
Uttar Pradesh	47	17	33	56	25	42	70	43	57
West Bengal	60	36	49	68	47	58	78	60	69
India	56	30	44	64	39	52	76	54	65
Mean	58	32	45	66	42	54	77	56	67
S.D	11.89	15.62	13.59	10.89	16.25	13.21	7.57	12.54	9.60
C.V	20.34	48.22	29.72	16.27	38.86	24.18	9.89	22.24	14.46

Source: Same as table 6.1

In 1981 male literacy ranged between 45 per cent in Rajasthan and 88 per cent in Kerala, where as female literacy rate ranged from 14 per cent in Rajasthan to 76 Per cent in Kerala. It may be noted that in Rajasthan male literacy was more than 3 times female literacy. Similar disparities are seen in States like Bihar and Uttar Pradesh were male literacy rates were 47 per cent and female literacy rates were 17 per cent. The male - female difference is the lowest in Kerala where the rates are 88 per cent

for males and 76 per cent for females. In 1991 male literacy rate exceeded 50 per cent in all States and varied from 52 per cent in Bihar to 94 per cent in Kerala. Disparity in female literacy was remarkably high as the rate ranged from 20 per cent in Rajasthan to 86 per cent in Kerala. In 2001 male literacy was 70 per cent or above in all States except Bihar (60), where as female literacy was below 70 per cent in all States except Kerala. Female literacy ranged between 34 per cent in Bihar and 88 per cent in Kerala.

It may be noted that disparity among States in terms of male literacy was less compared to that in terms of female literacy. In 1981 coefficient of variation for male literacy was 20.34, where as, the coefficient was 48.22 for female literacy. In 1991 the coefficients were 16.27 for male and 38.86 for female. The coefficient was as low as 9.89 in the case of male literacy and the coefficient for female literacy has come down to 22.24 in 2001, showing converging tendency over the period.

### **Level of education attained**

While literacy rate gives an idea about percentage of population with reading and writing skill, level of education attained provides further information about the educational standard of the people. Table 6.4 presents number of literates with different levels of educational attainment as a percentage of total population and also the level of disparity among States. Table 6.5 presents its growth in two decades from 1981 to 2001,

Table 6.4. Stock of population with Different Levels of Education Attained (percentage)

Years	Educational Level	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1981	Below Primary	6.1	NA	8.6	18.4	11.5	10.1	19.9	11.9	13.0	6.2	10.4	8.9	13.6	8.8	10.8	10.9	11.3	35.4
	Primary	11.9	NA	5.1	11.6	10.2	12.0	22.4	7.6	13.6	17.2	12.5	6.8	16.1	7.7	15.2	11.2	12.1	38.3
	Middle	5.5	NA	6.0	4.0	5.9	7.8	16.8	3.6	9.8	5.3	6.8	3.7	6.6	4.3	6.2	6.2	6.6	51.4
	Sec/Hr.Sec	4.4	NA	4.9	7.1	6.3	6.5	8.5	3.2	7.8	4.2	8.3	3.4	8.2	4.5	6.1	5.8	6.0	31.4
	Degree& above	1.0	NA	0.8	1.5	1.5	1.4	1.4	1.1	1.9	0.8	1.8	1.1	1.2	1.3	1.9	1.4	1.3	27.0
1991	Below Primary	10.6	9.2	6.8	10.6	12.0	12.7	26.6	12.6	11.4	14.5	10.6	8.9	13.5	8.4	12.6	10.6	12.1	37.5
	Primary	11.8	12.5	7.0	20.9	12.6	12.5	10.2	10.1	14.3	9.1	13.6	8.9	17.6	8.5	14.4	12.1	12.3	29.9
	Middle	4.5	11.4	8.1	6.9	7.6	9.1	23.1	5.1	13.6	10.2	8.8	5.8	9.4	6.9	11.0	8.8	9.4	48.0
	Sec/Hr.Sec	7.5	7.5	6.7	9.9	10.4	9.7	15.0	5.3	11.0	5.0	12.8	5.1	10.9	7.0	6.6	8.2	8.7	34.2
	Degree& above	2.2	1.6	1.9	2.5	2.3	2.5	2.7	2.1	3.1	1.7	2.9	1.9	2.6	2.1	3.0	2.4	2.3	19.8
2001	Below Primary	14.8	16.5	11.9	16.5	13.5	15.5	16.4	19.9	17.9	16.8	12.1	19.0	17.1	13.6	21.5	16.0	16.2	16.9
	Primary	16.2	12.0	10.4	15.9	15.3	16.0	19.0	14.0	16.8	15.8	15.5	12.5	18.7	11.4	14.3	14.3	14.9	16.8
	Middle	5.4	9.7	5.7	8.7	9.5	7.2	19.0	7.8	9.8	7.8	10.3	7.7	11.2	8.8	10.0	8.8	9.2	34.1
	Sec/Hr.Sec	12.3	11.9	8.3	14.0	15.1	14.6	21.2	7.9	16.4	10.3	18.7	7.3	14.5	9.4	9.0	11.8	12.7	32.4
	Degree& above	3.7	2.5	2.7	3.7	3.8	4.2	4.5	3.1	5.0	3.2	4.0	2.6	3.5	3.1	4.0	3.7	3.6	20.2

**Table 6.5 Rate of Growth of Stock of population with different levels of Education**

Level of Education	Period	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India
Below Primary	1981-01	4.55	NA	1.62	-0.55	0.82	2.20	-0.96	2.60	1.59	5.15	0.74	3.86	1.15	2.21	3.52	1.96
	1981-91	5.67	NA	-2.41	-5.41	0.41	2.32	2.97	0.60	-1.38	8.94	0.14	0.04	-0.09	-0.46	1.60	-0.23
	1991-01	3.44	6.03	5.81	4.56	1.23	2.07	-4.73	4.64	4.65	1.49	1.35	7.83	2.40	4.94	5.47	4.19
Primary	1981-01	1.54	NA	3.58	1.58	2.03	1.46	-0.82	3.09	1.08	-0.43	1.09	3.11	0.75	2.01	-0.30	1.23
	1981-91	-0.12	NA	3.09	6.04	2.16	0.42	-7.56	2.84	0.57	-6.19	0.82	2.75	0.92	0.98	-0.52	0.83
	1991-01	3.23	-0.44	4.07	-2.69	1.90	2.51	6.41	3.34	1.60	5.68	1.36	3.47	0.57	3.05	-0.07	1.64
Middle	1981-01	-0.16	NA	-0.19	3.95	2.47	-0.39	0.60	3.93	0.01	1.98	2.06	3.67	2.68	3.62	2.42	1.72
	1981-91	-1.97	NA	3.08	5.62	2.66	1.51	3.24	3.52	3.34	6.85	2.60	4.46	3.62	4.79	5.90	3.53
	1991-01	1.68	-1.64	-3.37	2.31	2.27	-2.26	-1.98	4.33	-3.21	-2.67	1.54	2.89	1.74	2.46	-0.95	-0.05
Sec/Higher Secondary	1981-01	5.30	NA	2.70	3.40	4.47	4.14	4.67	4.72	3.81	4.55	4.12	3.89	2.89	3.74	1.98	3.63
	1981-91	5.58	NA	3.23	3.33	5.15	4.15	5.84	5.38	3.50	1.73	4.38	4.12	2.95	4.61	0.73	3.55
	1991-01	5.03	4.71	2.18	3.47	3.80	4.13	3.52	4.07	4.11	7.44	3.87	3.66	2.83	2.87	3.24	3.70
Degree & above	1981-01	6.82	NA	5.92	4.48	4.78	5.83	6.13	5.19	5.03	7.40	4.17	4.41	5.38	4.45	3.68	4.99
	1981-91	8.27	NA	8.53	4.75	4.37	6.12	7.04	6.31	5.08	8.50	5.12	5.52	7.77	5.06	4.43	5.77
	1991-01	5.40	4.85	3.37	4.21	5.20	5.54	5.23	4.08	4.98	6.31	3.22	3.31	3.04	3.84	2.93	4.22

Source: Census 1981, 1991 and 2001

Note: Census 1981 was not conducted in Assam

As observed from table 6.4, percentage of people with degree and above has increased from 1.4 in 1981 to 2.4 in 1991 and to 3.7 in 2001 at all India level. In 1981 the percentage varied from 0.8 in Orissa to 1.9 in Maharashtra and West Bengal. In 7 out of 14 States the percentage of graduates was below the national level (1.4) and in Kerala and Karnataka it was same as the national level. The percentage was comparatively high in Maharashtra (1.9), West Bengal (1.9), Punjab (1.8), Gujarat (1.5), and Haryana (1.5).

In 1991 the percentage of graduates was 2.4 at national level and in 8 States the percentage was below the national level. The percentage in these States ranged from 1.6 in Assam to 3.1 in Maharashtra. In 2001 the percentage was the highest in Maharashtra (5) followed by Kerala (4.5) and Karnataka (4.2). The percentage was the lowest in Assam (2.5) followed by Rajasthan (2.6) and Bihar (2.7). It is seen that in 7 States number of graduates per population was less than that at national level.

As seen from table 6.5, during 1981-91 rate of growth in the case of graduates was the highest in Bihar (8.53%) followed by Orissa (8.5%) and Andhra Pradesh (8.27%). Relatively lower rates were registered by Haryana (4.37%), and west Bengal.(4.43%) Compared to 1981-91, rate of growth of number of graduates per population for the period 1991-2001 was low in all States except Haryana where the rate increased from 4.37 % to 5.2%. The all India rate decreased from 5.77 % in 1981-91 to 4.22 % in 1991-2001. The highest rate for the decade 1991-2001 was 6.31% in Orissa, while the lowest was 2.93% in West Bengal. For the overall period, the rate ranged between 3.68% in West Bengal to 7.4% in Orissa.

Percentage of people with secondary or higher secondary education at all India level increased from 5.8 in 1980-81 to 8.2 in 1991 and then to 11.8 in 2001. In 1981, among 14 States Kerala had the highest percentage of people with secondary or higher secondary education (8.5) followed by Punjab (8.3) and Tamil Nadu (8.2). States with comparatively lower percentage were Madhya Pradesh (3.2), Rajasthan (3.4) and Orissa (4.2). In 1991 the percentage was highest in Kerala (15) followed by Punjab (12.8) and Maharashtra (11). The lowest percent was that of Orissa (5) followed by Rajasthan (5.1) and Madhya Pradesh (5.3) and in eight States percentage of people with secondary or higher secondary education was lower than the national average.

In 2001 the highest percentage was 21.2 (Kerala) followed by 18.7 (Punjab) and 16.4 in Maharashtra. In six States – Rajasthan (7.3), Madhya Pradesh (7.9), Bihar (8.3), West Bengal (9), Uttar Pradesh (9.4) and Orissa (10.3) – the percentage was lower than the national level (11.8). During 1981-91 the percentage increased in all States and the rate of growth varied from 0.73% in West Bengal to 5.84 % in Kerala. In the last decade growth rates ranged between 2.18% in Bihar and 7.44% in Orissa. Compared to 1981-91, the rate of growth during 1991-2001 was low in 10 States. But in Orissa and West Bengal the rates increased remarkably (from 1.73% to 7.44% and from 0.73% to 3.24%).

The percentage of population with education up to Upper Primary level was the highest in Kerala (16.8) in 1981. The percentage was relatively low in Madhya Pradesh (3.6), Rajasthan (3.7), Gujarat (4) and Uttar Pradesh (4.3). In 1991 Kerala (23.1) was at the top while

Andhra Pradesh (4.5) and Madhya Pradesh (5.1) occupied the last two positions. In 2001 also the percentage was highest in Kerala (19) and Andhra Pradesh with 5.4 % and Bihar with 5.7% were at the bottom. In the case of people with primary education Kerala was at the top in 1981 and 2001 while Gujarat occupied the first place in 1991. Bihar occupied the last position in each of the three time points. In the case of literates who could not complete primary education, the percentage is found to increase from 10.9 in 1981 to 16 in 2001. In 1981 Kerala (19.9) was at the top followed by Gujarat (18.4) and the last place was occupied by Andhra Pradesh (6.1). West Bengal (21.5) occupied the first place and Bihar (11.9) was at the bottom in 2001.

It is seen that coefficient of variation among States has declined from 27 in 1981 to 19.8 in 1991 and increased to 20.2 in 2001 in the case of percentage of graduates. At Secondary/ Higher secondary level the coefficient increased from 31.4 in 1981 to 34.2 in 1991 and then decreased to 32.4 in 2001. Coefficient of variation in the case of middle level education declined from 51.4 in 1981 to 48 in 1991 and to 34.1 in 2001. At Primary level C.V indicates converging trend as it has declined from 38.3 in 1981 to 29.9 in 1991 and to 16.8 in 2001. In the case of below primary level. C.V increased from 35.4 in 1981 to 37.5 in 1991 and declined to 16.9 in 2001.

## **6.2 Inter state Disparity in Health Attainment**

For any society, a transition from high incidence of morbidity and mortality to a state where people generally enjoy long and disease free lives is a desirable and valued social change. Therefore indicators of health and longevity are important constituents in the framework for

evaluating the development process. Attainments in educational and economic well being reinforce the transition towards better health and longevity.

### **Life Expectancy at Birth**

Life expectancy of an individual at any age is the number of years the person is expected to live given the prevailing age specific mortality rates of the population to which he/she belongs. It is a summary measure that provides some indication on the longevity that a person is likely to enjoy in any society. Table 6.6 presents state wise life expectancy at birth (5 year moving average) as per the estimates based on the Sample Registration System (SRS), Registrar General of India and table 6.7 shows the male – female differences in life expectancy.

It is observed from the tables that during the period 1981-85 to 2001-06, life expectancy at birth at the national level improved from 55.5 years to 65.4 years. During the period life expectancy for males increased from 55.4 years to 63.9 years, where as in case of females it increased from 55.7 years to 66.9 years. There are significant differences in life expectancy at birth across States. In Kerala, a person is expected to live for over 73 years (71.67 years and 75 years for females), followed by Punjab at 70.89 years (69.78 years for males and 72 years for the females). On the other hand life expectancy in Madhya Pradesh was 58.6 years (59.2 years for males and 58 years for females), followed by Assam and Orissa at 59.9 years.

Table 6.6 Life Expectancy at Birth (Combined)

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1981-85	58.4	51.9	52.9	57.6	60.3	60.7	68.4	51.6	60.7	53.0	63.1	53.5	56.9	50.0	57.4	55.5	57.1	8.8
1982-86	58.5	52.2	53.3	57.6	60.7	60.8	68.6	51.9	61.1	53.3	63.5	53.8	57.6	50.7	58.1	55.9	57.4	8.7
1983-87	58.7	52.6	53.7	57.6	61.1	60.9	68.8	52.2	61.5	53.6	63.9	54.2	58.3	51.3	58.7	56.4	57.8	8.6
1984-88	58.8	52.9	54.1	57.7	61.4	60.9	69.1	52.4	61.8	53.8	64.4	54.5	59.0	52.0	59.4	56.8	58.2	8.5
1985-89	59.0	53.3	54.5	57.7	61.8	61.0	69.3	52.7	62.2	54.1	64.8	54.9	59.8	52.7	60.1	57.3	58.5	8.4
1986-90	59.1	53.6	54.9	57.7	62.2	61.1	69.5	53.0	62.6	54.4	65.2	55.2	60.5	53.4	60.8	57.7	58.9	8.3
1987-91	59.6	53.8	56.2	58.6	62.3	61.6	70.4	53.2	63.0	54.9	65.9	55.7	61.0	54.4	61.1	58.2	59.5	8.2
1988-92	60.2	54.1	57.5	59.5	62.5	62.2	71.3	53.4	63.4	55.4	66.6	56.3	61.5	55.4	61.4	58.7	60.0	8.2
1989-93	60.6	54.9	58.5	60.1	62.9	61.9	72.0	54.0	64.2	55.5	66.4	58.0	62.4	55.9	61.5	59.4	60.6	7.9
1990-94	61.2	55.3	58.9	60.5	63.1	62.2	72.4	54.3	64.5	56.0	66.8	58.5	62.8	56.3	61.8	59.8	61.0	7.9
1991-95	61.8	55.7	59.3	61.0	63.4	62.5	72.9	54.7	64.8	56.5	67.2	59.1	63.3	56.8	62.1	60.3	61.4	7.8
1992-96	62.0	56.2	59.4	61.4	63.8	62.9	73.1	55.2	65.2	56.9	67.4	59.5	63.7	57.2	62.4	60.7	61.8	7.6
1993-97	62.4	56.7	59.6	61.9	64.1	63.3	73.3	55.5	65.5	57.2	67.7	60.0	64.1	57.6	62.8	61.1	62.1	7.5
1994-98	62.6	57.2	59.6	62.4	64.4	63.7	73.3	55.9	65.6	57.5	67.9	59.9	64.5	57.9	63.2	61.4	62.3	7.4
1995-99	62.9	57.4	59.8	62.8	64.6	64.0	73.4	56.4	65.8	57.7	68.0	60.4	64.7	58.3	63.6	61.7	62.6	7.2
1996-00	63.3	57.5	60.4	63.1	64.8	64.2	73.5	56.5	66.0	57.9	68.2	60.7	64.8	58.6	63.6	61.9	62.9	7.2
1997-01	63.4	57.7	60.6	63.3	65.0	64.3	73.6	56.6	66.1	58.1	68.3	60.9	65.0	58.8	63.7	62.2	63.0	7.1
1998-02	63.5	57.9	60.6	63.4	65.2	64.5	73.5	56.9	66.2	58.5	68.5	61.1	65.2	59.1	63.9	62.5	63.2	7.0
1999-03	63.6	58.4	61.7	63.5	65.6	64.5	73.5	57.3	66.7	58.8	69.1	61.4	66.0	60.2	64.8	63.2	63.7	6.7
2000-04	63.7	58.9	62.9	63.5	66.1	64.5	73.4	57.7	67.2	59.2	69.7	61.8	66.8	61.4	65.8	63.9	64.2	6.6
2001-06	63.9	59.9	65.2	63.6	67.0	64.4	73.3	58.6	68.3	59.9	70.9	62.5	68.4	63.8	67.7	65.4	65.2	6.4
CGR																		
1980-04	0.5	0.7	0.9	0.6	0.5	0.4	0.4	0.6	0.5	0.6	0.5	0.8	0.8	1.0	0.6	0.7	-	-
1981-91	0.4	0.7	1.2	0.5	0.5	0.3	0.6	0.5	0.7	0.6	0.7	0.9	1.1	1.4	0.9	0.8	-	-
1991-04	0.4	0.6	0.7	0.5	0.5	0.3	0.1	0.6	0.4	0.5	0.4	0.5	0.6	0.9	0.7	0.7	-	-

Sources: (i) Health Information of India, Central Bureau of Health Intelligence (various issues )

(ii) Statistical Abstract, India (various issues)

**Table 6.7 Life Expectancy According to Sex**

Years		AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1981-85	Male	57.2	52	54.2	55.5	61.5	59.7	65.4	51.5	59.6	53.1	62.6	53.3	56.5	51.4	56.4	55.4	56.7	7.6
	Female	59.8	52	51.5	59.3	59	62	71.5	51.9	62.1	53	63.6	53.8	57.4	48.5	58	55.7	57.6	10.4
	Combined	58.4	52	52.9	57.6	60.3	60.7	68.4	51.6	60.7	53	63.1	53.5	56.9	50	57.4	55.5	57.1	8.8
1982-86	Male	57.4	52.3	54.5	55.8	61.6	59.8	65.7	51.9	59.9	53.4	63.0	53.7	57.2	51.9	57.1	55.9	57.0	7.5
	Female	59.9	52.4	51.9	59.2	59.6	62.1	71.7	52.1	62.4	53.2	64.2	54.3	58.0	49.3	58.6	56.2	57.9	10.2
	Combined	58.5	52	53.3	57.6	60.7	60.8	68.6	51.9	61.1	53.3	63.5	53.8	57.6	50.7	58.1	55.9	57.4	8.7
1983-87	Male	57.6	52.6	54.8	56.1	61.8	60.0	66.0	52.4	60.2	53.7	63.4	54.1	57.9	52.5	57.9	56.3	57.4	7.4
	Female	60.0	52.8	52.3	59.1	60.3	62.2	71.8	52.3	62.7	53.4	64.9	54.7	58.7	50.1	59.3	56.6	58.3	10.0
	Combined	58.7	53	53.7	57.6	61.1	60.9	68.8	52.2	61.5	53.6	63.9	54.2	58.3	51.3	58.7	56.4	57.8	8.6
1984-88	Male	57.8	53.0	55.1	56.4	61.9	60.1	66.2	52.8	60.6	54.0	63.9	54.4	58.6	53.1	58.7	56.8	57.8	7.2
	Female	60.2	53.3	52.7	59.0	60.9	62.4	72.0	52.6	62.9	53.6	65.6	55.2	59.3	50.9	59.9	57.1	58.7	9.8
	Combined	58.8	53	54.1	57.7	61.4	60.9	69.1	52.4	61.8	53.8	64.4	54.5	59	52	59.4	56.8	58.1	8.5
1985-89	Male	58.0	53.3	55.4	56.7	62.1	60.3	66.5	53.3	60.9	54.3	64.3	54.8	59.3	53.6	59.4	57.2	58.1	7.1
	Female	60.3	53.7	53.2	58.9	61.5	62.5	72.1	52.8	63.2	53.8	66.2	55.7	59.9	51.7	60.5	57.6	59.1	9.7
	Combined	59	53	54.5	57.7	61.8	61	69.3	52.7	62.2	54.1	64.8	54.9	59.8	52.7	60.1	57.3	58.5	8.4
1986-90	Male	58.2	54	55.7	57	62.2	60.4	66.8	53.7	61.2	54.6	64.7	55.2	60	54.2	60.2	57.7	58.5	7.1
	Female	60.4	54	53.6	58.8	62.2	62.6	72.3	53	63.5	54	66.9	56.2	60.6	52.5	61.2	58.1	59.5	9.6
	Combined	59.1	54	54.9	57.7	62.2	61.1	69.5	53	62.6	54.4	65.2	55.2	60.5	53.4	60.8	57.7	58.9	8.3
1987-91	Male	58.6	53.7	57.0	57.5	62.1	60.4	67.7	53.7	61.6	55.2	65.0	55.7	60.3	55.1	60.5	58.1	59.0	7.0
	Female	60.9	54.3	55.5	59.6	62.7	63.1	73.0	53.1	64.1	54.5	67.0	56.4	61.5	53.5	61.7	58.5	60.1	9.4
	Combined	59.6	54	56.2	58.6	62.3	61.6	70.4	53.2	63	54.9	65.9	55.7	61	54.4	61.1	58.2	59.4	8.2
1988-92	Male	59.1	54	58.4	58	62.1	60.5	68.7	53.8	62	55.8	65.4	56.2	60.7	56.1	60.8	58.6	59.4	7.0
	Female	61.5	54	57.5	60.5	63.2	63.6	73.7	53.2	64.7	55.1	67.2	56.7	62.5	54.5	62.3	59	60.7	9.2
	Combined	60.2	54	57.5	59.5	62.5	62.2	71.3	53.4	63.4	55.4	66.6	56.3	61.5	55.4	61.4	58.7	60.0	8.2

Table 6.7 Continued

Years		AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1989-93	Male	59.5	55	59.7	59	62.5	60.2	68.8	54.1	63	55.7	65.2	57.4	61.4	56.5	68.8	59	60.4	7.7
	Female	61.5	55	57.2	61.1	63.7	63.5	74.7	53.8	65.4	55.3	67.6	58.5	63.4	55.1	62.3	59.7	61.2	9.2
	Combined	60.6	55	58.5	60.1	62.9	61.9	72	54	64.2	55.5	66.4	58	62.4	55.9	61.5	59.4	60.6	7.9
1990-94	Male	59.9	55.1	59.9	59.6	62.7	60.4	69.3	54.4	63.2	56.1	65.6	57.8	61.8	56.9	65.0	59.3	60.5	6.9
	Female	62.1	55.7	57.6	61.5	63.8	63.7	74.0	54.2	65.6	55.7	68.0	58.9	63.9	55.5	62.5	60.3	61.5	8.8
	Combined	61.2	55	58.9	60.5	63.1	62.2	72.4	54.3	64.5	56	66.8	58.5	62.8	56.3	61.8	59.8	61.0	7.9
1991-95	Male	60.3	56	60.1	60.2	63	60.6	69.9	54.7	63.5	56.6	66.1	58.3	62.3	57.3	61.5	59.7	60.7	6.6
	Female	62.8	56	58	62	64	63.9	73.3	54.6	65.8	56.2	68.4	59.4	64.4	56	62.8	60.9	61.8	8.4
	Combined	61.8	56	59.3	61	63.4	62.5	72.9	54.7	64.8	56.5	67.2	59.1	63.3	56.8	62.1	60.3	61.4	7.8
1992-96	Male	60.8	56	60.2	60.5	63.4	61.1	70.2	55.1	63.8	56.9	66.4	58.6	62.8	57.7	61.8	60.1	61.0	6.6
	Female	63	57	58.2	62.5	64.3	64.5	75.8	54.7	66.2	56.6	68.6	59.6	64.8	56.4	63.1	61.4	62.3	8.9
	Combined	62	56	59.4	61.4	63.8	62.9	73.1	55.2	65.2	56.9	67.4	59.5	63.7	57.2	62.4	60.7	61.8	7.6
1993-97	Male	61.2	57	60.4	60.9	63.7	61.6	70.4	55.6	64.1	57.1	66.7	59.1	63.2	58.1	62.2	60.4	61.4	6.4
	Female	63.5	57	58.4	62.9	64.6	64.9	75.9	55.2	66.6	57	68.8	60.1	65.1	56.9	63.6	61.8	62.7	8.7
	Combined	62.4	57	59.6	61.9	64.1	63.3	73.3	55.5	65.5	57.2	67.7	60	64.1	57.6	62.8	61.1	62.1	7.5
1994-98	Male	61.4	57	60.5	61.4	63.9	62	70.5	56	64.3	57.4	66.8	59.4	63.5	58.5	62.5	60.6	61.7	6.3
	Female	63.7	57	58.7	63.3	64.8	65.3	76	55.7	66.8	57.5	69	60.4	65.5	57.3	63.9	62.2	63.0	8.6
	Combined	62.6	57.2	59.6	62.4	64.4	63.7	73.3	55.9	65.6	57.5	67.9	59.9	64.5	57.9	63.2	61.4	62.3	7.4
1995-99	Male	61.6	57	60.7	61.9	64.1	62.4	70.6	56.5	64.5	57.6	66.9	59.8	63.7	58.9	62.8	60.8	61.9	6.1
	Female	64.1	58	58.9	63.7	65	65.5	76.1	56.2	67	57.8	69.1	60.9	65.7	57.7	64.3	62.5	63.3	8.4
	Combined	62.9	57	59.8	62.8	64.6	64	73.4	56.4	65.8	57.7	68	60.4	64.7	58.3	63.6	61.7	62.7	7.2
1996-2000	Male	61.7	57	60.9	62.1	64.4	62.5	70.7	56.6	64.7	57.8	67.1	60.1	63.9	59.1	63	61	62.1	6.1
	Female	64.3	58	59.1	64	65.1	65.8	76.1	56.3	67.2	58	69.2	61.1	65.9	57.9	64.5	62.7	63.5	8.3
	Combined	63.3	58	60.4	63.1	64.8	64.2	73.5	56.5	66	57.9	68.2	60.7	64.8	58.6	63.6	61.9	62.9	7.2

Table 6.7 Continued

Years		AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	S.D	C.V
1997-01	Male	61.9	58	61.1	62.3	64.6	62.6	70.8	56.7	64.8	58	67.2	60.3	64.1	59.2	63.2	61.3	62.3	3.8	6.1
	Female	64.4	58	59.3	64.2	65.2	66	76.2	56.4	67.3	58.2	69.3	61.3	66.1	58.1	64.6	63	63.6	5.3	8.3
	Combined	63.4	58	60.6	63.3	65	64.3	73.6	56.6	66.1	58.1	68.3	60.9	65	58.8	63.7	62.2	63.0	4.5	7.1
1998-02	Male	62	58	61.4	62.4	64.7	62.8	70.8	57	65	58.4	67.4	60.5	64.2	59.4	63.3	61.6	62.5	3.7	5.9
	Female	64.6	58	59.5	64.4	65.4	66.2	75.9	56.7	67.4	58.5	69.5	61.6	66.3	58.5	64.8	63.3	63.8	5.1	8.1
	Combined	63.5	58	61.8	63.4	65.2	64.5	73.5	56.9	66.2	58.5	68.5	61.1	65.2	59.1	63.9	62.5	59.6	15.2	25.6
1999-03	Male	62.3	58.1	62.8	62.6	64.7	62.7	71.1	57.7	65.6	58.9	68.2	61.1	65.1	60.7	64.2	62.3	63.1	3.6	5.8
	Female	64.7	59.0	61.2	64.3	66.7	66.3	75.6	57.1	68.2	58.9	70.3	62.0	67.4	60.3	66.3	64.5	64.6	4.9	7.6
	Combined	63.6	58	61.7	63.5	65.6	64.5	73.5	57.3	66.7	58.8	69.1	61.4	66	60.2	64.8	63.2	63.7	4.3	6.8
2000-04	Male	62.5	58.5	64.2	62.9	64.7	62.6	71.4	58.5	66.2	59.5	69.0	61.6	66.1	62.1	65.1	63.1	63.7	3.6	5.7
	Female	64.9	59.9	63.0	64.2	68.0	66.4	75.3	57.6	69.0	59.3	71.2	62.4	68.6	62.2	67.8	65.7	65.3	4.8	7.3
	Combined	63.7	59	62.9	63.5	66.1	64.5	73.4	57.7	67.2	59.2	69.7	61.8	66.8	61.4	65.8	63.9	64.2	4.2	6.6
2001-06	Male	62.8	59	65.7	63.12	64.64	62.43	71.67	59.2	66.75	60.1	69.8	62.2	67	63.54	66.08	63.9	64.3	3.7	5.7
	Female	65	61	64.8	64.1	69.3	66.44	75	58	69.76	59.7	72	62.8	69.8	64.09	69.34	66.9	66.1	4.8	7.2
	Combined	63.9	60	65.2	63.61	66.97	64.44	73.34	58.6	68.26	59.9	70.9	62.5	68.4	63.82	67.71	65.4	65.2	4.2	6.4

Sources: (i) Health Information of India, Central Bureau of Health Intelligence (various issues )  
(ii) Statistical Abstract, India (various issues)

It may be noted that, against the general trend of females expected to live longer than males, in States like Bihar, Madhya Pradesh, Orissa and Uttar Pradesh, males are expected to outlive the females. During 2001-06 people in 6 States – Kerala, Punjab, Maharashtra, Tamil Nadu, West Bengal and Haryana - are expected to live longer than the national average where as in 1981-85 life expectancy was higher than national level in 9 States like Kerala (68.4), Punjab (63.1), Karnataka (60.7), Maharashtra (60.7), Haryana (60.3), Andhra Pradesh (58.4), West Bengal (57.4) and Tamil Nadu (56.9).

Even though life expectancy was the highest for Kerala both in 1980-81 and 2003-04, its growth rate was the lowest (0.4 %) among 15 States, with Karnataka sharing the last position. Uttar Pradesh registered the highest rate of growth during pre reform, post reform and overall periods. The rate of growth in the post reform period was lower than that in the pre reform period in all States except Madhya Pradesh. The post reform growth rates ranged from 0.1 per cent in Kerala to 0.9 per cent in Uttar Pradesh, while it was between 0.3 per cent in Karnataka and 1.4 per cent in Uttar Pradesh during pre reform period. Disparity among States is found to be very low and coefficient of variation declined from 8.8 per cent in 1980-81 to 6.4 per cent in 2003-04 indicating converging trend among States.

### **Infant Mortality Rate**

Infant mortality rate [IMR] refers to the number of deaths per thousand live births in the first year of a child's life. It reflects the probability of a child dying before the first birth day. Unlike life

expectancy that is relatively stable and slow moving, infant mortality rate is likely to be more sensitive to changes that have a bearing on the quality of life. They are, thus, more useful from the point of policy targeting. Table 6.8 presents state wise infant mortality rate.

Infant mortality rate has more than halved at all India level in the overall period. From 115 per 1000 in 1980-81, the rate has come to 58 in 2003-04. In 1980-81, infant mortality rate was higher than the national level in 7 States. Among all States Kerala had the lowest rate (54) and was followed by Karnataka (81) and Andhra Pradesh (91). At the other end of the list, the rate was as high as 163 in Orissa, 150 in Madhya Pradesh, 141 in Rajasthan and 130 in Uttar Pradesh. In 2003-04 Kerala's infant mortality rate was 12 (less than quarter the rate in 1980-81) and was the lowest among all States. Kerala was followed by Maharashtra (36), West Bengal (40) and Tamil Nadu (41). The States like Madhya Pradesh (79), Orissa (77), Uttar Pradesh (72) Rajasthan (67), Assam (66), Bihar (61), and Haryana (61) had higher rates compared to the All India rate (58). It may be noted that Kerala's infant mortality rate was about five times less than the rate at the national level.

**Table 6.8 Infant Mortality Rate**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1980-81	91	96	94	115	126	81	54	150	119	163	127	141	104	130	95	115	112	25.37
1981-82	80	96	104	113	93	70	34	131	79	123	80	103	91	148	86	106	95	28.72
1982-83	79	96	102	111	92	71	32	128	77	122	76	103	89	143	82	104	94	28.8
1983-84	75	93	102	112	100	76	29	128	80	122	69	120	83	152	82	120	95	31.36
1984-85	82	97	101	107	85	73	27	118	63	123	68	107	80	132	71	97	89	30.63
1985-86	75	97	97	105	88	75	29	120	71	118	67	102	83	130	73	98	89	28.8
1986-87	74	98	96	103	87	76	28	118	69	117	65	102	81	125	70	96	87	28.88
1987-88	73	93	89	94	83	76	24	116	67	116	63	98	77	119	69	92	84	29.34
1988-89	72	89	83	86	80	76	22	114	66	115	61	94	72	112	68	88	81	29.5
1989-90	73	84	69	69	68	77	16	117	60	124	53	79	57	97	71	80	74	34.88
1990-91	55	92	75	78	52	74	42	133	74	125	74	87	54	99	62	77	78	32.94
1991-92	70	77	67	66	70	75	15	107	60	111	56	82	61	95	64	78	72	31.86
1992-93	64	81	67	70	58	63	13	106	35	110	35	82	36	94	58	74	65	42.4
1993-94	63	77	66	64	67	65	16	98	53	103	53	84	59	88	61	73	68	31.04
1994-95	66	77	73	62	68	62	16	99	54	103	54	86	56	86	59	74	68	31.26
1995-96	65	74	71	61	68	53	14	97	47	96	51	85	53	85	55	72	65	32.99
1996-97	63	76	71	62	68	53	12	94	47	96	51	85	53	85	55	77	65	33.28
1997-98	66	76	67	64	70	58	16	98	49	98	54	83	53	85	53	72	66	31.77
1998-99	66	76	63	63	68	58	14	90	48	97	53	81	52	84	52	70	64	31.69
1999-00	65	75	62	62	67	57	14	87	48	95	52	79	51	83	51	68	63	31.34
2000-01	66	74	62	60	66	58	11	86	45	91	52	80	49	83	51	66	62	32.28
2001-02	62	70	61	60	62	55	10	85	45	87	51	78	44	80	49	64	60	32.75
2002-03	59	67	60	57	59	52	11	82	42	83	49	75	43	76	46	60	57	32.42
2003-04	59	66	61	53	61	49	12	79	36	77	45	67	41	72	40	58	55	32.77
<b>CGR</b>																		
1980-04	-1.37	-1.78	-2.57	-3.49	-2.26	-1.92	-5.69	-2.33	-3.47	-2.14	-2.58	-2.04	-3.54	-3.07	-2.91	-2.73	-	-
1980-91	-2.97	-1.00	-3.32	-4.50	-5.69	0.16	-5.08	-1.44	-3.75	-1.46	-4.65	-3.75	-5.24	-3.86	-3.41	-3.72	-	-
1991-04	-0.79	-1.28	-1.26	-1.45	-0.64	-2.25	-2.72	-2.37	-1.79	-2.53	0.10	-1.29	-1.72	-1.78	-2.98	-2.12	-	-

Sources : (i) Health Information of India, Central Bureau of Health Intelligence ( various issues ), (ii) Statistical Abstract, India ( various issues)

Decline in infant mortality rate was the sharpest in Kerala with compound growth rate -5.69 per cent in the overall period. In the pre reform period the sharpest fall was experienced by Haryana (-5.69%) followed by Tamil Nadu (-5.24%) and Kerala (-5.08%). In the post reform period a set back is experienced in the pace of declining trend in all States except in Assam, Karnataka, Madhya Pradesh, Orissa and Punjab. The lowest rate was -2.98 per cent in West Bengal and the highest 0.1 per cent in Punjab during post reform period, where as pre reform rates ranged between -5.69 per cent in Haryana and 0.16 per cent in Karnataka. Disparity among States is higher in terms of infant mortality rate compared to life expectancy. From 25.73 in 1980-81, the coefficient of variation increased to 42.4 in 1992-93 and declined to 32.77 in 2003-04.

### **Crude Death Rate**

Crude death rate refers to the ratio of the total number of deaths occurring during a calendar year to the mid year estimated population expressed per thousand. The state wise figures of death rate for the period from 1980-81 to 2003-04 are given in Table 6.9.

As observed from the table, all the States have shown remarkable decline in death rate over the period. The all India rate showed gradual decrease from 12.5 per thousand in 1980-81 to 7.5 in 2003-04. It may be noted that Kerala has maintained the lowest death rate through out the period. The rate was 6.6 in 1980-81 and 6.1 in 2003-04.

**Table 6.9 Crude Death Rate**

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	India	Mean	C.V
1980-81	11.1	12.6	13.9	12	11.3	9.1	6.6	16.6	9.6	13.1	9.4	14.3	11.8	16.3	11	12.5	11.9	22.7
1981-82	10.7	12.4	13.7	11.8	9.8	9.2	6.6	15.4	9.2	12.9	9.1	13.3	11.6	15.7	10.6	12.1	11.5	21.9
1982-83	10.6	12.3	13.5	11.7	9.8	9.1	6.6	15.2	9.1	12.8	9.0	13.4	11.2	15.3	10.2	11.9	11.3	21.8
1983-84	10.5	12.2	13.3	11.5	9.8	9.1	6.5	15.0	9.1	12.7	8.9	13.5	10.8	14.8	9.8	11.7	11.2	21.6
1984-85	10.4	12.1	13.1	11.4	9.8	9.0	6.5	14.8	9.0	12.6	8.7	13.6	10.4	14.4	9.4	11.5	11.0	21.6
1985-86	9.9	12.6	13.8	10.5	8.7	8.7	6.1	13.6	8.4	13.0	8.2	11.7	9.5	14.6	8.8	11.1	10.5	23.9
1986-87	9.9	11.6	13.1	9.8	8.8	8.7	6.1	13.3	8.3	13.1	8.1	11.6	9.9	14.5	8.8	10.9	10.4	23.0
1987-88	10.2	11.8	12.6	11	9.8	8.8	6.4	14.3	8.9	12.3	8.4	14	9.3	13.2	8.4	11	10.6	22.0
1988-89	9.5	10.4	12.1	9.7	8.5	8.8	6.1	12.9	8	12.7	8.2	10.7	8.7	12.6	8.8	10.3	9.8	20.5
1989-90	9.1	10.5	10.6	8.9	8.4	8.1	6	12.6	7.4	11.7	7.8	9.6	8.5	12	8.4	9.7	9.3	19.9
1990-91	9.7	11.5	9.8	8.5	8.2	9	6	13.8	8.2	12.8	7.8	10.1	8.8	11.3	8.3	9.8	9.6	21.4
1991-92	9.8	10.4	10.9	9.2	8.7	8.5	6.3	12.9	7.9	11.7	8.2	10.5	8.4	12.8	8.4	10.1	9.6	19.5
1992-93	8.6	10.2	10.6	8.2	7.9	8	6	12.6	7.3	12.2	7.9	9.4	8.2	11.6	7.4	9.3	9.1	21.5
1993-94	8.3	9.1	10.4	8.7	7.8	8.1	6	11.5	7.4	11.1	7.6	8.9	7.9	11	8.3	9.2	8.8	17.7
1994-95	8.4	9.6	10.5	7.6	8.1	7.6	6	11.2	7.5	10.8	7.3	9.1	7.8	10.3	7.9	9	8.6	17.6
1995-96	8.4	9.6	10.2	7.6	8.1	7.6	6.2	11.1	7.4	10.8	7.4	9.1	8	10.3	7.8	9	8.6	16.9
1996-97	8.3	9.9	10	7.6	8	7.6	6.2	11	7.3	10.9	7.4	8.8	8	10.3	7.7	8.9	8.6	17.1
1997-98	8.8	10.1	9.4	7.8	8.1	7.9	6.4	11.2	7.6	11.1	7.7	8.8	8.4	10.5	7.5	9	8.8	16.3
1998-99	8.2	9.7	8.9	7.9	7.7	7.7	6.4	10.4	7.5	10.7	7.4	8.4	8	10.5	7.1	8.7	8.4	15.7
1999-00	8.2	9.6	8.8	7.5	7.5	7.8	6.4	10.3	7.5	10.5	7.4	8.5	7.9	10.3	7	8.5	8.3	15.4
2000-01	8.2	9.6	8.2	7.8	7.6	7.6	6.6	10.1	7.5	10.4	7	8	7.7	10.1	7	8.4	8.2	14.9
2001-02	8	9.2	7.9	7.6	7	7.2	6.4	9.7	7.3	9.8	7.1	7.7	7.7	9.7	6.6	8.1	7.9	14.4
2002-03	8.0	9.1	7.9	7.6	7.1	7.2	6.3	9.8	7.2	9.7	7.0	7.6	7.6	9.5	6.6	8.0	7.9	14.3
2003-04	7	8.8	8.1	6.9	6.6	6.9	6.1	9.2	6.2	9.6	6.4	7	7.5	8.8	6.3	7.5	7.4	15.8

**CGR**

1980-04	-1.6	-1.6	-2.6	-2.4	-1.7	-1.2	-0.1	-2.3	-1.3	-1.4	-1.3	-2.9	-1.9	-2.5	-2.1	-2.0	-	-
1980-91	-1.6	-1.6	-2.9	-3.3	-2.5	-0.7	-1.1	-2.2	-2.0	-0.5	-1.8	-3.4	-3.4	-3.3	-2.8	-2.4	-	-
1991-04	-1.5	-0.8	-3.0	-1.4	-1.6	-1.2	0.4	-2.4	-0.8	-1.6	-1.4	-2.5	-0.7	-2.1	-2.1	-1.8	-	-

Sources : (i) Health Information of India, Central Bureau of Health Intelligence ( various issues ), (ii) Statistical Abstract, India ( various issues)

Kerala was followed by Karnataka (9.1), Punjab (9.4), and Maharashtra (9.6) in 1980-81. The States like Madhya Pradesh(16.6), Uttar Pradesh (16.3), Rajasthan (14.3), Bihar (13.9), Orissa (13.1) and Assam (12.6) had comparatively high death rate in 1980-81. Even though these States have achieved relatively sharper fall in the rate, they were at the bottom of the list in 2003-04 too. The only exception is Rajasthan, where the death rate has decreased from 14.3 in 1980-81 to 7 in 2003-04. Among all the States, the sharpest fall in death rate was shown by Rajasthan with compound growth rate -2.9 per cent, followed by Bihar (-2.6%), Uttar Pradesh (-2.5%), Gujarat (-2.4%) and Madhya Pradesh (-2.3%).

Compared to post reform period decline in death rate was sharper during pre reform period in 10 States,. The all India growth rate was -2.4 per cent in the pre reform period and -1.8 per cent in the post reform period. It may be noted that, all States with high death rate have shown relatively sharper fall in the rate indicating a converging tendency. Kerala with the lowest death rate has shown positive growth rate in 1990s. For instance, from 6 per thousand in 1990-91, death rate has come up to 6.4 in 1998-99, 6.6 in 200-01 and decreased to 6.1 in 2003-04. The disparities among States in death rate as measured by coefficient of variation decreased from 22.7 in 1980-81to 15.8 in 2003-04, indicating a converging trend.

### **Morbidity Prevalence Rate**

Morbidity is an indicator of illness, which can be defined as any deviation from the state of normal physical and mental well being. It

refers to the state of being afflicted with an ailment. Morbidity rate or morbidity prevalence rate has been measured as the number of persons reporting ailment during the reference period per 1000 persons. A comparison of combined morbidity rates for acute and chronic ailments obtained from 60<sup>th</sup> round (2004) of National Sample Survey with those of the 52<sup>nd</sup> round (1995-96) is presented in Table 6.10.

**Table 6.10 Morbidity Prevalence Rate**

(Proportion of Ailing Persons per 1000)

States	52nd round (1995-96)		60th round 2004		CGR	
	Rural	Urban	Rural	Urban	Rural	Urban
<b>Andhra Pradesh</b>	64	61	90	114	4.35	8.13
<b>Assam</b>	80	86	82	83	0.31	-0.44
<b>Bihar</b>	36	41	53	63	4.95	5.52
<b>Gujarat</b>	46	36	69	78	5.20	10.15
<b>Haryana</b>	61	63	95	87	5.69	4.12
<b>Karnataka</b>	45	40	64	57	4.50	4.53
<b>Kerala</b>	118	88	255	240	10.11	13.36
<b>Madhya Pradesh</b>	41	38	61	65	5.09	6.94
<b>Maharashtra</b>	52	48	93	118	7.54	11.90
<b>Orissa</b>	62	62	77	54	2.75	-1.71
<b>Punjab</b>	76	85	136	107	7.55	2.92
<b>Rajasthan</b>	28	33	57	72	9.29	10.24
<b>Tamil Nadu</b>	52	58	95	96	7.82	6.50
<b>Uttar Pradesh</b>	61	72	100	108	6.37	5.20
<b>West Bengal</b>	65	65	114	157	7.28	11.65
<b>India</b>	55	54	88	99	6.05	7.87

Source: N.S.S ( 52<sup>nd</sup> and 60<sup>th</sup> rounds)

It is seen that the proportion of ailing persons (PAP) has increased in all States except urban areas of Assam and Orissa. Of the 15 States, the morbidity in Kerala demands special attention. It is observed that the prevalence rate as well as the rate at which it has increased was the highest in Kerala. In Kerala rural rate according to the 60<sup>th</sup> round is

almost thrice the all-India rate, where as in urban area, it was about two and half times greater. The rate has more than doubled in rural Kerala in 8 years from 1995-96 to 2004 and in urban area, the rate has increased by 172 per cent. The annual rate of growth in morbidity prevalence was highest in Kerala (10.11% in rural and 13.36 % in urban areas). In 2004 rural morbidity rate was the lowest (53) in Bihar against 255 in Kerala and urban morbidity rate was lowest in Orissa (54) against 240 in Kerala.

The expansion and development of health services in Kerala has produced a paradox in outcomes. On one hand, Kerala has achieved remarkable success in reducing its infant mortality rates to around one-third of the Indian average, having lowest death rate and highest life expectancy; but on the other, its morbidity rate was almost three times the national level.

Morbidity rate tends to decrease because of improvement in prevention and treatment of illness, but tends to increase with increased perception due to better health awareness. Development activities often lead to higher pollution and changes in life style consequent on improved economic capacity, which results in increased morbidity. The aging of population as a result of the declining birth rate and increased life span are factors relevant to it. The morbidity rates reflect the resultant of all such complex factors. It is argued that the rapid improvements that have occurred simultaneously in public education are more likely to explain an increase in the effective reporting of disease conditions.

### **6.3 Multivariate Analysis of Disparity**

In addition to the above analysis taking a single variable at a time, multivariate analysis also is attempted to examine extent of disparity among States in terms of social development. As in the case of infrastructure development, the tools used are cluster analysis and ranking of States and ANOVA. States are ranked on the basis of attainment indices constructed using principal component analysis. The indicators used to study educational attainment are literacy rate and stock of population with different levels of education attained. The health indicators used are life expectancy, infant mortality rate and crude death rate.

#### **Attainment Indices**

Indices of educational and health attainment are constructed using principal component analysis and these indices are used to find composite score for the overall social development. Component loadings, for the indicators of social attainment are given in Table 6.11. As may be observed, the first component explained over 82 percent of the variation in health attainment and above 60 percent in educational attainment. Therefore, the component scores were calculated using the first component only.

**Table 6.11 Loadings of Principal components**

Indicators	Component loadings				
	1981	1991		2001	
	Factor I	Factor I	Factor II	Factor I	Factor II
<b>Health Attainment</b>					
Life expectancy	0.367	0.352		0.393	
Infant mortality	0.333	0.335		0.335	
Crude death rate	0.384	0.355		0.372	
<b>Percentage of variance explained</b>	<b>84.75</b>	<b>91.99</b>		<b>82.31</b>	
<b>Educational attainment</b>					
Literacy rate	0.246	0.26	-0.035	0.249	0.159
Level of education - < primary	0.202	0.21	-0.356	0.03	0.82
Level of education - primary	0.201	0.113	0.616	0.227	0.052
Level of education - middle	0.191	0.218	-0.351	0.209	0.069
Level of education - Sec/ Hr Sec	0.226	0.232	0.112	0.229	-0.35
Level of education - Degree & above	0.153	0.192	0.338	0.216	-0.046
<b>Percentage of variance explained</b>	<b>65.98</b>	<b>63.469</b>	<b>22.007</b>	<b>64.784</b>	<b>20.074</b>

The scores obtained by the States in each of the sectors at the three time points are given in table 6.12. Composite index for social development was computed as weighted average of education and health scores. Ranking of States on the basis of these scores is given in table 6.13.

**Table 6.12 Scores of Attainment Indices**

States	1981			1991			2001		
	Health	Education	composite	Health	Education	composite	Health	Education	composite
Andhra Pradesh	1.08	0.94	0.98	1.18	0.99	1.04	1.07	1.07	1.07
Assam	0.99	1.10	1.07	0.32	1.12	0.92	0.36	1.04	0.87
Bihar	0.96	0.87	0.89	0.92	0.89	0.90	1.06	0.80	0.86
Gujarat	1.03	1.38	1.29	0.99	1.30	1.22	1.10	1.19	1.17
Haryana	1.09	1.19	1.17	1.26	1.23	1.24	1.11	1.23	1.20
Karnataka	1.18	1.26	1.24	0.97	1.27	1.20	1.10	1.20	1.18
Kerala	1.72	2.14	2.04	1.48	2.14	1.98	2.32	1.74	1.89
Madhya Pradesh	0.91	0.88	0.89	0.79	0.95	0.91	0.81	0.99	0.95
Maharashtra	1.14	1.57	1.46	1.02	1.50	1.38	1.12	1.40	1.33
Orissa	1.00	1.02	1.02	0.84	1.08	1.02	0.82	1.06	1.00
Punjab	1.2	1.38	1.34	1.06	1.37	1.30	1.16	1.33	1.29
Rajasthan	0.96	0.80	0.84	0.92	0.85	0.86	0.93	0.91	0.91
Tamil Nadu	1.03	1.45	1.35	1.22	1.42	1.37	1.12	1.32	1.27
Uttar Pradesh	0.90	0.92	0.92	0.87	0.95	0.93	0.83	0.97	0.93
West Bengal	1.07	1.35	1.28	1.25	1.30	1.29	1.14	1.15	1.14
Mean	1.08	1.22	1.18	1.01	1.23	1.17	1.07	1.16	1.14
S.D	0.19	0.35	0.31	0.27	0.33	0.28	0.40	0.23	0.26
Mean+ S.D	1.28	1.57	1.49	1.27	1.55	1.45	1.47	1.39	1.40
Mean - S.D	0.89	0.87	0.88	0.74	0.90	0.89	0.67	0.93	0.88

**Table 6.13 Ranking of States According to Social Development**

States	Health Index			Education Index			Composite Index		
	1981	1991	2001	1981	1991	2001	1981	1991	2001
<b>Andhra Pradesh</b>	6	5	9	11	11	9	11	9	9
<b>Assam</b>	11	15	15	9	9	11	9	12	14
<b>Bihar</b>	13	10	10	14	14	15	13	14	15
<b>Gujarat</b>	8	8	8	5	6	7	5	7	7
<b>Haryana</b>	5	2	6	8	8	5	8	6	5
<b>Karnataka</b>	3	9	7	7	7	6	7	8	6
<b>Kerala</b>	1	1	1	1	1	1	1	1	1
<b>Madhya Pradesh</b>	14	14	14	13	12	12	14	13	11
<b>Maharashtra</b>	4	7	4	2	2	2	2	2	2
<b>Orissa</b>	10	13	13	10	10	10	10	10	10
<b>Punjab</b>	2	6	2	4	4	3	4	4	3
<b>Rajasthan</b>	12	11	11	15	15	14	15	15	13
<b>Tamil Nadu</b>	9	4	5	3	3	4	3	3	4
<b>Uttar Pradesh</b>	15	12	12	12	13	13	12	11	12
<b>West Bengal</b>	7	3	3	6	5	8	6	5	8

As evident from the tables, Kerala was far ahead of all other States. At all the three points of time Kerala occupied the top most position in education and health and composite indices of attainment. Maharashtra ranked second in education and composite indices in all time points. The last six positions were occupied by the low income States like Assam, Bihar, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh, with an exception in 1981, when Assam ranked 9. Orissa was ranked tenth in education and composite indices at all points of time.

In the case of health index, Punjab occupied the second position in 1981 and 2001, but was in the sixth place in 1991. In 1991 Haryana came up to the second place. The third place was occupied by Karnataka in 1981 and by West Bengal in 1991 and 2001. As observed from the table West Bengal has improved its ranking from seventh in 1981 to third in 1991 and 2001. From the third position in health attainment in 1981 Karnataka has come down to ninth and seventh in 1991 and 2001. Gujarat maintained same position (eighth) in health attainment. Its education index ranked fifth, sixth and seventh in 1981, 1991 and 2001.

The ranking of the high income States like Gujarat, Maharashtra, Punjab and Haryana in both the sectors ranged between second and eighth in all time points. At the same time the six low income States - Assam, Madhya Pradesh, Rajasthan, Uttar Pradesh, Bihar and Orissa - occupied the last six positions in all time periods except ninth rank of Assam in education index in 1981 and 1991 and in composite index in 1981.

Based on the composite scores obtained, the States were grouped into backward, moderately developed, developed and highly developed States. The criteria used for the classification are similar to those used in

the case of infrastructure development. The grouping is presented in table below. It is observed that even though their component scores and ranking have shown some changes over time, most of the States have remained in the same level of development throughout the period.

Table 6.14

<b>Grouping of States According to development Index</b>			
<b>States</b>	<b>1981</b>	<b>1991</b>	<b>2001</b>
<b>Andhra Pradesh</b>	MD	MD	MD
<b>Assam</b>	MD	MD	B
<b>Bihar</b>	MD	MD	B
<b>Gujarat</b>	D	D	D
<b>Haryana</b>	MD	D	D
<b>Karnataka</b>	D	D	D
<b>Kerala</b>	HD	HD	HD
<b>Madhya Pradesh</b>	MD	MD	MD
<b>Maharashtra</b>	D	D	D
<b>Orissa</b>	MD	MD	MD
<b>Punjab</b>	D	D	D
<b>Rajasthan</b>	B	B	MD
<b>Tamil Nadu</b>	D	D	D
<b>Uttar Pradesh</b>	MD	MD	MD
<b>West Bengal</b>	D	D	D

Kerala was the only highly developed state among the 15 States in 1981, 1991 and 2001. Rajasthan remained the only backward state in 1981 and 1991, but came up to the group of moderately developed States in 2001. Assam and Bihar were moderately developed States in 1981 and 1991 but came down to the level of backward States in 2001. It may be noted that the low income States belonged to the group of either moderately developed or backward States. At the other end the high and middle income States like Gujarat, Maharashtra, Punjab, Karnataka, Tamil Nadu and West Bengal were grouped as developed States. Andhra Pradesh, though a middle income state remained moderately developed throughout the period. Haryana, a high income

state, was moderately developed in 1981 but showed improvement and joined the group of developed States in 1991 and 2001.

### **Cluster analysis**

Using Euclidean dissimilarity matrices and dendrograms we have clustered States according to their similarity in development pattern. The methodology is the same as explained in chapter five. Euclidean matrices of educational attainment at three time points - 1981, 1991 and 2001 – are presented in Tables 6.15 to 6.17 and Figures 6.1 to 6.3 give the corresponding dendrograms.

As shown by table 6.15 and figure 6.1 Karnataka and West Bengal are the most similar States in educational attainment. At distance 4 (16% variation) four clusters are formed of which the first is formed by 9 States. Within the first group 5 States – Karnataka, WB, Orissa, AP and MP are more similar than the other 4 States - Haryana, TN, Maharashtra and Rajasthan - of the first cluster. The second cluster is formed by Bihar and UP which are similar at 4 per cent variation. It may be noted that these two States rank 12 and 11 in educational attainment. The third cluster is formed by Gujarat and Punjab which are at a distance 4. Punjab and Gujarat rank 5 and 6 in 1981. Kerala, which ranks one, alone, forms the fourth cluster. Kerala is the most dissimilar state and is at a distance 9 (36 % variation) from other States.

The distance matrix (Table 6.16) and dendrogram (figure 6.2) for 1991, shows that Haryana and Karnataka are the most similar States in educational attainment. Kerala is different from all other States with 100 per cent variation.

**Table 6.15 Squared Euclidean Distance Matrix for Educational Attainment -- 1981**

States	AP	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB
AP		5515.6	11590.5	1788.8	156.0	63229.3	630.5	759.0	253.7	32462.3	576.1	3093.8	7701.0	347.9
BH	5515.6		32749.6	13371.3	5079.0	105503.4	2526.1	8827.2	3801.5	64570.2	9291.3	16363.1	200.3	4212.3
GU	11590.5	32749.6		4292.1	12216.7	20947.4	17177.7	8031.4	14642.1	5570.0	7524.8	2982.4	37790.3	13908.0
HY	1788.8	13371.3	4292.1		2077.4	43903.8	4337.9	780.1	3128.7	19235.6	565.3	263.2	16673.4	2856.0
KA	156.0	5079.0	12216.7	2077.4		64390.3	588.8	543.0	175.6	33866.4	1036.1	3223.4	7124.0	76.7
KE	63229.3	105503.4	20947.4	43903.8	64390.3		75775.0	53686.2	69823.0	5850.3	53309.6	38877.0	114325.9	68040.1
MP	630.5	2526.1	17177.7	4337.9	588.8	75775.0		2212.8	278.1	41677.1	2169.6	6217.7	4073.7	441.7
MH	759.0	8827.2	8031.4	780.1	543.0	53686.2	2212.8		1246.9	26708.3	818.6	1249.8	11417.7	880.4
OR	253.7	3801.5	14642.1	3128.7	175.6	69823.0	278.1	1246.9		37633.5	1574.6	4555.4	5558.8	94.7
PN	32462.3	64570.2	5570.0	19235.6	33866.4	5850.3	41677.1	26708.3	37633.5		25087.2	16477.8	71665.3	36713.4
RJ	576.1	9291.3	7524.8	565.3	1036.1	53309.6	2169.6	818.6	1574.6	25087.2		1571.5	12128.3	1618.0
TN	3093.8	16363.1	2982.4	263.2	3223.4	38877.0	6217.7	1249.8	4555.4	16477.8	1571.5		19898.9	4072.8
UP	7701.0	200.3	37790.3	16673.4	7124.0	114325.9	4073.7	11417.7	5558.8	71665.3	12128.3	19898.9		6020.5
WB	347.9	4212.3	13908.0	2856.0	76.7	68040.1	441.7	880.4	94.7	36713.4	1618.0	4072.8	6020.5	

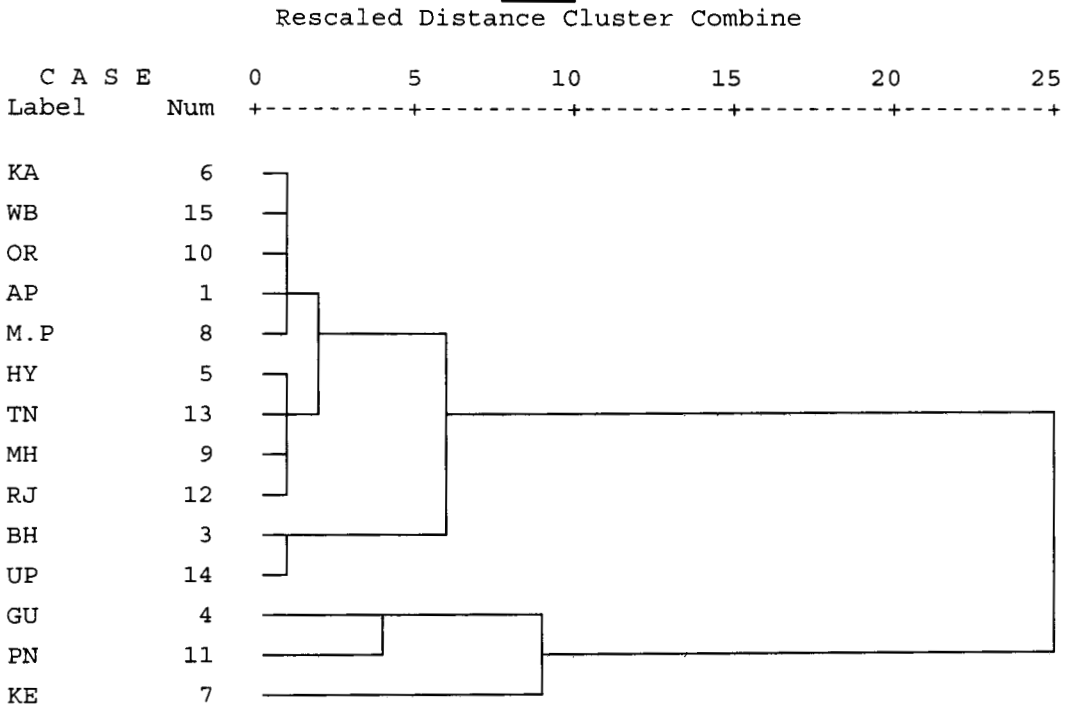
**Table 6.16 Squared Euclidean Distance Matrix for Educational Attainment - 1991**

States	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB
AP		127.3	82.5	390.8	158.7	173.2	2751.7	12.4	534.7	86.8	257.6	49.5	423.0	27.8	240.0
AS	127.3		256.0	170.0	39.6	33.2	1866.0	138.2	171.2	61.6	71.2	256.6	157.3	165.4	41.3
BH	82.5	256.0		741.5	374.7	384.3	3334.9	87.9	822.8	184.2	497.9	16.3	764.0	16.2	468.8
GU	390.8	170.0	741.5		100.9	107.4	1472.8	439.0	103.2	340.2	73.6	690.4	28.3	556.2	88.2
HY	158.7	39.6	374.7	100.9		3.1	1635.5	175.0	121.9	100.7	17.3	354.4	77.2	245.0	33.7
KA	173.2	33.2	384.3	107.4	3.1		1565.3	181.7	106.0	87.5	21.1	365.9	72.4	255.2	20.5
KE	2751.7	1866.0	3334.9	1472.8	1635.5	1565.3		2694.9	977.5	2072.3	1457.7	3341.5	1169.0	2986.4	1460.6
MP	12.4	138.2	87.9	439.0	175.0	181.7	2694.9		553.8	55.2	291.6	47.7	449.3	33.6	238.9
MH	534.7	171.2	822.8	103.2	121.9	106.0	977.5	553.8		335.7	68.2	827.1	38.6	647.2	79.3
OR	86.8	61.6	184.2	340.2	100.7	87.5	2072.3	55.2	335.7		187.9	161.9	295.1	109.1	110.5
PN	257.6	71.2	497.9	73.6	17.3	21.1	1457.7	291.6	68.2	187.9		492.9	45.9	354.2	49.1
RJ	49.5	256.6	16.3	690.4	354.4	365.9	3341.5	47.7	827.1	161.9	492.9		727.0	14.9	442.1
TN	423.0	157.3	764.0	28.3	77.2	72.4	1169.0	449.3	38.6	295.1	45.9	727.0		575.5	57.9
UP	27.8	165.4	16.2	556.2	245.0	255.2	2986.4	33.6	647.2	109.1	354.2	14.9	575.5		330.5
WB	240.0	41.3	468.8	88.2	33.7	20.5	1460.6	238.9	79.3	110.5	49.1	442.1	57.9	330.5	

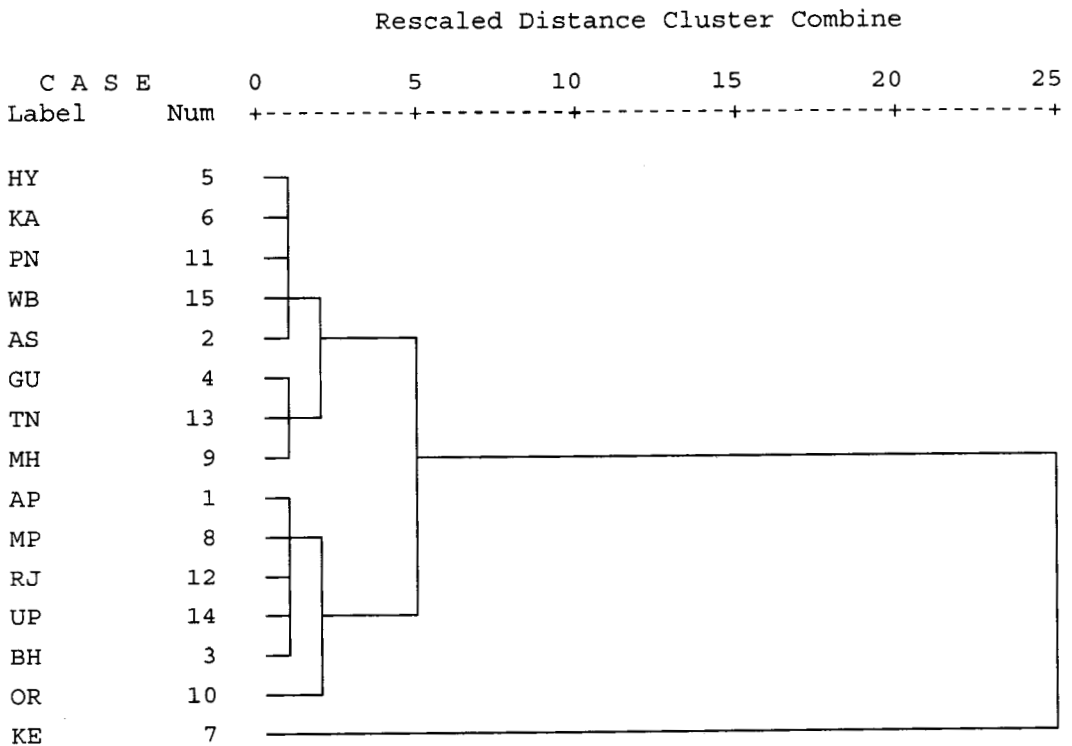
**Table 6. 17 Squared Euclidean Distance Matrix for Educational Attainment - 20001**

States	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB
AP		51.2	243.9	45.4	84.1	44.8	1163.1	64.5	310.1	20.5	151.2	63.0	202.5	59.0	146.6
AS	51.2		332.6	27.0	50.6	41.3	936.2	34.8	221.3	21.2	113.6	41.9	139.8	64.2	64.5
BH	243.9	332.6		451.2	531.4	469.5	2320.2	355.6	1050.1	320.1	658.8	242.1	836.8	111.1	598.9
GU	45.4	27.0	451.2		16.1	4.3	766.3	58.3	129.4	22.4	56.8	94.3	63.6	132.6	61.3
HY	84.1	50.6	531.4	16.1		13.0	646.8	117.7	100.4	62.1	17.4	161.1	51.5	174.8	102.1
KA	44.8	41.3	469.5	4.3	13.0		760.8	77.7	121.8	33.1	46.6	116.9	66.9	149.6	82.1
KE	1163.1	936.2	2320.2	766.3	646.8	760.8		1060.4	298.9	1000.1	552.1	1266.9	411.5	1436.7	746.0
MP	64.5	34.8	355.6	58.3	117.7	77.7	1060.4		266.6	18.6	220.3	13.1	172.4	94.4	36.3
MH	310.1	221.3	1050.1	129.4	100.4	121.8	298.9	266.6		234.0	94.9	378.5	26.5	498.9	140.2
OR	20.5	21.2	320.1	22.4	62.1	33.1	1000.1	18.6	234.0		139.0	31.9	134.5	69.8	62.9
PN	151.2	113.6	658.8	56.8	17.4	46.6	552.1	220.3	94.9	139.0		275.3	66.0	267.8	183.4
RJ	63.0	41.9	242.1	94.3	161.1	116.9	1266.9	13.1	378.5	31.9	275.3		261.6	49.5	87.2
TN	202.5	139.8	836.8	63.6	51.5	66.9	411.5	172.4	26.5	134.5	66.0	261.6		356.4	87.6
UP	59.0	64.2	111.1	132.6	174.8	149.6	1436.7	94.4	498.9	69.8	267.8	49.5	356.4		213.6
WB	146.6	64.5	598.9	61.3	102.1	82.1	746.0	36.3	140.2	62.9	183.4	87.2	87.6	213.6	

**Figure 6.1**  
**Dendrogram Showing the Similarity in Educational Attainment -**  
**1981**



**Figure 6.2**  
**Dendrogram Showing the Similarity in Educational Attainment --**  
**1991**



**Figure 6.3**  
**Dendrogram Showing the Similarity in Educational Attainment - 2001**

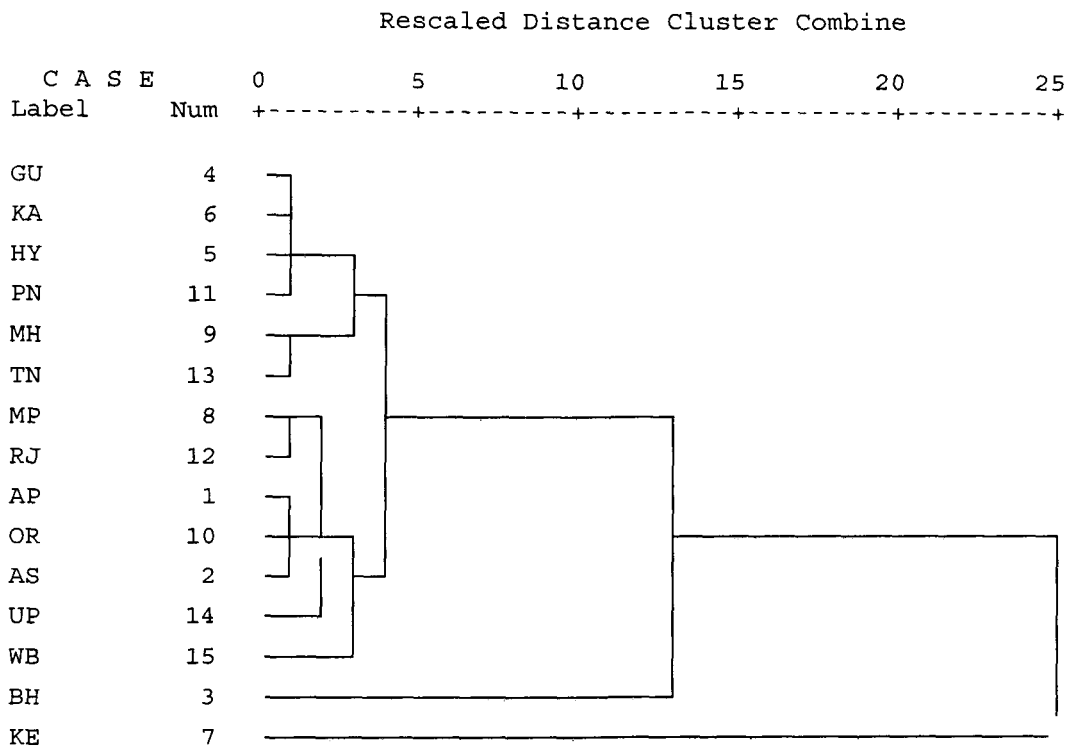


Table 6.17 shows that Gujarat and Karnataka are the most similar States in 2001. It is seen from figure 6.3 that the States are more dissimilar in educational development in 2001, compared to the other two time points. Kerala which was ranked first is found to be at 100 per cent variation from other States. At distance 13 all other States from one cluster. Within that cluster Bihar is different at 52 percent variation. The cluster formed by the remaining States is subdivided into different clusters at four different degrees of variation like 16, 12, 8 and 4 per cent. Gujarat, Karnataka, Haryana, and Punjab are similar at 4 per cent variation. The pair of States formed by Maharashtra and Tamil Nadu are different from the above four States at a distance 3 (12 % variation).

Andhra Pradesh, Orissa and Assam which rank 9, 10 and 11 are similar at distance 1.

Euclidean matrices for health attainment at three time points - 1981, 1991 and 2001 – are presented in tables from 6.18 to 6.20 and figures numbered 6.4 to 6.6 give the corresponding dendrograms. In 1981 the most dissimilar State with regard to health attainment is Kerala and the variation from other States is 100 per cent. At distance 3 (12 % variation), the States are grouped into three clusters. The first cluster is again divided into two groups. One of these two groups consists of Karnataka, Maharashtra, Haryana and Punjab. Within this group Punjab is different from others. The second sub group is constituted by 4 States – Gujarat, West Bengal, Tamil Nadu and Andhra Pradesh. The second cluster is formed by Bihar, Orissa, Rajasthan, Madhya Pradesh and Uttar Pradesh. Of these 5 States Uttar Pradesh is different at a distance 2. The third cluster is formed by Kerala alone.

**Table 6. 18 Squared Euclidean Distance Matrix for Health Attainment -- 1981**

States	AP	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB
AP		30.3	0.6	3.6	5.3	100.0	46.2	5.3	29.2	22.1	24.0	2.3	70.6	1.0
BH	30.3		22.1	54.8	60.8	240.3	1.7	60.8	0.0	104.0	0.4	16.0	8.4	20.3
GU	0.6	22.1		7.3	9.6	116.6	36.0	9.6	21.2	30.3	16.8	0.5	57.8	0.0
HY	3.6	54.8	7.3		0.2	65.6	75.7	0.2	53.3	7.8	46.2	11.6	106.1	8.4
KA	5.3	60.8	9.6	0.2		59.3	82.8	0.0	59.3	5.8	51.8	14.4	114.5	10.9
KE	100.0	240.3	116.6	65.6	59.3		282.2	59.3	237.2	28.1	222.0	132.3	338.6	121.0
MP	46.2	1.7	36.0	75.7	82.8	282.2		82.8	2.0	132.3	3.6	28.1	2.6	33.6
MH	5.3	60.8	9.6	0.2	0.0	59.3	82.8		59.3	5.8	51.8	14.4	114.5	10.9
OR	29.2	0.0	21.2	53.3	59.3	237.2	2.0	59.3		102.0	0.3	15.2	9.0	19.4
PN	22.1	104.0	30.3	7.8	5.8	28.1	132.3	5.8	102.0		92.2	38.4	171.6	32.5
RJ	24.0	0.4	16.8	46.2	51.8	222.0	3.6	51.8	0.3	92.2		11.6	12.3	15.2
TN	2.3	16.0	0.5	11.6	14.4	132.3	28.1	14.4	15.2	38.4	11.6		47.6	0.3
UP	70.6	8.4	57.8	106.1	114.5	338.6	2.6	114.5	9.0	171.6	12.3	47.6		54.8
WB	1.0	20.3	0.0	8.4	10.9	121.0	33.6	10.9	19.4	32.5	15.2	0.3	54.8	

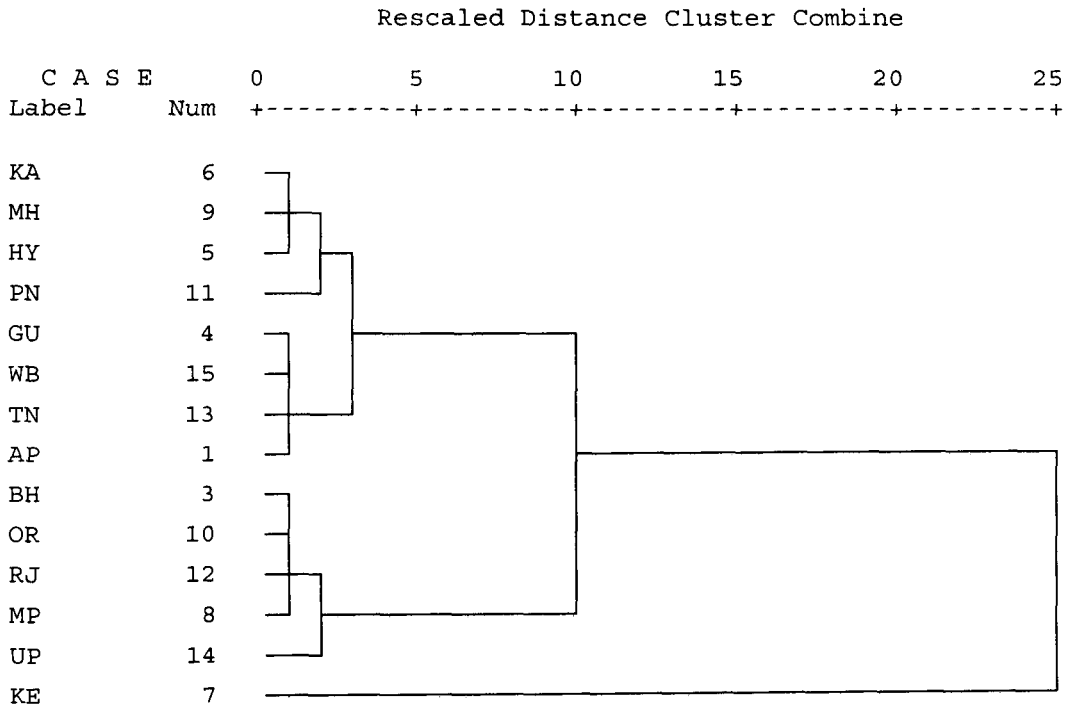
**Table 6.19 Squared Euclidean Distance Matrix for Health Attainment -- 1991**

States	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB
AP		34.8	5.3	0.4	3.8	1.0	126.6	46.9	10.9	27.0	31.4	7.0	2.7	23.5	0.4
AS	34.8		13.0	27.6	61.6	47.6	294.1	0.9	84.7	0.5	132.3	10.6	57.0	1.1	42.3
BH	5.3	13.0		2.7	18.1	10.9	183.6	20.7	31.4	8.4	62.4	0.1	15.6	6.5	8.4
GU	0.4	27.6	2.7		6.8	2.7	141.6	38.4	15.6	20.7	39.1	4.0	5.3	17.6	1.6
HY	3.8	61.6	18.1	6.8		0.9	86.5	77.5	1.8	51.1	13.3	21.2	0.1	46.3	1.8
KA	1.0	47.6	10.9	2.7	0.9		105.1	61.6	5.3	38.5	21.2	13.3	0.4	34.2	0.2
KE	126.6	294.1	183.6	141.6	86.5	105.1		327.6	63.2	270.6	31.9	193.2	92.2	259.2	113.4
M.P	46.9	0.9	20.7	38.4	77.5	61.6	327.6		103.0	2.7	155.0	17.6	72.2	4.0	55.5
MH	10.9	84.7	31.4	15.6	1.8	5.3	63.2	103.0		72.3	5.3	35.4	2.7	66.4	7.3
OR	27.0	0.5	8.4	20.7	51.1	38.5	270.6	2.7	72.3		116.7	6.5	46.9	0.1	33.7
PN	31.4	132.3	62.4	39.1	13.3	21.2	31.9	155.0	5.3	116.7		68.1	15.6	109.2	25.0
RJ	7.0	10.6	0.1	4.0	21.2	13.3	193.2	17.6	35.4	6.5	68.1		18.5	4.8	10.6
TN	2.7	57.0	15.6	5.3	0.1	0.4	92.2	72.2	2.7	46.9	15.6	18.5		42.3	1.1
UP	23.5	1.1	6.5	17.6	46.3	34.2	259.2	4.0	66.4	0.1	109.2	4.8	42.3		29.7
WB	0.4	42.3	8.4	1.6	1.8	0.2	113.4	55.5	7.3	33.7	25.0	10.6	1.1	29.7	

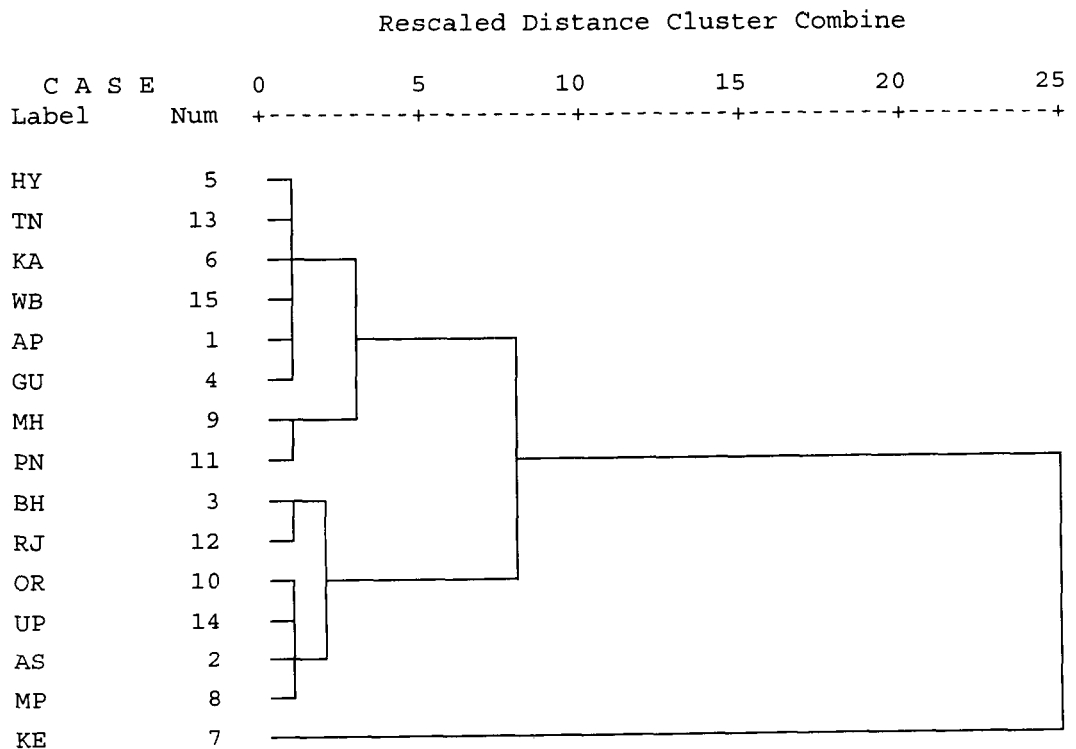
**Table 6.20 Squared Euclidean Distance Matrix for Health Attainment - 2001**

States	A.P	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB
AP		23.0	0.7	0.0	5.7	0.6	94.5	35.5	12.4	20.4	35.8	3.6	9.4	5.2	4.3
AS	23.0		15.8	21.2	51.5	31.0	210.8	1.3	69.2	0.1	116.3	8.4	61.9	6.3	47.3
BH	0.7	15.8		0.4	10.3	2.6	111.3	26.3	18.9	13.6	46.4	1.2	15.2	2.1	8.4
GU	0.0	21.2	0.4		6.6	0.9	98.3	33.2	13.8	18.7	38.2	2.9	10.7	4.4	5.2
HY	5.7	51.5	10.3	6.6		2.6	53.9	69.5	1.3	47.5	13.0	18.4	0.5	21.8	0.1
KA	0.6	31.0	2.6	0.9	2.6		80.1	45.2	7.6	27.9	27.2	7.2	5.3	9.3	1.7
KE	94.5	210.8	111.3	98.3	53.9	80.1		245.8	38.4	202.6	14.0	135.2	44.2	144.1	58.4
MP	35.5	1.3	26.3	33.2	69.5	45.2	245.8		89.8	2.1	142.6	16.4	81.5	13.5	64.5
MH	12.4	69.2	18.9	13.8	1.3	7.6	38.4	89.8		64.6	6.1	29.5	0.2	33.7	2.1
OR	20.4	0.1	13.6	18.7	47.5	27.9	202.6	2.1	64.6		110.2	6.8	57.5	5.0	43.4
PN	35.8	116.3	46.4	38.2	13.0	27.2	14.0	142.6	6.1	110.2		62.3	8.5	68.4	15.3
RJ	3.6	8.4	1.2	2.9	18.4	7.2	135.2	16.4	29.5	6.8	62.3		24.8	0.1	15.9
TN	9.4	61.9	15.2	10.7	0.5	5.3	44.2	81.5	0.2	57.5	8.5	24.8		28.7	1.0
UP	5.2	6.3	2.1	4.4	21.8	9.3	144.1	13.5	33.7	5.0	68.4	0.1	28.7		19.0
WB	4.3	47.3	8.4	5.2	0.1	1.7	58.4	64.5	2.1	43.4	15.3	15.9	1.0	19.0	

**Figure 6.4**  
**Dendrogram Showing the Similarity in Health Attainment - 1981**



**Figure 6.5**  
**Dendrogram Showing the Similarity in Health Attainment -- 1991**



**Figure 6.6**  
**Dendrogram Showing the Similarity in Health Attainment - 2001**

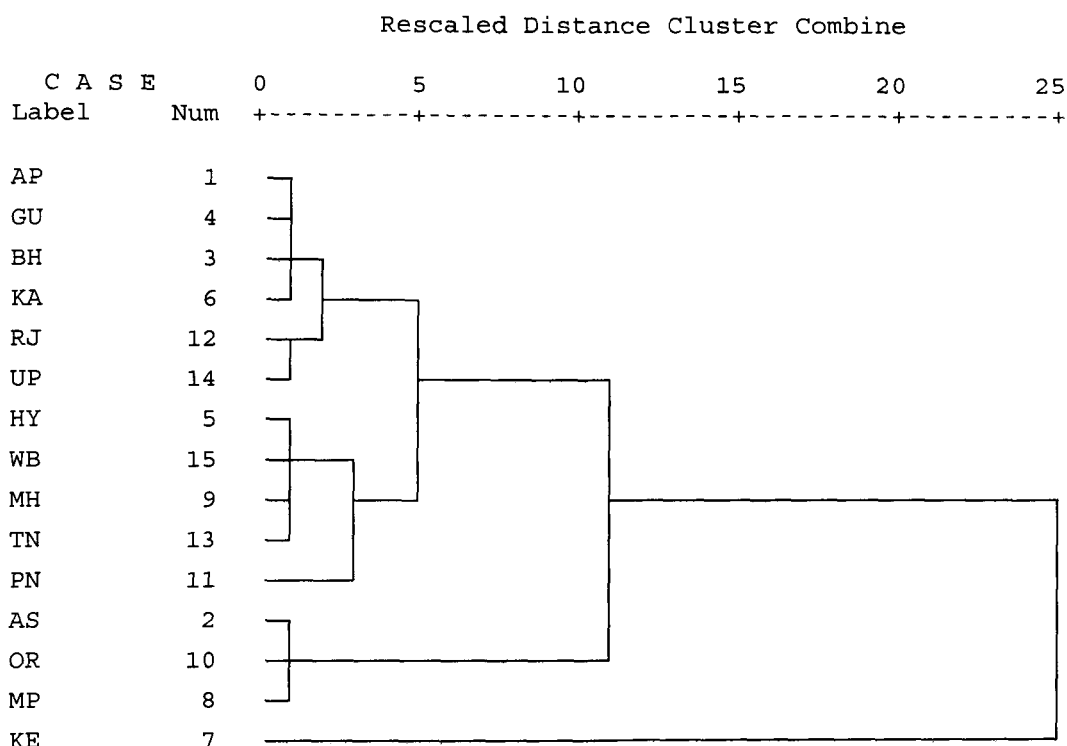


Table 6.19 shows that in 1991 three pairs of most similar States are formed with the shortest distance 0.1. The most dissimilar States are Kerala and MP. As observed from dendrogram for 1991, Kerala is at 100% variation from other States. At distance 3 we get 3 clusters of which the third is formed by Kerala alone. Within the first group six States like Haryana, TN, KA, WB, AP and Gujarat are more similar compared to Maharashtra and Punjab. The second group is constituted by Bihar, Rajasthan, Orissa, UP, Assam and MP. Within this group the pair formed by Bihar and Rajasthan is different from the other four States.

From table 6.20 it is observed that Gujarat and AP are the most similar States and Kerala and MP are the most dissimilar in 2001. As shown in dendrogram the States form 4 clusters at a distance 3. The

first is formed by 6 States, AP, Gujarat, Bihar, Karnataka, Rajasthan, and UP. Of these 6 States Rajasthan and UP are different from the other four States. The second cluster consists of Haryana, West Bengal, Maharashtra, TN, and Punjab. Of these States Punjab is different from others with 12% variation. The third cluster is formed by Assam, Orissa and MP and the fourth by Kerala alone. Kerala is the most dissimilar state with 100% variation.

## ANOVA

Disparities among the three income groups of States with respect to social development in 2001 are analysed using ANOVA and the results are given in tables 6.21 and 6.22.

**Table 6.21 Results of ANOVA of Social attainment 2001**

Variables	Source	df	Sum of Squares	Mean Square	F
ATTAIN_H	Between Income group	2	0.82	0.41	3.39 <sup>ns</sup>
	Error	12	1.46	0.12	
	Total	14	2.28		
ATTAIN_E	Between Income group	2	0.39	0.20	6.57*
	Error	12	0.36	0.03	
	Total	14	0.75		
Composite indices	Between Income group	2	0.57	0.28	4.95*
	Error	12	0.69	0.06	
	Total	14	1.26		

\* significant at 5 % level and ns non-significant at 5 % level

As evident from the above table, there exists significant variation in educational and composite development indices between the

three income groups of States. But the variation in health attainment among income groups is found to be insignificant.

**Table 6.22 Mean of attainment Indices for Different Income Groups 2001**

Income group	Health Index	Education Index	Composite Index
Low income	0.80	0.96 <sup>b</sup>	0.88 <sup>b</sup>
Middle income	1.35	1.29 <sup>a</sup>	1.32 <sup>a</sup>
High income	1.12	1.29 <sup>a</sup>	1.20 <sup>a</sup>

Note: Group means with same letter as superscript are homogeneous

The mean of education index of low income group is significantly different from that of middle and high income groups. In the case of composite index also high and middle income groups are similar and attainment in low income group is different from that of the other two groups.

#### **6.4 Test of Convergence.**

At this juncture, the question whether States are converging or diverging over the period seems to be relevant. Do the backward States remain backward? Or do they “catch up”? These questions are important because the whole basis of planning depends on it. Hence an attempt is made to examine whether the States are showing a converging or diverging trend.

Convergence has been defined as follows by Barro and Sala-i-Martin (1995)<sup>1</sup>: Let  $y_{i,t,t+T}$  be the annual growth rate of GDP for region(state)  $i$  between time  $t$  and  $t+T$  and let  $y_{i,t}$  be the per capita real

<sup>1</sup> Barro, R. and Sala-i-Martin, X. (1995): Economic Growth, Boston: McGraw Hill. Quoted from Tapen Sinha and Dipendra Sinha (2002) “States of India are not Converging” EPW No.328, Vol.LXXX111 pp. 15-21

income of state  $i$  at time  $t$ . If we run the following regression equation:  $y_{i,t,t+T} = a + b \log(y_{it}) + U$  and the regression coefficient  $b$  turns out to be negative, then we say that the regions (States) are convergent. Following the above definition, regression equation was fitted with overall growth rate of development index over the period from 1981 to 2001, as a function of initial development index and the results are given in the tables below.

**Table 6.23**

Parameter	coefficient	Standard error	t-value
a	1.400	0.392	3.572**
b	-1.094	0.262	4.171**

**Model Summary(b)**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.756(a)	.572	.539	.2171770

The results show that the rates of growth of development indices of the States are negatively related to the initial level of their development. This implies that disparities in social attainment show converging tendencies over the period from 1981 to 2001.

Results of univariate analysis also suggest converging tendencies. For instance, table 6.1 has shown that rate of growth of literacy over the period 1981-2001 was the lowest in Kerala (0.59%) with highest level of literacy, while, educationally backward States like Rajasthan(5.84%), Madhya Pradesh (4.8%) and Uttar Pradesh (4.25%) registered higher growth rates. Similarly rate of growth of life expectancy was the lowest in Karnataka and Kerala (0.4%), whereas, the

rates were comparatively high in States like Uttar Pradesh (1%), Bihar (0.9%) and Rajasthan (0.8%), which are at the bottom of the list of States.

It may be noted these results do not justify the hypothesis that States are diverging. Therefore, it is concluded that in spite of the disparities among them States show converging tendencies over the period, as far as social development is concerned.

### **6.5 Concluding Remarks**

The main points emerging from the above analysis are summarized below. Kerala was far ahead of other States in the case of both male and female literacy. While its combined literacy rate was 90.9 per cent, Bihar with less than 50 percent literacy rate, was at the other end of the list. But it is seen that the inequality between States has come down over the years. The coefficient of variation has decreased, indicating a converging tendency among States over the period. The coefficient was still low in the case of male literacy. It may be noted that compared to disparity in male literacy, disparity among States was high in the case of female literacy though the coefficient of variation has decreased from. Male- female difference in literacy was the lowest in Kerala, while in States like Rajasthan, Bihar and Uttar Pradesh gender disparity was very high.

In the case of level of educational attainment also Kerala occupied the first place in all levels except graduation and above, throughout the period, below primary level in 2001 and primary level in 1991. Coefficient of variation showed converging trend throughout the period in the case of primary and middle level, while in higher levels of

education, the trends were of convergence in the pre reform period and of divergence in the post reform period. What is disturbing is that with respect to both the dimensions of educational development – literacy and stock of educated population - Orissa, Madhya Pradesh, Bihar, Uttar Pradesh and Rajasthan are found to be at the bottom of the list. These 5 States account for 52.38 per cent of the illiterates in the country and deserve serious attention.

Health scenario in India reflects diversity of the country in ample measure. Among 15 major States, the health indicators of Kerala compares favourably with most middle income countries and even some high income countries in West Asia. But Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and Bihar are well below the average of low income countries. While a person is expected to live for over 73 years (71.67 years and 75 years for females) in Kerala, life expectancy in Madhya Pradesh is 58.6 years (59.2 years for males and 58 years for females). It may be noted that, against the general trend of females expected to live longer than males, in States like Bihar, Madhya Pradesh, Orissa and Uttar Pradesh, males are expected to outlive the females. It is observed that the rate of growth in post reform period was lower than that in pre reform period in all States except Madhya Pradesh.

It is seen that infant mortality has more than halved at all India level in the overall period, even though a set back is experienced in the pace of declining trend in 10 States in the post reform period. Among all States Kerala had the lowest rate (12) in 2003-04 as against 79 in Madhya Pradesh, 77 in Orissa and 72 in Uttar Pradesh.

All the States have shown remarkable decline in death rate over the period. Kerala has maintained the lowest death rate through out the period and States like Madhya Pradesh, Uttar Pradesh, Rajasthan, Bihar, Orissa and Assam had comparatively high death rate. It may be noted that, all States with high death rate have shown relatively sharper fall in the rate and Kerala with the lowest death rate has shown positive growth rate in 1990s.

Disparity among States as measured by coefficient of variation has declined over the period indicating converging trend in terms of life expectation and death rate. But disparity in infant mortality rate is higher compared to life expectancy and death rate and showed diverging tendency.

Even though Kerala has attained low mortality and high life expectancy indicating expansion and development of health services, its high morbidity prevalence rate presents a paradox in outcomes. Morbidity rate is the highest in Kerala and about three times that of the national rate. The rate of growth also is the highest compared to other States.

Ranking of States according to attainment indices shows that Kerala was far ahead of all other States. Throughout the period Kerala occupied the top most position in education and health and composite indices of attainment. Maharashtra ranked second in education and composite indices in all time points. The last six positions were occupied by the low income States like Assam, Bihar, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh,

Analysis of variation has shown that there is no significant variation among the income groups of States with respect to health attainment. However, in the case of education and composite index of attainment, there is significant variation among income groups. It is seen that the development in high and middle income States are comparable and that in low income States are significantly different from the other two groups.

Finally it is seen that in spite of the disparities that exist between States with respect to social attainment, the variations show a converging tendency over the period. This makes us reject the hypothesis that States are diverging over the period.

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## CHAPTER VII

### FACTORS INFLUENCING SOCIAL DEVELOPMENT

Social development is a function of complex interaction between a number of asymmetrical forces - economic, social, institutional and political. Some of the factors which have a bearing on the level of social development are the initial conditions reflecting the historical legacy of the region, geographical and social realities, level of economic development attained, availability of infrastructure facilities, efficiency in utilizing infrastructure, stability of government, policies of the ruling parties and level, pattern as well as efficiency of financing social development. All these factors can not be incorporated in the empirical analysis because of paucity of data and difficulties in quantification. However, an attempt is made to examine the relation between social development and the level of social sector expenditure, education and health Infrastructure development and per capita income.

At the outset it is to be asserted that these are only some of the several factors determining attainment levels. Any relationship between social development and these factors must be viewed in the context of the complex asymmetrically inter-acting forces mentioned above. To have an idea about the relationship between social expenditure incurred and level of social attainment, ranking of States according to attainment is compared with the ranking with respect to real per capita expenditure. Such a comparison is presented in table 7.1.

Table 7.1

### Ranking of States According to Expenditure and Attainment -A Comparison

Ranks	Per capita social expenditure	Composite attainment index	Per capita education expenditure	Education Attainment index	Per capita health expenditure	Health Attainment Index
1	GU	KE	KE	KE	PN	KE
2	TN	MH	PN	MH	KE	PN
3	KE	PN	MH	PN	TN	WB
4	PN	TN	GU	TN	RJ	MH
5	MH	HY	TN	HY	GU	TN
6	HY	KA	HY	KA	MH	HY
7	RJ	GU	RJ	GU	HY	KA
8	KA	WB	AS	WB	KA	GU
9	AP	AP	KA	AP	WB	AP
10	AS	OR	WB	OR	AP	BH
11	MP	MP	AP	AS	AS	RJ
12	OR	UP	OR	MP	MP	UP
13	WB	RJ	MP	UP	OR	OR
14	UP	AS	BH	RJ	UP	MP
15	BH	BH	UP	BH	BH	AS

It is evident from the table that in general the States with high attainment levels are also the ones with high per capita expenditures. For instance the first five positions in per capita social expenditure are occupied by Gujarat, Tamil Nadu, Kerala, Punjab and Maharashtra. The same States except Gujarat are found to occupy the first four positions in attainment ranking. Similarly the low spending States like Bihar, Uttar Pradesh, Orissa, Madhya Pradesh and Assam are also found to be the low attainment States.

In education expenditure and educational attainment ranking also the same States are at the top of the list and Gujarat which ranked

fourth in expenditure and seventh in attainment is an exception. At the other end of the list, the States like Bihar, Rajasthan, Uttar Pradesh, Madhya Pradesh, Assam and Orissa are the low attainment States and the same States were at the bottom in education expenditure except Rajasthan and Assam with seventh and eighth ranks respectively.

In the case of health attainment also, the last six positions were occupied by the six low income States and these States were placed at the last five positions in health expenditure with an exception of Rajasthan. It may be noted that, the four high income states- Gujarat, Punjab, Maharashtra and Haryana - together with Kerala and Tamil Nadu occupied the top six places in education, health and overall social expenditures with the only exception of Rajasthan, in the case of health expenditure.

The strength of the above relationships is tested using rank correlation coefficient and the results are given below.

**Table 7.2 Rank Correlation between Expenditure and Attainment**

<b>Variables</b>	<b>Rank correlation coefficient</b>
Education attainment Education Expenditure	0.825**
Health attainment Health expenditure	0.0.739**
Over all social attainment Social Expenditure	0.718**

\*\* Correlation is significant at .01 level (2tailed)

As shown above, there is significant correlation between ranking of States according to attainment and expenditure. Spearman's correlation coefficient between overall social attainment and social expenditure is 0.718. In the case of education attainment and

expenditure, the coefficient is 0.825 and for health attainment and expenditure the coefficient is 0.739. It is found that these correlation coefficients are significant at one per cent level. This justifies the hypothesis that disparities among States in terms of social attainment commensurate with disparities in per capita expenditures.

As observed from table 7.3, an examination of ranking of States with respect to social infrastructure development and attainment do not reveal similar relationship.

Table 7.3

**Ranking of States in terms of Infrastructure and Attainment - A comparison**

Ranks	Composite infrastructure index	Composite attainment index	Education Infrastructure index	Education Attainment index	Health infrastructure index	Health Attainment index
1	KA	KE	AS	KE	KE	KE
2	GU	MH	KA	MH	GU	PN
3	AS	PN	OR	PN	MH	WB
4	OR	TN	AP	TN	PN	MH
5	AP	HY	MP	HY	AP	TN
6	KE	KA	MH	KA	KA	HY
7	MH	GU	GU	GU	TN	KA
8	PN	WB	PN	WB	OR	GU
9	TN	AP	TN	AP	WB	AP
10	MP	OR	HY	OR	AS	BH
11	HY	MP	RJ	AS	RJ	RJ
12	RJ	UP	KE	MP	HY	UP
13	UP	RJ	UP	UP	MP	OR
14	WB	AS	BH	RJ	UP	MP
15	BH	BH	WB	BH	BH	AS

When the first four positions in infrastructure development are occupied by Karnataka, Gujarat, Assam and Orissa, the toppers in the

attainment list are Kerala, Maharashtra, Punjab and Tamil Nadu. But ranking of States with respect to health infrastructure and attainment are found to be comparable with some exceptions. For instance Kerala with first place in health attainment tops the list in health attainment. Similarly, the low attainment states are also the States having low health infrastructure in general.

Ranking of States according to educational attainment and infrastructure development do not exhibit such a relationship. Assam, Madhya Pradesh and Orissa with relatively low educational attainment levels, occupy top positions in education infrastructure ranking. Kerala, on the other hand, despite a relatively low ranking in infrastructure development, had high level of attainment in education. These findings strengthen the conviction that the mere existence of infrastructure is by no means an indication of the extent of attainment in that sector. The probable reasons for this could be gross inefficiency in the use of resources, the poor quality of services rendered in the existing infrastructure or the importance of non formal methods influencing educational attainment. At this juncture, an attempt is made to identify the significant factors that influence social attainment using regression analysis.

### **Regression Results**

Stepwise regression analysis is used to identify the most significant variables that influence social development. Composite development indices are regressed against real per capita social expenditure which represents government initiative, education and

health infrastructure representing the basic input for development and per capita income to represent economic development. The equation

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + u ,$$

Where, Y = composite development index,

$x_1$  = real per capita social expenditure (RPSE),

$x_2$  = education infrastructure index (EII)

$x_3$  = health infrastructure index(HII)

$x_4$  = per capita income (PCI)

U is the error term and a,  $b_1$ ,  $b_2$ ,  $b_3$  and  $b_4$  are the parameters to be estimated, was fitted and the results are given in table 7.4

Table 7.4  
**Results of Regression -Social Attainment (all states)**

Variable	Estimates of the coefficients	t-value	R <sup>2</sup> of fitted equation
Constant	-4.737	12.168**	
RPSE	0.006	5.528**	0.816
PCI	0.000225	3.836**	0.899

\*\* indicates that the coefficients are statistically significant at one percent level.

As evident from the result, real per capita social expenditure and Per capita income are the most significant factors that influence the social development. Both the variables are significant at one per cent level of significance and explain 89.9 per cent of the variation. It is seen that real per capita social expenditure alone explains 81.6 per cent of the variation. This justifies the hypothesis that per capita social sector expenditure is an important factor that influences social development.

To have a sector-wise picture of the relationship, the analysis was repeated for education and health sectors separately.

Regression equations,

(i) Education attainment index =  $a + b_1RPEE + b_2EII + b_3PCI + u$  and

(ii) Health attainment index =  $a + b_1RPHE + b_2 HII + b_3 PCI + u$

where,

RPEE = real per capita education expenditure,

RPHE = real per capita health expenditure,

EII = education infrastructure index,

HII = health infrastructure index and

PCI = per capita income at constant price, were fitted and the results are given in tables 7.5 and 7.6.

**Table 7.5 Results of Education Regression ( all States)**

<b>Significant Variables</b>	<b>Estimates of the coefficients</b>	<b>t-value</b>	<b>R<sup>2</sup> of fitted equation</b>
Constant	-4.275	14.865**	
RPEE	0.011	6.766**	0.871
PCI	0.000199	3.791**	0.928

\*\* indicates that the coefficients are statistically significant at one per cent level.

**Table 7.6 Results of Health Regression (all States)**

<b>Significant Variable</b>	<b>Estimates of the coefficients</b>	<b>t-value</b>	<b>R<sup>2</sup> of fitted equation</b>
Constant	-2.487	3.925**	
PCI	0.000332	3.990**	0.692
HII	0.448	2.195*	0.757

\*\* indicates that the coefficients are statistically significant at one per cent level.

As observed from table 7.5, educational attainment is significantly influenced by per capita expenditure on education and per capita income. Both are significant at one per cent level. These two factors together explain 92.8 per cent of variations in educational attainment. Per capita education expenditure alone explains 87.1 per cent of variation. Influence of education infrastructure is found to be

insignificant. This reinforces the conviction that mere setting up of schools is not an end in itself. What is more important is the efficiency or quality of services being rendered in these schools. With limited resources available with the states, it is important that what ever amount is spent on this sector, should be targeted at the end, not at the means.

Per capita income and health infrastructure indices are found to be the most significant factors that influence health attainment. Per capita income is found to be relatively more important and explains 69.2 per cent of variation. Per capita income and health infrastructure together explain 75.7 per cent of variations in health attainment. The association between public spending and health outcome is seen to be weak. Income turns out to be a significant determinant of health outcome than public spending.

It may be noted that the analysis of health expenditure in chapter four has shown that health expenditure has not only remained low, but also declined over the period. More over the variables like private health expenditure and governance issues influencing the quality of expenditure have not been included in the analysis. It may further be noted that the rank correlation between health attainment and expenditure is significant. All these taken together could mean that the weak relationship between public spending and health outcome is probably not an indication of ineffective health expenditure, but of inadequate level of public spending and poor targeting. The significant relationship between health attainment and infrastructure points to the urgent need for increased investment in health infrastructure facilities.

In order to examine the variables which significantly influence the social development in each State, performance of individual States are regressed against independent variables like real per capita social expenditure, education and health infrastructure and per capita income at constant price. The equation,  $Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + u$

Where, Y = composite development index,

$x_1$  = real per capita social expenditure (RPSE),

$x_2$  = education infrastructure index (EII)

$x_3$  = health infrastructure index (HII)

$x_4$  = per capita income (PCI)

U is the random variable, and a,  $b_1$ ,  $b_2$ ,  $b_3$  and  $b_4$  are the parameters to be estimated, was fitted on each state separately using stepwise regression. Results of the regression are given in table 7.7.

**Table 7.7 Results of Regression - Social Attainment ( State- wise)**

States	Significant variables	Estimates of the coefficients	t- value	R <sup>2</sup>
Andhra Pradesh	Constant	-4.089	16.629**	0.938
	PCI	0.0005985	17.739**	
	EII	-0.197	2.246*	
Assam	Constant	-2.047	2.751**	0.744
	RPSE	0.004430	2.766**	
	EII	0.351	4.342**	
	HII	0.562	2.845**	
Bihar	Constant	0.00002304	0.000	0.869
	EII	-0.789	12.768**	
	HII	0.273	3.244**	
Gujarat	Constant	-1.435	6.866**	0.897
	HII	0.593	8.547**	
	PCI	0.0001503	6.925**	
	EII	0.135	2.257*	

**Table 7.7 (Continued)**

Haryana	Constant	-3.292	6.124**	
	PCI	0.0003167	6.139**	0.956
	HII	0.248	2.388*	0.967
Karnataka	Constant	0.000004351	0.0	
	HII	0.957	18.514**	0.947
Kerala	Constant	-1.897	7.380**	
	PCI	0.0002635	7.508**	0.777
	HII	0.349	3.038**	0.925
	EII	-0.184	2.147*	0.941
Madhya Pradesh	Constant	-1.688	3.523**	
	EII	-0.784	9.538**	0.827
	RPSE	0.003907	3.565**	0.898
Maharashtra	Constant	-3.397	14.896**	
	PCI	0.0003203	15.344**	0.925
Orissa	Constant	0.0		
	HII	0.844	16.505**	0.935
Punjab	Constant	5.723	29.779**	
	PCI	0.0004874	30.187**	0.980
Rajasthan	Constant	0.00004808	0.001 <sup>ns</sup>	
	HII	0.961	21.016**	0.959
Tamil Nadu	Constant	2.936	13.001**	
	RPSE	0.00202	4.990**	0.901
	PCI	0.0001961	9.323**	0.960
	EII	-0.177	3.245**	0.988
	HII	0.218	2.403*	0.991
Uttar Pradesh	Constant	-4.019	4.755**	
	HII	-0.740	6.649**	0.924
	PCI	0.0008018	4.760**	0.966
West Bengal	Constant	-4.560	5.550**	
	PCI	0.0006981	5.562**	0.898
	EII	-0.400	3.423**	0.925
	HII	0.644	2.795*	0.949

\*\* refers to 1% level of significance

\* refers to 5% level of significance

The table above reveals that the variables with significant influence on social development differ from State to State. While all the variables considered have significant influence on social development of Tamil Nadu, in States like Maharashtra and Punjab per

capita income is the only significant variable. In Karnataka, Orissa and Rajasthan health infrastructure is found to be the only significant variable and per capita income is found to be significant in nine States (Andhra Pradesh, Gujarat, Haryana, Kerala, Maharashtra, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal).

Per capita social expenditure is found to be important in three States (Assam, Madhya Pradesh and Tamil Nadu). It is found that health infrastructure have significant influence in all States except Andhra Pradesh, Madhya Pradesh, Maharashtra and Punjab. Education infrastructure index is found to be important in eight States (Andhra Pradesh, Assam, Bihar, Gujarat, Kerala, Madhya Pradesh, Tamil Nadu and West Bengal).

To have a sector-wise picture of significant factors that influence performance of States in education and health attainment, regression equations are fitted for each State separately for these sectors.

### **Education regression**

The regression equation,

$$\text{Education attainment index} = a + b_1\text{RPEE} + b_2\text{EII} + b_3\text{PCI} + u$$

Where,

RPEE = real per capita education expenditure,

EII = education infrastructure index and

PCI = per capita income at constant price, is fitted for each State and the results are given in table 7.8

**Table 7.8 Results of Education Regression (State wise)**

States	Significant variables	Estimates of the coefficients	t-value	R <sup>2</sup>
Andhra Pradesh	Constant	-4.051	22.275**	0.965
	PCI	0.0005930	22.890**	
Assam	Constant	-3.968	10.069**	0.719
	RPEE	0.01023	9.907**	0.894
	EII	0.367	5.465**	0.936
	PCI	0.0002156	3.366**	
Bihar	Constant	0.00001198	0.000 <sup>ns</sup>	0.884
	EII	-0.748	12.028*	
Gujarat	Constant	-2.931	17.715**	0.905
	PCI	0.0001912	6.087**	0.949
	RPEE	0.00339	3.977**	
Haryana	Constant	-3.989	19.193**	0.953
	PCI	0.0003837	19.531**	
Karnataka	Constant	-3.549	40.370*	0.989
	PCI	0.0004838	41.853**	
Kerala	Constant	-2.669	17.934**	0.961
	PCI	0.0003706	18.260**	0.971
	EII	-0.09009	2.528*	
Madhya Pradesh	Constant	-1.463	3.261**	0.829
	EII	-0.781	9.050**	0.893
	RPEE	0.007596	3.307**	
Maharashtra	Constant	-3.014	25.537**	0.967
	PCI	0.0002326	11.213**	0.982
	RPEE	0.001666	3.778**	
Orissa	Constant	-2.176	8.121**	0.816
	RPEE	0.01078	8.370**	0.863
	EII	-0.183	2.497*	
Punjab	Constant	-5.836	33.317**	0.984
	PCI	0.0004971	33.773**	
Rajasthan	Constant	1.717	5.762**	0.862
	EII	-0.513	5.855**	0.952
	RPEE	0.006230	5.846**	
Tamil Nadu	Constant	-3.246	31.971**	0.969
	PCI	0.0003104	14.133**	0.984
	EII	-0.175	4.780**	0.990
	RPEE	0.002242	3.846**	
Uttar Pradesh	Constant	-8.630	8.976**	0.801
	PCI	0.001721	9.022**	
West Bengal	Constant	-2.235	4.87**	0.901
	PCI	0.0002238	2.352*	0.945
	EII	-4.466	4.356**	0.957
	RPEE	0.003518	2.147*	

\*\* refers to 1% level of significance

\* refers to 5% level of significance

As in the case of overall social attainment, per capita income is an important variable to influence educational attainment. It is observed that influence of per capita income is significant in all States except, Bihar, Madhya Pradesh, Orissa and Rajasthan and in 5 States - Andhra Pradesh, Haryana, Karnataka, Punjab and Uttar Pradesh- income per head is the only significant variable. Per capita education expenditure is found to be important in 8 States. In Bihar infrastructure is the only significant variable to influence educational attainment and education infrastructure is found to have significant influence in eight States. In Assam, Tamil Nadu and West Bengal, educational attainment is influenced by all the variables considered.

### **Health Regression**

The equation,

$$\text{Health attainment index} = a + b_1\text{RPHE} + b_2\text{HII} + b_3\text{PCI} + u$$

where,

RPHE = real per capita health expenditure,

HII = health infrastructure index,

PCI = per capita income at constant price, was fitted for each State and the results are given in table 7.9.

**Table 7.9 Results of Health Regression (State-wise)**

States	Significant variables	Estimates of the coefficients	t- value	R <sup>2</sup>
Andhra Pradesh	Constant	-1.950	2.246*	0.829
	PCI	0.001	9.858**	
	RPHE	-0.022	2.290*	
Assam	Constant	-0.0000095	.000 <sup>ns</sup>	0.785
	HII	1.199	8.338**	
Bihar	Constant	-5.778	2.617*	0.226
	PCI	0.00182	2.627*	
Gujarat	Constant	2.553	3.827**	0.927
	HII	0.504	3.918**	
	PCI	0.0002456	3.836**	
Haryana	Constant	-3.292	6.124**	0.927
	PCI	0.0003167	6.139**	
	HII	0.248	2.388*	
Karnataka	Constant	1.577	2.247*	0.870
	HII	1.052	11.474**	
	RPHE	-0.01835	2.259*	
Kerala	Constant	-1.409	3.06**	0.779
	HII	0.915	6.174**	
	PCI	-0.0001957	3.116**	
Madhya Pradesh	Constant	1.847	4.876**	0.695
	HII	-0.847	6.829**	
	RPHE	0.02598	4.995**	
Maharashtra	Constant	-3.596	9.341**	0.830
	PCI	0.0003390	9.662**	
Orissa	Constant	-0.0000476	-0.001	0.891
	HII	0.944	12.466**	
Punjab	Constant	-5.610	13.576**	0.909
	PCI	0.0004779	13.761**	
Rajasthan	Constant	-0.0000000247	0.000 <sup>ns</sup>	0.899
	HII	0.948	12.466**	
Tamil Nadu	Constant	-2.178	5.485**	0.881
	HII	1.048	8.406**	
	RPHE	0.01142	3.474**	
	PCI	0.0001194	3.363**	
Uttar Pradesh	Constant	-5.778	6.677**	0.926
	PCI	0.001155	6.685**	
	HII	-0.518	4.538**	
West Bengal	Constant	-3.975	11.399**	0.878
	PCI	0.0006085	11.697**	

\*\* refers to 1% level of significance

\* refers to 5% level of significance

It is observed that in States like Bihar, Maharashtra, Punjab and West Bengal, income per capita is the only variable with significant

influence on health attainment. Per capita income is found to be significant in 10 States. Health infrastructure development is significant in 10 States but in Madhya Pradesh and Uttar Pradesh the coefficient is negative. In States like Orissa and Rajasthan health attainment is influenced only by health infrastructure.

### **Concluding Remarks**

An examination of ranking of States according to social expenditure and social attainment showed that social attainment is high in States which occupied top positions in the ranking with respect to expenditure. The rank correlation coefficient between expenditure and attainment is found to be high and significant at one percent level. This justifies the hypothesis that disparity among states in social attainment is comparable with that in social expenditure.

Results of the step wise regressions show that real per capita social expenditure and Per capita income are the most significant factors that influence the social development when all States are taken together. This justifies the hypothesis that government spending is an important factor that influences social development.

Sector wise regression results show that while income and health infrastructure development are the significant factors influencing health attainment, in the case of education, influence of infrastructure is not statistically significant. Educational attainment is found to be significantly influenced by per capita expenditure on education and per capita income.

State wise regression gives more indications about the reasons for differential performance of States. The variables that significantly influence social attainment differ from State to State. While all the variables considered are important in Tamil Nadu, in some States the attainment levels are influenced by just one variable.

Sector wise regression on individual States shows that income per capita is an important variable to influence educational attainment in 11 States. Educational attainment is influenced by per capita education expenditure in 8 States. In Bihar infrastructure is the only variable to influence educational attainment and education infrastructure is found to be important in eight States.

In health attainment per capita income is found to be significant in 10 States. Health infrastructure development is important in 10 States and in States like Orissa and Rajasthan attainment is influenced only by HII. RPHE is significant only in 4 States. It may be noted that in Tamil Nadu all the variables considered have significant influence on attainment in education, health and also overall social development.

The analysis leads to the conclusion that in spite of sector-wise and State-wise differences, all the independent variables considered are important in the process of social development. Therefore, it is felt that the attainment goals of all the States can be achieved through appropriate policy measures that give due consideration to the development needs and also to the factors that are significantly relevant in each State and each sector.

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## Chapter VIII

### SUMMARY AND CONCLUSION

The process of development should ideally be viewed and assessed in terms of what it does for an average individual. It has to be seen in terms of the benefits and opportunities that it generates for people and how these are distributed between the well off and deprived, between men and women and across regions. For any approach or development framework to be meaningful and effective in directing public policies and programmes, it has to be anchored in a social context. It becomes necessary therefore, to develop a relevant approach to social development, identify and devise appropriate indicators to help formulate and monitor public policy.

In this context an attempt was made to understand India's development experience and achievements with special focus on disparities among states with respect to social attainments. Indian economy was backward in every respect on the eve of independence. Owing to inadequate educational and health facilities and lack of social security measures and poor technological and scientific capabilities, poverty was rampant, making for low general standard of living.

Since independence India has made significant progress in several areas of economic and social development. The incidence of poverty has declined, literacy rate has increased from less than 20 per cent in 1951 to 65 per cent in 2001, female literacy has come up from 8.9 per cent to 54.3 per cent in 2001 and enrolments in educational institutions have increased. The education system in India is the second

largest in the world, with 10.199 lakh schools and about 10495 colleges and about 389 universities. Schooling facilities at Primary level are accessible to the population living in 83 per cent of the habitations within a distance of 1 km, according to the draft Tenth Five Year Plan.

Government initiatives in the public health sector have recorded some noteworthy successes over time. The successful eradication of communicable diseases is a major public health achievement in India. There has been a substantial drop in crude death rate and infant mortality rate and Life expectancy at birth has improved considerably. Over all human development as reflected in the human development index has improved significantly. India's planned effort for development has lifted the country from the group of low development countries to medium human development group.

Despite substantial improvements, India's performance with regard to both education and health becomes insignificant when compared with that of other developing countries. As early as in the mid 1970s the countries like Sri Lanka, Malaysia, Thailand, Philippines and Indonesia have recorded adult literacy rates ranging from 60 per cent to 87 per cent, when India's rate was only 36 per cent. India's adult literacy rate (61%) for 2003 lies far behind that of Thailand (92.6%), Sri Lanka (90.4%), Kenya (73.6%), China (90.9%) and Philippines (92.6%). China and Sri Lanka started their development process at the same levels of health as that of India. Yet these countries are far ahead of India in terms of health attainment.

Apart from the generally low level of social development, there is acute inter state disparity to be reckoned with. Kerala, with literacy rate 90.9 per cent and infant mortality rate 11 per thousand in 2001 has a

level of human development comparable to that of Sri Lanka and Malaysia. In sheer contrast, the infant mortality levels in Madhya Pradesh and Orissa were 86 and 91 per thousand. Further more, considerable intra state disparities exist in the levels of social attainment according to region, sex and community which people belong to.

In the constitutional division of responsibilities between Centre and States, social sector planning and development are primarily the responsibility of State Governments. It is true that the States have been earmarking sizeable proportion of their resources for social development, though supplemented by the Centre. But the accomplishment appears to be widely at variance across the States. This raises a number of issues. Are the States allocating adequate resources for social development? What is the structural composition of social sector allocation of resources? What is the magnitude of inter state disparity in allocation? What is the level of social development across the States? Are they comparable with the State's efforts? If not what are the reasons for variations across States? This study attempted to focus on these issues. Against this back ground, the following objectives were proposed.

1. To examine the structure and growth of social sector outlay of 15 major Indian States.
2. To study inter state variations in social sector outlay and disparities in the development of social infrastructure.
3. To analyse inter state disparities in the level of social attainment
4. To identify the factors that influence differential performance of States with respect to social development.

The study was based on secondary data. The government expenditure in respect of 15 major States, for 24 years from 1980-81 to 2003-04 were compiled from various issues of Reserve Bank of India Bulletin, Hand book of Statistics on State Government Finances, Reserve Bank of India 2004 and Public Finance, Centre for Monitoring Indian Economy (CMIE), October 2005. Data on infrastructure and attainment in education and health were collected from Social and Cultural Tables – (census 1981, 1991 and 2001), various issues of Statistical Abstract, Economic Survey, Man Power Profile, Health Information of India published by Central Bureau of Health Intelligence, Ministry of Health and Family Welfare, Government of India, SRS Bulletin, Registrar General, Government of India, and (i) Selected Educational Statistics, (ii) Education in India, and (iii) Annual Report by Ministry of Human Resource Development, Government of India.

In the foregoing chapters attempts were made to analyse inter- state disparities in terms of social expenditure, infrastructure development and social attainment as well as to identify the factors that influence social development. Since education and health sectors form major constituents of the social sector, these two sectors were given special focus in this study. Infrastructure development and attainment levels were examined separately to avoid conceptual ambiguity of analyzing input to social development and output together.

Trends in social expenditure and the disparity among States in terms of real per capita expenditure were discussed in the fourth chapter. Trends in expenditure on each category namely education, health and overall social sector were analysed in terms of (i) ratio of expenditure to net state domestic product (NSDP), (ii) ratio to total expenditure and

(iii) real per capita expenditure. In the case of education and health sectors, an analysis of the shares of these sectors in total social expenditure also was attempted. Growth and variation in the pre reform, post reform and overall periods were examined separately. In order to examine variation in social expenditure among States with similar per capita income, States were grouped as high income, middle income and low income States and intra group and inter group variations were found out. The main findings of the analysis were as follows.

### **Trends in Social Expenditures**

On an average, social expenditure as a percentage of NSDP ranged between 6.49 and 7.7 over the period. The percentage was less during the post reform period compared to pre reform period in 11 out of 15 states.

Share of social sector in total expenditure was less than the UNDP recommended 40 per cent in almost all States and ranged between 24 and 34 per cent on an average. In nine States the post reform percentage was less than that in the pre reform period.

In per capita terms social expenditure has increased significantly in all States between 1980-81 and 2003-04 and the increase was more than 100 per cent in seven states. The States that witnessed such increases comprised of both high and low income States.

The education expenditure as a percentage of NSDP was less than the recommended rate of six percent and on an average its share ranged between 3.19 and 4.29 over the period.

Education claimed a major share of the total social expenditure and on an average education expenditure was about fifty per cent of the

total social expenditure. It was also seen that while health sector experienced drastic cut in its share in social expenditure in the post reform period; education expenditure was relatively protected.

In the case of real per capita education expenditure, 11 out of 15 States experienced more than 100 per cent increase and in the remaining States the increase was between 50-100 per cent. In general per capita spending was comparatively high in high income states and it was low in low income states.

Compared to education, health sector could claim only lower percentage of NSDP in all States and the share decreased from 1.57 in 1980-81 to 0.76 per cent in 2003-04.

Share of health in total outlay was as low as 7 per cent in 1980-81 and 2.83 per cent in 2003-04 on an average. All the States have experienced sharp fall in the share over the period.

On an average per capita health expenditure showed declining trend over the period. It was seen that the health expenditure in high income States was higher than the all State average, whereas in all low income States the per capita expenditure was less than the all States average.

It was seen that per capita health expenditure was much lower than the per capita education expenditure in all the States and on an average it was only one third of per capita education expenditure in the over all period. The relative importance of health expenditure has declined drastically during post reform period in all States without exception. This indicates that at times of financial stringency the

governments are tempted to cut the expenditure on health rather than expenditure on education.

### **Rate of Growth of Expenditures**

During the period from 1980-81 to 2003-04, the rates of growth of per capita social and education expenditures were positive for all the States; where as 12 out of 15 States registered negative rate in the case of health expenditure.

In the Post reform period all States except Gujarat, West Bengal and Orissa experienced a fall in the rate of growth of per capita social expenditure compared to pre reform period.

The post reform rate of growth of per capita education expenditure declined in all the States and the deceleration was sharper compared to that of per capita social expenditure.

In sharp contrast to social and education expenditures, growth rate of per capita health expenditure showed improvement in 11 States during the post-reform period and only five States registered negative growth.

### **Inter State Disparities in Social Expenditures**

As measured by coefficient of variation, inter state disparity in per capita social and health expenditures showed diverging trend and the disparity is found to be widened in post reform period. But per capita education expenditure exhibited a converging trend.

Variations within income groups in terms of per capita social expenditure, was found to be converging in high income and middle

income States, while the inequality among low income States increased over the period.

In the case of education expenditure intra group variation was highest among middle income States in pre reform period but showed a converging tendency over the period. But inequality among low income States showed diverging tendency over the period and the coefficient of variation was the highest compared to other groups in post reform period.

Inequality in health expenditure was very low among high income States but has increased over the period, while middle income States showed converging tendencies. Inequality among low income States was higher compared to other groups both in pre reform and post reform periods.

Inter group variations were found to be higher in all categories of expenditure in the post reform period compared to pre reform period.

Ranking of States according to per capita expenditures showed that high income states like Punjab and Gujarat together with middle income States like Kerala and Tamil Nadu, in general, occupied the first four positions in all categories of expenditure. At the same time low income States like Bihar, Uttar Pradesh, Madhya Pradesh and Orissa continued to occupy the last five positions in respect of all categories of expenditures.

Results of ANOVA indicated significant variation between per capita expenditures incurred by high income, middle income and low income States.

## **Disparities in Infrastructure Development**

Development of infrastructure facilities in education and health and also the disparities among States were analysed in the fifth chapter. The indicators used to examine education infrastructure were number of schools and colleges and pupil teacher ratio. Development of health infrastructure was studied using number of hospitals, hospital beds, dispensaries, doctors and nursing personnel per lakh population. Both univariate and multivariate methods of analysis were resorted to. The univariate analysis conducted to examine infrastructure development in education and health sectors brought out the following conclusions.

In terms of schools per lakh population, States like Madhya Pradesh, Orissa and Assam occupied the first three positions. The rate of growth of number of schools per lakh population declined in seven out of fifteen States in the over all period and in eight States post reform growth rate was less than that in pre reform period. Disparity among States in terms of schools per lakh was found to have widened. A totally different picture did emerge when we considered number of schools per 100 square kilometers. Post reform growth rate was higher than pre reform rate in 10 States and inequality among States showed converging tendency.

In the case of colleges per lakh, post reform rates were comparatively higher in 10 States. In the case of colleges per area also the growth rate was higher in post reform period. The number of colleges per lakh was highest in Karnataka and the lowest in West Bengal in 2003-04. Inter state disparity showed diverging trend over the period in terms of colleges per population, but colleges per 100 square kilometers showed converging tendency.

In all States except Andhra Pradesh, Gujarat and Karnataka, pupil teacher ratio was within the prescribed limit of 40 students per teacher in 1980-81. But in 2003-04 the ratio was according to the norm only in 7 States. It was seen that disparity among States has increased over the period.

With regard to the development of health infrastructure, it was seen that only five States – Andhra Pradesh, Assam, Gujarat, Kerala and Maharashtra – did show improvement in number of hospitals per population over the period and in eleven states the facility was less than all India level in 2003-04. Post reform rate of growth was low compared to pre reform rate in 11 States. In twelve out of fifteen States number of dispensaries per lakh population was below all India level. Number of hospital Beds in Bihar, Madhya Pradesh, Uttar Pradesh and Orissa were comparatively low throughout the period. These States registered lowest rate of growth in both the pre reform and post reform periods. Nine States experienced decline in number of hospital beds per lakh and seven States were below the national level.

In the case of doctors all the States experienced improvement and the number of nurses improved in thirteen States over the period. Only four States – Bihar, Uttar Pradesh, Assam and Rajasthan – had less nursing personnel than the National level. Twelve States out of fifteen had lower growth rates for number of doctors in post reform period compared to pre reform period. Post reform rate was higher than pre reform rate only in the case of number of nurses.

Disparities among States in terms of number of hospitals, dispensaries and hospital beds per population, as measured by coefficient of variation, were found to be very high and have increased

over the period. But inequality in number of doctors and nurses showed converging trend over the period. It was observed that in States like Madhya Pradesh, Bihar, Uttar Pradesh Orissa and Rajasthan health infrastructure facilities were poor compared to other States.

It was seen that the results of the multivariate analysis of infrastructure development conformed to the findings of the univariate analysis. Principal component analysis was used to construct indices for education and health infrastructure and the composite index for infrastructure development was computed as the weighted average of the above two indices. When States were ranked according to education infrastructure, the top positions were occupied by States like Orissa and Assam. In health infrastructure Kerala, Gujarat, Maharashtra and Punjab were the toppers and States like Bihar, Uttar Pradesh, Madhya Pradesh and Haryana occupied the last four positions.

Grouping of States according to composite infrastructure scores puts Gujarat in the group of highly developed States in 1991 and 2001 and Maharashtra and Punjab were highly developed States in 1981 and 1991. Bihar remained backward in 1981 and 2001. Haryana, which was backward in infrastructure development in 1981 and 1991 showed improvement and was moderately developed state in 2001.

### **Disparities in Social Attainment**

Inter state disparity in social attainment was analysed in chapter six. Educational attainment was discussed in terms of literacy rate and stock of population with different levels of education. The indicators of health attainment used were life expectancy at birth, infant mortality rate and crude death rate and morbidity prevalence rate. The main points that emerged from the above analysis are summarized below.

Kerala was far ahead of other States in the case of both male and female literacy. While its combined literacy rate was 90.9 per cent, Bihar with less than 50 percent literacy rate, was at the other end of the list. But it was seen that the inequality between States has come down over the years. The coefficient of variation has decreased indicating a converging tendency among States over the period. The coefficient was still low in the case of male literacy. It may be noted that compared to male literacy, disparity among States was high in the case of female literacy though its coefficient of variation has decreased considerably. Male- female difference in literacy was the lowest in Kerala, while in States like Rajasthan, Bihar and Uttar Pradesh gender disparity was very high.

In the case of level of education attained also Kerala occupied the first place in all levels except degree and above throughout the period, below primary level in 2001 and primary level in 1991. Coefficient of variation showed converging trend throughout the period in the case of primary, middle and degree and above, while at secondary / higher secondary levels the coefficient increased from 31.4 in 1981 to 34.2 in 1991 and then decreased to 32.4 in 2001.

With respect to both the dimensions of educational development – literacy and stock of educated population - Orissa, Madhya Pradesh, Bihar, Uttar Pradesh and Rajasthan were found to be at the bottom of the list. These 5 States account for 52.38 per cent of the illiterates in the country and hence deserve serious attention.

Health scenario in India reflects diversity of the country to a great extent. Among 15 States, the health indicators of Kerala compared favourably with most middle income countries and even some high

income countries in West Asia. But Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and Bihar are well below the average of low income countries.

While a person is expected to live for over 73 years (males 71.67 years and Females 75 years) in Kerala, life expectancy in Madhya Pradesh was 58.6 years (59.2 years for males and 58 years for females). Against the general trend of females expected to live longer than males, in States like Bihar, Madhya Pradesh, Orissa and Uttar Pradesh, male life expectancy was higher than female life expectation.

Infant mortality rate has more than halved at all India level in the overall period, even though a set back was experienced in the pace of declining trend in 10 States in the post reform period. Among all States, Kerala had the lowest infant mortality rate, while the rate was very high in Madhya Pradesh, Orissa and Uttar Pradesh.

All the States have shown remarkable decline in death rate over the period. Kerala has maintained the lowest death rate through out the period and States like Madhya Pradesh, Uttar Pradesh, Rajasthan, Bihar, Orissa and Assam had comparatively high death rate. It may be noted that, all States with high death rate have shown relatively sharper fall in the rate indicating convergence of States in the long run.

Disparity among States as measured by coefficient of variation declined over the period indicating converging trend in terms of life expectation and death rate. But disparity in infant mortality rate was higher compared to life expectancy and death rate and showed diverging tendency.

Even though Kerala has attained low mortality and high life expectancy indicating expansion and development of health services, its high morbidity prevalence rate presented a paradox in outcomes. Morbidity rate was the highest in Kerala and about three times that of the national rate. The rate of growth also was the highest compared to other States.

Ranking of States according to attainment indices showed that Kerala was far ahead of all other States. Throughout the period Kerala occupied the top most position in education, health and composite indices of attainment. Maharashtra ranked second in education and composite indices in all time points. The last six positions were occupied by the low income States like Assam, Bihar, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh. Clustering of States using Euclidean distance coefficient matrix was found to be in conformity with ranking of States.

Results of ANOVA showed that there was no significant variation among the income groups of States with respect to health attainment. However, in the case of education and composite index of attainment, there was significant variation among income groups. It was seen that social development in high and middle income States were comparable and that in low income States were significantly different from the other two groups.

Finally it was seen that in spite of the disparities that exist between States with respect to social attainment, the variations showed a converging tendency over the period. Thus we reject the hypothesis that states are diverging.

## **Factors Influencing Social Development**

An examination of ranking of States according to per capita social expenditure and social attainment showed that, in general, the high spending States are also the States with high attainment. The rank correlation coefficient between expenditure and attainment was significant at one per cent level indicating that disparities among states with respect to social attainment are comparable with variations in social expenditure.

In order to fulfill the fourth objective, an attempt was made to identify the most significant factors that influence social development, using step wise regression. Regression equations were fitted separately for health and education attainment as well as for composite attainment index. Results of the regression showed that real per capita social expenditure and Per capita income are the most significant factors that influence the social development when all states are taken together.

Sector wise regression results showed contrasting results for health and educational attainment. Educational attainment was found to be significantly influenced by per capita expenditure on education and per capita income, while income and health infrastructure development significantly influenced health attainment.

State-wise regressions showed that the variables that significantly influenced social attainment differ from State to State. While all the variables considered had significant influence on social development of Tamil Nadu, in Maharashtra and Punjab per capita income was the only significant variable. Per capita income was found to have significant influence in nine States. Education infrastructure index was found to be important in eight States. It was found that health infrastructure have

significant influence in all States except Andhra Pradesh, Madhya Pradesh, Maharashtra and Punjab.

Sector-wise regression on individual States showed that income per capita was an important variable to influence educational attainment in all States except, Bihar, Madhya Pradesh, Orissa and Rajasthan. Educational attainment was influenced by per capita education expenditure in 8 States and education infrastructure was found to have significant influence in eight States.

In health attainment per capita income was found to be significant in 10 States. Health infrastructure development was important in 10 States and in States like Orissa and Rajasthan attainment was influenced only by HII. RPHE is significant only in 4 States.

It was shown that in Tamil Nadu all the variables considered have significant influence on attainment in education, health and also overall social development.

The analysis leads to the conclusion that even though there are sector wise and State-wise differences, all the independent variables considered are important in the process of social development. Therefore, it is felt that the attainment goals of each State can be achieved through appropriate policy measures that give due consideration to the development needs and also to the factors that are significantly relevant in each State and each sector.

### **Policy Implications**

The analysis so far clearly establishes that there are considerable disparities in social development across the Indian states, in spite of the converging tendencies shown by the overall development indices.

Efforts through the planning process since 1950s had only partially succeeded in reducing regional disparities. A marked dichotomy between the group of high and middle income States together at one end and low income States at the other end has been emerging. The backward States are characterised by comparatively lower levels of social attainment. These are also the States with low social expenditure. Therefore, the pressing requirement of these States is increased investment in their social sectors. Central Government's helping hand in the form of focused investment in social sectors will facilitate the task of the State Governments.

It is observed that in all States social sector expenditure is low when compared with the UNDP recommended ratios and also compared with similar developing countries. Hence, there is an urgent need for stepping up social sector expenditure. Many policy makers seem to regard social sector spending as residual and in times of fiscal crisis, it is in the social sector that the first budget cuts are made. We are of the view that the social spending of governments will depend to a great extent on activities and pressures from the grass root level, vigilance of civil society and the way in which the local groups can and will be involved in the policy process.

Experience of Kerala and to a considerable extent that of Tamil Nadu clearly indicate that even with comparatively lower levels of per capita income, a State can enjoy higher levels of social development. Resources may be a major constraint, but not the only or not even the most important one. The determination on the part of the State Governments and the people at large is even more important. Meaningful decentralization of decision making and financial powers

with appropriate accountability at all levels will facilitate faster social development of backward regions

Development or lack of it depends to a great extent on efficiency in allocating and spending money. Expenditures should therefore be properly targeted and monitored in such a way that each rupee spent brings forth justifiable results.

The capital component of social sector expenditure is found to be very low in almost all States. This is an important impediment in the development of infrastructure facilities. Therefore a prioritisation in favour of social infrastructure is urgently needed.

Mere setting up of infrastructure is not an end in itself. What is more important is the efficiency in the use of infrastructure facilities or quality of services being rendered. In this backdrop, it needs to be recognized that social development is critically dependent on the service providers treating their responsibility not as a commercial activity, but as a service, even though a paid one.

An important factor which influences the speed of socio economic progress of a State is the quality of governance. It is not a coincidence that, by and large, the developed States are better administered. An improved standard of governance is a prerequisite for the success of any development policy.

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Appendix 1 Trends in Total Expenditure

(Rs.Crore)

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V
																	(Inter state)
1980-81	1610	758	1791	1442	607	1302	855	1590	2613	877	817	1120	1686	2668	1552	1419	43.97
1981-82	1831	617	1871	1565	696	1409	1086	1677	3088	814	996	1360	2006	2942	1838	1586	46.11
1982-83	1933	691	1940	1949	917	1739	996	1938	3585	1191	1122	1419	2292	3490	2072	1818	46.64
1983-84	2588	942	2144	2178	960	2002	1322	2324	4244	997	1434	1585	2752	4116	2181	2118	48.16
1984-85	3119	1164	2408	2463	1120	2615	1572	2522	5063	1281	1726	1838	2950	5186	2738	2518	49.24
1985-86	3413	1207	2966	2625	1315	2894	1969	2916	5731	1410	1963	2116	3309	5331	2974	2809	46.87
1986-87	4068	1586	3360	3323	1509	3069	2162	3349	6412	1730	1829	2557	3612	6225	3508	3220	46.63
1987-88	4294	1794	3914	4089	1663	3437	2251	3932	6929	1990	2623	3384	4196	6901	3941	3689	43.29
1988-89	5223	1855	4323	4373	1879	3778	2521	4596	8102	2261	2666	3415	4617	8079	4279	4131	46.76
1989-90	5768	2266	5219	4844	2120	4401	2889	4823	9737	2475	2887	3565	5662	9637	4883	4745	49.61
1990-91	6581	2689	6216	5470	2397	4979	3376	5899	10772	3051	3400	4728	6621	12240	6028	5630	49.71
1991-92	7758	2763	6805	6908	2727	6248	4005	6637	12052	3640	5012	5809	9600	13246	6191	6627	46.51
1992-93	8983	3136	7743	7987	2956	7100	4363	7663	14014	3915	4208	6347	9748	16135	6646	7396	51.08
1993-94	10541	3620	8433	8408	4109	8089	5138	8878	15983	4456	5221	7427	10062	16275	7973	8307	46.15
1994-95	12459	3998	8555	9498	6912	8859	5959	9315	20026	4982	7505	8421	11432	21062	9283	9884	49.21
1995-96	14301	4390	9417	10811	6131	10406	6922	10582	21376	5563	7004	10907	12531	20787	10509	10776	46.32
1996-97	16265	4267	9407	12576	7831	11981	7943	13093	25005	6310	7547	10964	15402	23017	13032	12309	47.32
1997-98	17745	5022	10216	14875	7805	12600	9818	14225	27675	6854	9472	12685	17333	26625	13557	13767	47.46
1998-99	21957	5204	12171	19172	8581	14886	10611	15968	30317	8642	10963	14314	19880	31462	17153	16085	47.13
1999-2000	22767	7086	19548	21466	8359	17818	12900	17957	38244	10120	11980	16256	22627	34615	22677	18961	46.58
2000-01	28119	7631	16946	27175	9159	19664	13149	18841	42208	11047	14111	17494	24437	37791	26741	20968	48.16
2001-02	31074	8550	22803	25651	10728	21938	13132	22584	42480	12065	15692	18995	24818	41402	28079	22666	45.13
2002-03	34752	8936	19392	26921	10582	24074	16967	25811	47217	13268	17336	21542	30157	46935	27716	24774	46.76
2003-04	41499	10596	23565	32986	15121	29267	19769	32874	61034	15565	20335	25869	33765	75647	38416	31754	55.18

Sources: (i) Reserve Bank of India Bulletin (various issues)

(ii) Handbook of Statistics on State Government Finances, Reserve Bank of India, 2004 and

(iii) Public Finance, Centre for Monitoring Indian Economy, October 2005

## Appendix 2 Trends in Social Expenditure

(Rs crore)

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V
1980-81	532	170	452	415	146	348	385	395	702	255	260	323	499	759	583	415	43.08
1981-82	613	176	598	472	173	400	424	456	847	258	280	425	605	824	691	483	44.10
1982-83	697	215	673	643	235	485	441	547	1031	470	292	498	798	1015	843	592	43.22
1983-84	1073	339	677	669	242	525	557	677	1282	357	354	544	931	1131	856	681	46.29
1984-85	1193	382	758	841	398	658	618	773	1434	406	388	625	972	1333	1115	793	44.17
1985-86	1232	414	961	954	316	862	842	944	1690	460	516	704	1278	1497	1024	913	43.57
1986-87	1510	531	1033	1099	347	992	866	1065	2017	556	489	794	1390	1672	1312	1045	45.36
1987-88	1570	624	1088	1351	474	1190	895	1312	2141	625	745	1073	1547	1916	1450	1200	40.28
1988-89	1735	659	1424	1391	599	1270	1019	1545	2499	692	928	1145	1695	2395	1592	1372	41.70
1989-90	2071	702	1745	1541	629	1401	1137	1652	2986	822	714	1279	2190	3042	1801	1581	48.20
1990-91	2266	828	2048	1718	687	1584	1348	2007	3268	899	917	1630	2658	3598	2414	1858	47.34
1991-92	2571	993	2308	2050	758	2016	1430	2230	3824	1106	1072	1820	3112	3666	2344	2087	45.09
1992-93	2952	1018	2367	2171	900	2192	1539	2485	4323	1254	1110	2117	3564	4296	2352	2309	47.56
1993-94	3187	1260	2546	2538	972	2558	1898	2812	4904	1398	1235	2464	3831	4277	2792	2578	44.38
1994-95	3673	1370	2930	2959	1274	2910	2211	3213	5632	1602	1317	2911	4232	4970	3229	2962	44.13
1995-96	4925	1529	3362	3306	1699	3437	2460	3585	7018	1909	1671	3561	4815	5754	3489	3501	45.40
1996-97	5554	1590	3326	3689	1601	3913	2852	4330	7867	2117	1696	3914	5708	6840	4227	3948	48.23
1997-98	5774	1792	3723	4518	1748	4371	3293	4707	9102	2313	2108	4328	6120	7935	4518	4423	48.60
1998-99	7442	2033	3994	5981	2248	5271	3535	5846	9972	2826	2750	5600	7585	9209	5809	5340	46.26
1999-2000	7758	2498	6514	6989	2439	6052	4405	6488	11628	4271	2826	5986	8229	9089	8488	6244	42.07
2000-01	8701	2965	6150	8907	2789	6760	4359	6812	14741	3570	3125	6720	8768	10128	8741	6882	47.69
2001-02	9222	2748	7345	8607	2965	6933	4200	7141	14617	3615	3322	7070	8685	10779	8576	7055	46.77
2002-03	9823	2921	6489	7559	3026	6851	5201	8326	14632	3624	3251	7349	8955	12224	7737	7198	47.10
2003-04	11515	3408	5747	8326	3291	7649	5117	8349	16484	3839	3372	8502	10606	12655	8183	7803	49.43

Source: Same as table 4.7

Appendix 3 Trends in Education Expenditure

(Rs. Crores)

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V
																	(Inter state)
1980-81	231	97	236	181	73	173	216	172	382	108	139	146	242	351	247	200	43.60
1981-82	279	100	301	206	84	199	248	202	424	117	146	176	273	395	324	232	44.18
1982-83	345	116	360	248	96	246	271	241	488	142	165	216	351	500	412	280	45.37
1983-84	432	191	385	299	112	274	314	295	570	160	191	250	385	558	417	322	42.31
1984-85	478	187	434	418	135	331	354	341	679	184	217	292	451	684	449	376	43.85
1985-86	539	221	538	476	155	382	425	388	795	208	241	328	564	787	539	439	44.48
1986-87	571	306	503	471	177	436	489	438	965	266	256	377	612	877	683	495	44.79
1987-88	695	305	524	579	233	574	518	541	1090	295	337	475	699	974	723	571	42.36
1988-89	786	339	862	693	273	641	584	652	1287	354	395	547	794	1295	854	690	44.67
1989-90	1031	398	1139	810	308	721	642	765	1599	434	538	687	1074	1882	959	866	50.39
1990-91	1015	455	1242	916	332	804	795	964	1740	462	518	830	1293	2137	1383	992	50.48
1991-92	1156	564	1293	1078	376	965	854	1042	2106	553	599	895	1462	2057	1328	1089	46.82
1992-93	1358	650	1341	1145	444	1104	935	1145	2373	631	627	1068	1570	2565	1380	1222	49.25
1993-94	1468	795	1411	1379	473	1287	1171	1293	2710	695	709	1236	1750	2395	1645	1361	44.66
1994-95	1699	875	1691	1572	551	1459	1373	1424	3069	828	780	1463	1935	2910	1796	1562	45.39
1995-96	1724	981	2026	1887	663	1712	1458	1691	3705	946	911	1713	2236	3428	1973	1804	47.31
1996-97	1999	1041	2231	2061	758	1939	1643	1953	4253	1079	1050	1990	2536	3913	2435	2059	47.82
1997-98	2251	1168	2522	2304	868	2210	1789	2027	4907	1211	1309	2161	2925	4251	2545	2296	47.94
1998-99	2846	1371	2575	3141	1244	2671	1985	2612	5356	1483	1727	2796	3925	5761	3049	2836	46.97
1999-200	3317	1675	4210	3412	1265	3015	2626	3059	7303	1939	1813	3113	4411	5734	5012	3460	47.64
2000-01	3740	1944	4012	3685	1334	3489	2636	3013	9420	1760	1859	3286	4410	6411	4582	3705	55.45
2001-02	3871	1872	4359	3264	1480	3506	2490	2822	9388	1756	1833	3456	4300	6785	4552	3716	56.40
2002-03	4054	1998	4108	3634	1455	3571	2987	2574	8943	1853	2093	3330	4159	7107	4406	3751	53.28
2003-04	4702	2363	3771	3692	1541	3771	3095	3109	9449	1901	2080	3655	4254	7410	4522	3954	52.73

Source: Same as table 4.7

Appendix 4 Trends in Health Expenditure

(Rs Crore)

Years	AP	AS	BH	GU	HY	KA	KE	MP	MH	OR	PN	RJ	TN	UP	WB	Mean	C.V
1980-81	123	40	98	88	40	71	82	121	171	59	53	114	111	157	141	98	41.98
1981-82	138	45	111	108	52	89	98	136	231	67	61	140	158	189	163	119	44.74
1982-83	157	54	129	128	60	112	102	161	281	87	64	189	195	246	185	143	47.21
1983-84	208	46	147	154	75	115	144	194	343	104	85	203	280	316	208	175	50.29
1984-85	227	104	164	185	94	149	147	210	380	106	93	249	236	372	225	196	46.19
1985-86	189	72	149	120	58	150	127	150	478	75	90	109	275	316	209	171	65.51
1986-87	192	89	172	167	57	173	145	146	314	92	97	122	198	352	243	170	48.27
1987-88	239	104	187	177	67	199	151	210	367	102	113	168	241	421	273	201	48.54
1988-89	281	109	206	209	75	215	164	242	400	110	129	184	269	507	310	227	50.85
1989-90	303	111	234	238	79	236	192	255	459	122	161	220	327	559	348	256	50.48
1990-91	330	128	325	252	87	250	222	282	498	141	170	258	390	676	460	298	52.77
1991-92	378	156	422	285	104	301	232	316	546	172	197	297	439	683	411	329	47.22
1992-93	423	150	393	316	122	367	239	346	636	175	216	346	503	791	446	365	50.08
1993-94	519	186	465	358	117	401	298	417	722	192	234	395	563	976	523	424	52.52
1994-95	562	205	510	415	154	469	357	463	773	244	236	478	634	964	534	467	46.85
1995-96	477	189	338	395	134	419	356	398	775	204	222	459	590	835	539	422	48.19
1996-97	602	200	392	447	158	453	387	482	900	223	271	519	691	927	637	486	48.26
1997-98	685	224	407	542	196	580	438	518	1000	246	349	566	785	1182	680	560	49.84
1998-99	819	194	472	754	259	704	494	743	1090	323	477	699	975	1071	999	672	43.56
1999-200	929	259	763	828	251	816	605	764	1287	356	512	721	1028	1118	1149	759	42.05
2000-01	1061	286	714	786	264	838	598	817	1457	383	595	749	999	1222	1320	806	44.58
2001-02	1095	296	837	640	273	865	653	812	1633	387	578	780	1002	1237	1243	822	46.05
2002-03	1124	272	623	736	298	838	710	919	1600	425	574	763	998	1464	1212	837	46.89
2003-04	1231	308	575	770	315	814	742	959	1782	429	558	829	1064	1725	1240	889	51.21

Source: Same as table 4.7

Appendix 5 Growth Rate of Expenditures (Exponential)

States	Total Expenditure			Social Expenditure			Education Expenditure			Health Expenditure		
	1980-91	1991-04	1980-04	1980-91	1991-04	1980-04	1980-91	1991-04	1980-04	1980-91	1991-04	1980-04
Andhra Pradesh	15.54	14.61	15.15	15.50	13.50	14.06	15.90	12.72	13.57	9.46	10.71	10.63
Assam	15.75	11.51	12.78	18.17	11.21	13.66	17.71	12.46	15.15	12.62	5.95	9.03
Bihar	13.85	11.49	12.42	14.97	10.69	12.74	16.72	12.06	13.90	10.42	5.26	9.17
Gujarat	14.79	14.64	14.91	15.47	14.61	14.49	17.90	12.09	14.82	9.63	9.45	10.26
Haryana	14.47	12.88	14.86	16.64	13.31	14.68	17.41	13.72	15.09	5.22	10.31	9.04
Karnataka	14.43	13.50	14.29	17.27	12.63	14.96	17.20	12.93	15.15	12.92	9.60	11.58
Kerala	14.56	14.12	14.50	13.59	11.82	12.64	13.50	11.54	12.84	8.69	10.65	10.07
Madhya Pradesh	14.31	13.33	13.84	17.82	12.50	14.54	18.19	10.07	14.08	7.34	10.19	9.67
Maharashtra	14.96	13.66	14.29	16.45	13.70	14.87	17.19	15.08	16.15	8.62	10.45	9.60
Orissa	13.87	13.29	13.97	13.09	12.15	13.60	16.53	11.93	14.59	6.83	8.92	9.03
Punjab	14.87	13.61	14.66	14.87	11.82	12.79	15.36	12.71	13.78	11.95	11.47	11.59
Rajasthan	15.17	12.90	14.93	16.29	13.84	15.57	18.25	12.98	15.97	4.36	8.81	9.52
Tamil Nadu	13.71	11.93	14.07	16.87	10.87	14.20	17.55	11.09	14.50	9.21	7.91	9.88
Uttar Pradesh	15.76	13.23	14.42	16.57	11.44	13.63	19.39	12.07	14.88	13.90	6.24	9.66
West Bengal	13.88	16.71	14.60	13.64	13.49	12.95	16.35	12.93	14.02	10.62	11.47	10.51
All States	14.70	13.54	14.31	15.84	12.61	14.03	17.16	12.59	14.65	9.68	9.13	9.97

Sources: Same as Appendix 4.1

Appendix 6 Real PercapitaTotal Expenditure

(Rupees)

Years	AP	AS	BH	GU	HA	KA	KE	MP	MA	OR	PN	RJ	TN	UP	WB	Mean	C.V
1980-81	957	1397	961	1465	1485	1167	1250	1177	1237	1039	1560	1174	1243	804	810	1182	19.90
1981-82	1007	1053	884	1363	1494	1143	1458	1150	1308	849	1715	1277	1348	825	823	1180	23.20
1982-83	984	1062	803	1538	1769	1265	1158	1181	1425	1079	1763	1151	1447	875	834	1222	25.36
1983-84	1171	1117	838	1553	1698	1271	1234	1255	1526	830	2031	1215	1515	954	824	1269	27.34
1984-85	1254	1156	840	1654	1833	1552	1376	1246	1668	1009	2260	1284	1534	1087	901	1377	27.64
1985-86	1284	1138	952	1631	2027	1531	1657	1309	1727	1015	2403	1307	1546	992	937	1430	29.41
1986-87	1370	1314	994	1857	2161	1516	1545	1362	1789	1144	2073	1550	1472	1072	1036	1484	24.37
1987-88	1337	1343	988	2011	2061	1556	1470	1380	1709	1233	2612	1644	1508	1088	991	1529	28.71
1988-89	1465	1277	997	2116	2153	1563	1604	1439	1813	1316	2387	1673	1579	1174	1027	1572	25.98
1989-90	1497	1376	1107	2061	2159	1663	1663	1360	2019	1323	2297	1553	1741	1238	1059	1608	23.97
1990-91	1479	1413	1203	2060	2144	1612	1805	1484	1985	1366	2450	1758	1883	1374	1193	1680	22.04
1991-92	1441	1479	1109	2161	2037	1736	1795	1404	1836	1386	3005	1796	2373	1240	1087	1726	29.98
1992-93	1468	1527	1084	2414	2050	1823	1816	1528	1931	1340	2265	1873	2157	1385	1110	1718	23.78
1993-94	1526	1543	943	1945	2360	1722	1715	1272	1939	1353	2459	1594	1750	1107	1122	1623	26.92
1994-95	1567	1476	903	1963	3490	1673	1753	1210	2124	1297	3157	1666	1841	1267	1180	1771	40.18
1995-96	1617	1480	916	2057	2721	1747	1727	1263	2046	1213	2659	1931	1816	1123	1182	1700	31.36
1996-97	1704	1344	828	2247	3170	1847	1764	1424	2222	1327	2634	1732	2046	1019	1389	1780	34.63
1997-98	1700	1449	780	2438	2916	1891	1894	1096	2269	1350	3083	1912	2097	1077	1277	1815	36.97
1998-99	1937	1303	882	2937	2903	2079	1841	1146	3356	1590	3317	2185	2182	1091	1429	2012	40.19
1999-200	1908	1563	1315	3213	2689	2313	2356	1598	2749	1779	3302	2386	2389	1303	1734	2173	29.40
2000-01	2274	1603	745	3646	2633	2517	2207	1564	2867	1818	3670	2059	2529	1334	2038	2234	35.70
2001-02	2423	1741	1465	3250	2879	2723	2040	1750	2659	1936	3775	2145	2494	1375	2068	2315	28.78
2002-03	2553	1690	1237	3309	2663	2826	2740	1876	2830	2005	4104	2302	2870	1470	2003	2432	30.75
2003-04	2910	1897	1407	3897	3600	3260	3051	2245	3437	2231	4594	2727	3036	2233	2577	2873	28.66

Source: Same as table 4.16