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Economic Reforms and Expenditure on Health in India

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Gujarat Institute of Development Research

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Abstract

In this paper an attempt has been made to analyse the impact of economic reforms on the public health expenditure of 15 major states and the centre as well as the combined expenditure of both the states and the centre. Public health expenditure is measured in per capita terms, i.e., as a share of total expenditure and as a share of gross domestic product (GDP)/net state domestic product (NSDP). The time period chosen for the analysis is the 30 year-period from 1976-77 to 2005-06, divided into pre-reform period (1976-77 to 1990-91) and post-reform period (1991-92 to 2005-06). Health expenditure has been considered as expenditure on: a) medical and public health, water supply and sanitation and b) family welfare. For the purpose of analysis both capital and revenue accounts of plan and non-plan expenditures have been taken into account.

Findings of the study have shown that economic reforms negatively affected the public health expenditure of centre and states combined, as well as of the states. In the case of central government a positive effect has been observed. In case of the 15 major states public health expenditure as a share of total expenditure and as a share of NSDP has been found to have decreased. With respect to growth rates of per capita public health expenditure, seven out of the 15 states show an increase during the reform period. The paper suggests enhancement of investments in order to improve the health situation in the country.

Keywords : economic reform, public health expenditure, centre, states

JEL Classification : I18, H51

Contents

	Page No
Abstract	i
Contents	ii
List of Tables / Appendix Tables / Graphs	ii-iii
1. Introduction	1
2. Data and Methodology	3
3. Analysis of Public Expenditure on Health	4
3.1 Expenditure by Centre and States Combined	6
3.2 Central Government Expenditure	8
3.3 Expenditure of All States	11
3.4 Expenditure of Major States	13
4. Summary and Conclusions	17
References	25

List of Tables

		Page No
Table 1	Per Capita Public and Private Expenditure on Health in Indian States, 2001-02	5
Table 2	Combined (Centre and State Government) Expenditure on Health	7-8
Table 3	Central Government Expenditure on Health	9-10
Table 4	Public Expenditure on Health of All States	11-12
Table 5	Per Capita Public Health Expenditure of 15 Major States – 1976-77 to 2005-06	15
Table 6	Average Public expenditure on Health in terms of Real Per Capita as a Percentage of NSDP, as a Share of Total Expenditure and Social Services	16
Table 7	Mean Growth in Per Capita Health Expenditure during Pre- and Post-Reform Periods - Comparison of States	17

List of Appendix Tables

		Page No
Appendix 1	Growth of Population in India by State – 1976/77 to 2005/06	20
Appendix 2	Growth of NSDP in Major Indian States – 1976/77 to 2005/06	21
Appendix 3	Correlation of Per Capita Health Expenditure with Per Capita NSDP, Poverty and HDI	22

List of Graphs

		Page No
Graph 1	Central Government Expenditure on Health as a Share of Total Expenditure, Social Services and GDP	22
Graph 2	Public Health Expenditure of all States as a Share of Total Expenditure, Social Services and GDP	22
Graph 3	Per Capita Public Health Expenditure - Centre plus States	23
Graph 4	Combined (Central+Centre) Expenditure on Health as a Share of Total Expenditure, Social Services and GDP	23
Graph 5	Average Per Capita Public Expenditure on Health and Growth Rates during Pre-Reform Period	24
Graph 6	Average Per Capita Public Expenditure on Health and Growth Rates during Post-Reform Period	24

Economic Reforms and Expenditure on Health in India

Shiddalingaswami Hanagodimath

1. Introduction

Scientific discussions concerning theory and economics of human capital began after the presidential address by Schultz (1960) to the American Economic Association on 'the importance of Human Capital for Economic Growth'. The human capital theory suggests that people should invest in themselves in the form of education, health, nutrition and skill training, which would increase their future incomes. Thereafter, a plethora of studies were conducted to trace the impact of education and health on economic development, productivity, returns, cost benefit analysis and financing to human capital. At the same time it was recognized that people in developing countries are restricted in their investment on education and health, not only due to their poor financial condition, but also due to the long gestation of investment. Hence the governments have a major role to play in the development of education and health of the people. It has to provide free education and health services at least at the primary level. As Wang (2000) argues, 'the dominant role of the government arises from the characteristics and the definition of "public goods." Health and education are generally considered as public goods, particularly at the basic level since they benefit a nation's social and economic growth as a whole'.

Many studies have been conducted in India on the above themes (V.K.R.V. Rao, 1964 and 1970; Kothari, 1966; Pandit, 1969; Bhagwati, 1973; Panchamukhi, 1975; Tilak, 1987). All the studies noted the low share of public expenditure in terms of per capita and as a percentage of GDP on education as well as health and suggested appropriate policy measures to enhance them. Public expenditure on education is less than four per cent and on health, less then two percent of the GDP. Kothari committee suggested that at least six per cent of GDP should be spent on education (Kothari, 1966). In the present scenario there are various discussions on

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public expenditure on social services like health and education due to curtailing of expenditure after the economic reforms started.

Like many other developing countries India was also facing economic crises in the 1980s. The problems in the developing countries arose from three global crises: the oil crisis, declining agricultural commodity prices and the international recession in the early 1980s. The developing countries, therefore, faced unprecedented pressure in their external accounts after these consecutive international economic crises (Adepoju, 1993). The other reasons that have contributed to the deterioration of India's economic scenario include rapid population growth, adverse weather conditions (such as drought), mismanagement of economy due to the political instability and corruption. At the same time India was finding it difficult to find countries that were willing to finance them, due to the short-term decline in the economy due to the oil crisis. The only option left was to depend on the assistance from the International Monetary Fund (IMF) and the World Bank. 'In response, the Bretton Woods Institutions came up with a structural adjustment package comprising of a loan from the World Bank with an additional clause that the country must implement certain recommended reforms called the Structural Adjustment Program (SAP)' (AFRODAD, 2007).

Structural Adjustment Programmes (SAPs) have been evaluated as having a negative impact on social sector expenditures (Cornia et al., 1987; Panchamukhi, 2000; Dev and Mooij, 2002; Tsujita 2005; Hanagodimath, 2008). The reduction of fiscal deficits is normally included in the conditionality of SAPs and consequently government expenditures also have to be cut in order to meet the targets for reducing fiscal deficits. There are a number of studies which have pointed to the declining trend in social sector expenditures. UNICEF's *Adjustment with a Human Face* was the first major criticism of SAPs and it pointed out the negative impact of it on the vulnerable (Cornia et al., 1987).

In this paper the impact of economic reform on public expenditure on health has been considered. As mentioned before there are a handful of studies which have found a negative impact of economic reforms on health expenditure. At the same time the time period considered by these studies is found to be very limited. Further, these studies have mostly restricted to only revenue expenditure. And only a few look at expenditure by both the

Centre and States combined, as well as individual expenses incurred by each. This paper attempts at fulfilling this research gap.

The paper begins with an introduction to data and methodology. This is followed by detailed discussion on combined public health expenditure. This is done at four levels - centre and states combined, central government, all states and 15 major states.

2. Data and Methodology

The study is based on secondary sources of data. The data has been obtained from the budget documents, *Indian Public Finance Statistics* (Ministry of Finance, Government of India), *Reserve Bank of India Bulletin, National Human Development Report 2002* (Planning Commission, Government of India), *National Accounts Statistics* (Central Statistical Organisation) and the *Economic Survey* (Government of India). The analysis covers 15 major Indian states as they cover around 90 per cent of the Indian population. The states covered in the study are Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

Public Health expenditure includes expenditure on: a) medical and public health, water supply and sanitation; and b) family welfare. The time period considered for analysis of trends of public expenditure on health sector is from 1976-77 to 2005-06 - 15 years of pre-reform period (1976-77 to 1990-91) and 15 years of post-reform period (1991-92 to 2005-06). It must be noted that prior to 1975-76 within the budgetary classification the head 'health' had not been properly defined.

In order to negate the impact of price rise, the growth and composition of public health expenditure has been considered at constant prices with reference to 1999-00 as the base year. By using the GDP deflator method, the current expenditure items were converted into constant (1999-00) prices. The GDP deflator is the ratio of nominal GDP to real GDP. To get a value at constant prices we divide the value of current prices by GDP deflator, while in the case of individual states GSDP deflators have been used.

To analyse the pattern of public expenditure in health, the present study has included plan and non-plan expenditure of revenue and capital accounts,

while loans and advances have been excluded. The study does not analyse government programmes/schemes relating to health sector development. Also the allocation of central government expenditure to individual states has been excluded from the scope of this study. It also ignores intra-state disparities.

3. Analysis of Public Expenditure on Health

Before going into the analysis of trends and patterns of public health expenditure, a quick review of private and public expenditure in health sector across different states is in order. Table 1 shows the per capita public and private expenditure on health by Indian states during 2001-02. Per capita public health expenditure at the all India level was Rs. 207 while the private sector expenditure was Rs. 790. Thus public sector expenditure formed only 20 per cent of the total health expenditure. One can easily argue that private expenditure is very important. But the reality is more complex. People who are rich can afford to spend on health, although health expenditure has not been considered as luxurious expenditure. For the poor health spending is the tertiary expenditure after food and cloth.

Table 1 shows considerable inter-state disparity in health expenditure. Private expenditure has less disparity (CV 28.21 per cent) than that of public (CV 46.23 per cent). At the same time we can observe that there is no significant relationship between public and private expenditures. Kerala, Punjab, Haryana, Uttar Pradesh are the highest spending states in private as well as total health expenditure with them spending more than Rs. 1,100 per person per year. In the case of public expenditure Punjab, Kerala, Tamil Nadu and Karnataka are the highest spending states - more than Rs. 200 per person per year. Also public expenditure is observed to have a negative significant relationship with poverty (with the correlation coefficient being -0.673), whereas it is not so in the case of private expenditure. Thus, it is clear that public health expenditure is mainly for the poor and private health expenditure for the rich.

Table 1: Per Capita Public and Private Expenditure on Health in Indian States, 2001-02

States	Public	Private	Total	Public Exp. as % Total Exp.
Andhra Pradesh	182 (6)	858 (5)	1,039 (5)	17.5 (9)
Assam	176 (9)	393 (15)	569 (15)	30.9 (1)
Bihar	92 (14)	687 (8)	779 (10)	11.8 (13)
Gujarat	147 (11)	670 (9)	816 (9)	18 (8)
Haryana	163 (10)	1,408 (2)	1,570 (2)	10.4 (14)
Karnataka	206 (3)	506 (12)	712 (12)	28.9 (3)
Kerala	240 (2)	1,618 (1)	1,858 (1)	12.9 (12)
Madhya Pradesh	132 (13)	733 (7)	864 (7)	15.2 (11)
Maharashtra	196 (5)	815 (6)	1,011 (6)	19.4 (7)
Orissa	134 (12)	449 (13)	582 (14)	23 (6)
Punjab	258 (1)	1,273 (3)	1,530 (3)	16.8 (10)
Rajasthan	182 (7)	415 (14)	597 (13)	30.4 (2)
Tamil Nadu	202 (4)	644 (10)	846 (8)	23.9 (4)
Uttar Pradesh	84 (15)	1,040 (4)	1,124 (4)	7.5 (15)
West Bengal	181 (8)	593 (11)	775 (11)	23.4 (5)
All India #	207	790	997	20.8
CV (%)	28.21	46.23	39.91	37.74

Note: # All India public expenditure includes expenditure by the Ministry of Health and Family Welfare, Central Ministries and local bodies, while private expenditure includes health expenditure by NGOs, firms and households.

Source: Economic Survey of Delhi 2005-2006, http://delhiplanning.nic.in/Economic%20Survey/ES%202005-06/ES2005-06.htm.

India has a federal government and Indian constitution distributes different areas of administration in three lists, i.e., the State List, the Central List and the Concurrent List. Health falls under the state list. But the centre has a strong influence on state government's expenditure via its fiscal transfers. For example, family welfare is financed almost 100 per cent by fiscal transfers from the central government to the states, although it is in the Concurrent List. We will examine in the following section the combined shares of centre and states in public health expenditure.

3.1 Expenditure of Centre and States Combined

Table 2 presents the combined health expenditure of the centre and the states from 1976-77 to 2005-06. In absolute terms the expenditure increased significantly about 50 times from Rs. 978 crore to Rs. 47,220 crore. This impressive growth was offset by an escalation of prices along with a rapid growth in population. After converting these figures into constant prices of 1999-00, the increase is noted to be less than six times. This growth when viewed in per capita terms at 1999-00 prices, the picture does not look very impressive. In per capita terms, expenditure increased only three times. In sum, increase of public health expenditure has been only three times from 1976-77 to 2005-06 (over 30 years).

Measuring health expenditure as a share of total budgetary expenditure is one of the other ways to understand the commitment of budget to health sector. With respect to this, it is observed that the share under the head of health was less than four per cent until 1981-82. From 1982 onwards it increased and reached 4.68 per cent in 1984-85. Thereafter, the share has started declining with an exception of some years, like 1993-94, the year that recorded the second highest share (4.63 per cent) over the study period.

Measuring health expenditure as a share of GDP is also considered important in understanding the commitment of the government, especially, when making comparisons with other nations. Health expenditure as a percentage of GDP varied between 1.08 per cent and 1.83 per cent during the period under study. The share rose from 1.08 per cent in 1977-78 to 1.83 per cent in 1987-88, but declined subsequently. The share was 1.44 per cent in 2006-07.

Public expenditure on health in all three terms i.e., per capita term, as a share to total expenditure and percentage of GDP is less in India. In OECD counties public health expenditure as a share of GDP is more than 6 per cent. In France it is 10 per cent and in Germany it is more than 11 per cent (Lalitha and Guennif, 2007). It has also been observed that the share has shown a declining trend during the period of economic reforms. Growth rates of public health expenditure in the pre-reform period were high as compared that of the post-reform period as can be seen from Table 2.

Table 2: Combined (Centre and State Government) Expenditure on Health

Year	Expenditure (Rs. crore current prices)	Expenditure (Rs. crore constant prices)	Per Capita (Rs. constant prices)	% Share in Total Budget	% Share of GDP
1976-77	978	6579	102	3.84	1.18
1977-78	1024	6486	98	3.56	1.08
1978-79	1195	7430	109	3.47	1.18
1979-80	1420	7670	111	3.85	1.28
1980-81	1724	8351	118	3.79	1.30
1981-82	2087	9120	126	4.14	1.35
1982-83	2497	10053	136	4.19	1.44
1983-84	3034	11263	149	4.39	1.50
1984-85	3909	13434	174	4.68	1.72
1985-86	4486	14371	182	4.60	1.76
1986-87	5132	15381	191	4.47	1.81
1987-88	5876	16084	196	4.59	1.83
1988-89	6492	16403	196	4.44	1.69
1989-90	6990	16271	190	4.12	1.58
1990-91	8088	17016	195	4.12	1.57
1991-92	9056	16751	188	4.13	1.52
1992-93	10291	17486	192	4.25	1.51
1993-94	12794	19766	213	4.63	1.62
1994-95	13999	19701	208	4.34	1.51
1995-96	15426	19893	206	4.33	1.42
1996-97	17322	20725	211	4.29	1.37

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[Table 2 Contd...

Year	Expenditure (Rs. crore current prices)	Expenditure (Rs. crore constant prices)	Per Capita (Rs. constant prices)	% Share in Total Budget	% Share of GDP
1997-98	20138	22599	226	4.38	1.44
1998-99	24214	25148	247	4.44	1.50
1999-00	27306	27306	263	4.46	1.53
2000-01	29963	29018	275	4.45	1.56
2001-02	30869	29028	271	4.17	1.47
2002-03	35551	32200	295	4.15	1.57
2003-04	35209	30834	262	4.15	1.39
2004-05	42191	35017	291	4.17	1.47
2005-06	47220	37665	313	4.18	1.44
Pre-reform period	17.73	8.22	5.95	1.48	3.35
Post-reform period	12.23	5.89	3.63	0.27	-0.27
1976-77 to 2005-06	14.57	5.90	3.71	0.49	0.45

Note: Growth rates are based on continuous data.

Source: Budget documents, *Indian Public Finance Statistics* and *RBI Bulletin* (various issues).

3.2 Central Government Expenditure

As it is already mentioned health is a state subject in India, implying that the primary responsibility of financing and providing health care rests with the state governments. The central government's role has been to fund centrally sponsored schemes, to develop policies and guidelines and provide statutory grants or general transfers to the states (Bajpai and Goyal, 2005). With respect to this connection analysis of the role of central government on health spending before and after economic reform becomes imperative. There are a number of studies which have indicated a gradual increase in public spending by the central government (Prabhu, 1994; Dev and Mooij, 2002; Panchamukhi, 2002; Joshi, 2005).

Table 3 presents the growth of central government expenditure on health from 1976-77 to 2005-06. As we have seen above, the expenditure looks impressive in current prices, but not so in terms of constant prices. A point to be noted here is that in per capita constant prices the increase is around five times from Rs. 20 in 1976-77 to Rs. 97 in 2005-06, while it is only three times in combined (centre and state) expenditure. Moreover, the combined public expenditure on health in the reform period is less as compared to that of pre-reform period. In the case of central expenditure the growth rates are high overall in the reform period. The growth rate in per capita expenditure was 5.3 per cent per annum, which increased to 8.6 per cent per annum in the post-reform period. Health expenditure as a share of total expenditure and as a percentage of GDP has increased around two times in the study period from 1.41 per cent to 2.84 per cent and from 0.23 per cent to 0.45 per cent respectively from 1976-77 to 2005-06. This increase is mainly due to the implementation of many centrally sponsored health and development programmes like Rajiv Gandhi National Drinking Water Mission, National Rural Health Mission, Jawaharlal National Urban Renewal Mission (JNNURM) and others.

Table 3: Centre Government Expenditure on Health

Year	Total Expenditure (Rs. crore in current prices)	Total Expenditure (Rs. crore in constant prices)	Expenditure per Capita (Rs. in constant prices)	% Share of Total Expenditure	% Share of GDP
1976-77	192	1291	20	1.41	0.23
1977-78	194	1229	19	1.25	0.21
1978-79	187	1163	17	1.00	0.18
1979-80	197	1064	15	1.04	0.18
1980-81	238	1153	16	1.05	0.18
1981-82	290	1267	18	1.15	0.19
1982-83	386	1554	21	1.25	0.22
1983-84	447	1659	22	1.26	0.22
1984-85	611	2100	27	1.40	0.27
1985-86	685	2194	28	1.30	0.27
1986-87	754	2260	28	1.20	0.27
1987-88	887	2428	30	1.30	0.28

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[Table 3 Contd...

Year	Total Expenditure (Rs. crore in current prices)	Total Expenditure (Rs. crore in constant prices)	Expenditure per Capita (Rs. in constant prices)	% Share of Total Expenditure	% Share of GDP
1988-89	1062	2683	32	1.34	0.28
1989-90	1110	2584	30	1.19	0.25
1990-91	1271	2674	31	1.21	0.25
1991-92	1374	2542	28	1.23	0.23
1992-93	1630	2770	30	1.33	0.24
1993-94	2182	3371	36	1.54	0.28
1994-95	2490	3504	37	1.55	0.27
1995-96	2974	3835	40	1.67	0.27
1996-97	3084	3690	38	1.53	0.24
1997-98	3575	4012	40	1.54	0.26
1998-99	4477	4650	46	1.60	0.28
1999-00	6004	6004	58	2.01	0.34
2000-01	6303	6104	58	1.94	0.33
2001-02	8837	8310	77	2.44	0.42
2002-03	7736	7007	64	1.87	0.34
2003-04	9263	8112	69	1.97	0.36
2004-05	11891	9869	82	2.35	0.41
2005-06	14631	11670	97	2.84	0.45
Pre-reform period	17.03	7.58	5.32	0.65	2.73
Post-reform period	17.63	10.99	8.62	4.80	4.53
1976-77 to 2005-06	16.81	7.97	5.74	2.61	2.41

Source: Computed from the data available in budget documents, *Indian Public Finance Statistics* and *RBI Bulletin* (various years).

3.3 Expenditure of All States

From the above analysis it is observed that while the combined (Centre and States) expenditure on health decreased after economic reforms it was seen to be increased the central government. States posses the maximum share in health spending as they spend around 80 per cent of the total amount incurred. In comparison changes in the states' spending is found to affect a major proportion of population of the country. Table 4 depicts the public health expenditure of all states from 1976-77 to 2005-06. In the current prices public health expenditure increased around 42 times from Rs. 897 crore in 1976-77 to Rs. 37,523 crore in 2005-06. The picture is not very impressive even in terms of constant and per capita terms. In per capita constant terms it observed to be 3 times lower than the centre and combined expenditures. Furthermore in the post reform period, growth rates have been very low. The growth rates of GDP share are noted to have turned negative.

Table 4: Public Expenditure on Health of All States

Year	Total Expenditure (Rs. crore in current prices)	Total Expenditure (Rs. crore in constant prices)	Per Capita (Rs. constant prices)	% Share of Total Expenditure	% Share of GDP
1976-77	897	6031	93	7.57	1.08
1977-78	937	5937	89	7.07	0.99
1978-79	1104	6866	101	7.04	1.09
1979-80	1338	7226	104	7.46	1.21
1980-81	1608	7790	110	7.10	1.21
1981-82	1949	8518	118	7.74	1.26
1982-83	2329	9377	127	8.10	1.34
1983-84	2843	10555	140	8.48	1.40
1984-85	3181	10931	142	7.98	1.40
1985-86	3679	11785	150	8.20	1.45
1986-87	4259	12765	159	8.22	1.50
1987-88	4963	13586	165	8.29	1.54
1988-89	5480	13846	165	8.17	1.43
1989-90	5962	13878	162	7.77	1.35

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[Table 4 Contd...

Year	Total Expenditure (Rs. crore in current prices)	Total Expenditure (Rs. crore in constant prices)	Per Capita (Rs. constant prices)	% Share of Total Expenditure	% Share of GDP
1990-91	6815	14338	164	7.48	1.32
1991-92	7674	14195	159	7.11	1.29
1992-93	8569	14560	160	7.18	1.26
1993-94	10646	16447	177	7.91	1.34
1994-95	11586	16305	172	7.17	1.25
1995-96	12884	16614	172	7.26	1.19
1996-97	14522	17375	177	7.16	1.15
1997-98	16964	19037	190	7.44	1.21
1998-99	20221	21001	206	7.59	1.25
1999-00	22294	22294	215	7.10	1.25
2000-01	24672	23893	226	7.11	1.28
2001-02	24892	23408	218	6.60	1.19
2002-03	29030	26294	241	6.56	1.28
2003-04	28353	24830	211	6.59	1.12
2004-05	34291	28460	236	6.90	1.19
2005-06	37523	29930	248	7.06	1.15
Pre-reform period	16.62	7.20	4.95	0.78	2.37
Post-reform period	11.83	5.52	3.26	-0.68	-0.62
1976-77 to 2005-06	13.98	5.36	3.18	-0.43	-0.06

Source: Same as Table 3.

3.4 Expenditure of Major States

Now we turn to the discussion on the trends and patterns in public health expenditure of 15 major states. It needs to be noted that during the 30 years that the analysis covers many states were restructured and new states were created (for example, Chhattisgarh was carved out from Madhya Pradesh, Uttaranchal from Uttar Pradesh, Jharkhand from Bihar).

The trends and patterns of public expenditure on health is examined in terms of per capita (both current and constant terms), as a share of total expenditure and also as a share of NSDP. In the study period public health expenditure as a share of total budget in all states was estimated to be around seven per cent. It constituted around 25 per cent of the social services expenditures. Health expenditure has been the most important component following education, which constituted 55 per cent of the social services expenditure. Average per capita public expenditure on health in the major 15 states increased from Rs. 114 in 1976-77 to Rs. 285 in 2005-06. The increase was not uniform across all states. The coefficient of variation was 30.75 per cent in 1976-77 which hovered between 25 per cent and 35 per cent during the study period and reached 35.49 per cent in 2005-06. While studying the averages from pre (1975-76 to 1990-91) to post-reform (1991-92 to 2005-06) periods an increase from 27.64 per cent to 31.91 per cent has been observed. The states that spent the least in order of position are Bihar, Orissa, Uttar Pradesh and West Bengal. Kerala, Haryana, Rajasthan and Punjab were the highest spending states in most of the years. Assam was ranked 3 with regard to health expenditure in 1976-77 which further moved to the 2nd rank during 1987-88. But it failed to maintain the pace and fell to the 10th rank in 2004-05. Gujarat's rank has been between 6 and 9, with an interesting exception of 1st position in 1999-00 and 2000-01 (Table 5).

Table 6 presents the changes in health expenditure in both pre- and post-reforms periods in per capita constant terms, as a share of total expenditure and as a percentage to NSDP as well as growth rates. Average per capita expenditure of all states increased by 1.2 times (in Assam) to 1.9 times (in Karnataka). As for the growth rates of per capita health expenditure, seven out of the 15 states showed an increase during the reform period. Significant growth rates can be observed in Andhra Pradesh, Haryana, Kerala and West Bengal during this period. While looking at health expenditure as a share of

NSDP, we observe that the average health spending of seven out of 15 states is high in the post reform period. It is also noted that the growth rates have fallen in all states during the same time period. Moreover, with an exception of Haryana, Maharashtra, Punjab and Rajasthan the remaining 11 states experienced a negative growth rate in this respect.

Only four out of the 15 states show an increased share of public health expenditure in total expenditure. Gujarat and Haryana are the only two states that improved their growth rates. Notably no state experienced a positive growth rate. In total, eight states have recorded a negative impact on their health spending as a share of total expenditure during the reform period.

A simple comparison across states in terms of their base level per capita expenditure on health and growth rates in the subsequent period would give a clear indication of the nature of disparities and helps in grouping the states as well. Table 7 contains information on cross-comparison of states. While there has been no change in the absolute number of states with higher than the mean level of per capita expenditure on social services or higher than its the mean growth, the relative positions have changed over-time. Punjab, Gujarat, Maharashtra and Rajasthan have performed consistently by having a higher than average mean rate of growth. On the other hand, Orissa and Bihar have continued to remain in the lower rungs of health sector spending. In the pre reform period, Kerala and Haryana recorded lower rates of growth despite having higher than mean per capita expenditure on health. In the post reform period they joined the group of high growth rate and high per capita expenditure. Andhra Pradesh and West Bengal improved their position from low expenditure and low growth rate in pre-reform period to low expenditure and high growth rate in the post-reform period. Assam, Madhya Pradesh and Uttar Pradesh have not shown high growth rate in the post-reform period, hence moved to the low expenditure and low growth rate group. Karnataka moved from high growth rate and low expenditure group to high expenditure and high growth rate group during the same period.

Table 5: Per Capita Public Health Expenditure of 15 Major States - 1976-77 to 2005-06

(Amount in Rs. at 1999-00 prices)

Year	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1989-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91
Andhra Pradesh	118	107	117	110	116	120	128	149	144	161	154	177	170	163	150
	(7)	(8)	(7)	(7)	(7)	(8)	(10)	(7)	(9)	(8)	(10)	(8)	(9)	(9)	(9)
Assam	132	117	122	109	135	129	141	102	194	191	220	235	232	206	225
	(3)	(5)	(5)	(8)	(5)	(7)	(7)	(12)	(3)	(5)	(3)	(2)	(2)	(4)	(4)
Bihar	59	55	65	62	70	69	71	76	76	92	106	87	90	87	105
	(14)	(14)	(14)	(15)	(14)	(14)	(15)	(15)	(15)	(14)	(14)	(15)	(15)	(15)	(15)
Gujarat	112	113	122	120	113	120	129	139	158	158	189	192	174	177	159
	(8)	(6)	(6)	(6)	(8)	(9)	(8)	(8)	(8)	(9)	(7)	(7)	(7)	(8)	(8)
Haryana	124	135	138	135	148	169	177	202	237	238	208	214	205	186	183
	(6)	(3)	(3)	(4)	(4)	(2)	(2)	(2)	(1)	(1)	(5)	(4)	(5)	(7)	(7)
Karnataka	105	90	95	90	87	99	112	100	121	150	159	162	152	151	139
	(11)	(12)	(12)	(13)	(13)	(13)	(12)	(13)	(11)	(10)	(9)	(10)	(12)	(10)	(11)
Kerala	199	172	113	173	174	192	173	198	189	187	195	195	215	216	231
	(1)	(1)	(9)	(1)	(1)	(1)	(3)	(3)	(5)	(6)	(6)	(5)	(4)	(3)	(2)
Madhya Pradesh	92	77	77	95	105	109	115	122	121	141	142	155	166	133	128
	(13)	(13)	(13)	(12)	(12)	(11)	(11)	(10)	(12)	(11)	(12)	(11)	(10)	(12)	(14)
Maharash-tra	111	105	126	135	119	144	165	181	184	214	216	193	187	187	184
	(9)	(9)	(4)	(5)	(6)	(5)	(4)	(6)	(6)	(4)	(4)	(6)	(6)	(6)	(6)
Orissa	100	97	106	106	112	113	128	139	134	133	143	154	158	148	136
	(12)	(11)	(10)	(9)	(9)	(10)	(9)	(9)	(10)	(12)	(11)	(12)	(11)	(11)	(13)
Punjab	147	155	160	154	158	163	157	189	192	224	225	229	230	256	230
	(2)	(2)	(1)	(2)	(2)	(4)	(6)	(5)	(4)	(2)	(2)	(3)	(3)	(1)	(3)
Rajasthan	127	128	140	137	151	165	195	196	220	218	238	240	266	252	246
	(5)	(4)	(2)	(3)	(3)	(3)	(1)	(4)	(2)	(3)	(1)	(1)	(1)	(2)	(1)
Tamil Nadu	131	107	113	100	110	143	161	206	165	172	162	171	170	203	207
	(4)	(7)	(8)	(10)	(10)	(6)	(5)	(1)	(7)	(7)	(8)	(9)	(8)	(5)	(5)
Uttar Pradesh	50	54	60	64	62	68	84	96	102	79	102	111	121	123	137
	(15)	(15)	(15)	(14)	(15)	(15)	(14)	(14)	(14)	(15)	(15)	(14)	(14)	(14)	(12)
West Bengal	107	97	99	99	107	106	109	114	107	114	120	114	132	127	148
	(10)	(10)	(11)	(11)	(11)	(12)	(13)	(11)	(13)	(13)	(13)	(13)	(13)	(13)	(10)
CV(%)	30.7	30.3	25.1	27.1	26.7	28.2	25.8	30.4	29.7	29.2	25.9	26.4	26.1	27.5	25.6
Averages	CV(%) Pre Reform Period - 27.6														

Year	1991-92	1992-93	1999-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Andhra Pradesh	146	151	159	174	153	180	191	241	207	221	224	244	228	258	263
	(10)	(11)	(11)	(9)	(10)	(9)	(9)	(6)	(9)	(10)	(8)	(8)	(9)	(8)	(10)
Assam	233	187	191	183	186	178	182	156	175	203	188	223	177	222	272
	(2)	(6)	(6)	(7)	(6)	(10)	(10)	(13)	(12)	(12)	(11)	(10)	(11)	(10)	(9)
Bihar	118	102	99	105	117	81	80	85	126	163	107	114	105	112	107
	(14)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(14)	(14)	(14)	(15)	(15)	(15)	(15)
Gujarat	157	174	168	195	167	180	222	299	338	389	198	256	248	292	286
	(8)	(8)	(8)	(5)	(9)	(8)	(6)	(3)	(1)	(1)	(10)	(6)	(7)	(7)	(7)
Haryana	187	221	198	315	231	306	285	320	329	307	343	378	397	365	422
	(6)	(3)	(5)	(1)	(2)	(2)	(2)	(2)	(3)	(3)	(2)	(3)	(2)	(4)	(2)
Karnataka	145	163	165	183	184	183	223	251	292	267	271	255	237	251	284
	(11)	(9)	(9)	(8)	(7)	(7)	(5)	(5)	(4)	(6)	(5)	(7)	(8)	(9)	(8)
Kerala	196	188	221	227	223	214	231	237	279	261	266	271	293	373	368
	(5)	(5)	(3)	(4)	(3)	(5)	(4)	(8)	(6)	(7)	(6)	(5)	(4)	(3)	(4)
Madhya Pradesh	128	132	142	147	137	147	148	169	174	206	168	188	160	187	189
	(12)	(12)	(12)	(12)	(12)	(12)	(14)	(12)	(13)	(11)	(13)	(13)	(13)	(13)	(13)
Maharash-tra	169	177	173	166	175	191	220	218	224	247	237	239	260	297	315
	(7)	(7)	(7)	(10)	(8)	(6)	(7)	(9)	(8)	(8)	(7)	(9)	(6)	(6)	(6)
Orissa	154	154	160	152	144	151	159	193	189	185	187	213	173	215	228
	(9)	(10)	(10)	(11)	(11)	(11)	(11)	(10)	(11)	(13)	(12)	(12)	(12)	(11)	(11)
Punjab	232	237	209	194	208	223	240	284	279	304	303	389	310	395	375
	(3)	(2)	(4)	(6)	(5)	(4)	(3)	(4)	(5)	(4)	(3)	(2)	(3)	(2)	(3)
Rajasthan	246	266	275	307	329	312	358	389	336	355	392	396	401	435	480
	(1)	(1)	(1)	(2)	(1)	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(1)	(1)
Tamil Nadu	212	213	240	231	215	225	215	238	248	291	287	293	266	308	324
	(4)	(4)	(2)	(3)	(4)	(3)	(8)	(7)	(7)	(5)	(4)	(4)	(5)	(5)	(5)
Uttar Pradesh	113	115	129	112	117	126	157	115	103	104	104	120	128	145	148
	(15)	(14)	(14)	(14)	(14)	(14)	(12)	(14)	(15)	(15)	(15)	(14)	(14)	(14)	(14)
West Bengal	119	121	137	136	135	147	148	189	207	234	219	216	188	194	213
	(13)	(13)	(13)	(13)	(13)	(13)	(13)	(11)	(10)	(9)	(9)	(11)	(10)	(12)	(12)
CV(%)	26.3	27.0	25.7	32.6	30.4	32.4	32.0	35.2	31.8	29.8	34.4	33.7	36.8	34.9	35.5
Averages	CV(%) Pre Reform Period - 31.9														

Note: Figures in brackets are ranks.

Source: Computed from *RBI Bulletin* and *National Accounts Statistics* (various years).

Table 6: Average Public Expenditure on Health in terms of Real Per Capita, as a Percentage of NSDP, as a Share of Total Expenditure and Social Services

States	Per capita public Expenditure on Health at 1999-00 prices						Public Expenditure on Health As a percentage to NSDP						Public Expenditure on Health as a share of Total Expenditure					
	Averages (Rs.)			Growth Rates			Averages (%)			Growth Rates			Averages (%)			Growth Rates		
	Pre Reform	Post Reform	Total	Pre Reform	Post Reform	Total	Pre Reform	Post Reform	Total	Pre Reform	Post Reform	Total	Pre Reform	Post Reform	Total	Pre Reform	Post Reform	Total
Andhra Pradesh	138.8	202.7	170.8	3.46	4.42	2.87	1.55	1.32	1.43	1.66	-0.13	-0.60	7.48	6.46	6.97	-0.01	-0.78	-0.83
Assam	166.0	196.9	181.5	5.88	0.99	1.87	1.41	1.54	1.47	3.64	-0.43	1.15	7.55	7.11	7.33	2.24	-1.44	-0.15
Bihar	78.1	108.2	93.1	4.24	0.72	2.28	1.87	2.18	2.02	3.85	-3.50	0.77	6.69	6.90	6.80	0.21	-2.25	-0.12
Gujarat	144.9	238.1	191.5	4.04	4.68	3.51	1.36	1.28	1.32	2.74	-0.23	-0.04	7.11	6.16	6.63	-0.53	-0.13	-0.84
Haryana	180.0	307.0	243.5	3.83	5.21	3.81	1.15	1.25	1.20	3.36	0.61	1.05	6.60	6.88	6.74	-0.22	2.79	0.50
Karnataka	120.7	223.5	172.1	4.55	4.60	4.30	1.38	1.43	1.41	3.19	-0.44	0.59	6.49	6.79	6.64	0.80	-0.95	0.19
Kerala	188.2	256.5	222.3	2.34	4.28	2.35	1.73	1.40	1.56	2.43	-0.38	-0.75	9.03	7.00	8.01	-0.24	-0.73	-1.35
Madhya Pradesh	118.5	161.5	140.0	4.71	2.85	2.58	1.96	1.81	1.88	4.74	-2.01	0.04	8.27	7.28	7.77	1.64	-1.85	-0.66
Maharashtra	163.3	220.6	192.0	4.80	4.52	2.70	1.30	0.98	1.14	4.00	0.08	-0.77	7.25	5.91	6.58	0.74	-0.28	-0.95
Orissa	127.2	177.1	152.1	3.37	2.85	2.46	1.52	1.69	1.60	3.71	-0.48	1.03	7.57	6.85	7.21	0.11	-0.67	-0.55
Punjab	191.2	279.0	235.1	4.17	4.79	2.98	1.08	1.10	1.09	3.13	2.01	0.75	6.15	5.42	5.79	0.38	0.35	-0.55
Rajasthan	194.5	351.7	273.1	5.94	4.10	4.35	2.41	2.70	2.56	4.07	0.79	1.28	11.45	11.73	11.59	2.05	-0.11	0.40
Tamil Nadu	154.8	253.9	204.3	4.66	2.96	3.55	1.53	1.41	1.47	3.26	-1.24	-0.08	8.19	7.42	7.81	0.33	-0.54	-0.51
Uttar Pradesh	87.4	122.3	104.9	7.27	0.83	2.90	1.17	1.31	1.24	6.71	-0.31	1.51	6.71	5.97	6.34	2.38	-0.98	-0.41
West Bengal	113.4	173.5	143.5	2.30	4.77	2.94	1.24	1.15	1.20	1.12	-0.08	-0.25	8.74	7.07	7.90	-0.73	-1.35	-1.32
All India	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.78	7.12	7.45	0.78	-0.68	-0.43
CV (%)	27.6	31.9	29.8	85.78	157.4	129.4	23.6	29.7	25.9	37.8	-324.2	204.7	17.4	20.4	18.2	166.4	-195.4	-117.6

Source: Same as Table 5.

Table 7: Mean Growth in Per Capita Health Expenditure during Pre- and Post-Reform Periods - Comparison of States

<table>
<tr><td colspan="2" rowspan="2">Description</td><td colspan="2">States with Higher and lower than mean growth in per capita expenditure on Health in pre reform period</td></tr>
<tr><td>High (9)</td><td>Low (6)</td></tr>
<tr><td rowspan="2">States with Higher and Lower than Average in per capita Health expenditure in Pre Reform Period (Average 1976-77 to 1990-91)</td><td>High (8)</td><td>Punjab,
Rajasthan,
Maharashtra,
Assam,
Gujarat,
Tamil Nadu</td><td>Kerala,
Haryana</td></tr>
<tr><td>Low (7)</td><td>Karnataka,
Madhya Pradesh,
Uttar Pradesh</td><td>West Bengal,
Bihar,
Orissa,
Andhra Pradesh</td></tr>
<tr><td rowspan="2"></td><td rowspan="2"></td><td colspan="2">States with higher and lower than mean growth in Per capita expenditure on Health in post reform period</td></tr>
<tr><td>High (9)</td><td>Low (6)</td></tr>
<tr><td rowspan="2">States with Higher and Lower than Average in per capita Health expenditure in Post Reform Period (Average 1991-92 to 2005-06)</td><td>High (8)</td><td>Rajasthan,
Haryana,
Punjab,
Kerala,
Gujarat,
Maharashtra,
Karnataka</td><td>Tamil Nadu</td></tr>
<tr><td>Low (7)</td><td>Andhra Pradesh,
West Bengal</td><td>Assam,
Orissa,
Madhya Pradesh,
Uttar Pradesh,
Bihar</td></tr>
</table>

4. Summary and Conclusions

It is a well known fact that improved education and health positively affects the economic growth of a country. Although private expenditure is 80 per cent of the total health expenditure, government spending is necessary in a developing country like India due to the widespread poverty within the country. Especially in the rural areas, which account for 72 per cent of the total population in the country, expenditure on health is a tertiary expenditure. Rural population are largely affected by the cutting down of the health services. India accepted the 'Structural Adjustment Programme' as part of its new economic reforms. This

suggests that fewer government interventions would take place in the economy including basic social services. In this paper an attempt has been made to analyse the trends and patterns of public health expenditure before and during the economic reform period.

Public health expenditure of combined centre and states increased impressively in current prices, i.e., about 50 times from Rs. 978 crore in 1976-77 to Rs. 47,220 crore in 2005-06. The impact of this impressive growth has been vastly negated by the escalating prices and rapid growth in population. Per capita expenditure in constant terms (1999-00 prices) increased by only 3 times. As compared to the 1980s public health expenditure as a share of the total budget and as a percentage to GDP is less in the 1990s and 2000s. Moreover, growth rate is also less in the post-reform period. On the other hand, the centre has increased its spending in the post-reforms period, which is not only limited in per capita terms, but also as a share of total expenditure and percentage of GDP. In the case of all States, economic reforms have negatively affected the spending as a share of total expenditure and as a percentage of GDP as evident form their decline after reforms. Further, the growth rate has also lowered. The analysis of the 15 major states reveals increased inter-state disparity with the economic reforms having affected the health sector of different states differently in most of the selected years. Bihar, Orissa, Uttar Pradesh and West Bengal are the lowest spending states, while Kerala, Haryana, Rajasthan and Punjab are the highest spending states. In the case of growth rates of per capita health expenditure, seven out of the 15 states show an increase in the reform period. Significant growth rate can be observed in Andhra Pradesh, Haryana, Kerala and West Bengal during the reform period. This indicates that more than 50 per cent of the selected states were affected negatively by the economic reforms. The health expenditure as a share of total budget is noted to be lower in 11 out of the 15 states compared to the expenditure during the 1980s.

In conclusion, one can observe that public health expenditure has decreased in India after the introduction of economic reforms. The low ranking of India in the Human Development Index indicates the urgent need to improve education and health condition of the people. Huge investment is necessary in order to undertake this task. In case of education the central

government's ambitious scheme - *Sarvashikasha Abhiyan* – aimed to attain universalisation of primary education by 2007 and the universalisation of elementary education by 2010. Three donors have assured USD 1 billion of the estimated total expenditure of USD 3.5 billion for the programme. Similarly, as suggested by Bajpai and Goyal a "Health for All" programme (*Sarva Swasthya Abhiyan*) is to be launched in India to improve the health of the masses. Mere increase of investments by the government is not sufficient. The efficient use of these funds is also important. Simultaneously, private and public partnership also should be encouraged and appreciated. Last but not the least, awareness improvement of the people is of great importance.

Appendix Table 1: Growth of Population in India by State – 1976/77 to 2005/06

(Figures in Lakh)

States	Andhra Pradesh	Assam	Bihar	Gujarat	Haryana	Karnataka	Kerala	Madhya Pradesh	Maharashtra	Orissa	Punjab	Rajasthan	Tamil Nadu	Uttar Pradesh	West Bengal
1976-77	487	173	633	305	116	333	238	474	565	243	152	302	460	995	498
1977-78	498	179	647	314	119	341	242	485	578	247	155	310	463	1019	509
1978-79	509	184	661	322	122	350	246	496	590	252	158	319	470	1043	519
1979-80	520	190	677	330	125	358	248	508	604	258	162	328	476	1069	530
1980-81	531	179	692	338	128	368	254	517	623	262	166	338	482	1097	541
1981-82	542	183	708	345	131	376	257	529	636	266	169	348	488	1124	553
1982-83	554	186	724	353	134	385	260	541	650	271	173	358	496	1151	564
1983-84	566	190	740	361	138	393	264	554	664	276	176	368	505	1178	576
1984-85	579	194	756	368	141	401	268	567	678	281	179	378	514	1206	589
1985-86	591	198	772	376	145	410	271	580	692	286	182	388	522	1234	602
1986-87	604	202	789	383	148	418	275	594	712	291	186	398	531	1263	615
1987-88	618	207	806	390	152	425	281	608	728	297	189	409	538	1292	629
1988-89	631	212	822	397	155	433	284	623	745	302	193	417	540	1321	614
1989-90	645	217	839	404	159	440	287	639	763	308	197	427	548	1350	659
1990-91	659	222	857	410	163	447	290	655	782	314	201	436	555	1379	674
1991-92	672	227	875	418	167	454	294	670	798	320	205	446	562	1406	688
1992-93	684	232	895	425	171	461	298	684	814	326	209	456	568	1431	700
1993-94	694	236	914	434	175	472	300	699	835	331	213	469	577	1405	716
1994-95	705	240	924	443	179	481	304	710	853	336	217	480	583	1439	730
1995-96	717	245	932	452	184	490	308	729	871	342	221	492	590	1474	743
1996-97	726	250	941	459	188	498	312	747	889	347	225	505	596	1505	755
1997-98	734	254	952	466	191	505	315	763	907	350	230	518	602	1534	767
1998-99	743	257	970	473	194	512	319	799	925	354	234	531	608	1567	778
1999-00	751	261	996	480	197	518	321	795	943	357	239	544	614	1602	789
2000-01	760	264	819	487	200	525	324	612	961	360	243	559	619	1640	799
2001-02	764	265	843	490	201	527	325	623	921	362	238	545	623	1743	800
2002-03	772	268	860	496	204	533	328	638	928	364	240	554	627	1783	810
2003-04	780	271	878	503	207	540	330	654	938	367	242	564	632	1823	820
2004-05	789	275	893	511	210	547	334	669	948	371	245	575	638	1863	831
2005-06	798	280	910	518	214	547	337	674	960	375	249	585	644	1902	842

Source: National Accounts Statistics (various years).

Appendix Table 2: Growth of NSDP in Major Indian States – 1976/77 to 2005/06

(Amount in Rs. Crore at 1999-00 Prices)

States	Andhra Pradesh	Assam	Bihar	Gujarat	Haryana	Karnataka	Kerala	Madhya Pradesh	Maharashtra	Orissa	Punjab	Rajasthan	Tamil Nadu	Uttar Pradesh	West Bengal
1976-77	43894	20486	30763	35442	22353	31414	28763	33156	82146	24079	29535	26692	47891	85473	45768
1977-78	43134	19583	30481	35982	21042	30668	28064	31743	79103	25606	28693	26155	50628	79279	45768
1978-79	41403	18763	27787	30187	20604	28631	29251	30184	74430	21302	28187	21302	48029	76285	45768
1979-80	42695	18669	25408	30205	19831	26646	27544	31722	73486	22367	26153	22951	42473	75094	45768
1980-81	40153	17515	24869	31058	16814	27794	26573	29176	68122	20053	24290	23044	40854	72262	45768
1981-82	46655	19496	26259	34146	17441	29634	26240	29920	69721	20018	26599	25010	45342	73995	44532
1982-83	47477	20396	26502	33634	18528	30356	26893	31252	72403	18824	27380	25523	42891	79776	46292
1983-84	49462	21288	29072	40090	18922	32515	25802	32866	76950	22627	27871	31337	45212	82907	51793
1984-85	47965	21394	31794	40067	19659	34937	27401	31273	77938	21550	30039	29087	51127	84222	53167
1985-86	51002	22804	32483	38966	23186	33495	28402	34002	84075	24037	32343	28969	53153	87523	55390
1986-87	49615	22785	35057	41366	23203	36639	27755	32492	85221	24369	33473	31751	52694	91313	57589
1987-88	56326	23147	33118	36760	22792	39215	28958	36931	90967	23612	35215	29550	55994	95439	60680
1988-89	65947	23323	37301	51580	28343	42598	31863	39640	100464	28580	37082	41759	60749	107883	63275
1989-90	71194	25045	36682	50669	28715	45001	34004	40464	117038	30484	40210	40905	64909	110885	65522
1990-91	74450	26112	40160	51419	31715	45329	36576	46214	122307	25306	40975	47322	70314	117481	68971
1991-92	78628	27263	37889	47173	32370	51090	37292	42881	121926	28521	42831	43692	72193	117960	74371
1992-93	76506	27537	35644	62353	32358	52274	39982	46027	140363	28038	44851	50243	75917	119229	76585
1993-94	85212	28612	36506	60441	33817	56169	44118	50928	155840	29843	46811	46149	82540	122184	82152
1994-95	90011	29289	40692	72575	36277	59108	47922	51817	158866	31298	47984	54577	92609	128557	87860
1995-96	95598	29988	34401	74741	37007	62232	49844	54926	176393	32727	49756	56585	95674	132710	94429
1996-97	102203	30714	43162	86136	41368	67948	51840	58612	183351	30469	53421	63198	99598	147439	100990
1997-98	99508	31217	41116	86128	41727	72170	52963	61679	193469	34853	54866	70885	108398	145870	109457
1998-99	112235	30941	43707	92197	43952	81957	56609	65752	201170	35923	58024	73988	112686	146945	116440
1999-00	116966	32011	45917	92541	47123	85879	60643	72655	220304	38200	61094	74174	119367	156331	124808
2000-01	126402	32821	53504	86431	50891	91414	62523	66750	213020	37395	63182	71764	125917	159668	129216
2001-02	132108	33668	50393	93455	54863	93593	65594	71525	221527	39678	64000	79936	123546	162577	138636
2002-03	135881	35708	56765	101603	58135	98130	70211	67795	237884	39658	65360	70333	124306	167761	143494
2003-04	149067	37905	53654	118525	63441	101137	74739	75400	255095	45319	68842	92712	132058	176348	151200
2004-05	157975	39777	60032	127828	69260	112395	80091	78101	277339	51086	72446	89500	147093	182870	160875
2005-06	171462	42150	59597	145036	75722	121107	85759	81006	302952	54167	76491	90625	157842	192876	173800

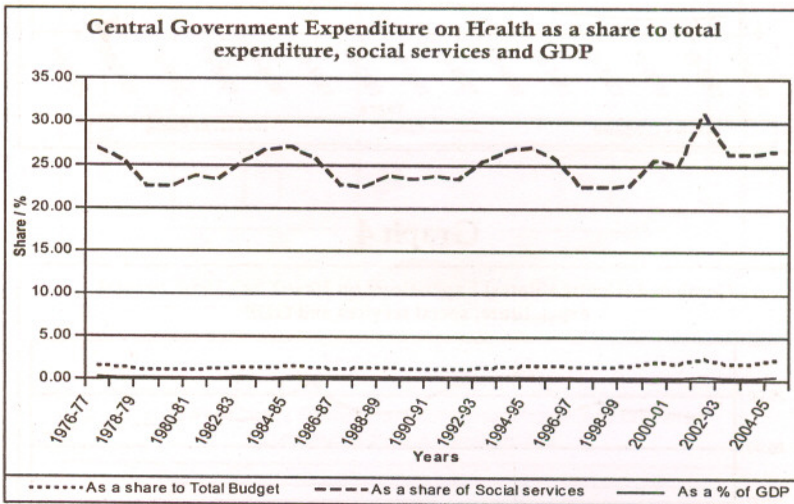
Source: Same as Appendix Table 1.

Appendix Table 3: Correlation of Per Capita Health Expenditure with Per Capita NSDP, Poverty and HDI

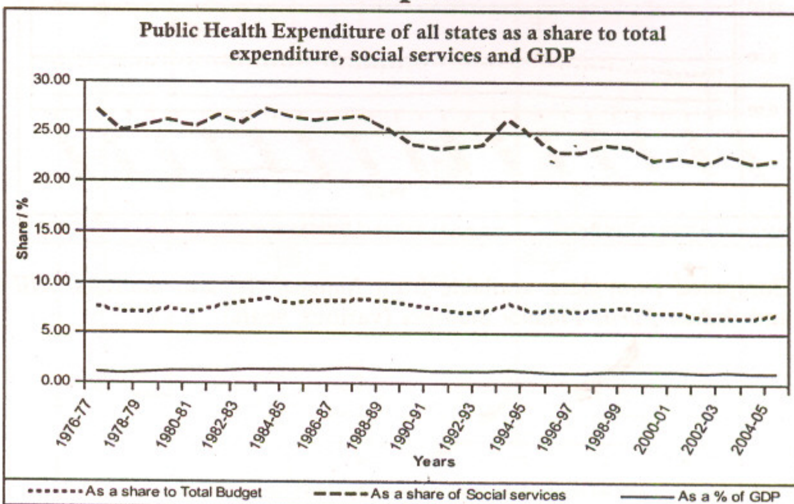
Items	Poverty	Per Capita NSDP	HDI
Per capita Public health Expenditure	-0.673 (0.01)	0.759 (0.00)	0.774 (0.00)
Per capita Private health Expenditure	-0.550 (0.03)	0.565 (0.03)	0.634 (0.01)

Note: Figures in brackets are significant levels (2-tailed).

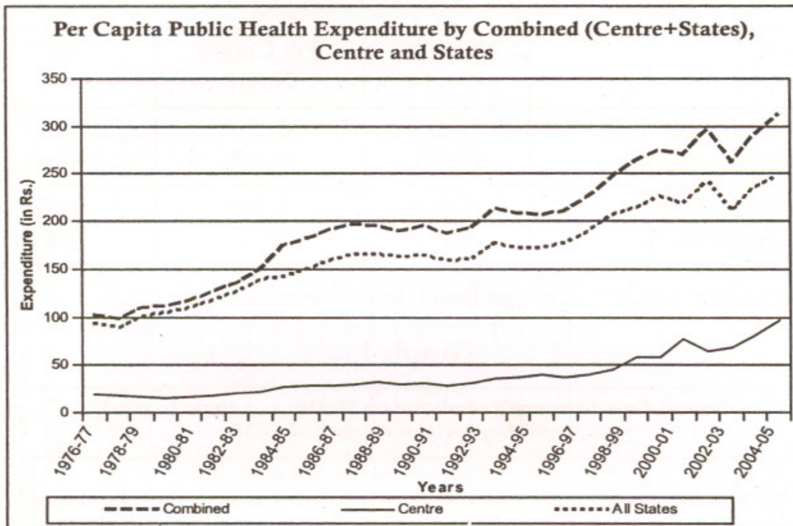
Graph 1



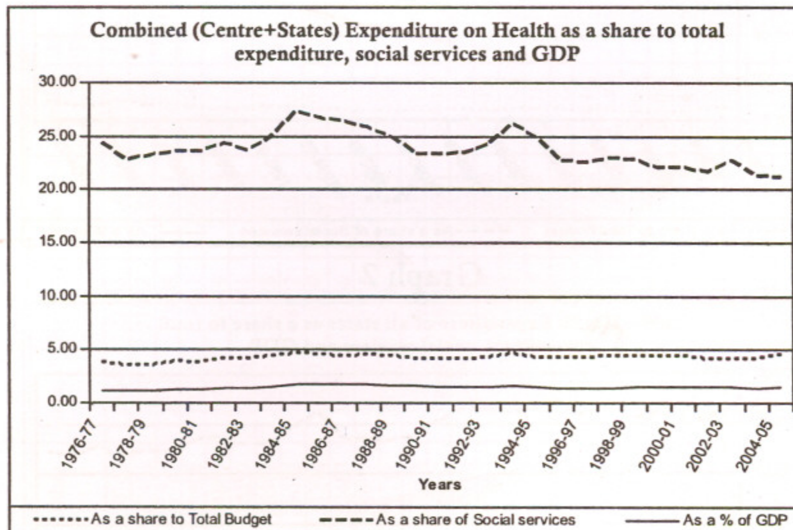
Graph 2



Graph 3

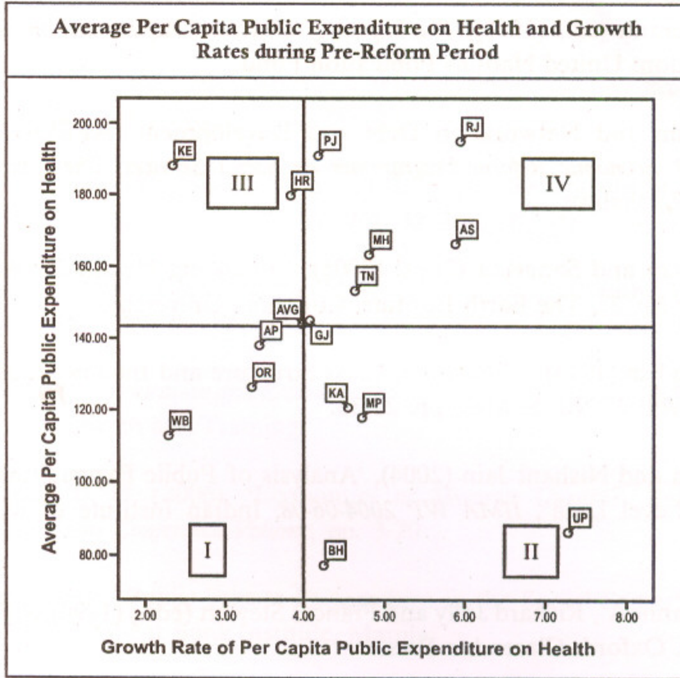


Graph 4

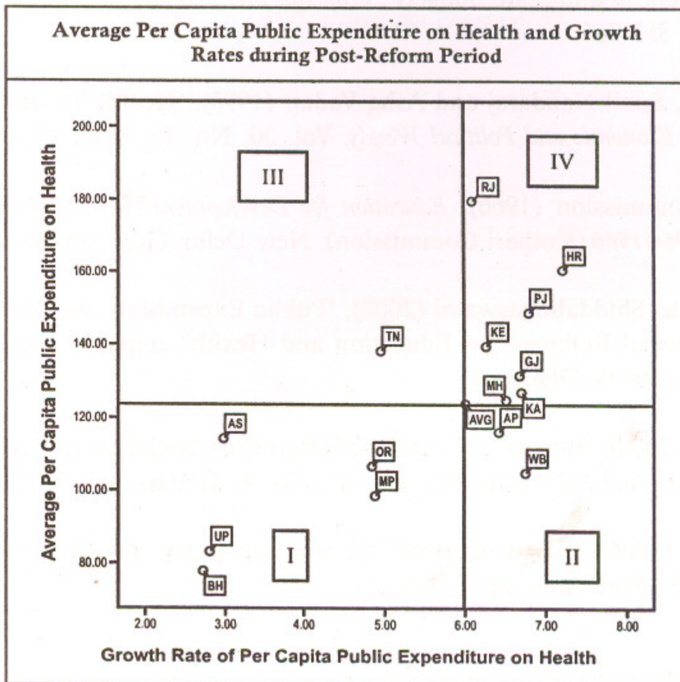


Source: Computed from data available from *National Accounts Statistics*, *RBI Bulletin*, and *Indian Public Finance Statistics* (various years).

Graph 5



Graph 6



References

Adepoju, Aderanti (ed.) (1993), *The Impact of Structural Adjustment on the Population of Africa*. London: United Nations Population Fund.

African Forum and Network on Debt and Development (AFRODAD) (2007), *The Impact of Economic Reform Programmes on Social Services: The Case of Malawi*, AFRODAD, Zimbabwe.

Bajpai Nirupam and Sangeeta Goyal (2005), 'Financing Health for All in India', *Working Paper No. 25*, The Earth Institute, Columbia University.

Bhagwati, Jagdish (1973), 'Education, Class Structure and Income Equality', *World Development*, Vol. 1, No. 5, May, pp. 21-36.

Bhat, Ramesh and Nishant Jain (2004), 'Analysis of Public Expenditure on Health Using State Level Data', *IIMA WP 2004-06-08,* Indian Institute of Management, Ahmedabad.

Cornia, Giovanni A., Richard Jolly and Frances Stewart (eds.) (1990), *Adjustment with a Human Face*. Oxford: Clarendon Press.

Dev S., Mahendra and Jos Mooij (2002), 'Social Sector Expenditures in the 1990s: Analysis of Central and State Budgets', *Economic and Political Weekly,* Vol. 37, No. 9, March 2, pp. 853-866.

Duggal, Ravi, Sunil Nandaraj and Asha Vadair (1995), 'Health Expenditure across States Part-I, *Economic and Political Weekly,* Vol. 30, No. 15, April 15, pp. 834-844.

Education Commission (1966), *Education for Development: Report of the Education Commission 1964-1966* (Kothari Commission). New Delhi: Government of India.

Hanagodimath, Shiddalingaswami (2008), 'Public Expenditure on Social Sector in India with Special Reference to Education and Health', unpublished PhD Thesis, Karnataka University, Dharwad.

Joshi, Seema (2006), 'Impact of Economic Reforms on Social Sector Expenditure in India', *Economic and Political Weekly,* Vol. 41, No. 4, January, pp. 358-365.

Kothari, V.N. (1966), 'Factor Cost of Education in India', *Indian Economic Journal* Vol. 13, No. 5, April-June, pp. 631-46.

Lalitha N and Samira Guennif (2007), 'A Status Paper on the Pharmaceutical Industry in France', *Working Paper No. 180,* Gujarat Institute of Development Research, Ahmedabad.

Panchamukhi, P.R. (1965), 'Educational Capital in India', *Indian Economic Journal* Vol. 12, No. 3, January – March, pp. 306-314.

Panchamukhi, P.R. (2000), 'Social Impact of Economic Reforms in India: A Critical Appraisal', *Economic and Political Weekly,* Vol. 35, No. 10, March 4, pp. 836-847.

Prabhu, K. Seeta (1994), 'The Budget and Structural Adjustment with a Human Face', *Economic and Political Weekly,* Vol. 29, No. 16-17, March 4, pp. 1011-1028.

Rao, V.K.R.V. (1964), *Education and Economic Development.* New Delhi: National Council of Educational Research and Training.

Tilak, Jandhyala B. G. (2006), 'Economics of Human Capital', *Indian Economic Association 89 Annual Conference Volume,* pp. 3-20.

Yidan, Wang (2000), 'Public-Private Partnerships in the Social Sector', *Policy Paper No. 1,* Asian Development Bank Institute, Manila.

Yuko, Tsujita (2005), 'Economic Reform and Social Sector Expenditure: A Study of Fifteen Indian States 1980/81 -1999/2000', Institute of Developing Economies, Japan External Trade Organization (JETRO), *Discussion Paper no. 31.*

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