Resource Devolution from the Centre to States: Enhancing the Revenue Capacity of States for Implementation of Essential Health Interventions

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Providing access to adequate health care services is an important component of empowering people with human capital. This, however, can be achieved only when the spending on health care is adequate and delivery systems efficient. Ensuring adequate outlay on health services and efficient use of allotted expenditure are important not only to improve the productivity and earning capacity of the population, particularly the poor, but also their health status. Not surprisingly, improving health indicators is an important component of the Millennium Development Goals (MDGs) set by the United Nations. There are also important targets on health status achievements set for the Tenth Plan. The Common Minimum Programme of the ruling UPA government also seeks to increase the public expenditure by the Centre and States on health and family welfare schemes from the present level of less than 1% to 2%-3% of the gross domestic product (GDP).

The provision of health and family welfare services falls in the realm of concurrent responsibility of the Centre and the States, but the latter have a predominant role in the delivery of these services. However, fiscal pressures at the State level lead to compression of expenditures by the State Governments resulting in an increase in Central financing of these services, particularly for some prioritized programmes implemented through the Centre and Centrally sponsored schemes. Thus, over 85% of the public expenditure on medical and public health is incurred by the State Governments, though the proportion of financing the expenditure by the State Governments is lower.

This paper identifies the resource gap between the desired and the actual health expenditure in 15 major States in India (14 large, non-special category States and Assam), and highlights the extent to which the gap can be reduced by augmenting resources at the State level. Further, it estimates the resource gap that cannot be met through States' own resources and therefore, requires Central transfers. The design of Central transfers needed for meeting the required health expenditure of various States is also discussed.

The principal motivation for this paper is the concern for achieving the targets set for improving the health status of India's population, particularly the poor and the vulnerable. While fulfilling the targets for improving the health status set by both national and international agencies (Tenth Plan and MDGs) requires considerable augmentation in expenditures, the deteriorating fiscal situation at the State level has imposed severe constraints in financing them. In particular, there has been a decline in social sector expenditure as a percentage of both the gross state domestic product (GSDP) and total expenditure, in a majority of States in the 1990s (Dev and Mooij 2005). The combined expenditure of States on medical, public health, sanitation, water supply and family welfare declined from 8.4% of the total expenditure in 1990-91 to 7.2% in 2001-02. As a proportion of the GSDP, the decline was from 1.5% to 1.3% during the period. In 1998-99, the States contributed more than 85% of the total expenditure on medical, public health, water and sanitation, and family welfare schemes (Rao 1998).

In the context of deteriorating finances of the States, the decline in health expenditure is a matter of concern. This is more so because the share of public expenditure in the GDP in the case of health expenditure is much lower in India for the level of per capita income. In 2000, the aggregate expenditure of both the Centre and the State Governments in India was just about 0.9% of the GDP whereas even Bangladesh and Bhutan, countries with lower per capita GDP, incurred higher health expenditure of 1.4% and 3.7% of the GDP, respectively and advanced countries such as the US and UK incurred substantially higher expenditure-5.8% and 5.9% of the GDP, respectively.

With the prevailing level of public expenditure on health and its declining trend in the 1990s, it appears difficult for India to achieve the health targets of MDGs and the Tenth Plan objectives. As per the provisional estimates, the infant mortality rate (IMR) in India stood at 66 in 2001 (Sample Registration System Bulletin 2002), which was much higher than the Tenth Plan target of 45 by 2007. Similarly, the maternal mortality ratio (MMR) was much higher than the target. The problem is exacerbated by the fact that there are significant variations in the IMR, MMR and life expectancy at birth (LEB) between different States. In fact, health sector outcomes in the poorer States are extremely low. Similarly, there is considerable catching up to do in the health status of women, scheduled castes and tribes. This calls for substantial increases in the resources allocated to the public provision of health, targeting of health expenditure to areas and groups of population with low health indicators and focusing on the delivery of health services to transform public expenditure into improved outputs and outcomes.

This study attempts to estimate the expenditure required between 2005-06 and 2009-10 for meeting specific health goals and explores the possible means of meeting the expenditure requirement in 15 selected States.[1] The choice of the terminal year 2009-10 for estimating expenditure requirement is driven by the fact that the MDGs have to be met by 2015. To arrive at the desired outcomes by 2015, appropriate expenditure during the period 2005-06 to 2009-10 are crucial.

Expenditure Requirement for Health and Related Sectors

Health outcomes are affected not only by direct expenditure on the health sector but also by expenditure on related sectors such as safe drinking water, sanitation, nutrition, primary education and roads (Shiva Kumar 2005, Deolalikar 2004). Expenditure requirement in this analysis is, therefore, viewed as a package of expenditures required in each of these sectors rather than the health sector alone.[2] Such a package of expenditures in different sectors mutually reinforce each other and has been argued to be important in the context of assessing budgetary allocations for achieving health goals (Shiva Kumar 2005). This study estimates the input deficiencies in each of these sectors from the specified national norms/targets in the States and transforms these into the expenditure needs for the respective States.

Health Sector (Medical, Public Health and Family Welfare)

Requirements in the health sector are targeted towards providing a minimum level of access to health care facilities, both in terms of physical facilities and manpower in the respective States. In particular, the study focuses on the national norms related to rural primary health care institutions such as sub-centres (SCs), primary health centres (PHCs) and community health centres (CHCs) and estimates the resource requirements for meeting the national norms related to these institutions. (As per the national norms, there should be one SC for every 5000 population, 1 PHC for every 30,000 population and 1 CHC for every 120,000 population in the plains. The corresponding figures for tribal/difficult terrains are 3000, 20,000 and 80,000, respectively). While the norms may be inadequate to achieve the desired outcomes in many States, they aim to ensure the provision of the minimum level of health infrastructure in each State. The expenditure requirement for the health sector during 2005-06 to 2009-10 is given in **Table 1**.

The need for increased expenditures in the health sector arises from the fact that the existing infrastructure of SCs, PHCs and CHCs is grossly inadequate in many States. As per the Bulletin on Rural Health Statistics (2002), none of the 15 major States under study have achieved the required level of provision in all the three categories of SCs, PHCs and CHCs. While some States have achieved the norms in terms of SCs and PHCs, none of the States have achieved the targets with respect to CHCs. The number of States meeting the norms in individual categories reduces as one moves from SCs to PHCs and CHCs. Even where the norms are met in terms of the number of facilities required, many of them are non-functional due to lack of equipment and need for civil works. The mere meeting of norms in terms of the number of facilities is therefore not enough. Many of these facilities also suffer from shortage of manpower. The estimates therefore include the cost of upgrading the equipment facilities, civil works and manpower in the existing facilities, apart from setting up new facilities, to fulfil the national norms.

The total requirement of expenditure in the health sector comprises the capital and the revenue components. The capital component of expenditure requirement further consists of two parts. The first is the cost of building new facilities for fulfilling the national norms for SCs, PHCs and CHCs, and the second is the cost of upgrading the civil works and equipment in the existing SCs, PHCs and CHCs. It is assumed that this capital expenditure will be carried out in a phased manner over a period of five years between 2005-06 and 2009-10 to eliminate all gaps in the physical infrastructure by 2010. In addition to the cost of covering up the existing gap, the estimate of requirements also includes the cost of providing health care services for the additional population in each year between 2005-06 and 2009-10.[3,4]

The revenue expenditure requirement in the health sector

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[1] The 15 States are Andhra Pradesh, Assam, Bihar (including Jharkhand), Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh (including Chhattisgarh), Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh (including Uttaranchal) and West Bengal.

[2] The National Commission on Macroeconomics and Health (NCMH) has identified expenditure on these sectors as important for achieving health goals.

[3] Information on the existing SCs, PHCs and CHCs is taken from the Bulletin on Rural Health Statistics, which provides the figures updated till 2001-02. Unfortunately, the information on the addition to infrastructure in the States between 2001-02 and 2005-06 is not easily available. To account for some likely increase in infrastructure between 2001-02 and 2004-05, capital expenditure on SCs, PHCs and CHCs in individual States, provided in the States' Finance Accounts, along with the unit cost of building these facilities were used. For water supply and sanitation, a 10% increase in access between 2001-02 and 2004-05 has been assumed.

[4] The National Commission on Macroeconomics and Health (NCMH) estimates the unit cost used for building SCs, PHCs and CHCs to be Rs 24.5 lakh for a PHC, Rs 80.5 lakh for a CHC and Rs 2 lakh for an SC. The cost of upgrading the civil works and equipment in the existing facilities has also been provided by NCMH based on a facility survey carried out in 1999.

Table 1

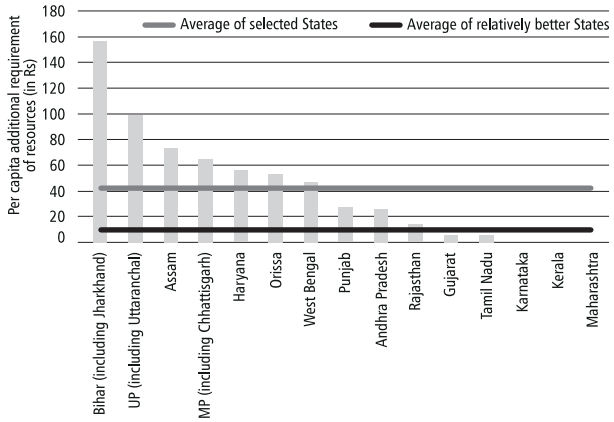
Expenditure requirement for the health sector from 2005-06 to 2009-10

State	As percentage of the GSDP					Real per capita (in Rs) (2005-06 prices)				
	2005-06	2006-07	2007-08	2008-09	2009-10	2005-06	2006-07	2007-08	2008-09	2009-10
Andhra Pradesh	0.92	0.93	0.93	0.94	0.94	251	253	255	257	258
Assam	1.35	1.37	1.38	1.39	1.40	234	239	243	246	249
Bihar (including Jharkhand)	2.04	2.18	2.31	2.43	2.54	229	247	265	282	298
Gujarat	0.70	0.67	0.65	0.62	0.59	234	225	217	208	199
Haryana	0.64	0.65	0.65	0.66	0.66	248	253	257	260	263
Karnataka	0.95	0.91	0.87	0.83	0.80	269	267	267	267	267
Kerala	0.98	0.95	0.92	0.90	0.87	303	303	303	303	303
MP (including Chhattisgarh)	1.17	1.16	1.16	1.15	1.13	213	213	213	213	213
Maharashtra	0.71	0.69	0.67	0.65	0.63	275	267	260	260	260
Orissa	1.47	1.43	1.39	1.36	1.32	233	229	224	220	214
Punjab	0.94	0.93	0.92	0.92	0.91	373	372	370	368	365
Rajasthan	1.34	1.29	1.25	1.20	1.16	286	278	269	259	250
Tamil Nadu	0.93	0.92	0.90	0.88	0.86	285	281	275	269	261
UP (including Uttaranchal)	1.18	1.22	1.26	1.30	1.33	178	187	195	203	210
West Bengal	0.95	0.99	1.02	1.04	1.06	238	250	260	269	276

Note: Projections of GSDP were made using the prescriptive growth rates suggested by the Twelfth Finance Commission

Fig 1

Per capita additional requirement of resources in the health sector during 2009-10



also comprises two parts. First, in addition to the expenditure being currently incurred to run the existing SCs, PHCs and CHCs, it includes the salary expenditure required to provide these existing facilities with manpower as per the norms. Second, it includes the expenditure that would be required to run the new SCs, PHCs and CHCs to be built between 2005-06 and 2009-10 with adequate number of health workers.[5] The additional requirement of resources is estimated as the extent of resources required over and above the actual expenditure as a percentage of the GSDP incurred in 2001-02.[6]

The estimate indicates that an additional amount of about Rs 26,439 crore (at 2005-06 prices) is required to provide a minimum level of access to health care facilities in the States **(Table 2)**.[7] Nearly 60% of this amount is needed in Uttar Pradesh (UP) and Bihar alone. In general, the five States of Bihar, UP, Madhya Pradesh (MP), West Bengal and Orissa account for around 80% of this additional expenditure. The States of Maharashtra and Karnataka require less than 1% of this amount, while Kerala requires no additional expenditure.

As a percentage of the GSDP, Bihar, UP, Assam, MP and Orissa require the highest increases in expenditure in the health sector. These increases are required despite the level of expenditure (as a percentage of the GSDP) in Bihar, Orissa and Assam being among the highest in the country **(Table 2)**. The reason for this is partly the low levels of GSDP in these States. This is reflected by the fact that the per capita expenditures in these States are among the lowest in the country **(Table 2)**. Additionally, in per capita terms, most of the above-mentioned States require a relatively high increase.

If one examines the States that lie above the average level of per capita additional requirement of resources during 2009-10, the five low-income States of Bihar, UP, Assam, MP and Orissa are included **(Fig. 1)**. The requirements for Haryana and West Bengal are also relatively high. It must be noted that among the selected States, the amount of GSDP devoted by Haryana towards the health sector is the lowest. As the incomes

[5] For calculating the salary requirements in each year, the Central Government pay scales for different levels of medical personnel at SCs, PHCs and CHCs were used. The population projections for the years 2005-06 to 2009-2010 provided by the Registrar General of India were used for the estimations.
[6] Data on State Finances of India published by the Reserve Bank of India were used for the actual expenditures.
[7] An average inflation rate of 7% was assumed throughout the study.

Table 2

Additional requirement of resources for the health sector from 2005-06 to 2009-10

State	As percentage of the GSDP						Real per capita (in Rs) (2005-06 prices)						Additional resources required (2005-10) (Rs in crore 2005-06) prices
	Current level (2001-02)	2005-06	2006-07	2007-08	2008-09	2009-10	Current level (2001-02)	2005-06	2006-07	2007-08	2008-09	2009-10	
Andhra Pradesh	0.86	0.06	0.07	0.07	0.08	0.08	232	19	21	23	25	26	944
Assam	1.04	0.31	0.33	0.34	0.35	0.36	176	59	63	67	70	73	976
Bihar (including Jharkhand)	1.27	0.77	0.91	1.04	1.16	1.27	140	88	107	124	141	157	7,150
Gujarat	0.58	0.12	0.09	0.07	0.04	0.01	193	41	33	24	15	6	634
Haryana	0.54	0.10	0.11	0.11	0.12	0.12	207	41	46	50	53	56	554
Karnataka	0.94	0.01	0.00	0.00	0.00	0.00	267	2	0	0	0	0	10
Kerala	1.01	0.00	0.00	0.00	0.00	0.00	303	0	0	0	0	0	0
MP (including Chhattisgarh)	0.80	0.37	0.36	0.36	0.35	0.33	148	65	65	65	65	65	2,983
Maharashtra	0.67	0.04	0.02	0.00	0.00	0.00	260	15	8	0	0	0	223
Orissa	1.02	0.45	0.41	0.37	0.34	0.30	161	72	68	63	58	53	1,210
Punjab	0.85	0.09	0.08	0.07	0.07	0.06	338	35	33	32	30	27	405
Rajasthan	1.10	0.24	0.19	0.15	0.10	0.06	236	50	42	33	23	14	990
Tamil Nadu	0.84	0.09	0.08	0.06	0.04	0.02	256	30	25	19	13	6	612
UP (including Uttaranchal)	0.74	0.44	0.48	0.52	0.56	0.59	111	66	75	84	91	99	8,463
West Bengal	0.92	0.03	0.07	0.10	0.12	0.14	229	9	20	30	39	47	1,286
Total													26,439

of West Bengal and Haryana are relatively high, as a percentage of the GSDP, their additional requirements are relatively low. In general, additional requirements both in terms of per capita as well as GSDP, indicate that Bihar, UP, Assam and MP occupy the top four positions. The health sector in these States therefore needs a special focus.

Safe Drinking Water and Sanitation

According to the 2001 Census, only about 67% of households in the selected States have access to safe drinking water and in States such as Assam and Orissa, it is less than 50%. Similarly, less than 30% households have access to toilet facilities in Bihar, UP, Orissa, MP and Rajasthan. The percentage is as low as 15 in Orissa. We now highlight the resource requirements for providing all households in the States with access to safe drinking water and toilet facilities by 2010.[8][s1] Table 3 provides the expenditure requirement for water supply and sanitation from 2005-06 to 2009-10.

The estimation of resource requirements for both water and sanitation has a capital and a revenue component. The capital component includes the cost of providing all households not having access to safe drinking water and toilet facilities with these facilities. This requirement of expenditure is spread over a five-year period between 2005-06 and 2009-10. It also includes the cost of providing the additional population in each year between 2005-06 and 2009-10 with these facilities. The revenue component includes the expenditure required for the increased coverage. In the case of safe drinking water, an additional 10% of the capital cost is included for maintenance of the water supply systems.

Estimates indicate that an additional amount of Rs 17,593 crore will be required for providing safe drinking water and toilet facilities to all households **(Table 4)**. Of these, four States-Kerala, Maharashtra, West Bengal and Orissa-account for more than 60% of the requirement. The high requirement of Kerala may be attributed to the low access to safe drinking water.[9] Only 20% of households in the State have access to safe drinking water. In contrast, Tamil Nadu, Gujarat, Haryana and Andhra Pradesh do not require any additional expenditure.

As a percentage of the GSDP, excluding Kerala, Assam and Orissa require the highest increase. Interestingly, Kerala and Karnataka spent the lowest amount of their GSDP on water

[8] It is assumed that 30% of the uncovered population will have access to piped water and the remaining 70% will have access to handpumps. The unit cost of providing piped water was taken to be approximately Rs 1200 per capita and that of handpumps Rs 140 per capita. A unit cost of Rs 1000 was taken for building a toilet per household.

[9] Partly, the high requirement in Kerala despite it being a high rainfall State is due to the definition of safe drinking water. A large proportion of the population in the State uses the well water, which is considered unsafe. Also, the requirement of the State is an overestimate as the unit cost of providing safe water in Kerala would be lower due to the existence of many sweet water bodies and river systems, and economies of scale due to high density of population.

Table 3

Expenditure requirement for water supply and sanitation from 2005-06 to 2009-10

State	As percentage of the GSDP					Real per capita (in Rs) (2005-06 prices)				
	2005-06	2006-07	2007-08	2008-09	2009-10	2005-06	2006-07	2007-08	2008-09	2009-10
Andhra Pradesh	0.29	0.30	0.30	0.30	0.30	81	81	81	81	81
Assam	0.82	0.88	0.93	0.98	1.03	146	159	170	182	195
Bihar (including Jharkhand)	0.68	0.69	0.70	0.71	0.72	76	77	78	80	81
Gujarat	0.21	0.21	0.21	0.20	0.20	88	88	88	88	88
Haryana	0.56	0.58	0.59	0.61	0.62	278	278	278	278	278
Karnataka	0.43	0.44	0.44	0.44	0.44	126	131	92	92	92
Kerala	0.54	0.65	0.74	0.83	0.91	176	218	255	294	332
MP (including Chhattisgarh)	0.72	0.73	0.73	0.73	0.73	131	134	135	136	137
Maharashtra	0.30	0.30	0.30	0.30	0.31	118	120	122	123	130
Orissa	1.13	1.22	1.29	1.36	1.41	180	197	212	228	241
Punjab	0.29	0.29	0.28	0.28	0.27	117	118	114	114	110
Rajasthan	1.18	1.25	1.30	1.35	1.39	275	275	280	291	302
Tamil Nadu	0.26	0.26	0.25	0.25	0.24	143	143	143	143	143
UP (including Uttaranchal)	0.49	0.48	0.47	0.47	0.46	75	74	73	73	72
West Bengal	0.43	0.44	0.45	0.45	0.46	112	117	123	125	131

Note: Projections of GSDP were made using the prescriptive growth rates suggested by the Twelfth Finance Commission

Table 4

Additional requirement of resources for water supply and sanitation from 2005-06 to 2009-10

State	As percentage of the GSDP						Real per capita (in Rs) (2005-06 prices)						Additional resources required (2005-10) (Rs in crore 2005-06) prices
	Current level (2001-02)	2005-06	2006-07	2007-08	2008-09	2009-10	Current level (2001-02)	2005-06	2006-07	2007-08	2008-09	2009-10	
Andhra Pradesh	0.30	0	0	0	0	0	81	0	0	0	0	0	0
Assam	0.46	0.36	0.42	0.47	0.52	0.57	79	67	80	92	104	116	1,349
Bihar (including Jharkhand)	0.57	0.11	0.12	0.13	0.14	0.15	63	13	14	15	17	19	897
Gujarat	0.26	0	0	0	0	0	88	0	0	0	0	0	0
Haryana	0.73	0	0	0	0	0	278	0	0	0	0	0	0
Karnataka	0.32	0.11	0.12	0.12	0.12	0.12	92	34	39	0	0	0	415
Kerala	0.18	0.36	0.47	0.56	0.65	0.73	52	123	165	202	242	279	3,532
MP (including Chhattisgarh)	0.51	0.21	0.22	0.22	0.22	0.22	94	37	39	40	41	43	1,842
Maharashtra	0.19	0.11	0.11	0.11	0.11	0.12	73	45	47	48	50	57	2,455
Orissa	0.57	0.56	0.65	0.72	0.79	0.84	90	89	107	122	137	150	2,336
Punjab	0.25	0.04	0.04	0.03	0.03	0.02	101	16	17	13	13	9	175
Rajasthan	1.28	0	0	0.02	0.07	0.11	275	0	0	4	16	26	300
Tamil Nadu	0.47	0	0	0	0	0	143	0	0	0	0	0	0
UP (including Uttaranchal)	0.36	0.13	0.12	0.11	0.11	0.1	55	20	19	18	18	17	1,834
West Bengal	0.27	0.16	0.17	0.18	0.18	0.19	66	47	52	57	59	65	2,459
Total													17,593

Fig 2

Additional requirement for water supply and sanitation, 2009-10 (per capita)

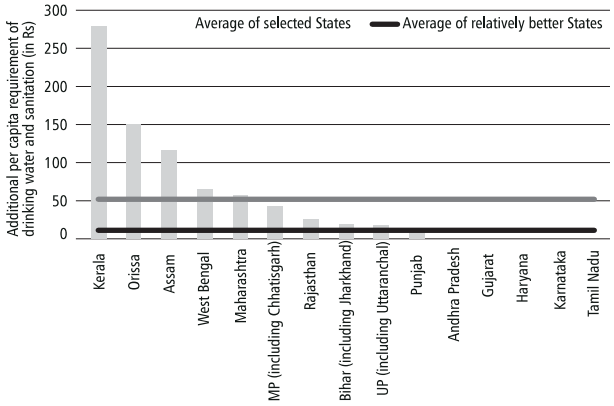
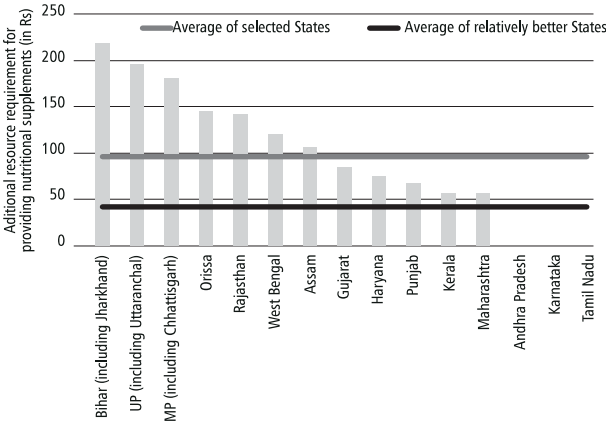


Fig 3

Additional resource requirement for providing nutritional supplements, 2009-10



supply and sanitation in 2001-02 among the selected States. Given the low level of spending in Kerala and the low access to safe drinking water, marked increases in expenditure, both as a percentage of the GSDP and per capita are required in the State. While Karnataka also requires a substantial increase in per capita terms, given its income level, the required increase as a percentage of the GSDP is relatively moderate. Apart from these States, West Bengal requires a marked increase both in per capita terms as well as a percentage of the GSDP (Table 4). The two low-income States of Assam and Orissa require special policy focus.

Nutrition

One of the primary causes of infant and child mortality in India is maternal and child malnutrition. Keeping this in view, policy stance in recent times have focused on providing nutritional supplements to pregnant and lactating mothers and undernourished children. However, the coverage of the provision of nutritional supplements has not yet been universal. We now estimate the resource requirements for making this universal. Specifically, we estimate the requirement of resources for providing nutritional supplements to all malnourished children in the age group of 6-71 months, and all pregnant and lactating mothers below the poverty line. The unit cost of providing nutritional supplements to children in the age group of 6-71 months under the ICDS scheme is Rs 3.10 per child per day. Similarly, the unit cost of providing nutritional supplements to severely malnourished children is Rs 3.81 per child per day and to pregnant and lactating mothers Rs 3.41 per beneficiary per day. These unit costs are used to estimate the expenditure requirements. It may be noted that the above-mentioned unit cost for providing nutritional supplements is abysmally low. However, as these norms have been specified by the Government of India, they have been used to estimate the expenditure requirements. **Table 5** provides the expenditure requirements for providing nutritional supplements from 2005-06 to 2009-10.

A total of Rs 56,383 crore is additionally required for providing nutritional supplements to all malnourished children between the age of 6 and 71 months, and pregnant and lactating mothers below the poverty line **(Table 6)**. Of this, more than 50% is required in Bihar and UP alone. Uttar Pradesh alone calls for more than 30% of this required expenditure. Madhya Pradesh, West Bengal and Rajasthan along with UP and Bihar account for almost 80% of the requirement. In contrast, Tamil Nadu and Andhra Pradesh spend a substantial amount of their GSDP on nutrition and therefore do not need any additional expenditure.

As a percentage of the GSDP, Bihar, UP, MP, Orissa and Rajasthan occupy the top five positions in terms of requirement. Andhra Pradesh and Tamil Nadu have the highest expenditure both as a percentage of the GSDP and in per capita terms, and therefore do not require any increase in expenditure. Kerala, Maharashtra, Punjab and Haryana require an increase of less than 0.2% of their GSDP. In terms of per capita, Bihar, UP, Orissa, MP and Rajasthan require substantial increase (Table 6). Thus, Bihar, UP, Orissa, MP and Rajasthan call for a special policy focus.

Primary Schooling

We now estimate the expenditure requirement for providing primary schooling to all children in the age group of 5-14 years in selected States. It is important to note that universalizing primary education is not only important for achieving health outcomes, but also has various other positive externalities. In fact, bringing all children to school is an MDG as well as a Tenth Plan goal by itself. The expenditure required for universalizing primary education therefore should not be seen as a requirement for achieving health outcomes alone.

The capital cost for universalizing elementary education was estimated based on the report of the Expert Group on Financial Requirements for Making Elementary Education a Fundamental Right (GOI 1999). The estimates provided in the above study were modified for the number of schools built between 1993 and 2002 (based on the Sixth and Seventh School Education Survey). The revenue expenditure require-

Table 5

Expenditure requirement for providing nutritional supplements from 2005-06 to 2009-10

State	As percentage of the GSDP					Real per capita (in Rs) (2005-06 prices)				
	2005-06	2006-07	2007-08	2008-09	2009-10	2005-06	2006-07	2007-08	2008-09	2009-10
Andhra Pradesh	0.23	0.24	0.25	0.29	0.27	94	94	94	94	94
Assam	0.53	0.55	0.58	0.66	0.63	96	102	110	128	124
Bihar (including Jharkhand)	1.49	1.56	1.64	1.88	1.81	172	183	196	229	225
Gujarat	0.28	0.28	0.29	0.33	0.31	95	98	104	122	118
Haryana	0.18	0.19	0.19	0.22	0.21	74	80	82	97	95
Karnataka	0.28	0.29	0.30	0.33	0.31	85	91	26	26	26
Kerala	0.13	0.14	0.14	0.16	0.15	45	50	52	60	58
MP (including Chhattisgarh)	0.87	0.91	0.95	1.08	1.03	152	163	174	203	198
Maharashtra	0.25	0.26	0.27	0.30	0.28	100	105	111	127	120
Orissa	0.79	0.82	0.85	0.96	0.92	126	134	142	165	162
Punjab	0.13	0.13	0.14	0.15	0.15	53	54	60	66	67
Rajasthan	0.64	0.67	0.69	0.78	0.74	134	144	152	177	173
Tamil Nadu	0.20	0.20	0.21	0.23	0.22	97	97	97	97	97
UP (including Uttaranchal)	0.98	1.03	1.07	1.23	1.17	149	160	170	200	195
West Bengal	0.35	0.36	0.37	0.41	0.39	101	107	114	132	130

Note: Projections of GSDP were made using the prescriptive growth rates suggested by the Twelfth Finance Commission

Fig 4

Additional resource requirement for primary schooling, 2009-10

Note: Resource requirements for Gujarat are high due to data problems

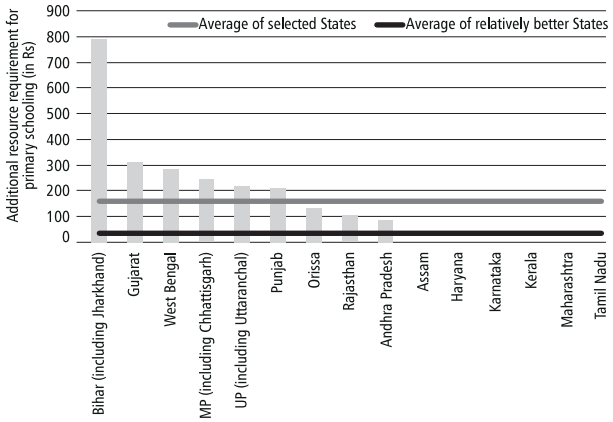
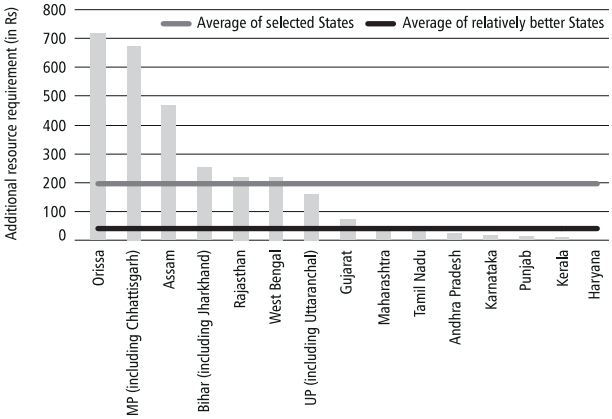


Fig 5

Additional resource requirement for construction of roads, 2009-10



ment was calculated based on an estimate of an average expenditure per child in primary school provided by the National Commission on Macroeconomics and Health (NCMH). As earlier, requirement of capital expenditure is distributed over a five-year period between 2005-06 and 2009-10 **(Table 7)**.

An additional amount of Rs 106,008 crore is required to provide all children with primary schooling **(Table 8)**. Of these, the States of Bihar, UP and Gujarat account for the largest share. The high requirement of Gujarat may be attributed to the fall in the number of primary schools in the State between 1993 and 2002 (Sixth and Seventh All India School Education Survey).[10] Apart from these States, MP and West Bengal call for a substantial increase in expenditure. The five States of Bihar, UP, Gujarat, MP and West Bengal account for more than 90% of the requirement. On the other hand, Tamil Nadu, Karnataka, Kerala and Maharashtra do not require any additional expenditure **(Fig. 4)**. However, even in these States, all children are not in school and therefore one might need to identify the possible reasons for why these children have

[10] This is likely to be due to data problems.

Table 6

Additional requirement of resources for providing nutritional supplements from 2005-06 to 2009-10

State	As percentage of the GSDP						Real per capita (in Rs) (2005-06 prices)						Additional resources required (2005-10) (Rs in crore 2005-06) prices
	Current level (2001-02)	2005-06	2006-07	2007-08	2008-09	2009-10	Current level (2001-02)	2005-06	2006-07	2007-08	2008-09	2009-10	
Andhra Pradesh	0.35	0	0	0	0	0	94	0	0	0	0	0	0
Assam	0.11	0.42	0.44	0.47	0.55	0.52	18	78	84	92	110	106	1,379
Bihar (including Jharkhand)	0.05	1.44	1.51	1.59	1.83	1.76	7	165	176	189	222	218	11,204
Gujarat	0.10	0.18	0.18	0.19	0.23	0.21	34	61	64	70	88	84	1,979
Haryana	0.05	0.13	0.14	0.14	0.17	0.16	20	54	60	62	77	75	736
Karnataka	0.09	0.19	0.2	0.21	0.24	0.22	26	59	65	0	0	0	703
Kerala	0.00	0.13	0.14	0.14	0.16	0.15	1	44	49	51	59	57	910
MP (including Chhattisgarh)	0.10	0.77	0.81	0.85	0.98	0.93	18	134	145	156	185	180	7,365
Maharashtra	0.16	0.09	0.1	0.11	0.14	0.12	63	37	42	48	64	57	2,471
Orissa	0.11	0.68	0.71	0.74	0.85	0.81	17	109	117	125	148	145	2,478
Punjab	0.00	0.13	0.13	0.14	0.15	0.15	0	53	54	60	66	67	775
Rajasthan	0.15	0.49	0.52	0.54	0.63	0.59	31	103	113	121	146	142	3,876
Tamil Nadu	0.32	0	0	0	0	0	97	0	0	0	0	0	0
UP (including Uttaranchal)	0.00	0.98	1.03	1.07	1.23	1.17	0	149	160	170	200	195	17,814
West Bengal	0.04	0.31	0.32	0.33	0.37	0.35	10	91	97	104	122	120	4,693
Total													56,383

Table 7

Expenditure requirements for providing primary schooling to all children from 2005-06 to 2009-10

State	As percentage of the GSDP					Real per capita (in Rs) (2005-06 prices)				
	2005-06	2006-07	2007-08	2008-09	2009-10	2005-06	2006-07	2007-08	2008-09	2009-10
Andhra Pradesh	1.49	1.45	1.41	1.37	1.34	416	406	397	386	379
Assam	3.14	3.07	3.00	2.92	2.85	531	527	527	527	527
Bihar (including Jharkhand)	5.60	5.48	5.36	5.25	5.14	632	624	616	609	602
Gujarat	4.12	3.93	3.74	3.56	3.39	1386	1356	1322	1288	1254
Haryana	1.17	1.13	1.10	1.07	1.03	450	433	429	429	429
Karnataka	1.51	1.45	1.39	1.33	1.28	439	439	439	439	439
Kerala	1.06	1.03	1.00	0.97	0.94	419	419	419	419	419
MP (including Chhattisgarh)	3.15	3.07	2.98	2.90	2.82	567	560	550	542	533
Maharashtra	1.26	1.21	1.17	1.13	1.08	707	707	707	707	707
Orissa	3.37	3.27	3.18	3.09	2.99	537	526	515	504	491
Punjab	1.23	1.20	1.17	1.14	1.10	494	488	481	474	462
Rajasthan	2.94	2.83	2.73	2.63	2.53	628	610	593	575	555
Tamil Nadu	1.14	1.09	1.04	0.99	0.95	392	392	392	392	392
UP (including Uttaranchal)	3.61	3.52	3.44	3.36	3.29	546	538	531	523	516
West Bengal	2.19	2.10	2.01	1.92	1.84	595	581	566	550	535

Note: Projections of GSDP were made using the prescriptive growth rates suggested by the Twelfth Finance Commission

Table 8

Additional requirement for providing primary schooling from 2005-06 to 2009-10

State	As percentage of the GSDP						Per capita (in Rs) (2005-06 prices)						Additional resources required (2005-10) (Rs in crore 2005-06) prices
	Current level (2001-02)	2005-06	2006-07	2007-08	2008-09	2009-10	Current level (2001-02)	2005-06	2006-07	2007-08	2008-09	2009-10	
Andhra Pradesh	1.08	0.41	0.37	0.33	0.29	0.26	291	124	115	105	95	88	4,338
Assam	3.12	0.02	0	0	0	0	527	4	0	0	0	0	11
Bihar (including Jharkhand)	2.62	2.98	2.86	2.74	2.63	2.52	290	342	334	326	319	312	18,782
Gujarat	1.41	2.71	2.52	2.33	2.15	1.98	466	920	890	856	822	788	23,037
Haryana	1.12	0.05	0.01	0	0	0	429	21	4	0	0	0	54
Karnataka	1.54	0	0	0	0	0	439	0	0	0	0	0	0
Kerala	1.40	0	0	0	0	0	419	0	0	0	0	0	0
MP (including Chhattisgarh)	1.56	1.59	1.51	1.42	1.34	1.26	289	277	270	261	253	244	11,963
Maharashtra	1.82	0	0	0	0	0	707	0	0	0	0	0	0
Orissa	2.25	1.12	1.02	0.93	0.84	0.74	358	179	167	157	146	132	3,006
Punjab	0.63	0.6	0.57	0.54	0.51	0.47	251	243	237	230	223	211	2,956
Rajasthan	2.10	0.84	0.73	0.63	0.53	0.43	452	176	158	141	123	103	4,321
Tamil Nadu	1.29	0	0	0	0	0	392	0	0	0	0	0	0
UP (including Uttaranchal)	1.97	1.64	1.55	1.47	1.39	1.32	296	249	241	234	226	220	23,728
West Bengal	1.01	1.18	1.09	1	0.91	0.83	250	345	332	316	300	285	13,811
Total													106,008

Table 9

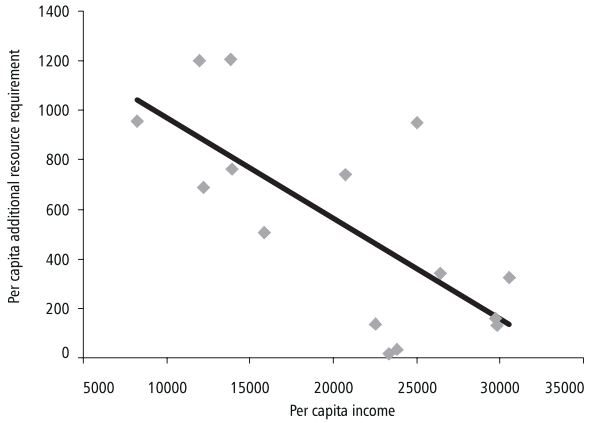
Additional requirement for connecting all habitations by road from 2005-06 to 2009-10

State	As a percentage of the GSDP					Real per capita (in Rs) (2005-06 prices					Additional resources required (2005-10)(Rs in crore 2005-06) prices
	2005-06	2006-07	2007-08	2008-09	2009-10	2005-06	2006-07	2007-08	2008-09	2009-10	
Andhra Pradesh	0.06	0.06	0.07	0.07	0.07	18	19	22	23	24	873
Assam	1.90	2.02	2.12	2.22	2.30	355	385	413	442	469	6,061
Bihar (including Jharkhand)	1.69	1.79	1.88	1.97	2.04	194	209	224	239	252	12,902
Gujarat	0.16	0.17	0.17	0.18	0.18	54	60	62	69	72	1,714
Haryana	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0
Karnataka	0.05	0.05	0.05	0.05	0.05	16	16	17	18	18	489
Kerala	0.01	0.01	0.01	0.01	0.02	3	4	4	4	8	77
MP (including Chhattisgarh)	2.96	3.11	3.25	3.38	3.48	517	557	597	637	674	27,419
Maharashtra	0.09	0.09	0.09	0.10	0.10	37	38	39	45	47	2,063
Orissa	3.33	3.53	3.71	3.87	4.02	532	579	626	672	718	12,065
Punjab	0.03	0.03	0.03	0.03	0.03	12	12	13	13	13	166
Rajasthan	0.81	0.85	0.88	0.90	0.92	170	184	197	209	221	6,085
Tamil Nadu	0.07	0.07	0.07	0.08	0.08	22	23	24	29	30	855
UP (including Uttaranchal)	0.82	0.86	0.90	0.93	0.96	125	134	143	152	160	14,513
West Bengal	0.57	0.59	0.61	0.63	0.64	167	179	193	208	220	8,485
Total											93,765

Fig 6

State-wise total per capita additional requirement of resources, 2009-10

Note: The requirements for Gujarat are affected by problems in data on schooling.



remained out of school and spend on appropriate heads required to bring these children to school.

Roads

Recognizing the importance of roads, the Prime Minister's Gram Sadak Yojana (PMGSY) was introduced in December 2000. This scheme aims to connect all rural habitations by roads. The cost is based on information provided by PMGSY. As in the case of primary schooling, apart from the positive impact on health outcomes, expenditure on roads has other positive externalities too. This expenditure therefore should not be treated as an expenditure that is exclusively directed towards health outcomes.

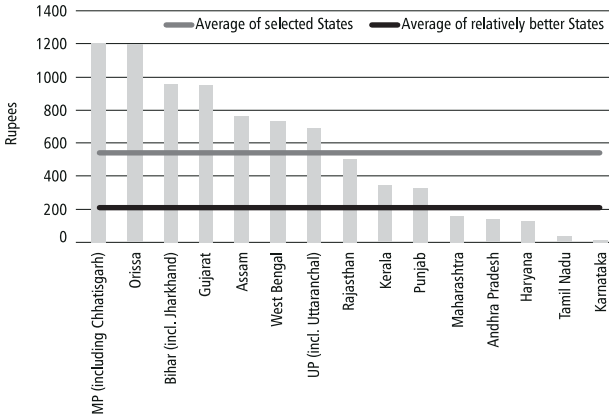
As of March 2004, Bihar, UP, MP and West Bengal had the highest number of unconnected habitations among the 15 States. **Table 9** shows that these four States account for approximately two-thirds of the total requirement of resources. If one includes the requirement for Orissa, the total share of resources required in these States increases to more than 80%.

For all selected States taken together, a sum of about Rs 93,765 crore is required for connecting all habitations by roads. While in absolute terms, the five States of Bihar, UP, MP, West Bengal and Orissa account for the largest share, as a percentage of the GSDP, the States of Orissa, Assam, Bihar and MP require significant increases.

Table 10 shows the total additional requirement of resources in different sectors from 2005-06 to 2009-10. For health, water, sanitation and nutrition alone, a total of Rs 100,415 crore is required over the next five years. If one adds up the expenditure for primary schooling and roads, the requirements almost triple. The total combined requirement of all sectors is of the order of Rs 300,188 crore. The requirement for primary schooling alone is more than the combined requirement of health, water, sanitation and nutrition. If one focuses on the low-income States of Assam, Bihar, Orissa, MP and UP, which is just around the average of the selected States,

Fig 7

Per capita additional resource requirement and per capita income of the States



the requirements are of the order of Rs 199,730 crore **(Fig. 6)**. Even if one focuses only on health, water, sanitation and nutrition, the requirements are about Rs 70,000 crore.

Figure 6 shows that excluding Gujarat, whose requirements are primarily determined by high requirements for primary schooling (mainly due to data problems), MP, Orissa, Bihar, Assam, West Bengal and UP occupy the top positions in terms of additional per capita requirements in the terminal year 2009-10. In fact, UP, MP and Bihar account for more than 50% of the additional requirement of resources **(Table 10)**. Even if one focuses only on health, water, sanitation and nutrition, Bihar, UP and MP occupy the top positions. These States therefore require a special policy attention. The requirement of Kerala is primarily determined by its high requirement for safe drinking water. In contrast, Karnataka, Tamil Nadu, Haryana, Andhra Pradesh and Maharashtra occupy the lowest positions in terms of additional requirements.

It is interesting to note that the additional expenditure requirements are particularly high in States with low per capita GSDP. **Figure 7** indicates the association of the additional per capita expenditure requirements in the year 2009-10 with current (2002-03) per capita income of States. Low-income States are also the ones with high poverty (the correlation of per capita income with poverty in States is more than 0.8). Thus, in general, lower the income level of a State, higher is its expenditure requirement for health outcomes. This point underlines the importance of expenditures on anti-poverty programmes including employment creation and income-generation activities, particularly in States with higher concentration of poverty. The estimated additional requirement has to be met either with additional mobilization of resources at the State-level or through Central transfers. We now assess the extent of resources that can be mobilized at the State level.

Mobilization of resources by States to meet additional resource requirements for health expenditure

Table 10

State-wise additional resource requirements from 2005-06 to 2009-10 (Rs in crore) at 2005-06 prices

	I				II			
States	Health sector	Water andsanitation	Nutrition	Total(I)	Primary schooling	Roads	Total(II)	Total(I+II)
Andhra Pradesh	944	0	0	944	4,338	873	5,211	6,155
Assam	976	1,349	1,379	3,704	11	6,061	6,072	9,776
Bihar (including Jharkhand)	7,150	897	11,204	19,251	18,782	12,902	31,684	50,935
Gujarat	634	0	1,979	2,613	23,037	1,714	24,751	27,364
Haryana	554	0	736	1,290	54	0	54	1,344
Karnataka	10	415	703	1,128	0	489	489	1,617
Kerala	0	3,532	910	4,442	0	77	77	4,519
MP (including Chhattisgarh)	2,983	1,842	7,365	12,190	11,963	27,419	39,382	51,572
Maharashtra	223	2,455	2,471	5,149	0	2,063	2,063	7,212
Orissa	1,210	2,336	2,478	6,024	3,006	12,065	15,071	21,095
Punjab	405	175	775	1,355	2,956	166	3,122	4,477
Rajasthan	990	300	3,876	5,166	4,321	6,085	10,406	15,572
Tamil Nadu	612	0	0	612	0	855	855	1,467
UP (including Uttaranchal)	8,463	1,834	17,814	28,111	23,728	14,513	38,241	66,352
West Bengal	1,286	2,459	4,693	8,438	13,811	8,485	22,296	30,734
Total	26,439	17,593	56,383	100,415	106,008	93,765	199,773	300,188

To identify the extent to which resources can be mobilized at the State level to meet health requirements, two possibilities have been explored: first, reprioritization and reallocation of the States' existing resources towards health and second, generation of additional revenues.

Reallocation of resources

To examine the extent of reallocation possible, expenditures in States are classified into two groups: committed and discretionary (non-committed). Committed expenditures are those for which the States are assumed to assign high priority and are committed to spend on. Although all expenditures are discretionary in the medium and long term, the distinction is legitimate in the short and medium term and the policy-makers are always confronted with this distinction. For the purpose of this analysis, it is assumed that States are committed to meet the expenditure on wages and salaries, interest payments and pensions on a priority basis and that the resources used up for meeting these expenditures cannot be reallocated. The residual revenue that remains with States after meeting expenditures on wages and salaries, interest payments and pensions is termed as discretionary and is assumed to be available for reallocation towards health.

An analysis of the extent of discretionary resources available with States calls for an evaluation of the extent of expenditure on pensions, interest payments and salaries that would be incurred in each State during the next five years. Such an assessment has been carried out for interest payments and pensions by the Twelfth Finance Commission (TFC) using various assumptions on the States' capability to contain these expenditures. While the projections of interest payments and pensions in the States by the TFC may seem to be on the lower side relative to what it would be if the past rate of growth of these expenditures continued, the TFC estimate provides a benchmark for these expenditures, which the States should strive to achieve. Given the objective of this exercise to arrive at the maximum discretionary resources available with the States, these benchmark estimates for interest payments and pensions have been used in this analysis. The salary expenditure, however, is likely to be difficult to contain in the recent future. Although the TFC has suggested that States should attempt to achieve the ratio of salary expenditure to revenue expenditure at 1996-97 levels, these levels may be difficult to achieve in the next five years. Salary expenditures in this analysis are therefore projected based on their growth rate between 1994-95 and 2002-03.[11]

An examination of the share of committed expenditures in total revenues over the next five years **(Table 11)** indicates that in many cases, a large portion of States' revenues will be used up for meeting the committed expenses, leaving very little for discretionary expenditure.[12] States such as Assam, Orissa, Bihar, Punjab and West Bengal are unlikely to have any resources available for discretionary expenditure in the next five years. In five out of the remaining ten States, committed expenditure will use up more than 80% of their resources in the recent future. It is disturbing to note that States which have a high requirement of health expenditure are particularly stressed in terms of availability of resources for reallocation towards health.

[11] Data on salary expenditure between 1994-95 and 2002-03 have been taken from the TFC.
[12] Projections of total revenues in States were based on the past growth rate of revenues between 1993-94 and 2002-03 based on data provided by the TFC

Table 11

Committed expenditure as percentage of the total revenues in States between 2005-06 and 2009-10

State	2005-06	2006-07	2007-08	2008-09	2009-10
Andhra Pradesh	70.38	68.50	66.69	64.95	63.27
Assam	105.58	108.01	110.54	113.17	115.90
Bihar (including Jharkand)	101.69	101.25	100.86	100.49	100.16
Gujarat	46.41	45.29	44.21	43.17	42.15
Haryana	79.28	79.75	80.11	80.43	80.72
Karnataka	71.17	70.87	70.59	70.32	70.06
Kerala	96.36	95.63	94.92	94.23	93.56
Madhya Pradesh (including Chhattisgarh)	76.37	77.75	79.22	80.78	82.44
Maharashtra	92.80	94.08	95.44	96.87	98.38
Orissa	105.26	104.97	104.76	104.62	104.54
Punjab	117.02	117.60	118.33	119.21	120.25
Rajasthan	95.79	95.90	96.09	96.36	96.69
Tamil Nadu	83.15	82.93	82.72	82.53	82.34
Uttar Pradesh (including Uttaranchal)	86.64	85.41	84.25	83.13	82.07
West Bengal	138.88	139.17	139.60	140.18	140.91

Table 12

State-wise additional resources that can be directed towards health, family welfare, water supply, sanitation and nutrition by reallocating 5% of discretionary resources

	Percentage of the GSDP				
State	2005-06	2006-07	2007-08	2008-09	2009-10
Andhra Pradesh	0.20	0.22	0.23	0.25	0.27
Assam	0	0	0	0	0
Bihar (including Jharkand)	0	0	0	0	0
Gujarat	0.37	0.37	0.38	0.38	0.38
Haryana	0.13	0.13	0.13	0.13	0.13
Karnataka	0.18	0.18	0.18	0.18	0.18
Kerala	0.02	0.03	0.03	0.04	0.04
Madhya Pradesh (including Chhattisgarh)	0.20	0.18	0.17	0.16	0.14
Maharashtra	0.04	0.03	0.02	0.02	0.01
Orissa	0	0	0	0	0
Punjab	0	0	0	0	0
Rajasthan	0.03	0.03	0.03	0.02	0.02
Tamil Nadu	0.12	0.12	0.11	0.11	0.11
Uttar Pradesh (including Uttaranchal)	0.10	0.11	0.12	0.12	0.13
West Bengal	0	0	0	0	0

Note: Projections of GSDP have been made using the prescriptive growth rates suggested by the Twelfth Finance Commission

Whatever discretionary resources are available, this analysis assumes that at the most 5% of resources available for discretionary expenditures in the years 2005-06 to 2009-10 can be reprioritized towards health. This would mean that 5% of the discretionary resources would have to be extracted from non-health sectors and reallocated towards health. Diversion of resources from non-health to health sectors however would require a detailed cost-benefit analysis of expenditure on various sectors and needs to be carefully worked out.[13] The additional resources that can be reallocated towards health, family welfare, water supply and sanitation through 5% reallocation of discretionary expenditures are shown in **Table 12**.

It is evident that the extent of additional resources that can be directed towards health, family welfare, water supply, sanitation and nutrition through reallocation of discretionary resources are limited at the moment. This, however, does not mean that over time, it is not possible to reduce outlay on pay and pensions or interest payments. To reduce salary expenditure, as the TFC highlights, States will either have to (i) reduce the number of employees, (ii) reduce the average per employee salary or (iii) increase the revenue receipts without increasing the revenue deficit. The first route is likely to be easier and checking the growth of the number of employees in States is likely to be effective in reaching the target. In fact, many States have exercised restraint on expenditure on wages and salaries by not filling the vacancies created by the attrition at least partially. The TFC has also pointed out that the debt situation is particularly bad in Bihar, Himachal Pradesh, Kerala, Orissa, Punjab, Rajasthan, UP and West Bengal, which has led to high interest payments in these States. The TFC's suggestion for swapping high-cost debt incurred on account of small savings loans with the market borrowing at lower rate of interest, if implemented would provide some relief on interest payments to State Governments. Also, debt rescheduling recommended by the TFC can provide considerable relief. The incentive-based debt write off too will help the State governments in exercising fiscal prudence and reducing the revenue deficits. Similarly, the structural and parametric changes on pensions suggested by the expert committee set up to study the pension liabilities of State Governments if implemented would provide considerable relief. Although the effects of structural changes will fructify only in the long run, the parametric changes can bring about some immediate relief on pension payments.

Generation of additional revenue

States can generate additional revenue either through

[13] The 5% of discretionary resources that can be reallocated towards health is over and above the discretionary resources already allocated towards health.

tax or non-tax sources. In this section, the potential for generating additional tax revenue is first examined.

The issue of tax potential has attracted the attention of the researchers in the past. At one level, there are some scholars such as Colin Clarke who preferred to make judgements about tax revenue that should/could be mobilized and he suggested that the ratio of 25% of the GDP as the norm. In contrast, e.g. Musgrave has suggested that absolute taxable capacity is a myth and specifying this involves making arbitrary judgements. Therefore, the scholars should be concerned with 'optimal budgets' which meant that each country should determine decisions to raise revenues depending on the degree of market failure and the extent of state intervention envisaged. Here again, Musgrave suggests the need to make a crucial difference between public provision and public production of services (Musgrave 1973).

While absolute taxable capacity is difficult to conceptualize and impossible to measure in any objective sense, Musgrave (1959) emphasizes the relevance and importance of relative taxable capacity. This can be estimated by comparing different countries or sub-national units in a federation. Thus, two countries or sub-national units in a country which are similar in economic circumstances should be able to generate equal amount of revenue and the differences could then be attributed to the differences in their preference patterns. Thus taxable capacity of different units in a federation can be estimated by estimating the 'average' behaviour of the States in raising revenues after controlling for economic factors that can cause differences in taxable capacity.

Thus, taxable capacity of a country/State is defined as the revenue it can generate if it levied an average effective rate of tax on its base (Bahl 1971, 1972). Alternatively, one can also specify and estimate taxable capacity with respect to the highest effective tax rate or any other exogenously specified effective tax rate. Given that the ability to raise tax revenues may be more than proportionately higher in a more developed country/State, the effective tax rate will have to be determined with respect to the development of a particular State and a simple average would not serve the purpose. This, therefore, has to be estimated using statistical techniques to take account of the non-linear relationship between the level of development and taxable capacity.

Variations (variance) in tax revenues between different States (σ_t^2) may be due to variations in their capacity to raise revenues (σ_{tc}^2) or variations in the efforts put in by them (σ_{te}^2).

$$\sigma_t^2 = \sigma_{tc}^2 + \sigma_{te}^2 \quad \text{.....(1)}$$

If one were able to identify all the factors that contributed to taxable capacity variation, it would be possible to estimate it. Alternatively, if one controlled for variations in tax effort among States, it would be possible to derive their taxable capacity.

There are three alternative methods employed to estimate taxable capacities of the States. These are: (i) aggregate regression (AR) approach; (ii) representative tax system (RTS) approach; (iii) tax frontier approach. Appropriateness of a method to be employed to estimate taxable capacity depends on the availability of disaggregated data, the extent to which the relationship between taxable capacity and the variables representing it are perceived to be non-linear, and the degree of interdependence of the tax base with tax rate. It is useful to discuss the three methods used in some detail.

Aggregate regression approach

In the AR method, the actual tax revenue (termed as tax performance) is regressed on all factors representing variations in taxable capacity. Thus, tax-GSDP ratio or per capita tax revenue of the States are regressed on taxable capacity variables. Taxable capacity variables essentially represent the variables representing the tax bases or their proxies. This can be done in a cross-section model or, in order to get greater degrees of freedom, by combining cross-sections in a covariance model. The estimated parameters of the equation provide behavioural relationship between tax-GSDP ratio (or per capita tax revenue) and various capacity factors estimated in the equation. If it is hypothesized that the taxable capacity is a non-linear function of taxable capacity variables, it is possible to make the hypothesized functional specification in the model.

Once the behavioural relationship is estimated, it is easy to estimate the taxable capacity by substituting the actual values of the taxable capacity variables in the equation. The estimated coefficient for each capacity variable gives the 'average' behavioural relationship and substituting the actual capacity variables provides the estimate of taxable capacity of each State. The estimation of tax capacity above assumes that the coefficients of the respective bases (which indicate the average effective rate at which the bases are used across States) represent the normative rates at which States ought to raise taxes. The residual term, which is the difference between the actual tax revenue and the estimated tax capacity, is then used to indicate the tax effort of the respective States.

There are a number of shortcomings in this approach. First, it may not be able to include exhaustible list of taxable capacity factors and, therefore, the unexplained variation, which is attributed to tax effort may actually be due to omitted variables. Second, even if it is assumed that all taxable capacity factors are included, the residual variation is the combination of variations in tax effort and the random error term and to attribute it entirely to tax effort may not be appropriate. Finally, some variables may impact on both taxable capacity and tax effort and it may not always be possible to isolate the effect of capacity from effort variables. Thus, higher per capita GSDP or urbanization in State may also represent better organization of the economy and ensure greater effort.

Later studies have tried to improve upon this implicit assumption by separating out the effect of tax effort of individual States from the random error element by combining cross-section observations over time and introducing State-specific fixed effects in the regression specification using panel data (First Report of the Ninth Finance Commission 1988, Condoo et al. 2000). However, it is important to note that the

State-specific (fixed) effect may also be due to a variety of other factors and not entirely due to tax effort. Any omitted variable that is specific to the State and changes slowly (or does not) over time will also be captured by the State-specific fixed effect. Hence, what portion of the State-specific fixed effect can be attributed exclusively to tax effort may be an arguable issue.

Representative tax system approach

The representative tax system (RTS) approach to measuring taxable capacity was first employed by the Advisory Commission on Intergovernmental Relations (ACIR) in the United States. In this approach, taxable capacity is estimated for each of the taxes levied by the States. The taxable capacity of each tax is estimated by applying the 'representative' rate to the tax base of the State. The generally taken representative rate is the average effective rate of each of the taxes levied in States. This is estimated by dividing all States' revenue collection from the tax with the sum of the value of the tax base over all the States. As in the AR approach, this assumes that the average effective tax rate of the States is the normative rate at which the States ought to levy. The taxable capacity of different taxes is summed to arrive at the aggregate taxable capacity of a State. The ratio of actual tax collection to the tax capacity (as estimated above) then provides an indicator of the relative tax efforts of different States.

The major shortcoming of this approach is that it assumes that individual tax bases are independent of each other (Second Report of the Ninth Finance Commission). Second, the approach assumes that tax bases and rates are independent of each other and the average effective rates adequately capture the non-linear relationship between the tax bases and rates (Sen and Tulasidhar 1988). Besides, the data requirement for applying this approach is large and in most cases disaggregated data on various tax bases or even their close proxies are simply not available. The method is also suitable only when there is significant homogeneity in the tax structures (Chelliah and Sinha 1983).

Tax frontier approach

In the tax frontier (TF) approach, the taxable capacity of States is conceived as a production frontier and the distance from the frontier is considered as the tax effort. Thus, technical efficiency is interpreted as the tax efficiency of States or the tax effort. The main difference of the TF approach with the AR and the RTS approach is in the way in which the normative rate for estimating tax capacity is indexed. While in the TF approach the normative rate is equated with the highest rate, it is the 'average' rate that is used as the norm in the AR and RTS approaches. The TF approach has however been criticized on the grounds that the formulation of tax capacity as a production frontier is ill-conceived. It is argued that unlike firms, whose objective is to maximize profits, the primary objective of States is not to maximize tax revenue (Coondoo et al. 2000).

Thus, all the existing methods to measuring taxable capacity and effort have shortcomings. In addition, there is a serious problem in the States' tax system in India which prevents the objective assessment of the taxable capacities of the States. It must be noted that States' sales taxes, which contribute to about two-thirds of own tax revenues, are not destination based. The system of cascading sales taxes coupled with the levy of inter-State sales tax results in significant inter-State tax exportation (Rao and Singh 2005). When there is full forward shifting of the tax, inter-State tax exportation is from the richer to poorer States. Thus, tax revenues collected by State Governments include collections from non-residents.

In this exercise, we have used the AR approach to measure taxable capacity of the States with some modifications. As the emphasis is on generating additional revenue to create fiscal space for financing incremental expenditure in the health sector, the study first tries to project tax revenues at average effort and then tries to measure the revenue gains through increase in the effort itself.

As mentioned earlier, the relative taxable capacity using the regression approach is estimated by regressing the variables representing the tax bases and their proxies on the tax-GSDP ratio of the States in cross-section regression. Apart from tax bases, it also requires the identification of other factors that facilitate revenue collections, particularly those representing organization of the economy. Earlier studies have used various indicators to estimate tax performance. The most common indicator that has been used in almost all studies on the issue is the State income (Nambiar and Rao 1972, Sen 1983, Oommen 1987, Finance Commission 1988, Coondoo et al. 2000). Along with the State income, Oommen (1987) also used its components such as the proportion of income from agriculture, proportion of income from manufacturing and proportion of income from hotels, trade and commerce to explain variation in tax performance. However, due to the inclusion of the individual components of State income, the variable for aggregate State income was insignificant (possibly due to multicollinearity problems) and was later dropped. Oommen (1987) argued that income from hotels, trade and commerce would affect the sales tax revenue while income from manufacturing would affect both the sales and excise tax revenue. Nambiar and Rao (1972), Sen (1983) and Finance Commission (1988) also used non-agricultural income and non-primary sectoral SDP in addition to State income to explain tax performance. However, these variables are components of State income causing multicollinearity problems.[14] Sen (1983) also used the percentage of population below poverty line. Also, Coondoo et al. (2000) used per capita bank deposits and per capita power consumption of States in addition to State income. Apart from these variables, Nambiar and Rao (1972) and Sen (1983) used the degree of urbanization, Finance Commission (1988) used inequality of

[14] Finance Commission (1988) included both State income and non-primary sectoral SDP in the regression equation. Possibly due to the multicollinearity, they found that while the coefficient of State income was significant, the coefficient of non-primary sectoral SDP was insignificant.

Table 13

Regression results using panel data from 1995-96 to 2002-03

	Model 1	Model 2	Model 3
Per capita GSDP	0.081(20.096)**	.087(22.537)**	1.109(18.921)**
Interaction (per capita GSDP* group_dummy) [Au? Pls check]		-0.037(-4.893)**	
Urbanization	26.948(2.328)*	30.053(2.866)**	0.945(3.696)**
West Bengal	-1326.502(-4.415)**	-954.297(-3.382)**	-7.323(-10.215)**
Uttar Pradesh (including Uttaranchal)	-885.430(-3.687)**	-648.983(-2.917)**	-6.906(-10.348)**
Tamil Nadu	-876.039(-2.284)*	-1120.289(-3.197)**	-6.937(-9.040)**
Rajasthan	-979.688(-3.696)**	-642.722(-2.577)*	-6.937(-10.022)**
Punjab	-1241.804(-3.871)**	-1505.611(-5.103)**	-7.115(-9.602)**
Orissa	-765.172(-4.413)**	-506.074(-3.058)**	-6.692(-10.948)**
Maharashtra	-1350.57(-3.082)**	-1641.411(-4.096)**	-7.283(-9.145)**
Madhya Pradesh (including Chhattisgarh)	-999.614(-3.548)**	-709.784(-2.713)**	-7.000(--9.992)**
Kerala	-798.430(-2.641)**	-1021.920(-3.686)**	-6.789(-9.385)**
Karnataka	-892.642(-2.516)*	-1117.584(-3.448)**	-6.902(-9.188)**
Haryana	-907.476(-3.320)**	-1146.720(-4.551)**	-6.859(-9.641)**
Gujarat	-1136.767(-2.915)**	-1391.781(-3.904)**	-7.107(-9.209)**
Bihar (including Jharkhand)	-681.52(-4.206)**	-514.970(-3.426)**	-6.727(-11.414)**
Assam	-744.811(-5.888)**	-457.366(-3.556)**	-6.569(-11.671)**
Andhra Pradesh	-1013.684(-3.193)**	-1215.839(-4.192)**	-6.990(-9.595)**
F-test for no fixed effects	29.279	13.169	59.398

****Significant at 1%**
***Significant at 5%**

consumption expenditure (indicated by Lorenz ratio) and Coondoo et al. (2000) used the proportion of SC and ST population to explain tax performance across States.

Based on the above studies, our model employs the four commonly used determinants of taxable capacity namely: per capita State Domestic Product (SDP), share of manufacturing SDP, headcount measure of poverty and urbanization. Per capita SDP has been used in almost every study on taxable capacity. Given the level of per capita SDP, the share of non-primary sector SDP or manufacturing SDP has been used to capture the effect of industrialization. The inclusion of poverty has been primarily to measure income distribution. Urbanization has been used to denote the organization of the economy and the extent of monetized transactions that could be taxed. While these four indicators were used as explanatory variables in the model, either the tax-GSDP ratio or per capita tax has been employed as the dependent variable. Given that the objective of this exercise is to make future projections of tax revenue, per capita tax revenue (which gives a better fit of the model) is used as the dependent variable.[15]

Of the various capacity variables, after the 1990s, data on poverty ratio is available only for 1993-94 and 1999-2000. Further, regression estimates for these years showed that poverty was highly correlated with GSDP and the share of manufacturing sector GSDP with total GSDP. Only the GSDP and urbanization had the highest explanatory power. Therefore, a pooled model using data for the period 1995-06 to 2002-03 was estimated using State-specific fixed effects. While GSDP figures were available from the TFC, actual figures of urbanization were not readily available. However, projected urbanization estimates of the Registrar General (Census of India 1991) were employed to estimate the model.[16]

The specification of the panel data model including the cross-section observations for the years 1995-96 to 2002-03 was as follows:

$$\text{Per capita tax revenue} = \alpha_t + \alpha_1 (\text{per capita GSDP})_{it} + (\text{urbanization})_{it} + u_{it}$$

where (α_1 = State-specific effect for the i^{th} State

As in the OLS model, results in the pooled model including State-specific fixed effects indicated that both per capita GSDP and urbanization had a significant effect on per capita tax revenue (Model 1 in **Table 13**). The above regression specification was further modified keeping in view the first report of the Ninth Finance Commission, which highlighted that the slope coefficients of the tax function were homogeneous within similar income groups but not across groups. States were classified into relatively high and low income

[15] The source of per capita SDP was CSO, poverty figures from Sen and Himanshu (2004) and urbanization figures from NSSO.
[16] Analysis of the projected values of urbanization compiled by the Registrar General and the actual census figures of 2001 show that the correlation between the two was about 0.97 and the rank correlation is 1.

Table 14

Comparison of own tax revenue projections (as percentage of the GSDP)

State	Present study					Twelfth Finance Commission				
	2005-06	2006-07	2007-08	2008-09	2009-10	2005-06	2006-07	2007-08	2008-09	2009-10
Andhra Pradesh	8.0	8.4	8.8	9.2	9.6	8.0	8.1	8.3	8.5	8.6
Assam	5.4	5.6	5.7	5.9	6.0	5.9	6.0	6.1	6.2	6.4
Bihar (including Jharkhand)	5.1	5.2	5.3	5.4	5.5	6.3	6.4	6.5	6.7	6.8
Gujarat	7.6	7.5	7.4	7.3	7.2	7.8	8.1	8.3	8.6	8.9
Haryana	9.4	9.7	9.9	10.2	10.5	9.4	9.6	9.9	10.2	10.4
Karnataka	9.3	9.4	9.5	9.6	9.8	9.9	10.3	10.6	11.0	11.4
Kerala	10.8	11.3	11.8	12.3	12.9	9.5	9.8	10.1	10.4	10.7
MP (including Chhattisgarh)	8.0	8.1	8.2	8.3	8.4	8.1	8.2	8.4	8.6	8.8
Maharashtra	8.2	8.2	8.3	8.3	8.3	8.3	8.6	8.8	9.0	9.3
Orissa	7.1	7.3	7.5	7.7	7.9	7.2	7.4	7.5	7.6	7.8
Punjab	7.6	7.7	7.7	7.7	7.7	8.0	8.3	8.5	8.8	9.1
Rajasthan	7.4	7.4	7.5	7.6	7.6	7.6	7.8	8.0	8.2	8.3
Tamil Nadu	9.8	9.8	9.8	9.7	9.7	10.1	10.3	10.6	10.8	11.1
UP (including Uttaranchal)	6.9	7.0	7.2	7.3	7.4	7.1	7.3	7.5	7.6	7.8
West Bengal	4.8	4.9	5.0	5.1	5.1	5.8	6.0	6.2	6.5	6.8

Note: Projections of GSDP have been made using the prescriptive growth rates suggested by the Twelfth Finance Commission

groups and an interaction term of per capita GSDP and the dummy variable distinguishing the two groups was included in the regression specification to account for any differences of slopes between the two groups. The dummy variable assumed the value of 1 if a State belonged to the lower income group and zero otherwise. Results indicated that the effect of per capita GSDP on tax revenue was higher for States with relatively higher income (Model 2 in **Table 13**). To take into account the non-linearity in the relationship, the model was re-estimated in the log linear form. The model in the log form was used for projecting future tax revenues, specifically for the period 2005-06 to 2009-10 (Model 3 in **Table 13**).

The projection of taxable capacity from 2005-06 to 2009-10 was made by substituting the actual/projected values of taxable capacity variables in the equation. For the same period, projections of own tax revenues were also made based on the past trend from 1993-94 to 2002-03. The higher of the two estimates was used to indicate the likely generation of own taxes across States from 2005-06 and 2009-10. It may be noted that at the past rate, four States-Gujarat, Kerala, Karnataka and West Bengal-will fall short of the projections made through the regression model and will have to generate additional taxes to reach the levels predicted by the model.

A comparison of these projections with the TFC projections shows that, in general, the latter are on the higher side **(Table 14)**. In particular, this is true for States for which the requirement of resources for health expenditure is particularly high. Given our objective to estimate the maximum own tax revenues that the States can possibly generate, one may be hopeful of achieving the higher of the two projections, i.e. the TFC projections of own taxes. We therefore use the TFC projections of own tax revenue to calculate the additional own tax revenues that can be generated in the States from 2005-06 to 2009-10 **(Table 15)**. It is important to note that States, which will be unable to meet the committed expenditures in the projected period, will have to generate additional revenues to meet their committed liabilities in addition to their revenue generation for health expenditures.

The additional own tax revenues generated in the States will be distributed across different sectors and therefore cannot be entirely allocated towards health and health-related sectors. The National Health Policy 2002 has set a goal of spending 7% of State budgets to the health sector. Based on this, we assume that 7% of the additional own tax revenues generated can be directed towards health. Another 3% of this additional revenue is assumed to be directed towards primary schooling. The resources out of additional own tax revenues that can be allocated towards health and related sectors and the corresponding deficits at 2005-06 prices are shown in Table 16. As the requirement of resources for roads deals with the requirements of PMGSY, which is a Centrally Sponsored scheme, we do not assume any additional allocation towards roads at the State level. Figures indicate that a total amount of Rs 38,758 crore can be additionally allocated between 2005-06 and 2009-10 towards health and related sectors. This is about 13% of total requirement of resources in the above period. Even if one concentrates on the requirement of health, water, sanitation and nutrition alone, the total amount that can be additionally allocated at the State level is about Rs 31,557 crore. Given the constraints on resources, if one wishes to focus only on these sectors in the six States whose per capita additional requirements were relatively high, viz. Bihar, Assam, Orissa, MP, West Bengal and UP, the deficit at the State level is around Rs 66,812

Table 15

Additional own tax revenue projections

State	As percentage of the GSDP					At current prices (Rs in crore)				
	2005-06	2006-07	2007-08	2008-09	2009-10	2005-06	2006-07	2007-08	2008-09	2009-10
Andhra Pradesh	0.70	0.80	1.00	1.20	1.30	1712	2172	3013	4014	4,827
Assam	1.39	1.49	1.59	1.69	1.89	738	878	1040	1227	1,523
Bihar (including Jharkhand)	1.83	1.93	2.03	2.23	2.33	2330	2728	3185	3884	4,504
Gujarat	0.42	0.72	0.92	1.22	1.52	749	1448	2087	3122	4,388
Haryana	1.01	1.21	1.51	1.81	2.01	910	1221	1706	2291	2,849
Karnataka	1.39	1.79	2.09	2.49	2.89	2438	3542	4665	6269	8,207
Kerala	1.57	1.87	2.17	2.47	2.77	1836	2427	3126	3949	4,916
MP (including Chhattisgarh)	2.37	2.47	2.67	2.87	3.07	3664	4266	5152	6188	7,396
Maharashtra	0.58	0.88	1.08	1.28	1.58	2312	3929	5401	7169	9,911
Orissa	1.62	1.82	1.92	2.02	2.22	979	1221	1430	1670	2,037
Punjab	1.35	1.65	1.85	2.15	2.45	1383	1876	2335	3012	3,809
Rajasthan	1.37	1.57	1.77	1.97	2.07	1710	2211	2811	3529	4,183
Tamil Nadu	1.13	1.33	1.63	1.83	2.13	2333	3098	4283	5424	7,121
UP (including Uttaranchal)	1.62	1.82	2.02	2.12	2.32	4780	6011	7467	8772	10,744
West Bengal	1.54	1.74	1.94	2.24	2.54	3845	4900	6163	8027	10,267

Note: Projections of GSDP have been made using the prescriptive growth rates suggested by the Twelfth Finance Commission

Table 16

Additional revenues that can be directed towards health and related sectors (Rs in crore) at current prices

State	From additional tax revenues					Total (through 5% reallocation and directing part of the additional own tax revenues)				
	2005-06	2006-07	2007-08	2008-09	2009-10	2005-06	2006-07	2007-08	2008-09	2009-10
Andhra Pradesh	171.2	217.2	301.3	401.4	482.7	660	814	994	1238	1485
Assam	73.8	87.8	104	122.7	152.3	74	88	104	123	152
Bihar (including Jharkhand)	233	272.8	318.5	388.4	450.4	233	273	319	388	450
Gujarat	74.9	144.8	208.7	312.2	438.8	735	889	1071	1285	1536
Haryana	91	122.1	170.6	229.1	284.9	208	253	318	394	469
Karnataka	243.8	354.2	466.5	626.9	820.7	560	710	868	1080	1332
Kerala	183.6	242.7	312.6	394.9	491.6	207	282	356	459	563
MP (including Chhattisgarh)	366.4	426.6	515.2	618.8	739.6	676	737	843	964	1077
Maharashtra	231.2	392.9	540.1	716.9	991.1	391	527	640	829	1054
Orissa	97.9	122.1	143	167	203.7	98	122	143	167	204
Punjab	138.3	187.6	233.5	301.2	380.9	138	188	234	301	381
Rajasthan	171	221.1	281.1	352.9	418.3	208	263	329	389	459
Tamil Nadu	233.3	309.8	428.3	542.4	712.1	481	589	717	868	1080
UP (including Uttaranchal)	478	601.1	746.7	877.2	1074.4	773	964	1190	1374	1676
West Bengal	384.5	490	616.3	802.7	1026.7	385	490	616	803	1027

crore **(Table 17)**.

The States of Bihar, Assam, Orissa, UP and MP not only have a high requirement of health expenditures, but also have a relatively low capability of generating additional revenues and therefore have a high deficit. Possibly recognizing this, the TFC has provided additional grants for health expenditures specifically to the States of Assam, Bihar, Jharkhand, MP, Orissa, UP and Uttaranchal to equalize the health expenditures within the special and non-special category States. The TFC has also allocated additional grants for equalizing education expenditures to the States of Assam, Bihar, Jharkhand, MP, Orissa, Rajasthan, UP and West Bengal. The total grant under these two heads at 2005-06 prices is about Rs 13,927 crore. The State-wise grants and the deficit even after the TFC grants for health and education are shown in **Table 18**.

It must be noted that the release of additional grants from

Table 17

State-wise deficit of resources in health and related sectors, 2005-06 to 2009-10 (Rs in crore) at 2005-06 prices

State	Total			Health*		
	Requirement	Additional allocation	Deficit	Requirement	Additional allocation	Deficit
Andhra Pradesh	6,155	4,433	1,722	944	4,033	0
Assam	9,776	463	9,313	3,704	324	3,380
Bihar (including Jharkhand)	50,935	1,427	49,508	19,251	999	18,252
Gujarat	27,364	4,721	22,643	2,613	4,426	0
Haryana	1,344	1,401	0	1,290	1,174	116
Karnataka	1,617	3,879	0	1,128	3,243	0
Kerala	4,519	1,585	2,934	4,442	1,171	3,271
MP (including Chhattisgarh)	51,572	3,710	47,862	12,190	3,024	9,166
Maharashtra	7,212	2,923	4,289	5,149	2,199	2,950
Orissa	21,095	629	20,466	6,024	440	5,584
Punjab	4,477	1,054	3,423	1,355	738	617
Rajasthan	15,572	1,409	14,163	5,166	1,040	4,126
Tamil Nadu	1,467	3,191	0	612	2,626	0
UP (including Uttaranchal)	66,352	5,114	61,238	28,111	4,146	23,965
West Bengal	30,734	2,819	27,915	8,438	1,973	6,465
	300,188	38,758	261,430	100,417	31,557	77,892

*Includes, health, water, sanitation and nutrition

Table 18

Additional (conditional equalization) grants provided to individual States for meeting health and education expenditures by the Twelfth Finance Commission (TFC) and the deficit after using the TFC grant (Rs in crore) 2005-06 prices

State	Deficit before TFC transfer for health*	Deficit before TFC transfer (Total)	Health	Education	Total	Deficit after TFC transfer for health	Deficit after TFC transfer (Total)
Andhra Pradesh	0	1,722	0	0	0	0	1,722
Assam	3,380	9,313	829	960	1,789	2,551	7,524
Bihar (including Jharkhand)	18,252	49,508	1881	2891	4,772	16,371	44,736
Gujarat	0	22,643	0	0	0	0	22,643
Haryana	116	0	0	0	0	116	0
Karnataka	0	0	0	0	0	0	0
Kerala	3,271	2,934	0	0	0	3,271	2,934
MP (including Chhattisgarh)	9,166	47,862	169	398	567	8,997	47,295
Maharashtra	2,950	4,289	0	0	0	2,950	4,289
Orissa	5,584	20,466	163	280	443	5,421	20,023
Punjab	617	3,423	0	0	0	617	3423
Rajasthan	4,126	14,163	0	88	88	4,126	14,075
Tamil Nadu	0	0	0	0	0	0	0
UP (including Uttaranchal)	23,965	61,238	2068	3861	5,928	21,897	55,310
West Bengal	6,465	27,915	0	340	340	6,465	27,575
Total	77,892	261,430	5110	8818	13,927	72,782	247,503

*Includes, health water, sanitation and nutrition

the TFC has been tied to various conditions. In general, the release of grants for health and education has been made conditional on States' meeting the Commission's projections for non-plan revenue expenditure (NPRE) on health and education. Given that these projections of NPRE is higher than what would be achieved if the past growth rate of NPRE on these sectors continued, fiscally stressed States may find it difficult to actually access these grants.

Even if one assumes that the concerned States will be able to access the TFC grants, there is still a substantial amount of deficit in the requirement of resources for meeting health goals **(Table 18)**. These additional resources have to be met by other Central transfers. The next section discusses the nature of Central transfers that would be required and the norms that should be followed for Central transfers to States for meeting the resource gap.

Central transfers to States

The above analysis shows that State Governments will have to augment considerable resources through better tax effort and release more resources for the social sectors through better fiscal management and reprioritization. Even so, this can meet the requirements only partially and significant additional resources will have to be committed to health and allied sectors. Thus, achievement of the MDGs as well as the Tenth Plan Goals in the health sector will crucially depend on additional resources made available through the transfer system and better targeting of these transfers.

Central transfers to States fall into three categories. The first is the statutory transfers comprising tax devolution and grants, which are given on the basis of the recommendations of the Finance Commission. The second is the plan assistance given by the Planning Commission on the basis of the consensus formula approved by the National Development Council (NDC). The third source is the transfer given by various Central ministries for the Central sector and Centrally sponsored schemes.

Analytically, transfers can be given for general purposes, to offset the general fiscal disabilities of the States, or for specific purposes. While the former is given to enable every State to provide a given level of public services at a given tax price, the latter is given to ensure minimum standards of specified services. The latter are given as these services are considered to be meritorious and, therefore, everyone is entitled to a minimum level of their consumption. These transfers are targeted to spend on specified purposes/sectors and they have to be targeted to those States with shortfalls.

The statutory and formula-based transfers of the Planning Commission are essentially general-purpose transfers. These are meant to offset the general fiscal disabilities of States arising from the low revenue-raising capacity or higher unit cost of providing public services. These are formula-based transfers meant for general augmentation of resources and cannot be pre-empted for spending on health and allied sectors. The important exception to this is the upgradation grants for health and education recommended by the TFC. As discussed in the previous section, while these are useful supplements, they would be inadequate to meet the requirements for achieving the set goals.

Besides being general-purpose transfers, it is doubtful whether the Centre would be able to augment them much to bridge the gap in States' resources.for the health sector for at least two reasons. First, given the compulsions of restoring fiscal balance at the Central level itself and given further the compulsions of meeting the fiscal targets set by the Fiscal Responsibility and Budget Management Act, it would be difficult for the Centre to make additional resources available for general purpose spending. Second, the TFC has already made recommendations with marginally increased transfers from the last Commission and these recommendations will be valid during 2005-06 to 2009-10. Under this no additional resources would be available.

This would imply that any increase in the transfers will have to be for specific purposes under the Central sector and Centrally sponsored schemes. At present, a large number of schemes are being administered by various ministries resulting in the thin spread of resources, multiplication of bureaucracy and often, poor targeting. To meet the shortfalls in the health sector, it is necessary to significantly augment specific transfers to enhance the resources for health spending. In addition, it would be necessary to consolidate various schemes under the broad heads of basic education, healthcare, mother and child, nutrition, water supply and sanitation and rural roads. This will target the transfers to augment spending in desired sectors.

Equally important is proper designing of the transfer system. It is useful to have purpose-specific grants. To have the system with right incentives and to ensure that the additional resources provided by the Centre are used for incremental spending and not merely to substitute States' own spending, it is useful to mandate the States to make matching contributions. Requiring the States' additional contribution will help to reprioritize States' own spending in favour of health and allied sectors and impart a sense of participation and ownership by them in the task of augmenting health services. Of course, matching requirement places poorer and resource constrained States at a disadvantage, but the matching requirement itself can be varied with the level of per capita incomes in the States (Feldstein 1975). Thus, high-income States may be required to contribute say, 50%, middle-income States 30% and low-income States a mere 10%. Such a design of the transfer system for specific purposes will preserve the incentives, impart a sense of ownership and participation by the States and help to augment resources for the desired sectors.

Conclusion

This study analyses the resource requirements for meeting certain targets of the health sector and analyses the gap between the required and the actual expenditure in 15 major States in India. It highlights the extent of resources that can be mobilized at the State level to meet the resource gap and estimates the residual gap that has to be met by Central transfers.

Estimates indicate that the additional expenditure required

for meeting the specific norms/targets in health and related sectors (which include safe drinking water, sanitation, nutrition, primary schooling and roads) is about Rs 300,168 crore. One can argue that the expenditure on primary schooling and roads has various other positive externalities and are not exclusively incurred towards health. Although, not exclusively towards health, these expenditures have a significant bearing towards health outcomes and cannot be ignored if one has to reach the health targets. Even if one focuses only on medical, public health, safe drinking water and sanitation, which are directly incurred towards health outcomes, the total requirement is about Rs 100,415 crore. In general, there is a deficit of about Rs 247,503 crore at the State level. The requirements are particularly high in States with low per capita income and high poverty levels. These are also the States where the productivity of expenditure and delivery of services are particularly poor. If one is constrained on the resource front, these aspects have to be specifically focused upon. Improving the productivity of expenditure and delivery systems in these low-income States can actually reduce the resource requirement.

However, it would be too optimistic to expect any appreciable improvement in the productivity of healthcare expenditure in the near future. In particular, it may be noted that the level of productivity and delivery systems are often affected by a number of social, cultural and historical factors which change slowly over time. These improvements therefore cannot act as a substitute for increased allocation of funds in the short run. One therefore has to find resources to make increased allocation to healthcare expenditure in the next five to ten years.

Increased allocation to healthcare expenditure can be done by (i) raising more resources; (ii) reprioritizing the expenditure allocation in favour of medical and public health, water supply and sanitation; and (iii) targeting the expenditures to States and regions where the health indicators are poor and have considerable catching up to do.

The possibility of raising additional resources has been discussed at length. We have compared our estimates of taxable capacity with the estimates made by the TFC. The ability of the States to contribute additional resources to the health sector critically depends on their effort in raising revenues close to their capacity. In this context, two points are important. First, our estimates show that there is a possibility of raising revenues, particularly in some States where the actual revenues raised are below their capacity. Second, the capacity estimation itself is relative to other States and not in the absolute sense. In other words, if there is a general undertaxation by all States, it does not show up in the estimates. For example, although the States have been assigned the power to levy tax on agricultural income and wealth, they have mainly for political reasons desisted from this and even the land revenue collections have declined over the years. It is certainly possible to raise the bar through better tax administration.

The most important initiative in this regard is the introduction of value added tax (VAT) by most States with effect from 1 April 2005. Although this is expected to be revenue neutral, it is expected to increase the revenue productivity of the tax system in the long term. The extension of the tax net to the retail stage would broaden the base and is expected to more than offset the loss of tax base due to giving credit to inputs. More importantly, the self-enforcing nature of the tax is expected to significantly improve the tax compliance and this could improve revenue productivity. Thus, it should not be difficult to improve the revenues by at least by 1%-1.5% of the GSDP over the next five years.

The second way to release more resources to the health sector is to reprioritize the expenditure in favour of the sector. In this context, it is important to restrict expenditure to contain revenue deficits as would be required under the Fiscal Responsibility Act (FRA) by each State mandated by the TFC. However, reprioritization should happen in the process of containing the expenditure on wages and salaries as a ratio of total revenue expenditure to the levels that prevailed in 1996-97 as suggested by the TFC. Much of the reduction in the wages and salaries expenditure should happen in administrative departments and not in the education and health sector. In fact, in the latter, it is important to ensure that CHCs, PHCs and sub-centres are properly staffed to provide the service and ensure health outcomes. It is important to restructure the administration and reduce the wages and salaries by freezing employment in administrative departments. The debt rescheduling and reduction in interest rates recommended by the TFC would allow additional fiscal space to the States. Besides, the TFC has recommended incentive-based debt write off to the tune of Rs 32,198 crore over the same period when the States reduce their revenue deficits as per the targets set out in the FRA. It is important that the additional fiscal space created by these recommendations is used for human development.

Another important strategy to be adopted to improve the effectiveness of health expenditure is to target the allocations to States where the health outcomes are poor. It is precisely for this reason that the TFC has recommended equalizing grants to those States with less than average per capita expenditures within the revenue account. Although the TFC's equalization does not entirely cover the shortfall in per capita expenditures, this type of targeting expenditures could help to improve the health outcomes precisely in States with large shortfalls from the norms.

The recommendations of the TFC, however, can cover only a partial requirement of the States. Achieving the MDGs and the Tenth Plan targets would require significant additional resources and improved productivity in spending to focus on outcomes rather than outlays. Much of the intervention in this area will have to come by way of consolidation of a plethora of Central schemes prevailing at present, and augmentation of specific purpose transfers for broadly defined purposes. This paper argues that the appropriate design for targeting, preserving the incentives and to ensure participatory provision is to have a specific purpose transfer with matching contributions from the States, the latter varying with the level of their development.

From the above discussion, it would be reasonable to summarize that significant additional allocation to health sector is

within the realm of possibility. This, however, would require that States should exercise prudent fiscal management. They should also be clear in their assignment of priority. Investment in human capital is critical to both accelerating growth, enhance productivity and empowering the poor. Improving the health status of population is a critical component of human development and the States will have to reassign their priorities in favour of the health sector in the interest of development.

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