

TRENDS AND DETERMINANTS OF HEALTH CARE EXPENDITURE IN CHHATTISGARH: EVIDENCE FROM STATE HEALTH ACCOUNTS

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Abstract- The study titled “Trends and Determinants of Health Care Expenditure in Chhattisgarh: Evidence from State Health Accounts” examines the pattern, growth, and key determinants of health spending in the state over recent years. Using data drawn from the State Health Accounts (SHA) of Chhattisgarh, the study provides a comprehensive assessment of public and private health expenditure, focusing on the allocation across preventive, curative, and administrative components. The analysis employs both descriptive and econometric methods to identify trends and the socio-economic factors influencing healthcare spending. Findings reveal a gradual increase in total health expenditure as a share of Gross State Domestic Product (GSDP), driven largely by public investment in primary healthcare and national health missions. However, out-of-pocket expenditure (OOPE) by households remains considerably high, indicating persistent financial vulnerability. The study further highlights disparities in expenditure patterns across districts and income groups, suggesting unequal access to healthcare resources. Major determinants identified include per capita income, literacy rate, urbanization, and healthcare infrastructure availability. The paper concludes by emphasizing the need for policy measures that promote financial protection, enhance efficiency in resource allocation, and strengthen preventive care financing to achieve universal health coverage in Chhattisgarh.

Keywords: Health expenditure, State Health Accounts, Chhattisgarh, Out-of-pocket expenditure, Determinants, Public health financing

1. Introduction

Health care at its essential core is widely recognized to be a public good. Its demand and supply cannot therefore, be left to be regulated solely by the invisible hand of the market. Nor can it be established on considerations of utility maximizing conduct alone. Health care covers not merely medical care but also all aspects of pro-preventive care too. Financing is one of the most critical determinants of how well the health sector will perform. The nature and pattern of financing to a large extent determines the effectiveness of service delivery and at the same time it defines the boundary and capability of the system to achieve its objective. In 1978, the thirtieth world health assembly decided that the main social target of governments and the world health organization in the coming decades should be “attainment by all citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life. In 1978, with a view to support the above stated goal, the international conference on primary health care which took place at Alma Ata adopted the declaration that primary health care was the key to obtaining the target of “Health for all” by the year 2000. Health care, education, housing, old age provisions has nowhere in the world has able to make an effective contribution without the active participation of the state. Two recent World Health Assembly (WHA) resolutions have highlighted the importance of health-financing systems in helping countries attain and maintain universal coverage – sometimes called “universal health coverage” or “social health protection”.

There is a consensus among social scientists that health care is different from other goods and services, because of greater likelihood of “market failure”. The two main characteristics of health care which lead to market failure and thus necessitate state intervention are the presence of externalities and information asymmetries. An externality results when an action of an agent has an effect not only upon the agent but also upon others. This necessitates state intervention in order to ensure that sufficient resources are directed to the production of such goods or services, which in turn would result in an increase in the society’s welfare. It has been argued that such externalities are less evident for general health care services such as physician and hospital care, and greater in the area broadly known as “public health”. The latter relate to interventions targeted at overall conditions of nutrition and sanitation that determine health, as well as communicable diseases which are passed either directly

among humans or indirectly through the physical environment. An action taken by one person (e.g. ensuring clean, safe water, immunizing oneself against, or seeking treatment for, a communicable disease) generates direct health benefits for other individuals, through reduced rates of disease. These positive externalities make government intervention essential. Such intervention can take the form of price subsidies to encourage or spread the consumption of health care services, or direct public provision of such services. Asymmetric information reflects any situation in which one party to any contract or exchange has access to some information that is not known to the other party. Such information asymmetries, primarily between the service provider and patient, pervade the health sector and cause market failure in both health care and health care insurance markets. There are also problems of “incentive incompatibility”, in which the interests of the patient and the health care provider need not coincide. These points are to the need for government intervention in the form of regulation. Such regulation can take the form of licensing of health care providers, limits on advertising, insistence on some professional norms that prohibit low quality, etc. Such regulation has to ensure balance between the need to increase welfare by improving or ensuring quality, and the welfare reducing effects of inadvertently granting monopoly powers to providers. Therefore from both the efficiency and equity grounds there, is no alternative to the public provision of health care. Even for the success of an insurance system based on private provision, increased public health spending and reforming of public health facilities are necessary. This is what makes the theoretical case for health expenditure by the government.

2. Review of Literature

Pandey et al (2004) have analyzed the pattern and correlates of utilization of Antenatal care services in Chhattisgarh, Jharkhand, and Uttaranchal and examined the assistance received during delivery in these states. There are two study variables like the number of antenatal check-ups and delivery assistance. The result shows that the urban woman, women from other caste excluding SC and ST, woman from higher economic strata, younger women, literate women, women whose spouses are educated have gone for more number of antenatal check-ups than their counterparts. Delivery care by selected background characteristics shows that in comparison with rural areas more deliveries take place in urban areas. The result is almost same in the case of delivery care. Sambhamoorthi et al (2004) explore the relationship between antenatal care and AIDS awareness and comprehensive knowledge about ways to prevent AIDS. The study also shows that women who received prenatal care from the doctors have the highest rate of awareness. The highly educated women with higher income, other than SC and ST, urban residence have heard more about AIDS than women with a lower education and a lower standard of living and other characteristics. Srinivasan and Mohanty (2008) have explored the relationship between household deprivation and its linkages with reproductive health utilization. The study revealed that there is a sustained decline in the percentage of deprived households in all the states between 1992 and 2005. The deprived suffers disproportionately more from conditions such as severe malnutrition and T.B. The analysis shows that deprivation at the household level influence the utilization of various reproductive and child health services and health outcomes to the extent of 30 percent to 40 percent, with less than 20 percent on the variable of contraceptive use. Nayar, (1997) studies the relationship between housing amenities and health improvement and shows some important findings. An examination of data from 10 states in India indicates a definite contribution of housing condition including sanitary facilities in health improvement. From the data it is known that Kerala and Goa have better housing condition, source of drinking water facilities and sanitary facilities. On the other hand Chhattisgarh, Madhya Pradesh and Uttar Pradesh are extremely poor in the above facilities. High correlation exists between housing amenities and health indicators. The result shows that moderate to strong correlation exists between (a) availability of piped water supply and crude death rate (b) household with water source in premises and infant mortality rate (c) households with exclusive latrine and infant mortality rate, crude death rate, and crude birth rate (d) availability of electricity and infant mortality rate, crude death rate, and crude birth rate. Similarly, positive correlation exists between proportion of households without latrine and infant mortality rate, crude death rate. Low correlation exist between (a) pucca housing and infant mortality rate, crude death rate (b) community source of water and infant mortality rate, crude birth rate and death rate (c) household with water in premise and crude birth rate and death rate.

From the above studies it is clearly visible that there are wide spread differences in the utilization of health

care services between the states, between the class like upper class, middle class and lower class based on income, between different caste like SC, ST, OBC, General and between have and haven't on the basis of basic amenities.

Some other studies are reviewed which are related to the health care utilization in Chhattisgarh. Padhi, (2001) has analyzed the mortality status of infant and children in Chhattisgarh. The author has used the NFHS 1992-93 in order to show the pattern of premature mortality. In Chhattisgarh the maternal and child care facilities and its utilization vary according to certain background characteristics. In case of antenatal care, use of Tetanus Toxoid vaccination/iron and folic acid tablets, awareness of safe delivery and birth immunization status, post natal therapeutic care, nutritional status of children, the data shows that urban woman, other than SC and ST, literate woman especially high school and above are going for more utilization of health care services. Ager and Pepper, (2005) have studied the patterns of health service utilization and perception of need and services in rural Chhattisgarh. The study focused on the health seeking behavior of rural populations with special reference to perceptions of the availability and quality of state services at primary care. The result shows that there was a low level of utilization of first-level primary care provision and local perceptions of poor service quality and non-availability of staff appear a major contributor to this low pattern of usage. In case of the utilization of health services, private practitioners represented a major sector of provision and this service was highly access by Schedule caste and Schedule tribal people. The major factors responsible for this utilization were reputation of the provider, cost and physical accessibility. People have more faith on the private health facilities because of easy accessibility and highly qualitative as compare to government health facilities. Swain, (2008) has analyzed the nutritional deprivation of children in Chhattisgarh by taking into account two villages like Maskabari and Gundarsahi of Nayagard district. It is clear from the analysis that children of these two villages of Chhattisgarh are typical of a deprived community, being stunted and wasted to some degree from childhood. It is known from the study that children in those two villages are deprived not because of lack of natural blessings and material efforts from their parents but because of lack of material and non-material assets. Meher, (2008) has conducted a study on the socio-economic and health status of tribal households in Chhattisgarh. The study revealed that, although tribal's are constitute a major percentage of Chhattisgarh's population but still they are left in a very precarious state of development insofar as livelihood security is concerned. In case of health care service public health care facilities in the backward pockets remain quite unsatisfactory due to lack of physical infrastructure, unavailability of required medicines and stocks, absence of medical staff in PHC, corrupted administration etc. The Tribal communities have remained isolated from mainstream civilization since time immemorial. For any health problem, the majority resorts to spirit worship, black magic and sorcery. Despite efforts made by State under the Reproductive and Child Health Programme-I and II, and field-level NGOs in tribal inhabitations, less than 30 percent of children and mothers are presently covered under the complete immunization, including inoculation of three doses of Polio and DPT vaccines, tuberculosis vaccine, measles vaccine, two oral doses of Vitamin A for children below 24 months and two doses of tetanus injections and 300 IFA tablets for expectant mothers to prevent mortality risk. Because of higher incidence of poverty in the state, tribal's fail to acquire adequate calories, nutrition and vitamins to keep them immune from various diseases. Hence for the overall development of tribal's, apart from the livelihood sustaining measures, strengthening of public health care facilities needs foremost attention.

3. Objectives

- To look in to the trend and pattern of public health expenditure in Chhattisgarh

4. Data and Methodology

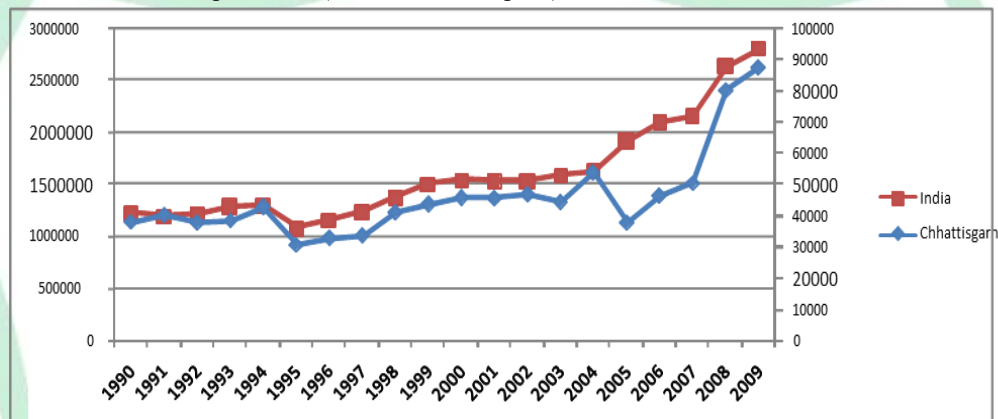
The present study has used both secondary and primary data. Keeping the level of accuracy in mind, maximum dependence is on primary data from the field through household survey. The secondary sources are Reserve Bank of India (RBI) data source, NFHS (1992-93), NFHS-2 (1998-99), and NFHS-3(2005-06), Economic Survey of Chhattisgarh, National Human Development reports on various issues, Directorate of Economics and Statistics Department of Health and Family Welfare (GoO), Statistical Handbook of Durg District, District at a Glance (GoO), and Official websites of Chhattisgarh and Durg District.

Health status(HS)=F {Income(TI),Education(ED),Medical set up (MF),Asset holding(AS),and others(U)

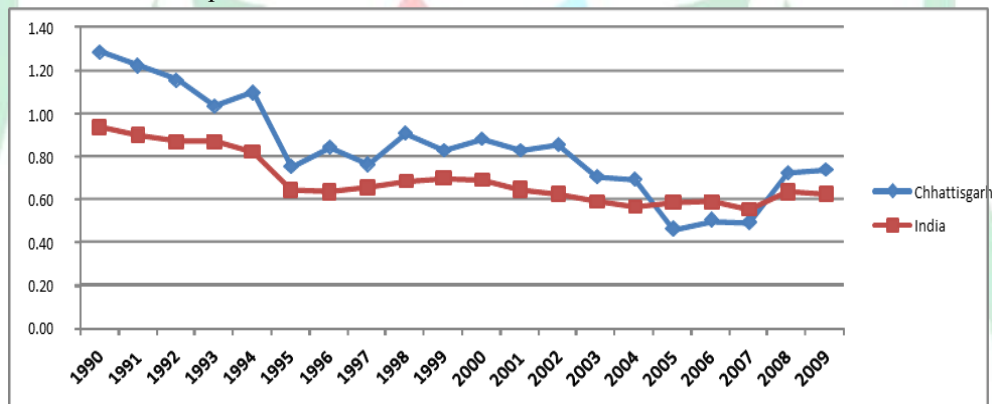
5. Trends in Medical and Public Health Expenditure

Medical and public health expenditure includes expenditure on various health care facilities like urban health services and rural health services, PHCs, Sub-centers; expenses at different medical colleges; the prevention and control of diseases; promotion of Indian system of medicine; and national malaria and filarial control programmes. It is largely funded by state government from its own sources (see the graph 1 to 5).

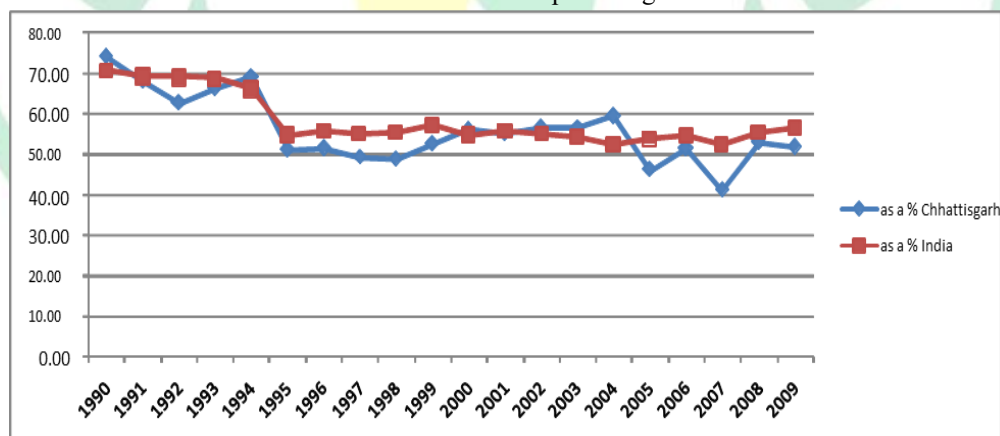
Graph-1: Trends in total expenditure (Revenue and Capital) on Medical and Public Health



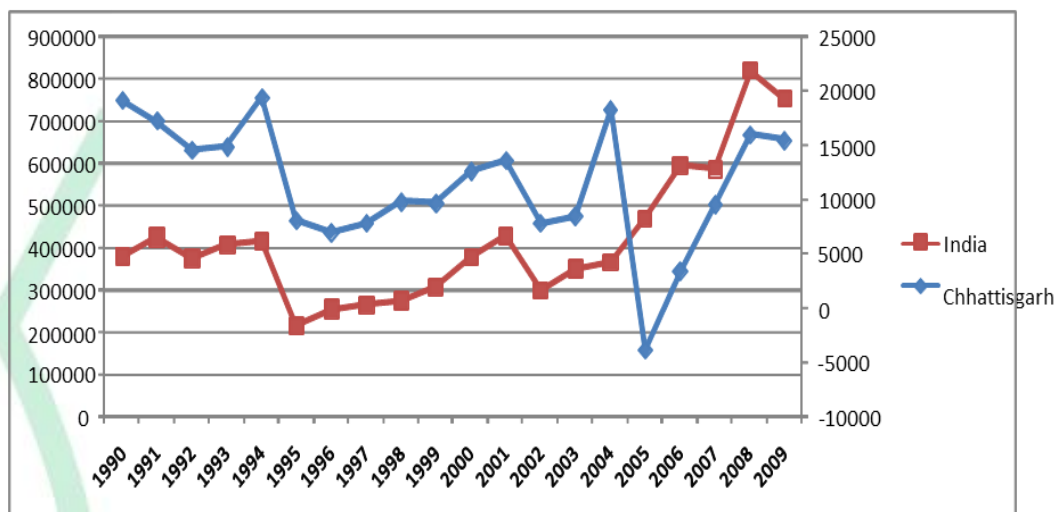
Graph-2: Trends in Total Expenditure on Medical and Public Health as a % to GSDP and GDP



Graph-3: Trends in share of Medical and Public Health as a percentage to total HE



Graph-4: Trends in Plan Expenditure on Medical and Public Health



Graph-5: Trends in Non-plan Expenditure on Medical and Public Health

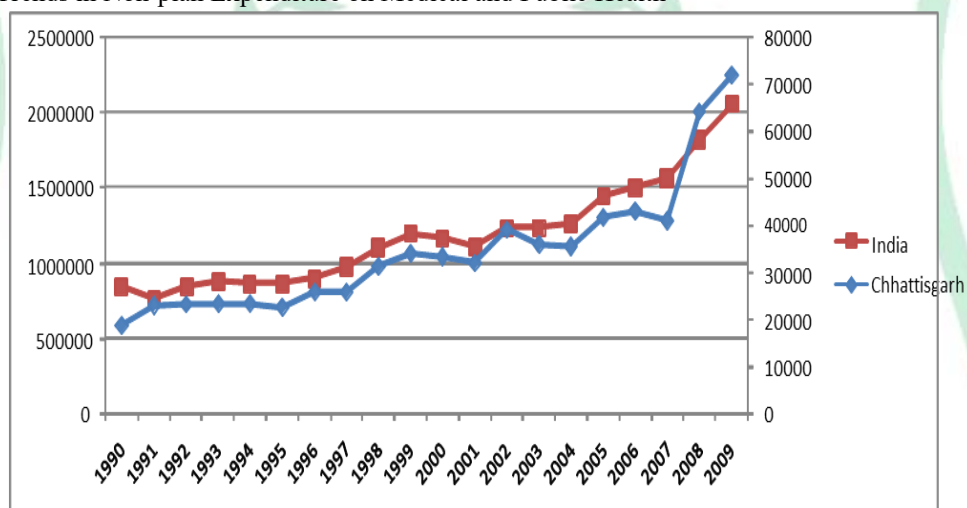


Table:1 provides information on both revenue and capital expenditure on medical and public health. It is seen in real terms the revenue and capital expenditure on medical and public health has increased during the period 1990-99 to 2000-09 for the Chhattisgarh as a whole and India. Though both the revenue and capital expenditure on health shows increasing trends for Chhattisgarh and India, the annual compound growth rate of Chhattisgarh in case of capital expenditure is much less than revenue expenditure. In case of revenue expenditure both Chhattisgarh and India are showing similar trend where as in case of capital expenditure there is much gap in the growth rate of Chhattisgarh (0.38) and India (10.70). However the fluctuation in the capital expenditure is less in case of Chhattisgarh as compare to the all India average but in case of revenue expenditure the variation is just opposite.

Table 4.1: Trends in Revenue and Capital Expenditures on Medical and Public Health (Rs lakh)

YEARS	Revenue		Capital	
	Chhattisgarh	India	Chhattisgarh	India
1990	36543	1162422	1502	60022
1991	36849	1126436	3572	61571
1992	37009	1159125	831	53842
1993	37479	1230010	962	50700
1994	37902	1232905	5011	51908
1995	29321	1032580	1583	46916
1996	31513	1104177	1472	47553
1997	32280	1178529	1535	60996
1998	40487	1315341	714	60299
1999	43094	1422311	721	80571
1990-99	36248	1196384	1790	57438
2000	42906	1473443	3103	70494
2001	42459	1466441	3329	68493
2002	42804	1467101	4184	67981
2003	40313	1489983	4270	96756
2004	53661	1523050	345	100808
2005	36311	1742113	1581	171012
2006	43648	1802068	2977	294814
2007	48956	1861947	1621	290449
2008	78834	2262965	1390	372811
2009	85646	2505182	1868	301304
2000-09	51554	1759429	2467	183492
MEAN	43901	1477906	2129	120465
SD	14328	390663	1360	104562
CV	0.33	0.26	0.64	0.87
ACGR	3.33	3.78	0.38	10.70

ACGR: Annual Compound Growth Rate

Source: Author's Compilation from RBI, Handbook of Statistics on State Government Finance-2010

Table 2 exhibits the plan and non-plan expenditure on medical and public health. It is seen that in real terms the plan expenditure on medical and public health has decreased in case of Chhattisgarh during the period 1990-99 to 2000-09 as against the all India average. But in case of the performance of Non-plan expenditure on medical and public health, for both Chhattisgarh and India are same progressive trend. Though the CAGR shows the increasing trend for both Chhattisgarh and India, but it is more in case of Non-plan expenditure for Chhattisgarh as compare to all India growth rate. But it is quite opposite in case of Plan expenditure where the CAGR of plan expenditure in case of Chhattisgarh is far negative then the all India average which is positive. In the same way the fluctuation in case of both plan and non-plan expenditure is more in case of Chhattisgarh as against the all India average.

Table 4.2:Trends in Plan and Non-plan Expenditures on Medical and Public Health (Rs lakh)				
YEARS	Plan		Non-plan	
	Chhattisgarh	India	Chhattisgarh	India
1990	19131	378838	18914	843607
1991	17258	425678	23164	762329
1992	14557	374840	23283	838128
1993	14901	406868	23541	873842
1994	19452	415362	23461	866620
1995	8098	215024	22806	864472
1996	6961	254065	26023	897666
1997	7829	263251	25986	976273
1998	9828	275406	31372	1100234
1999	9675	307006	34139	1197450
1990-99	12769	331634	25269	922062
2000	12612	378062	33397	1165875
2001	13612	427343	32177	1107590
2002	7831	298121	39157	1236961
2003	8494	349326	36090	1237413
2004	18293	365346	35713	1258513
2005	-3866	469538	41758	1443586
2006	3417	595013	43208	1501869
2007	9561	586822	41017	1565575
2008	16012	818673	64212	1817106
2009	15500	752621	72014	2053866
2000-09	10146	504087	43874	1438835
MEAN	11520	413754	34129	1168145
SD	5678	157144	13428	346185
CV	0.49	0.38	0.39	0.30
CAGR	-9.27	3.54	5.71	4.65

ACGR: Annual Compound Growth Rate

Source: Author's Compilation from RBI, Handbook of Statistics on State Government Finance-2010

Table 3 depicts the trend in total expenditure in medical and public health. In real terms, the total expenditure in Medical and Public Health shows the increasing trends for Chhattisgarh and India during the period of 1990-91 to 2009-10. This trend is largely because of the increase in the revenue expenditure on medical and public health. In case of the annual compound growth rate, the growth rate of total expenditure on Medical and Public Health during the study period is less in case of Chhattisgarh as compare to the all India growth rate. The fluctuation in case of total expenditure on Medical and Public Health is slightly more in case of Chhattisgarh as against the all India expenditure which can be known by the higher coefficient of variation.

The TEM & PH as a percentage of GSDP and GDP at factor cost shows declining share for Chhattisgarh and nation as well. For the country as a whole, it is less than one percent of GDP. For Chhattisgarh from 1.29 percent during 1990-91 to 0.83 percent in 1999-00 and again it had decreased to 0.69 percent during 2009-10. Table 3.27 shows trends in the percentage of plan and non-plan expenditure as a percentage of GSDP and GDP. From the table it is clearly known that in both the cases of plan and non-plan expenditure, the total percentage as a percentage of GSDP and GDP has been declining consistently. In both the cases of plan and non-plan expenditure as a percentage of GSDP and GDP, the average percentage for Chhattisgarh during 1990-99 were 0.35, 0.64 and for India 0.21 and 0.56 respectively which have been further declining to 0.14 and 0.55 in case of Chhattisgarh and 0.16 and 0.45 in case of India respectively during 2000-09. This shows that the government importance towards medical and public health has been declining in recent years.

Table 4.3: Trends in total expenditure(R+C) on Medical and Public Health (Rs lakh)

YEARS	Total		TEM & PH as a % to GSDP and GDP	
	Chhattisgarh	India	Chhattisgarh	India
1990	38045	1222444	1.29	0.94
1991	40421	1188007	1.23	0.90
1992	37840	1212967	1.16	0.87
1993	38441	1280710	1.04	0.87
1994	42913	1284812	1.10	0.82
1995	30904	1079496	0.75	0.64
1996	32985	1151731	0.84	0.63
1997	33815	1239524	0.76	0.65
1998	41200	1375639	0.91	0.68
1999	43815	1502883	0.83	0.70
1990-99	38038	1253821	0.99	0.77
2000	46009	1543937	0.88	0.69
2001	45788	1534933	0.83	0.65
2002	46988	1535082	0.85	0.62
2003	44583	1586739	0.70	0.59
2004	54006	1623858	0.69	0.56
2005	37892	1913125	0.46	0.59
2006	46626	2096882	0.50	0.59
2007	50578	2152396	0.49	0.55
2008	80225	2635777	0.72	0.63
2009	87514	2806486	0.74	0.62
2000-09	54021	1942921	0.69	0.61
MEAN	45649	1581964		
SD	13984	481083		
CV	0.31	0.30		
ACGR	3.22	4.31		

ACGR: Annual Compound Growth Rate

Source: Author's Compilation from RBI, Handbook of Statistics on State Government Finance-2010

6. Towards on Explanation

In real terms, on an average, the total public expenditure on health showed increasing trends for Chhattisgarh and as well as all India during 1990-91 to 2009-10. During this period, the annual compound growth rate of total public health expenditure was 4.93% for Chhattisgarh, which was lower than 5.72% growth rate of all India during the same period.

► Like the revenue and capital expenditure on health, in case of Plan and non-plan expenditure on health showing the same declining trend for Chhattisgarh as well as India during 1990-99 to 2000-09. In case of plan expenditure on health for Chhattisgarh and India which were 0.84% and 0.53% respectively during 1990-99 has decreased to 0.59 and 0.51 during 2000-09. In the same way in case of non-plan expenditure, which were 0.83% and 0.70 respectively in 1990-99 has decreased to 0.70 and 0.60 during 2000-09.

Although the absolute amount of total public health expenditure on health has been increasing over the years, its share in GSDP/GDP has been declining during the period 1990-99 to 2000-09. For all India, it was 1.23 percent of the GDP during 1990-99 and it slightly came down to around 1.11 percent during 2000-09. For, Chhattisgarh, this share in the GSDP declined from 1.66 percent to 1.29 percent during the same period. This share has been more or less around one percent for Chhattisgarh and India as a whole. It is important to see whether resource allocation is in accordance with the norm and whether it provides the poor adequate protection against health shocks. The Health policy of 2002 put a target of public spending on health care to 2 percent of GSDP and 5 to 6 percent of state expenditure. This goal has not been realized till today. Even the current share of health expenditure in the state total budget is less than 5 to 6 percent as mentioned in the policy. In this connection, more public intervention is needed in order to protect the poor.

7. Conclusion

Despite India's impressive economic performance after the introduction of economic reforms in the 1990s, the state of Chhattisgarh has been lagging behind others in achieving the goal of "health for all" and still the health care services are most backward and inadequate in this region. Chhattisgarh is one of the most backward states in India and still around 37 percent of its population live below poverty line (Economic Survey 2012-13, Chhattisgarh). Regarding the various health indicators, Chhattisgarh is being the worst performing state in India especially in Infant mortality rate (around 57%), Crude Death rate (8.5%), Life Expectancy (Rural-56% and urban-64.7), malnutrition (underweight above 50%), maternal mortality(258/300000 population), morbidity (higher than the national average) and accessibilities and utilization of public health care facilities(<20%). In general, the rates of morbidity and mortality are high in the state. The high levels of IMR and MMR in the state are caused by two important factors: low access to effective health care facilities and high levels of malnourishment (GoO 2004). The high rates of mortality and morbidity are also affected by poor water supply and sanitation in the state. Regarding health infrastructure, it is clearly known that the Chhattisgarh is lagging behind its health infrastructure both in physical and human resources from its actual requirement. Apart from the above indicators in case of Human development Index, the position of Chhattisgarh after 2001 has decreased from 11 to 15 during the 2007-08. Like the Worst health Indicators, in case of expenditure pattern also the state has been lagging behind from its target of actual health expenditure. The following important points can be drawn from the above analysis.

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