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CHAPTER 4

DISPARITY OF PUBLIC AND HOUSEHOLD EXPENDITURE ON HEALTH IN INDIA: A COMPARATIVE ANALYSIS

4.1. Introduction

Spending money on health leads to an improvement in human capital formation. Spending of the government to the health sector is necessary because good health is a crucial factor in the reduction of poverty and promotion of sustainable economic development. It is clear that the public expenditure on health in India exhibits a rising tendency and household spending on health shows a falling trend (NHSRC, 2019). The total health expenditure in India is captured by inherent and slowly decreasing high out-of-pocket expenditure. It is essential to analyse the state wise expenditure on health in order to confirm the disparity among the states in health spending. The composition of total health expenditure among various states in India and the disparity among these components is considered in this chapter. This chapter analyses how far the disparity exist in India among various states with respect to gender, geographical location and type of hospital and type of care for different time periods. Before analysing the disparity in health spending in India it will be fruitful to examine the disparity of health status of the country firstly.

4.2. Disparity in Health Status of India

The health sector in India faces an epidemiological transition. The epidemiological profile of India witnessed with a high burden of communicable diseases as well as Maternal, Newborn and Child Health (MNCH) related morbidity and mortality. Moreover the strategy for addressing mounting burden of non-communicable diseases is imperative. Prioritising high-impact and cost-effective

interventions in health sector positively contributed the global competitiveness of a country and growth through improvements in labour productivity arising from improvements in health status and human capital investments by the households (NITI Aayog, 2019). The differences in health status among various states in India are presented in Tables 4.1(a) and 4.1 (b)

Table 4.1 (a)

Inter-State Comparison of Health Status in India

States	Infant Mortality Rate (IMR) per 1000 live births			Life expectancy at birth		
	2005	2016	2018	2006-10	2010-14	2014-18
Andhra Pradesh	57	34	29	67.9	68.5	70.0
Assam	68	44	41	63.3	63.9	66.9
Bihar	61	38	32	67.7	68.1	69.1
Chhattisgarh	63	39	41	-	64.8	65.2
Gujarat	54	30	28	68.2	68.7	69.9
Haryana	60	33	30	68.2	68.6	69.8
Himachal Pradesh	49	25	19	71.0	71.6	72.9
Jammu & Kashmir	50	24	22	72.0	72.6	74.0
Jharkhand	50	29	30	-	66.6	69.1
Karnataka	50	24	23	68.5	68.8	69.4
Kerala	14	10	7	74.8	74.9	75.3
Madhya Pradesh	76	47	48	63.8	64.2	66.5
Maharashtra	36	19	19	71.3	71.6	72.5
Odisha	75	44	40	64.8	65.8	69.3
Punjab	44	21	20	71.1	71.6	72.7
Rajasthan	68	41	37	67.5	67.7	68.7
Tamil Nadu	37	17	15	70.2	70.6	72.1
Telangana	-	31	27	-	-	69.6
Uttar Pradesh	73	43	43	63.8	64.1	65.3
Uttarakhand	42	38	31	-	71.7	70.9
West Bengal	38	25	22	69.9	70.2	71.6
All-India	58	34	32	67.5	67.9	69.4

Source: Office of Registrar General, Sample Registration System Bulletin, Government of India, Various Years

It is clear from the Table 4.1 (a) that the IMR in India shows a declining trend from 58 infant deaths per thousand live births in 2005 to 32 infant deaths per thousand live births in 2018. IMR per 1000 live births varies from 10 in Kerala to 47 in Madhya Pradesh during 2016. During 2018 IMR is low in the case of Kerala (7), Tamil Nadu (15), Maharashtra (19) and Himachal Pradesh (19) and high in Madhya Pradesh (48). IMR is low in Kerala (14) and high in Madhya Pradesh (76) during 2005.

The expectation of life at birth among the states in India ranges from 63.3 years in Assam to 74.8 years in Kerala during 2006-10. The expectation of life at birth among the states in India varies from 63.9 years in Assam to 74.9 years in Kerala during 2010-14. The expectation of life at birth among the states in India is highest in

the case of Kerala, Jammu & Kashmir and Himachal Pradesh and lowest in Chhattisgarh, Uttar Pradesh and Madhya Pradesh during 2014-18.

It is evident from the Table 4.1 (b) that India reported a significant reduction in MMR. Kerala, Tamil Nadu, Andhra Pradesh, Rajasthan, Telangana and Maharashtra have met the Sustainable Development Goals target of MMR of 70 per 100000 live births. Telangana and Andhra Pradesh are within the range.

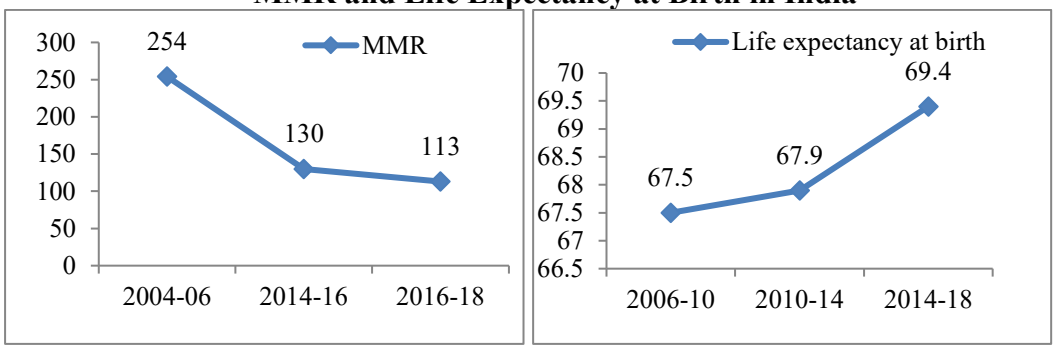
Table 4.1 (b)
Inter-State Comparison of Health Status in India

States	Maternal Mortality Ratio (MMR) per 100000 live births		
	2004-06	2014-16	2016-18
Andhra Pradesh	154	74	65
Assam	480	237	215
Bihar	312	165	149
Gujarat	160	91	75
Haryana	186	101	91
Karnataka	213	108	92
Kerala	95	46	43
Madhya Pradesh	335	173	173
Maharashtra	130	61	46
Odisha	303	180	150
Punjab	192	122	129
Rajasthan	388	199	164
Tamil Nadu	111	66	60
Telangana	-	81	63
Uttar Pradesh	440	201	197
West Bengal	141	101	98
All-India	254	130	113

Source: Office of Registrar General, Sample Registration System Bulletin, Government of India, Various years

According to the Office of Registrar General of India, the MMR has declined from 254 in 2004-06 to 113 in 2016-18.

Figure 4.1
MMR and Life Expectancy at Birth in India



Source: Office of Registrar General, Sample Registration System Bulletin, Government of India, Various years

National level life expectancy at birth increased 67.5 years during 2006-10 to 69.4 years in 2014-18. The increase in expectation in life is an indicator better health status of a nation. It is the outcome of expenditure on health (Rahman, 2018).

The health status can be measured in different perspective. There can be variability among the states and the rural-urban as well as gender differentials in the health status. Various social, cultural and epidemiological factors are contributed this variations. Health is multi-dimensional and it includes physical, mental and social wellbeing of individuals.

Table 4.2

Inter-State Comparison of Demographic Indicators in India

States	Sex Ratio		Old age dependency Ratio
	2005-07	2013-15	
Andhra Pradesh	915	918	15.4
Assam	939	900	11.0
Bihar	909	916	14.2
Chhattisgarh	969	961	13.1
Gujarat	891	854	12.6
Haryana	843	831	14.1
Himachal Pradesh	931	924	16.1
Jammu & Kashmir	854	899	12.5
Jharkhand	927	902	12.7
Karnataka	926	939	14.8
Kerala	958	967	19.6
Madhya Pradesh	913	919	13.4
Maharashtra	871	878	15.7
Odisha	933	950	15.4
Punjab	837	889	16.1
Rajasthan	865	861	13.0
Tamil Nadu	944	911	15.8
Uttar Pradesh	881	879	13.9
Uttarakhand	-	844	14.9
West Bengal	936	951	13.2
All-India	901	900	14.2

Source: Office of Registrar General, Sample Registration System Bulletin, Government of India, Various years

The old age dependency ratio is highest in Kerala followed by Punjab, and Himachal Pradesh and lowest in Delhi, Assam and Jammu & Kashmir. Age is a crucial determinant of health. The elder people need much more health care compared to other age group. The higher the rate of old age dependency ratio the higher will be health care demand which aggravates the health expenditure (Navaneetham et al., 2009; Srinivas and Manjubhashini, 2014; Paul and Singh, 2017).

4.3. Inter-State Morbidity Rate in India

Morbidity rate is an indicator of health status of a country. Morbidity rate can be of different reference period. In NSS survey morbidity is termed as Proportion of Ailing Persons (PAP). It is measured as the number of living persons per 1000 persons reporting ailment during 15 day reference period for rural and urban sector. The PAP in India during 15 day reference period from 71st (January-June 2014) and

75th (July 2017- June 2018) NSS rounds is presented in Table 4.3. The PAP for 15 day reference period among various states in India varies from 26 in Manipur and Mizoram to 310 in Kerala in rural area and for urban area it ranges from 4 in Manipur to 306 in Kerala during 2014. During 2014 rural-urban difference in PAP is maximum for Andhra Pradesh followed by Arunachal Pradesh and Jammu & Kashmir while the difference is minimum for Telengana, Kerala and Chhattisgarh. During 2014 the rural-urban difference in PAP for 15 day reference period at national level is 29.

Table 4.3

Morbidity Rate in India

States	2014			2017-18		
	Rural	Urban	Difference	Rural	Urban	Difference
Andhra Pradesh	155	204	49	133	163	30
Arunachal Pradesh	95	49	46	28	36	8
Assam	31	47	16	22	43	21
Bihar	57	62	5	25	29	4
Chhattisgarh	40	44	4	45	69	24
Goa	160	194	34	66	54	-12
Gujarat	92	103	11	57	84	27
Haryana	56	75	19	53	70	17
Himachal Pradesh	82	51	31	95	144	49
Jammu& Kashmir	64	41	23	65	92	27
Jharkhand	52	96	44	64	81	17
Karnataka	93	103	10	39	48	9
Kerala	310	306	4	254	234	-20
Madhya Pradesh	53	71	18	35	54	19
Maharashtra	80	70	10	72	107	35
Manipur	26	4	22	18	20	2
Meghalaya	32	26	6	4	1	-3
Mizoram	26	31	5	34	35	1
Nagaland	31	19	12	5	16	11
Odisha	103	97	6	87	117	30
Punjab	161	170	9	119	99	-20
Rajasthan	54	83	29	46	57	11
Sikkim	34	67	33	26	63	37
Tamil Nadu	146	184	38	65	55	-10
Telangana	97	95	2	54	58	4
Tripura	35	51	16	29	37	8
Uttar Pradesh	68	91	23	71	87	16
Uttarakhand	77	111	34	23	71	48
West Bengal	161	179	18	127	164	37
All- India	89	118	29	68	91	23

Sources:1. NSS 71st Round, NSS KI (71/25.0), Key Indicators of Social Consumption in India-Health, 2015
2. NSS 75th Round, NSS Report No: 586 (75/25.0), Health in India, 2020

The PAP for 15 day reference period among various states in India is low in Meghalaya and high in Kerala both for rural and urban area during 2017-18. During 2017-18 rural-urban difference in PAP for 15 day reference period is maximum for Himachal Pradesh followed by Uttar Pradesh and Jammu & Kashmir while the

difference is minimum for Telengana, Kerala and Chhattisgarh. The PAP is high in urban than in rural area during 2014 and 2017-18. There is a decrease in PAP in India during 2017-18 as compared to 2014. There is a difference of 29 and 23 points in the PAP between the rural and urban areas during 2014 and 2017-18 respectively. There is a large inter-state variation in PAP both in rural and urban areas. The morbidity rate in India for a reference period of 15 days is more in urban area (118) compared to rural area (89) during 2014. The morbidity rate is reduced to 68 in rural area and 91 in urban area during 2017-18 for a reference period of 15 days during 2017-18. The morbidity rate is more in urban area for both time periods. Morbidity and hospitalisation rates would have strong positive effect on household expenditure on health (Ghosh and Arokiaswamy, 2009).

4.4. Inter-State Disparity of Public Expenditure on Health in India

Disparity in expenditure on health among various states can be of different category.

Table 4.4

Government Expenditure on Health in India (₹Crore)

State	2004-05	2014-15	2015-16	2016-17
Andhra Pradesh	1696	3551	5814	7090
Assam	672	1927	2992	3294
Bihar	1091	3689	4756	5740
Chhattisgarh	-	2376	2871	3463
Gujarat	996	6446	7808	9145
Haryana	421	2410	3033	3621
Himachal Pradesh	306	1411	1621	1971
Jammu & Kashmir	471	1461	1993	1995
Jharkhand	-	1631	2339	2582
Karnataka	1267	6011	8227	9168
Kerala	1048	4229	5694	7522
Madhya Pradesh	1051	4799	5662	6324
Maharashtra	3527	9009	13443	14708
Odisha	684	3233	4988	4988
Punjab	827	2578	3245	3421
Rajasthan	1190	6511	7980	8447
Tamil Nadu	1590	7696	9378	9959
Uttar Pradesh	2650	12209	14283	16828
Uttarakhand	-	1534	1607	1595
Telangana	-	2650	5148	-

Source: National Health System Resource Centre, National Health Accounts Estimates for India, MoHFW, Various years

The disparity in public expenditure on health can be analysed with respect to General Government Expenditure (GGE) and Gross State Domestic Product (GSDP) for different time periods such as 2004-05, 2014-15, 2015-16 and 2016-17. Government expenditure on health among various states in India is presented in the

Table 4.4. Government expenditure on health was highest in Maharashtra (₹3527 crore), followed by Utter Pradesh (₹2650 crores) and Andhra Pradesh (₹1696 crores) during 2004-05. Government expenditure on health was high in the case of Uttar Pradesh and Maharashtra during 2014-15 and 2015-16. The government spending on health was low in Himachal Pradesh during the periods 2004-05, 2014-15 and 2015-16. Generally government expenditure on health among states shows an increasing trend except in the case of Uttarakhand from 2015-16 to 2016-17.

Table 4.5

Government Health Expenditure Per-Capita (₹) in India

State	2004-05	2014-15	2015-16	2016-17
Andhra Pradesh	216	573	923	1125
Assam	239	602	907	998
Bihar	124	338	425	504
Chhattisgarh	-	880	1063	1237
Gujarat	187	1040	1239	1429
Haryana	189	927	1123	1341
Himachal Pradesh	486	2016	2316	2816
Jammu & Kashmir	431	1124	1533	1535
Jharkhand	-	480	668	717
Karnataka	231	939	1266	1389
Kerala	319	1208	1627	2149
Madhya Pradesh	164	640	745	811
Maharashtra	348	763	1120	1216
Odisha	179	735	762	1108
Punjab	326	889	1119	1180
Rajasthan	198	904	1078	1126
Tamil Nadu	248	1026	1234	1293
Uttar Pradesh	150	581	667	772
Uttarakhand	-	1534	1461	1450
Telangana	-	1019	1980	-

Source: National Health System Resource Centre, National Health Accounts Estimates for India, MoHFW, Various years

Government expenditure on health was high in Utter Pradesh (₹16828 crores), Maharashtra (₹14708 crores) and Tamil Nadu (₹9959 crores) during 2016-17. During 2016-17, government expenditure on health was less in the case of Uttarakhand (₹1595 crores), Himachal Pradesh (₹1971 crores) and Jammu & Kashmir (₹1995 crores). There exists disparity on government expenditure on health among various states in India for different time periods such as 2004-05, 2014-15, 2015-16 and 2016-17. It is clear from the Table 4.5 that per-capita government health expenditure varies from ₹338 for Bihar to ₹2016 for Himachal Pradesh during 2014-15. Per-capita government health expenditure is low in Bihar and high in Himachal Pradesh from 2004-05 to 2016-17. Gujarat has the highest percent increase and Maharashtra has the

lowest percent increase in government health expenditure per-capita from 2004-05 to 2014-15. Per-capita government health expenditure among various states shows an increasing trend from 2004-05 to 2016-17. Per-capita government health expenditure decreased in the case of Uttarakhand from ₹1461 during 2015-16 to ₹1450 during 2016-17. During 2016-17, per-capita government health expenditure ranges between ₹504 in the case of Bihar and ₹2816 in the case of Himachal Pradesh. Himachal Pradesh with a population of 0.7 crores occupies lowest government expenditure on health and highest per-capita government expenditure on health during 2016-17.

Table 4.6

Government Health Expenditure as Percentage of GSDP in India

State	2014-15	2015-16	2016-17
Assam	1.0	1.3	1.3
Andhra Pradesh	0.7	1.0	1.0
Bihar	1.0	1.2	1.4
Chhattisgarh	1.0	1.1	1.4
Gujarat	0.7	0.8	0.8
Haryana	0.5	0.6	0.7
Himachal Pradesh	1.4	1.4	1.6
Jammu & Kashmir	1.4	1.7	1.6
Jharkhand	0.8	1.0	1.1
Karnataka	0.7	0.8	0.8
Kerala	0.8	1.0	1.2
Madhya Pradesh	1.0	1.1	1.0
Maharashtra	0.5	0.7	0.7
Odisha	1.0	1.0	1.3
Punjab	0.7	0.8	0.8
Rajasthan	1.1	1.2	1.1
Tamil Nadu	0.7	0.8	0.8
Uttar Pradesh	1.2	1.3	1.3
Uttarakhand	0.9	0.9	0.8
Telangana	0.5	0.9	1.0

Source: National Health System Resource Centre, National Health Accounts Estimates for India, MoHFW, Various years

Government health expenditure as percentage of GSDP of various states for different time periods is presented in Table 4.6. During 2014-15 government health expenditure as a percentage of GSDP varies between 0.5 percent (Haryana, Maharashtra and Telengana) and 1.5 percent (Himachal Pradesh and Jammu & Kashmir). During 2015 -16 government health expenditure as a percentage of GSDP varies between 0.6 percent for Haryana and 1.7 percent Jammu & Kashmir. During 2016-17 government health expenditure as a percentage of GSDP varies between 0.7 percent (Haryana and Maharashtra) and 1.6 percent (Himachal Pradesh and Jammu & Kashmir). It can be noted government health expenditure as a percentage of GSDP shows a marginal increase in majority of states from 2014-15 to 2016-17. When

comparing GSDP of various states Maharashtra reported high GSDP during 2016-17 while Jammu & Kashmir and Himachal Pradesh have low GSDP. During 2015-16 Jammu & Kashmir and Himachal Pradesh reported low GSDP and Maharashtra and Tamil Nadu have highest GSDP.

Table 4.7

Government Health Expenditure as Percentage of GGE in India

State	2014-15	2015-16	2016-17
Assam	4.5	7.5	6.0
Andhra Pradesh	2.8	5.3	5.4
Bihar	4.1	4.4	4.7
Chhattisgarh	5.2	5.6	6.0
Gujarat	5.8	6.5	7.2
Haryana	4.6	4.6	4.8
Himachal Pradesh	6.3	6.4	6.8
Jammu & Kashmir	4.2	4.6	4.1
Jharkhand	4.4	5.2	4.6
Karnataka	4.9	6.0	5.7
Kerala	5.6	6.6	7.4
Madhya Pradesh	5.1	4.9	4.3
Maharashtra	4.6	6.3	6.2
Odisha	5.2	4.4	5.0
Punjab	5.2	6.1	5.7
Rajasthan	5.9	6.2	5.9
Tamil Nadu	5.2	5.9	5.7
Uttar Pradesh	5.4	5.2	5.5
Uttarakhand	5.9	5.9	5.3
Telangana	4.5	5.8	-

Source: National Health System Resource Centre, National Health Accounts Estimates for India, MoHFW, Various years

Percentage share of government health expenditure out of General Government Expenditure (GGE) of various states for different time periods is given in Table 4.7. During 2014-15, government health expenditure as a percentage of GGE varies between 2.8 percent for Andhra Pradesh and 6.3 percent for Himachal Pradesh. Government health expenditure as a percentage of GGE is less in the case of Bihar and Odisha (4.4 percent) and more in the case of Assam (7.5 percent) and Kerala (6.6 percent) during 2015-16. During 2016-17, government health expenditure as a percentage of GGE is less for Jammu & Kashmir (4.1 percent) and Madhya Pradesh (4.3 percent) and high for Kerala (7.4 percent) and Gujarat (7.2 percent). Utter Pradesh, Maharashtra and Tamil Nadu reported a high GGE during 2016-17. Himachal Pradesh has lowest GGE during 2016-17 compared to other states (NHSRC, 2019).

The government health spending as the percentage of total health expenditure was lowest in Bihar while Tamil Nadu occupies the highest position in 2004-05. There exists a wide disparity in the government health spending as a percentage of

total health spending across the country which ranges between 15.4 percent for Andhra Pradesh and 44.3 percent for Himachal Pradesh in 2014-15. During 2016-17, the percentage share of government health expenditure out of total health expenditure is low for Punjab (19.8 percent), Bihar (21.3 percent) and Utter Pradesh (22.2 percent) and high for Himachal Pradesh (51.2 percent), Assam (39.0 percent) and Jammu & Kashmir (38.8 percent). The lowest health spending of the government contributed the highest burden to the people.

Table 4.8

Government Health Expenditure as Percentage of Total Health Expenditure in India

State	2004-05	2014-15	2015-16	2016-17
Assam	17.8	29.4	38.0	39.0
Andhra Pradesh	19.4	15.4	22.2	24.5
Bihar	8.3	16.5	19.1	21.3
Chhattisgarh	-	27.9	31.5	33.9
Gujarat	15.8	34.0	37.2	38.6
Haryana	10.6	24.4	27.5	29.6
Himachal Pradesh	12.4	44.3	47.0	51.2
Jammu & Kashmir	20.7	34.6	40.2	38.8
Jharkhand	-	23.9	29.6	31.0
Karnataka	23.2	21.5	25.6	26.8
Kerala	10.8	17.8	22.7	26.6
Madhya Pradesh	13.6	25.5	27.8	28.7
Maharashtra	22.1	17.0	23.7	23.3
Odisha	18.0	21.5	20.2	27.3
Punjab	18.0	17.0	20.0	19.8
Rajasthan	24.5	30.7	33.4	33.0
Tamil Nadu	26.6	25.0	28.4	27.3
Uttar Pradesh	13.0	19.0	20.7	22.2
Uttarakhand	-	36.2	37.4	36.1
Telangana	-	22.3	37.5	-

Source: National Health System Resource Centre, National Health Accounts Estimates for India, MoHFW, Various years

It is evident from the Table 4.8 that the percentage share of government health expenditure out of total health expenditure shows an increasing trend from 2004-05 to 2016-17. The declining allocation to health sector at state level would have damaging effect on public health delivery (Bhat and Jain, 2004; Hooda, 2013).

4.5. Inter-State Disparity of Household Expenditure on Health in India

Private expenditure on health amounts to the leading share in total expenditure on health in India. Household expenditure on health is the major contributory factor in private health expenditure. The inter-state variation in household expenditure on health in India during the periods 2004-05, 2014-15, 2015-16 and 2016-17 is shown in Table 4.9. There exists disparity in household health expenditure among the states in India. Household health expenditure is high for Uttar Pradesh (₹17158 crores), Bihar (₹11854 crores) and Maharashtra (₹11704 crores) and low for Jammu &

Kashmir (₹1759 crores), Himachal Pradesh (₹2126 crores) and Odisha (₹2999 crores) during 2004-05.

Table 4.9

Household Expenditure on Health (₹ Crore) in India

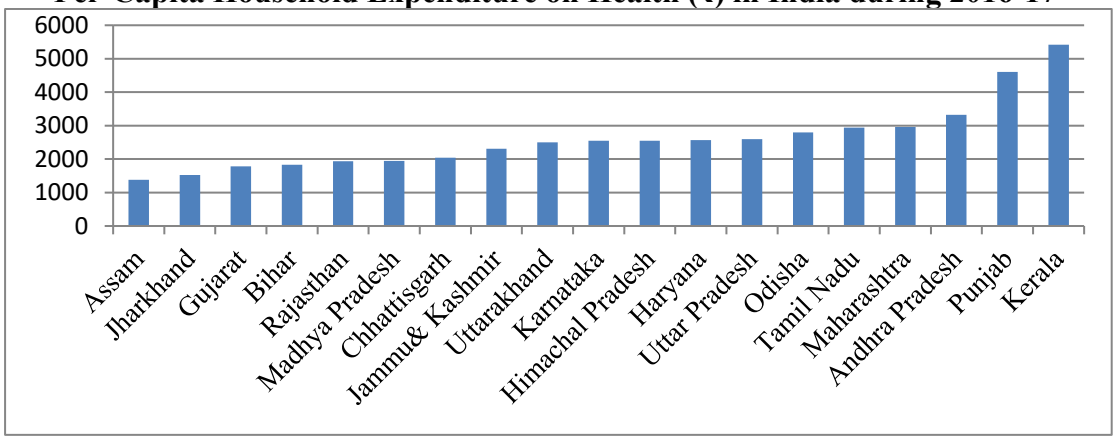
State	2004-05	2014-15	2015-16	2016-17
Andhra Pradesh	6441	17988	19512	20928
Assam	3054	4139	4339	4547
Bihar	11854	18364	19890	20857
Chhattisgarh	-	4963	5322	5711
Gujarat	4893	10081	10589	11399
Haryana	3385	6177	6552	6923
Himachal Pradesh	2126	1592	1706	1785
Jammu& Kashmir	1759	2562	2780	3004
Jharkhand	-	4884	5228	5496
Karnataka	3847	14603	15908	16815
Kerala	8373	17581	17889	18967
Madhya Pradesh	6432	13560	14283	15166
Maharashtra	11703	31675	33459	35771
Odisha	2999	11077	11849	12582
Punjab	3493	12001	12563	13362
Rajasthan	3399	12529	13455	14504
Tamil Nadu	3624	20432	21500	22626
Uttar Pradesh	17158	50322	52841	56609
Uttarakhand	-	2545	2630	2748
Telangana	-	2834	7941	-

Source: National Health System Resource Centre, National Health Accounts Estimates for India, MoHFW, Various years

During the periods 2014-15 2015-16 and 2016-17 lowest and highest amount of household health expenditure spend by Himachal Pradesh and Utter Pradesh respectively.

Figure 4.2

Per-Capita Household Expenditure on Health (₹) in India during 2016-17



Source: National Health System Resource Centre, National Health Accounts Estimates for India, 2016-17, MoHFW

The differences in health spending would be differences utilisation pattern of health facilities, morbidity pattern and accessibility of health facility across states.

The financial burden of households in relation to health care spending is measured in terms of per-capita household health expenditure. It is evident from the Figure 4.2 that there exists various disparities in spending on health by the households across various states in India during 2016-17. Kerala has the highest per-capita household health expenditure in India during 2016-17 and Assam reported the lowest per-capita household health expenditure.

Per-capita household expenditure among various states for different time period is given in Table 4.10. Per-capita household health expenditure is low for Rajasthan and Tamil Nadu and high for Himachal Pradesh and Kerala during 2004-05. There is an interesting variation in the case of Himachal Pradesh where the household expenditure shows a declining trend from 2004-05 to 2016-17.

Table 4.10

Per-Capita Household Expenditure on Health (₹) in India

State	2004-05	2014-15	2015-16	2016-17
Andhra Pradesh	820	2901	3097	3322
Assam	1089	1293	1315	1378
Bihar	1021	1685	1776	1830
Chhattisgarh	-	1838	1971	2040
Gujarat	920	1626	1681	1781
Haryana	1518	2376	2427	2564
Himachal Pradesh	3377	2274	2437	2550
Jammu& Kashmir	1609	1971	2138	2311
Jharkhand	-	1436	1494	1527
Karnataka	702	2282	2447	2548
Kerala	2548	5023	5111	5419
Madhya Pradesh	746	1808	1879	1944
Maharashtra	1156	2684	2788	2956
Odisha	786	2518	2693	2796
Punjab	1379	4138	4332	4608
Rajasthan	565	1740	1818	1934
Tamil Nadu	566	2724	2829	2938
Telangana	-	2834	3054	-
Uttar Pradesh	924	2396	2469	2597
Uttarakhand	-	2545	2391	2498

Source: National Health System Resource Centre, National Health Accounts Estimates for India, MoHFW, Various years

The highest per-capita household health expenditure is in Kerala and the lowest in Assam during the periods 2014-15, 2015-16 and 2016-17. It seems to be the difference in disease pattern, health status and utilisation of health care facilities that lead to the differences in expenditure on health. Economic and social status of households was crucial in the incidence of expenditure on health (Pal, 2012; Sinha et al., 2016).

The burden of households with respect to GSDP is presented in Table 4. 11. Household health expenditure as percentage of GSDP is lowest in Gujarat and the highest in Bihar during 2014-15, 2015-16 and 2016-17. Household health expenditure as percentage of GSDP of Gujarat varies between 1.1 percent in 2014-15 to 1.0 percent in 2016-17. Household health expenditure as percentage of GSDP of Bihar varies between 4.9 percent in 2014-15 to 5.2 percent in 2015-16. Household health expenditure as percentage of GSDP among various states in India shows a decreasing trend from 2014-15 to 2016-17 except in the case of Chhattisgarh and Jharkhand.

Table 4.11

Household Expenditure on Health as Percentage of GSDP in India

State	2014-15	2015-16	2016-17
Assam	2.1	1.9	1.8
Andhra Pradesh	3.4	3.2	3.0
Bihar	4.9	5.2	4.9
Chhattisgarh	2.1	2.0	2.2
Gujarat	1.1	1.0	1.0
Haryana	1.4	1.4	1.2
Himachal Pradesh	1.5	1.5	1.4
Jammu & Kashmir	2.5	2.3	2.4
Jharkhand	2.2	2.3	2.3
Karnataka	1.6	1.6	1.4
Kerala	3.3	3.2	3.0
Madhya Pradesh	2.8	2.7	2.3
Maharashtra	1.8	1.7	1.6
Odisha	3.6	3.6	3.2
Punjab	3.3	3.2	3.1
Rajasthan	2.0	2.0	1.9
Tamil Nadu	1.9	1.9	1.7
Uttar Pradesh	4.8	4.7	4.5
Uttarakhand	1.6	1.5	1.4
Telangana	1.4	1.4	3.5

Source: National Health System Resource Centre, National Health Accounts Estimates for India, MoHFW, Various years

There was a high burden on households for health care due to high expenditure on health. Household expenditure shows the financial burden of individuals for health care. Bihar, Kerala and Himachal Pradesh reported high out-of-pocket spending out of total health expenditure during 2004-05. Tamil Nadu, Rajasthan and Karnataka witnessed a low out-of-pocket spending for health care out of total health expenditure during 2004-05. Bihar, Punjab and Uttar Pradesh witnessed a high household spending out of total health expenditure during 2016-17.

Decreasing trend of percentage share of household expenditure in total health expenditure may reduce the impoverishment due to health care cost. There was a decline in the household expenditure from 2004-05 to 2016-17 across various states in India. Household health expenditure in India continues to a major share in total

expenditure on health. There was a significant variation in the spending on health by households and its impoverishment effect across states (Ladusingh and Pandey, 2013; Ravi et al., 2016). It is clear from the Table 4.12 that household health expenditure still occupies a major share in total expenditure on health across various states in India for the periods from 2004-05 to 2016-17.

Table 4.12

Household Expenditure as Percentage of Total Health Expenditure in India

State	2004-05	2014-15	2015-16	2016-17
Assam	80.8	63.1	55.1	53.8
Andhra Pradesh	73.4	78.0	74.7	72.2
Bihar	90.2	82.3	79.9	77.6
Chhattisgarh	-	58.3	58.4	55.9
Gujarat	77.5	53.1	50.4	48.1
Haryana	85.0	62.5	59.5	56.6
Himachal Pradesh	86.0	50.0	49.5	46.4
Jammu & Kashmir	77.3	60.7	56.0	58.5
Jharkhand	-	71.7	66.3	66.0
Karnataka	70.4	52.2	49.6	49.2
Kerala	86.3	73.9	71.3	67.0
Madhya Pradesh	83.4	72.0	70.1	68.9
Maharashtra	73.3	59.6	58.9	56.7
Odisha	79.1	73.6	71.5	68.9
Punjab	76.1	79.3	77.4	77.3
Rajasthan	70.0	59.1	56.4	56.7
Tamil Nadu	60.7	66.4	65.2	62.1
Uttar Pradesh	84.3	78.3	76.5	74.8
Uttarakhand	-	60.1	61.2	62.1
Telangana	-	62.1	57.9	74.1

Source: National Health System Resource Centre, National Health Accounts Estimates for India, MoHFW, Various years

Inter-state variations in household health expenditure in India for different time periods would be due to the differences in socio-economic, cultural, geographical, political, health facilities and gender.

4.6. Inter-State Disparity of Total Health Expenditure in India

Total expenditure on health consists of public expenditure and household expenditure including external fund. It is clear that the share of household spending on health in total health expenditure shows a declining trend and the share of public expenditure on health out of total health expenditure exhibits an increasing trend.

Total health expenditure of various states in India for different time periods is exhibited in Table 4.13. The highest total health expenditure is in Uttar Pradesh and Maharashtra during the periods 2004-05, 2014-15, 2015-16 and 2016-17. During 2004-05 total health expenditure is lowest in Jammu & Kashmir. The lowest total health expenditure is in Himachal Pradesh during the periods 2014-15, 2015-16 and 2016-17. During 2004-05, total health expenditure among various states in India

varies from ₹20559 crores ₹2277 crores. Total health expenditure among various states in India ranges from ₹64256 crores to ₹3181 crores in 2014-15. During 2015-16, total health expenditure among various states in India varies from ₹69036 crores ₹3448 crores. Total health expenditure among various states in India ranges from ₹75634 crores to ₹3851 crores in 2016-17.

Table 4.13

Total Health Expenditure (₹ Crore) among Various States in India

State	2004-05	2014-15	2015-16	2016-17
Andhra Pradesh	8777	23064	26133	28981
Assam	3778	6556	7874	8453
Bihar	13147	22317	24901	26885
Chhattisgarh	-	8509	9112	10214
Gujarat	6313	18970	20990	23700
Haryana	3981	9878	11015	12238
Himachal Pradesh	2472	3183	3448	3851
Jammu& Kashmir	2277	4219	4960	5138
Jharkhand	-	6813	7889	8325
Karnataka	5467	27995	32083	34210
Kerala	9702	23805	25090	28291
Madhya Pradesh	7711	18829	20373	21999
Maharashtra	15957	53122	56806	63046
Odisha	3795	15052	16579	18266
Punjab	4593	15138	16234	17285
Rajasthan	4855	21188	23869	25592
Tamil Nadu	5974	30761	32975	36451
Telangana	-	11868	13710	-
Uttar Pradesh	20359	64256	69036	75634
Uttarakhand	-	4233	4299	4421

Source: National Health System Resource Centre, National Health Accounts Estimates for India, MoHFW, Various years

Total health expenditure of various states in India exhibits an increasing trend from 2004-05 to 2016-17. Moreover, there exist inter-state variations in total health expenditure in India for different time periods. There would be disparity in total health expenditure within the states.

Per-capita total health expenditure of various states in India for different time periods is presented in Table 4.14. The highest per-capita total health expenditure is in Himachal Pradesh (₹3927), Kerala (₹2952) and Jammu & Kashmir (₹2082) and the lowest in Rajasthan (₹808), Tamil Nadu (₹933) and Odisha (₹995) for the period 2004-05. Kerala (₹6801) and Punjab (₹5220) places highest per-capita total health care spending; and Jharkhand (₹2004), Bihar (₹2047) and Assam (₹2049) holds lowest position in 2014-15. Per-capita total health expenditure varies from ₹808 to ₹3927 during 2004-05 and from ₹2004 to ₹6801 during 2014-15. Per-capita total health expenditure ranges between ₹2223 for Bihar to ₹7169 for Kerala during 2015-

16 and from ₹2313 for Jharkhand to ₹8083 for Kerala during 2016-17. It is noted that Kerala ranked foremost position in the health index constructed by NITI Aayog. Kerala is well known for its better health indicators compared to the other states in India. Moreover per-capita total health expenditure is highest in Kerala among the states of India. Per-capita total health expenditure of various states in India shows an increasing trend from 2004-05 to 2016-17. The differences in socio-economic and biological conditions of the people would lead differences in health expenditure in India.

Table 4.14

Per-capita Total Health Expenditure (₹) among Various States in India

State	2004-05	2014-15	2015-16	2016-17
Andhra Pradesh	1118	3720	4148	4600
Assam	1347	2049	2386	2562
Bihar	1497	2047	2223	2358
Chhattisgarh	-	3151	3375	3648
Gujarat	1187	3060	3332	3703
Haryana	1786	3799	4080	4533
Himachal Pradesh	3927	4547	4926	5501
Jammu& Kashmir	2082	3245	3815	3952
Jharkhand	-	2004	2254	2313
Karnataka	997	4374	4936	5183
Kerala	2952	6801	7169	8083
Madhya Pradesh	1200	2511	2681	2820
Maharashtra	1576	4502	4734	5210
Odisha	995	3421	3768	4059
Punjab	1813	5220	5598	5960
Rajasthan	808	2943	3226	3412
Tamil Nadu	933	4101	4339	4734
Telangana	-	4565	5273	-
Uttar Pradesh	1152	3060	3226	3469
Uttarakhand	-	4233	3908	4019

Source: National Health System Resource Centre, National Health Accounts Estimates for India, MoHFW, Various years

The differences in diseases pattern, differences in health status, differences in utilisation of health care facilities and availability of health facilities and differences in socio-economic backgrounds which would mount the differences in spending on health.

Total health expenditure as a percentage of GSDP related to the economic development of a country with respect to health care spending. Total health expenditure as a percentage of GSDP is less in Gujarat, Haryana and Telangana during the periods 2014-15 and 2015-16. Total health expenditure as a percentage of GSDP is more in the case of Uttar Pradesh, Bihar and Odisha during the periods 2014-15 and 2015-16. There would be a positive relationship between health care

spending and GSDP and vice versa. In other words, there exists a bi-directional relationship between health capital and income. Needless to say health capital would positively influence productivity of workforce through human capital formation.

Table 4.15

Total Health Expenditure as Percentage of GSDP among Various States in India

State	2014-15	2015-16	2016-17
Andhra Pradesh	4.3	4.3	4.2
Assam	3.3	3.5	3.3
Bihar	6.0	6.5	6.4
Chhattisgarh	3.6	3.5	4.0
Gujarat	2.1	2.0	2.1
Haryana	2.2	2.3	2.2
Himachal Pradesh	3.0	3.1	3.1
Jammu & Kashmir	4.1	4.2	4.1
Jharkhand	3.1	3.4	3.5
Karnataka	3.0	3.2	2.8
Kerala	4.5	4.5	4.5
Madhya Pradesh	3.9	3.8	3.4
Maharashtra	3.0	2.8	2.9
Odisha	4.9	5.0	4.6
Punjab	4.1	4.1	4.0
Rajasthan	3.5	3.5	3.4
Tamil Nadu	2.8	2.8	2.8
Telangana	2.3	2.4	-
Uttar Pradesh	6.2	6.2	6.1
Uttarakhand	2.6	2.4	2.3

Source: National Health System Resource Centre, National Health Accounts Estimates for India, MoHFW, Various years

The composition of total expenditure in India is varies differently between the public and households.

Table 4.16

Total Health Expenditure Indicators in India

Indicator	2004-05	2013-14	2014-15	2015-16	2016-17
THE as percent of GDP	4.2	4.0	3.9	3.8	3.8
THE per-capita (₹)	1201	3638	3826	4116	4381
Current health expenditure as percentage of THE	98.9	93.0	93.4	93.7	92.8
Government health expenditure as percentage of THE	22.5	28.6	29.0	30.6	32.4
Household health expenditure as percentage of THE	69.4	64.2	62.6	60.6	58.7
Social security expenditure on health as percentage of THE	4.2	6.0	5.7	6.3	7.3
Private health insurance expenditure as percentage of THE	1.6	3.4	3.7	4.2	4.7
External funding for health as percentage of THE	2.3	0.3	0.7	0.7	0.6

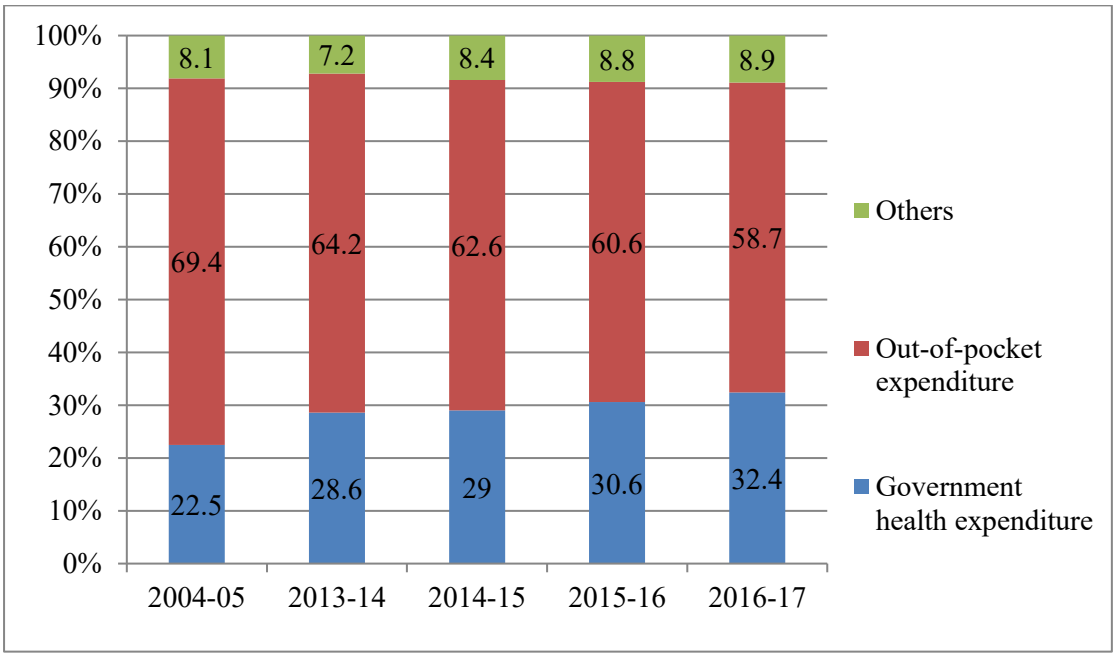
Note: Total Health Expenditure (THE)
Source: National Health System Resource Centre, National Health Accounts Estimates for India, 2016-17, MoHFW

The changes in total expenditure on health on various grounds for different time periods such as 2004-05, 2013-14, 2014-15, 2015-16 and 2016-17 are presented in Table 4.16. Total health expenditure as percentage of GDP varies from 4.2 percent

in 2004-05 to 3.8 percent in 2016-17. Per-capita total health expenditure in India shows an increasing trend from ₹1201 in 2004-05 to ₹4381 in 2016-17. Current health expenditure as percentage of THE is decreased from 98.9 percent in 2004-05 to 92.8 percent in 2016-17.

Figure 4.3

Composition of Total Health Expenditure in India



Source: National Health System Resource Centre, National Health Accounts Estimates for India, 2016-17, MoHFW

It is clear that the percentage share of government health expenditure in total health expenditure increased from 22.5 in 2004-05 percent to 32.4 percent in 2016-17. Percentage share of out-of-pocket expenditure in total health expenditure decreased from 69.4 in 2004-05 percent to 58.7 percent in 2016-17. Other expenditure in total health expenditure consists of social security expenditure on health, private health insurance expenditure and external funding for health. The share of other expenditure in total health expenditure marginally increased from 8.1 percent in 2004-05 to 8.9 percent in 2016-17.

4.7. Medical and Non-Medical Expenditure in India

Both medical and non-medical expenditure constitute the expenditure on health by the households. The disparity between medical and non-medical expenditure among various states in India can be analysed on various grounds; level of care, nature of ailment, geographical location and so on. Medical expenditure consists of doctor's fee, medicine, diagnostic test, blood and oxygen and others.

Medical expenditure would be a significant component in household health expenditure in India due to the immense share of medical expenditure in total expenditure of households on healthcare. The percentage distribution of total medical expenditure among various states in India is shown in Table 4.17.

Table 4.17
Total Medical Expenditure among Various States in India (2014-15)

States	Percentage distribution of total medical expenditure (Rural)			Percentage distribution of total medical expenditure (Urban)		
	Doctor's fee	Medicine	Others *	Doctor's fee	Medicine	Others *
Andhra Pradesh	11.3	76.2	12.7	8.5	79.3	12.2
Assam	7.0	63.8	29.4	10.3	52.1	37.7
Bihar	12.0	71.9	16.1	15.0	62.9	22.2
Chhattisgarh	25.5	69.5	5.0	10.6	82.5	6.8
Gujarat	23.6	57.5	18.6	28.6	54.2	17.2
Haryana	10.3	72.7	17.2	15.5	67.3	17.1
Jharkhand	17.9	66.0	15.9	16.2	45.5	38.2
Karnataka	18.2	67.0	14.9	16.2	64.4	19.3
Kerala	11.2	73.8	15.1	10.2	74.6	14.9
Madhya Pradesh	14.4	68.6	17.0	15.2	71.4	13.4
Maharashtra	23.4	63.6	12.8	23.1	60.3	16.6
Odisha	4.8	74.9	20.3	6.2	79.2	14.8
Punjab	9.8	76.2	14.2	9.4	72.8	18
Rajasthan	10.2	82.4	7.4	20.9	67.4	11.8
Tamil Nadu	20.8	60.7	18.5	15.8	70.6	13.5
Telangana	11.8	69.4	18.8	13.5	71.6	14.8
Uttar Pradesh	12.8	76.1	11.2	14.9	70.9	14.3
West Bengal	15.5	69.8	14.7	15.5	68.7	15.8
All-India	13.6	71.5	14.7	15.6	68.0	16.4

* Inclusive of diagnostic test
Source: NSS 71st Round, Report No. 574: Health in India, April 2016

It is evident that medicines constitutes single largest component of medical expenditure both in rural and urban area. As national average medicine expenditure is highest in rural compared to urban area while doctor's fee is highest in urban area compared to rural area. There are medical and non-medical expenditure incurred by the household for treatment. Since drugs involve the bulk of out-of-pocket expenditure, the government provision of free essential drugs in public health facilities, Jan Aushadhi, would have reduce the burden of the poor people. As per the report of India Council of Medical Research 2017, the disease burden due to communicable, maternal, neonatal, and nutritional diseases dropped from 61 per cent to 33 per cent between 1990 and 2016. Disease burden from non-communicable diseases increased from 30 per cent to 55 per cent in the same period. There is undergoing an epidemiological transition that the non-communicable diseases dominate over communicable in the total disease burden of the country. The

contribution of injuries to the total disease burden has increased in India. The growth of non-communicable diseases and re-emergence of communicable diseases aggregated the level of morbidity which leads to a crisis in health care system (Gangadharan, 2008).

Table 4.18
Average Medical Expenditure (₹) per-hospitalisation Case in India

Broad Ailment Category	2014-15			2017-18		
	Public Hospital	Private Hospital	All	Public Hospital	Private Hospital	All
Infections	3007	11810	8134	2054	15208	9064
Cancers	24526	78050	56712	22520	93305	61216
Psychiatric and Neurological	7482	34561	23984	7235	41239	26843
Eye	1778	13374	9307	2605	18767	10912
Cardio-Vascular	11549	43262	31647	6635	54970	36001
Respiratory	4811	18705	12820	3346	24049	13905
Gastro-Intestinal	5281	23933	17687	3847	29870	19821
Musculo-Skeletal	8165	28396	21862	5716	46365	32066
Genito-Urinary	9295	29608	24525	5345	33409	24770
All / any ailment	6120	25850	18268	4452	31845	20135

Sources: 1. NSS 71st Round, Key Indicators of Social Consumption in India, Health, June 2015
2. NSS 75th Round, Key Indicators of Social Consumption in India, Health, November 2019.

The average medical expenditure by ailment category shows that the expenditure for treatment of cancers, cardio-vascular diseases, genito-urinary diseases are costlier. And the expenditure per-hospitalisation case was lower in public hospitals than in private hospitals.

Table 4.19
Range in Prices/Average Costs of Diagnostic Tests across Cities in India (2017)

Name of Diagnostic Tests	Costs of Diagnostics (In ₹)		Average Costs of Diagnostics (In ₹)	
	Minimum (of all cities)	Maximum (of all cities)	Minimum (of average price of cities)	Maximum(of average price of cities)
Lipid Profile Test (125)	90	7110	217	759
ANC test (74)	110	6500	389	2396
Albumin test (120)	20	1810	100	203
2d echo test (51)	500	5200	856	2412
Electrolyte test (121)	30	3000	245	627
Liver Function test (117)	100	2500	210	1186
Thyroid test (123)	100	3100	300	721
ESR test (103)	10	1100	35	116
Dengue IgG test (114)	100	3600	314	1312

Note: Figures in parenthesis are number of cities. ESR (Erythrocyte Sedimentation Rate)
Source: Economic Survey, 2017-18, GoI

The average medical expenditure per-hospitalisation case in India was ₹18268 and ₹20135 during 2014-15 and 2017-18 respectively. There is an interesting fact that the average medical expenditure in public hospitals is low during 2017-18 compared to 2014-15 and the expenditure in private hospitals is high during 2017-18.

Diagnostics are a crucial part of health care system which provides information required by service providers to build informed decisions about health care provisions associated to treatment and management.

Table 4.20

Average Medical Expenditure (₹) per-hospitalisation Case in India

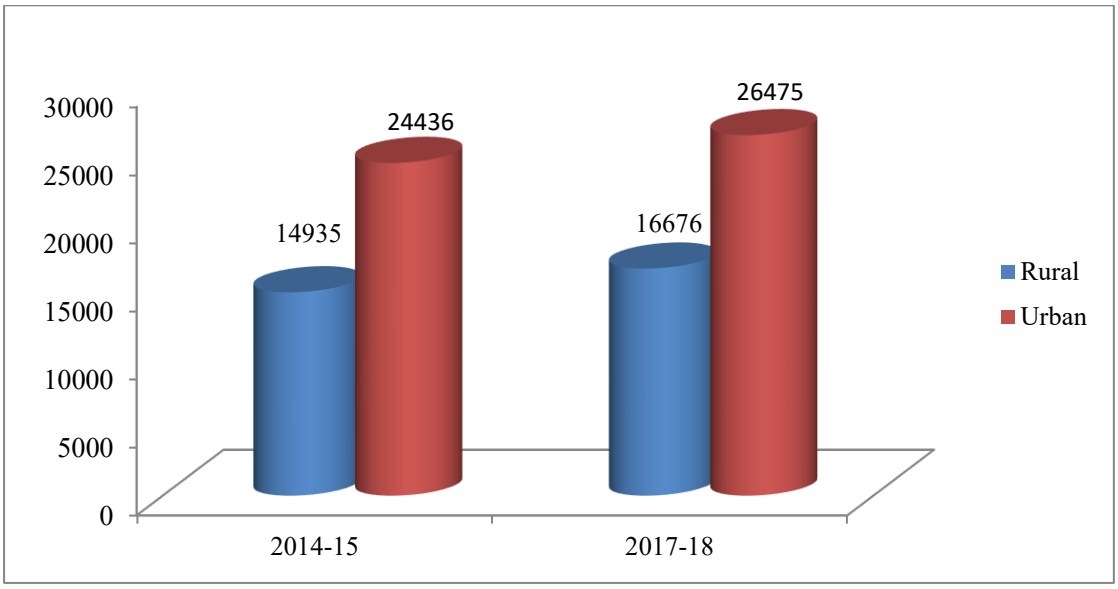
States	Rural			Urban		
	2014-15	2017-18	Percentage Change	2014-15	2017-18	Percentage Change
Andhra Pradesh	13227	16717	26.4	31242	22479	-28.0
Arunachal Pradesh	5678	4504	-20.7	8926	6092	-31.7
Assam	6966	9826	41.1	47064	38935	-17.3
Bihar	11432	11595	1.4	25004	17861	-28.6
Chhattisgarh	12149	26123	115.0	22647	19873	-12.2
Goa	29954	7765	-74.1	23165	16742	-27.7
Gujarat	14298	14924	4.4	20155	22418	11.2
Haryana	18341	19177	4.6	32370	30337	-6.3
Himachal Pradesh	18860	20308	7.7	28590	17791	-37.8
Jammu & Kashmir	8442	6371	-24.5	13948	15678	12.4
Jharkhand	10351	17288	67.0	13151	26055	98.1
Karnataka	14091	12768	-9.4	22190	26575	19.8
Kerala	17642	17054	-3.3	15465	22123	43.1
Madhya Pradesh	13090	14325	9.4	23993	17365	-27.6
Maharashtra	20475	19383	-5.3	29493	36612	24.1
Manipur	6061	14170	133.8	10215	17505	71.4
Meghalaya	2075	2790	34.5	18786	22711	20.9
Mizoram	8744	7260	-17.0	13461	17371	29.0
Nagaland	5628	6020	7.0	15788	12110	-23.3
Odisha	10240	11159	9.0	19750	18748	-5.1
Punjab	27718	31805	14.7	29971	29338	-2.1
Rajasthan	12855	16268	26.5	16731	20824	24.5
Sikkim	8035	7180	-10.6	9939	7703	-22.5
Tamil Nadu	11842	12362	4.4	23757	23260	-2.1
Telangana	19664	19887	1.1	20617	30082	45.9
Tripura	5694	5161	-9.4	11638	13400	15.1
Uttar Pradesh	18693	23144	23.8	31653	33339	5.3
Uttarakhand	9162	15945	74.0	25703	37038	44.1
West Bengal	11327	13310	17.5	24875	25235	1.4
All- India	14935	16676	11.7	24436	26475	8.3

Sources: 1. NSS 71st Round, NSS KI (71/25.0), Key Indicators of Social Consumption in India-Health, 2015
2. NSS 75th Round, NSS Report No: 586 (75/25.0), Health in India, 2020

An enquiry of prices of diagnostic tests across various cities in India shows that there are not only large differences in average prices of diagnostic tests but also range in price is significant. Limited affordability and accessibility of quality medical services are the foremost challenges contributing to delayed or inappropriate responses to diseases control and patient management (Economic Survey, 2017-18). Average medical expenditure per-hospitalisation case between rural and urban areas of India during 2014-15 and 2017-18 is given in Table 4.20. On an average, in India about ₹14935 and ₹24436 were spent during 2014-15 and ₹16676 and ₹26475 during

2017-18 for rural and urban areas respectively on medical expenditure per-hospitalisation for a period of 365 days. Among the states Meghalaya and Goa witnessed the lowest and the highest medical expenditure respectively during 2014-15 and Meghalaya and Punjab during 2017-18 for rural area. In the case of urban area Arunachal Pradesh and Assam witnessed a lowest and highest medical expenditure respectively for the period 2014-15 and 2017-18. In rural area the percent change in medical expenditure during 2014-15 and 2017-18 varies between -74.1 percent (Goa) to 133.8 percent (Manipur). In urban area the percent change in medical expenditure varies between -37.8 percent (Himachal Pradesh) to 98.1 percent (Jharkhand). Average medical expenditure per-hospitalisation case in India decreased in the case of Arunachal Pradesh, Goa, Jammu & Kashmir, Karnataka, Kerala, Maharashtra, Mizoram, Sikkim and Tripura during 2014-15 to 2017-18.

Figure 4.4
Average Medical Expenditure (₹) per-hospitalisation Case in India



Sources: 1. NSS 71st Round, NSS KI (71/25.0), Key Indicators of Social Consumption in India-Health, 2015
2. NSS 75th Round, NSS Report No: 586 (75/25.0), Health in India, 2020

It is evident that there exists rural-urban disparity in average medical and non-medical expenditure per-hospitalisation case in India. Average medical medical expenditure per-hospitalisation case in India is depicted on Figure 4.4. Average medical expenditure per-hospitalisation case increased from ₹14935 in 2014-15 to ₹16676 in 2017-18 for rural area and in urban area expenditure increased from ₹24436 in 2014-15 to ₹26475 in 2017-18. Average medical expenditure per-hospitalisation case is higher in urban area compared to rural area during 2014-15 and 2017-18. But average non-medical expenditure per-hospitalisation case is higher in

rural area than in urban area. It is clear from the Figure 4.5 that average non-medical expenditure per-hospitalisation for a period of 365 days in India was increased from ₹2021 during 2014-15 to ₹2317 during 2017-18 in rural area and in urban area it increased from ₹2019 during 2014-15 to ₹2114 during 2017-18.

Table 4.21

Average Non-Medical Expenditure (₹) per Hospitalization Case in India

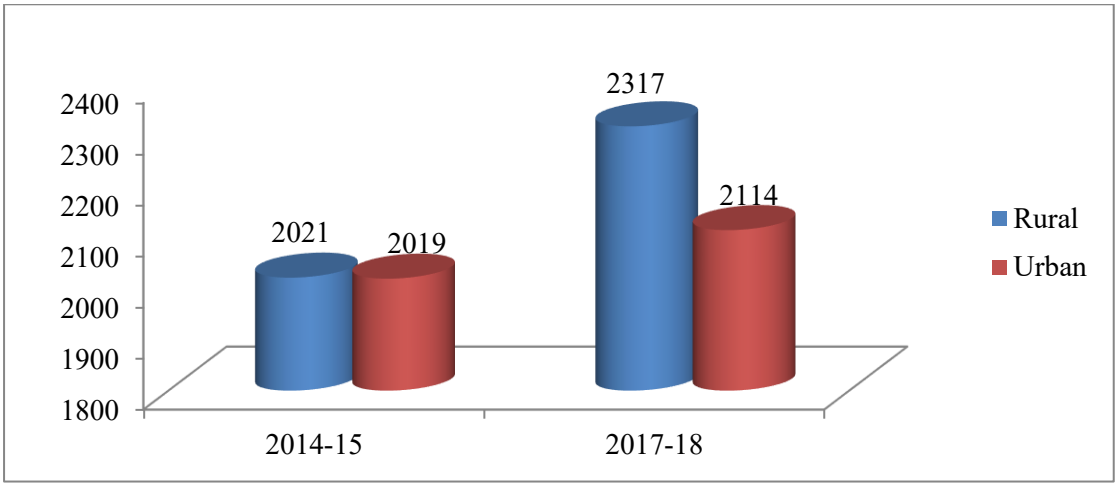
States	Rural			Urban		
	2014-15	2017-18	Percentage change	2014-15	2017-18	Percentage change
Andhra Pradesh	2184	2350	7.6	2429	1830	-24.7
Arunachal Pradesh	2363	1826	-22.7	1789	2245	25.5
Assam	1554	1981	27.5	5304	6169	16.3
Bihar	2194	1671	-23.8	3054	1849	-39.5
Chhattisgarh	1895	2778	46.6	2245	1809	-19.4
Goa	2550	1469	-42.4	3237	2153	-33.5
Gujarat	1362	1589	16.7	1121	1392	24.2
Haryana	2604	2156	-17.2	2847	2241	-21.3
Himachal Pradesh	3144	3369	7.2	2570	2278	-11.4
Jammu & Kashmir	2334	1889	-19.1	2226	2768	24.3
Jharkhand	2227	2446	9.8	1860	3131	68.3
Karnataka	2027	1862	-8.1	2012	2123	5.5
Kerala	1743	2239	28.5	1652	2071	25.4
Madhya Pradesh	2236	2229	-0.3	2381	1816	-23.7
Maharashtra	2011	2043	1.6	1534	1810	18.0
Manipur	2997	3413	13.9	3595	4376	21.7
Meghalaya	2023	1762	-12.9	3004	2178	-27.5
Mizoram	2908	2849	-2.0	3756	2808	-25.2
Nagaland	2122	2748	29.5	2689	3764	40.0
Odisha	2376	2632	10.8	2963	2967	0.1
Punjab	2061	2235	8.4	2007	1716	-14.5
Rajasthan	2755	2779	0.9	1616	2171	34.3
Sikkim	4613	3196	-30.7	5813	2616	-55.0
Tamil Nadu	2126	2611	22.8	2336	2806	20.1
Telangana	2019	4556	125.7	1966	2732	39.0
Tripura	1547	1350	-12.7	2294	2340	2.0
Uttar Pradesh	1901	2383	25.4	1749	2201	25.8
Uttarakhand	1314	2826	115.1	2180	3062	40.5
West Bengal	1514	2180	44.0	2374	1849	-22.1
All-India	2021	2317	14.6	2019	2114	4.7

Sources: 1. NSS 71st Round, NSS KI (71/25.0), Key Indicators of Social Consumption in India-Health, 2015
2. NSS 75th Round, NSS Report No: 586 (75/25.0), Health in India, 2020

Average non-medical expenditure per-hospitalisation case between rural and urban areas of India during 2014-15 and 2017-18 is given in Table 4.21. Among the states Uttarakhand and Sikkim witnessed the lowest and the highest non-medical expenditure respectively per-hospitalisation during 2014-15 and Tripura and Telengana during 2017-18 for rural area. In the case of urban area Gujarat and Sikkim witnessed a lowest and highest non-medical expenditure respectively per-hospitalisation for the period 2014-15 and Gujarat and Assam during 2017-18. In

rural area the percent change in non-medical expenditure during 2014-15 and 2017-18 varies between -42.4 percent (Goa) to 125.7 percent (Telengana). In urban area the percent change in medical expenditure varies from -55.0 percent (Sikkim) to 68.3 percent (Jharkhand).

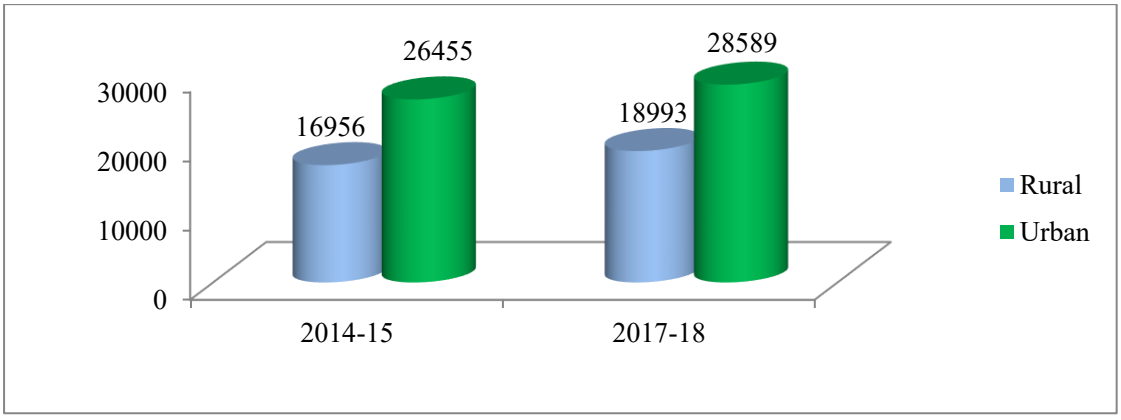
Figure 4.5
Average Non-Medical Expenditure (₹) per-hospitalisation Case in India



Sources: 1. NSS 71st Round, NSS KI (71/25.0), Key Indicators of Social Consumption in India-Health, 2015
2. NSS 75th Round, NSS Report No: 586 (75/25.0), Health in India, 2020

Average non-medical expenditure per-hospitalisation for a period of 365 days in India decreased in the case of Andhra Pradesh, Bihar, Chhattisgarh, Goa, Haryana, Himachal Pradesh, Madhya Pradesh, Meghalaya, Mizoram, Punjab and Sikkim and West Bengal.

Figure 4.6
Average Expenditure (₹) per-hospitalisation Case in India



Sources: 1. NSS 71st Round, NSS KI (71/25.0), Key Indicators of Social Consumption in India-Health, 2015
2. NSS 75th Round, NSS Report No: 586 (75/25.0), Health in India, 2020

Average expenditure per-hospitalisation is higher in urban area compared to rural area during 2014-15 and 2017-18. This is evident from Figure 4.6. Average

expenditure per-hospitalisation constitutes both medical and non-medical expenditure. Average expenditure per-hospitalisation in rural area was increased from ₹16956 in 2014-15 to ₹18993 in 2017-18 and in urban area it increased from ₹26455 to ₹28589 for the same time period. Average expenditure per-hospitalisation case between rural and urban areas of India during 2014-15 and 2017-18 is given in Table 4.22.

Table 4.22

Average Expenditure (Medical and Non-Medical Expenditure in ₹) per-hospitalisation Case in India

States	Rural			Urban		
	2014-15	2017-18	Percentage Change	2014	2017-18	Percentage Change
Andhra Pradesh	15411	19067	23.7	33671	24309	-27.8
Arunachal Pradesh	8042	6329	-21.3	10715	8337	-22.2
Assam	8520	11807	38.6	52368	45104	-13.9
Bihar	13626	13265	-2.6	28058	19711	-29.7
Chhattisgarh	14043	28902	105.8	24891	21683	-12.9
Goa	32503	9234	-71.6	26401	18895	-28.4
Gujarat	15660	16513	5.4	21276	23810	11.9
Haryana	20945	21332	1.8	35217	32578	-7.5
Himachal Pradesh	22004	23678	7.6	31160	20069	-35.6
Jammu & Kashmir	10777	8260	-23.4	16174	18446	14.0
Jharkhand	12578	19734	56.9	15011	29185	94.4
Karnataka	16118	14630	-9.2	24202	28698	18.6
Kerala	19385	19292	-0.5	17117	24194	41.3
Madhya Pradesh	15326	16554	8.0	26374	19180	-27.3
Maharashtra	22486	21427	-4.7	31028	38422	23.8
Manipur	9058	17583	94.1	13810	21880	58.4
Meghalaya	4098	4552	11.1	21789	24889	14.2
Mizoram	11652	10110	-13.2	17216	20179	17.2
Nagaland	7750	8769	13.1	18477	15874	-14.1
Odisha	12616	13790	9.3	22713	21715	-4.4
Punjab	29779	34040	14.3	31978	31053	-2.9
Rajasthan	15609	19047	22.0	18346	22995	25.3
Sikkim	12648	10376	-18.0	15751	10318	-34.5
Tamil Nadu	13968	14974	7.2	26092	26066	-0.1
Telangana	21683	24443	12.7	22584	32814	45.3
Tripura	7242	6512	-10.1	13931	15739	13.0
Uttar Pradesh	20594	25527	24.0	33402	35539	6.4
Uttarakhand	10476	18770	79.2	27883	40100	43.8
West Bengal	12841	15491	20.6	27249	27084	-0.6
All-India	16956	18993	12.0	26455	28589	8.1

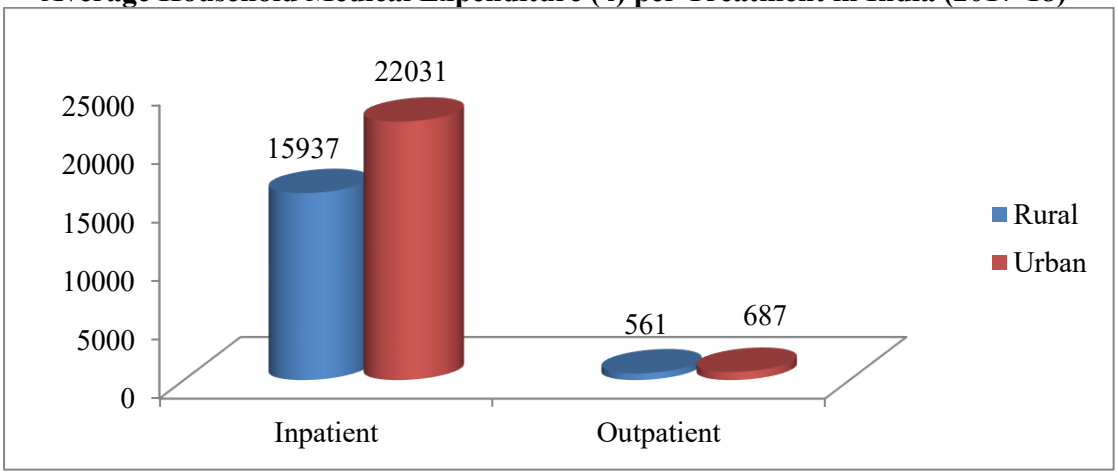
Sources: 1. NSS 71st Round, NSS KI (71/25.0), Key Indicators of Social Consumption in India-Health, 2015
2. NSS 75th Round, NSS Report No: 586 (75/25.0), Health in India, 2020

Average expenditure per-hospitalisation in India varies from ₹4098 (Meghalaya) to ₹32503 (Goa) in rural area and from ₹10715 (Arunachal Pradesh) to ₹52368 (Assam) in urban area during 2014 and from ₹4552 (Meghalaya) to ₹34040 (Punjab) in rural area and from ₹8337 (Arunachal Pradesh) and ₹45104 (Assam) in urban area during 2017-18. Percentage change in average expenditure per-

hospitalisation for the period 2014-15 and 2017-18 is more in the case of rural area (12 percent) compared to urban area (8.1 percent). It is clear from Figure 4.6 that average medical expenditure is higher in urban area than rural area for inpatient and outpatient treatment during 2017-18. The regional differences in health care facilities and health outcomes would lead to the differences in expenditure on health across the states in India. Average household medical expenditure per-hospitalisation case for treatment during stay at hospital for a period of 365 days is higher in urban India (₹22031) than in rural India (₹15937) during 2017-18. Average household medical expenditure for non-hospitalised treatment per spell for a period of 15 days reference period is ₹561 and ₹687 for rural and urban areas respectively (See Figure 4.7).

Figure 4.7

Average Household Medical Expenditure (₹) per Treatment in India (2017-18)



Source: NSS 75th Round, NSS Report No: 586 (75/25.0), Health in India, 2020

Average household medical expenditure for inpatient and outpatient care in India during 2017-18 is presented in Table 4.23. Average household medical expenditure for inpatient care varies from ₹1381 (Meghalaya) to ₹29829 (Punjab) in rural India and from ₹5599 (Mizoram) to ₹31482 (Assam) in urban India during 2017-18. In the case of outpatient and inpatient care the medical expenditure is highest in urban area compared to rural area. Average household medical expenditure for outpatient care varies from ₹1161 (Arunachal Pradesh) to ₹300 (Chhattisgarh) in rural India and from ₹1942 (Meghalaya) to ₹366 (Jammu & Kashmir) in urban India during 2017-18.The differences in health care utilisation and morbidity level of households would contribute the differences in expenditure on health across the states in India. the average household medical expenditure is very high in some of the states and very low in some other states. This trend shows that average household medical

expenditure per treatment in India is highly diversed and unique among major states in India. this inter-state disparity might be influenced by income, education and geography. This chapter compares the disparity of expenditure on health among the states in India. It is not at all a state wise disparity but a rural-urban, male-female, public hospitals-private hospitals, public expenditure-private expenditure and medical expenditure-non medical expenditure also.

Table 4.23
Average Household Medical Expenditure (₹) per Treatment in India (2017-18)

States	Inpatient		Outpatient	
	Rural	Urban	Rural	Urban
Andhra Pradesh	14682	19920	413	576
Arunachal Pradesh	4426	5864	1163	1815
Assam	9363	31482	728	845
Bihar	11588	17560	612	908
Chhattisgarh	24765	17473	300	531
Goa	6850	13867	432	386
Gujarat	14123	16876	359	556
Haryana	18017	21227	661	827
Himachal Pradesh	18458	14570	802	461
Jammu & Kashmir	6355	15476	368	366
Jharkhand	16554	22910	615	959
Karnataka	11930	21657	524	681
Kerala	15574	19334	421	531
Madhya Pradesh	14031	16020	721	937
Maharashtra	18898	30056	509	633
Manipur	13977	16950	776	1109
Meghalaya	1381	17937	564	1942
Mizoram	3444	5599	419	907
Nagaland	5845	11217	724	791
Odisha	10500	17018	471	464
Punjab	29829	25471	569	666
Rajasthan	15802	16972	816	809
Sikkim	6058	6759	508	608
Tamil Nadu	12057	19963	482	619
Telangana	19039	26461	533	677
Tripura	4909	12132	992	1272
Uttar Pradesh	22792	30358	712	1107
Uttarakhand	15740	22005	360	671
West Bengal	12741	18466	563	618
All-India	15937	22031	561	687

Source: NSS 75th Round, NSS Report No: 586 (75/25.0), Health in India, 2020

There is disparity among the states in India regarding health status. The causes for the disparity of health spending would be socio-economical, political, cultural, geographical, demographical and genetical in nature.

1.152(PCII), 1.15 (GDPI), 0.904 (PEHI) to 0.877 (PEHI/pc). Per-capita income variables would substantial positive effect on per-capita household health expenditure compared to government expenditure on health. It is clear from the above analysis that the income variables and government expenditure would a decisive role in the determination of household health expenditure in India. The regression results of both linear and logarithmic equation suggest that the selected independent variables are key variables which influences and determines the household health expenditure in India.

6.5. Financial Return and Expenditure on Health in India

Health contributes the human capital of an individual. Healthy population act as a determinant and consequence of socio-economic development (Schultz, 1961). The investment in human capital can produce the monetary and non-monetary returns in an economy. Spending on health has both direct and indirect effect on economic growth (Becker, 1980). It is essential to examine the impact of investment on health on the productive capacity of India. It is evident that there is a positive association between per-capita GDP and household health expenditure in India during the period 1999-2000 to 2018-19. Household health expenditure can explain the productive capacity of the country in terms of GDP and per-capita income. In order to prove the relationship between expenditure on health and financial income, both linear and logarithmic regression equations are estimated.

Health is a fundamental requirement of economic development of a country. Human capital accumulation can be improved by investing in the health of the population (Schultz, 1961). It is obvious that, both public and household expenditure on health have a positive influence on the productivity of the country. The regression equation holds the same result and it is statistically significant. The productive capacity of the nation can be influenced by the spending on health by the government and the household. The GDP of the country would positively influenced by the health spending of the public and households (Equn.1 and Equn.2 in Table 6.7). The regression coefficient of GDPI is more in the case of HHEI than PHEI. At the same time the per-capita income is also dependent on the per-capita household health expenditure and per-capita public expenditure on health (Equn.3 and Equn.4 in Table 6.7). It can be observed that the regression coefficient of PCII is more in the case of HHEI/pc than PEHI/pc. The regression coefficient is also high in the case of total

negative rate during 2000-01 (0.52 percent) and maximum during 1996-97 (22.34 percent). The role of medical institutions for attaining a favourable health index is immense. The health institutions in the private sector also contributed to the better health indicators to the state. But there is no sufficient data regarding private health care facilities. The supply of health care is measured only with government medical institutions. The number of government medical institutions also exhibits an increasing trend and it rose from 2370 in 1994-95 to 2706 in 2007-08 with a CAGR of 0.95 percent. The percentage change in the number of medical institutions is high during 1999-2000 with 3.90 percent. The CAGR of variables varies from 6.01 percent (GSDPK), 5.48 percent (RTK), 5.37 percent (PCIK), 5.26 percent (PEHK), and 3.92 percent (PEHK/pc) to 0.95 percent (MIK). The CAGR of HHEK/pc is 11.95 percent which outruns all the selected variables in Kerala.

Table 6.11 (a)

Regression Results of Household Health Expenditure in Kerala

Equn. No	Dependent Variable	Intercept (Constant)	Independent Variables					R^2	Adj R^2	F Ratio
			GSDPK	PEHK	PEHK/pc	TRK	PCIK			
Equn.1	HHEK/pc	-271.58 (-0.96)					0.042 (4.91)	0.68	0.64	24.06
Equn.2	HHEK/pc	-1375.38 (-4.06)			9.23 (7.31)					
Equn.3	HHEK/pc	-168.76 (-0.68)	0.012 (5.16)					0.69	0.66	26.57
Equn.4	HHEK/pc	-959.38 (-3.73)		2.415 (8.03)				0.84	0.83	64.41
Equn.5	HHEK/pc	-846.25 (-4.34)				0.109 (10.03)		0.89	0.88	100.53

Note: Figures in parentheses indicates t- Statistic value
Source: Computed from variables specified in Tables 6.8, 6.10(a), 6.10(b) and 6.10(c)

Among the variables related to expenditure on health in Kerala the annual growth rate is more in the case of per-capita GSDP of Kerala followed by remittances to Kerala, per-capita income, public expenditure on health, per-capita public expenditure on health and medical institutions in Kerala. The simple and multiple regression analysis of per-capita household health expenditure in Kerala is presented in Table 6.11 (a), 6.11 (b), 6.12 (a) and 6.12 (b). Both the linear and logarithmic equations are considered to identify the determinants of expenditure on health in Kerala.

The regression result shows a marginal positive association between per-capita income and the per-capita household health expenditure in Kerala (Equn.1 in Table 6.11 (a)). The per-capita income of Kerala marginally influences the variations in the

inequality in the distribution of health care. Hence public expenditure seems to have a high association with the household expenditure on health. Public expenditures are inevitable to reduce the income inequality in terms of providing accessibility of health care (Angko, 2009).

Table 6.12 (b)

Regression Results of Household Health Expenditure in Kerala (Logarithmic Equation)

Equation No	Dependent Variable	Intercept (Constant)	Independent Variables			R^2	Adj R^2	F Ratio
			PEHK/ pc	MIK	PCIK			
Equn.1	HHEK/ pc	-7.90 (-2.85)	3.318 (3.49)		-0.357 (-0.57)	0.82	0.79	24.86
Equn.2	HHEK/ pc	-67.56 (-7.93)		9.46 (8.74)		0.86	0.85	76.32

Note: Figures in parentheses indicates t- Statistic value
Source: Computed from variables specified in Tables 6.8, 6.10(a), 6.10(b) and 6.10(c)

The relative influence of variables in logarithmic equation on HHEK/pc differs from 9.46 (MIK), 2.824 (PEHK/pc), 2.281 (PEHK), 2.099 (TRK), 1.615 (PCIK) to 1.49 (GSDPK). The regression result shows the association of household health expenditure in Kerala and the variables determining it. The regression result helps to find out of the relative influence of household health expenditure in Kerala and macro economic variables such as GSDP, per-capita income, remittances and public expenditure on health. The regression result of logarithmic equation indicates a strong positive effect of MIK and a weak effect of GSDPK on household health expenditure in Kerala.

6.8. Financial Return and Expenditure on Health in Kerala

The productive capacity of the economy can be measured by GSDP, per-capita GSDP and household income through remittances. In order to find relationship between financial return and expenditure on health linear and logarithmic regression equations are used.

In the economic assessment both of the cost and outcome of the health investment are considered. The cost dimension includes cost-minimization, cost-benefit, cost-effectiveness or cost-utility (Ferraz, 1995). It can be evident from the regression result of return on expenditure on health that public expenditure on health in Kerala would influence substantial positive effect on GSDPK (Equn.2 in Table 6.13). Investment in human capital enhances the productivity of the state. Human capital formation through education and health increases the productivity of the labour which fosters economic development. In Kerala household expenditure on education seems to be positively significant on productivity in terms of per-capita

6.10. Financial Return from Health in India and Kerala

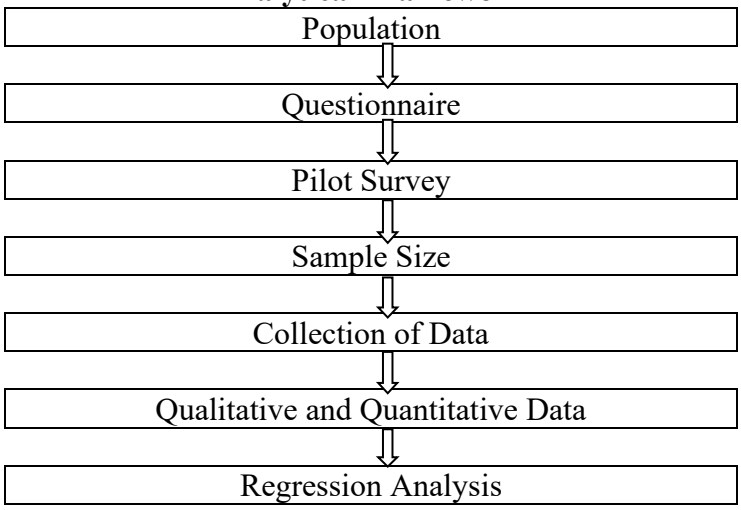
The financial return from health concentrates the macroeconomic productivity indicators such as per-capita income and national income. This section tries to compare the returns from health expenditure in Kerala and in India. The financial return is greater from public expenditure on health than household health expenditure both in Kerala and in India. Moreover the effect of GDPI or GSDPK from public expenditure on health is higher in Kerala than in India. The impact of household health expenditure on income is more in Kerala than in India. The regression result is mostly consistent with both linear and logarithmic equation on financial returns on health in India and Kerala.

The regression results help to find out the influence of independent variables on household health expenditure in Kerala and in India. It also throws light on the productive capacity from expenditure on health. The analysis helps to find the strength among the variables. The variables like PEHI, PEHI/pc, PCII, GDPI and GDPI/pc have a significant role in determining the household health expenditure in India. In Kerala the variables such as PEHK, PEHK/pc, GSDPK, PCIK, RTK and MIK plays a prominent role in determining the household health expenditure. The productive capacity from household health expenditure in India is in terms of PCII and GSDPI. In Kerala the productive capacity is in terms of PCIK and GSDPK. The public expenditure on health is the most crucial factor to determine the household health expenditure in Kerala. Apart from these variables there are several factors contributed to the household health expenditure in Kerala. Hence to identify the micro level variables, a detailed primary data base analysis is needed.

(6) **Others**: Thrissur district shows lowest child sex ratio in Kerala as per Census 2011.

A pilot survey has conducted. Based on the insights from pilot survey, sampling instruments were revised. From the pilot survey it is found that 32.2 percent of households have expenditure on health care for a reference period of 15 days. Based on the pilot survey, the total sample size was fixed at 336 households. Rural population of Thrissur district is 32.81 percent and urban population is 67.19 percent of the total population as per the census 2011. The rural-urban sample size is fixed as a proportion of rural and urban population of Thrissur district. The rural and urban sample households are selected in the proportion of 1:2 based on census 2011. Out of 336 households 224 households are from urban area and 112 households are from rural area of Thrissur district (see Appendix 2- Table 1).

Figure 7.2
Analytical Framework



Source: Prepared by the investigator

Thrissur district, the cultural capital of Kerala, is the center of health care in the central Kerala since it covers the health care needs of the people in Thrissur, Palakkad, Malappuram and northern part of Ernakulum district. Thrissur district is the fastest becoming educational capital of Kerala due to the existence of various medical, engineering, ayurvedic, veterinary and art and science colleges. Kerala University of Medical and Allied Sciences is located at Thrissur. There are four medical colleges in Thrissur district. The three allopathic medical colleges in Thrissur district are Government Medical College, Thrissur, Jubilee Mission Medical College and Research Institute, and Amala Institute of medical Sciences. Thrissur district is also well known for its Ayurvedic treatment. There are two Ayurveda colleges,

percentage of head of households who have PG &Above is low in rural area than in urban area.

Household expenditure is mainly dependent upon the household income. Hence the occupational background of the head of the household is considered under study to examine the determinants of household health expenditure. The occupation is categorized into regular salaried, self employed and casual wage labourers. The major share of occupation of head of household occupies self employed category both in rural and urban areas of Thrissur (Table 7.3). The occupation of head of household in urban area contains 39.3 percent of regular salaried category followed by 19.2 percent of casual wage labourers. But in rural area casual wage labourers (30.4 percent) occupies the second place followed by regular salaried category (27.7 percent).

Sometimes the gender of head of household would influence the expenditure pattern of households (Sinha et al., 2016). Majority of sample households in urban and rural areas have male-head of household. It is evident that 79.5 percent of rural households and 81.3 percent of urban households have male-head of household Female headed household is higher in rural area (20.5 percent) than in urban area (18.7 percent).

Table 7.4

Distribution of Households by Family

Category	Sub-Category	Rural	Urban
Type of Family	Joint family	19(16.9)	34(15.2)
	Nuclear family	93(83.1)	190(84.8)
	Total	112(100)	224(100)
Size of Family	1-4	55(49.1)	116(51.8)
	5-8	46(41.1)	90(40.2)
	9≤	11(9.8)	18(8.0)
	Total	112(100)	224(100)

Source: Survey Data

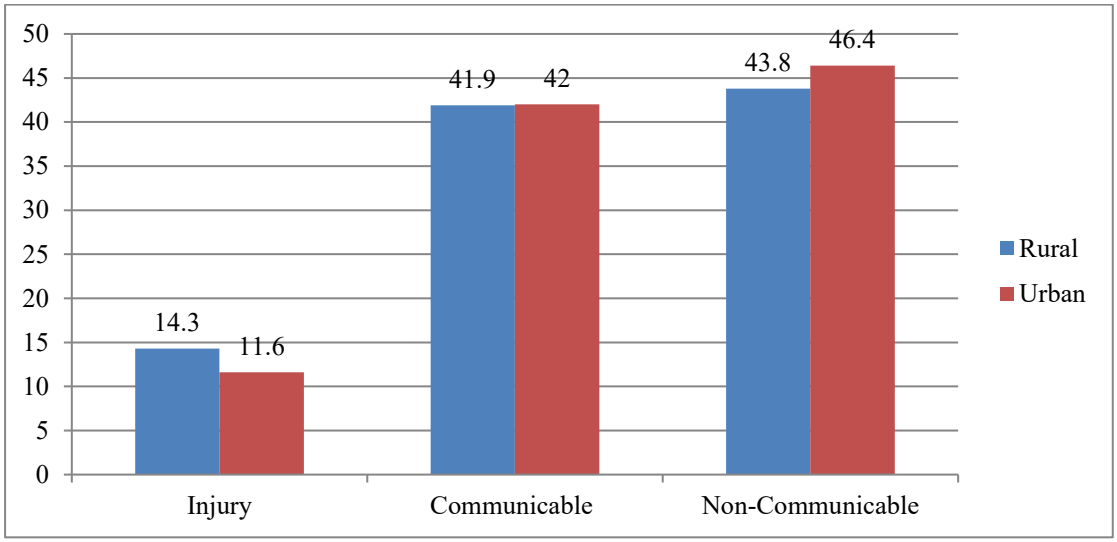
Type of family may be joint or nuclear. The sample households in Thrissur district are highly favoured for nuclear family. The rural-urban difference in type of family is low in the sample households. There are 16.9 percent of the rural households are in the nature of joint family and 83.1 percent of nuclear family. At the same time 15.2 percent of the families are joint and 84.8 percent are nuclear family.

Family size can be categorized to three classes; households with number of persons in the class of 1-4, 5-8 and 9 & above. Majority of households have 4 members both in rural and urban areas of sample households in Thrissur district. In rural area, 9.8 percent of families have a number of more than 9 members and 41.1

the same time, injury related diseases are comparatively low both in rural and urban area alike. Therefore, in this context, the government and other policy makers should take some urgent measures to control the non-communicable diseases in rural and urban area of Kerala. Similarly there should be specific attention to the problems related to non-communicable diseases of the marginalised sections of the society.

Figure 7.3

Distribution of Households by Nature of Diseases



Source: Survey Data

In rural area the burden of non- communicable diseases (43.9 percent) is high when compared to communicable diseases (41.9). In urban area 46.4 percent of diseases are non-communicable in nature and 42.0 percent are communicable diseases. The difference between burden of communicable and non-communicable diseases is low in both rural and urban area. 14.3 percent of rural households and 11.6 percent of urban households have reported injury cases.

Table 7.9

Distribution of Households by Type of Treatment

Type of Treatment	Rural	Urban
Specialty	26(23.2)	55(24.6)
General	50(44.6)	117(52.2)
Specialty+ General	36(32.2)	52(23.2)
Total	112(100)	224(100)

Source: Survey Data

Healthcare treatment may be general treatment or specialty treatment. It is noticed that 44.6 percent of rural and 52.2 percent of urban households utilize general treatment and 23.2 percent of rural and 24.6 percent of urban households utilize specialty treatment. Further there are, 32.2 percent of rural and 23.2 percent of urban

the sample households for post-discharge treatment. The source of treatment from government hospital increased after hospitalisation (50.15 percent) when compared to before hospitalisation (43.9 percent). But the source of treatment from private/charitable hospital decreased after hospitalisation (47.75 percent) when compared to before hospitalisation (48.2 percent). There would high discrepancy in expenditure between government and private hospitals.

7.5. Annual Household Health Expenditure of Households

Annual household health expenditure per-capita has obtained by dividing the annual household health expenditure by the household size. The variations in average annual household health expenditure per-capita with respect to various indicators are given below.

Table 7.14

Distribution of Average Annual Household Health Expenditure Per-capita by Religion

Religion	Rural	Urban
Hindu	6616.9	7015.3
Muslim	5554.9	6889.2
Christian	4836.0	8563.6
Average	5669.3	7489.4
Test Statistic	1.644	2.633
p value	0.440	0.268

Source: Survey Data

There is no significant difference between religion of households and average annual household health expenditure per-capita both in rural and urban area since $p>0.05$. Average annual household health expenditure per-capita is the highest for Hindus (₹6616.9) followed by Muslims (₹5554.9) and Christians (₹4836) in rural area. In urban area, the religion-wise household health expenditure is the highest for Christians (₹8563.6) followed by Hindus (₹7015.3) and Muslims (₹6889.2).

Table 7.15

Average Annual Household Health Expenditure Per-capita by Caste

Caste	Rural	Urban
General	6354.3	8440.9
SC/ST	4126.1	3850.3
OBC	5281.7	6760.5
Average	5254.0	6350.6
Test Statistic	0.268	15.195
p value	0.875	0.001

Source: Survey Data

Average household health expenditure is more for urban area (₹7489.4) than rural area (₹5669.3) with respect to religion. There is significant difference between

especially for urban households with PG & above. Lower educational level of urban and rural head of household would mount the expenditure on health.

There is marginal difference between different occupation of the head of household and average annual household health expenditure per-capita in rural area (p>0.05). But in urban area there is significant difference between different occupation of the head of household and average annual household health expenditure per-capita since the p value is 0.017**.**

The variations in the health expenditure based on occupation of head of the household shows that household health expenditure is high for self employed (₹6652) followed by casual wage labourers (₹6008.5) and regular salaried workers (₹4090.9) in rural area. In urban area, household health expenditure in relation to occupation of head of household varies from self employed (8723.4) followed by regular salaried workers (₹8048.2) to casual wage labourers (₹4412.6).

Table 7.19

Distribution of Average Annual Household Health Expenditure Per-capita by Gender of Head of the Household

Gender of head of the household	Rural	Urban
Male	6112.2	7509.9
Female	4621.9	7573.9
Average	6112.2	7541.9
Test Statistic	-0.853	-0.102
p value	0.394	0.919

Source: Survey Data

The influence of gender in determining the household health expenditure can be examined through the gender of head of sample household. There is no head of household as transgender.

Table 7.20

Distribution of Average Annual Household Health Expenditure Per-capita by Family Type

Family Type	Rural	Urban
Joint family	6245.9	6048.5
Nuclear family	5803.2	7792.8
Average	6024.5	6920.7
Test Statistic	-0.651	-0.453
p value	0.515	0.651

Source: Survey Data

The analysis shows that there is marginal difference between gender of head of household as male and female and average annual household health expenditure per-capita in rural (p=0.394) and urban area (p=0.919).

nature of diseases and household health expenditure (p=0.00). The burden of non-communicable diseases is much higher than that of communicable diseases among households. The incidence of non- communicable diseases is high in Kerala especially among elder people (Paul and Singh, 2017). Morbidity profile of Kerala shows a increase in non-communicable diseases without reduction in communicable diseases. Households spend more for non-communicable diseases compared to communicable diseases. Non-communicable diseases would enhance health expenditure among households. Average annual household health expenditure per-capita for injury in rural area is ₹1690.7 and ₹2525.7 in urban area. Average household health expenditure per-capita for communicable diseases in rural area is ₹9126.7 and ₹9928.3 in urban area while the expenditure for non-communicable diseases is ₹13300.8 in rural area and ₹18504.7 in urban area in Thrissur district.

Table 7.24

Distribution of Average Annual Household Health Expenditure Per-capita by Type of Treatment

Type of Treatment	Rural	Urban
Specialty	3821.5	5732.7
General	985.9	1339.3
Specialty+ General	8315.4	15755.7
Average	4374.3	7609.3
Test Statistic	80.297	122.214
p value	0.000	0.000

Source: Survey Data

Type of treatment influences expenditure on health among households. Specialised health services are costlier than general health services. The average expenditure for specialty treatment (₹3821.5) is higher than general treatment (₹985.9) in rural area.

Table 7.25

Distribution of Average Annual Household Health Expenditure Per-capita by Episodes of Hospitalisation

Episodes of hospitalisation	Rural	Urban
0-3	4421.3	5832.5
4+	11428.1	13918.6
Average	7924.7	9875.5
Test Statistic	-4.590	-6.463
p value	0.000	0.000

Source: Survey Data

In urban area average expenditure on general treatment is ₹1339.3 and ₹5732.7 for specialty treatment. Since p=0.00, there exists significant difference between household health expenditure and different type of treatment of households

The analysis shows that the burden of household health expenditure is reduced with voluntary prepayment on health care. Majority of the sample households have government funded health insurance scheme. Government funded health insurance scheme assisted households to reduce hospitalization expenses and utilize better hospital facilities (Reshmi et al., 2007; Mini, 2013). One of the major drawbacks of government sponsored health insurance scheme in Kerala is the limited number of private empanelled hospitals.

7.7. Household Budget and Expenditure on Health

Household budget shows the relative importance of various commodities and services with the given level of income. The preference of the consumer is different for different commodities. Percentage share of expenditure on health in household budget shows the relative importance of healthcare of households.

The two groups of consumption expenditure, food and non-food, among BPL and APL households in rural and urban area is shown in Table 7.29. Health is included in the non-food category of the total household consumption expenditure. In rural area food component in the average annual total household is low among BPL households (39 percent) compared to APL households (41 percent).

Table 7.29
Average Annual Consumption Expenditure by Item

Item	Rural			Urban		
	BPL	APL	Total	BPL	APL	Total
Food	38.5	39.2	38.85	37.2	36.5	36.85
Housing	10.5	9.5	10	10.9	9.1	10
Education	11.5	13.1	12.3	12.9	13.8	13.35
Transport and entertainment	6.9	7.4	7.15	6.1	8.9	7.5
Health	8.3	9.9	9.1	9.5	10.3	9.9
Fuel and Energy	7.4	6.9	7.15	8.4	8	8.2
Clothing and Footwear	8.1	8.9	8.5	8.1	7.5	7.8
Others	8.8	5.1	6.95	6.9	5.9	6.4
Total	100	100	100	100	100	100

Source: Survey Data

The average share of health of the total household consumption expenditure is 9.1 percent in rural area and it is 8.3 percent for BPL households and 9.9 percent for APL households. The share of health in average total household consumption expenditure among BPL households is very low in rural area. This may be due to the influence of government supported health insurance schemes like RSBY and CHIS. The government takes steps for a universal health insurance scheme by broadening the different categories of households into the scheme. This government supported

Average rural medical expenditure per-hospitalisation case in public hospital is ₹4759 and ₹26471 for private hospitals. Average rural medical expenditure per-hospitalisation case in public hospital increased from ₹3035 (NSS 71st round) to ₹4395 (NSS 75th round). Average rural medical expenditure per-hospitalisation case in private hospital increased from ₹25411 (NSS 71st round) to ₹25949 (NSS 75th round).

Table 7.30 (c)

Average Medical Expenditure in Kerala per-Hospitalization Case

Average expenditure Excluding Childbirth (₹) for treatment under	Public Hospital (Urban)		
	NSS 71st round	NSS 75th round	Primary Survey
Package Component	115	199	212
Doctors Fee	125	128	149
Diagnostic Tests	720	1063	1112
Medicines	1197	2175	2312
Bed Charges	155	212	257
Others	430	812	905
Total	2743	4590	4947

Source: NSS Report No. 574: Health in India, April 2016; NSS Report No. 586: Health in India, July 2020; Survey Data

Average urban medical expenditure per-hospitalisation case in public hospital is ₹4947 and ₹33378 for private hospitals. Average rural medical expenditure per-hospitalisation case in public hospital increased from ₹2743 (NSS 71st round) to ₹4590 (NSS 75th round).

Table 7.30(d)

Average Medical Expenditure in Kerala per-Hospitalization Case

Average expenditure Excluding Childbirth (₹) for treatment under	Private Hospital (Urban)		
	NSS 71st round	NSS 75th round	Primary Survey
Package Component	3730	5470	5518
Doctors Fee	4151	5502	5645
Diagnostic Tests	2570	3956	4003
Medicines	5163	7724	7980
Bed Charges	2721	5812	5911
Others	3474	4283	4321
Total	21808	32747	33378

Source: NSS Report No. 574: Health in India, April 2016; NSS Report No. 586: Health in India, July 2020; Survey Data

Average rural medical expenditure per-hospitalisation case in private hospital increased from ₹21808 (NSS 71st round) to ₹32747 (NSS 75th round). The cost of treatment has been increasing for the past several years. The price of medicines has increased tremendously.

Households received 80.1 percent surgery as free, 9.6 percent as partly free and 10.3 percent as on payment for surgery in government hospital. Households received 3.0 percent of surgery as free and 92.8 percent of surgeries as on payment in

Parameter Estimates table shows the coefficients, their standard errors, the *t* test, associated p-values (Sig.) and the coefficient intervals. Urban (Type of locality), Christian (Religion), OBC (Caste), APL (Income status), 1000000+ (Income group), Nuclear family (Family Type), 8+ (Family size), Yes (Old age dependency), Non-Communicable (Nature of diseases), 4+ (Episodes of institutional care) and Availed (Delivery care) are taken as the reference categories of the corresponding independent variables.

Table 7.34
Result of Multivariate Analysis

Parameter Estimates							
Dependent Variable: Average Annual Household Health Expenditure per-capita							
Parameter		**B**	**Std. Error**	**t**	**Sig.**	**95% Confidence Interval**	
						Lower Bound	**Upper Bound**
Intercept		18515.26	2873.53	6.44	0.00	12861.67	24168.86
Type of Locality	Rural	-2103.22	673.85	-3.12	0.00	-3429.00	-777.43
	Urban	0[a]					
Religion	Hinduism	704.36	846.66	0.83	0.41	-961.43	2370.15
	Muslim	1106.75	1828.54	0.61	0.55	-2490.86	4704.36
	Christian	0[a]					
Caste	General	1438.77	1569.66	0.92	0.36	-1649.50	4527.04
	SC/ST	-32.86	1842.58	-0.02	0.99	-3658.09	3592.37
	OBC	0[a]					
Income status	BPL	-2225.59	2043.15	-1.09	0.28	-6245.44	1794.26
	APL	0[a]					
Income group	<150000	3954.39	2261.89	1.75	0.08	-495.82	8404.61
	150001-300000	2299.71	1401.27	1.64	0.10	-457.26	5056.67
	300001-500000	2655.85	1441.70	1.84	0.07	-180.65	5492.35
	500001-1000000	3195.05	1470.10	2.17	0.03	302.66	6087.44
	1000000+	0[a]					
Family type	Joint family	-3385.40	1277.30	-2.65	0.01	-5898.46	-872.34
	Nuclear family	0[a]					
Family size	1-4	428.06	1790.75	0.24	0.81	-3095.20	3951.32
	5-7	-334.77	1559.69	-0.21	0.83	-3403.44	2733.89
	8+	0[a]					
Old age dependency	No	157.46	762.83	0.21	0.84	-1343.39	1658.32
	Yes	0[a]					
Nature of diseases	Injury	-8431.21	1324.83	-6.36	0.00	-11037.78	-5824.64
	Communicable	-5818.60	1129.69	-5.15	0.00	-8041.24	-3595.96
	Non-Communicable	0[a]					
Episodes of institutional care	1-3	-2087.13	877.773	-2.378	.018	-3814.129	-360.135
	4+	0[a]					
Delivery care	Non-Availed	-7960.61	991.367	-8.030	.000	-9911.096	-6010.116
	Availed	0[a]					
a. This parameter is set to zero because it is redundant.							

Source: Survey Data

Other categories are significant when compared with the reference categories. Since the corresponding p value of the category type of locality is less than 0.05 we can conclude that the average annual household health expenditure of rural is significantly different from that of urban. Also the negative value of the estimate

government hospitals. Debt position is the main constraint faced by the households in urban and rural area in relation to high household health expenditure. While in the case of rural households lack of saving (19.5percent) and low-insurance participation (18.2 percent) are the main problems to tackle high health expenditure.

Table 7.36

Problems of Households in Relation to Expenditure on Health

Problems	Rural	Urban
Inadequate saving	19.5	18.5
Insignificant cooperation of the head of household	3.6	2.2
Inadequate of health consciousness	5.5	4.7
Inadequate insurance participation	18.2	19.5
Insufficient information on health care facilities.	6.1	5.4
Inadequate support from the government	4.3	2.5
Infrastructure in government hospitals	6.2	12.1
Inadequate financing	16.5	13.8
Sub-optimum debt position	20.1	21.3

Source: Survey Data

The least affected problem is the poor cooperation of head of household both in rural (3.6 percent) and urban area (2.2 percent). Lack of health consciousness and poor information on health care are the other problems faced by the households in relation to expenditure on health.

The central and state government spent large amounts of money on health. The central government expenditure increased from ₹5108.63 crores to ₹66498.88 crores and the state government expenditure from ₹19710.68 crores to ₹263158.30 crores for the period 1999-2000 to 2019-20. Public expenditure on health in India increased from ₹19710.68 crores during the period from 1999-2000 to ₹263158.30 crores during the period 2019-20 with a CAGR of 13.13 percent. There exist variations in growth rate in per-capita public expenditure on health. Per-capita public expenditure on health in India also shows an increasing trend. It increased from ₹197 in 1999-2000 to ₹1962 in 2019-20. The CAGR of per-capita public expenditure on health in India is 11.57 percent during the period from 1999-2000 to 2019-20. Out of the total plan investment outlay the total health investment increased from ₹65.3 in first plan to ₹140135 in eleventh plan. Percentage of plan allocation to health sector out of total plan investment outlay is the lowest in the third plan (2.9 percent) and the highest in the eleventh plan (6.5 percent).

There exists a wide variation in household expenditure on health among different countries in the world. As per the WHO estimates, globally, the percentage change in out-of-pocket expenditure per-capita is low when compared to government expenditure on health. The household expenditure on health in India increased from ₹5671 crores in 1985-86 to ₹537043 crores in 2018-19 with a CAGR of 14.32 percent. The per-capita household expenditure on health in India increased from ₹75 in 1985-86 to ₹4047 in 2018-19 with a CAGR of 12.45 percent. The percentage share of household expenditure on health in total expenditure on health (both public and private) decreased from 72.8 percent in 1999-2000 to 69.2 percent in 2018-19 in India. Out-of-pocket expenditure as a percentage of household expenditure on health decreased from 91.3 percent in 1995-96 to 89.2 percent in 2014. Out-of-pocket expenditure constitutes 67.0 percent of total expenditure on health in 1995-96 and it falls to 62.0 percent in 2014-15. The total expenditure on health (both public and private) in India increased from ₹72554.6 crores during 1999-2000 to ₹776494.5 crores during 2018-19 with a CAGR of 12.58 percent.

Among the various financing schemes, share of household out-of-pocket payment to the current health expenditure diminishes from 71.7 percent in 2000-01 to 65.33 percent in 2015-16. The contribution of government schemes and compulsory mode of contribution to health care financing schemes to the current health expenditure shows a marginal increase from 22.6 percent to 25.03 percent and

expenditure on health can positively influence Gross state domestic product of India. More specifically, the financial return is positive via the health capital formation. In other words, the Gross domestic product and per-capita income of India would be influenced by following independent variables: - (1) public health expenditure in India (2) household expenditure on health in India. The extent and degree of impact of household expenditure is significant in determining the aggregate as well as per-capita income in India. The impact of GDP of India would be high in positively influencing the health spending of the public and households. More specifically, health expenditure and financial return is positively associated and it is statistically significant. Based on the insights from the all-India analysis, this study identified the determinants of household expenditure on health in Kerala.

The study result indicates that following variables are significant:- (1) per-capita government expenditure on health in Kerala (2) Gross State Domestic Product in Kerala (3) remittances to Kerala and (4) medical institutions in Kerala. The regression result shows a marginal positive association between per-capita income and the per-capita household health expenditure in Kerala. Per-capita household expenditure on health also likely has a substantial positive association with per-capita public expenditure on health in Kerala. Medical institutions in Kerala would have a strong positive effect on household health expenditure. The regression analysis indicates that the per-capita public expenditure on health would have a pivotal role in determining the household health expenditure in Kerala when compared to other variables. The regression analysis evaluated the impact of health expenditure on financial income in Kerala. It is evident from the regression results of return on expenditure on health that public expenditure on health in Kerala would influence on Gross State Domestic Product and per-capita income of Kerala.

8.2.4. Nature and Constraints of Household Expenditure on Health

The expenditure at the aggregate level and its impact at the micro level is examined in Thrissur district of Kerala. The study found that the expenditure is different with respect to following factors such as religion, caste, geographical location of the household, occupation of the head of household, education and household income. For instance, there is significant difference between religion of households and average annual household health expenditure per-capita both in rural and urban areas. Average annual household health expenditure per-capita is the

expenditure policy should give special attention into the problems of government sector in the context of neo-liberal policies. Further, an effective mechanism is necessary to regulate the private health institutions in India.

4. Government expenditure is very important in determining the household expenditure on health. Both of these variables will enhance the monetary income in India as well as in Kerala. Therefore, Government should encourage household expenditure on health and regulate private medical institutions in India.
5. The study highlights the importance of mutual-coexistence of household and public expenditure on health in India as well as in Kerala.
6. Spending on health per-capita expenditure in very crucial in a populated country like India.
7. In Kerala, the government should support Non-Resident Indians (NRIs) through various measures such as health cards, pension schemes, and speedy processes for migration. It will positively influence the state income. Further, it will have positive spill-over effects and externalities in the health system of the state. However, state should measures to regulate the administration of private medical institutions which is funded by remittances.
8. At the micro level, household have faced various constraints. Among these constraints, inadequate health education is obvious. Health education is a prerequisite for good health. It will reduce gender inequality of the bottom most sections of the society. Effective incorporation of health education in the education system will produce healthy children.
9. The role of voluntary prepayment in expenditure on health is immense. Therefore, government should allocate more funds to the health insurance scheme of the poor families.
10. Government should take urgent initiatives to start various health schemes to improve the savings position of the households in the area of health expenditure.
11. Government should make some urgent measures to improve the quality and quantity of infrastructure in government hospitals in Kerala especially in the context of Covid-19.
12. Health-card to the poor patients in the private hospitals will be a viable option to converge the services of government and private medical institutions in the state.

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9. Type of Latrine:

Connected to septic tank	
Biogas toilet	
Open pit latrine	

10. Solid waste disposal:

Burial	
Dumping	
Burning	
Composting	
Biogas plant	
Collected by agency	
No method	
Others	
No response	

11. Liquid waste disposal:

Soakage pits	
Connected to sewerage system	
Drainage to outside drain	
Open drainage	
Others	
No response	

12. Type of water storage:

Protected water tank	
Unprotected water tank	
Protected sump	
Unprotected sump	
Utensils	
No specific storage	
Others	
No response	

2.HOUSEHOLD INFORMATION

Sl.No	Age	Gender	Marital Status	Nature of diseases	Type of treatment	Episodes of hospitalisation	Category of Services received	Payment Category of Services received	Average expenditure

CONSTRAINTS RELATED TO HEALTH EXPENDITURE

Accessibility of Governmentt Health Programmes
Financing problems
Insurance problems
Information problem
Infrastructure problem
Problem related to govt. Hospital
Medicine related problem:
Food and life style diseases problem

Communicable Diseases
Typhoid, malaria, cholera
gastroenteritis, jaundice,
mumps, measles, chicken-pox
and TB

Non-Communicable Diseases
Arthritis, rheumatism, CVDs,
diabetes, kidney problems,
asthma, cancer, anemia,
disorders
Respiratory infections, fever, skin diseases,
eye diseases, headache, body ache,
stomach problems, diarrheal diseases,
indigestion, gas acidity.

Appendix 2

Table 1

Sample Framework for Primary Data Collection of Thrissur District in Kerala

Area	Block Panchayath	Grama Panchayath	No. of Selected Wards	No. of Selected Households from Each Ward	Total Households
Rural	Chowannur	Kadavallur	1	28	28
	Cherpu	Avinissery	1	28	28
	Wadakkancherry	Velur	1	28	28
	Thalikulam	Nattika	1	28	28
Total (Rural)					112
Urban		Chavakkad Municipality	2	28	56
		Chalakkudy Municipality	2	28	56
		Kodungallur Municipality	2	28	56
		Thrissur Corporation	2	28	56
Total (Urban)					224
Grand Total (Rural + Urban)					336